

COMPASS 2008 DATA ANALYSIS AND REPORTING

Project 03-03
November 2009

National Center for Freight & Infrastructure Research & Education
College of Engineering
Department of Civil and Environmental Engineering
University of Wisconsin, Madison

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Technical Report Documentation Page

1. Report No. CFIRE 03-03	2. Government Accession No.	3. Recipient's Catalog No. CFDA 20.701	
4. Title and Subtitle Compass 2008 Data Analysis and Reporting		5. Report Date November, 2008	
		6. Performing Organization Code	
7. Author/s Teresa M. Adams, Ph.D. and Emil Juni		8. Performing Organization Report No. CFIRE 03-03	
9. Performing Organization Name and Address National Center for Freight and Infrastructure Research and Education (CFIRE) University of Wisconsin-Madison 1415 Engineering Drive, 2205 EH Madison, WI 53706		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No. 0655-12-00	
12. Sponsoring Organization Name and Address Wisconsin Department of Transportation 4802 Sheboygan Ave Madison, WI 53707		13. Type of Report and Period Covered Final Report [12/1/08 – 12/31/09]	
		14. Sponsoring Agency Code	
15. Supplementary Notes Project completed for the CFIRE with support from the Wisconsin Department of Transportation.			
16. Abstract The <i>Compass Annual Report</i> 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 <i>includes</i> data on traveled ways (paved traffic lanes), shoulders, drainage, roadsides, selected traffic devices, specific aspects of winter maintenance activities, and bridges. The report <i>does not include</i> 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.			
17. Key Words Maintenance, operations, data analysis, shoulders, signs, pavement, bridges, winter	18. Distribution Statement No restrictions. This report is available through the Transportation Research Information Services of the National Transportation Library.		
19. Security Classification (of this report) Unclassified	20. Security Classification (of this page) Unclassified	21. No. Of Pages 87	22. Price -0-

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FINAL

Compass Report

Wisconsin State Highway 2008 Maintenance, Traffic, and Operations Conditions

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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 2008 Compass Annual Report 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 safely 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 is available on the Compass website (http://dotnet/dtid_bho/extranet/compass/reports/index.shtm) from within WisDOT or 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	B	B	B	B	B	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	C	D	C	Traffic and safety devices
Regulatory/warning signs (routine replacement)	C	D	D	F	D	Traffic and safety devices
Mowing	C	C	C	C	C	Roadsides
Edgeline markings	A	A	B	B	B	Traffic and safety devices
Special pavement markings	B	B	A	A	C	Traffic and safety devices
Protective barriers	A	B	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	B	A	Shoulders
Cross-slope (unpaved)	B	B	C	B	B	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	B	B	B	Drainage
Flumes	D	C	C	C	C	Drainage
Noxious weeds	D	C	C	C	C	Roadsides
Storm sewer system	B	B	B	B	B	Drainage
Under-drains/edge-drains	C	B	B	B	B	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	2008	2007	2006	2005	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

Element	What are we spending?					Feature	How much of the system still needs work at the end of the maintenance season?					How well maintained is the system?						
	Dollars spent (in millions) ¹						Condition change: 2007 to 2008 ²	% of system backlogged					2008 Feature grades					
	FY 04	FY 05	FY 06	FY 07	FY 08			2004	2005	2006	2007	2008	A	B	C	D	F	
Traffic & safety (selected)	16.9 18.7 0.54 0.60	15.8 16.9 0.50 0.54	16.4 17.0 0.52 0.54	17.3 17.9 0.54 0.56	17.3 17.3 0.54 0.54	Centerline markings	--	5	5	4	3	3		x				
						Delineators	↓	21	24	21	21	26					x	
						Edgeline markings	--	7	5	6	4	4	x					
						Detour/object marker/recreation/guide signs (emergency repair)	--	0	1	1	0.3	0.4	x					
						Detour/object marker/recreation/guide signs (routine)	↑	46	59	55	56	55						x
						Protective barriers	↑	3	4	4	5	3	x					
						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				
Shoulders	8.2 9.1 0.26 0.29	7.5 8.0 0.24 0.26	8.2 8.5 0.26 0.27	9.8 10.2 0.31 0.32	8.2 8.2 0.26 0.26	Hazardous debris	--	13	12	13	9	9			x			
						Cracking (paved)	--	51	52	50	53	53					x	
						Potholes/raveling (paved)	--	5	7	5	6	6	x					

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 (↑= improved condition/lower backlog percentage, ↓= worse condition/higher backlog percentage). Double arrows indicate a change of 8 or more percentage points.

Element	What are we spending?					Feature	How much of the system still needs work at the end of the maintenance season?					How well maintained is the system?					
	Dollars spent (in millions) ¹						Condition change: 2007 to 2008 ²	% of system backlogged					2008 Feature grades				
	FY 04	FY 05	FY 06	FY 07	FY 08			2004	2005	2006	2007	2008	A	B	C	D	F
						Cross-slope (unpaved)	--	15	14	25	18	18		x			
						Drop-off/build-up (unpaved)	↓	37	36	40	40	44					x
						Erosion (unpaved)	↓	3	3	3	1	2	x				
Drainage	6.5	5.7	5.1	7.2	8.0	Culverts	↓↓↓	17	18	15	20	28			x		
	7.2	6.1	5.3	7.5	8.0	Curb & gutter	↑	6	7	8	8	5	x				
	0.21	0.18	0.16	0.23	0.26	Ditches	--	2	2	3	2	2	x				
	0.23	0.19	0.17	0.24	0.26	Flumes	↓↓↓	32	19	27	25	39				x	
						Storm sewer system	↓	9	9	9	11	16		x			
						Under-drains/edge-drains	↓↓↓	14	20	13	20	30			x		
						Fences	↑	4	2	3	2	1	x				
Roadsides	19.4	20.2	21.9	24.0	19.4	Litter	↓	70	62	64	60	61				x	
	21.5	21.7	22.7	24.9	19.4	Mowing	↓	40	35	39	36	42			x		
	0.62	0.64	0.69	0.76	0.61	Mowing for vision	↓	26	n/a	2	2	3	x				
	0.69	0.69	0.72	0.79	0.61	Noxious weeds	↓↓↓	30	29	34	29	38				x	
						Woody vegetation	↑	4	3	3	3	2	x				
						Woody veg. control for vision	↑	1	1	1	2	1	x				

Wisconsin 2008: Targets for Highway Maintenance Conditions

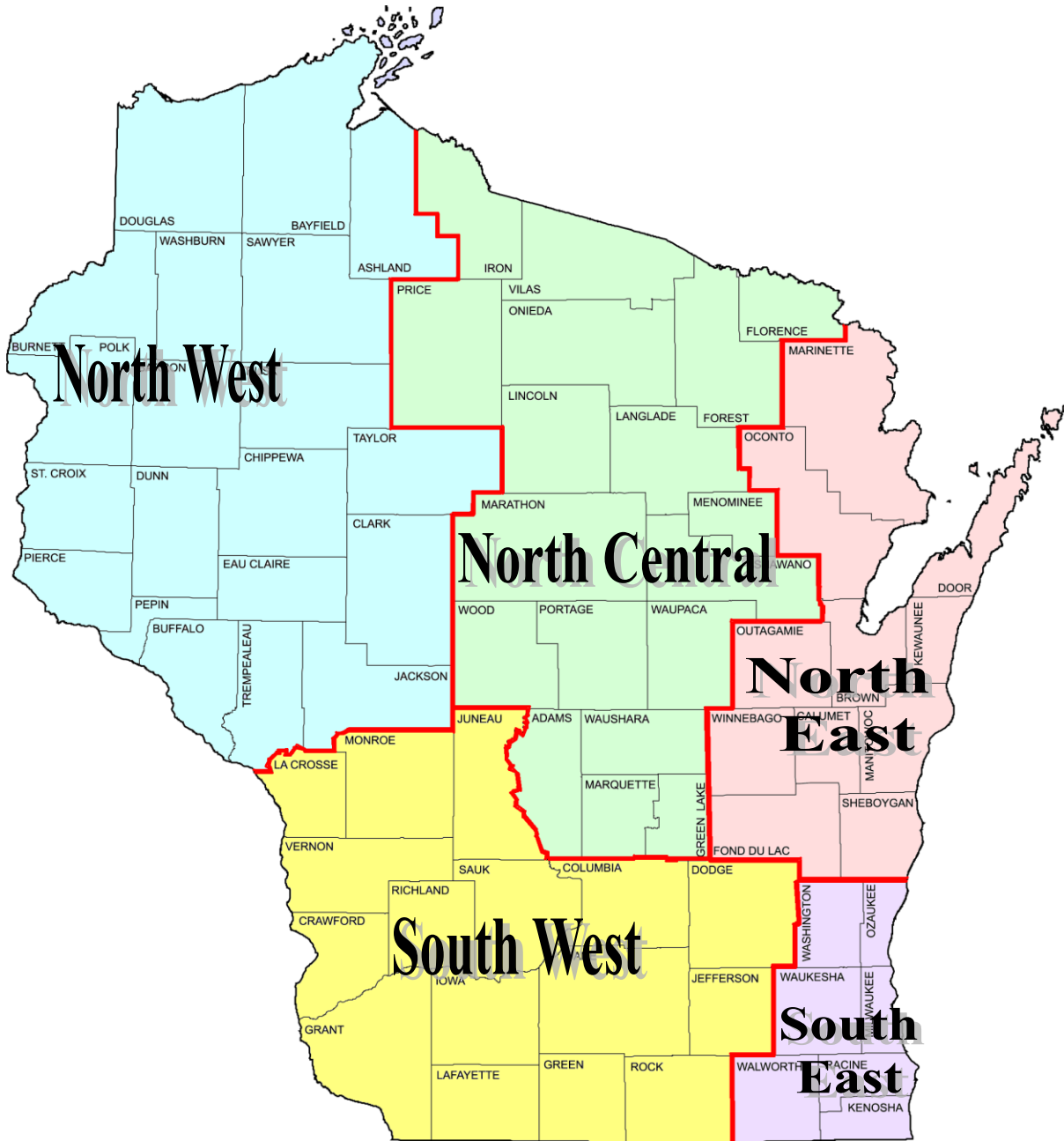
Targets are set annually, and are intended to reflect priorities for that year, given fiscal constraints. They are a measure of effective management, not system condition.

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

Contribution Category	Feature	Element	Statewide						Regions					
			Actual % backlog 2008	Target % backlog 2008	On target ³	Gap if target missed						Worse condition	On Target	Better condition
						Worse condition			Better condition					
						20	10	0	0	10	20			
Ride/Comfort	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	⊙								NE, NW, SE	NC, SW
	Cross-slope (unpaved)	Shoulders	18	20	⊙								NC, NE, NW, SW	SE
	Detour/object marker/recreation/guide signs (emergency repair)	Traffic and safety devices	0	1	⊙								All	
Stewardship	Cracking (paved)	Shoulders	53	60					7				NE, SE	NC, NW, SW
	Erosion (unpaved)	Shoulders	2	5	⊙								All	
	Culverts	Drainage	28	15			13					All		
	Curb & gutter	Drainage	5	10	⊙							SW	NC, NW	NE, SE
	Ditches	Drainage	2	5	⊙								All	
	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	⊙							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

Asphalt traveled way distress	% of miles ⁴ in condition ⁵			
	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 distress	% of miles in condition			
	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 ¼” and ½” in depth. And 1% of roads are in poor condition for rutting, with ruts over ½” 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 distress	Condition	% of miles in Region				
		NC	NE	NW	SE	SW
Alligator Cracking	Excellent	98%	97%	99%	95%	97%
	Fair	1%	2%	1%	1%	2%
	Moderate	1%	1%	0%	2%	1%
	Poor	0%	0%	0%	1%	0%
Block Cracking	Excellent	94%	95%	98%	95%	94%
	Fair	2%	1%	1%	1%	2%
	Moderate	3%	3%	1%	2%	2%
	Poor	1%	1%	0%	2%	2%
Edge Raveling	Excellent	100%	99%	92%	97%	82%
	Fair	0%	1%	7%	2%	15%
	Moderate	0%	0%	0%	0%	1%
	Poor	0%	0%	1%	0%	2%
Flushing	Excellent	100%	100%	98%	100%	100%
	Fair	0%	0%	1%	0%	0%
	Poor	0%	0%	1%	0%	0%
Longitudinal Cracking	Excellent	31%	27%	35%	21%	30%
	Fair	59%	56%	51%	48%	46%
	Moderate	9%	17%	11%	31%	20%
	Poor	0%	1%	3%	0%	4%
Longitudinal Distortion	Excellent	100%	100%	100%	100%	100%
	Fair	0%	0%	0%	0%	0%
	Moderate	0%	0%	0%	0%	0%
	Poor	0%	0%	0%	0%	0%
Patch Deterioration	Excellent	95%	94%	95%	80%	88%
	Fair	1%	2%	1%	9%	2%
	Moderate	2%	2%	1%	6%	3%
	Poor	2%	2%	3%	6%	7%
Rutting	Excellent	92%	97%	82%	94%	84%
	Fair	8%	3%	17%	6%	16%
	Poor	0%	0%	1%	0%	1%
Surface Raveling	Excellent	100%	100%	100%	100%	100%
	Fair	0%	0%	0%	0%	0%
	Moderate	0%	0%	0%	0%	0%
	Poor	0%	0%	0%	0%	0%
Transverse Cracking	Excellent	35%	31%	30%	21%	42%
	Fair	52%	56%	55%	48%	37%
	Moderate	13%	13%	14%	30%	19%
	Poor	0%	0%	2%	0%	3%
Transverse Distortion	Excellent	100%	100%	100%	100%	100%
	Fair	0%	0%	0%	0%	0%
	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
Distressed Joint/Cracks	Excellent	80%	84%	73%	80%	74%
	Fair	16%	13%	17%	14%	16%
	Moderate	4%	3%	10%	4%	9%
	Poor	0%	0%	1%	2%	1%
Longitudinal Joint Distress	Excellent	87%	83%	100%	75%	100%
	Fair	6%	8%	0%	10%	0%
	Moderate	3%	4%	0%	7%	0%
	Poor	3%	5%	0%	7%	0%
Patch Deterioration	Excellent	84%	79%	80%	81%	79%
	Fair	11%	16%	15%	12%	14%
	Moderate	3%	4%	4%	4%	6%
	Poor	2%	1%	1%	3%	1%
Surface Distress	Excellent	100%	99%	86%	99%	91%
	Fair	0%	0%	4%	0%	7%
	Moderate	0%	1%	10%	1%	2%
Transverse Faulting	Excellent	99%	91%	15%	82%	23%
	Fair	1%	8%	85%	16%	77%
	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

Element	Feature	How much of the system needs work at the end of the season? <i>What did it cost to achieve this condition?</i>					
		Region					
		Percent of System Backlogged					
		NC	NE	NW	SE	SW	Statewide
Traffic and safety (selected devices)	Centerline markings	1	2	5	3	3	3
	Delineators	15	15	12	41	34	26
	Edgeline markings	6	1	6	5	4	4
	Detour/object marker/recreation/guide signs (emergency repair)	0	0	1	1	0	0
	Detour/object marker/recreation/guide signs (routine)	51	65	55	51	54	55
	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
	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	In the No Mow Zone	
Why is it deficient?	Safety/Equipment	6	0	9	0	
		2%	0%	4%	0%	
	Mowed by Property Owner	248	396	73	1	
		85%	96%	31%	33%	
	Woody Vegetation Control	8	0	2	0	
		3%	0%	1%	0%	
	Maintenance Decision	89	80	219	2	
		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

	Regulatory/Warning/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

Region	Regulatory/Warning/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
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

Region	Regulatory/Warning/School Signs				Detour/object marker/recreation/guide Signs				
	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	
NC	2005	26,164	45%	11,746	6.1	18,480	66%	12,177	6.6
	2006	26,117	35%	9,097	5.4	20,152	61%	12,342	6.5
	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
NE	2005	22,246	47%	10,346	5.4	20,367	62%	12,647	5.5
	2006	21,520	39%	8,463	5	21,517	60%	12,953	5.5
	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
NW	2005	36,737	37%	13,606	5.4	29,848	59%	17,541	5.2
	2006	34,087	26%	8,883	4.7	31,874	52%	16,544	5.1
	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
SE	2005	32,872	32%	10,533	4.9	21,077	50%	10,439	5.7
	2006	35,226	30%	10,426	4.7	26,987	48%	12,835	5.7
	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
SW	2005	42,166	45%	18,861	6.3	23,921	61%	14,645	7.0
	2006	40,792	31%	12,588	5.1	25,832	56%	14,377	6.9
	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		Region					Statewide	
Grade	Type	NC	NE	NW	SE	SW	Total	Percentage
1	Non-Reflective	5	75	355	124	107	666	0.2%
	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%
2	Type D - Diamond Grade	32	15	4	4	122	177	0.1%
	Type F - Fluorescent	529	196	341	795	739	2,600	0.9%
	Type H - High Intensity	16,788	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

Region	2006		2007		2008	
	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	126,087	139,621	146,476	116,108	171,440
	56%	44%	49%	51%	40%	60%

Wisconsin and Regions 2008: Sign Age Distribution

Regulatory/warning/school signs

	Years prior to the end of service life							Years beyond service life						Total
	6-10	5	4	3	2	1	0	1	2	3	4	5-10	>10	
NC	17,592	915	913	1,267	1,071	1,039	848	609	867	1,297	774	1,461	264	28,917
	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
	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
	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
	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
	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
	59%	3%	3%	3%	2%	3%	3%	4%	3%	3%	3%	7%	2%	100%

Detour/object marker/recreation/guide signs

	Years prior to the end of service life							Years beyond service life						Total
	6-10	5	4	3	2	1	0	1	2	3	4	5-10	>10	
NC	5,468	314	981	322	521	536	879	770	946	1,462	1,022	3,527	1,729	18,477
	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
	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
	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
	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
	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
	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 pavement	2 hours 38 minutes after the storm ended	2 hours 4 minutes after the storm ended	1 hour 55 minutes after the storm ended	1 hour 28 minutes after the storm ended	3 hour 16 minutes after the storm 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 crash	26 per 100 million vehicle miles traveled	25 per 100 million vehicle miles traveled	24 per 100 million vehicle miles traveled	23 per 100 million vehicle miles traveled	43 per 100 million vehicle miles traveled

Key Observations:

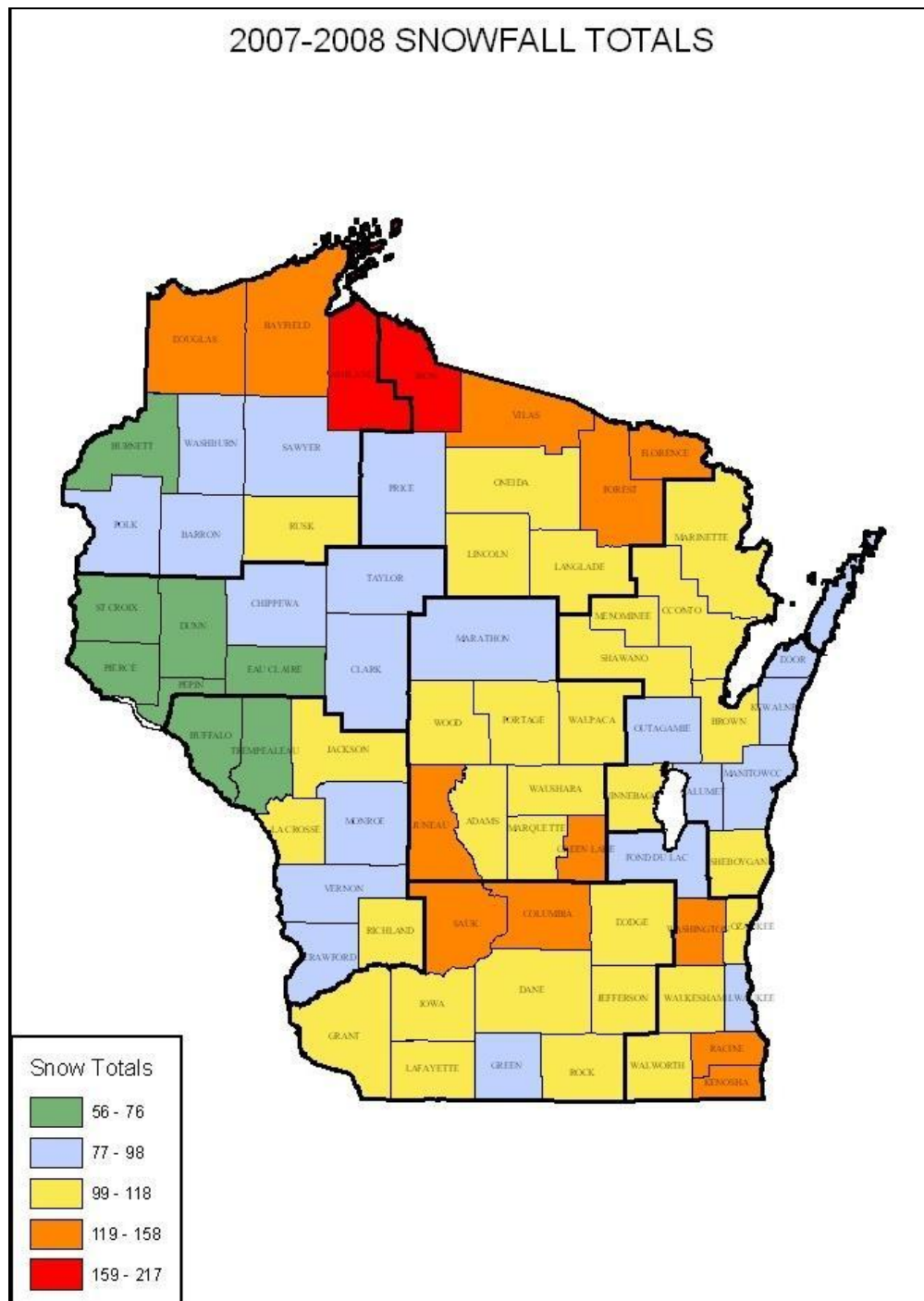
- This winter was significantly more severe than normal in the southern half of the state, with many locations shattering seasonal snowfall records. In northern Wisconsin, snowfall was closer to an average winter. Snowfall came relatively early across the southern part of the state, and never really 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.

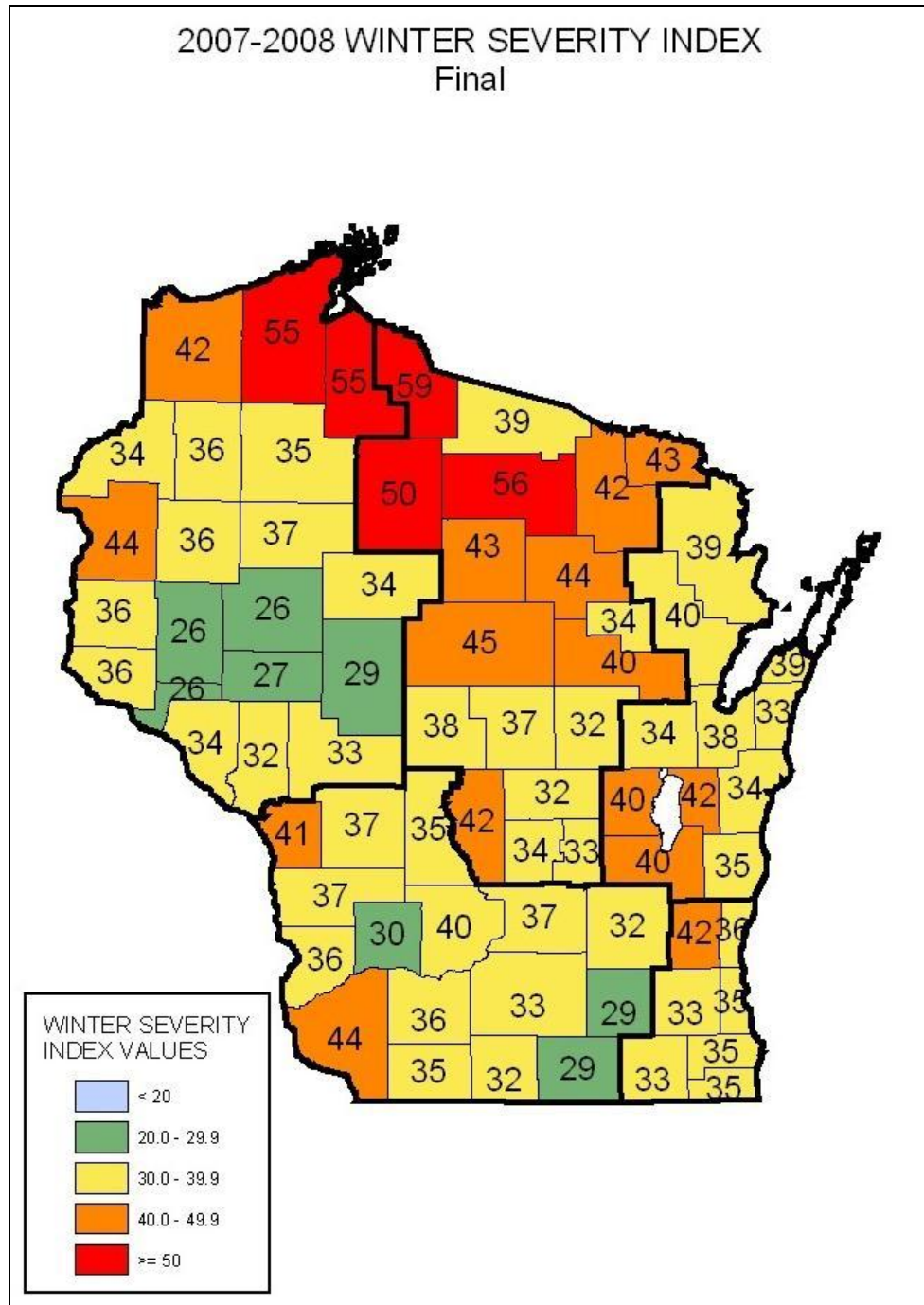
The National Weather Service (NWS) map below shows the snowfall for Wisconsin during the period July 1, 2007 to June 30, 2008.



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
Infrastructure	Lane miles	31,810 miles	33,022 miles	33,221 miles	33,297 miles
	Road Weather Information System (RWIS) stations	59	59	58	59
Material usage⁴	Salt	407,924 tons 12.8 tons per lane mile	426,723 tons 12.9 tons per lane mile	405,793 tons 12.2 tons per lane mile	644,485 tons 19.4 tons per lane mile
	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.
Services	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.
	Public service announcements aired	6,382 total 5,735 radio; 647 TV	6,989 total 6,353 radio; 636 TV	5,545 total 4,966 radio; 579 TV	6,786 total 6,109 radio; 677 TV
	Cost of public service announcements	\$31,500	\$31,500	\$35,000	\$35,000 (\$301,463 market value)
Management and Technology	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%)
	Salt spreaders equipped with ground-speed controller unit	1316 of 2647 (50%)	1316 of 2647 (50%)	1332 of 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
	Counties that used anti-icing agents during 2007-08 winter season	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 category		Average time to bare/wet pavement (hours after end of storm)*				
		2003 - 04	2004 - 05	2005 - 06	2006 - 07	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.

Region	Average WSI				Cost/LM				Relative cost per WSI point			
	2004-05	2005-06	2006-07	2007-08	2004-05	2005-06	2006-07	2007-08	2004-05	2005-06	2006-07	2007-08
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

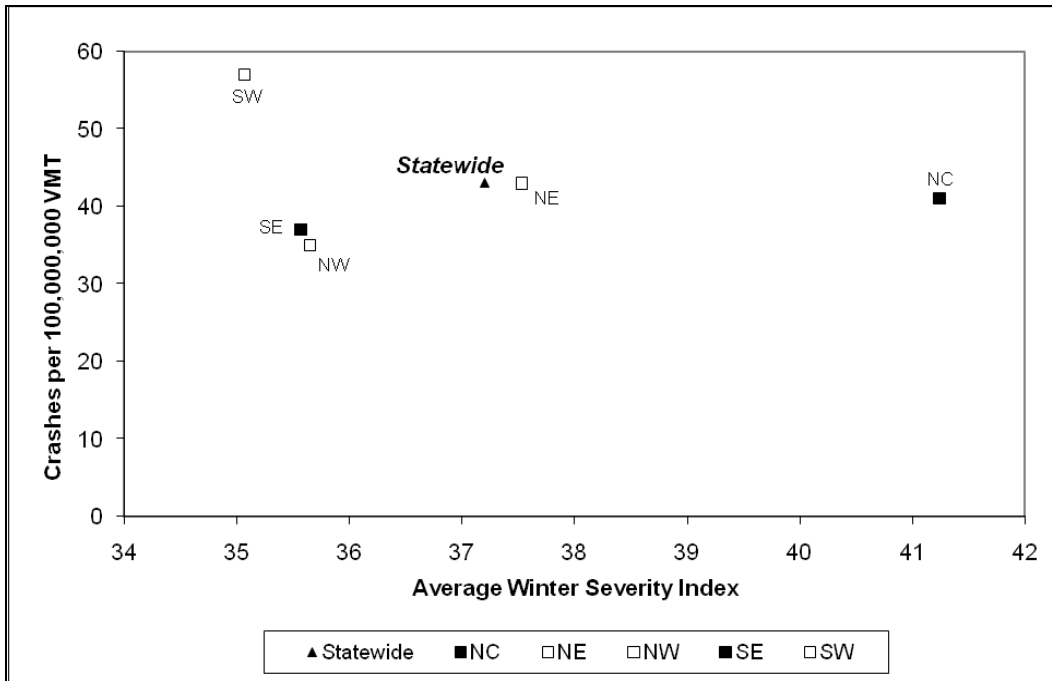
Winter weather crashes per vehicle miles traveled (VMT)

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.

Scope	VMT* (100 million)	Crashes	Crashes per 100 million VMT				Average Winter Severity Index			
			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 through 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
A	Brown, Dane, Eau Claire, Kenosha, La Crosse, Marathon, Milwaukee, Ozaukee, Portage, Racine, Waukesha, Winnebago
B	Chippewa, Columbia, Dodge, Dunn, Jefferson, Manitowoc, Marquette, Oneida, Outagamie, Rock, Sauk, Shawano, Sheboygan, St. Croix, Walworth, Washington, Waushara
C	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

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

Region 2008: Bridge Condition Distribution

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

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

Wisconsin and Regions 2008: Bridge Maintenance Needs

Region	Year	Percent of Bridges needing maintenance						# of Bridges needing maintenance							
		Maintenance Action													
		Deck – Seal Surface Cracks		Expansion Joints – Seal		Misc. – Cut Brush		Approach – Seal Approach to Paving Block		Deck – Patching		Drainage - Repair Washouts / Erosion		Approach - Wedge Approach	
NC	2006	24%	144	8%	48	2%	12	1%	4	10%	61	1%	8	2%	14
	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
NE	2006	13%	102	22%	167	2%	18	2%	15	6%	48	7%	56	1%	5
	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
NW	2006	8%	78	1%	11	8%	85	17%	175	4%	37	5%	50	3%	31
	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
SE	2006	12%	122	15%	150	13%	138	6%	63	8%	87	11%	112	11%	109
	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
SW	2006	8%	114	3%	39	5%	68	5%	74	2%	33	3%	46	4%	65
	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
statewide	2006	11%	560	8%	415	7%	321	7%	331	5%	266	6%	272	5%	224
	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 months
- Load Posted: 12 months
- In-depth: 72 months
- Fracture Critical: 24 months
- Underwater Diving: 60 months
- Underwater Probe/Visual: 24 months

Region	Special Inspection Type						
	% of bridges backlogged for inspection type # of bridges backlogged for inspection						
	Initial	Routine	Load Posted	In-depth	Fracture Critical	Underwater Diving	Underwater Probe/Visual
NC	2%	0%	--	7%	0%	0%	44%
	2	1	--	3	0	0	156
NE	0%	1%	100%	29%	3%	0%	34%
	0	8	5	4	1	0	85
NW	0%	0%	100%	83%	6%	1%	22%
	0	1	2	10	1	1	114
SE	2%	2%	100%	8%	10%	13%	46%
	2	25	9	7	1	1	120
SW	2%	1%	100%	0%	3%	2%	28%
	3	10	3	9	1	2	99
Statewide	1%	1%	100%	19%	4%	1%	33%
	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**

A. Program Contributors

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

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B. Compass Feature Thresholds and Grade Ranges

Element	Feature	Threshold	Ranges for System Grades <i>Grade determined by percent backlogged shown: top of range</i>				
			A	B	C	D	F
Traffic control & safety devices (selected)	Centerline markings	Line with > 20% paint missing (by mile)	2%	5%	9%	15%	>15%
	Edgeline markings	Line with > 20% paint missing (by mile)	4%	9%	18%	30%	>30%
	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 > ¼ 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)	7%	18%	35%	60%	>60%
Drainage	Culverts	Culverts that are >25% obstructed 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 <i>Grade determined by percent backlogged shown: top of range</i>				
			A	B	C	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%
	Roadsides	Fences	Fence missing OR not functioning as intended (by LF of fence)	4%	9%	18%	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%
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

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

		<i>This Feature Contributes Primarily To:</i>				
Element	Feature	Critical Safety	Safety/Mobility	Ride/Comfort	Stewardship	Aesthetics
Traffic and Safety	Centerline Markings	✓				
	Delineators		✓			
	Edgeline Markings		✓			
	Detour/object marker/recreation/guide signs (emerg. repair)		✓			
	Detour/object marker/recreation/guide signs (routine repair)			✓		
	Protective Barriers		✓			
	Reg./Warning Signs (emerg.)	✓				
	Reg./Warning Signs (routine)		✓			
	Special Pavement Markings		✓			
Shoulders	Hazardous Debris	✓				
	Cracking (paved)				✓	
	Potholes/Raveling (paved)			✓		
	Cross-Slope (unpaved)			✓		
	Drop-off/Build-up (unpaved)	✓				
	Erosion (unpaved)				✓	

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

Category Definitions:

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

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

Ride/comfort: 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.

Aesthetics: 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 Target Percent Backlogged and Feature Grade - Statewide	2005 Target Percent Backlogged and Feature Grade - Statewide	2006 Target Percent Backlogged and Feature Grade - Statewide	2007 Target Percent Backlogged and Feature Grade - Statewide	2004 Actual Percent Backlogged and Feature Grade - Statewide	2005 Actual Percent Backlogged and Feature Grade - Statewide	2006 Actual Percent Backlogged and Feature Grade - Statewide*	2008 Target Percent Backlogged and Feature Grade - Statewide
Asphalt Traveled Way	Alligator Cracking	3=A	5=A	5=A	5=A	1=A	1=A	2=A	5=A
	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 Traveled Way	Distressed Joints/Cracks	43=D	43=D	43=D	43=D	34=D	33=D	18=C	43=D
	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



2008 Compass Rating Sheet
Wisconsin Department of Transportation

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

Segments can only be discarded for the following reasons. If this segment meets one of these criteria, please check the appropriate box and add the next highest numbered "spare" segment to your list of segments to be rated. Please enter the reject reason in the database.

- | | |
|--|---|
| <input type="checkbox"/> A piece or all of the segment falls on a bridge. | <input type="checkbox"/> A piece or all of the segment is currently under construction. |
| <input type="checkbox"/> We believe it would be unsafe to rate this segment. | <input type="checkbox"/> We cannot locate this segment. |
| <input type="checkbox"/> An organization other than WisDOT is responsible for the maintenance of ANY of the four elements within this section. | |

Shoulders	Standard	Value	Comments
Hazardous Debris (S-1)	Number of items large enough to cause a safety hazard		
Paved Shoulder <input type="checkbox"/> None (If none, skip to Unpaved Shoulder)			
Cracking (S-2)	Linear ft. of unsealed cracks greater than 1/4" (up to 150' on undivided or 300' on divided hwy)		
Potholes/Raveling (S-3)	Total sq. ft. of BOTH potholes AND raveling greater than 1 ft ² x 1" deep		
Unpaved Shoulder <input type="checkbox"/> 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 angle		
Erosion (S-6)	Linear ft. with ruts deeper than 2 inches		

Drainage	Value & Repair/Clean	Comments
Ditches (D-1) <input type="checkbox"/> None Total linear ft. of ditch	<input type="checkbox"/> Repair <input type="checkbox"/> Clean	
Linear ft. with more than minimal erosion of ditch line OR obstructions to the flow of water requiring action		
Culverts (D-2) <input type="checkbox"/> None Total number of culverts	<input type="checkbox"/> Repair <input type="checkbox"/> Clean	
Number more than 25% obstructed OR where a sharp object (a shovel) can be pushed thru bottom of pipe OR pipe is collapsing		
Under/Edge Drain (D-3) <input type="checkbox"/> None Total number of drains	<input type="checkbox"/> Repair <input type="checkbox"/> Clean	
Number with outlets, endwalls or end protection closed or crushed OR where water flow or end protection is obstructed		
Flumes (D-4) <input type="checkbox"/> None Total number of flumes	<input type="checkbox"/> Repair <input type="checkbox"/> Clean	
Number not functioning as intended OR deteriorated to the point that they are causing erosion		
Curb & Gutter (D-5) <input type="checkbox"/> None Total linear ft. of curb and gutter	<input type="checkbox"/> Repair <input type="checkbox"/> Clean	
Linear ft. with severe structural distress OR more than 1" structural misalignment OR more than 1" of debris build up in the curb line		
Storm Sewer (D-6) <input type="checkbox"/> 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)	Number of pieces (up to 15) of litter & non-natural encroachments on shoulders & roadside visible at posted speed, but not causing a safety threat.....		
Mowing (R-2)	Mowing meets standard..... If NO, grass is mowed: <input type="checkbox"/> too wide <input type="checkbox"/> too short <input type="checkbox"/> too tall <input type="checkbox"/> in a no mow zone If NO, why: <input type="checkbox"/> safety/equipment <input type="checkbox"/> mowed by property owner <input type="checkbox"/> woody vegetation control <input type="checkbox"/> maintenance decision		<input type="checkbox"/> yes <input type="checkbox"/> no
Mowing Vision (R-2)	<input type="checkbox"/> None	Grass blocks a vision triangle or sightlines.....	<input type="checkbox"/> yes <input type="checkbox"/> no
Noxious Weeds (R-3)	Visible clumps of noxious weeds are present.....		<input type="checkbox"/> yes <input type="checkbox"/> no
Woody Vegetation (R-4)	Number of instances in which a tree > 4" in diameter is present in the clear zone OR trees and/or branches overhang the roadway or shoulder creating a clearance problem.....		
Woody Vegetation Vision (R-4)	Woody vegetation causes a vision problem.....		<input type="checkbox"/> yes <input type="checkbox"/> no
Fences (R-5)	<input type="checkbox"/> None	Total linear ft. of right-of-way fence..... Linear ft. missing OR not functioning as intended.....	

Traffic Control and Safety			Value	Comments
Centerline Markings (T-1)	<input type="checkbox"/> None	Over total segment, > 20% centerline paint missing.....	<input type="checkbox"/> yes <input type="checkbox"/> no	
Edgeline Markings (T-1)	<input type="checkbox"/> None	Over total segment, > 20% edgeline paint missing.....	<input type="checkbox"/> yes <input type="checkbox"/> no	
Special Pavement Markings (T-2)	<input type="checkbox"/> None	Total number..... Number missing OR not functioning as intended.....		
Regulatory/ Warning Signs (T-3)	<input type="checkbox"/> None	Total number..... Number missing OR not visible at posted speed...		
Other Signs (T-4)	<input type="checkbox"/> None	Total number..... Number missing OR not visible at posted speed...		
Delineators (T-5)	<input type="checkbox"/> None	Total number..... Number missing OR not visible at posted speed OR damaged.....		
Protective Barriers (T-6)	<input type="checkbox"/> 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).....	<input type="checkbox"/> Beam Guard <input type="checkbox"/> Damaged Terminal <input type="checkbox"/> Concrete Barrier <input type="checkbox"/> Cable Guard	

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
X3	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

Region	County	Condition												
		Traffic							Shoulders					
		Centerline	Delineators	Edge/line 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)
NC	ADAMS	0%	--	0%	0%	--	0%	--	0%	27%	9%	9%	43%	0%
		11	--	11	1	--	3	--	11	11	11	11	7	7
	FLORENCE	0%	--	0%	--	100%	0%	--	0%	60%	0%	0%	60%	0%
		5	--	5	--	1	3	--	5	5	5	5	5	5
	FOREST	0%	--	0%	0%	0%	0%	--	0%	43%	0%	44%	56%	0%
		11	--	9	9	1	8	--	11	7	7	9	18	18
	GREEN LAKE	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%
		5	1	5	1	1	1	1	5	5	5	5	2	2
	IRON	5%	--	42%	0%	--	0%	--	11%	29%	0%	26%	9%	0%
		19	--	19	2	--	4	--	19	7	7	19	11	11
	LANGLADE	0%	0%	0%	0%	--	0%	--	0%	29%	0%	5%	21%	0%
		20	1	20	3	--	4	--	20	14	14	20	19	19

		Condition % backlogged # of observations												
		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)
	LINCOLN	0%	0%	0%	0%	--	0%	0%	13%	71%	21%	36%	39%	0%
		15	2	15	3	--	10	2	15	14	14	14	18	18
	MARATHON	0%	22%	0%	0%	0%	0%	25%	5%	71%	18%	20%	44%	0%
		21	6	21	6	1	13	5	21	17	17	20	27	27
	MARQUETTE	0%	7%	0%	0%	0%	0%	--	0%	50%	0%	0%	71%	0%
		10	3	10	5	1	4	--	10	10	10	10	14	14
	MENOMINEE	0%	--	67%	0%	--	0%	--	0%	0%	0%	0%	100%	0%
		4	--	3	1	--	1	--	4	1	1	3	2	2
	ONEIDA	0%	--	0%	0%	--	0%	0%	0%	50%	0%	5%	31%	0%
		23	--	23	6	--	7	1	23	22	22	22	13	13
	PORTAGE	0%	36%	0%	0%	--	0%	0%	21%	67%	0%	14%	0%	0%
		14	4	14	6	--	6	2	14	12	12	14	13	13
	PRICE	0%	0%	0%	0%	0%	0%	--	6%	36%	9%	19%	8%	0%
		16	1	16	3	1	3	--	16	11	11	16	13	13
	SHAWANO	0%	0%	0%	0%	--	5%	0%	22%	81%	0%	59%	50%	0%
		18	2	17	4	--	7	1	18	16	16	17	12	12

		Condition % backlogged # of observations													
		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)	
	VILAS	0%	100%	8%	0%	14%	0%	--	23%	67%	0%	23%	67%	7%	
		13	1	13	7	2	7	--	13	9	9	13	15	15	
	WAUPACA	0%	0%	21%	0%	--	0%	0%	14%	13%	0%	21%	38%	0%	
		14	2	14	13	--	10	1	14	8	8	14	16	16	
	WAUSHARA	0%	--	0%	7%	--	0%	0%	0%	0%	0%	9%	0%	0%	
		11	--	11	7	--	7	1	11	9	9	11	11	11	
	WOOD	10%	--	10%	0%	--	0%	0%	0%	0%	0%	13%	56%	0%	
		10	--	10	7	--	5	3	10	4	4	8	16	16	
	NE	BROWN	4%	14%	4%	0%	4%	0%	14%	8%	76%	4%	13%	86%	3%
			25	17	25	18	5	16	5	25	25	25	24	29	29
CALUMET		0%	--	0%	0%	--	0%	0%	22%	56%	11%	0%	20%	0%	
		9	--	9	7	--	6	2	9	9	9	8	15	15	
DOOR		0%	--	0%	0%	--	0%	0%	5%	58%	5%	21%	54%	8%	
		20	--	20	3	--	11	3	20	19	19	19	13	13	
FOND DU LAC		3%	60%	0%	0%	18%	0%	0%	3%	83%	7%	31%	57%	0%	
		30	4	29	6	2	13	7	30	29	29	29	28	28	

		Condition % backlogged # of observations													
		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)	
	KEWAUNEE	0%	--	0%	0%	--	0%	50%	0%	56%	0%	56%	50%	0%	
		9	--	9	4	--	3	2	9	9	9	9	8	8	
	MANITOWOC	0%	0%	0%	0%	--	0%	0%	0%	0%	92%	23%	--	56%	0%
		13	4	13	10	--	10	3	13	13	13	--	16	16	
	MARINETTE	3%	14%	0%	0%	0%	8%	0%	3%	68%	4%	13%	35%	0%	
		31	2	31	12	1	12	2	31	28	28	31	23	23	
	OCONTO	0%	10%	0%	0%	0%	0%	--	0%	44%	0%	0%	19%	0%	
		27	6	27	8	2	5	--	27	25	25	27	21	21	
	OUTAGAMIE	0%	13%	0%	0%	0%	0%	0%	25%	35%	5%	13%	38%	0%	
		24	8	24	13	8	12	4	24	20	20	23	24	24	
	SHEBOYGAN	4%	3%	4%	0%	0%	0%	0%	19%	38%	4%	20%	40%	0%	
		26	6	25	10	2	9	5	26	26	26	25	25	25	
	WINNEBAGO	0%	5%	0%	0%	0%	0%	18%	5%	18%	0%	0%	38%	3%	
		22	6	21	14	3	10	5	22	22	22	3	29	29	
	NW	ASHLAND	30%	--	20%	0%	--	0%	--	0%	33%	11%	20%	36%	0%
			10	--	10	2	--	4	--	10	9	9	10	11	11

Region	County	Condition % backlogged # of observations												
		Traffic							Shoulders					
		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)
	BARRON	17%	0%	0%	0%	--	0%	0%	17%	67%	0%	33%	38%	0%
		6	1	6	8	--	4	1	6	6	6	6	16	16
	BAYFIELD	0%	--	10%	0%	0%	0%	--	0%	50%	17%	30%	33%	0%
		10	--	10	4	1	5	--	10	6	6	10	12	12
	BUFFALO	9%	40%	36%	0%	12%	0%	--	0%	71%	29%	82%	87%	0%
		11	1	11	3	1	8	--	11	7	7	11	15	15
	BURNETT	0%	0%	0%	17%	0%	0%	0%	0%	25%	0%	0%	57%	0%
		6	1	6	4	1	6	1	6	4	4	6	7	7
	CHIPPEWA	4%	0%	4%	0%	0%	0%	0%	0%	14%	0%	0%	27%	0%
		23	3	23	5	1	6	1	23	21	21	23	15	15
	CLARK	0%	5%	0%	0%	0%	0%	--	0%	38%	0%	0%	31%	0%
		13	3	13	6	3	4	--	13	13	13	13	16	16
	DOUGLAS	0%	--	0%	--	--	0%	--	0%	50%	0%	0%	50%	0%
		9	--	9	--	--	2	--	9	8	8	9	8	8
	DUNN	0%	19%	0%	0%	0%	0%	--	7%	57%	14%	27%	36%	9%
		15	3	15	3	2	3	--	15	14	14	15	11	11

Region	County	Condition % backlogged # of observations												
		Traffic							Shoulders					
		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)
	EAU CLAIRE	0%	6%	0%	0%	0%	0%	0%	21%	85%	8%	0%	33%	0%
		14	7	13	5	4	7	5	14	13	13	12	15	15
	JACKSON	8%	0%	8%	0%	0%	0%	0%	0%	50%	10%	23%	47%	0%
		13	4	13	3	3	3	1	13	10	10	13	15	15
	PEPIN	0%	--	0%	0%	--	0%	--	0%	80%	0%	60%	100%	100%
		5	--	5	1	--	1	--	5	5	5	5	1	1
	PIERCE	0%	37%	0%	0%	1%	0%	0%	14%	80%	0%	0%	18%	0%
		7	7	7	4	7	6	1	7	5	5	7	11	11
	POLK	5%	0%	0%	0%	--	0%	0%	9%	33%	10%	50%	38%	0%
		22	1	22	6	--	8	1	22	21	21	22	13	13
	RUSK	0%	--	0%	0%	--	0%	0%	0%	11%	11%	56%	30%	0%
		9	--	9	2	--	4	1	9	9	9	9	10	10
	SAWYER	6%	0%	0%	0%	--	0%	--	0%	7%	0%	6%	38%	0%
		17	2	17	4	--	4	--	17	14	14	17	13	13
	ST. CROIX	5%	5%	5%	0%	0%	0%	--	11%	68%	5%	26%	10%	0%
		19	6	19	6	1	7	--	19	19	19	19	20	20

		Condition % backlogged # of observations												
		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)
	TAYLOR	0%	--	0%	0%	--	0%	0%	0%	44%	0%	0%	11%	0%
		9	--	9	6	--	3	1	9	9	9	9	9	9
	TREMPEALEAU	18%	--	27%	0%	--	40%	--	0%	56%	0%	73%	18%	0%
		11	--	11	3	--	4	--	11	9	9	11	11	11
	WASHBURN	0%	0%	9%	0%	--	0%	--	9%	27%	9%	18%	30%	0%
		11	4	11	1	--	4	--	11	11	11	11	10	10
SE	KENOSHA	3%	34%	3%	0%	0%	0%	4%	7%	24%	8%	22%	78%	0%
		29	8	29	18	7	20	13	29	25	25	23	18	18
	MILWAUKEE	5%	60%	19%	1%	6%	3%	9%	5%	64%	18%	50%	90%	0%
		39	3	27	32	16	24	33	39	22	22	12	10	10
	OZAUKEE	0%	17%	0%	0%	0%	0%	0%	0%	63%	0%	6%	67%	7%
		19	9	19	7	7	10	5	19	16	16	16	15	15
	RACINE	0%	76%	3%	0%	0%	0%	0%	0%	54%	18%	40%	37%	0%
		31	3	31	9	3	17	5	31	28	28	25	19	19
	WALWORTH	5%	64%	5%	0%	6%	0%	10%	5%	71%	13%	0%	38%	3%
		38	8	38	15	4	14	6	38	38	38	38	39	39

		Condition % backlogged # of observations												
		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)
	WASHINGTON	3%	33%	0%	0%	4%	4%	12%	3%	87%	3%	6%	71%	0%
		32	6	32	17	5	19	9	32	31	31	32	14	14
	WAUKESHA	4%	8%	4%	2%	0%	1%	7%	10%	65%	13%	3%	68%	4%
		51	17	51	26	7	38	21	51	40	40	37	53	53
SW	COLUMBIA	0%	37%	0%	0%	0%	0%	0%	50%	73%	0%	69%	86%	0%
		16	3	16	6	2	8	1	16	11	11	16	14	14
	CRAWFORD	0%	85%	11%	0%	0%	5%	--	0%	0%	0%	13%	67%	0%
		9	6	9	3	3	9	--	9	8	8	8	18	18
	DANE	7%	19%	7%	0%	0%	0%	5%	7%	74%	13%	4%	25%	3%
		28	4	27	16	3	13	9	28	23	23	28	32	32
	DODGE	0%	32%	0%	0%	0%	0%	38%	38%	69%	15%	15%	70%	0%
		13	7	13	10	3	8	5	13	13	13	13	20	20
	GRANT	0%	13%	0%	0%	0%	11%	--	0%	25%	0%	11%	33%	0%
		9	4	9	3	1	5	--	9	8	8	9	12	12
	GREEN	0%	--	11%	0%	--	--	0%	0%	40%	0%	0%	29%	14%
		9	--	9	4	--	--	1	9	5	5	9	7	7

		Condition % backlogged # of observations												
		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)
	IOWA	0%	6%	0%	0%	0%	0%	--	0%	73%	0%	0%	29%	7%
		12	4	12	2	1	5	--	12	11	11	12	14	14
	JEFFERSON	0%	0%	5%	0%	0%	0%	0%	16%	50%	0%	32%	13%	7%
		19	4	19	8	2	8	4	19	18	18	19	15	15
	JUNEAU	6%	0%	6%	0%	--	0%	--	13%	54%	0%	0%	20%	0%
		16	1	16	1	--	4	--	16	13	13	16	15	15
	LA CROSSE	0%	24%	0%	0%	9%	0%	50%	33%	63%	0%	11%	83%	0%
		9	6	9	5	6	6	1	9	8	8	9	12	12
	LAFAYETTE	9%	75%	9%	0%	0%	0%	--	0%	11%	0%	0%	17%	17%
		11	2	11	4	4	1	--	11	9	9	11	6	6
	MONROE	7%	0%	7%	0%	0%	0%	--	30%	70%	0%	0%	37%	5%
		27	4	27	7	1	2	--	27	10	10	27	19	19
	RICHLAND	0%	0%	7%	0%	0%	0%	0%	0%	29%	0%	7%	14%	0%
		14	1	14	3	1	7	1	15	14	14	14	7	7
	ROCK	0%	11%	0%	0%	11%	0%	--	0%	82%	9%	0%	38%	0%
		13	4	13	2	2	3	--	13	11	11	13	13	13

		Condition % backlogged # of observations												
		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)
	SAUK	0%	40%	0%	0%	33%	0%	50%	44%	56%	0%	64%	75%	8%
		16	5	16	7	2	9	2	16	9	9	14	12	12
	VERNON	6%	93%	0%	0%	2%	0%	0%	33%	33%	11%	13%	54%	15%
		18	3	17	3	3	9	1	18	9	9	16	13	13
Total # of observations		1194	231	1172	473	138	542	185	1195	1000	1000	1084	1099	1099

Counties 2008: Drainage and Roadsides

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

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

Region	County	Condition % backlogged # of observations													
		Drainage						Roadsides							
		Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision	
	WOOD	0%	29%	0%	100%	20%	--	--	50%	56%	0%	13%	0%	0%	
		3	4	16	1	3	--	--	10	16	3	16	16	16	
NE	BROWN	30%	1%	0%	8%	50%	0%	0%	80%	25%	14%	69%	0%	0%	
		9	6	31	8	2	3	15	25	32	7	32	32	32	
	CALUMET	20%	8%	8%	--	33%	100%	0%	100%	53%	0%	53%	0%	0%	
		5	4	15	--	2	1	1	9	15	4	15	15	15	
	DOOR	20%	0%	1%	--	0%	0%	0%	70%	53%	0%	20%	13%	0%	
		4	7	13	--	1	3	1	20	15	3	15	15	15	
	FOND DU LAC	0%	3%	1%	4%	14%	8%	0%	97%	61%	0%	57%	4%	0%	
		10	3	28	6	3	4	2	30	28	6	28	28	28	
	KEWAUNEE	0%	5%	0%	--	50%	--	--	78%	67%	0%	78%	0%	0%	
		4	3	8	--	2	--	--	9	9	2	9	9	9	
	MANITOWOC	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	
	MARINETTE	13%	9%	1%	--	0%	28%	0%	45%	58%	0%	25%	0%	0%	
		8	8	24	--	3	4	1	31	24	24	24	24	24	
	OCONTO	75%	34%	0%	4%	100%	0%	0%	48%	38%	0%	29%	0%	0%	
		4	1	21	4	1	3	4	27	21	21	21	21	21	

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

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

		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	
	SAWYER	0%	--	0%	--	--	--	--	41%	38%	0%	8%	0%	0%	
		4	--	11	--	--	--	--	17	13	1	13	13	13	
	ST. CROIX	20%	0%	0%	--	0%	0%	0%	0%	74%	55%	100%	5%	0%	0%
		5	2	20	--	2	4	3	19	20	1	20	20	20	
	TAYLOR	100%	37%	0%	--	0%	--	--	--	67%	89%	33%	0%	22%	0%
		1	1	9	--	1	--	--	9	9	3	9	9	9	
	TREMPEALEAU	0%	--	1%	--	--	--	--	--	36%	55%	0%	36%	0%	0%
		5	--	9	--	--	--	--	11	11	3	11	11	11	
WASHBURN	50%	--	0%	--	--	--	0%	64%	80%	0%	0%	0%	0%		
	3	--	10	--	--	--	1	11	10	2	10	10	10		
SE	KENOSHA	38%	1%	4%	58%	50%	4%	0%	93%	52%	0%	48%	0%	4%	
		10	12	24	6	3	12	3	29	27	4	27	27	27	
	MILWAUKEE	36%	2%	30%	100%	33%	28%	0%	82%	38%	0%	59%	3%	3%	
		7	27	23	1	3	32	11	39	37	15	37	37	37	
	OZAUKEE	50%	4%	1%	25%	--	27%	0%	26%	37%	0%	53%	0%	0%	
		2	5	15	2	--	8	5	19	19	1	19	19	19	
	RACINE	14%	0%	1%	11%	0%	0%	0%	71%	57%	0%	71%	4%	0%	
		6	8	25	9	2	7	2	31	28	2	28	28	28	

		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
	WALWORTH	82%	31%	3%	65%	40%	13%	3%	47%	46%	0%	90%	0%	0%
		13	10	37	9	6	8	9	38	39	8	39	39	39
	WASHINGTON	7%	1%	0%	27%	50%	10%	0%	13%	41%	0%	59%	3%	0%
		10	7	24	8	3	7	4	32	29	6	29	29	29
	WAUKESHA	10%	0%	0%	0%	67%	5%	0%	55%	34%	--	2%	0%	0%
		10	23	46	3	5	23	21	51	61	--	61	61	61
SW	COLUMBIA	0%	24%	3%	100%	--	0%	71%	94%	50%	40%	50%	7%	0%
		4	4	12	1	--	2	1	16	14	5	14	14	14
	CRAWFORD	9%	25%	1%	--	67%	0%	--	33%	47%	0%	5%	0%	0%
		11	3	19	--	4	1	--	9	19	3	19	19	19
	DANE	67%	21%	0%	67%	100%	0%	0%	82%	47%	0%	75%	3%	0%
		7	6	31	1	3	1	5	28	32	12	32	32	32
	DODGE	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
	GRANT	43%	0%	0%	14%	100%	100%	0%	22%	50%	--	25%	0%	0%
		6	1	12	1	1	1	3	9	12	--	12	12	12
	GREEN	0%	0%	1%	--	--	0%	--	56%	50%	--	63%	0%	0%
		2	1	8	--	--	1	--	9	8	--	8	8	8

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

		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	
	VERNON	50%	10%	3%	--	33%	25%	--	67%	71%	0%	7%	0%	0%	
	VERNON	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

Region	County	Regulatory/Warning/School Signs				Other Signs			
		Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
NC	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
	LINCOLN	1,461	13%	192	3.5	991	41%	403	7.9
	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	

Region	County	Regulatory/Warning/School Signs				Other Signs			
		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
NE	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
	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

Region	County	Regulatory/Warning/School Signs				Other Signs			
		Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
NW	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
	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

Region	County	Regulatory/Warning/School Signs				Other Signs			
		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
SE	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
	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
SW	COLUMBIA	3,142	13%	408	4.6	1,520	49%	751	6.9
	CRAWFORD	2,166	17%	363	3.0	1,537	61%	938	6.6
	DANE	6,421	34%	2,155	6.1	3,027	54%	1,637	7.6

Region	County	Regulatory/Warning/School Signs				Other Signs			
		Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	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

Region	County	Number of state bridges	% of bridges recommended for maintenance							
			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*
NC	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
	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	
NE	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
	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

Region	County	Number of state bridges	% of bridges recommended for maintenance							
			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
NW	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
	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	

Region	County	Number of state bridges	% of bridges recommended for maintenance							
			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*
SE	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
	RACINE	59	9	4	7	6	12	10	1	20
	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
SW	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
	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

Region	County	Special Inspection Type						
		Initial	Routine	Load Posted	In-depth	Fracture Critical	Underwater Diving	Underwater Probe/Visual
NC	ADAMS	0%	0%	--	--	--	0%	22%
		0	0	--	--	--	0	2
	FLORENCE	100%	0%	--	--	0%	0%	100%
		1	0	--	--	0	0	1
	FOREST	0%	0%	--	--	--	--	100%
		0	0	--	--	--	--	3
	GREEN LAKE	0%	--	--	--	--	--	--
		0	--	--	--	--	--	--
	IRON	0%	0%	--	--	--	0	0%
		0	0	--	--	--	0	0
	LANGLADE	0%	0%	--	--	--	--	50%
		0	0	--	--	--	--	1
	LINCOLN	0%	0%	--	0%	0%	0%	100%
		0	0	--	0	0	0	6
	MARATHON	0%	0%	--	7%	0%	0%	37%
		0	0	--	2	0	0	40
	MARQUETTE	0%	0%	--	--	--	0%	60%
		0	0	--	--	--	0	15
	MENOMINEE	0%	0%	--	--	--	--	100%
		0	0	--	--	--	--	1
	ONEIDA	0%	0%	--	--	--	0%	100%
		0	0	--	--	--	0	3
	PORTAGE	0%	0%	--	0%	--	0%	37%
		0	0	--	0	--	0	14
	PRICE	0%	0%	--	--	--	0%	100%
		0	0	--	--	--	0	1
	SHAWANO	0%	0%	--	--	0%	0%	43%
		0	0	--	--	0	0	3
VILAS	0%	0%	--	--	--	0%	75%	
	0	0	--	--	--	0	3	
WAUPACA	10%	0%	--	0%	0%	0%	55%	
	1	0	--	0	0	0	28	
WAUSHARA	0%	5%	--	--	--	--	88%	
	0	0	--	--	--	--	14	
WOOD	0%	0%	--	33%	0%	0%	24%	
	0	0	--	1	0	0	15	
NE	BROWN	0%	0%	--	11%	0%	0%	51%
		0	0	--	1	0	0	25
	CALUMET	0%	0%	--	--	--	--	0%
		0	0	--	--	--	--	0

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

Region	County	Special Inspection Type						
		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	
SE		0%	0%	--	--	0%	--	65%
	KENOSHA	0	0	--	--	0	--	15
		2%	1%	100%	7%	11%	0%	60%
	MILWAUKEE	1	5	2	6	1	0	45
		0%	0%	100%	--	--	100%	47%
	OZAUKEE	0	0	1	--	--	1	7
		0%	0%	--	--	--	--	21%
	RACINE	0	0	--	--	--	--	5
		13%	17%	100%	50%	--	--	43%
	WALWORTH	1	20	6	1	--	--	15
	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						
Region	County	Initial	Routine	Load Posted	In-depth	Fracture Critical	Underwater Diving	Underwater Probe/Visual
	JEFFERSON	0%	0%	--	--	--	0%	18%
		0	0	--	--	--	0	3
	JUNEAU	0%	0%	--	--	0%	0%	71%
		0	0	--	--	0	0	37
	LA CROSSE	0%	0%	--	100%	0%	0%	56%
		0	0	--	3	0	0	9
	LAFAYETTE	0%	10%	--	--	--	0%	46%
		0	4	--	--	--	0	6
	MONROE	0%	0%	--	100%	0%	--	3%
		0	0	--	1	0	--	1
	RICHLAND	0%	0%	--	--	0%	0%	9%
		0	0	--	--	0	0	2
	ROCK	0%	0%	--	50%	0%	0%	30%
		0	0	--	2	0	0	8
	SAUK	0%	0%	--	100%	33%	0%	12%
		0	0	--	1	1	0	4
	VERNON	0%	0%	100%	0%	0%	--	14%
		0	0	1	0	0	--	4