



FINAL

Operational Report

Wisconsin State Highway 2007 Maintenance, Traffic, and Operations Conditions

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Existing State Highway Conditions and Maintenance Strategies

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 2007 Compass Annual Report has been completed based on the field review process from last year and data from the “Sign Inventory Management 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:

- *Pavement conditions are declining based on limited funding:* The amount of asphalt pavements with rutting and cracking has dramatically increased over the last two years. Fewer roadways are being improved with full-depth reconstruction projects because of rising costs and limited funding. Pavement conditions are deteriorating because more low cost “band aid” improvements, such as thin overlays, are being programmed instead of optimal, higher-cost improvement designs. The maintenance community has tried to reduce rutting by setting more ambitious maintenance targets and working more closely with managers of the WisDOT Improvement Program. Unfortunately, rutting has increased because of limited maintenance dollars to wedge roads and fewer reconstruction projects that improve the structural integrity of roadway sub-bases. Pavement cracking has also increased because limited funding has forced the department to make the tough choice to spend fewer resources to rout and seal cracks.
- *Focus on reducing shoulder drop-off:* There has been an added emphasis on fixing shoulder drop off 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 four years to deal with this problem. The actual amount of drop-off has remained steady over the last two years 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. Last year 9% of roadways had hazardous debris, the lowest level recorded during the previous four-year period.
- *More visible, longer lasting traffic signs:* Over 20,000 new high-intensity signs were installed along the state highway system between 2006 and 2007. More than half of the 286,000 signs on the state system now have a 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 110,000 signs around the state are older than their suggested useful life. 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, one-quarter of the regulatory and warning signs are beyond their recommended service life while 56% of other signs are older than their suggested useful life.

Executive Summary

About this report

The Compass *Operational Report* is issued annually 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. As more information is gathered, data will also be used to illustrate and communicate the consequences of funding and policy shifts within WisDOT and to the State Legislature.

This report *includes* data on bridges, traveled ways, shoulders, drainage, roadsides, selected traffic devices, and specific aspects of winter maintenance activities. It *does not include* measures of preventive maintenance, operational services (like traveler information and incident management), or electrified traffic assets (like signals and lighting). It is important to consider these exclusions when using this report to make investment decisions.

The first section of this report is an executive overview, a condensed version of the full report for executive managers in WisDOT. Both documents are 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.state.wi.us 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 data 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 May and June respectively. The report is revised based on feedback from these meetings. The report is finalized and officially published in July.

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 October 2007 and April 2008.

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 2006-07 and includes Time to Bare Wet, Winter Severity Index, Winter VMT, and crash data. Also included are figures and tables directly taken from the 2006-07 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 past Compass reports, a two-year rolling average of all pavement segments condition was used to calculate statewide conditions. In 2006 it was determined that the rolling average method didn't accurately represent the actual condition at any one year and could dilute the condition of one or both halves of the state. Therefore, starting in 2006 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. This also means that a trend of pavement condition can only be shown as two separate trends, which shows the condition of pavements evaluated in years 2003, 2005, 2007 and those pavements reviewed in years 2002, 2004, and 2006.

Sign data 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, if adequate budget was available. Therefore, an increasing backlog percentage reflects fiscal constraints rather than inadequate work.

Appendix B identifies when assets are considered backlogged for highway maintenance features. For pavement features, the backlog is determined based on the Pavement Maintenance Management System (PMMS) ratings. 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" needs routine maintenance and is considered backlogged. Traffic signs are considered backlogged for maintenance if it is in use past its expected service life.

Compass uses predefined thresholds for the percent of features backlogged to assign a letter grade to the overall maintenance condition of each feature (from "A" to "F"). The 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 roadway system. Thus a feature that contributes to critical safety, for example, would 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 scale for each Compass feature.

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 2007.

Results

The maintenance condition of most pavement features declined from 2005 to 2007. One pavement feature improved during the biennium, the condition of 11 pavement features declined and conditions remained constant for five pavement features. That said, most pavement features met or exceeded the maintenance target for the year. Seven of the 17 pavement features met their 2007 target condition, the condition of six pavement features exceeded their target condition and four pavement features were below their target condition.

The maintenance condition of most non-pavement features improved or stayed the same from 2006 to 2007. The condition of 13 features improved from the previous year, conditions remained constant for six features and conditions declined for nine features. All but one non-pavement feature met or exceeded their target condition in 2007. Twenty-one features met the target condition, six features exceeded the target and drop-off/build-up of unpaved shoulders was the only non-pavement feature with a condition below the target.

Each Compass feature is assigned to a category based on the primary type of contribution to the roadway system. The categories include Critical Safety, Safety, Ride/Comfort, Stewardship, and Aesthetics. The following tables show the trend of Compass feature grades for the past four years in each of the contribution categories, followed by some key observations for the features in each category.

Critical Safety

Critical Safety features are roadway attributes that provide secure operating conditions for the traveling public when in good condition and are priority maintenance items when their condition degrades. Two features were reassigned to the Critical Safety category in 2007. The features added to the Critical Safety category include Flushing and Unpaved Drop-off/build-up.

Feature	2007	2006	2005	2004	Element
Hazardous debris	C	D	D	D	Shoulders
Rutting	F	--	C	--	Traveled way, asphalt
Centerline markings	B	B	B	B	Traffic and safety devices
Regulatory/warning signs (emergency)	A	A	A	A	Traffic and safety devices
Flushing	A	--	A	--	Traveled way, asphalt
Drop-off/build-up (unpaved)	F	F	F	F	Shoulders

- Rutting declined from a C grade in 2005 to an F grade in 2007. The maintenance backlog for Rutting increased during the period from 6% in 2005 to 19% of road segments in 2007.

- Removal of Hazardous Debris on shoulders improved from a D grade in 2006 to a feature grade of C in 2007. The number of road segments with Hazardous Debris declined from 13% in 2006 to 9% in 2007.
- Centerline Markings and the emergency repair of Regulatory/Warning Signs consistently received grades of B and A, respectively.

Safety

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

- Edgeline Markings improved to an A grade level from the B it received the previous three years.
- The grades for both Special Pavement Markings and Protective Barriers declined to a B grade level after receiving A grades in the previous three years.
- All other Safety features maintained their grade level from the previous year.

Ride/Comfort

Ride/Comfort features provide a state of ease and quiet enjoyment for highway users and include a number of roadway characteristics such as ride quality and proper signing.

Feature	2007	2006	2005	2004	Element
Transverse faulting	F	--	F	--	Traveled way, concrete
Other signs (routine)	D	D	D	D	Traffic and safety devices
Distressed joints/cracks	C	--	C	--	Traveled way, concrete
Patch deterioration	C	--	C	--	Traveled way, concrete
Slab breakup	D	--	D	--	Traveled way, concrete
Cross-slope (unpaved)	B	C	B	B	Shoulders
Patch deterioration	B	--	B	--	Traveled way, asphalt
Longitudinal distortion	A	--	A	--	Traveled way, asphalt
Longitudinal joint distress	A	--	A	--	Traveled way, concrete
Surface raveling	A	--	A	--	Traveled way, asphalt
Transverse distortion	A	--	A	--	Traveled way, asphalt
Potholes/raveling (paved)	A	A	B	A	Shoulders
Other signs (emergency repair)	A	A	A	A	Traffic and safety devices

- Cross-slope of unpaved shoulders improved to a feature grade of B, from a C in 2006.
- All other Ride/Comfort features maintained their grade level from the previous year.

Stewardship

Stewardship features help preserve the roadway system and obtain its full potential service life.

Feature	2007	2006	2005	2004	Element
Cracking (paved)	D	D	D	D	Shoulders
Culverts	C	B	B	B	Drainage
Flumes	C	C	C	C	Drainage
Noxious weeds	C	C	C	C	Roadsides
Edge raveling	B	--	B	--	Traveled way, asphalt
Longitudinal cracking	F	--	F	--	Traveled way, asphalt
Surface distress	B	--	A	--	Traveled way, concrete
Transverse cracking	F	--	D	--	Traveled way, asphalt
Storm sewer system	B	B	B	B	Drainage
Under-drains/edge-drains	B	B	B	B	Drainage
Alligator cracking	A	--	A	--	Traveled way, asphalt
Block cracking	A	--	A	--	Traveled way, asphalt
Erosion (unpaved)	A	A	A	A	Shoulders
Curb & gutter	A	A	A	A	Drainage
Ditches	A	A	A	A	Drainage
Walls & barriers	--	--	--	--	Roadsides

- The Surface Distress of concrete pavements declined from an A grade in 2005 to a B in 2007. The maintenance backlog for Surface Distress increased during the period from 2% in 2005 to 11% of road segments in 2007.
- Culverts received a feature grade of C, down from a consistent B over the previous three years, but still within the target condition for the feature.
- Transverse Cracking received a feature grade of F, down from the D it received in 2005. The maintenance backlog for Transverse Cracking increased during the period from 54% in 2005 to 61% of road segments in 2007. The condition is much worse than the target level of 30%.
- For the fourth straight year, the sample size for Walls and Barriers was inadequate to establish a reliable condition level. The feature will be dropped from the Compass field review process in 2008 and a more targeted approach will be discussed with the WisDOT regions to monitor the condition of these assets.

Aesthetics

Aesthetics ensure the display of natural or fabricated beauty items located along a highway corridor and include aspects such as landscaping and decorative structures. Aesthetic features also include the absence of litter, which detracts from roadway sightlines.

Feature	2007	2006	2005	2004	Element
Litter	D	D	D	D	Roadsides

- Litter has consistently received a D throughout the four-year period, though the percent of road segments with litter declined slightly from 64% in 2006 to 60% in 2007.

The Compass report also includes measures for winter maintenance and bridges. Currently 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:

- 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 2006-07 was 1 hour and 28 minutes, which is twenty seven minutes less than the previous winter. The average Winter Severity Index (WSI) in 2006-07 was 28.4 versus 31.8 in the previous year.

Bridges:

- Thirty-three percent of bridge decks are in “Fair” condition and in need of reactive maintenance, based on their NBI ratings of 5 or 6. The percentage of bridge decks in “Fair” condition stayed the same between 2006 and 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 in 2007 was a slight change from 2006, when 28% were in the “Fair” category.
- 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 2006 and 2007.

Wisconsin 2007 Targets: Targets for Paved Traveled Way 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 2007	Target % backlog 2007	On target ²	Statewide												Regions ¹								
						Gap if target missed												Worse condition	On Target	Better condition						
						Worse condition						Better condition														
						30	20	10	0	0	10	20	30	0	10	20	30									
Critical Safety	Rutting	Traveled way, asphalt	19%	10%														9						NW, SW		
Ride/Comfort	Longitudinal distortion	Traveled way, asphalt	0%	1%	◎																				NW, SW	
	Patch deterioration	Traveled way, asphalt	9%	10%	◎																				NW, SW	
	Surface raveling	Traveled way, asphalt	0%	2%	◎																				NW, SW	
	Transverse distortion	Traveled way, asphalt	0%	5%	◎																				NW, SW	
	Distressed joints/cracks	Traveled way, concrete	27%	43%																						NW, SW
	Longitudinal joint distress	Traveled way, concrete	0%	27%																						NW, SW
	Patch deterioration	Traveled way, concrete	21%	30%																						NW, SW
	Slab breakup	Traveled way, concrete	36%	45%																						NW, SW
	Transverse faulting	Traveled way, concrete	81%	75%																					NW	SW
Stewardship	Alligator cracking	Traveled way, asphalt	2%	5%	◎																				NW, SW	
	Block cracking	Traveled way, asphalt	4%	5%	◎																				NW, SW	
	Edge raveling	Traveled way, asphalt	14%	20%																				SW	NW	
	Flushing	Traveled way, asphalt	1%	1%	◎																				NW, SW	
	Longitudinal cracking	Traveled way, asphalt	63%	30%																					NW, SW	
	Transverse cracking	Traveled way, asphalt	61%	30%																					NW, SW	
	Surface distress	Traveled way, concrete	11%	25%																						NW, SW

¹ The biennial inspection schedule for pavement conditions resulted in roads in the Northwest (NW) and Southwest (SW) regions being reviewed in 2007.

² ◎ This symbol indicates that the percent backlogged for that feature is the same as the target, or within 5 percentage points.

Wisconsin 2007: 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 2007	Target % backlog 2007	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%	6%	◎								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	40%	25%			15					All		
Safety	Delineators	Traffic and safety devices	21%	25%	◎								NW, SW	NC, NE, SE
	Edgeline markings	Traffic and safety devices	4%	7%	◎								NC, NW, SE, SW	NE
	Protective barriers	Traffic and safety devices	5%	3%	◎							NE	NC, NW, SE, SW	
	Regulatory/warning signs (routine)	Traffic and safety devices	25%	30%	◎							NW	NC, SE,	NE, SW
	Special pavement markings	Traffic and safety devices	10%	25%					15				NC	NE, NW, SE, SW
	Fences	Roadsides	2%	14%					12					All
	Mowing	Roadsides	36%	40%	◎							NE, SE		NC, NW, SW
	Mowing for vision	Roadsides	2%	5%	◎								All	
	Woody vegetation control	Roadsides	3%	5%	◎								All	
	Woody vegetation control for vision	Roadsides	2%	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 2007	Target % backlog 2007	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	Other signs (routine)	Traffic and safety devices	56%	70%						14				All		
	Potholes/raveling (paved)	Shoulders	6%	10%	⊙								NW, SE, NE	NC, SW		
	Cross-slope (unpaved)	Shoulders	18%	20%	⊙								NC, NE, NW, SW	SE		
	Other 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	1%	5%	⊙								All			
	Culverts	Drainage	20%	15%	⊙							NE, NW, SW	NC, SE			
	Curb & gutter	Drainage	8%	10%	⊙								NC, NE, NW, SW	SE		
	Ditches	Drainage	2%	2%	⊙								All			
	Flumes	Drainage	25%	30%	⊙							NW		NC, NE, SE, SW		
	Storm sewer system	Drainage	11%	10%	⊙							NW	NC, NE, SE, SW			
	Under-drains/edge-drains	Drainage	20%	25%	⊙							SW	NW	NC, NE, SE		
	Walls and Barriers	Roadsides	--	5%	N/A							--	--	--		
	Noxious weeds	Roadsides	29%	50%										21	SW	NC, NW, NE, SE
Aesthetics	Litter	Roadsides	60%	75%										15	SW	NC, NW, NE, SE

Wisconsin 2007: Compass Report on Paved Traveled Way 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 ⁴ (in millions)				Condition change: 2005 to 2007	% of system backlogged			2007 Feature grades				
	FY 03	FY 05	FY 07			2003	2005	2007	A	B	C	D	F
Traveled way, asphalt	--	16.8 17.8 0.53 0.56	21.2 21.2 0.67 0.67	Alligator cracking	↑	1	3	2	x				
				Block cracking	↓	2	3	4	x				
				Edge raveling	↓	11	10	14		x			
				Flushing	↓	0	0	1	x				
				Longitudinal cracking	↓	26	61	63					x
				Longitudinal distortion	--	0	0	0	x				
				Patch deterioration	--	7	9	9		x			
				Rutting	↓↓	12	6	19					x
				Surface raveling	--	1	0	0	x				
				Transverse cracking	↓	23	54	61					x
				Transverse distortion	--	0	0	0	x				
Traveled way, concrete	--	3.2 3.4 0.10 0.11	4.6 4.6 0.15 0.15	Distressed joints/cracks	↓	20	24	27			x		
				Longitudinal joint distress	--	1	0	0	x				
				Patch deterioration	↓	18	20	21			x		
				Slab breakup	↓	35	35	36				x	
				Surface distress	↓↓	9	2	11		x			
				Transverse faulting	↓	73	79	81					x

⁴ The dollar values listed in each column provide four figures: nominal dollars, real dollars (in 2007 constant dollars), nominal dollars per one thousand lane miles, and real dollars (in 2007 constant dollars) per one thousand lane miles, respectively.

Arrows indicate a condition change from 2005 to 2007 (↑ = improved condition/lower backlog percentage, ↓ = worse condition/higher backlog percentage). Double arrows indicate a change of 8 or more percentage points.

Wisconsin 2007: 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) ⁵						Condition change: 2006 to 2007 ⁶	% of system backlogged					2007 Feature grades						
	FY 03	FY 04	FY 05	FY 06	FY 07			2003	2004	2005	2006	2007	A	B	C	D	F		
Traffic & safety (selected)	17.8 20.1 0.57 0.64	16.9 18.6 0.54 0.59	15.8 16.8 0.50 0.53	16.4 16.9 0.52 0.54	17.2 17.2 0.54 0.54	Centerline markings	↑	6	5	5	4	3		x					
						Delineators	--	19	21	24	21	21			x				
						Edgeline markings	↑	11	7	5	6	4	x						
						Other signs (emergency repair)	↑	2	0	1	1	0	x						
						Other signs (routine)	↓	n/a	46	59	55	56						x	
						Protective barriers	↓	18	3	4	4	5		x					
						Reg./warning signs (emergency)	--	6	1	1	1	1	x						
						Reg./warning signs (routine)	↑	n/a	36	41	31	25							x
Shoulders	9.3 10.5 0.30 0.34	8.2 9.0 0.26 0.29	7.5 8.0 0.24 0.26	8.2 8.4 0.26 0.27	9.8 9.8 0.31 0.31	Hazardous debris	↑	9	13	12	13	9			x				
						Cracking (paved)	↓	46	51	52	50	53					x		
						Potholes/raveling (paved)	↓	7	5	7	5	6	x						
						Cross-slope (unpaved)	↑	14	15	14	25	18		x					

⁵ The dollar values listed in each column show the nominal dollars, real dollars (in 2007 constant dollars), nominal dollars per one thousand lane miles, and real dollars (in 2007 constant dollars) per one thousand lane miles, respectively.

⁶ Arrows indicate a condition change from 2006 to 2007 (↑ = improved condition/lower backlog percentage, ↓ = worse condition/higher backlog percentage). Double arrows indicate a change of 8 or more percentage points.

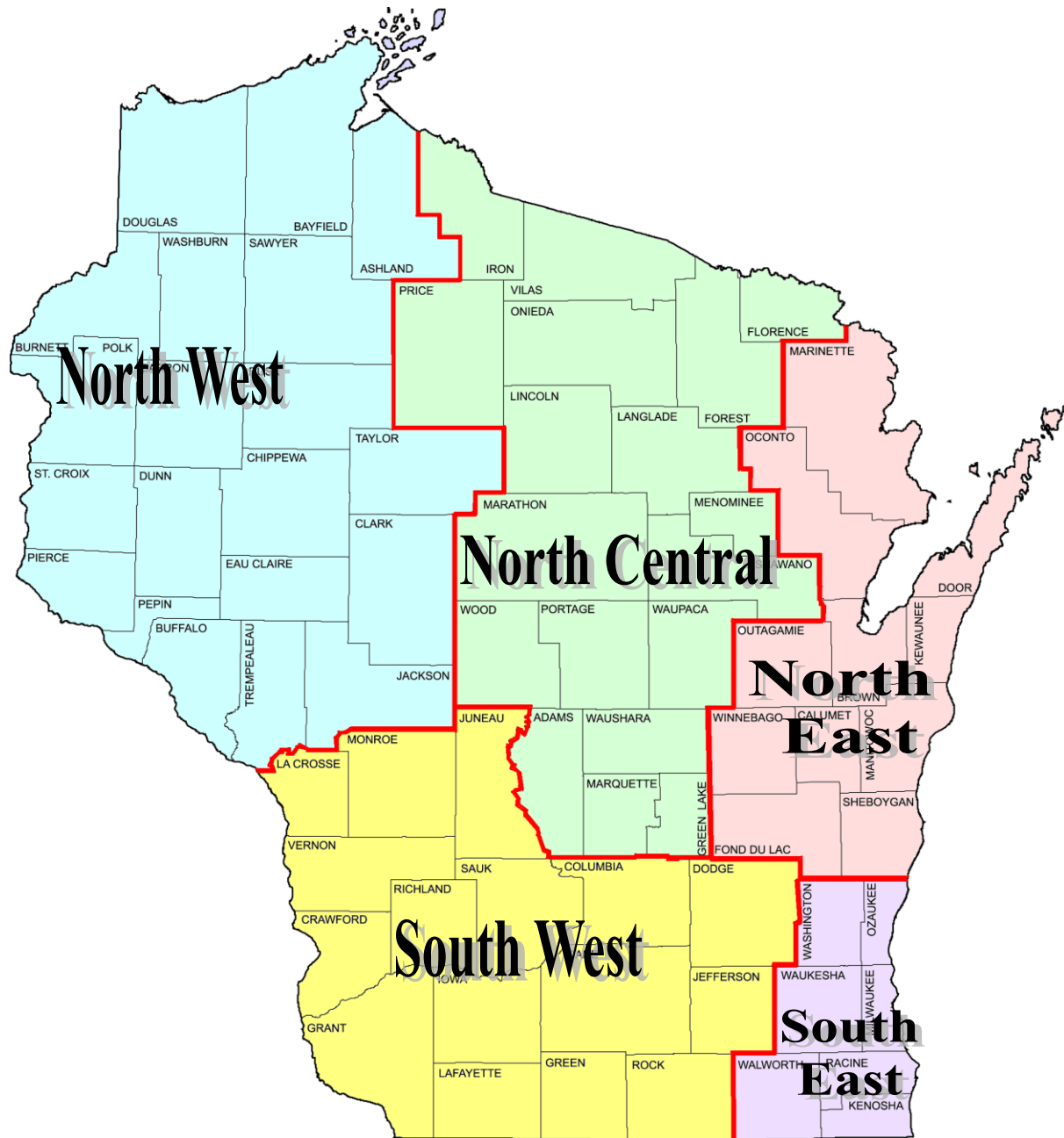
Element	What are we spending?					Feature	How much of the system still needs work at the end of the maintenance season?					How well maintained is the system?							
	Dollars spent (in millions) ⁵						Condition change: 2006 to 2007 ⁶	% of system backlogged					2007 Feature grades						
	FY 03	FY 04	FY 05	FY 06	FY 07			2003	2004	2005	2006	2007	A	B	C	D	F		
						Drop-off/build-up (unpaved)	--	45	37	36	40	40						x	
						Erosion (unpaved)	↑	3	3	3	3	1	x						
Drainage	6.5	6.5	5.7	5.1	7.2	Culverts	↓	14	17	18	15	20			x				
	7.3	7.1	6.1	5.3	7.2	Curb & gutter	--	8	6	7	8	8	x						
	0.21	0.21	0.18	0.16	0.23	Ditches	↑	2	2	2	3	2	x						
	0.24	0.23	0.19	0.17	0.23	Flumes	↑	20	32	19	27	25			x				
						Storm sewer system	↓	8	9	9	9	11		x					
						Under-drains/edge-drains	↓	15	14	20	13	20		x					
Roadsides	23.4	19.4	20.2	21.9	24.0	Walls and Barriers	n/a	2	n/a ⁷	n/a	n/a	n/a							
	26.4	21.3	21.5	22.5	24.0	Fences	↑	14	4	2	3	2	x						
	0.75	0.62	0.64	0.69	0.76	Litter	↑	67	70	62	64	60				x			
	0.85	0.68	0.68	0.71	0.76	Mowing	↑	n/a ⁸	40	35	39	36			x				
						Mowing for vision	--	n/a ⁹	26	n/a	2	2	x						
						Noxious weeds	↑	19	30	29	34	29			x				
						Woody vegetation	--	4	4	3	3	3	x						
						Woody veg. control for vision	↓	0	1	1	1	2	x						

⁷ There were not enough field observations of noise barriers and retaining walls to draw a valid conclusion about their condition in years 2004, 2005, 2006 and 2007.

⁸ There were not enough field observations of mowing to draw a valid conclusion about condition in the year 2003.

⁹ There were not enough field observations of mowing for vision to draw a valid conclusion about condition in the years 2003 and 2005.

WisDOT Regional Boundaries



Regions 2007: 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 ¹⁰ Percent of System Backlogged					
		NC	NE	NW	SE	SW	Statewide
Traveled way, asphalt	Alligator cracking	--	--	1%	--	4%	2
	Block cracking	--	--	2%	--	6%	4
	Edge raveling	--	--	8%	--	19%	14
	Flushing	--	--	2%	--	0%	1
	Longitudinal cracking	--	--	62%	--	65%	63
	Longitudinal distortion	--	--	0%	--	0%	0
	Patch deterioration	--	--	6%	--	13%	9
	Rutting	--	--	20%	--	18%	19
	Surface raveling	--	--	0%	--	0%	0
	Transverse cracking	--	--	67%	--	55%	61
Transverse distortion	--	--	0%	--	0%	0	
	Dollars spent on traveled way, asphalt (in millions)	5.8	4.4	2.4	4.5	4.1	21.2
Traveled way, concrete	Distressed joints/cracks	--	--	28%	--	26%	27
	Longitudinal joint distress	--	--	0%	--	0%	0
	Patch deterioration	--	--	20%	--	21%	21
	Slab breakup	--	--	32%	--	38%	36
	Surface distress	--	--	15%	--	9%	11
	Transverse faulting	--	--	88%	--	78%	81
	Dollars spent on traveled way, concrete (in millions)	1.7	1.2	0.6	0.3	0.8	4.6
Traffic and safety (selected devices)	Centerline markings	1%	2%	5%	3%	3%	3
	Delineators	6%	10%	22%	14%	20%	21
	Edgeline markings	6%	1%	6%	5%	4%	4
	Other signs (emergency repair)	0%	0%	0%	0%	1%	0
	Other signs (routine)	60%	64%	54%	49%	56%	56
	Protective barriers	1%	12%	2%	3%	8%	5
	Regulatory/warning signs (emergency)	0%	1%	1%	2%	1%	1
	Regulatory/warning signs (routine)	25%	39%	19%	28%	21%	25
	Special pavement markings	23%	4%	11%	6%	5%	10
	Dollars spent on traffic and selected safety devices (in millions)	4.5	3.7	1.9	3.2	4.0	17.2
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)	30%	45%	47%	39%	36%	40

¹⁰ The biennial inspection schedule for pavement conditions resulted in roads in the Northwest (NW) and Southwest (SW) regions being reviewed in 2007.

		How much of the system needs work at the end of the season?					
		<i>What did it cost to achieve this condition?</i>					
Element	Feature	Region ¹⁰					
		Percent of System Backlogged					
		NC	NE	NW	SE	SW	Statewide
	Erosion (unpaved)	1%	1%	3%	2%	0%	1
	Dollars spent on shoulders (in millions)	2.7	1.4	1.5	1.9	2.4	9.8
Drainage	Culverts	14%	24%	25%	15%	24%	20
	Curb & gutter	11%	5%	12%	3%	10%	8
	Ditches	1%	1%	1%	6%	2%	2
	Flumes	10%	21%	50%	24%	19%	25
	Storm sewer system	9%	7%	23%	9%	7%	11
	Under-drains/edge-drains	7%	11%	21%	16%	45%	20
	Dollars spent on drainage (in millions)	2.2	1.9	0.8	0.9	1.5	7.2
Roadsides	Barriers	--	--	--	--	--	--
	Fences	2%	0%	5%	1%	0%	2
	Litter	49%	69%	57%	57%	71%	60
	Mowing	24%	52%	34%	46%	23%	36
	Mowing for vision	3%	1%	0%	2%	7%	2
	Noxious weeds	19%	39%	5%	38%	48%	29
	Woody vegetation control	8%	2%	2%	2%	3%	3
	Woody vegetation control for vision	3%	2%	0%	3%	2%	2
	Dollars spent on roadsides (in millions)	7.0	5.9	3.0	3.2	5.0	24.0

2007 Winter: Compass Report on Winter Maintenance

The WisDOT Bureau of Highway Operations (BHO) reports winter performance measures in the Annual Winter Maintenance Report. The department is in the process of reviewing performance measures and grading curves for winter maintenance activities. As additional standards are put in place, this Compass Report on Winter Maintenance will measure how the department is meeting these expectations.

The BHO 2006-2007 Annual Winter Maintenance Report – with more operational detail – can be found on the winter reports home page (http://dotnet/dtid_bho/extranet/winter/reports/index.htm from inside WisDOT or https://trust.dot.state.wi.us/extntgtwy/dtid_bho/extranet/winter/reports/index.htm from outside WisDOT).

Statewide measures for winter

	2003-04	2004-05	2005-06	2006-07
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
Cost per lane mile	\$1,279	\$1,374	\$1,386	\$1,549
Winter severity index	31.2	31.9	31.8	28.4
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

Key findings

- 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, most of the variability in this time was due to weather effects (type, duration and severity of storms throughout the winter season).
- The average time to bare/wet pavement during winter 2006-07 was 1 hour and 28 minutes, which is twenty seven minutes less than the previous winter. The average Winter Severity Index (WSI) in 2006-07 was 28.4 versus 31.8 in the previous year.

Wisconsin and Regions 2007: Compass Report on Bridges

Bridge Condition

Feature	Region											
	Percent of Bridges											
	NC		NE		NW		SE		SW		statewide	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
Decks in Fair ¹¹ condition	19%	21%	23%	21%	44%	47%	51%	48%	24%	24%	33%	33%
Superstructures in Fair condition	14%	15%	15%	17%	35%	32%	52%	50%	20%	22%	29%	28%
Substructures in Fair condition	17%	17%	27%	25%	34%	31%	51%	50%	16%	18%	29%	29%
Number of state-maintained bridges	604	620	771	837	1040	1067	1034	1023	1451	1462	4900	5007
Dollar spent on bridges (in millions)											\$10.5	\$11.4

Bridge Maintenance Needs

Maintenance Action	Region											
	Percent of Bridges needing maintenance # of Bridges needing maintenance											
	NC		NE		NW		SE		SW		statewide	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
Deck – Seal Surface Cracks	24%	39%	13%	18%	8%	7%	12%	14%	8%	13%	11%	16%
	144	241	102	150	78	77	122	140	114	188	560	796
Expansion Joints – Seal	8%	11%	22%	25%	1%	2%	15%	18%	3%	4%	8%	11%
	48	66	167	209	11	24	150	181	39	51	415	531
Misc. – Cut Brush	2%	4%	2%	4%	8%	5%	13%	17%	5%	12%	7%	9%
	12	24	18	32	85	57	138	174	68	174	321	461
Approach – Seal Approach to Paving Block	1%	1%	2%	4%	17%	16%	6%	9%	5%	10%	7%	9%
	4	5	15	37	175	174	63	89	74	146	331	451
Deck – Patching	10%	12%	6%	9%	4%	4%	8%	9%	2%	4%	5%	7%
	61	75	48	78	37	37	87	96	33	65	266	351
Drainage - Repair Washouts / Erosion	1%	2%	7%	9%	5%	4%	11%	12%	3%	6%	6%	7%
	8	11	56	78	50	45	112	121	46	83	272	338
Approach - Wedge Approach	2%	3%	1%	1%	3%	2%	11%	12%	4%	7%	5%	5%
	14	17	5	11	31	25	109	126	65	95	224	274

¹¹ Bridge decks, superstructures, and substructures that receive NBI ratings of 5 or 6 are regarded to be in fair condition and warrant reactive maintenance treatments

Wisconsin and Regions 2007: Compass Report on Signs

Wisconsin 2007: Routine Replacement of Signs

	Regulatory/Warning/School Signs				Other Signs			
	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ¹²	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ¹²
2005	160,185	41%	65,092	5.7	113,693	59%	67,449	6
2006	157,742	31%	49,457	5	126,362	55%	69,051	5.9
2007	160,206	25%	40,548	4.8	125,891	56%	70,099	6.3

¹² 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. The useful life standard for engineer-grade signs remained at 7 years.

Regions 2007: Routine Replacement of Signs – Region Detail

Region	Regulatory/Warning/School Signs				Other Signs				
	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ¹²	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ¹²	
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
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
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
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
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

Wisconsin and Regions 2007: Sign Face Material Distribution

Face		Region					Statewide	
Grade	Type	NC	NE	NW	SE	SW	Total	Percentage
Engineering Grade (7 years service life)	Non-Reflective	4	90	465	147	125	831	0.3%
	Other or Varies	14	8	428	23	924	1,397	0.5%
	Reflective - Engineering Grade	20,094	25,127	31,502	31,757	28,913	137,393	48.0%
High Intensity (12 years service life)	Type D - Diamond Grade	32	15	5	7	156	215	0.1%
	Type F - Fluorescent	479	178	353	740	724	2,474	0.9%
	Type H - High Intensity	19,702	16,758	24,593	22,987	28,316	112,356	39.3%
	Type HP - Prismatic High Intensity	5,564	1,487	8,006	8,070	8,304	31,431	11.0%
Total		45,889	43,663	65,352	63,731	67,462	286,097	100%

Wisconsin and Regions 2007: Sign Face Material Trends

Region	2006		2007	
	Engineering Grade	High Intensity	Engineering Grade	High Intensity
NC	24,877	21,392	20,112	25,777
NE	25,942	17,095	25,225	18,438
NW	38,240	27,721	32,395	32,957
SE	34,430	27,783	31,927	31,804
SW	34,528	32,096	29,962	37,500
Statewide	158,017	126,087	139,621	146,476
	56%	44%	49%	51%

Operational Reports

2007 Signs: Compass Report on Routine Replacement and Age Distribution

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

Key Observations:

- The expected service life of signs is calculated based on the manufactured date of the signs, not the installation date. It is possible for a sign to be installed one or more years after it is manufactured.
- Signs that are in service beyond their expected service life are considered backlogged for replacement.
- Statewide and in each region a large number and percentage of signs are backlogged for replacement.
- WisDOT places a higher priority on routine replacement of regulatory and warning signs than on other signs, and this is reflected in a dip in the number and percent of regulatory signs that are backlogged for replacement.
- The NW region has the lowest percentages of signs backlogged for routine maintenance at 19% for regulatory/warning signs, while the SE region has the lowest backlog percentage for other signs at 49%.
- The backlog for routine maintenance in the counties ranges from 4% to 52% for regulatory/warning signs and from 27% to 83% for other signs. Buffalo County has the lowest percentages of backlog for regulatory/warning signs and Rusk County has the lowest percentages of backlog for other signs.

Wisconsin 2007: Routine Replacement of Signs

	Regulatory/Warning/School Signs				Other Signs			
	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ¹³	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ¹³
2005	160185	41%	65092	5.7	113693	59%	67449	6.0
2006	157742	31%	49457	5.0	126362	55%	69051	5.9
2007	160206	25%	40548	4.8	125891	56%	70099	6.3

Regions 2007: Routine Replacement of Signs

Region	Regulatory/Warning/School Signs				Other Signs			
	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ¹³	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ¹³
NC	26663	25%	6660	4.5	19226	60%	11494	6.5
NE	21887	39%	8459	5.3	21776	64%	13831	6.1
NW	33786	19%	6372	4.4	31566	54%	16962	5.3
SE	36390	28%	10234	5.0	27341	49%	13386	6.2
SW	41480	21%	8823	4.7	25982	56%	14426	7.4

¹³ Years beyond service life depends upon the face material of the individual signs. When comparing the average years beyond service life for multiple years, please note that starting in 2006 the expected useful life of signs with high intensity face material increased from 10 to 12 years. The expected useful life for engineer-grade signs remains at 7 years.

Counties 2007: Routine Replacement of Signs

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	922	14%	130	2.35	657	61%	399	5.0
	FLORENCE	485	34%	165	5.45	432	60%	261	7.2
	FOREST	1273	23%	296	6.13	985	39%	384	8.2
	GREEN LAKE	867	13%	109	3.19	647	66%	428	7.2
	IRON	1061	41%	431	6.88	730	54%	392	9.3
	LANGLADE	1231	39%	481	5.11	1201	83%	995	10.6
	LINCOLN	1471	21%	312	4.70	996	52%	518	8.4
	MARATHON	4107	21%	863	4.13	2521	57%	1434	4.8
	MARQUETTE	955	24%	232	4.19	948	73%	692	5.1
	MENOMINEE	427	27%	117	4.61	164	42%	69	5.9
	ONEIDA	1835	52%	951	5.81	1346	66%	884	7.7
	PORTAGE	2216	26%	567	4.19	1956	55%	1074	4.6
	PRICE	1022	44%	447	4.55	1051	66%	695	6.8
	SHAWANO	282	45%	127	4.65	363	56%	205	4.5
	VILAS	1552	29%	444	4.12	958	70%	667	8.1
	WAUPACA	2844	14%	397	2.91	1753	52%	916	4.6
WAUSHARA	1855	15%	285	2.29	1280	69%	886	6.0	
WOOD	2258	14%	306	2.37	1238	48%	595	5.4	
NE	BROWN	3125	40%	1258	4.74	3999	72%	2862	6.3
	CALUMET	1006	33%	330	5.14	1133	64%	726	5.9
	DOOR	1654	49%	807	4.83	997	74%	739	5.2
	FOND DU LAC	2460	29%	723	5.60	2345	50%	1178	6.8
	KEWAUNEE	570	43%	243	5.32	528	70%	372	5.9
	MANITOWOC	1733	50%	864	5.11	1975	81%	1598	6.2
	MARINETTE	1517	38%	584	5.39	1309	50%	648	5.9
	OCONTO	1756	16%	280	4.42	1265	43%	548	4.7

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
	OUTAGAMIE	3110	39%	1202	6.33	2687	67%	1807	6.1
	SHEBOYGAN	2574	47%	1204	5.16	2989	69%	2053	5.9
	WINNEBAGO	2382	40%	964	5.32	2549	51%	1300	6.3
NW	ASHLAND	1208	20%	237	3.50	881	53%	468	4.5
	BARRON	1763	20%	349	3.90	1644	51%	839	6.1
	BAYFIELD	1483	21%	309	2.66	1188	46%	552	4.6
	BUFFALO	1564	4%	69	7.10	1305	55%	722	8.6
	BURNETT	1212	25%	305	3.96	868	59%	514	5.3
	CHIPPEWA	2218	12%	271	4.57	2341	47%	1102	5.0
	CLARK	1697	8%	137	4.66	1396	53%	742	4.4
	DOUGLAS	1909	31%	595	2.95	1667	54%	903	4.2
	DUNN	2047	14%	286	4.56	2419	51%	1234	4.3
	EAU CLAIRE	2557	32%	825	5.89	2426	55%	1329	5.2
	JACKSON	1630	14%	232	6.61	1658	54%	888	8.6
	PEPIN	610	13%	79	6.20	654	50%	330	5.6
	PIERCE	1662	14%	232	3.66	2210	71%	1570	4.9
	POLK	2236	16%	358	3.52	1576	54%	858	5.3
	RUSK	1204	22%	267	4.29	847	27%	230	4.8
	SAWYER	1412	12%	173	3.09	1209	45%	546	4.7
	ST. CROIX	2525	18%	467	4.62	3011	61%	1826	4.5
TAYLOR	972	11%	107	4.78	1009	44%	443	4.7	
TREMPEALEAU	1917	28%	537	6.47	1779	54%	957	7.4	
WASHBURN	1960	27%	537	3.28	1478	62%	909	4.4	
SE	KENOSHA	3820	32%	1238	4.81	3301	44%	1443	6.2
	MILWAUKEE	10650	31%	3276	5.32	8641	53%	4563	7.1
	OZAUKEE	1812	19%	350	4.32	1384	57%	792	6.6
	RACINE	4544	32%	1450	4.04	3389	53%	1792	5.4
	WALWORTH	3616	20%	718	5.28	2641	49%	1304	5.4
	WASHINGTON	3668	22%	798	4.77	2853	45%	1275	5.2
	WAUKESHA	8280	29%	2404	5.48	5132	43%	2217	5.5

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
SW	COLUMBIA	3169	15%	463	4.45	1511	52%	790	7.2
	CRAWFORD	2159	16%	356	3.19	1534	56%	855	7.2
	DANE	6238	32%	1991	5.71	2899	54%	1564	7.2
	DODGE	2972	26%	758	4.44	1751	56%	984	6.6
	GRANT	2978	21%	623	5.59	1739	58%	1005	7.4
	GREEN	1489	15%	229	4.29	705	52%	369	7.0
	IOWA	1920	34%	645	5.96	1166	58%	676	7.6
	JEFFERSON	2097	18%	368	3.74	1106	57%	635	7.7
	JUNEAU	1799	12%	219	3.00	1596	64%	1027	6.8
	LA CROSSE	2699	16%	420	2.85	2365	55%	1292	7.9
	LAFAYETTE	1191	12%	143	4.29	820	70%	575	9.5
	MONROE	2519	13%	317	3.05	2290	51%	1167	8.2
	RICHLAND	1912	13%	240	2.48	1529	48%	728	6.6
	ROCK	2320	32%	731	5.22	1548	55%	857	7.4
	SAUK	3288	19%	611	5.80	1274	54%	693	7.4
VERNON	2730	26%	709	3.67	2149	56%	1209	6.8	

Wisconsin and Regions 2007: Age Distribution of Signs

Regulatory/ warning / school Signs	Number of signs % of total of each age group													
	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	
Statewide	85433 53%	4830 3%	5711 4%	4068 3%	5652 4%	6590 4%	7374 5%	5946 4%	6313 4%	6633 4%	4608 3%	13539 8%	3509 2%	160206 100%
NC	14687 55%	871 3%	1042 4%	718 3%	942 4%	1014 4%	729 3%	1013 4%	1218 5%	1025 4%	886 3%	2072 8%	446 2%	26663 100%
NE	8311 38%	691 3%	663 3%	514 2%	980 4%	1000 5%	1269 6%	1166 5%	838 4%	1152 5%	926 4%	3617 17%	760 3%	21887 100%
NW	20149 60%	1119 3%	1350 4%	1055 3%	1404 4%	909 3%	1428 4%	1156 3%	971 3%	1307 4%	770 2%	1588 5%	580 2%	33786 100%
SE	18087 50%	998 3%	911 3%	634 2%	1024 3%	2086 6%	2416 7%	1464 4%	1629 4%	1421 4%	1075 3%	3726 10%	919 3%	36390 100%
SW	24199 58%	1151 3%	1745 4%	1147 3%	1302 3%	1581 4%	1532 4%	1147 3%	1657 4%	1728 4%	951 2%	2536 6%	804 2%	41480 100%

Other Signs	Number of signs % of total of each age group													
	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	
Statewide	26525 21%	5042 4%	1818 1%	2536 2%	4294 3%	7460 6%	8117 6%	6397 5%	7884 6%	8694 7%	6118 5%	29260 23%	11746 9%	125891 100%
NC	4084 21%	886 5%	235 1%	234 1%	544 3%	913 5%	836 4%	1031 5%	1604 8%	1112 6%	1235 6%	4070 21%	2442 13%	19226 100%
NE	3456 16%	602 3%	181 1%	481 2%	766 4%	1348 6%	1111 5%	910 4%	1014 5%	1723 8%	1315 6%	7259 33%	1610 7%	21776 100%
NW	6749 21%	1349 4%	502 2%	628 2%	956 3%	1640 5%	2780 9%	2126 7%	1863 6%	3027 10%	1516 5%	6502 21%	1928 6%	31566 100%
SE	6776 25%	1237 5%	343 1%	608 2%	987 4%	2220 8%	1784 7%	1294 5%	1922 7%	1442 5%	1036 4%	5427 20%	2265 8%	27341 100%
SW	5460 21%	968 4%	557 2%	585 2%	1041 4%	1339 5%	1606 6%	1036 4%	1481 6%	1390 5%	1016 4%	6002 23%	3501 13%	25982 100%

2007 Traveled Way: Compass Report on Maintenance Condition

Data for this section comes from the Pavement Inventory File (PIF) dated March 2008 received from Mike Malaney.

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).



Wisconsin 2007: Traveled Way Maintenance Condition

Asphalt Traveled Way

Distress	% of miles backlogged for year					
	NW, SW			NC, NE, SE		
	2003	2005	2007	2002	2004	2006
Alligator Cracking	1%	3%	2%	1%	1%	2%
Block Cracking	2%	3%	4%	2%	4%	2%
Edge Raveling	11%	10%	14%	15%	15%	17%
Flushing	0%	0%	1%	0%	0%	0%
Longitudinal Cracking	26%	61%	63%	17%	49%	62%
Longitudinal Distortion	0%	0%	0%	0%	0%	0%
Patch Deterioration	7%	9%	9%	10%	6%	7%
Rutting	12%	6%	19%	6%	3%	7%
Surface Raveling	1%	0%	0%	0%	0%	0%
Transverse Cracking	23%	54%	61%	18%	49%	62%
Transverse Distortion	0%	0%	0%	0%	0%	0%

Concrete Traveled Way

Distress	% of miles backlogged for year					
	NW, SW			NC, NE, SE		
	2003	2005	2007	2002	2004	2006
Distressed Joint/Cracks	20%	24%	27%	16%	16%	18%
Longitudinal Joint Distress	1%	0%	0%	2%	1%	0%
Patch Deterioration	18%	20%	21%	19%	18%	18%
Slab Breakup	35%	35%	36%	33%	28%	29%
Surface Distress	9%	2%	11%	16%	9%	8%
Transverse Faulting	73%	79%	81%	77%	69%	61%

Regional Trends: Traveled Way

Asphalt traveled way distress		% of Miles Backlogged in Region ¹⁴					
		Year	NC	NE	NW	SE	SW
Alligator Cracking	NW SW	2003	--	--	0%	--	1%
		2005	--	--	3%	--	3%
		2007	--	--	1%	--	4%
	NC NE SE	2002	1%	2%	--	2%	--
		2004	0%	1%	--	2%	--
		2006	1%	2%	--	3%	--
Block Cracking	NW SW	2003	--	--	2%	--	2%
		2005	--	--	2%	--	4%
		2007	--	--	2%	--	6%
	NC NE SE	2002	2%	2%	--	3%	--
		2004	4%	3%	--	4%	--
		2006	2%	2%	--	2%	--
Edge Raveling	NW SW	2003	--	--	8%	--	15%
		2005	--	--	7%	--	14%
		2007	--	--	8%	--	19%
	NC NE SE	2002	12%	15%	--	20%	--
		2004	11%	17%	--	23%	--
		2006	14%	15%	--	26%	--
Flushing	NW SW	2003	--	--	1%	--	0%
		2005	--	--	0%	--	0%
		2007	--	--	2%	--	0%
	NC NE SE	2002	0%	0%	--	0%	--
		2004	0%	0%	--	0%	--
		2006	0%	0%	--	0%	--
Longitudinal Cracking	NW SW	2003	--	--	28%	--	26%
		2005	--	--	63%	--	62%
		2007	--	--	62%	--	65%
	NC NE SE	2002	18%	16%	--	20%	--
		2004	50%	47%	--	66%	--
		2006	58%	64%	--	74%	--
Longitudinal Distortion	NW SW	2003	--	--	0%	--	0%
		2005	--	--	0%	--	0%
		2007	--	--	0%	--	0%
	NC NE SE	2002	0%	0%	--	0%	--
		2004	0%	0%	--	0%	--
		2006	0%	0%	--	0%	--
Patch Deterioration	NW SW	2003	--	--	6%	--	10%
		2005	--	--	7%	--	13%
		2007	--	--	6%	--	13%
	NC NE SE	2002	8%	6%	--	14%	--
		2004	5%	4%	--	13%	--
		2006	5%	6%	--	14%	--

¹⁴ Due to the biennial inspection schedule for traveled way, there are not enough data taken to represent regions NW and SW in 2002, 2004 and 2006 and NC, NE, and SE in 2001, 2003, and 2005.

Asphalt traveled way distress		% of Miles Backlogged in Region ¹⁴					
		Year	NC	NE	NW	SE	SW
Rutting	NW SW	2003	--	--	14%	--	11%
		2005	--	--	0%	--	13%
		2007	--	--	20%	--	18%
	NC NE SE	2002	8%	5%	--	5%	--
		2004	6%	0%	--	0%	--
		2006	12%	5%	--	4%	--
Surface Raveling	NW SW	2003	--	--	0%	--	1%
		2005	--	--	0%	--	0%
		2007	--	--	0%	--	0%
	NC NE SE	2002	0%	0%	--	0%	--
		2004	0%	0%	--	0%	--
		2006	0%	0%	--	0%	--
Transverse Cracking	NW SW	2003	--	--	30%	--	17%
		2005	--	--	63%	--	48%
		2007	--	--	67%	--	55%
	NC NE SE	2002	20%	18%	--	19%	--
		2004	52%	46%	--	64%	--
		2006	62%	62%	--	72%	--
Transverse Distortion	NW SW	2003	--	--	0%	--	0%
		2005	--	--	0%	--	0%
		2007	--	--	0%	--	0%
	NC NE SE	2002	0%	0%	--	0%	--
		2004	0%	0%	--	0%	--
		2006	0%	0%	--	0%	--

Concrete traveled way distress		% Miles Backlogged in Region					
		Year	NC	NE	NW	SE	SW
Distressed Joint/Cracks	NW SW	2003	--	--	22%	--	20%
		2005	--	--	25%	--	24%
		2007	--	--	28%	--	26%
	NC NE SE	2002	15%	16%	--	22%	--
		2004	16%	13%	--	25%	--
		2006	19%	21%	--	21%	--
Longitudinal Joint Distress	NW SW	2003	--	--	0%	--	0%
		2005	--	--	0%	--	0%
		2007	--	--	0%	--	0%
	NC NE SE	2002	1%	4%	--	0%	--
		2004	0%	0%	--	0%	--
		2006	0%	0%	--	0%	--
Patch Deterioration	NW SW	2003	--	--	17%	--	20%
		2005	--	--	20%	--	21%
		2007	--	--	20%	--	21%
	NC NE SE	2002	17%	25%	--	23%	--
		2004	17%	20%	--	22%	--
		2006	16%	22%	--	22%	--

Concrete traveled way distress		% Miles Backlogged in Region					
		Year	NC	NE	NW	SE	SW
Slab Breakup	NW SW	2003	--	--	35%	--	38%
		2005	--	--	35%	--	38%
		2007	--	--	32%	--	38%
	NC NE SE	2002	31%	40%	--	45%	--
		2004	28%	28%	--	37%	--
		2006	28%	29%	--	38%	--
Surface Distress	NW SW	2003	--	--	5%	--	10%
		2005	--	--	1%	--	3%
		2007	--	--	15%	--	9%
	NC NE SE	2002	7%	14%	--	7%	--
		2004	4%	5%	--	4%	--
		2006	2%	4%	--	4%	--
Transverse Faulting	NW SW	2003	--	--	81%	--	75%
		2005	--	--	78%	--	82%
		2007	--	--	88%	--	78%
	NC NE SE	2002	80%	88%	--	91%	--
		2004	80%	62%	--	91%	--
		2006	76%	40%	--	91%	--

Wisconsin 2007: Traveled Way Condition Distribution

Asphalt traveled way distress	% of miles ¹⁵ in condition ¹⁶			
	Excellent	Fair	Moderate	Poor
Alligator Cracking ¹⁷	98%	2%	0%	0%
Block Cracking ¹⁷	96%	1%	1%	1%
Edge Raveling	86%	12%	1%	2%
Flushing	99%	0%	0%	0%
Longitudinal Cracking ¹⁷	53%	44%	16%	3%
Longitudinal Distortion	100%	0%	0%	0%
Patch Deterioration	91%	2%	2%	6%
Rutting	81%	18%	0%	1%
Surface Raveling	100%	0%	0%	0%
Transverse Cracking ¹⁷	39%	42%	17%	2%
Transverse Distortion	100%	0%	0%	0%

Concrete traveled way distress	% of miles in condition			
	Excellent	Fair	Moderate	Poor
Distressed Joint/Cracks	73%	17%	10%	1%
Longitudinal Joint Distress	100%	0%	0%	0%
Patch Deterioration	79%	14%	5%	1%
Slab Breakup	64%	30%	5%	0%
Surface Distress	89%	6%	5%	0%
Transverse Faulting	19%	81%	0%	0%

¹⁵ Rows may not sum to 100% due to rounding.

¹⁶ Condition comes from WisDOT's Pavement Maintenance Management System and reflects extent and severity of distress.

¹⁷ Cracks in asphalt pavement may be sealed or unsealed. Only miles with unsealed cracks are included in the % backlogged. Cracks in asphalt pavement may be sealed or unsealed.

Regions 2007: Traveled Way Condition Distribution

Asphalt traveled way distress	Condition	% of miles				
		Region ¹⁸				
		NC	NE	NW	SE	SW
Alligator Cracking	Excellent	--	--	99%	--	96%
	Fair	--	--	1%	--	2%
	Moderate	--	--	0%	--	1%
	Poor	--	--	0%	--	0%
Block Cracking	Excellent	--	--	98%	--	94%
	Fair	--	--	1%	--	2%
	Moderate	--	--	1%	--	2%
	Poor	--	--	0%	--	2%
Edge Raveling	Excellent	--	--	92%	--	81%
	Fair	--	--	7%	--	16%
	Moderate	--	--	0%	--	1%
	Poor	--	--	1%	--	2%
Flushing	Excellent	--	--	98%	--	100%
	Fair	--	--	1%	--	0%
	Poor	--	--	1%	--	0%
Longitudinal Cracking	Excellent	--	--	38%	--	35%
	Fair	--	--	47%	--	40%
	Moderate	--	--	12%	--	21%
	Poor	--	--	3%	--	4%
Longitudinal Distortion	Excellent	--	--	100%	--	100%
	Fair	--	--	0%	--	0%
	Moderate	--	--	0%	--	0%
	Poor	--	--	0%	--	0%
Patch Deterioration	Excellent	--	--	94%	--	87%
	Fair	--	--	1%	--	2%
	Moderate	--	--	1%	--	3%
	Poor	--	--	3%	--	8%
Rutting	Excellent	--	--	80%	--	82%
	Fair	--	--	19%	--	17%
	Poor	--	--	1%	--	1%
Surface Raveling	Excellent	--	--	100%	--	100%
	Fair	--	--	0%	--	0%
	Moderate	--	--	0%	--	0%
	Poor	--	--	0%	--	0%
Transverse Cracking	Excellent	--	--	33%	--	45%
	Fair	--	--	51%	--	33%
	Moderate	--	--	14%	--	19%
	Poor	--	--	2%	--	3%
Transverse Distortion	Excellent	--	--	100%	--	100%
	Fair	--	--	0%	--	0%
	Moderate	--	--	0%	--	0%
	Poor	--	--	0%	--	0%

¹⁸ Due to the biennial inspection schedule for traveled way, only the NW and SW regions are reported in 2007.

Concrete traveled way distress	Condition	% of miles				
		Region ¹⁸				
		NC	NE	NW	SE	SW
Distressed Joint/Cracks	Excellent	--	--	72%	--	74%
	Fair	--	--	17%	--	16%
	Moderate	--	--	10%	--	9%
	Poor	--	--	1%	--	1%
Longitudinal Joint Distress	Excellent	--	--	100%	--	100%
	Fair	--	--	0%	--	0%
	Moderate	--	--	0%	--	0%
	Poor	--	--	0%	--	0%
Patch Deterioration	Excellent	--	--	80%	--	79%
	Fair	--	--	15%	--	14%
	Moderate	--	--	4%	--	6%
	Poor	--	--	1%	--	1%
Slab Breakup	Excellent	--	--	68%	--	62%
	Fair	--	--	28%	--	31%
	Moderate	--	--	3%	--	6%
	Poor	--	--	0%	--	0%
Surface Distress	Excellent	--	--	85%	--	91%
	Fair	--	--	4%	--	7%
	Moderate	--	--	11%	--	2%
Transverse Faulting	Excellent	--	--	12%	--	22%
	Fair	--	--	88%	--	78%
	Moderate	--	--	0%	--	0%
	Poor	--	--	0%	--	0%

Counties 2007: Traveled Way

Asphalt traveled way

Region	County	% of miles backlogged										
		Alligator Cracking	Block Cracking	Edge Raveling	Flushing	Longitudinal Cracking	Longitudinal Distortion	Patch Deterioration	Rutting	Surface Raveling	Transverse Cracking	Transverse Distortion
NW	ASHLAND	3%	2%	25%	0%	91%	0%	6%	32%	0%	94%	0%
	BARRON	0%	3%	3%	1%	56%	0%	1%	15%	0%	70%	0%
	BAYFIELD	4%	2%	7%	2%	51%	0%	5%	25%	0%	64%	0%
	BUFFALO	2%	1%	8%	0%	48%	0%	16%	21%	1%	37%	0%
	BURNETT	1%	2%	10%	6%	84%	0%	8%	29%	0%	93%	0%
	CHIPPEWA	0%	1%	5%	1%	68%	0%	1%	20%	0%	58%	0%
	CLARK	0%	2%	1%	1%	57%	0%	1%	11%	0%	70%	0%
	DOUGLAS	0%	3%	6%	2%	72%	0%	5%	5%	1%	69%	0%
	DUNN	2%	3%	10%	0%	61%	0%	2%	20%	0%	63%	0%
	EAU CLAIRE	0%	0%	3%	0%	59%	0%	1%	13%	0%	89%	0%
	JACKSON	0%	2%	16%	0%	56%	0%	4%	25%	0%	64%	0%
	PEPIN	0%	0%	9%	0%	44%	0%	0%	28%	0%	53%	0%
	PIERCE	5%	5%	25%	2%	83%	0%	19%	11%	0%	81%	0%
	POLK	0%	0%	5%	5%	68%	0%	6%	26%	0%	71%	0%
	RUSK	0%	2%	2%	1%	51%	0%	3%	41%	0%	57%	0%
	SAWYER	0%	0%	2%	2%	41%	0%	1%	21%	0%	44%	0%
	ST. CROIX	1%	2%	7%	0%	74%	0%	8%	17%	0%	90%	0%
	TAYLOR	1%	2%	12%	14%	51%	0%	6%	8%	0%	64%	0%
TREMPEALEAU	0%	1%	13%	0%	61%	0%	13%	21%	0%	57%	0%	
WASHBURN	0%	0%	2%	0%	61%	0%	4%	17%	0%	63%	0%	
SW	COLUMBIA	7%	9%	22%	0%	69%	0%	8%	28%	0%	67%	0%
	CRAWFORD	7%	6%	25%	0%	75%	0%	24%	16%	0%	62%	0%
	DANE	1%	6%	30%	0%	76%	0%	17%	19%	0%	71%	0%

Region	County	% of miles backlogged										
		Alligator Cracking	Block Cracking	Edge Raveling	Flushing	Longitudinal Cracking	Longitudinal Distortion	Patch Deterioration	Rutting	Surface Raveling	Transverse Cracking	Transverse Distortion
	DODGE	1%	1%	11%	0%	41%	0%	4%	10%	1%	38%	0%
	GRANT	2%	4%	11%	0%	62%	0%	7%	13%	0%	52%	0%
	GREEN	2%	16%	25%	0%	75%	0%	4%	8%	0%	53%	0%
	IOWA	7%	1%	23%	0%	70%	0%	9%	11%	0%	49%	0%
	JEFFERSON	6%	5%	24%	0%	82%	0%	6%	12%	0%	74%	0%
	JUNEAU	1%	15%	15%	0%	52%	0%	18%	31%	1%	46%	0%
	LA CROSSE	2%	6%	30%	0%	70%	0%	24%	17%	0%	59%	0%
	LAFAYETTE	3%	5%	11%	0%	64%	0%	18%	22%	0%	50%	0%
	MONROE	1%	1%	14%	0%	63%	0%	6%	15%	0%	59%	0%
	RICHLAND	2%	4%	22%	0%	60%	0%	24%	18%	0%	41%	0%
	ROCK	7%	11%	19%	0%	69%	0%	9%	18%	0%	59%	0%
	SAUK	2%	9%	12%	0%	48%	0%	18%	21%	0%	37%	0%
	VERNON	6%	0%	17%	0%	71%	0%	13%	17%	0%	54%	0%

Concrete traveled way

Region	County	% of miles backlogged					
		Distressed Joint/Cracks	Longitudinal/ Joint Distress	Patch Deterioration	Slab Breakup	Surface Distress	Transverse Faulting
NW	ASHLAND	75%	0%	50%	75%	25%	75%
	BARRON	38%	0%	25%	44%	13%	100%
	BAYFIELD	50%	0%	0%	50%	0%	100%
	BUFFALO	0%	0%	0%	75%	0%	100%
	BURNETT ¹⁹	--	--	--	--	--	--
	CHIPPEWA	24%	0%	9%	29%	0%	99%
	CLARK	25%	0%	6%	27%	20%	92%
	DOUGLAS	27%	0%	37%	39%	49%	75%
	DUNN	38%	0%	14%	22%	0%	97%
	EAU CLAIRE	21%	0%	19%	24%	2%	97%
	JACKSON	20%	0%	20%	20%	67%	33%
	PEPIN	0%	0%	0%	0%	0%	100%
	PIERCE	74%	0%	9%	74%	0%	100%
	POLK	60%	0%	60%	70%	0%	100%
	RUSK ¹⁹	--	--	--	--	--	--
	SAWYER	25%	0%	88%	25%	13%	100%
	ST. CROIX	16%	0%	4%	12%	4%	82%
	TAYLOR	0%	0%	0%	0%	0%	0%
	TREMPEALEAU	50%	0%	13%	63%	0%	100%
WASHBURN	23%	0%	53%	38%	13%	89%	
SW	COLUMBIA	21%	0%	16%	28%	36%	56%
	CRAWFORD	50%	0%	50%	83%	0%	100%
	DANE	25%	0%	19%	44%	7%	79%
	DODGE	25%	0%	7%	42%	6%	87%
	GRANT	12%	0%	6%	19%	0%	56%
	GREEN	39%	0%	14%	32%	4%	93%
	IOWA	15%	0%	38%	38%	0%	85%
	JEFFERSON	17%	0%	6%	37%	2%	65%
	JUNEAU	64%	0%	56%	65%	7%	93%
	LA CROSSE	42%	0%	34%	46%	1%	95%
	LAFAYETTE	10%	0%	3%	7%	3%	53%
	MONROE	22%	0%	13%	26%	39%	57%
	RICHLAND	25%	0%	38%	38%	0%	100%
	ROCK	15%	0%	9%	29%	0%	85%
	SAUK	38%	0%	50%	36%	7%	100%
VERNON	33%	0%	0%	33%	0%	100%	

¹⁹ There are no concrete traveled ways in Burnett and Rusk counties

2007 Winter: Compass Report on Winter Maintenance

Executive summary

Statewide measures for winter

	2003-04	2004-05	2005-06	2006-07
Average time to bare/wet pavement after a storm ends	2 hours 38 minutes	2 hours 4 minutes	1 hour 55 minutes	1 hour 28 minutes
Cost per lane mile	\$1,279	\$1,374	\$1,386	\$1,549
Winter severity index	31.2	31.9	31.8	28.4
Winter related crashes per 100 million vehicle miles traveled	26	25	24	23

Key findings

- In keeping with WisDOT guidelines, during similar storm events, drivers on major urban freeways and highways have less time to wait until they see bare/wet pavement than do drivers on secondary roads. From storm to storm, however, most of the variability in this time is due to weather effects (type, duration and severity of storms throughout the winter season).
- The average time to bare/wet pavement during winter 2006-07 was 1 hour and 28 minutes which is twenty seven minutes less than the previous winter. The average Winter Severity Index (WSI) in 2006-07 was 28.4 versus 31.8 in the previous year.

About this report

The measures in this section of the report focus on key winter operations outcomes critical to drivers and citizens. The primary audience for these measures is expected to be WisDOT and county highway managers with a general interest in winter maintenance, e.g., region directors and county commissioners. This section of the report looks at winter operations on state highways from November 1, 2006 to April 30, 2007.

The Bureau of Highway Operations issues two reports on winter. This Compass report on winter focuses on measures critical to drivers and citizens, 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.

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.

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.

Several categories and groupings are used to present the winter maintenance measures.

Winter service group

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	2,839	8%
2	High volume four-lane highways (Average Daily Traffic > 25,000) and some four-lane highways (ADT < 25,000), and some 6-lane highways.	3,191	10%
3	All other four-lane highways (ADT < 25,000)	8,206	25%
4	Most high volume two-lane highways (ADT > 5,000) and some 2-lanes (ADT < 5000)	4,895	15%
5	All other two-lane highways	14,090	42%

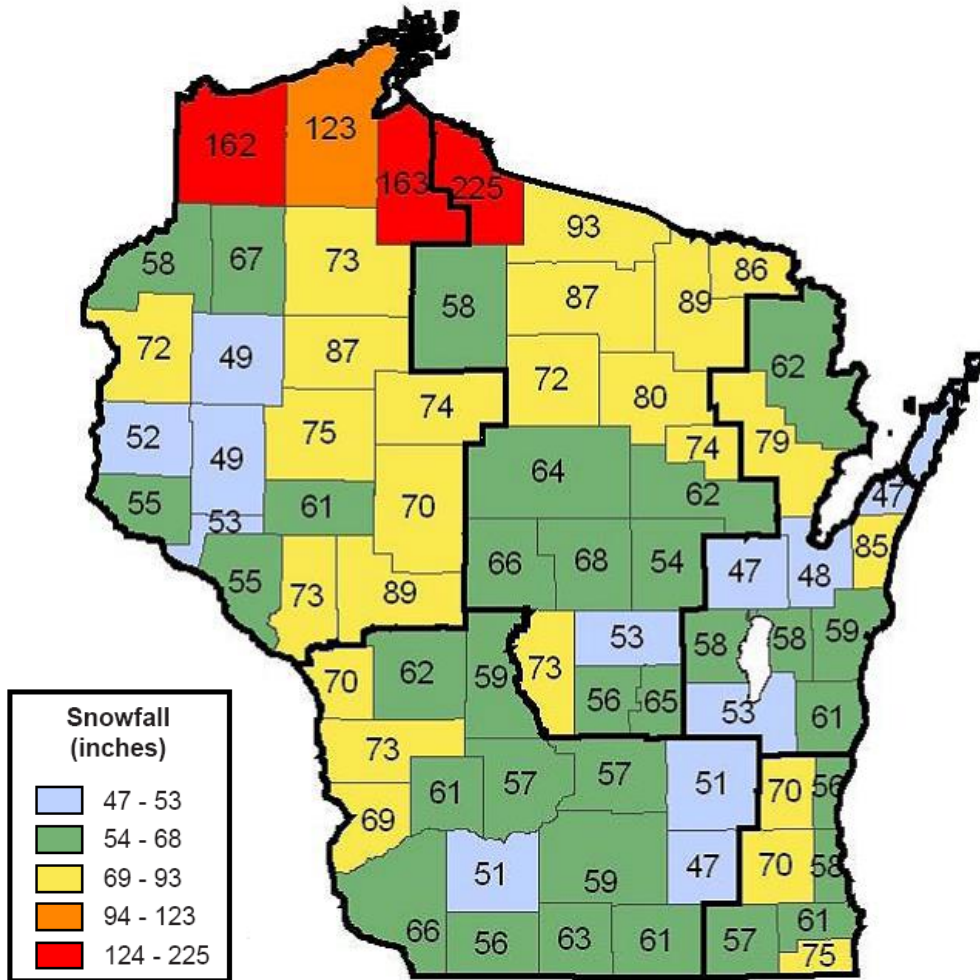
Winter service availability and coverage groups

Group	Definition	Number of Counties	% of Counties
A	Counties where all or most of the highways receive 24-hour coverage	12	17%
B	Counties with 18-hour and 24-hour coverage. More than 50% of highways receive 24-hour coverage.	17	24%
C	Counties with 18-hour and 24-hour coverage. Less than 50% of highways receive 24-hour coverage.	21	29%
D	Counties where no highways receive 24-hour coverage.	22	31%

2006-2007 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.

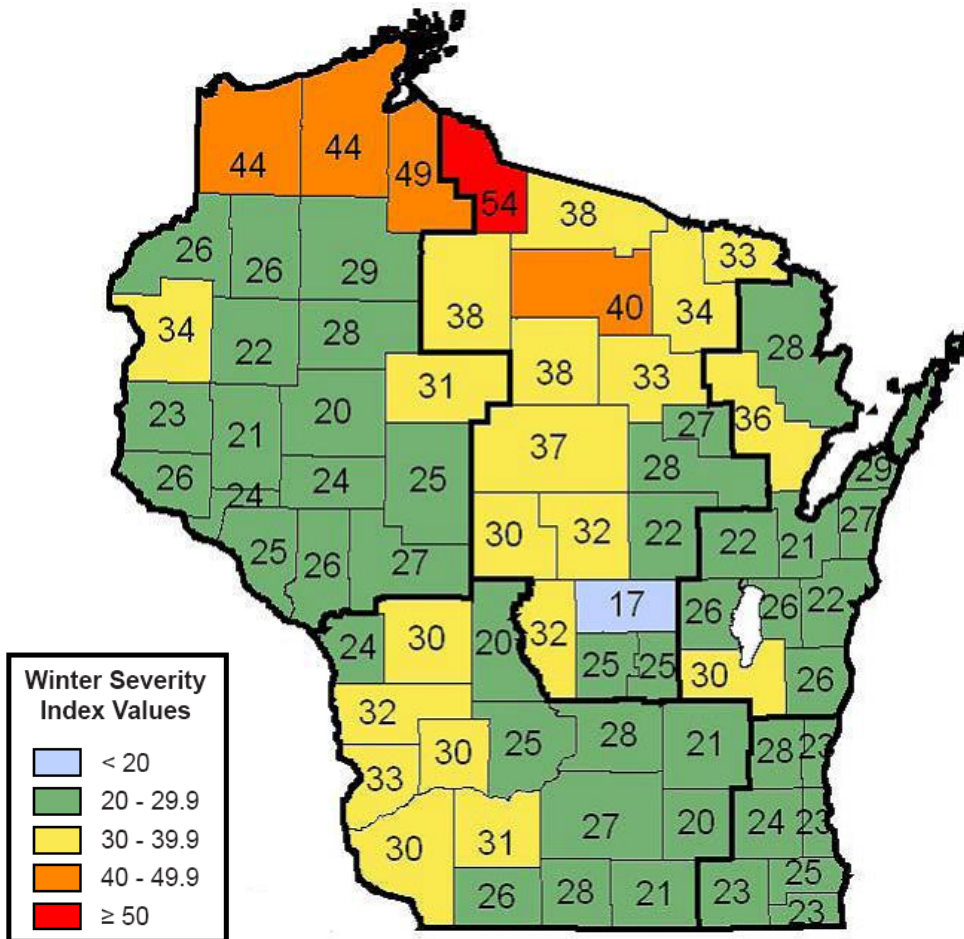
The National Weather Service (NWS) map below shows the snowfall for Wisconsin during the period July 1, 2006 to June 30, 2007. Comparison of the 2006-07 snowfall map to the average snowfall map (also from NWS) indicates that the northern regions had more snowfall than average and the southern regions had less.



2006-2007 Winter Severity Index by County

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 2006-2007 was 28.4 which is slightly lower than the previous ten-year average of 30.7



Winter by the numbers

		2004-05	2005-06	2006-07
Infrastructure	Lane miles	31,810 miles	33,022 miles	33,221 miles
	Road Weather Information System (RWIS) stations	59	59	58
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
	Average cost of salt	\$31.42 per ton	\$35.25 per ton	\$39.04 per ton
	Pre-wetting liquid used	638,685 gal.	803,131 gal.	745,919 gal.
	Anti-icing agent	272,856 gal.	435,277 gal.	485, 485 gal.
	Sand	15,843 cubic yd.	15,997 cubic yd.	13,636 cubic yd.
	Services	Regular county hours on winter ²⁰	110,390 hrs.	110,354 hrs.
Overtime county hours on winter		123,300 hrs.	112,522 hrs.	120,603 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
Cost of public service announcements		\$31,500	\$31,500	\$35,000
Management and Technology	Patrol sections	719	733	768
	Average patrol section length	44.24 miles	45.05 miles	43.00 miles
	Salt spreaders equipped with on-board pre-wetting unit ²¹	639 of 2647 (24%)	639 of 2647 (24%)	658 of 2586 (25%)
	Counties with salt spreaders equipped with on-board pre-wetting unit	59 of 72 (82%)	59 of 72 (82%)	56 of 72 (78%)
	Salt spreaders equipped with ground-speed controller unit	1316 of 2647 (50%)	1316 of 2647 (50%)	1332of 2586 (52%)

²⁰ Costs and hours come from county storm reports, and reflect sanding, salting, plowing and anti-icing efforts.

²¹ 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
	Counties with salt spreaders equipped with ground-speed controller unit	69 of 72 (96%)	69 of 72 (96%)	65 of 72 (90%)
	Underbody plows	508	508	507
	Counties with underbody plows	51 of 72 (71%)	51 of 72 (71%)	51 of 72 (71%)
	Counties equipped to use anti-icing agents	65 of 72 (90%)	65 of 72 (90%)	65 of 72 (90%)
	Counties that used anti-icing agents during 2004-05 winter season	56 of 72 (78%)	50 of 72 (69%)	56 of 72 (78%)

Compass winter maintenance 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 would be expected that an urban freeway (category 1) would receive more materials, labor and equipment – and would show a quicker time to bare/wet pavement – than would a rural two-lane highway (category 5). For more information on these categories, see page 49.

The table below shows that the trend for average time to bare/wet pavement is as expected: The more critical the highway, the shorter the average 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 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, 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)*				2006 – 07 Storms		
		2003 - 04 Average	2004 - 05 Average	2005 - 06 Average	2006 - 07 Average	Total	Bare/wet never achieved	% Bare/wet never achieved
More critical highways ↓	1	1.07	0.45	-1.21	-2.50	160	9	5.6
	2	1.31	0.64	0.2	-0.55	307	27	8.8
	3	1.52	1.82	1.32	1.57	413	19	4.6
Less critical highways	4	2.45	3.06	2.47	2.70	450	62	13.8
	5	3.63	2.89	3.4	2.73	603	106	17.6

* Only includes storms where bare/wet pavement was achieved

Winter maintenance costs

As severity of the winter increases, so does the cost per lane mile. The statewide average cost per lane mile was \$1,549 with average severity index of 28.42. Regions that incurred higher cost per lane mile had more severe weather than the statewide average, with the exception of SE region. The following table lists the total actual cost per lane mile for winter operations in each region, along with region winter severity index. The costs were obtained from the WisDOT’s FOS (Financial Operating System). Total costs include material, labor, equipment, and administrative costs.

Region	Average WSI				Actual cost (\$/LM)				Relative cost per WSI point (Cost per LM / WSI)			
	2003-04	2004-05	2005-06	2006-07	2003-04	2004-05	2005-06	2006-07	2003-04	2004-05	2005-06	2006-07
NC	38.21	36.04	40.16	32.41	\$1,500	\$1,481	\$1,612	1,509	\$39	\$41	\$40	46.56
NE	30.26	31.04	32.48	26.67	\$1,394	\$1,389	\$1,396	1,492	\$46	\$45	\$43	55.94
NW	36.69	34.43	32.61	28.69	\$1,264	\$1,244	\$1,309	1,288	\$34	\$36	\$40	44.89
SE	20.45	25.29	20.32	24.19	\$1,734	\$1,733	\$1,431	2,138	\$85	\$69	\$70	88.38
SW	21.78	27.89	25.93	26.66	\$1,224	\$1,201	\$1,199	1,467	\$56	\$43	\$46	55.03
Statewide	31.20	31.91	31.80	28.42	\$1,391	\$1,374	\$1,386	1,549	\$45	\$43	\$44	54.50

Winter weather crashes per vehicle miles traveled (VMT)

The following table shows that counties with higher winter coverage tend to have fewer crashes per 100 million VMT. (Group A has higher coverage than Group B, etc.). For more information on county groupings A-D, see page 56 at the end of this section. Winter weather crashes are those crashes that occurred on snow-, slush-, or ice-covered pavements.

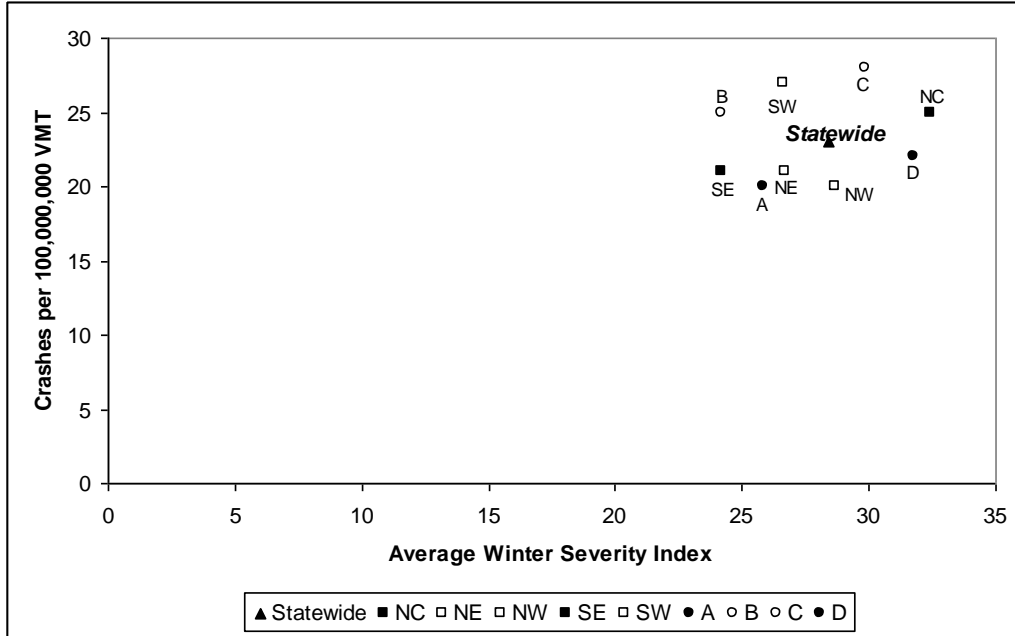
	Winter Service Group	VMT* (100 million)	Crashes	Crashes per 100 million VMT				Average Winter Severity Index			
				2003 - 04	2004 - 05	2005 - 06	2006 - 07	2003 - 04	2004 - 05	2005 - 06	2006 - 07
Counties with more coverage ↓	A	13.74	2807	21	21	20	20	26.02	28.95	26.43	25.82
	B	7.34	1820	29	26	25	25	25.32	27.16	27.39	24.17
Counties with less coverage	C	4.55	1278	35	32	32	28	31.2	32.21	33.23	29.85
	D	2.28	497	34	28	27	22	37.98	36.71	36.77	31.76

*100 million vehicle miles traveled (VMT) for November 1, 2006 through April 30, 2007 determined from annual average daily traffic (AADT) counts, gallons of gas sold, fuel tax collected, and average vehicle miles per gallon.

The following table shows the crashes per 100 million VMT statewide and in each Region. The state average is 23 winter crashes per 100 million VMT.

Scope	VMT (100 million)	Crashes	Crashes per 100 million VMT				Average Winter Severity Index			
			2003 - 04	2004 - 05	2005 - 06	2006 - 07	2003 - 04	2004 - 05	2005 - 06	2006 - 07
Statewide	279.11	6402	26	25	24	23	31.20	31.91	31.80	28.42
NC	34.11	866	34	31	31	25	38.21	36.04	40.16	32.41
NE	50.39	1061	26	25	24	21	30.26	31.04	32.48	26.67
NW	38.99	790	37	31	28	20	36.69	34.43	32.61	28.69
SE	85.61	1818	21	17	17	21	20.45	25.29	20.32	24.19
SW	70.01	1867	29	26	27	27	21.78	27.89	25.93	26.66

The following figure shows us that, as severity of the winter increases, so does the winter crash rate. As expected, the number of winter crashes increases as VMT increases. Regions with more rural roads tend to have higher winter crash rates (crashes per VMT) which are consistent with trends for non-winter crash rates.



2007 Highway Maintenance Conditions: Compass Report on Traffic, Shoulders, Drainage, Roadsides

Data in this section comes from the field review performed by WisDOT region Area Maintenance Coordinators and county Patrol Superintendents. Reporting was done by WisDOT staff. No statistical analysis has been done on this data at the county level. 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.

Traffic:

- Delineators received a feature grade of C for the second straight year.

Shoulders:

- Unpaved shoulders drop-off /buildup received a feature grade of F for the fourth consecutive year. Unpaved drop-off is the worst in the SE regions, but has increased in the NE and NW regions. Repair of shoulder drop-off contributes to safety by keeping cars from dropping down dramatically on one side and possibly over-correcting if one or two wheels leave the pavement.
- Hazardous debris received a feature grade of C, an improvement over the previous three years. Hazardous debris is significantly worse in the NE and SW regions than in other regions. Keeping hazardous debris off the shoulders prevents it from being somehow moved back into live traffic, and protects drivers of cars that may swerve or pull over onto the shoulder.
- Cracking on paved shoulders received a feature grade of D for the fourth year in a row. However, this score is better than targeted. Cracking on paved shoulders is worse in the SE and NE regions.
- Unpaved cross-slope regained a feature grade of B after falling to a C in 2006.

Roadsides and drainage:

- Flumes and culverts received a feature grade of C; all other drainage features received grades of A or B.
- Noxious weeds once again received a feature grade of C with a maintenance backlog much lower than targeted. Noxious weeds appear to be a statewide problem. There is a current policy to not spray Noxious Weeds due to budget limitations.

Counties 2007: Traffic and Shoulders

		Condition % backlogged # of observations													
		Traffic							Shoulders						
Region	County	Centerline	Delineators	Edgeline Markings	Other Signs (emergency)	Protective Barriers	Reg./Warn. Signs (emergency)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)	
NC	ADAMS	0%	--	0%	0%	--	0%	0%	0%	27%	9%	9%	18%	0%	
		11	--	11	3	--	3	2	11	11	11	11	11	11	
	FLORENCE	0%	--	0%	0%	--	0%	--	0%	60%	0%	0%	20%	0%	
		5	--	5	1	--	1	--	5	5	5	5	5	5	
	FOREST	0%	--	0%	0%	--	0%	--	0%	43%	0%	44%	22%	11%	
		11	--	9	4	--	5	--	11	7	7	9	9	9	
	GREEN LAKE	0%	--	0%	0%	--	0%	--	0%	20%	0%	0%	60%	0%	
		5	--	5	3	--	2	--	5	5	5	5	5	5	
	IRON	5%	--	42%	0%	--	0%	--	11%	29%	0%	26%	11%	0%	
		19	--	19	4	--	5	--	19	7	7	19	19	19	
	LANGLADE	0%	--	0%	0%	--	0%	0%	0%	29%	0%	5%	25%	0%	
		20	--	20	5	--	7	2	20	14	14	20	20	20	
	LINCOLN	0%	13%	0%	0%	9%	0%	--	13%	71%	21%	36%	36%	0%	
		15	5	15	4	1	4	--	15	14	14	14	14	14	
	MARATHON	0%	3%	0%	0%	0%	0%	60%	5%	71%	18%	20%	55%	0%	
		21	8	21	8	1	7	5	21	17	17	20	20	20	
	MARQUETTE	0%	0%	0%	0%	0%	0%	--	0%	50%	0%	0%	20%	0%	
		10	1	10	3	1	2	--	10	10	10	10	10	10	
MENOMINEE	0%	--	67%	0%	0%	0%	0%	0%	0%	0%	0%	67%	0%		
	4	--	3	4	1	1	1	4	1	1	3	3	3		
ONEIDA	0%	43%	0%	0%	0%	0%	0%	0%	50%	0%	5%	18%	0%		
	23	2	23	9	1	11	1	23	22	22	22	22	22		
PORTAGE	0%	0%	0%	0%	--	0%	0%	21%	67%	0%	14%	14%	0%		
	14	5	14	6	--	6	2	14	12	12	14	14	14		

		Condition % backlogged # of observations													
		Traffic							Shoulders						
Region	County	Centerline	Delineators	Edgeline Markings	Other Signs (emergency)	Protective Barriers	Reg./Warn. Signs (emergency)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)	
	PRICE	0%	7%	0%	0%	-	0%	100%	6%	36%	9%	19%	38%	0%	
		16	1	16	6	-	7	1	16	11	11	16	16	16	
	SHAWANO	0%	5%	0%	0%	0%	0%	0%	17%	22%	81%	0%	59%	47%	0%
		18	8	17	8	1	5	2	18	16	16	17	17	17	
	VILAS	0%	-	8%	0%	-	0%	0%	23%	67%	0%	23%	23%	0%	
		13	-	13	5	-	6	1	13	9	9	13	13	13	
	WAUPACA	0%	0%	21%	0%	-	0%	100%	14%	13%	0%	21%	50%	7%	
14		3	14	2	-	7	1	14	8	8	14	14	14		
WAUSHARA	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	18%	0%		
	11	3	11	2	1	4	1	11	9	9	11	11	11		
WOOD	10%	-	10%	0%	-	0%	0%	0%	0%	0%	13%	38%	0%		
	10	-	10	4	-	6	3	10	4	4	8	8	8		
NE	BROWN	4%	5%	4%	0%	17%	0%	0%	8%	76%	4%	13%	75%	4%	
		25	17	25	9	6	11	4	25	25	25	24	24	24	
	CALUMET	0%	-	0%	0%	-	0%	0%	22%	56%	11%	0%	25%	0%	
		9	-	9	6	-	5	3	9	9	9	8	8	8	
	DOOR	0%	33%	0%	0%	-	3%	0%	5%	58%	5%	21%	68%	0%	
		20	1	20	9	-	12	2	20	19	19	19	19	19	
	FOND DU LAC	3%	13%	0%	0%	2%	0%	0%	3%	83%	7%	31%	55%	0%	
		30	7	29	7	3	13	5	30	29	29	29	29	29	
	KEWAUNEE	0%	50%	0%	0%	3%	0%	0%	0%	56%	0%	56%	56%	0%	
		9	2	9	3	2	5	1	9	9	9	9	9	9	
MANITOWOC	0%	0%	0%	0%	0%	0%	0%	0%	92%	23%	-	-	-		
	13	2	13	5	2	6	1	13	13	13	-	-	-		
MARINETTE	3%	14%	0%	0%	100%	0%	-	3%	68%	4%	13%	29%	3%		
	31	4	31	11	1	11	-	31	28	28	31	31	31		
OCONTO	0%	4%	0%	0%	0%	0%	0%	0%	44%	0%	0%	19%	0%		
	27	6	27	11	2	10	1	27	25	25	27	27	27		
OUTAGAMIE	0%	22%	0%	0%	0%	2%	7%	25%	35%	5%	13%	35%	0%		

		Condition % backlogged # of observations												
		Traffic							Shoulders					
Region	County	Centerline	Delineators	Edgeline Markings	Other Signs (emergency)	Protective Barriers	Reg./Warn. Signs (emergency)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)
		24	3	24	12	3	15	6	24	20	20	23	23	23
	SHEBOYGAN	4%	18%	4%	0%	1%	0%	0%	19%	38%	4%	20%	44%	0%
	WINNEBAGO	26	6	25	11	3	14	5	26	26	26	25	25	25
		0%	0%	0%	0%	0%	4%	6%	5%	18%	0%	0%	100%	0%
NW	ASHLAND	22	5	21	10	1	8	4	22	22	22	3	3	3
		30%	--	20%	0%	--	0%	100%	0%	33%	11%	20%	40%	0%
	BARRON	10	--	10	2	--	5	1	10	9	9	10	10	10
	BAYFIELD	17%	0%	0%	0%	--	0%	100%	17%	67%	0%	33%	83%	0%
	BUFFALO	6	2	6	3	--	2	1	6	6	6	6	6	6
	BURNETT	0%	--	10%	0%	--	0%	--	0%	50%	17%	30%	40%	0%
	CHIPPEWA	10	--	10	1	--	7	--	10	6	6	10	10	10
	CLARK	9%	43%	36%	0%	0%	0%	--	0%	71%	29%	82%	73%	0%
	DOUGLAS	11	2	11	4	2	3	--	11	7	7	11	11	11
	DUNN	0%	--	0%	--	--	0%	--	0%	25%	0%	0%	100%	0%
	EAU CLAIRE	6	--	6	--	--	2	--	6	4	4	6	6	6
	JACKSON	4%	7%	4%	0%	0%	0%	4%	0%	14%	0%	0%	43%	0%
	PEPIN	23	7	23	5	3	6	6	23	21	21	23	23	23
		0%	0%	0%	0%	--	0%	--	0%	38%	0%	0%	54%	0%
		13	3	13	2	--	5	--	13	13	13	13	13	13
		0%	0%	0%	0%	--	0%	--	0%	50%	0%	0%	44%	22%
	9	4	9	4	--	3	--	9	8	8	9	9	9	
	0%	29%	0%	0%	3%	0%	--	7%	57%	14%	27%	20%	20%	
	15	6	15	3	6	3	--	15	14	14	15	15	15	
	0%	8%	0%	0%	8%	0%	10%	21%	85%	8%	0%	17%	8%	
	14	5	13	7	4	11	5	14	13	13	12	12	12	
	8%	57%	8%	0%	0%	0%	0%	0%	50%	10%	23%	15%	0%	
	13	4	13	1	2	4	1	13	10	10	13	13	13	
	0%	80%	0%	--	0%	0%	--	0%	80%	0%	60%	60%	20%	
	5	3	5	--	3	2	--	5	5	5	5	5	5	

		Condition % backlogged # of observations												
		Traffic							Shoulders					
Region	County	Centerline	Delineators	Edgeline Markings	Other Signs (emergency)	Protective Barriers	Reg./Warn. Signs (emergency)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)
	PIERCE	0%	20%	0%	0%	0%	0%	0%	14%	80%	0%	0%	43%	0%
		7	1	7	4	1	5	1	7	5	5	7	7	7
	POLK	5%	0%	0%	0%	--	0%	0%	9%	33%	10%	50%	68%	0%
		22	1	22	9	--	13	3	22	21	21	22	22	22
	RUSK	0%	0%	0%	0%	--	8%	100%	0%	11%	11%	56%	56%	0%
		9	1	9	1	--	6	2	9	9	9	9	9	9
	SAWYER	6%	--	0%	0%	--	0%	--	0%	7%	0%	6%	29%	0%
		17	--	17	6	--	4	--	17	14	14	17	17	17
	ST. CROIX	5%	16%	5%	0%	0%	0%	--	11%	68%	5%	26%	37%	5%
19		7	19	6	2	4	--	19	19	19	19	19	19	
TAYLOR	0%	0%	0%	0%	--	0%	--	0%	44%	0%	0%	0%	0%	
	9	1	9	1	--	3	--	9	9	9	9	9	9	
TREMPEALEAU	18%	--	27%	0%	--	9%	--	0%	56%	0%	73%	82%	0%	
	11	--	11	3	--	6	--	11	9	9	11	11	11	
WASHBURN	0%	0%	9%	0%	--	0%	--	9%	27%	9%	18%	91%	0%	
	11	1	11	3	--	4	--	11	11	11	11	11	11	
SE	KENOSHA	3%	6%	3%	0%	0%	0%	0%	7%	24%	8%	22%	70%	0%
		29	11	29	15	4	21	13	29	25	25	23	23	23
	MILWAUKEE	5%	0%	19%	0%	3%	5%	15%	5%	64%	18%	50%	67%	17%
		39	6	27	35	15	31	22	39	22	22	12	12	12
	OZAUKEE	0%	16%	0%	0%	7%	0%	0%	0%	63%	0%	6%	44%	0%
		19	8	19	8	5	8	7	19	16	16	16	16	16
	RACINE	0%	13%	3%	0%	0%	2%	8%	0%	54%	18%	40%	48%	0%
		31	6	31	10	2	21	10	31	28	28	25	25	25
WALWORTH	5%	24%	5%	2%	18%	0%	0%	5%	71%	13%	0%	11%	0%	
	38	10	38	19	3	15	3	38	38	38	38	38	38	
WASHINGTON	3%	17%	0%	0%	0%	0%	0%	3%	87%	3%	6%	19%	0%	
	32	11	32	12	5	13	8	32	31	31	32	32	32	
WAUKESHA	4%	0%	4%	0%	0%	1%	0%	10%	65%	13%	3%	49%	3%	

Region	County	Condition % backlogged # of observations												
		Traffic							Shoulders					
		Centerline	Delineators	Edgeline Markings	Other Signs (emergency)	Protective Barriers	Reg./Warn. Signs (emergency)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)
		51	12	51	31	9	30	18	51	40	40	37	37	37
		0%	50%	0%	0%	0%	0%	--	50%	73%	0%	69%	81%	0%
	COLUMBIA	16	2	16	7	1	2	--	16	11	11	16	16	16
		0%	25%	11%	0%	0%	0%	0%	0%	0%	0%	13%	0%	0%
	CRAWFORD	9	2	9	2	3	7	2	9	8	8	8	8	8
		7%	29%	7%	0%	0%	0%	10%	7%	74%	13%	4%	54%	0%
	DANE	28	3	27	12	5	13	5	28	23	23	28	28	28
		0%	21%	0%	0%	--	0%	0%	38%	69%	15%	15%	62%	0%
	DODGE	13	4	13	7	--	6	3	13	13	13	13	13	13
		0%	0%	0%	0%	77%	0%	--	0%	25%	0%	11%	22%	0%
	GRANT	9	1	9	1	1	3	--	9	8	8	9	9	9
		0%	0%	11%	0%	--	0%	--	0%	40%	0%	0%	0%	0%
	GREEN	9	1	9	3	--	3	--	9	5	5	9	9	9
		0%	5%	0%	0%	0%	0%	0%	0%	73%	0%	0%	42%	0%
	IOWA	12	4	12	6	1	4	1	12	11	11	12	12	12
		0%	--	5%	10%	0%	0%	0%	16%	50%	0%	32%	11%	5%
	JEFFERSON	19	--	19	8	1	9	3	19	18	18	19	19	19
		6%	0%	6%	0%	--	--	0%	13%	54%	0%	0%	25%	0%
	JUNEAU	16	3	16	5	--	--	1	16	13	13	16	16	16
		0%	38%	0%	0%	5%	0%	100%	33%	63%	0%	11%	67%	0%
	LA CROSSE	9	5	9	4	3	5	1	9	8	8	9	9	9
		9%	38%	9%	0%	0%	0%	--	0%	11%	0%	0%	0%	0%
	LAFAYETTE	11	3	11	2	3	5	--	11	9	9	11	11	11
		7%	2%	7%	0%	0%	0%	0%	30%	70%	0%	0%	22%	0%
	MONROE	27	11	27	9	3	3	1	27	10	10	27	27	27
		0%	0%	7%	0%	0%	10%	0%	0%	29%	0%	7%	0%	0%
	RICHLAND	14	4	14	6	4	7	1	15	14	14	14	14	14
		0%	0%	0%	0%	0%	0%	0%	0%	82%	9%	0%	8%	0%
	ROCK	13	3	13	4	1	4	1	13	11	11	13	13	13

		Condition % backlogged # of observations													
		Traffic							Shoulders						
Region	County	Centerline	Delineators	Edgeline Markings	Other Signs (emergency)	Protective Barriers	Reg./Warn. Signs (emergency)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)	
	SAUK	0%	44%	0%	0%	100%	0%	0%	44%	56%	0%	64%	71%	0%	
		16	3	16	9	1	5	1	16	9	9	14	14	14	
	VERNON	6%	-	0%	0%	-	8%	-	33%	33%	11%	13%	81%	0%	
		18	-	17	6	-	8	-	18	9	9	16	16	16	

Counties 2007: Drainage and Roadsides

Region	County	Condition % backlogged # of observations													
		Drainage						Roadsides							
		Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Barriers	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
NC	ADAMS	0%	5%	0%	--	0%	--	--	--	27%	0%	0%	0%	9%	0%
		4	2	10	--	2	--	--	--	11	11	2	11	11	11
	FLORENCE	0%	--	0%	--	--	--	--	--	0%	0%	--	40%	0%	0%
		2	--	5	--	--	--	--	--	5	5	--	5	5	5
	FOREST	50%	42%	0%	--	--	11%	--	--	27%	27%	0%	36%	9%	0%
		4	2	8	--	--	2	--	--	11	11	1	11	11	11
	GREEN LAKE	0%	3%	0%	--	0%	--	--	--	40%	40%	0%	20%	0%	0%
		1	1	5	--	1	--	--	--	5	5	1	5	5	5
	IRON	18%	--	1%	0%	--	--	--	--	21%	11%	10%	11%	26%	5%
		10	--	19	1	--	--	--	--	19	19	10	19	19	19
	LANGLADE	0%	0%	0%	--	0%	--	--	--	30%	5%	0%	35%	0%	5%
		5	1	20	--	1	--	--	--	20	20	6	20	20	20
	LINCOLN	0%	--	2%	5%	--	0%	--	5%	80%	53%	0%	53%	7%	0%
		6	--	15	5	--	1	--	4	15	15	3	15	15	15
	MARATHON	11%	1%	0%	3%	0%	0%	--	2%	71%	48%	0%	29%	0%	5%
		5	3	20	9	1	2	--	4	21	21	8	21	21	21
MARQUETTE	0%	0%	0%	--	0%	--	--	0%	30%	40%	0%	0%	0%	0%	
	1	1	10	--	1	--	--	1	10	10	1	10	10	10	
MENOMINEE	--	3%	0%	--	0%	0%	--	--	100%	25%	0%	0%	50%	0%	
	--	1	3	--	1	1	--	--	4	4	1	4	4	4	
ONEIDA	0%	11%	0%	--	--	--	--	--	57%	13%	11%	13%	9%	13%	
	4	1	22	--	--	--	--	--	23	23	9	23	23	23	
PORTAGE	38%	1%	1%	0%	--	100%	--	0%	57%	14%	0%	50%	0%	0%	
	8	1	14	1	--	2	--	5	14	14	2	14	14	14	

		Condition % backlogged # of observations													
		Drainage						Roadsides							
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Barriers	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
	PRICE	17%	16%	1%	--	50%	--	--	13%	63%	44%	0%	6%	38%	0%
		5	2	16	--	1	--	--	1	16	16	13	16	16	16
	SHAWANO	10%	12%	0%	11%	17%	0%	--	--	44%	22%	0%	0%	6%	0%
		9	3	17	8	2	3	--	--	18	18	1	18	18	18
	VILAS	0%	18%	5%	--	--	--	--	--	77%	23%	0%	8%	8%	0%
		4	2	13	--	--	--	--	--	13	13	10	13	13	13
	WAUPACA	33%	0%	0%	0%	0%	--	--	--	57%	14%	0%	0%	0%	0%
		3	1	13	2	1	--	--	--	14	14	1	14	14	14
WAUSHARA	0%	0%	0%	--	--	0%	--	0%	36%	0%	0%	9%	0%	0%	
	2	1	11	--	--	1	--	1	11	11	1	11	11	11	
WOOD	20%	4%	0%	0%	--	6%	--	--	50%	50%	0%	20%	0%	0%	
	4	3	8	1	--	3	--	--	10	10	3	10	10	10	
NE	BROWN	0%	6%	0%	0%	0%	0%	0%	0%	80%	16%	0%	60%	0%	4%
		6	1	25	9	2	4	2	12	25	25	2	25	25	25
	CALUMET	67%	7%	3%	0%	0%	40%	--	--	100%	56%	0%	56%	11%	0%
		4	4	9	1	2	2	--	--	9	9	8	9	9	9
	DOOR	33%	0%	2%	--	100%	11%	--	0%	70%	50%	0%	20%	0%	0%
		3	3	18	--	1	4	--	1	20	20	4	20	20	20
	FOND DU LAC	30%	22%	1%	9%	10%	13%	--	0%	97%	80%	0%	77%	7%	3%
		9	4	29	9	2	4	--	5	30	30	5	30	30	30
	KEWAUNEE	0%	0%	1%	--	0%	--	--	--	78%	56%	0%	89%	0%	11%
4		2	9	--	2	--	--	--	9	9	3	9	9	9	
MANITOWOC	25%	0%	0%	--	--	0%	--	0%	77%	31%	0%	15%	0%	0%	
	6	1	13	--	--	1	--	2	13	13	11	13	13	13	
MARINETTE	30%	--	2%	--	--	0%	0%	0%	45%	48%	0%	3%	0%	0%	
	9	--	31	--	--	1	1	3	31	31	14	31	31	31	
OCONTO	32%	27%	1%	0%	50%	0%	--	0%	48%	52%	7%	19%	4%	4%	

		Condition % backlogged # of observations													
		Drainage						Roadsides							
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Barriers	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
		16	4	26	2	2	4	--	5	27	27	14	27	27	27
	OUTAGAMIE	20%	0%	5%	50%	40%	8%	--	0%	63%	54%	0%	21%	4%	0%
		5	6	23	2	3	5	--	2	24	24	13	24	24	24
	SHEBOYGAN	0%	4%	1%	0%	20%	0%	--	0%	58%	77%	0%	88%	0%	0%
		5	7	25	3	4	6	--	3	26	26	4	26	26	26
	WINNEBAGO	0%	0%	0%	36%	--	0%	--	0%	73%	41%	0%	5%	0%	0%
		6	3	21	2	--	2	--	2	22	22	14	22	22	22
	ASHLAND	0%	--	1%	--	--	--	--	--	30%	10%	0%	0%	10%	0%
		1	--	7	--	--	--	--	--	10	10	1	10	10	10
	BARRON	67%	--	0%	--	--	0%	--	0%	67%	50%	0%	0%	0%	17%
		2	--	6	--	--	1	--	2	6	6	1	6	6	6
	BAYFIELD	50%	--	5%	100%	--	--	--	--	60%	30%	0%	0%	0%	0%
		4	--	9	1	--	--	--	--	10	10	4	10	10	10
	BUFFALO	18%	--	1%	--	--	--	--	--	55%	64%	0%	9%	0%	0%
		8	--	11	--	--	--	--	--	11	11	3	11	11	11
	BURNETT	--	17%	0%	--	0%	--	--	--	67%	67%	0%	0%	0%	0%
		--	1	6	--	1	--	--	--	6	6	1	6	6	6
	CHIPPEWA	20%	6%	0%	40%	75%	--	--	0%	70%	57%	--	0%	0%	0%
		9	4	23	4	3	--	--	4	23	23	--	23	23	23
	CLARK	0%	17%	0%	0%	0%	0%	--	--	69%	46%	--	0%	0%	0%
		2	3	13	3	1	1	--	--	13	13	--	13	13	13
	DOUGLAS	0%	--	1%	--	--	--	--	--	78%	22%	0%	0%	0%	0%
		2	--	9	--	--	--	--	--	9	9	2	9	9	9
	DUNN	13%	--	0%	--	0%	--	--	22%	53%	13%	--	20%	0%	0%
		6	--	14	--	1	--	--	2	15	15	--	15	15	15
	EAU CLAIRE	70%	2%	0%	0%	100%	10%	2%	0%	93%	7%	--	21%	21%	0%
		7	6	12	2	2	2	2	4	14	14	--	14	14	14

		Condition % backlogged # of observations													
		Drainage						Roadsides							
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Barriers	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
	JACKSON	0%	--	0%	0%	--	--	--	29%	54%	0%	--	0%	0%	0%
		6	--	10	3	--	--	--	2	13	13	--	13	13	13
	PEPIN	0%	--	0%	--	--	--	--	--	60%	20%	--	20%	0%	0%
		2	--	4	--	--	--	--	--	5	5	--	5	5	5
	PIERCE	100%	2%	0%	--	--	100%	--	--	43%	71%	--	0%	0%	0%
		1	2	6	--	--	1	--	--	7	7	--	7	7	7
	POLK	43%	42%	0%	--	0%	--	--	--	27%	36%	0%	0%	0%	0%
		5	2	20	--	1	--	--	--	22	22	18	22	22	22
	RUSK	25%	100%	0%	--	--	--	--	--	44%	33%	0%	0%	11%	0%
		4	1	8	--	--	--	--	--	9	9	6	9	9	9
	SAWYER	0%	92%	0%	--	--	100%	--	--	41%	41%	0%	0%	0%	0%
		3	2	14	--	--	1	--	--	17	17	3	17	17	17
ST. CROIX	20%	44%	0%	--	50%	0%	--	0%	74%	32%	--	5%	0%	0%	
	5	2	19	--	2	2	--	4	19	19	--	19	19	19	
TAYLOR	0%	--	8%	--	--	--	--	--	67%	56%	--	0%	0%	0%	
	2	--	8	--	--	--	--	--	9	9	--	9	9	9	
TREMPEALEAU	25%	--	1%	--	--	--	--	--	36%	45%	0%	36%	0%	0%	
	4	--	8	--	--	--	--	--	11	11	2	11	11	11	
WASHBURN	20%	14%	0%	--	--	0%	--	4%	64%	0%	0%	0%	0%	0%	
	5	1	9	--	--	1	--	1	11	11	2	11	11	11	
SE	KENOSHA	50%	0%	6%	34%	0%	18%	--	0%	93%	66%	0%	3%	0%	0%
		2	12	23	6	3	13	--	2	29	29	12	29	29	29
	MILWAUKEE	50%	4%	15%	0%	33%	11%	0%	0%	82%	18%	5%	46%	10%	10%
		4	28	18	1	5	28	3	10	39	39	19	39	39	39
	OZAUKEE	0%	0%	0%	27%	0%	4%	0%	0%	26%	37%	0%	68%	0%	0%
3		8	16	6	1	8	1	6	19	19	2	19	19	19	
RACINE	29%	0%	15%	13%	--	10%	--	0%	71%	65%	0%	16%	0%	0%	

		Condition % backlogged # of observations													
		Drainage						Roadsides							
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Barriers	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
		6	7	27	7	--	16	--	2	31	31	18	31	31	31
	WALWORTH	7%	51%	3%	0%	50%	0%	--	4%	47%	45%	0%	71%	0%	0%
		11	5	35	7	1	4	--	12	38	38	4	38	38	38
	WASHINGTON	20%	24%	2%	0%	0%	0%	0%	0%	13%	47%	0%	75%	0%	3%
		5	5	31	4	3	4	2	9	32	32	7	32	32	32
	WAUKESHA	0%	0%	0%	0%	33%	0%	0%	0%	55%	51%	--	4%	2%	2%
		8	21	31	7	5	20	2	13	51	51	--	51	51	51
	COLUMBIA	33%	78%	0%	67%	--	--	--	0%	94%	25%	0%	81%	0%	6%
		3	1	15	2	--	--	--	2	16	16	1	16	16	16
	CRAWFORD	0%	5%	0%	--	--	0%	--	--	33%	0%	0%	0%	0%	0%
		3	4	6	--	--	2	--	--	9	9	1	9	9	9
	DANE	9%	1%	1%	7%	0%	0%	--	0%	82%	18%	0%	57%	4%	0%
		10	4	26	3	2	4	--	5	28	28	5	28	28	28
	DODGE	33%	20%	5%	33%	100%	--	--	0%	100%	46%	--	85%	0%	0%
		6	1	12	3	1	--	--	4	13	13	--	13	13	13
	GRANT	0%	--	0%	--	--	--	--	--	22%	33%	--	0%	0%	0%
		4	--	9	--	--	--	--	--	9	9	--	9	9	9
	GREEN	50%	--	0%	--	--	--	--	--	56%	22%	--	100%	0%	0%
		2	--	9	--	--	--	--	--	9	9	--	9	9	9
	IOWA	0%	0%	0%	--	--	0%	--	0%	58%	17%	--	92%	0%	0%
		1	1	11	--	--	1	--	2	12	12	--	12	12	12
	JEFFERSON	0%	9%	2%	--	50%	0%	--	0%	68%	32%	0%	74%	0%	0%
		5	5	15	--	2	1	--	2	19	19	6	19	19	19
	JUNEAU	60%	--	1%	--	--	--	--	0%	69%	6%	--	0%	0%	0%
		8	--	14	--	--	--	--	3	16	16	--	16	16	16
	LA CROSSE	33%	2%	6%	25%	0%	25%	--	1%	78%	44%	0%	22%	0%	11%
		6	2	9	1	2	1	--	3	9	9	9	9	9	9

		Condition % backlogged # of observations													
		Drainage						Roadsides							
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Barriers	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
	LAFAYETTE	0%	0%	0%	0%	0%	0%	--	0%	91%	27%	--	100%	0%	0%
		5	2	11	2	1	1	--	1	11	11	--	11	11	11
	MONROE	23%	0%	1%	100%	0%	0%	--	0%	85%	7%	--	0%	0%	0%
		12	1	22	2	2	2	--	7	27	27	--	27	27	27
	RICHLAND	0%	12%	0%	--	0%	0%	--	--	33%	27%	0%	0%	7%	0%
		3	2	13	--	1	1	--	--	15	15	5	15	15	15
	ROCK	100%	--	4%	0%	--	0%	--	0%	69%	15%	100%	100%	0%	0%
		1	--	13	1	--	1	--	2	13	13	1	13	13	13
	SAUK	33%	16%	0%	67%	--	40%	--	0%	81%	44%	0%	63%	0%	0%
		3	4	14	2	--	3	--	2	16	16	1	16	16	16
	VERNON	27%	6%	6%	--	50%	100%	--	--	67%	17%	12%	22%	28%	11%
		11	3	17	--	2	1	--	--	18	18	17	18	18	18

Mowing

The following table shows the number of segments with deficient Mowing and the distribution of the deficiencies' 'how' (shown as columns) and 'why' (shown as rows) at the statewide level. For the overall report, all of the segments shown are considered a backlog 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 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	9	0	3	3	
		4%	0%	1%	75%	
	Mowed by Property Owner	205	380	72	1	
		86%	99%	21%	25%	
	Woody Vegetation Control	5	0	1	0	
		2%	0%	0%	0%	
	Maintenance Decision	59	69	319	0	
		25%	18%	91%	0%	
	Total		237	385	349	4

2007 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 three weeks from April 7th to May 2nd, 2008.

Key observations

Bridge Deck Condition Distribution

- 33% of decks statewide are in Fair condition and need reactive maintenance, based on their NBI ratings of 5 or 6. These include 28% of concrete bridges and 42% of steel bridges.
- The SE region has the lowest percent of decks in good condition, only 48% of decks in good condition and 5% of decks in poor condition. However, this is a 5% improvement from last year, and SE region does have the largest deck area to maintain (13,897,617 ft²).
- The NE region (837 bridges) has the best bridge ratings in the state with 79% of decks in Good condition and an impressive 0% in Poor condition.

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:
 - 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

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 are the most up to date with 0% of backlogs statewide, while routine inspections and Underwater Diving inspections as the next lowest with only 2% backlog.
- Fracture critical and in-depth inspections have the highest percent backlogs with 52% and 44%, respectively, but this represents only 8 and 35 bridges, respectively. These compliance estimates for fracture critical and in-depth inspections are preliminary as the state is still populating the HIS database. The HSI database becomes current for all inspection types in 2008.

2007 Bridges: Compass Report on Condition

Wisconsin 2007: Bridge Condition Distribution

	Bridges	Deck Area (ft ²)	Component	% of bridges in condition			
				Good ¹	Fair ²	Poor ³	Critical ³
All	5007	48,232,589	Decks	64%	33%	3%	0%
			Superstructures	70%	28%	1%	0%
			Substructures	70%	29%	1%	0%
Concrete	3423	25,833,160	Decks	70%	28%	2%	0%
			Superstructures	78%	21%	1%	0%
			Substructures	79%	21%	0%	0%
Steel	1584	22,399,429	Decks	53%	42%	5%	0%
			Superstructures	55%	43%	2%	0%
			Substructures	54%	44%	3%	0%

Region 2007: Bridge Condition Distribution

Region	Bridges	Deck Area (ft ²)	Component	% of bridges in condition			
				Good ¹	Fair ²	Poor ³	Critical ³
NC	620	4,323,989	Decks	77%	21%	2%	0%
			Superstructures	84%	15%	1%	0%
			Substructures	82%	17%	1%	0%
NE	837	8,656,480	Decks	79%	21%	0%	0%
			Superstructures	82%	17%	1%	0%
			Substructures	73%	25%	1%	0%
NW	1067	9,461,499	Decks	50%	47%	4%	0%
			Superstructures	65%	32%	2%	0%
			Substructures	67%	31%	2%	0%
SE	1023	13,897,617	Decks	48%	48%	5%	0%
			Superstructures	49%	50%	1%	0%
			Substructures	50%	50%	0%	0%
SW	1462	11,894,594	Decks	73%	24%	3%	0%
			Superstructures	76%	22%	2%	0%
			Substructures	81%	18%	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.

Bridge Maintenance Needs

Bridges recommended for maintenance are shown as percent of total bridges in the county/region/state. The recommended maintenance activities listed on this table are the 20 most recommended maintenance activities statewide.

Wisconsin 2007: Bridge Maintenance Needs

Maintenance	% of bridges recommended for maintenance					
	Statewide	Region				
		NC	NE	NW	SE	SW
Deck - Seal Surface Cracks	16%	39%	18%	7%	14%	13%
Expansion Joints – Seal	11%	11%	25%	2%	18%	4%
Misc - Cut Brush	9%	4%	4%	5%	17%	12%
Approach - Seal Approach to Paving Block	9%	1%	4%	16%	9%	10%
Deck – Patching	7%	12%	9%	4%	9%	4%
Drainage - Repair Washouts / Erosion	7%	2%	9%	4%	12%	6%
Approach - Wedge Approach	5%	3%	1%	2%	12%	7%
Misc - Remove/Monitor Loose Concrete	5%	0%	0%	0%	23%	1%
Approach - Other Work	3%	1%	1%	1%	9%	3%
Approach - Seal Cracks	3%	0%	0%	1%	11%	2%
Deck - Other Work	3%	1%	3%	1%	6%	3%
Channel - Remove Debris	2%	1%	1%	1%	2%	5%
Drainage - Clean Downspouts	2%	0%	2%	0%	8%	1%
Substructure - Repair Abutment / Wings	2%	2%	4%	1%	4%	1%
Deck - Surface Repair Spalls	2%	2%	2%	4%	2%	2%
Approach - Repair Approaches	2%	2%	1%	1%	4%	2%
IMP-Concrete Overlay	2%	0%	0%	0%	3%	0%
Slope Protection - Other Work	2%	2%	2%	1%	1%	1%
Slope Protection - Reseal Slope Paving	2%	1%	0%	3%	1%	0%
Drainage - Repair/Construct Drainage Flumes	2%	1%	1%	0%	1%	2%
Misc - Other Work*	11%	9%	6%	2%	37%	4%

* All maintenance activities that are not listed.

Counties 2007: Bridge Maintenance Needs

The recommended maintenance activities listed on this table are the twelve most recommended maintenance activities statewide

Region	County	Number of state bridges	% of bridges recommended for maintenance							
			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	Misc - Other Work*
NC	ADAMS	7	43%	29%	0%	0%	0%	0%	14%	0%
	FLORENCE	8	0%	0%	0%	0%	0%	0%	0%	0%
	FOREST	11	0%	0%	9%	0%	0%	9%	0%	0%
	GREEN LAKE	10	50%	20%	10%	0%	0%	0%	20%	0%
	IRON	18	0%	0%	17%	0%	0%	0%	0%	0%
	LANGLADE	11	0%	0%	0%	9%	0%	0%	0%	0%
	LINCOLN	52	15%	2%	2%	0%	0%	0%	4%	6%
	MARATHON	151	53%	18%	7%	0%	20%	3%	3%	15%
	MARQUETTE	36	42%	25%	0%	0%	8%	0%	6%	6%
	MENOMINEE	3	33%	0%	33%	33%	0%	0%	0%	0%
	ONEIDA	14	14%	0%	0%	0%	0%	0%	0%	0%
	PORTAGE	79	57%	9%	1%	1%	29%	1%	0%	11%
	PRICE	21	10%	0%	0%	0%	0%	0%	0%	0%
	SHAWANO	53	36%	2%	8%	2%	0%	4%	4%	2%
	VILAS	11	55%	0%	0%	0%	9%	0%	0%	0%
WAUPACA	63	25%	8%	0%	0%	5%	2%	0%	13%	
WAUSHARA	21	33%	19%	0%	0%	29%	0%	0%	10%	
WOOD	51	61%	16%	4%	2%	18%	4%	6%	14%	
NE	BROWN	246	17%	21%	4%	0%	8%	9%	0%	7%
	CALUMET	13	8%	38%	8%	0%	15%	31%	8%	8%
	DOOR	13	23%	15%	8%	0%	0%	0%	0%	31%
	FOND DU LAC	72	36%	17%	0%	3%	4%	7%	6%	7%
	KEWAUNEE	18	0%	11%	0%	0%	6%	6%	0%	0%
	MANITOWOC	89	6%	22%	3%	6%	7%	4%	0%	3%

Region	County	Number of state bridges	% of bridges recommended for maintenance							
			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	Misc - Other Work*
	MARINETTE	34	21%	24%	12%	18%	9%	0%	0%	3%
	OCONTO	37	35%	16%	0%	0%	3%	14%	0%	0%
	OUTAGAMIE	80	13%	44%	4%	15%	10%	15%	4%	9%
	SHEBOYGAN	85	21%	24%	7%	4%	25%	13%	1%	0%
	WINNEBAGO	146	18%	33%	2%	6%	10%	10%	0%	10%
NW	ASHLAND	19	0%	0%	0%	0%	0%	0%	5%	0%
	BARRON	65	2%	0%	9%	6%	6%	2%	0%	0%
	BAYFIELD	34	0%	0%	0%	0%	0%	0%	0%	0%
	BUFFALO	71	1%	0%	0%	3%	0%	0%	1%	0%
	BURNETT	15	0%	0%	0%	13%	0%	0%	7%	0%
	CHIPPEWA	135	15%	11%	2%	21%	5%	4%	1%	5%
	CLARK	43	9%	2%	19%	37%	2%	0%	0%	5%
	DOUGLAS	61	0%	0%	0%	0%	0%	0%	0%	0%
	DUNN	91	9%	1%	10%	24%	3%	5%	4%	4%
	EAU CLAIRE	111	14%	0%	5%	41%	5%	5%	0%	1%
	JACKSON	74	5%	4%	4%	12%	3%	9%	1%	3%
	PEPIN	16	0%	13%	13%	0%	0%	0%	0%	6%
	PIERCE	57	5%	2%	9%	7%	2%	12%	5%	2%
	POLK	13	8%	0%	0%	0%	15%	8%	0%	0%
	RUSK	30	3%	0%	0%	0%	0%	0%	0%	0%
	SAWYER	19	0%	0%	5%	11%	11%	0%	5%	0%
	ST. CROIX	99	15%	1%	11%	30%	3%	10%	9%	2%
	TAYLOR	21	5%	0%	0%	0%	10%	0%	0%	10%
TREMPEALEAU	73	0%	0%	5%	11%	4%	4%	3%	0%	
WASHBURN	20	5%	0%	0%	0%	5%	0%	0%	0%	
SE	KENOSHA	56	27%	34%	5%	5%	4%	7%	2%	27%
	MILWAUKEE	503	10%	23%	22%	6%	12%	5%	5%	32%
	OZAUKEE	50	16%	6%	22%	14%	10%	16%	22%	58%

Region	County	Number of state bridges	% of bridges recommended for maintenance							
			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	Misc - Other Work*
	RACINE	53	6%	13%	11%	17%	2%	0%	8%	30%
	WALWORTH	115	17%	16%	11%	8%	4%	15%	16%	62%
	WASHINGTON	74	1%	7%	4%	15%	0%	4%	5%	27%
	WAUKESHA	172	25%	9%	15%	11%	15%	37%	37%	37%
SW	COLUMBIA	97	4%	0%	23%	5%	4%	5%	2%	1%
	CRAWFORD	66	52%	2%	14%	15%	6%	3%	24%	11%
	DANE	283	1%	6%	19%	13%	2%	7%	4%	4%
	DODGE	64	2%	3%	9%	3%	2%	3%	5%	5%
	GRANT	67	22%	0%	10%	12%	4%	7%	9%	7%
	GREEN	28	7%	0%	4%	0%	7%	0%	0%	7%
	IOWA	56	4%	0%	9%	2%	4%	5%	2%	0%
	JEFFERSON	72	0%	3%	8%	6%	3%	0%	0%	0%
	JUNEAU	80	33%	16%	0%	8%	11%	5%	0%	1%
	LA CROSSE	107	36%	5%	10%	33%	7%	11%	10%	9%
	LAFAYETTE	40	3%	0%	10%	3%	8%	10%	5%	0%
	MONROE	154	0%	3%	7%	9%	6%	3%	10%	10%
	RICHLAND	78	17%	3%	22%	10%	6%	3%	10%	6%
	ROCK	120	4%	2%	7%	4%	3%	1%	2%	3%
SAUK	77	0%	1%	4%	9%	0%	4%	1%	0%	
VERNON	73	7%	4%	12%	5%	4%	22%	23%	0%	

* All maintenance activities that are not listed.

Wisconsin and Regions 2007: 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 HSI (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 & Major Rehab, 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						
	Initial	Routine	Load Posted	In-depth	Fracture Critical	Underwater Diving	Underwater Probe/Visual
NC	0%	0%	0%	100%	0%	0%	24%
	0	0	0	5	0	0	63
NE	0%	0%	100%	67%	17%	3%	16%
	0	0	5	4	5	2	36
NW	0%	3%	100%	83%	9%	1%	27%
	1	30	3	10	2	1	147
SE	0%	2%	0%	18%	0%	11%	35%
	1	21	0	7		1	92
SW	0%	3.22%	100%	53%	3%	2%	12%
	2	47	3	9	1	2	37
Statewide	0%	2%	8%	44%	52%	2%	23%
	4	98	11	35	8	6	375

Counties 2007: 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%	0%
		0	0	--	--	--	0	0
	FLORENCE	0%	0%	--	--	0%	0%	0%
		0	0	--	--	0	0	0
	FOREST	0%	0%	--	--	--	--	100%
		0	0	--	--	--	--	3
	GREEN LAKE	0%	0%	--	--	--	--	20%
		0	0	--	--	--	--	2
	IRON	0%	0%	--	--	--	0%	0%
		0	0	--	--	--	0	0
	LANGLADE	0%	0%	--	--	0%	--	50%
		0	0	--	--	0	--	1
	LINCOLN	0%	0%	--	--	0%	0%	100%
		0	0	--	--	0	0	6
	MARATHON	0%	0%	--	--	100%	0%	20%
		0	0	--	--	4	0	16
	MARQUETTE	0%	0%	--	--	--	0%	29%
	0	0	--	--	--	0	4	
MENOMINEE	0%	0%	--	--	--	--	100%	
	0	0	--	--	--	--	1	
ONEIDA	0%	0%	--	--	--	0%	100%	
	0	0	--	--	--	0	3	
PORTAGE	0%	0%	--	--	--	0%	0%	
	0	0	--	--	--	0	0	
PRICE	0%	0%	--	--	--	0%	0%	
	0	0	--	--	--	0	0	
SHAWANO	0%	0%	--	--	0%	0%	43%	
	0	0	--	--	0	0	3	
VILAS	0%	0%	--	--	--	0%	75%	

Region	County	Special Inspection Type						
		Initial	Routine	Load Posted	In-depth	Fracture Critical	Underwater Diving	Underwater Probe/Visual
		0	0	--	--	--	0	3
		0%	0%	--	--	0%	0%	36%
	WAUPACA	0	0	--	--	0	0	14
		0%	0%	--	--	--	--	75%
	WAUSHARA	0	0	--	--	--	--	6
		0%	0%	--	100%	0%	0%	2%
	WOOD	0	0	--	1	0	0	1
NE		0%	0%	--	100%	50%	0%	38%
	BROWN	0	0	--	1	4	0	16
		0%	0%	--	--	--	--	0%
	CALUMET	0	0	--	--	--	--	0
		0%	0%	100%	--	0%	0%	0%
	DOOR	0	0	4	--	0	0	0
		0%	0%	--	--	--	--	0%
	FOND DU LAC	0	0	--	--	--	--	0
		0%	0%	--	--	--	0%	100%
	KEWAUNEE	0	0	--	--	--	0	14
		0%	0%	--	--	0%	--	10%
	MANITOWOC	0	0	--	--	0	--	3
		0%	0%	--	--	0%	25%	0%
	MARINETTE	0	0	--	--	0	2	0
	0%	0%	--	--	0%	--	0%	
OCONTO	0	0	--	--	0	--	0	
	0%	0%	100%	50%	0%	0%	0%	
OUTAGAMIE	0	0	1	1	0	0	0	
	0%	0%	--	--	--	--	10%	
SHEBOYGAN	0	0	--	--	--	--	3	
	0%	0%	--	67%	13%	0%	0%	
WINNEBAGO	0	0	--	2	1	0	0	
NW		0%	0%	--	--	--	0%	56%
	ASHLAND	0	0	--	--	--	0	5
	BARRON	0%	0%	--	--	--	0%	17%

Region	County	Special Inspection Type						
		Initial	Routine	Load Posted	In-depth	Fracture Critical	Underwater Diving	Underwater Probe/Visual
		0	0	--	--	--	0	4
		0%	0%	--	--	--	0%	8%
	BAYFIELD	0	0	--	--	--	0	2
		0%	0%	--	--	0%	7%	15%
	BUFFALO	0	0	--	--	0	1	6
		0%	0%	--	--	0%	0%	29%
	BURNETT	0	0	--	--	0	0	2
		0%	0%	--	--	0%	0%	41%
	CHIPPEWA	0	0	--	--	0	0	21
		0%	0%	--	--	--	--	100%
	CLARK	0	0	--	--	--	--	23
		0%	0%	100%	--	0%	0%	25%
	DOUGLAS	0	0	1	--	0	0	8
		0%	0%	--	100%	0%	0%	5%
	DUNN	0	0	--	2	0	0	3
		1%	1%	--	100%	0%	0%	38%
	EAU CLAIRE	1	1	--	4	0	0	13
		0%	0%	--	--	--	0%	16%
	JACKSON	0	0	--	--	--	0	5
		0%	0%	--	--	--	0%	0%
	PEPIN	0	0	--	--	--	0	0
		0%	49%	--	100%	0%	0%	77%
	PIERCE	0	28	--	1	0	0	33
		0%	0%	--	0%	0%	0%	0%
	POLK	0	0	--	0	0	0	0
		0%	0%	--	0%	--	0%	10%
	RUSK	0	0	--	0	--	0	2
		0%	0%	--	--	--	0%	0%
	SAWYER	0	0	--	--	--	0	0
		0%	1%	100%	0%	--	0%	17%
	ST. CROIX	0	1	1	0	--	0	11
	TAYLOR	0%	0%	--	100%	67%	--	33%

		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
		0	0	--	1	2	--	3
	TREMPEALEAU	0%	0%	100%	100%	0%	0%	20%
		0	0	1	1	0	0	4
	WASHBURN	0%	0%	--	--	--	--	14%
		0	0	--	--	--	--	2
SE	KENOSHA	0%	4%	--	--	0%	--	17%
		0	2	--	--	0	--	4
	MILWAUKEE	0%	2%	0%	18%	0%	0%	53%
		1	9	0	6	0	0	40
	OZAUKEE	0%	0%	0%	--	--	100%	27%
		0	0	0	--	--	1	4
	RACINE	0%	4%	--	--	--	--	4%
		0	2	--	--	--	--	1
	WALWORTH	0%	0%	0%	50%	--	--	22%
		0	0	0	1	--	--	8
WASHINGTON	0%	0%	--	0%	--	0%	25%	
	0	0	--	0	--	0	6	
WAUKESHA	0%	5%	--	0%	--	--	46%	
	0	8	--	0	--	--	29	
SW	COLUMBIA	0%	1%	100%	0%	0%	7%	12%
		0	1	1	0	0	1	2
	CRAWFORD	0%	0%	100%	0%	0%	0%	9%
		0	0	1	0	0	0	2
	DANE	0%	3%	--	100%	0%	0%	18%
		0	9	--	1	0	0	5
	DODGE	0%	0%	--	--	--	0%	10%
		0	0	--	--	--	0	1
GRANT	0%	0%	--	--	0%	0%	0%	
	0	0	--	--	0	0	0	
GREEN	0%	0%	--	--	--	0%	0%	
	0	0	--	--	--	0	0	
IOWA	4%	2%	--	100%	0%	0%	0%	

		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
		2	1	--	1	0	0	0
		0%	0%	--	--	--	0%	6%
	JEFFERSON	0	0	--	--	--	0	1
		0%	0%	--	--	0%	0%	6%
	JUNEAU	0	0	--	--	0	0	1
		0%	0%	--	100%	17%	0%	69%
	LA CROSSE	0	0	--	3	1	0	11
		0%	0%	--	--	0%	0%	8%
	LAFAYETTE	0	0	--	--	0	0	1
		0%	0%	--	100%	0%	--	0%
	MONROE	0	0	--	1	0	--	0
		0%	41%	--	--	0%	25%	29%
	RICHLAND	0	32	--	--	0	1	6
		0%	3%	--	50%	0%	0%	0%
	ROCK	0	4	--	2	0	0	0
		0%	0%	--	100%	0%	0%	3%
	SAUK	0	0	--	1	0	0	1
		0%	0%	100%	0%	0%	--	22%
	VERNON	0	0	1	0	0	--	6

Appendices

- A. Program Contributors**
- B. Feature Thresholds and Grade Ranges**
- C. Feature Contribution Categories**
- D. 2006-2007 Maintenance Targets**

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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
Traveled way, asphalt	Alligator cracking	10% or more of the surface has unsealed alligator cracking (by mile)	0-7%	8-18%	19-35%	36-60%	>60%
	Block cracking	10% or more of the surface has unsealed block cracking (by mile)	7%	18%	35%	60%	>60%
	Edge raveling	Visible cracking is present for 10% or more of the mile	7%	18%	35%	60%	>60%
	Flushing	Flushing is present in more than small, isolated areas (by mile)	7%	18%	35%	60%	>60%
	Longitudinal cracking	Any unsealed longitudinal cracking (by mile)	7%	18%	35%	60%	>60%
	Longitudinal distortion	Significant distortion affects 1% or more of roadway (by mile)	6%	15%	29%	50%	>50%
	Patch deterioration	Any patch is deteriorated enough to affect ride quality (by mile)	6%	15%	29%	50%	>50%
	Rutting	Ruts are ¼ inch or deeper (by mile)	2%	5%	9%	15%	>15%
	Surface raveling	The aggregate and/or asphalt binder has worn away and the surface texture is rough or pitted (by mile)	6%	15%	29%	50%	>50%
	Transverse cracking	Any unsealed transverse cracks at least 6' in length (by mile)	7%	18%	35%	60%	>60%
Transverse distortion	Significant distortion affects 1% or more of roadway (by mile)	6%	15%	29%	50%	>50%	
Traveled way, concrete	Distressed joints/cracks	Distress in wheel path greater than 2 inches wide (by mile)	6%	15%	29%	50%	>50%
	Longitudinal joint distress	Faulting or signs of distress are present (by mile)	6%	15%	29%	50%	>50%
	Patch deterioration	Any patch is deteriorated enough to affect ride quality (by mile)	6%	15%	29%	50%	>50%
	Slab breakup	Slab is divided into at least 2-3 large blocks, affecting 10% or more of the slab (by mile)	6%	15%	29%	50%	>50%
	Surface distress	Any measurable surface distress is present (by mile)	7%	18%	35%	60%	>60%
	Transverse faulting	Any measurable faulting (by mile)	6%	15%	29%	50%	>50%
Traffic control	Centerline markings	Line with > 20% paint missing (by mile)	2%	5%	9%	15%	>15%

Element	Feature	Threshold	Ranges for System Grades <i>Grade determined by percent backlogged shown: top of range</i>				
			A	B	C	D	F
& safety devices (selected)	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%
	Other signs (emergency repair)	Missing OR not visible at posted speed (by sign)	4%	9%	18%	30%	>30%
	Other signs (routine)		7%	18%	35%	60%	>60%
	Protective barriers	Not functioning as intended (linear feet of barrier)	4%	9%	18%	30%	>30%
	Raised pavement markers	Missing OR damaged (by RPM)	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)	4%	9%	18%	30%	>30%
	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%
	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%

Element	Feature	Threshold	Ranges for System Grades <i>Grade determined by percent backlogged shown: top of range</i>				
			A	B	C	D	F
	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 $\geq 50\%$ 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	Barriers	Noise barrier or retaining wall not functioning as intended (by LF of barrier)	4%	9%	18%	30%	>30%
	Fences	Fence missing OR not functioning as intended (by LF of fence)	4%	9%	18%	30%	>30%
	Litter	Any pieces of litter on shoulders and roadside visible at posted speed, but not causing a safety threat. (by mile)	10%	25%	47%	80%	>80%
	Mowing	Any roadside has mowed grass that is too short, too wide or is mowed in a no-mow zone (by mile)	10%	25%	47%	80%	>80%
	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		✓			
	Other Signs (emerg. repair)		✓			
	Other Signs (routine repair)			✓		
	Protective Barriers		✓			
	Raised Pavement Markers		✓			
	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	Barriers				✓	
	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 2006 and 2007 Target Service Levels

October 16, 2006

Issued by

David Vieth, Director of the Bureau of Highway Operations

Attached are the 2006 and 2007 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 2007 targets will help structure the process for developing 2007 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 2005. 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, if at all. Litter removal and mowing will be reduced over time.
 - No maintenance of 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. 2006 and 2007 Highway Operations Targets

Element	Feature	2003 Actual Percent Backlogged and Feature Grade - Statewide	2004 Actual Percent Backlogged and Feature Grade - Statewide	2005 Actual Percent Backlogged and Feature Grade - Statewide	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
Asphalt Traveled Way	Alligator Cracking	1=A	1=A	1=A	3=A	5=A	5=A	5=A
	Block Cracking	3=A	3=A	3=A	5=A	5=A	5=A	5=A
	Edge Raveling	14=B	15=B	15=B	15=B	15=B	18=B	20=C
	Flushing	1=A	0=A	0=A	1=A	1=A	1=A	1=A
	Longitudinal Cracking	24=C	26=C	26=C	21=C	25=C	28=C	30=C
	Longitudinal Distortion	0=A	0=A	0=A	0=A	1=A	1=A	1=A
	Patch Deterioration	10=B	9=B	9=B	10=B	10=B	10=B	10=B
	Rutting	11=D	9=C	9=C	17=F	15=D	13=D	10=D
	Surface Raveling	2=A	1=A	1=A	2=A	2=A	2=A	2=A
	Transverse Cracking	22=C	24=C	24=C	24=C	25=C	28=C	30=C
Transverse Distortion	1=A	1=A	1=A	5=A	5=A	5=A	5=A	
Concrete Traveled Way	Distressed Joints/Cracks	34=D	34=D	33=D	43=D	43=D	43=D	43=D

Element	Feature	2003 Actual Percent Backlogged and Feature Grade - Statewide	2004 Actual Percent Backlogged and Feature Grade - Statewide	2005 Actual Percent Backlogged and Feature Grade - Statewide	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
	Longitudinal Joint Distress	22=C	21=C	21=C	27=C	27=C	27=C	27=C
	Patch Deterioration	28=C	28=C	28=C	30=D	30=D	30=D	30=D
	Slab Breakup	46=D	45=D	44=D	44=D	45=D	45=D	45=D
	Surface Distress	21=C	20=C	20=C	25=C	25=C	25=C	25=C
	Transverse Faulting	76=F	74=F	74=F	80=F	75=F	75=F	75=F
Traffic and Safety	Centerline Markings	6=C	5=B	5=B	6=C	5=B	5=B	6=C
	Delineators	19=C	21=C	24=D	15=C	15=C	25=D	25=D
	Edgeline Markings	11=C	7=B	5=B	6=B	6=B	6=B	7=B
	Other Signs (emerg. repair)	2=A	0=A	1=A	15=C	1=A	1=A	1=A
	Other Signs (routine repair)	--	46=D	59=D	--	50=D	65=F	70=F
	Protective Barriers	18=C	3=A	4=A	9=B	3=A	3=A	3=A
	Raised Pavement Markers	11=C	15=C	15=C	14=C	25=D	25=D	25=D

Element	Feature	2003 Actual Percent Backlogged and Feature Grade - Statewide	2004 Actual Percent Backlogged and Feature Grade - Statewide	2005 Actual Percent Backlogged and Feature Grade - Statewide	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
	Reg./Warning Signs (emerg.)	6=C	1=A	1=A	6=C	0=A	0=A	0=A
	Reg./Warning Signs (routine)	--	36=D	41=F	--	40=D	35=D	30=D
	Special Pavement Markings	15=C	13=C	5=A	21=C	25=D	25=D	25=D
Shoulders	Hazardous Debris	9=C	13=D	12=D	6=C	6=C	6=C	6=C
	Cracking (paved)	46=D	51=D	52=D	50=D	60=D	60=D	60=D
	Potholes/Raveling (paved)	7=B	5=A	7=B	12=B	10=B	10=B	10=B
	Cross-Slope (unpaved)	14=B	15=B	14=B	9=B	20=C	20=C	20=C
	Drop-off/Build-up (unpaved)	45=F	37=F	36=F	34=F	35=F	30=D	25=D
	Erosion (unpaved)	3=A	3=A	3=A	8=B	5=A	5=A	5=A
Drainage	Culverts	14=B	17=B	18=B	13=B	15=B	15=B	15=B
	Curb & Gutter	8=A	6=A	7=A	8=A	8=A	10=B	10=B
	Ditches	2=A	2=A	2=A	2=A	2=A	2=A	2=A
	Flumes	20=C	32=C	19=C	14=B	30=C	30=C	30=C
	Storm Sewer System	8=B	9=B	9=B	8=B	10=B	10=B	10=B

Element	Feature	2003 Actual Percent Backlogged and Feature Grade - Statewide	2004 Actual Percent Backlogged and Feature Grade - Statewide	2005 Actual Percent Backlogged and Feature Grade - Statewide	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
	Under-drains/Edge-drains	15=B	14=B	20=B	11=B	20=B	25=C	25=C
Roadside	Barriers	2=A	--	--	5=B	5=B	5=B	5=B
	Fences	14=C	4=A	2=A	16=C	14=C	14=C	14=C
	Litter	67=D	70=D	62=D	71=D	75=D	75=D	75=D
	Mowing	--	40=C	35=C	58=D	40=C	40=C	40=C
	Mowing for Vision	--	26=D	--	5=B	5=B	5=B	5=B
	Noxious Weeds	19=C	30=C	29=C	48=D	50=D	50=D	50=D
	Woody Vegetation	4=A	4=A	3=A	7=B	5=B	5=B	5=B
	Woody Veg. Control for Vision	0=A	1=A	1=A	5=B	5=B	3=A	3=A

E. 2007 Compass Rating Sheet



2007 Compass Rating Sheet
Wisconsin Department of Transportation

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

Date Survey Taken:
Start Time:
Stop Time:
Reviewed by:

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.

- A piece or all of the segment falls on a bridge.
 A piece or all of the segment is currently under construction.
 We believe it would be unsafe to rate this segment.
 We cannot locate this segment.
 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	Comments
Ditches (D-1)	<input type="checkbox"/> None	Total linear ft. of ditch..... Linear ft. with more than minimal erosion of ditch line OR obstructions to the flow of water requiring action.....		
Culverts (D-2)	<input type="checkbox"/> None	Total number of culverts..... Number more than 25% obstructed OR where a sharp object (a shovel) can be pushed thru bottom of pipe OR pipe is collapsing		
Under/Edge Drain (D-3)	<input type="checkbox"/> None	Total number of drains..... 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..... 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..... 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 high <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.....		
Walls & Barriers (R-6)	<input type="checkbox"/> None	Total linear ft. of retaining walls and noise barriers..... Linear ft. 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, & cable guard..... Linear ft. of protective barriers not functioning as intended.....		

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 emailed or given to your LAN administrator
by **October 16, 2007**

Questions? Please call Scott Bush, Compass Program Manager, at 608-266-8666