

# Overweight trucks cause costly road damage

New evidence shows that overloaded trucks are regularly traveling through Marathon County, and the roads are showing the effects. "We've got some north-south county roads that are showing rutting and the only heavy traffic is log traffic," says Marathon County Highway Commissioner Glen Speich.

When the county forest administrator looked at weight reports on county timber loads, they found that just one of six contractors reviewed was consistently hauling legal loads. The others were illegal 40%, 60% and 92% of the time, with the heaviest loads at nearly 108,000 pounds. That's 10,000 pounds over the winter frozen road limit of 98,000.

Pavement damage increases rapidly with higher axle loads, and worsens at a faster rate than the load increases, AASHTO research shows. That extra 10,000 pounds would cause 45% more

pavement damage. No wonder some Marathon County roads are showing wear.

Setting local load limits can be a tricky political problem. Local businesses may ask for exemptions and preferential treatment, arguing that their contribution to the local economy outweighs the cost of road damage. Using AASHTO's road damage units can help local officials put a price tag on the excess weight.

Enforcing state and local limits can also be a challenge. State Patrol resources are stretched thin, severely limiting the number of trucks they can check. Lack of easily accessible scales makes weighing the vehicles a slow process. And truckers who are running heavy may use local roads to evade detection.

## What's being done?

Marathon County, which operates five computerized truck scales, has given the State Patrol full time access. As a result, the officer can check twice as many trucks in a day. Highway department patrol truck drivers are keeping track of when suspicious trucks are passing through so law enforcement officers can catch them. Speich is also talking about asking

the State Patrol to train the Sheriff's department on enforcing load limit laws.

The Timber Producers Association (TPA) is talking with members. "We're trying to get the message out that hauling illegally is doing a disservice to the truck, the road, and the whole industry," says Executive Director Nadine Bailey. TPA is also talking to mill owners. "We know that these trucks are coming in and that they are overweight. In some states, they won't pay for anything over the legal limit," Bailey says.

Some counties are responding by refusing to enact frozen road laws. That puts county highways off limits to trucks carrying heavy loads that are legal on state highways. It's an approach that makes the already confusing array of laws and permits even worse.

"What we need is consistency through an area," says Oneida County Highway Commissioner Bob Maass, "That lets the State Patrol enforce the law better. We also need to get a statewide single trip permit." The wide variety of forms and frequent verbal approvals make enforcement even tougher, Maass says. As President of the Wisconsin Association of County Highway Commissioners, Maass is convening a committee to explore frozen road laws and overweight load permitting.

"The easier we can make it, the more chance we have for compliance," says Bailey of the TPA. "Everybody needs to understand that these trucks are an important part of the economy. To just say 'go away' is not good for any of us."

Local agencies should be aware of overload situations and be prepared to take action. Begin by contacting local haulers to discuss the problem and its consequences for pavement damage. Help them out by coordinating preferred haul routes and winter and spring changes—both timing and limits—with neighboring agencies. Also, make it easier to enforce load limits. Use written permits for overweight loads and avoid verbal permission. Also, coordinate with your local law enforcement officials about who to contact, where and when scales can be used, likely sites and timing of illegal loads.

For information on pavement damage units, see the T.I.C. fact sheet "How Vehicle Loads Affect Pavement Performance." For information on spring road posting, see "Using Weight Limits to Protect Local Roads." Both are available free. Use the form on page 7. Contact Bob Maass about the WACHC committee at 715/369-6184. Talk to Glenn Speich about Marathon County's efforts at 715/842-2205.



Information on road damage units can be helpful in talking to haulers and persuading others to support enforcement. Two T.I.C. factsheets have more information.

## Calculating road damage from heavy loads

AASHTO studied the relationship between axle load and road damage as a tool for designing new roads. The basic damage unit is one pass of 18,000 lbs on a single axle. A semi-trailer truck with five axles weighing 80,000 lbs gross (Wisconsin's load limit) would produce 2.4 damage units.

As the total load increases so does the load per axle. However, the damage increases at a much faster rate than the load. For example, if the total load on a standard tractor trailer (18 wheeler) increases from 80,000 lbs to 90,000 lbs the damage goes from 2.4 to 3.0 units—a 25% increase.

If the same truck goes from 98,000 lbs to 108,000 lbs, the damage goes from 5.38 to 7.7 damage units—a 43% increase! Comparing damage units between a standard 80,000 lbs and an overweight 108,000 lbs is an even more alarming 220% increase. Adding more axles will help considerably in reducing damage. The attached table shows the differences.

AXLE Gross load	DAMAGE UNITS	
	Single axle	Tandem axle
18,000	1.0	
20,000	1.5	
22,000	2.18	
24,000	3.03	0.2
26,000	4.09	0.364
28,000	5.39	0.495
30,000	6.97	0.658
32,000	8.88	0.857
34,000	11.18	1.095
36,000		1.38
38,000		1.7
40,000		2.08

