

TOWN OF LIBERTY GROVE PUBLIC MEETINGS
****AMENDED****

Highway Committee

Date: Thursday, September 14, 2023

Time: 3:00 PM

Place: Town Hall 11161 Old Stage Road

Agenda:

1. Call to order
2. Declaration of quorum
3. Approve Agenda
4. Approve Minutes: 8/7/23
5. Public Input
6. Status on Road Projects
 - a. Isle View standpipe
7. Speed Limit Request-Country Lane
8. Ordinance: Standards for Construction and Acceptance of Town Roads
9. Ordinance: Weight Limits
10. Schedule Road Tour
11. ****Driveway Culvert for 1697 Wildwood Road****
12. Correspondence
13. Future meetings
14. Adjourn

*** Report items will not be discussed or voted on, all other agenda items may include discussion and possible action. Deviation from listed order may occur***

***Audience members must ask for permission, during public input, to speak on agenda items ***

Anastasia Bell, Clerk/Treasurer

Members of the Town Board or any other Town Committee, who are not members of the body whose meeting agenda is published in this notice, are entitled, as any other citizen of the Town of Liberty Grove, to attend this meeting in an unofficial capacity. It is possible the attendance of one or more non-members may create a quorum of the membership of another body. Such a quorum is unintended, and the non-members are not meeting for the purpose of exercising the powers or duties attendant upon their membership on any Town Committee or Board

Town of Liberty Grove
Minutes of the Highway Committee on August 7, 2023

Agenda:

1. Call to order
2. Declaration of quorum
3. Approve Agenda
4. Approve Minutes: 7/10/23
5. Public Input
6. Status on Road Projects
 - a. Isle View standpipe
 - b. Europe Bay Paving
 - c. 2024 paving list
7. Speed Limit Request-Country Lane
8. Road Signs for Private Roads: Reimbursement Policy
9. Correspondence
10. Future meetings
11. Adjourn

Chairman Dale Stewart called the meeting to order at 8:01 am. Committee members Jay Olson, Billy Appel, and Walter Kalms were present along with Clerk/Treasurer Anastasia Bell and 2 members of the public. Committee member Bill Surbaugh was excused.

Olson moved, Appel second to approve the agenda as posted. Carried 4-0.

Kalms moved, Olson second to approve the 7/10/23 minutes as presented. Carried 4-0.

Public Input – Marc Savard, Wildwood Road, noted his personal driveway investigations and has requested the Committee confirm that a culvert is required for his driveway.

Isle View Standpipe – Kalms reported Ayres will evaluate the height of the standpipe and submit an engineered plan for the repair. An agreement between the Town, the DNR, and Europe Lake Residents is anticipated before the repair permit can be submitted.

Europe Bay Paving – Kalms noted the plants will need to be removed to widen the roadway and this will take place in the spring which will postpone paving until 2025.

2024 Paving – Kalms noted he sent an estimate for the Town time and materials and the Village has agreed to complete Country Lane in 2024. There will be 3-inches of asphalt and the maximum width from the Town's perspective can be 24-feet.

Country Lane Speed Limit – Kalms reported the Village has requested the speed limit to be reduced to 35 for the entirety of Country Lane. It was the consensus to gather speed board data.

Private Road Signs – Kalms noted the Town currently pays for the replacement of road signs. This can get costly, and citizens demand immediate replacement. It was the consensus to review the ordinance at a future meeting

Correspondence – Kalms noted a street sign letter and Stewart has road weight limit information.

The next Highway meetings will be on 9/11/23 and 10/2/23 at 8:00am.

Olson moved, Appel second to adjourn at 8:39am. Carried 4-0

Respectfully submitted,
Anastasia Bell, Clerk/Treasurer

TOWN OF LIBERTY GROVE
ORDINANCE #__-23

STANDARDS FOR CONSTRUCTION AND ACCEPTANCE OF TOWN ROADS

The Town Board of the Town of Liberty Grove (hereinafter referred to as “the Town”), in the County of Door, State of Wisconsin, does hereby ordain as follows:

~~Ordinance 1-82 is hereby repealed~~

This ~~e~~Ordinance ~~#3-06~~ supersedes ~~any and~~ all previous ~~e~~Ordinances pertaining to the construction of ~~p~~Public ~~r~~Roads and ~~p~~Public ~~r~~Road standards

Section 1. Purpose.

The rules and regulations set forth in this Ordinance are to establish standards for the construction of roads within the Town, to enhance the general safety of roads and promote efficient and sound road construction standards for the general welfare of the Town.

Section II. Definitions.

1. Town Road: a public thoroughfare for which work has to be done in its construction and maintenance, including but not limited to clearing, excavating, filling, leveling, compacting, paving, crack filling and chip sealing.
2. Private Road: a road that has been or is to be constructed that serves private residences or businesses and for which the same amount of work may or may not have been done as that for a Town ~~r~~Road.

Section III. Permits.

1. Anyone who wishes to build a road in the Town shall first apply in writing for a permit from the Liberty Grove Town Board, in a form satisfactory to the Town.
2. A \$50 permit fee shall accompany the application, which amount may be changed by Town Board action without amendment to this ~~e~~Ordinance.
3. The Town ~~Clerk~~Administrator, or his/her designee (~~hereinafter C/A~~) shall first inspect the area on which the road is to be built. Plans, surveys, and maps shall be furnished and the road staked prior to ~~C/A~~ Administrator inspection. Upon satisfaction that the proper criteria have been met, a permit shall be issued, signed by the ~~C/A~~ Administrator and Town Chairman.
4. A road permit shall be good for one year. If construction is not begun within one year, a new permit must be applied for, and the appropriate fee paid.

Section IV. Road Standards.

1. Width
 - a. Right-of-way width shall be four (4) rods, that being 66 2/3 feet
 - b. Surface (traveled) width shall be 20 feet on a minor side road, and 22 feet on a major connecting road
 - c. Shoulder width shall be 3 feet per side, consisting of gravel material
2. Grade
 - a. A 2% grade from center to the edge of road shall be maintained
 - b. Maximum grade shall be 6-7-9
 - c. Maximum horizontal curve 7 – 30
3. Visibility
 - a. The road shall be visible for ~~a distance of~~ 350 feet at the intersection with a ~~t~~Town, ~~e~~County or ~~s~~State ~~r~~Road.

- b. No object over 2 ½ feet in height above the road and within 25 feet of the intersection will be allowed if it obstructs the view. The only exceptions will be stop signs, street signs and other traffic control signs of this nature.
 - c. All trees, brush and stumps shall be removed from the right-of-way to a minimum of 40 feet in total width.
 - d. No objects shall be allowed to be placed in the road right-of-way without permission of the Town Board.
 - e. Objects allowed in right-of-way without permission include Town regulatory signs and mailboxes (see Town Ordinance #~~5-22-8-01~~ regarding siting of mailboxes).
4. Construction
- a. All top soil shall be removed from the road bed area; and shall not be used for fill in the road bed area.
 - b. Stumps or other debris shall not be buried in the road bed.
 - c. Ten inches of crushed stone (breaker run or equivalent) shall be installed as a base with 8 inches of ½ to 5/8 inch gravel layered on top of the base. The surface gravel shall be placed the full width of the road surface, encompassing the shoulders on each side.
 - d. ~~The~~ Vertical distance from top of traveled surface to bottom of ditch shall be a minimum of 21 inches.
 - e. Ditches shall be constructed to facilitate drainage of water from the roadbed area. Culverts (minimum 12" diameter made of corrugated metal) shall be installed when the road is determined to impede the natural flow of water. The Town Board shall determine the necessity of installing culverts. Should the property owner and/or their agent dispute the Board determination of a culvert, the Board shall hire an engineer to determine the water flow and charge the cost of the engineer to the contractor. All disturbed areas must be covered with 4 inches of topsoil and reseeded with ~~a~~ perennial grass.
 - f. Side banks shall be graded to a slope of not greater than 25%.
 - g. Vertical clearance of 13'6" shall be maintained throughout the road length.
 - h. Dead-end roads are to be avoided whenever possible. A dead-end road shall have a cul-de-sac with a radius of 65 feet. Roads greater than 1,000 feet in length may be granted a cul-de-sac at the discretion of the Town Board.
 - i. All roads that are paved shall have a minimum of 2.5 inches of compressed hot mix asphalt for the total width of the traveled surface.

Section V. Acceptance of Road into Town Road System.

1. State Statute 82 shall govern the procedure for incorporating a road into the Town ~~R~~oad ~~s~~System.
2. Acceptance of a road into the Town ~~R~~oad ~~s~~System shall be at the sole discretion of the Town Board, and subject to a final inspection by the Town Board or its designee. If such inspection reveals that corrections must be made, such corrections must be made before the Town Board considers acceptance of the road. Conformance to the standards as set forth in this ~~e~~Ordinance does not guarantee that the road will be accepted by the Town Board.
3. All ~~p~~Private ~~R~~oads that are requested to be turned over to the Town shall meet the road standards as set forth in Section IV ~~III-A~~ of this ~~e~~Ordinance, including paving in Section IV (4)(i) ~~III-A.4.i~~, before the Board considers the application.
4. All roads to be incorporated into the Town ~~R~~oad ~~s~~System shall be conveyed to the Town by deed, said document to include a complete legal description of the road/land to be conveyed.

Section VI. Private ~~R~~Road.

1. A ~~p~~Private ~~R~~Road shall have a sign at its intersection with a ~~t~~Town, ~~e~~County or ~~s~~State ~~R~~Road showing it is a ~~p~~Private ~~R~~Road. The initial road sign for such an intersection shall be provided by the Town. If replacement of the road sign is required for any reason, the property owners along the Private Road will be responsible for the associated costs prior to installation of the new sign.
2. Maintenance of a ~~p~~Private ~~R~~Road shall be the sole obligation of the adjacent owners of the ~~p~~Private ~~R~~Road.
3. Property owners along a ~~p~~Private-~~R~~Road selling a lot shall furnish a letter to the prospective buyer stating that the road is private and not maintained by the Town.

Section VII. Penalties.

Penalties for violations of any provision of this Ordinance shall be not less than Two Hundred Fifty Dollars (\$250.00) nor more than Five Hundred Dollars (\$500.00), plus the costs and disbursements of prosecution, for any violation which occurs under the terms of this ~~e~~Ordinance. Each violation of any section constitutes a separate offense.

Section VIII. Conflicting Ordinances.

All ~~e~~Ordinances in the Town that conflict with the provisions of this Ordinance in whole or in part are hereby repealed.

Section IX. Severance Clause.

The provisions of this Ordinance are declared to be severable, and if any section, sentence, clause, or phrase of this Ordinance shall for any reason be held to be invalid, such decision shall not affect the validity of the remaining sections, sentences, clauses or phrases of this Ordinance.

Section X. Interpretation.

The provisions of this ~~e~~Ordinance shall be liberally construed in favor of the Town, and shall not be construed to be a limitation on or repeal of any other power granted the Town under the Wisconsin Statutes.

Section XI. Adoption.

This ~~e~~Ordinance shall take effect upon passage and publication as provided by law. Adoption of this Ordinance by the Liberty Grove Town Board does not preclude the Town Board from adopting any other ~~e~~Ordinance or providing for the enforcement of any other law or ~~e~~Ordinance relating to the same or other matter. Issuance of a citation hereunder shall not preclude the Town Board or any ~~a~~Authorized ~~e~~Officer from proceeding under any other ~~e~~Ordinance or law or by any other enforcement method to enforce any ~~e~~Ordinance, citation or order.

Adopted at a regular meeting of the Town Board of the Town of Liberty Grove, Door County, Wisconsin, this ____ day of ____, 2023.

I, Anastasia P Bell, Clerk/Treasurer of the Town of Liberty Grove, Door County, Wisconsin do hereby certify that the above is a true and correct copy of an ~~e~~Ordinance that was adopted on the ____ day of ____, 2023 by the Liberty Grove Town Board.

Dated this ____ day of ____, 2023.

Anastasia P Bell, Clerk/Treasurer

**TOWN OF LIBERTY GROVE
ORDINANCE __-23**

TOWN ROAD WEIGHT LIMITS

**~~STATE OF WISCONSIN~~
~~TOWN OF LIBERTY GROVE~~
~~COUNTY OF DOOR~~**

The Town Board of the Town of Liberty Grove, Door County, Wisconsin, ~~by this ordinance, adopted on proper notice with a quorum and by a roll call vote of a majority of the Town Board present and voting,~~ does hereby ordain as follows:

All previous ordinances regarding road weight limits are hereby rescinded, to be replaced by this ordinance.

~~The following~~ Seasonal weight limits shall be effective on ~~April 5, 2006~~ on ~~the following~~ Town of Liberty Grove ~~town~~ highways, which are declared as class "B" highways under s. 349.15 (2), Wis. Stats., ~~and thereafter shall be in forced seasonally~~: 1 axle shall be a 6 ton limit, 2 axles under 8 feet apart shall be a 10 ton limit. ~~Notice shall be given a minimum of 5 business days prior to weight limits taking effect.~~

~~_____ Waters End Rd., Old Stage Rd. to County ZZ~~
~~_____ Hill Rd., Highway 42 to County ZZ~~
~~_____ Lakeview Rd., Wildwood Rd. to Mink River Rd.~~
~~_____ Settlement Rd., Hwy 57 to Townline Dr.~~
~~_____ Flintridge Rd., Hwy 57 to Wooderest Rd.~~
~~_____ Isle View Rd., Hwy 42 to Timberline Rd~~
~~_____ Seandia Rd., Old Stage Rd. to Wooderest Rd.~~
~~_____ Any other section of Town road as authorized by the Town Chairperson or his/her designee.~~

The Town Board by resolution, and the Town Chairperson or his/her designee by written directive to be posted in the same fashion as a resolution, may declare other portions of ~~town~~ highways to be class "B" highways.

The Town chairperson, or his or her designee shall erect signs as required under s§. 349.16 (2), Wis. Stats., on or before the effective date noted ~~above~~ within the notice.

No persons shall operate any vehicles on the above noted highways, in violation of the above noted weight limits, without a written permit issued by the ~~town~~ ~~board~~ Board of the Town of Liberty Grove, and any violation shall be subject to penalties under s§. 348.21, Wis. Stats.

As authorized per s§. 349.16 (3), Wis. Stats., Town of Liberty Grove vehicles carrying sand, stone, salt, and wood shall be exempt from the limitations as set forth in this ordinance.

This ordinance shall be effective upon posting or publishing as required under s§. 60.80, Wis. Stats.

Adopted this ____ day of _____, 2023.

I, Anastasia P Bell, Clerk/Treasurer for the Town of Liberty Grove, Door County, Wisconsin do hereby certify that the above is a true and correct copy of an ordinance which was adopted on the ____ day of _____, 2023 by the Liberty Grove Town Board.

Dated this ____ day of _____, 2023

Anastasia P Bell, Clerk/Treasurer

Liberty Grove Winter Weight Restrictions on Town Roads

Talking Points:

Rather than having a total shutdown of all town roads for several weeks and totally restricting access to all work sites located on town roads consideration should be given to the following:

- If temperatures drop to adequate levels where thawing does not take place for several days access should be allowed. Posted roads could have covers put on signs for the days that traffic would be allowed and removed when temperatures warm.
- Allow access on posted roads during early morning hours when temperatures are low enough that no damage will occur to the roads.
- Look at having portion of roads, not the entire road, either opened or closed depending on the quality of the road.
- Have special exceptions if extraordinary conditions arise.

Obviously the above will have costs associated with additional time and effort. Some type of fee structure could be implemented to help offset the added costs.

In closing, no one wants to see damage to town roads, but shutting down the entire construction industry for several weeks also has a cost.....

Mike Parent

JF Construction

Town of Egg Harbor: Imposes weight limits on a few Town roads. The highway department makes the determination as to when to start and then goes out and puts up the signs.

Town of Seavastopol: does not impose weight limits.

Town of Baileys Harbor: Resolution #1-2006

Town of Jacksonport: imposes weight limits on roads in the spring to safeguard the roads and investment. Typically, follow the county. This year was particularly challenging due to the thaws followed by big snows: softened roads that need plowing. This created some situations with roads being damaged.

Posted on March 30 - 2006

Resolution Special or Seasonal Weight Limits

#1-2006

State of Wisconsin
Town of Baileys Harbor
County of Door

The town board of the Town of Baileys Harbor, Door County, Wisconsin, by this resolution, adopted on proper notice with a quorum and by a roll call vote of a majority of the town board present and voting resolves, and orders as follows:

The following seasonal or special weight limits (One Axle 6 ton, any two Axle under 8 feet apart 10 tons) be effective on March 1st, 2006 on the following Town of Baileys Harbor town highways, which are declared to be class "B" highways under State Statutes 349.15 (2):

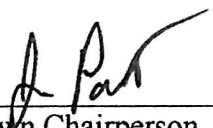
All roads when posted by signage. Frogtown Road from Chapel Lane to Hwy 57 North will always have a weight restriction due to the deterioration of the road.

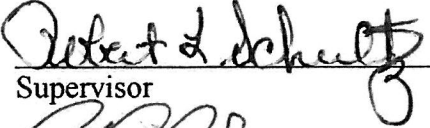
The town chairperson, or his or her designee shall erect signs as required under State Statutes 349.16 (2), on or before the effective date noted above.

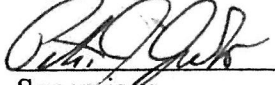
No person shall operate any vehicles on the above noted highways, in violation of the above noted weight limits, without a written permit issued by the town board of the Town of Baileys Harbor, and any violation shall be subject to penalties under State Statutes 348.21.

The town clerk shall properly post or publish this resolution as required under State Statutes 60.80.

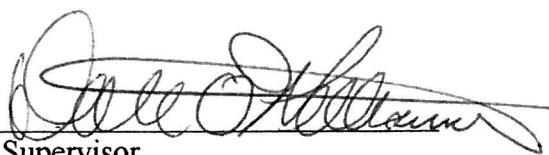
Adopted this 29th day of March, 2006

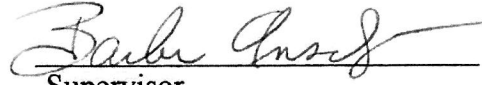


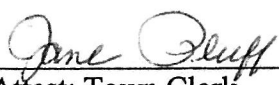
Town Chairperson


Supervisor


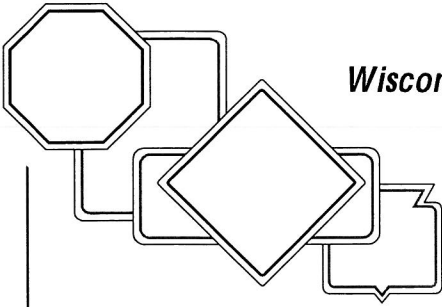
Supervisor



Supervisor


Supervisor


Attest: Town Clerk



Using Weight Limits to Protect Local Roads

Wisconsin's extensive local road system is a lifeline for our state and local economies. Farms and businesses depend heavily on these roads to move manufactured, forest and agricultural products. Highway and street agencies need them to economically transport road-building materials. The public also relies on truck transportation to receive goods at reasonable prices. However, heavy truck loads can damage local road pavements, especially in spring when they are weakened because they are saturated with water.

Local officials have a responsibility to preserve our investment in roads by protecting them from excess damage caused by trucks carrying heavy loads. They have the authority to restrict truck weights under state statutes. However, local officials must carefully balance the public good in protecting roads against the legitimate need for efficient transportation.

We can't do anything to control the weather, but we can regulate how much weight is carried on certain roads, especially during spring thaw. According to a national study by the Federal Highway Administration (FHWA), reducing truck weights by just 20% between late February and early May can increase the life of vulnerable pavements by 62%. Cutting weights in half increases pavement life by 95%. To be most effective, truck weight control programs should be coordinated with the Wisconsin Department of Transportation, adjoining local road agencies, the trucking industry, and the public.

This bulletin describes the causes of spring weakness in roads, how heavy loads do damage, and the characteristics of vulnerable roads. Techniques are introduced for determining which roads need protection in spring and when roads are vulnerable, along with guidelines on how to set weight limits. Year round restriction on roads and bridges is also discussed briefly. Another Wisconsin Transportation Information Bulletin, *How Vehicle Loads Affect Pavement Performance, No. 2*, discusses in more detail how heavy trucks damage pavements.



As spring thaw weakens pavements, trucks carrying heavy loads can damage them.

How freezing affects pavements

A road's design is based on a reasonable estimate of the average loads it will carry during its projected life. That is why Interstate highways carrying thousands of trucks a day have thick concrete pavements while rural roads, built for local traffic and a few trucks, are often a few inches of compacted gravel or asphalt laid on a shallow base. Soil types and local drainage characteristics also affect design and load capacity.

To build roads, designers use calculations based on strength and moisture tests of the natural soil or subgrade. The road base and surface depth are then designed for the average condition. Roads can be designed for the worst soil conditions but the cost is usually not justified by the expected use.

When the weather gets cold, pavements and the water trapped within them freeze near the surface. As cold temperatures persist and go lower, the frost line moves deeper into the soil. Frost depth may range from relatively minor—one or two feet during mild winters in southern Wisconsin—to extremes of five to eight feet during severe winters in the northern part of the state.

Frost action and frost heaves

Pavements can be severely damaged in winter by frost heaves from water freezing in the soil. Damage can be particularly bad when the heaving is greater in one pavement section than another or when it occurs next to structures that don't move, like bridges or manholes.

There are three critical factors in frost heave: freezing temperatures, a source of water, and susceptible soils. Frost heave results not just from the natural expansion of water as it freezes, but from the buildup of a series of ice layers, called lenses, that form at the freezing front as it penetrates downward. This can cause heaves of a few inches to several feet.

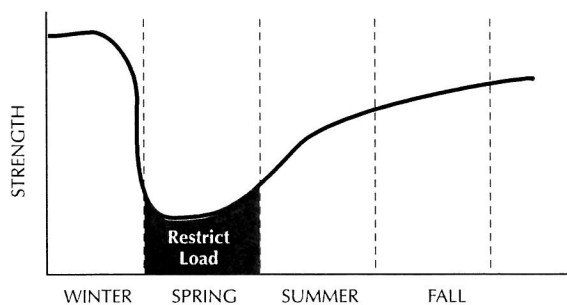
Water comes from the normal water table. Problems are more severe when the water table is near the pavement surface, but significant frost heaving can occur even when it is many feet below the actual frost depth.

Frost-susceptible soils are fine-grained like silt and clay. These permit water to move from the water table to the freezing front through capillary action. Silt is usually the worst because it has enough capillary action to move water and its pore spaces are big enough to transmit large amounts of water. Granular soils like sand have relatively large pore spaces which generally do not have sufficient capillary action to be frost susceptible.

Spring thaw

In spring, roads begin to thaw from both the top and bottom. As ice in the pavement melts, water saturates the road's base and subgrade. These layers lose strength, like a handful of mud compared to dry soil. As thawing continues, melt water becomes trapped in the upper subgrade, unable to drain away through the frozen soils below. Pavements weaken considerably in a very short time under these conditions.

The weakness can continue for weeks or months after the pavement is completely thawed. It takes a long time for water to leave the pavement because frost-susceptible silt and clay soils are relatively slow to drain.



Variation in pavement strength throughout the year.

How heavy vehicles damage roads

Without adequate support, a pavement or gravel surface deflects too much under trucks carrying heavy loads, developing cracks or ruts. These then let more moisture penetrate, worsening the cycle until the road fails completely. The amount of damage a road sustains is directly related to the weight of the load and how often it is applied, according to tests by AASHTO (the American Association of State Highway and Transportation Officials). Passenger autos and light duty vehicles are not a problem. It is trucks carrying legal weight loads of up to 80,000 GVW over weakened surfaces which do the damage. When trucks carry loads that are heavier than the statutory weight limit, the potential for damage is much higher.



Another factor is the amount of weight and number of tires on each axle. Damage increases rapidly with higher axle loads and actually worsens at a faster rate than the load increases. A nine-ton axle load, for example, causes about ten times more damage than a five-ton axle load. Distributing a vehicle's weight and its payload over more axles and tires makes the load lighter at each point of contact, reducing damage to the road.

However, low-inflation tires do not protect roads from damage. It has been commonly assumed that large loads carried by off road equipment would have little adverse affect because they have flotation tires or treads that allow them to work in soft soils. In actual field tests, the South Dakota DOT showed that off road equipment with axle loads that exceeded legal limits caused damage to asphalt, sealcoat, and gravel roads and shortened pavement life.

Imposing restrictions on truck weight limits is a reasonable and practical way to protect vulnerable local roads when they are at their weakest. Spring weight limits should begin with the first thawing and continue until the pavement is again strong enough to carry normal loads.

Choosing roads for spring weight restrictions

Consider the following factors in deciding which roads or segments should have restrictions.

- **Pavement thickness** Asphalt surfaces of two inches or less, or total pavement less than 12 inches thick.
- **Type of subgrade** Fine-grained subgrade soils, like silts and clays, and areas with a high water table and poor drainage.
- **Past experience** Areas with alligator cracking or rutting that break up every year and need frequent patching and repair.
- **Amount and type of truck traffic** Consider all truck traffic and especially seasonally higher volumes of trucks carrying heavy loads.
- **Surface deflection** Pavement sections where the surface deflects or bends 50% more during spring thaw than in summer. Also, increased deflection lower than 50% on weaker pavements where summer deflections are relatively high.
- **Pavement age/condition** Weight restrictions can protect your investment in new pavements and prolong the life of weak or aging pavements.

Year round restrictions — Class II and Class B roads

All public roads are considered to be Class A unless designated otherwise. Vehicle weight restrictions established in Chapter 348 are intended for travel on Class A highways. Some roads, designated Class II or Class B, have permanent weight restrictions, with some exceptions.

The state may designate certain highways as Class II. These are limited to legal loads. No overloads are allowed, even when the hauler has an overload permit. About 1600 miles of state highway, mostly in the north and west, are Class II.

State, county and local authorities may designate all or a portion of their systems as Class B highways under Sections 349.15 and 349.16, Wisconsin Statutes. This designation reduces the permitted weight, year round, not to exceed 60% of the legal load limits. It takes effect when signs are posted and remains in effect until the signs are removed.

Two types of loads are exempted under Class B designation. The rules now allow local pick-up and delivery of full legal loads. Also, waste haulers can haul their full legal load if, because of health concerns, the material must be removed from a septic or holding tank within 24 hours and if they minimize their travel on the weight-restricted roads.



Class B highway designation, which in general is permanent, not seasonal, is intended for situations where the pavement cannot withstand normal, legal truck weights. Such roads may not have been constructed to adequately handle these loads, or they may be roads through low areas with poor supporting soils. The Class B designation is well understood by industry. It is a reasonable option for local authorities when they believe it is necessary to protect pavement. WisDOT recognizes this local authority through administrative code. For example TRANS 255.12(6) requires explicit written permission for movement on Class B local roads even if a state permit has been issued.

Posting reduced load limits, such as a 24-ton limit, is an alternative for protecting roads in weak condition. Local officials may choose this option if the exemptions which were added in 2002 to Class B for local pickup and delivery are unacceptable.

Some bridges may also need protection. Although their strength is not affected by freezing, bridges may be weakened by age. Load limits should be determined by a competent bridge inspector or consulting engineer. As with roads, local agencies have authority to post weight limits for bridges under Chapter 349 of the Wisconsin Statutes. In addition to a sign at the bridge, there must be an advance warning sign at the nearest intersection.

Determining weight limit reductions

A weight reduction of just 20% during critical weeks in March and April can make a major difference in pavement life according to a study by the Federal Highway Administration. As weights are reduced further, potential pavement life increases even more.

Local agencies have the authority to determine seasonal weight limits on their road systems. About 50% of the normal limit is typical, but establishing limits that are consistent with those set by the state DOT and adjoining agencies on nearby roads is strongly recommended. For state highways WisDOT normally uses a

Load reduction	Increase in pavement life
20%	62%
30%	78%
40%	88%
50%	90%

spring weight limit of six tons per single axle and 10 tons per tandem axle.

To be effective, loads should be reduced at least 20%, while reduction over 60% may have little added benefit. Nationally, the average reduction is 44% which would lengthen

pavement life by about 88%, according to study results. Consider other factors also, however. Thin or weak pavements may need significant reductions during spring thaw; small or even modest load reductions will not prevent damage.

Since limits will be ineffective if local haulers do not cooperate with them, the most effective restrictions are reasonable and directly related to pavement damage.

Other remedial actions

Along with restricting load limits, consider other ways of protecting pavements. When haulers seek exemptions, consider including special requirements. For example, a load could be made in two smaller loads. The route could be modified so that pick-up or delivery is made at the start or end, or so that the route is traveled in a different direction. The goal is to minimize the length of travel and number of truck loads on weak road sections.

Another common approach to exceptions is to require that deliveries be made at night or in the early morning when roads may be stronger due to overnight freezing. Be careful not to overuse this approach. If substantial subgrade thawing has started, a light frost in the pavement surface offers limited value.

Physical changes can also help. For example, where pavements are shaded, you can increase exposure to sunlight by removing trees, billboards or other obstacles. Eliminate standing water in roadside ditches and fill pavement surface cracks to reduce the amount of water getting to the freezing zone.

Improve drainage in the roadbed by removing frost susceptible soils. A three foot combined depth of pavement and replacement base will prevent substantial subgrade freezing in the coldest winter in 10, according to the 1993 *AASHTO Design Guide*.

Install geosynthetics between the free water layer and the freezing zone. Optimal placement depth and whether multiple layers are needed remains to be determined, however. Geosynthetic

reinforcements may also limit damage during spring thaw by helping bridge weak areas and limiting pavement spread.

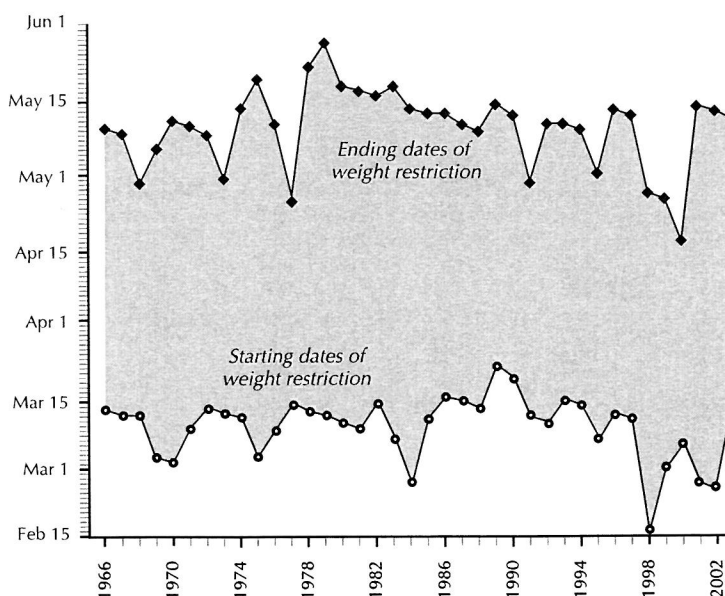
When to begin restrictions

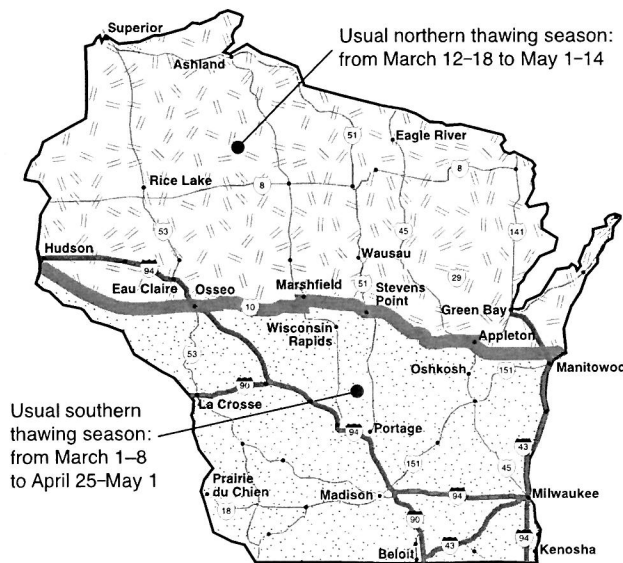
It can be difficult to determine when the thaw begins. In Wisconsin, it generally starts in early March and is complete by early May. According to 38 years of data from the Wisconsin Department of Transportation (WisDOT), the average date for legal load restrictions on some state highways is March 10. Posting usually begins between March 1–8 in the southern half of the state and March 12–18 in the north. The posted road period generally ends between April 25–May 1 in the south and May 1–14 in the north. However conditions in the state can vary considerably from north to south, and even from road to road in the same county. Unusually warm winters also affect road posting dates. Local knowledge of typical thaw periods is extremely helpful.

Since a uniform system of spring weight restrictions is more understandable and enforceable, it is vital to coordinate with the Wisconsin DOT, the county, and adjoining road agencies. Also, when weight limits are not uniform or when some communities post limits and others don't, vulnerable unposted roads may be damaged by truck traffic taking alternate routes.

Local officials should time their road postings to coincide with the spring weight restrictions that WisDOT posts on the state highway system. The county highway department, WisDOT district maintenance office, and the WisDOT central maintenance office can tell you when they will begin.

Wisconsin Spring Weight Limits Season on Class II Road Sections





Thawing conditions can vary considerably from north to south.

To decide on a posting date, WisDOT uses information from frost tubes buried in pavements around the state. A liquid in the tubes changes color when it freezes. District maintenance staff check the tubes periodically to determine frost depth and location.

There are also about 60 automatic pavement and weather monitoring stations in place around the state. By watching reports from these stations on pavement surface temperatures and at 18 inches below the surface, county and state highway staffs can better predict when spring thawing is underway.

For local roads, you generally must use judgment and experience. However, a Thawing Index (TI)—calculated like heating degree days used by winter fuel suppliers—can help you predict when to begin restrictions. Figuring thawing degree days involves recording daily high and low air temperatures in your community and making a

simple calculation. For weaker or problem pavements you may want to record daily highs and lows at the site. Studies also show that the Thawing Index is more reliable for fine-grained soils than coarse-grained ones.

Begin using the Thawing Index when the average daily temperature rises above 29° F—chosen as a reference temperature because tests show that an asphalt pavement surface is 32° F when air temperature is about 29° F. For midwinter thaws, use 31° F as the reference temperature for the Thawing Index because of lower sun angle and increased cloud cover in midwinter.

You can use high and low temperature predictions from a five-day advance weather forecast to project when load restrictions must take effect. This will allow you to prepare the public and alert local heavy haulers.

Pavement thickness determines how many thawing degree days are needed for applying spring load restrictions. The FHWA study *Guidelines for Spring Highway Use Restrictions* has established “should” and “must” Thawing Index levels for thick and thin pavements (see below). The “should” level estimates thaw to the bottom of the base course. The “must” level estimates thaw to about four inches below the bottom of the base course.

When to remove restrictions

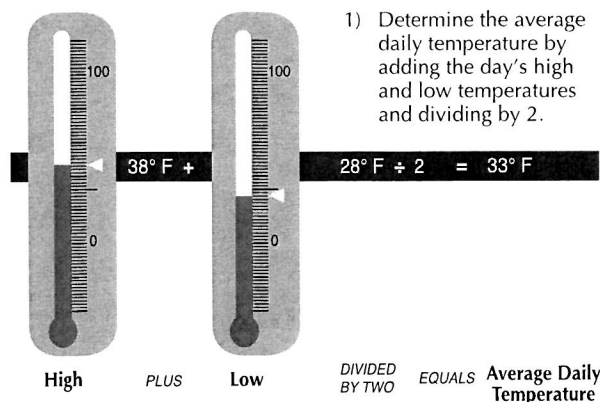
In general, keep weight restrictions in place until soils are completely thawed and drained to normal moisture levels. The most accurate way to tell is by testing for

Thawing Index levels for posting load restrictions on asphalt

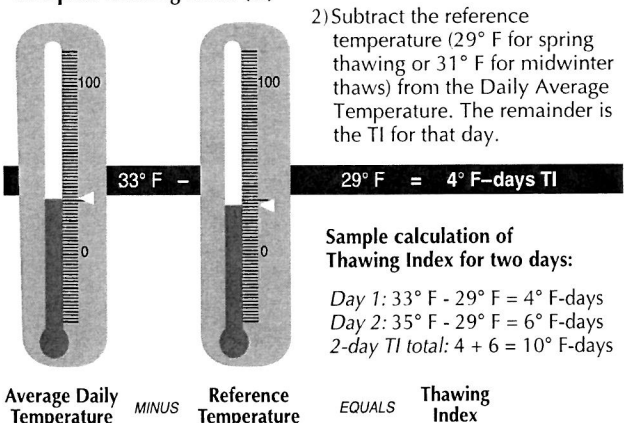
Pavement structure	Thawing Index	
	“Should” Level	“Must” Level
THIN Asphalt 2” or less Base course 6” or less	10° F-days	40° F-days
THICK Asphalt more than 2” Base course more than 6”	25° F-days	50° F-days

Calculating the Thawing Index

Compute average daily temperature



Compute Thawing Index (TI)



deflection. However, combining judgement and experience with an estimate based on the Thawing Index is very economical and will suffice in many cases.

To make this estimate you must know the Winter Freezing Index. The Freezing Index is calculated the same way as the Thawing Index, using 32° F as the reference temperature. Beginning when the average daily temperature has been below 32° F for several days, calculate daily average temperatures. (Add the high and the low for the day and divide by 2.) Subtract the average daily temperature from 32° F and record the result. Keep a running total until spring thawing begins. This total is the winter's freezing index in your area. High and low temperatures reported in the local media may also work well enough for this purpose.

To calculate the total number of thawing degree days until the thaw is complete, multiply the Winter Freezing Index by 0.3. For example, for a Winter Freezing Index of 1375° F-days, the Thawing Index would be 412° F-days: $0.3 \times 1375 = 412$

Implementing local weight limits

Authority

To institute a permanent weight limit on a road, the local elected board or council should pass an appropriate ordinance and post the necessary signs. For a temporary restriction like spring load limits, the "authority in charge of maintenance" can impose the limits under Section 349.16 of the *Wisconsin Statutes*.

It may not be clear who is the "authority in charge of maintenance." It is best for the local board or council, at a regularly scheduled meeting, to specifically identify a person or position to have that authority. For county trunk highways, the highway commissioner is commonly chosen. Towns, villages or cities should designate their highway superintendent, road foreman, street superintendent, or similarly titled officer. The board or council should also give this person or position authority to issue special weight permits.

The local authority can impose weight limits on a highway or bridge that they believe will be damaged because of roadbed weakness or other special conditions. Signs must be posted to give notice of the restrictions, and these signs must conform to the current *Manual on Uniform Traffic Control Devices* and the *Wisconsin Supplement* to that manual. For bridges there must be an advance warning sign at the nearest intersection. Limits become enforceable as soon as signs are in place.



It can be complicated to analyze the capacities of individual pavements and bridges. Local authorities may use their judgement and knowledge of existing pavement conditions or may hire a consultant to conduct engineering analyses. Limits based on actual testing will stand up to potential litigation better than those based on experience alone.

Legal authority for establishing weight limits is found in Chapters 348 and 349 of the Wisconsin State Statutes. Chapter 348 establishes restrictions on the size, weight and loading of vehicles. Section 348.15 establishes specific truck weight limitations and exemptions.

Sections 348.25, 348.26 and 348.27 outline the provisions for permits for vehicles of excessive size and weight. Such permits are generally issued by the state Department of Transportation for state highways. Local officials also have authority to issue credentials for their road systems under Section 348.26(2).

Chapter 349 gives state and local agencies authority to regulate movement of heavy vehicles. Section 349.15 provides the authority to establish Class B highways on local roads. Section 349.16 gives the authority for local officials to impose special or seasonal weight limitations. Section 349.17 is the authority for cities, villages, and towns to establish designated truck routes.

Exemptions and enforcement

State statutes have many provisions permitting overloads for specific commodities such as milk and logs. As a result, some people believe that this special treatment applies to local roads with load restrictions. This is not the case. In fact, local weight limits override *all* special permits in the statutes. Local officials *may* make exceptions, but are not required to.

Once load limits are posted, numerous requests for exceptions are likely. Local agencies may make exceptions, but it is important to be consistent and reasonable. Overusing exceptions weakens the effectiveness of load limit programs.

Public agency vehicles are not exempt from weight and size restrictions. All statutory restrictions and locally adopted weight restrictions apply uniformly to public vehicles as well as private trucks.

To implement your authority to issue exemptions under Section 349.16(3) it is best to put the exemptions in writing. For commodities that will be exempted either seasonally or permanently, make a good faith effort to publish these rules. If, as a local official, you intend to exempt some commodities, you can still restrict their movement by specifying how often each day they may travel on a road. You may also require that they travel at specific times during the day, such as before 7:30 am when overnight temperatures may have temporarily strengthened the road. Like the basic exemptions, these restrictions should be in writing and publicized.

Before posting roads, local agencies should plan how to enforce the limits. Law enforcement officers can order an apparent violator off the highway and issue citations. Repeat violators must pay higher amounts, and the amount to be paid increases with the amount of weight over the limit.

State Patrol officers and county deputies are authorized to enforce weight limits. The State Patrol offers annual training sessions on enforcing truck sizes and weights for local law enforcement officials. Scales used to enforce weight laws must be certified accurate.

Haulers have another considerable incentive to comply. Under Section 86.02 of the Statutes, a party which has caused damage to the highway is liable for triple the cost to repair the damages. These are collected through civil court.

Speed enforcement is also important because damage is increased at high speed.

Permits

Haulers with loads over the weight and size limitations can request permits for travel on state trunk highways from the Wisconsin DOT. Permits can be for a single trip or multiple trips and are issued at the WisDOT central office in Madison.

Except for vehicles authorized in the Statutes to have excess axle weights (Sections 348.15(3) (bg, br, & bv), trucks which intend to also use local road systems must obtain permission from the local maintenance authority.

Local agencies should establish permit procedures and designate a person with authority to issue them. Assigning this to the same person who establishes weight limits is reasonable and convenient. However, if a different person is issuing permits—the town clerk, for example—it is a good idea to coordinate with the local authority which establishes the limits. Local permit forms may be individualized, but many local officials have found it useful to copy WisDOT forms.

Single trip permits authorize an overweight or oversized vehicle to make one trip over a designated route. The local authority should carefully select roads and bridges that can adequately handle the excess load. Determining these permitted routes can be complex and may require help from an engineering consultant.

When the state puts roads into “thaw status,” it reduces maximum weights for single trip permits. It also suspends the authority for moving overweight loads that are divisible (like garbage, logs, agricultural products), and declares certain vulnerable state highways as Class II roadways which limits the maximum weight during spring thaw to a GVW of 80,000. Class II roadways may also be temporarily posted for even lower weight limits.

Signing for weight restrictions

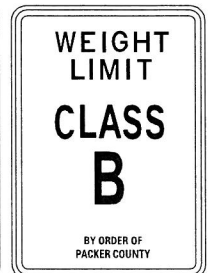
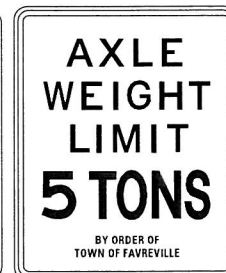
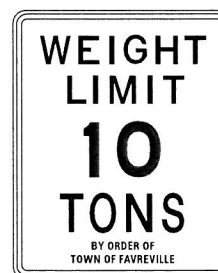
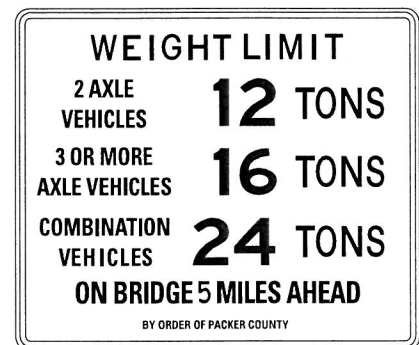
Weight restriction signs are regulatory and should be white with black lettering to conform with the federal *Manual on Uniform Traffic Control Devices (MUTCD)* and the *Wisconsin Supplement*. Uniform signing

improves cooperation and makes enforcement easier. All weight limit signs must say: “by order of” the local agency.

Class B highway signs should be installed at intersections with other highways.

Bridge weight restriction signs must follow instructions from WisDOT. These signs must include the gross weight and maximum limits for axle loads. Signs should be posted at the bridge and also far enough in advance that trucks can detour around the limited structure.

Permanent special weight signs must be permanently installed and designate the maximum gross weight.



Temporary weight limits such as spring load restrictions should also be on standard signs that are reflectorized and that meet the standards of the *MUTCD*. Hand painted and faded signs are not appropriate.

Communication

Effective communication with the public, your own agency, and affected haulers is essential. Alert the local media when weight restrictions are imminent. Remind drivers of public works trucks that weight restrictions apply to them too. Contact industries which make local deliveries or supply local services and tell them what the limits are and when limits will begin.

Consult with local haulers about ways to protect particularly vulnerable roads. For example, milk haulers could alter the order of pick up to lessen the weight at a bad site, or septic pumpers may limit how full their tanks are when traveling problem roads to service customers.

Large construction projects that require hauling heavy construction materials need special coordination in advance. Local officials and contractors should plan together well before the limits are imposed. They can agree on specific hauling routes using roads that are both strong enough and reasonably efficient.

Advance agreements with contractors and other heavy haulers can be very effective. Informal agreements or formal contracts assign responsibility to these haulers for repairing damage along their routes. Some agencies require bonds or escrow accounts in advance to ensure compliance. Inspecting haul routes ahead of time is important in enforcing these agreements. Photographing or video taping is also helpful in documenting existing condition. These techniques establish pavement conditions before spring thaw begins.

The alternative to advance agreements—establishing very restrictive weight limits after bids are in or construction is underway—can be very disruptive and costly, and may result in litigation. Both contractors and local agencies are responsible for this advance coordination.

Summary

Protecting local roads from damage by heavy vehicles is the responsibility of local authorities. *Wisconsin Statutes* provide adequate authority to exercise this control. In establishing weight restrictions, local authorities must use judgment and common sense to balance the need for protecting roads with maintaining commerce and an efficient transportation system. Close coordination with Wisconsin DOT and adjoining local agencies is essential to an effective program. Also, set a good example with your own agency. Be sure that all publicly-owned equipment observes the weight restrictions.

Resources

Guidelines for Spring Highway Use Restrictions, Federal Highway Administration, Report No. FHWA-TS-87-209, Turner-Fairbank Highway Research Center, 6300 Georgetown Pike, McLean, VA 22101-2296. And related videotapes.

State Highway Maintenance Manual, Guideline 30.06, January 1, 1993, Wisconsin Department of Transportation, State Maintenance Engineer for Highways, PO Box 7916, Madison, WI 53707-7916.

How Vehicle Loads Affect Pavement Performance, Wisconsin Transportation Information Bulletin, No. 2, Wisconsin Transportation Information Center-LTAP, 432 N. Lake St., Madison, WI 53706.

Other references

Study Effects of Off-Road Equipment Tires on Flexible and Granular Pavements. An Executive Summary of the South Dakota Department of Transportation describes damage to test pavements. The report is available for download at: http://www.state.sd.us/Applications/HR19ResearchProjects/oneproject_search.asp?projectnbr=SD1999-15 (The 131 page report is a 4.4 MB pdf file.)

Frost Heave: What causes it and how we can interfere with it, Special Bulletin #19, November 1995. Written by Dr. Rich Reid, Asst. Prof. of Civil Engineering, South Dakota State University, for South Dakota Transportation Technology Transfer Service.

A Guide to Spring Highway Use Restrictions: When to Apply, How Long to Apply, and When to Remove. The Bridge Fact Sheet, Spring 1994, Michigan Local Technical Assistance Program, Houghton, Michigan.

Posting and Bonding Local Roads: A Solution to Damages Caused by Heavy Haulers, LTAP Technical Information Sheet #57, January 1994, by Alan L. Gesford, LTAP Engineer, Pennsylvania Local Roads Program, Penn State Harrisburg, 777 West Harrisburg Pike, Middletown, PA 17057-4898.

Walsh County's Load Limit Enforcement Program, by Harvey Melstad, in *The Center Line*, Fall 1990, North Dakota State University.

Legal Opinions by Attorney J.R. Habeck, in the newsletter of the Wisconsin Towns Association.

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Town Clerk <tlibertygrove@gmail.com>

Bulletin No. 8

Transportation Information Center [REDACTED]
To: "tlibertygrove@gmail.com" <tlibertygrove@gmail.com>

Thu, Aug 10, 2023 at 3:33 PM

Hello Anastasi Bell,

Thank you for your request on Bulletin No. 8.

We checked in with Director Andi Bill and below is what was her review of the content and was looking for possible errors that would necessitate a need to immediately pull the current version.

Based on the brief review, she did not find anything that is explicitly wrong. However, Bulletin #8 needs an update. In her observations, she note several things that can help locals with this topic:

1. An update can provide a better understanding about spring weight restrictions and including all of the new material WisDOT has on their website about this topic. WisDOT developed in 2018 better maps available on their Maintenance website of breaking the state into five regions that may be more useful to reference then the general map on page 5 in the current bulletin #8. A 2016 WisDOT U-Tube video explains in general the way WisDOT uses their pavement monitoring stations. I don't think the material is wrong in the current bulletin, but the video is easier to get a general understanding of this topic. Giving the U-Tube website I think would be extremely useful. I think climate change probably has also changed the average spring thaw dates that are given in the 2003 bulletin.
2. There have been several state statute changes to spring weight limit exceptions. Examples include hauling septic tank waste and delivering propane used for heat. Local agencies need to know what the weight limits are for these special cases, their authority and responsibilities for knowing about these loads, etc. All of the state statute changes since 2003 need to be examined for possible changes to help local agencies make decisions on their authority on when and how granting exemptions need to be made on Class B roads in the spring.

Andi does think an update is prudent and will be a significant project. I think a good starting point and is working with WisDOT Maintenance staff to get a better understanding of their observations.

The update will take a while to do so let us know if there are any specific questions.

Thanks!

Andi Bill

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