



CFIRE

Northwest Passage Permitting—Phase 3

CFIRE 06-02
July 2013

National Center for Freight & Infrastructure Research & Education
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Technical Report Documentation

1. Report No. CFIRE 06-02		2. Government Accession No.		3. Recipient's Catalog No. CFDA 20.701	
4. Title and Subtitle Northwest Passage Permitting—Phase 3				5. Report Date July 2013	
				6. Performing Organization Code	
7. Author/s Ernie Wittwer and Ernie Perry				8. Performing Organization Report No. CFIRE 06-02	
9. Performing Organization Name and Address National Center for Freight and Infrastructure Research and Education (CFIRE) University of Wisconsin-Madison 1415 Engineering Drive, 2205 EH Madison, WI 53706				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No. Contract No. 89264; Work Order No. 6	
12. Sponsoring Organization Name and Address Minnesota Dept. of Transportation 395 John Ireland Blvd., MS 330 St. Paul, MN 55155				13. Type of Report and Period Covered Final Report [5/29/2012 – 7/31/2013]	
				14. Sponsoring Agency Code	
15. Supplementary Notes Project completed by CFIRE for the Minnesota Department of Transportation.					
16. Abstract <p>The efficient movement of freight is a key to the economic success of any state, region or nation. Rising transport costs will tend to make products from the region more expensive and less competitive in the national and global markets. This trend can be addressed by adding capacity, a very expensive and long-term solution; improving the management of the highway and rail systems; and by easing the regulatory burden on carriers. Some states have organized themselves into compacts or coalitions to issue permits for these routine loads on a regional basis. While permitting is one of the issues often raised by truckers as a costly and frustrating process, a number of concerns over exactly how individual state rules can be harmonized to facilitate regional permitting must be resolved before multi-state agreements can be put into place. To better understand the nature of regional permitting processes, existing compact or agreements must be reviewed and their rules, processes and administrative procedures documented. In addition, members of those compacts must be interviewed to measure their perceptions of the costs and benefits entailed in regional agreements.</p>					
17. Key Words Permitting, Oversize, Overweight, Trucks, Northwest Passage		18. Distribution Statement No restrictions. This report is available to the public through the National Transportation Library Digital Repository.			
19. Security Classification (of this report) Unclassified		20. Security Classification (of this page) Unclassified	21. No. of Pages 32	22. Price -0-	

Form DOT F 1700.7 (8-72) Reproduction of form and completed page is authorized.

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Introduction and Summary

The Northwest Passage Permitting Project has gone through three phases.

- Phase 1 looked at the desirability of establishing some regional permitting process that would allow truckers moving overweight or oversized loads across the region to apply for and receive permits from one source. The conclusion of Phase 1 was that too much opposition existed from states along the corridor to make such a regional process work. However, conversations with industry people suggested that harmonization of the rules governing permits might offer greater benefit.
- Phase 2 looked at harmonization, communications, and systems. The result was a set of draft standards for lighting, signing, hours of operation, and information required; suggestions on how to make web communication more uniform and useful; and a conceptual view of what an XML regional system might entail.
- Phase 3 continued the conversation among the states on issues like harmonization; attempted to establish a regional dialogue with the trucking industry; looked at weight rules and reasons for lack of harmony; and got some more senior managers involved in the processes.

The North/West Passage Steering Committee approved in their annual work plan (Work Plan 8) the creation of a Freight Task Force to continue freight related activities and projects. The Task Force will include staff from the North/West Passage member states that are responsible for managing planning or permitting activities. The North/West Passage Project Team that has guided the development of project (Phase 3), as well as the previous phases, will serve in this capacity on the Task Force. The following recommendations will be reviewed by the Freight Task Force.

- States implement statutes, rules, or practice changes to implement the harmonization goals adopted signing, lighting, escort vehicles, and allowed hours, as reflected in Figures 1-5.
- Wisconsin and Minnesota implement their XML-based bi-state permit issuance portal; and other states along the corridor subsequently join the portal.
- Further explore how to more effectively engage industry regarding corridor freight movement needs generally, and specifically on what industry would view as high-importance harmonization outcomes for oversize-overweight highway freight movement under permit.
- Further explore how states can increase harmonization of allowable axle and multi-axle weights for overweight movements under permit, providing industry reports that this is a high-importance outcome.
- The states should make an effort to broaden the discussion of overweight and oversized vehicle movement to better reflect the perspective of the industry and to gain the perspective of the economic development and freight policy staff within the agencies.
- Finally, MAP-21 lays out several processes and structures, such as freight advisory committees, that should be used by the North/West Passage Corridor group and the states that support it to improve the national and regional freight policies and the flow of freight through the corridor.

This document serves as the final report for Phase 3 of this project.

Participation

This project required a number of participants from each state. Figure 1 provides a listing of those participants and their role:

Table 1: Participants in the Phase 3 Project

	Permitting	Engineering	Management/Policy
WI	Paul Bernander		
MN	Ted Coulianos	Yihong Gao	Bill Gardner Mathew Pahs
SD	John Broers Dave Huft	Todd Thompson	Robert Weinmeister
ND	Leanna Emmers	Gary Doerr Mike Kisse Brad Darr Brandon Beise Jack Olson	Eldon Mehrer
MT	Dan Kiely		
WY	Rick Peterson Richard Smith	Randy Ringstmeyer	Scott Montgomery
ID	Reggie Phipps	Kathleen Slinger	Alan Frew
WA	Jim Wright	Mohamad Al-Salman	

The permitting group became known as the core group over the course of the effort. They met regularly. The core group recruited the engineering and management and policy representatives. Most core group members also took part in the engineering group's discussions, which happened four times over the year. The management group met only twice.

Task 1: Continuing the Discussion

A primary aim of this project was to maintain a forum in which the state agency people could continue to discuss issues related to the permitting of large loads across the region. The original project laid out a number of potential topics that might be covered:

- Harmonization of rules
- Improved communications with the industry
- Planning and other actions to move forward with an XML permitting system interface
- Interactions with the freight policy and planning people in the states
- Other new initiatives that might arise over time

Discussion was facilitated with monthly web-supported conference calls.

Harmonization

Members of the core group unanimously selected harmonization of rules as the activity on which they would spend the bulk of their time. To that end the materials from Phase 2 were reviewed and updated. This effort required several meetings because of continuing disagreement, the need to adapt to concurrent changes in other areas, and sporadic participation from some states that caused repeated discussions.

Initial discussions focused on whether to develop a single set of standards for adoption by all of the participating states or to agree on a set of standards that would represent the maximum or minimum requirements across the corridor so that a trucker could comply simply by meeting the most stringent requirements of the states in the corridor. The group agreed that to develop a single set of standards.

The group resolved the issue of coordinating with other ongoing efforts in two ways. Coordination was made easier because several of the representatives in this group are also active in WASHTO. The group also invited Mark Gottlieb, WisDOT Secretary and Chair of the AASHTO Subcommittee on Highway Transport, to join one of our calls to discuss the SCOHT efforts. He outlined the process that SCOHT will follow as it pursues AASHTO approval. He also assured us that this project could serve as a useful demonstration for the rest of the country.

With these clarifications, the core group developed a set of recommended standard regulations for oversized and overweight vehicle permits.

These standards (Figures 1-15) are intended to govern oversized and overweight permits for the vast majority of permits issued along the North/West Passage Corridor. However, the core group recognizes that local conditions may occasionally require states to impose more stringent regulations to protect the safety of the travelling public or the integrity of the highway infrastructure.

Information

Information requested of permit applicants varies widely among the states. The following were the agreed upon items.

Information

1. Account number, if you have one.
2. Name the permit will be issued to (Permittee), address, city, state, and zip code.
3. Contact name and phone number.
4. What is being moved?
5. For each vehicle, or combination of vehicles, vehicle make and license plate number.
6. VIN number on the head unit.
7. Dimensions of load: width, height, length, and amount of overhang (front and rear, side to side), if any.
8. Overall dimensions of the vehicle and load.
9. If overweight, the load weight and the total gross vehicle weight.
10. Axle weights.
11. Axle spacing.
12. Starting and ending location, Trunk Highways requested and junctions to them if getting off system.
13. USDOT Number.
14. Number of axles.
15. Tires per axle.
16. Tire width.
17. Start date.
18. Type of permit applied for.
19. Proposed route.

Figure 1: Information required from permit applicants

Signing

Signing also varies. Figure 2 shows the agreed-upon signing requirements. They largely reflect current practices and the changes in the design of trucks that make mounting larger signs difficult.

Signing

- “OVERSIZE LOAD” is the standard message
- Loads ten foot in width or larger should display a sign in the rear and in front.
- A sign is not required for loads less than ten foot in width or loads not exceeding legal length or legal overhang
- Transport at least 12” high by 5’ wide, letter height 8”, stroke width 1”, black letters on yellow background. The sign should be clearly visible.
- Escort vehicles should display a sign on the roof at least 5’ long and 12 “ high, with 8” letters, A stroke width of at least 1”, black letters on yellow background

Figure 2: Signing regulations

Lighting

Lighting is already reasonably uniform. However, the group made a major concession when they agreed to not require lights that would be visible for more than 500 feet.

Lighting

- Transport Vehicle:
 - At nighttime, steady burning light marking the extremities;
 - A rotating or flashing light mounted above the cab/towing vehicle visible for 500 feet
- Escort Vehicle: Two flashing lights mounted above the roof visible for 500 feet.
- Lights will be yellow or amber

Figure 3: Lighting regulations

Escorts

Escort rules are among the most common complaints from truckers operating across state lines. The following standards, when adopted, should relieve this problem.

Escorts

- Width: 2-lane: 12'-14', 1 in front; 14'-16', 1 in front and 1 in rear.
- Width: multi-lane: 14' to 16', 1 in rear.
- Length: 2-lane: over 100', 1 in front; over 120', 1 in front and 1 in rear.
- Length: multi-lane: over 120', 1 in rear.

Figure 4: Escort requirements

Hours of Operation

Hours of allowed operation also vary widely and where exceptions are most often used. The need for exceptions reflects large number of congested tourist routes in many of the states.

Hours of Operation

- Nighttime operations allowed for vehicles 10' wide or less.
- Holiday travel restrictions from noon of the day before the holiday through the holiday itself. (Christmas, New years, July 4th, Labor Day, Memorial Day, Thanksgiving)

Figure 5: Allowed hours of operation

The Challenge

The challenge for the states now will be amending rules to actually implement the recommended regulations.

MAP-21: A National Freight Policy

The core group also addressed the emerging national freight policy that's part of MAP-21. One 90-minute call was dedicated to this topic. Ernie Perry, program manager of the Mid-America Freight Coalition (MAFC), led this discussion.

Freight was accelerating as a program area before the drafting and passage of MAP-21, especially in freight rich corridors as the North/West Passage. The awareness of the needs of freight and the innovation to support freight transportation have developed so rapidly over the last decade that policy and programs areas have been left to catch up with the economics and logistics of a new global economy. MAP-21 includes a range of recommended and mandated freight initiatives that must be implemented by state DOTs and their partners. The MAFC describes and assess the freight provisions of MAP-21 on its MAP-21 resources page (<http://midamericafreight.org/projects/study/map-21-resources/>) The MAFC Regional Freight Study (<http://midamericafreight.org/projects/study/>) is designed to complement MAP-21 and provide freight planning tools for the implementation of its freight provisions.

Freight initiatives in MAP-21

MAP-21 is the first federal surface transportation legislation that includes freight-specific provisions—that serve as the beginnings of a national freight policy. These provisions are

designed to “improve the condition and performance of the national freight network and support investment in freight-related surface transportation projects.”¹

For state DOTs, the most relevant freight initiatives in MAP-21 consist of the establishment of:

1. Motor carrier and trucking initiatives
2. National freight policy
3. State and national freight strategic plans
4. State and national freight advisory committees
5. National freight network and prioritization of freight projects
6. Freight performance management

Motor Carrier and Trucking Initiatives

MAP-21 includes several motor carrier and trucking initiatives: Jason’s Law, Rental Truck Accident Study, Comprehensive Truck Size and Weight Study, and a Compilation of Existing State Truck Size and Weight Limit Laws.

Jason’s Law provides for construction of additional commercial motor vehicle parking adjacent to travel plazas and truck stops. It also provides for alternative fuel charging stations at parking facilities.

The rental truck accident study examines crash and vehicle factors for rental trucks in the 10,000-26,000 lb. weight range. The study specifically examines crash rates, property damage and costs, state and local laws governing rental trucks, truck maintenance programs, as well as other safety areas, and areas identified at the discretion of the Secretary.

The comprehensive truck size and weight study examines and compares safety, infrastructure impacts, cost and efficiencies, frequency and type of weight violations, freight diversion to another mode and the related impacts, system wide impacts and the impact on total truck numbers between those trucks operating within federal legal load limits and those operating above those limits through state sanctions and permits. This study is crucial to understanding the potential impacts of larger trucks on the system. Whatever the findings, any changes to the current system will require considerable effort from state agencies.

The compilation of state truck size and weight laws will produce list of each route on the National Highway System (NHS) that allows vehicles to operate above federal truck size and weight limits. Additionally, this initiative also collects size and weight limits applicable to those routes, the truck types and combinations allowed, and the state laws and regulations governing these trucks.

National Freight Policy

A national freight policy is significant in that it recognizes freight as critical to the nation’s economy and directs the freight community’s efforts toward a common goal of improving the condition and performance of the national freight network. Improvements to the conditions and performance of the system will generate attendant improvements including economic

¹ Federal Highway Administration. “MAP-21 Significant Freight Provisions.” <http://www.fhwa.dot.gov/map21/freight.cfm>. Accessed July 18, 2013.

competitiveness and efficiency, reduced congestion, increased safety, security, resiliency, innovation, accountability, and environmental protection.

Freight Planning

MAP-21 recognizes the importance of freight planning, calling for both national- and state-level. State freight plans are recommended and the national plan is discussed as a culmination of the range of issues, approaches and strategies identified in the state plans. State freight plan guidance has been provided by FHWA and comments from states have suggested policy improvements that could enhance implementation. State freight plans are a recommended tool to outline the immediate and long-range plans for freight investments.

There are a variety of ways freight planning can be integrated into state DOTs. With a freight plan recommended, and rail and general long range plans required, and little mention of marine freight plans and air freight, the freight planning and program landscape is multifaceted. With interpretation of MAP-21 still underway, it appears that states can blend and incorporate these various freight-planning efforts to some degree to satisfy the federal initiative. According to AASHTO, cost estimates of a statewide freight plan are estimated at close to \$1 million for two years of work, existing state-adopted freight plans should be used wherever possible.

Freight Project Prioritization

MAP-21 includes provisions for prioritizing freight projects for an increased share of federal funding. For interstate projects listed in a state freight plan, the federal share can increase to 95 percent. For other projects listed in the freight plan the federal share can increase to 90 percent with only 10 percent matching state funds.

Freight Advisory Committees

MAP-21 specifies two national-level committees that freight development, policy, and programs. The Freight Policy Council (FPC) consisting of internal US DOT modal administrators and additional agency leadership. US DOT is also adamant that the FPC also has the role of driving a multimodal freight system, thus the participation by all the modal branches.

The National Freight Advisory Committee (NFAC) includes a broad representation of private- and public-sector freight stakeholders. The NFAC includes 25 members that represent a range of voices in freight transportation, freight programs and policy, all modes, including environment and community-oriented groups, and geographic diversity to reflect the breadth of freight issues across the country. In Spring 2013, 47 members were selected for two years of service on this committee, out of over 250 nominees.

MAP-21 also encourages states to develop a multidisciplinary freight advisory committee to inform state freight development and planning. Longstanding and successful examples of Freight Advisory Committees include those groups in Minnesota (<http://www.dot.state.mn.us/ofrw/mfac.html>) initiated in 1997 and Indiana (<http://www.connexusindiana.com>) in 2007.

National Freight Network

The National Freight Network is defined as the most freight significant highways, intermodal connectors, and aerotropolis transportation systems. Essentially, the network will be comprised of the primary freight network, those interstates not designated as part of the primary freight network, and critical rural freight corridors. Current federal efforts are directed at designating the 27,000 to 30,000 miles that will make up the primary freight network. The states will designate

the critical rural freight corridors. However, the original 30,000-miles specification insufficient to address the nation's far-reaching freight system. Critical rural corridors are to be identified by the states as routes with at least 25 percent truck traffic or that carry over 50,000 TEUs or 500,000 tons of bulk freight per year.

MAP-21 requires that the primary freight network be defined by Oct 1, 2013 and re-visited every 10 years.

Freight Performance Management

State DOTs use performance management to measure system and organizational performance as well as customer satisfaction. MAP-21 incorporates performance management and performance measures to advance national strategic goals. Freight movement has been identified as a priority area of interest for the establishment of the performance management process. MAP-21 requires the US DOT to identify performance measures in coordination with affected stakeholders within 18 months of authorization. States will then be charged with assessing the performance measures and establishing state performance targets within one year. Reporting on the performance measures will begin within four years of enactment and biannually after that.

Freight movement on the interstates is the initial focus of the MAP-21 performance management. In addition to freight bottlenecks on the interstates, travel reliability and travel time measures are being examined. FHWA has indicated that these measures will be based on data provided through the FHWA/ATRI partnership that has generated the FPM database of truck movement and operating speeds, now called National Corridors Analysis and Speed Tool (N-CAST), available at: <http://atri-online.org/2012/10/23/n-cast/>.

Multijurisdiction Projects

The MAP-21 initiatives that provide for a national strategic plan include a directive for establishing a process that addresses multistate projects and that encourages collaboration across jurisdictional lines. Projects of national and regional significance may also provide states with opportunities for collaboration. US DOT will survey state DOTs and compile a list of economically efficient projects for future funding consideration.

Multimodal Freight

MAP-21 is primarily highway bill. The complication and equity issues with investing highway user fees for other modal investments are well documented. Many states are legislated to spend road taxes on roads and not rail or waterway improvements. A similar call is heard from policy makers and politicians that road dollars stay on the roads. With the current fiscal crisis, funding additional modes with existing funds has the potentially negative impact of further diluting scarce existing highway funds, which would threaten the nation's abilities to maintain the current network of roads.

Overall, these MAP-21 freight initiatives are designed to ensure that resources are strategically directed toward improving system performance for moving freight. The legislation, while still a highway bill, does include mention of improvement to intermodal connectors as well as aerotropolis transportation systems.

Conclusions

MAP-21 is first attempt at defining a national freight policy. As the policy evolves, states should stay informed and active as there are many voices that want to direct where and how freight development occurs. With more than 180 iterations of the primary freight network under consideration and 259 nominations for the nation freight advisory committee, it is clear that interest in freight policy is deep and wide. MAP-21 does not establish a freight program at US DOT, but it does set a national freight policy and also takes steps towards developing a network of freight professionals that includes both private sector and agency based professionals. This opens the door for advances in freight planning.

Federal personnel have indicated that MAP-21 is just the start, that 30,000 primary freight network miles doesn't fully address the US freight system, and that we should be looking at more multimodal solutions. Because MAP-21 is a two-year bill, freight advocacy groups such as AASHTO's freight working group are already active in ensuring state DOT interests are heard and addressed. States should become informed about the extent and value of their state freight systems and regional connections. This is the first step to becoming involved as a freight champion for freight movement and development in their region and states.

XML System

The core group also addressed the search for an XML-based, virtual permitting system that would allow the permit applicants to apply simultaneously to more than one state, have permits coordinated for routes, fees assessed and the permits returned as if dealing with a single permitting system. Such a system would use interface technology, such as the XML language, that would allow a single portal to talk with several systems, regardless of the origin or design of those existing systems.

Minnesota and Wisconsin have been working on developing such a system for several years. They plan to make it operational later in the Summer of 2013. When it is operational, an applicant will be able to apply for and receive permits from the two states almost as if they were one.

Minnesota uses Bentley permitting products. Wisconsin uses a homegrown system. With a contract from the states, Bentley is developing the interface that will work with both systems. It builds on Bentley GOT-Permits, but it does not require the underlying Bentley systems. The states have also negotiated a lower fees structure for this Minnesota-Wisconsin application.

Wisconsin has had to do more work in the system development process, because they had to modify their system to make it compatible with the XML system. The two states have also previously worked on making some of the requirements more compatible, which made the process somewhat easier.

When the system is complete, it will be available to other states that might want to adopt it. The degree of work involved will vary depending upon the nature of their existing systems. States like South Dakota that already use Bentley GOT-Permits will find the adoption to be straightforward. Other states will have more work to do to prepare their underlying systems.

Several states in the North/West Passage corridor that are currently developing their permitting systems seemed interested in the product. If it can be implemented more widely, it would solve the problem posed by Phase 1 of this effort, a regional permitting system.

Task 2: Weight Rules and Policies

In Phase 2 of this effort, the topic of actual weight rules—that is the typically allowed weights for permitted loads—were discussed briefly. At that time it was agreed that they represented a major set of issues, but not issues that could be dealt with at the time.

In Phase 3, the core group reached out to the engineers in their states who dealt with weight issues. These were typically bridge engineers, but some pavement people were involved as well. See Table 1 for a listing of those involved.

The first step in the process was to survey the states to understand the weights that are fairly routinely allowed for permitted loads on various axle configurations. Table 2 is a summary of the responses received. The number of footnotes tends to illustrate the complexity of the issues.

Table 2: Weight Rules

State/Axles	Single	Tandem	Tridem	Quad
WI	30,000 ¹	65,000 ²	95,000 ³	See note ⁴
MN ⁵	20,000	46,000 ⁶	60,000	80,000 ⁷
ND ⁸	24,000 ⁹	45,000 ¹⁰	60,000 ¹¹	68,000 ¹²
SD ¹³	26,400	52,122	64,386	76,650
WY ¹⁴	25,000	55,000	65,000	74,000
MT				
ID ¹⁵	33,000	56,000	70,500	82,500
WA ¹⁶	22,000	43,000	65,000	See note ¹⁷

¹ May allow as much as 35,000 depending on axle spacing.

² May allow as much as 70,000 depending on axles spacing.

³ May allow more depending on rig and spacing.

⁴ Depends on rig and route analysis.

⁵ MN is using AASHTO Virtis software for bridge load capacity analysis. They also have started to work on implementing Bentley SuperLoad Bridge software, which will be another tool of bridge load capacity analysis, but at same time it can automatically connect between bridge checks and permitting system.

⁶ Minimum 8'1" spacing.

⁷ Minimum 14'1" total spacing.

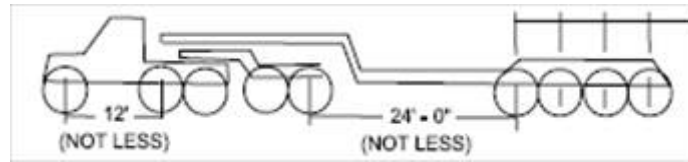
⁸ ND uses a systems approach based on the allowed GVW per system. Those shown above are for the highest system allowed. Others are:

Weight/ Axles	Single	Tandem	Tridem	Quad
200,000	22,000	40,000	60,000	68,000
250,000	22,000	43,000	60,000	68,000

All must adhere to the pounds per tire inch in the following notes and the this axles spacing:

- Require more than 40 inches from axle center to axle center to be defined as an individual axle within a group of axles.
- Require more than 8 feet from the center of the back axle on a group of axles to the center of the first axle on the next group of axles.

- Require 12' from the center of the steering axle to the center of the next axle.
- Require 24' from the center of the back drive axle or back helper dolly axle to the center of the first axle on the trailer.



We use an in-house developed bridge analysis program to verify if the superloads may safely cross the bridges on a route. Right now we are in the process of developing an automated routing program so most loads may be processed on-line. It is supposed to be on-line by the end of June 2013.

⁹ Cannot exceed 600 pounds per tire inch.

¹⁰ Cannot exceed 600 pounds per tire inch.

¹¹ Cannot exceed 550 pounds per tire inch.

¹² Cannot exceed 550 pounds per tire inch.

¹³ SD has a systems rule similar to ID, based on a load factor for different highways. The values listed in the chart are for the highest rated roads, "black." The rest are as follows: (based on 11" tire).

	Blue-Factor of 1.450	Green-Factor of 1.367	Pink-Factor of 1.283	Yellow -Factor of 1.200	Red-less than legal
Single	26,400	26,400	25,660	24,000	<20,000
Tandem	49,300	46,478	43,622	40,800	<34,000
Tridem- (8 ft spread)	60,900	57,414	53,886	50,400	<42,000
Quad- (12 ft spread)	72,500	68,350	64,150	60,000	<50,000

The maximum permitted is either the legal weight times the load factor, or 600#'s per inch width of tire, whichever is more limiting. Any no case may the weight exceed the bridge chart.

- Limitations such as axle spacing?- None other than bridge chart
- Commercial analytic tools: Bentley Software
- Limitations on use of tool? None

¹⁴ BRASS is the analytic tool used.

¹⁵ ID has a systems rule. The above are for the highest (black) system. Others:

Axles/System	Purple	Blue	Green	Orange	Yellow
Single	30,000	27,000	25,500	24,000	22,500
Tandem	51,500	46,000	43,500	41,000	38,000
Tridem	64,500	57,500	54,500	51,500	51,500
Quad	75,500	67,500	64,000	60,000	56,000

¹⁶ We use an in house software which analyzes typical truck configurations.

¹⁷ (a) Twenty-two thousand pounds on a single axle or on dual axles with a wheelbase between the first and second axles of less than three feet six inches;

(b) Forty-three thousand pounds on dual axles having a wheelbase between the first and second axles of not less than three feet six inches but less than seven feet;

(c) On any group of axles or in the case of a vehicle employing two single axles with a wheel base between the first and last axle of not less than seven feet but less than ten feet, a weight in pounds determined by multiplying six thousand five hundred times the distance in feet between the center of the first axle and the center of the last axle of the group;

(d) On any group of axles with a wheel base between the first and last axle of not less than ten feet but less than thirty feet, a weight in pounds determined by multiplying two thousand two hundred times the sum of twenty and the distance in feet between the center of the first axle and the center of the last axle of the group.

Figures 6-8 reduce this information to charts. Note that it was not possible to reduce the information for quad axles to this level of simplicity.

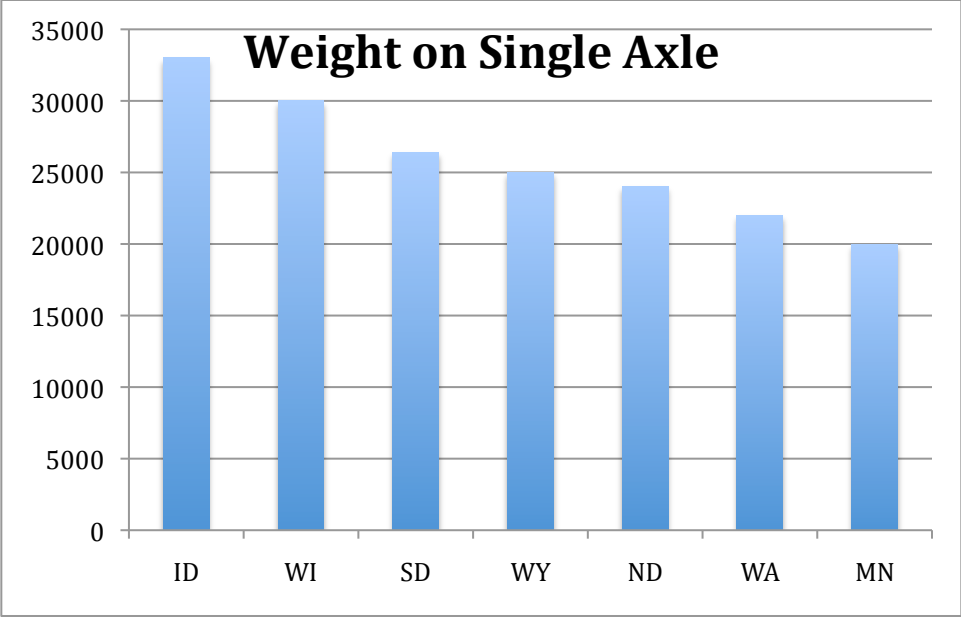


Figure 6: Weight typically allowed on a single axle

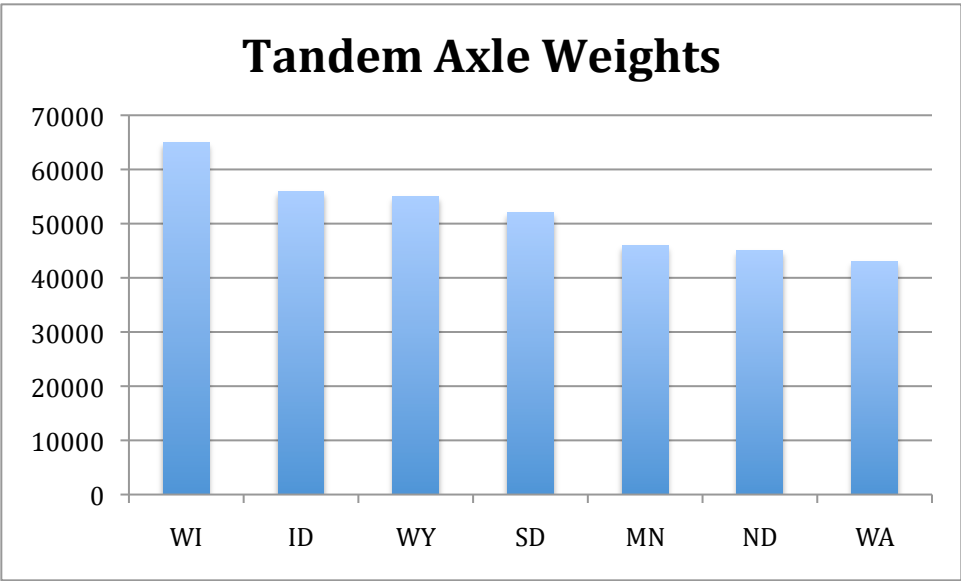


Figure 7: Weight typically allowed on tandems

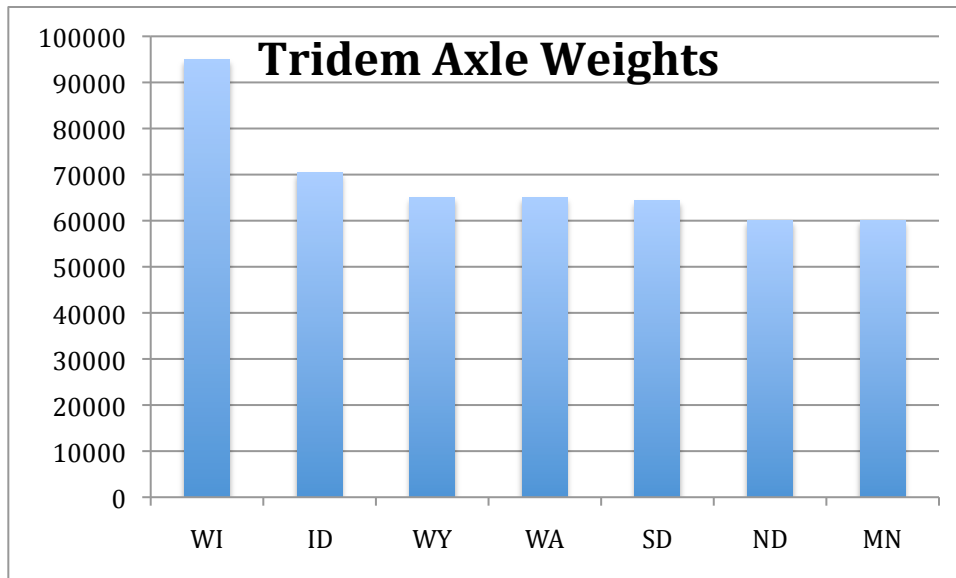


Figure 8: Weight typically allowed on tridems

The core group convened a meeting with state DOT engineers via a web-supported conference call, provided them with such information as could be generated, and then asked them to address key questions.

The first meeting dealt largely with processes. Not surprisingly, the states use a wide range of tools to analyze loads and structures. Some are highly automated, with few loads requiring the attention of engineers. Others are much less so. The group spent a good deal of time discussing how South Dakota, the most highly automated state, operates. They were also interested in the current efforts of Minnesota to implement many of the same tools now used in South Dakota.

A survey that gathered information from engineers about issues and practices generated more information for the second and third meetings of this larger group. See Appendix A for a compilation of the survey results. The key findings of the survey are:

- All respondents agreed or agreed strongly that their state's rules were rational and defensible.
- None said that, had they authority, they would increase allowable loads.
- They were split on whether they, had they the authority, would reduce allowable loads.
- All understood the need for greater uniformity.
- They split on whether the interest of intrastate carriers outweighed the need for interstate uniformity and on whether economic efficiency could be a part of the calculus in evaluating weights.
- All acknowledged that some of their state industries were dependent on the ability to move overweight loads.
- They split on whether the differences in state rules could be explained by physical features within the states and on whether the states should strive for greater uniformity.
- They all disagreed with the statement that the states should adopt similar analytic tools as a step toward greater uniformity.

The conversation that followed the survey mirrored the survey results.

The final meeting used Figures 6-8 and asked what the impact might be if the median values for each axle configurations were adopted. The responses were:

- For single axle at 23,000 lbs., spacing between axles is the key. Minimum spacing would be 8 feet or more.
- May require more checks for overloads.
- Tire width drives the load that can be allowed. All bridges in the state are in the system and automatically analyzed. Therefore, pavement is the real issue for this state.
- Pavement design is based on the loads that their states allow. Tandem axle weights allowed by some states are too high. They allow more for them than for single axles.
- Significant cost to the infrastructure will result. Less than one percent of trucks have this weight.
- With the increases we would see an increase in the denial of permits.
- Wisconsin does not see pavements as a limitation.
- How serious will the damage be? Small number of trips, so the impact is not great.
- Washington sees many loads that are in excess of the weights going over the same routes repeatedly. This cumulative affect would be a problem.
- Thicker pavements will be required if loads are increased. A 2,000 pound increase is not trivial.
- FHWA may be looking at impact of heavier loads on bridge decks.

The bottom line from the discussion is that states with lower weights do not want to increase their weight limits. Several times the discussion turned to Illinois road test results, which are now more than 60 years old. The group did agree that more research was needed to better understand the impact of heavy loads of modern configuration on bridges and pavements of modern design.

At the start of this effort, the hope was that discussion would spark curiosity and that curiosity might spark some desire for change. Even though there was some curiosity, the engineers argued very strongly that their role was to protect the infrastructure and the traveling public. While they acknowledged the benefit of economic efficiency, they saw the impetus for it as coming for elsewhere.


Task 3: A Regional Dialogue

Industry input will help define a reasonable policy for oversized and overweight trucks. This was the premise behind an effort to create a regional dialog with the trucking industry. Since meeting face-to-face was not possible, and since conference calls tend to result in fairly stilted discussion of controversial issues, the project team decided to implement an electronic forum for dialogue with private- and public-sector stakeholders

The project team adopted Basecamp, an online collaboration and project management tool, to facilitate this dialogue. It allowed participants to communicate via an email-like tool on a range of issues. Comments could be threaded, so that several comments could be brought together. Materials could be stored, so that all had access to all of the materials generated through the year. Figure 9 is an example of a Basecamp message. This message reminds people of a meeting, but the discussion tool was identical.

Reply ABOVE THIS LINE to add a comment to this message

Project: [NWP Project](#)
Company: NWP Consultants

 Ernie Wittwer posted a new message:
[NW Passage Permitting Project](#)

This note was just sent to the folks you listed as management. Please follow up with them to remind them to take part on Tuesday.

Just a reminder, you have been listed as the management contacts for the states involved in the NW Passage Truck Permitting Project. Please mark you calendar for May 28, from 11:00 to 12:00 (central time). we will have a final conference call at that time. The group would like your feedback and endorsement of the work they have done developing common rules for the operation of oversize/overweight trucking. The call information is:
Number: 1-888-291-0079
Passcode: 9056 081#
Web link is
<http://wisc.adobeconnect.com/nwp3/>
Thanks,
Ernie Wittwer

This message was sent to Andrew Schwartz, Dan Kiely, Dave Huft, Ernie Perry, Ernie Wittwer, Jim Wright, Leanna Emmer, Paul Bernander, Reggie Phipps, Richard Smith, Rick Peterson, Ted Coulianos, and Tina Roelofs.

[Stop receiving emails](#) when comments are posted to this message. [Prefer plain text emails?](#)

Delivered by [Basecamp](#)

Figure 9: Basecamp Message

State representatives on the Core group solicited participants from the industry. Their contact information was stored in the Basecamp system. They were each sent a note of orientation and welcome.

All of the state participants from the core group, engineering, and management and policy were also invited to participate.

The project team raised issues with the group and solicited their input. Unfortunately, the private sector participants, with two major exceptions, did not respond. Some members of the core and engineering groups shared ideas and comments, but most of the private sector participants—and the management group—remained unresponsive.

Overall, the effort has to be deemed a failure. The participants who actually took part offered some useful insights. They tended to reinforce the importance of greater uniformity among the states. But no real exchanges took place and no sustained dialogue occurred. Exactly why is unclear. Some of the private sector folks were contacted separately. They told the project that they didn't see the need to comment on issues that didn't affect them.

If such an effort is attempted in the future, the sponsors will probably have to do a more thorough job of orienting the people who volunteer and recruit a larger group to ensure that real dialogue takes place.

Task 4: Initiate a Management Group

Management support is essential for any of the proposals discussed in this project. Rules and/or statutes will have to be changed. Money or staff time will have to be spent to develop systems or improve communications. The core group started a management group to enlist more management support and input.

Again, the core group made the nominations and supplied the contacts inside their agencies. As shown in Table 1, five states nominated management people beyond the core group. Two may have felt that the head of the permitting function, who served on the core group, was sufficiently senior management. The management group was asked to participate in one or two meetings over the course of the year to discuss issues as needed.

Managers were invited to the discussion of the MAP-21 issues. Some took part. They were also invited to a final call in which the overall progress of the project was reviewed. Most took part.

Conclusions

The movement of freight, including oversized/overweight loads, along the I-90/94 corridor is important to the success of the economies of the states involved. A key to the movement of that freight is to minimize unnecessary costs and delays. Through this study we have:

- Identified and agreed upon common rules for the movement of oversized overweight loads. Adoption of these rules will allow truckers to move seamlessly throughout the corridor, saving both money and time.
- Identified potential solutions to the issuing of permits. The virtual permitting system being piloted in Minnesota and Wisconsin holds the potential for allowing a single point of application for permits crossing the entire corridor. It could be implemented by any of the states in the corridor with varying degrees of cost and difficulty, but it would be a boon to the truckers crossing through several states.
- Discussed several things coming from the federal government that will impact how freight is moved and how infrastructure is financed in the future. The states now carry an increasingly shared role in the movement of freight. Understanding this changing world will be important for their future success.
- Identified some of the problems in trying to communicate with the trucking industry as a group. They are reluctant to take part in open-ended conversations, so other means will have to be found to engage those industry partners.

The conclusion of this study should not be considered the end, but rather the end of the beginning. Agreed upon standards and rules will do no good unless they are put into place through the appropriate state policy, rule, or statutory procedures. Similarly, having a tool available that might solve the regional permitting challenges does not good unless it is implemented by more than two states. Finally, continuing the regional dialogue regarding federal freight rules and requirements will be necessary for the future success of the states in operating within those rules.

Fortunately, the Northwest Passage Coalition is maintaining its focus on freight. The Coalition will be implementing a freight council that will have a charge broader than this study group. It will be charged with recommending policies and actions on a wide range of freight related issues. They will need to keep watch over the recommendations of this study to ensure that actions are taken across the corridor to implement those recommendations.

Appendix A: Engineering Group Survey

NW Passage Engineering Group

A Short Survey

In preparation for our next meeting of the NW Passage Engineering Group—March 12th at 10:30 central time—please take a few minutes to complete the following survey. If I could receive your responses by **Feb. 22**, it would allow enough time to summarize and to construct an agenda for the next meeting.

You've seen the weight chart that lists the typically permitted weights in each state. While the chart could have many more footnotes than it has, these are the values that you collectively said your state normally allows. In the extreme, you can see that WI typically allows in the range of 150% of what WA allows. As professionals who must balance highway safety and preservation with economic efficiency, please agree or disagree with the following statements (highlight or make bold your choice):

1. My state's rules are rational and defensible.
 - Strongly agree X
 - Agree XXXXX
 - Disagree
 - Strongly disagree

2. As I professional (not considering political issues), I would selectively increase the loads allowed.
 - Strongly agree
 - Agree Neutral X
 - Disagree XXX
 - Strongly disagree XX

3. As I professional (not considering political issues), I would selectively decrease the loads allowed.
 - Strongly agree
 - Agree XX
 - Neutral X
 - Disagree XXX
 - Strongly disagree

4. I understand the need for greater uniformity among the states.
 - Strongly agree X
 - Agree XXXXX
 - Disagree
 - Strongly disagree

5. The interests of the carriers moving intrastate loads greatly outweigh the need for interstate uniformity.
- Strongly agree X
 - Agree X
 - Disagree XXXX
 - Strongly disagree
6. Economic efficiency really cannot enter into the evaluation of weights, since our jobs are protecting the traveling public and the highway infrastructure.
- Strongly agree XX
 - Agree
 - Disagree XXXX
 - Strongly disagree
7. Some industries in my state depend upon an ability to efficiently move permitted loads.
- Strongly agree X
 - Agree XXXXX
 - Disagree
 - Strongly disagree
8. The variation in allowable weights can be explained by physical factors within each state.
- Strongly agree
 - Agree XXXX
 - Disagree XX
 - Strongly disagree
9. The states should strive for greater harmony in all of their rules.
- Strongly agree
 - Agree XXXXX
 - Disagree X
 - Strongly disagree
10. The states should strive to adopt the same analytic tools, which would contribute to harmony.
- Strongly agree
 - Agree Neutral X
 - Disagree XXXX
 - Strongly disagree X

We also had several issues raised for future discussion. Please describe how your state deals with each of them.

11. How do you analyze and deal with dual lane loadings?

- WA: Look at them as two trucks side by side.
- ND: NDDOT has developed a spreadsheet for bridge analysis that converts double trailer loading to an equivalent single truck load (that we use in our live load bridge analysis) It is based on wheel spacing and distance between the trailers vs the design spacing in the AASHTO design manuals. If this analysis fails, a 3D analysis may be performed.
- SD-(1) First pass – empirical method; (2) Second pass, if necessary, more detailed 3D analysis
- MN: We will split a permit truck in half only when the axle width meets the requirement of two standard gage trucks side by side. If not, we will use empirical method to adjust the axle weight based on axle width for specific type of the bridges.
- ID: We will split a permit truck in half if the axle configuration closely resembles two standard gage trucks side by side.

12. How do you analyze and deal with trunnion axles versus tandems?

- WA: Trunnions are allowed in Washington State and are analyzed like any other axle.
- ND: NDDOT has developed a spreadsheet for bridge analysis that converts double trailer loading to an equivalent single truck load (that we use in our live load bridge analysis) It is based on wheel spacing and distance between the trailers vs the design spacing in the AASHTO design manuals. If this analysis fails, a 3D analysis may be performed.
- SD-(1) First pass – treat as normal axle; (2) second pass, if necessary, more detailed 3D analysis
- MN: If trunnion axle width is different from standard gage, we will count for that during the analysis. But if the width is same as standard gage, the limit is same no matter how many tires are.
- ID: We allow trunnion axles and when possible will analyze bridges placing every wheel on the bridge, not just reducing multiple wheels to a single point load. This isn't always possible with our bridge models.

13. Do you impose speed restrictions? If so, how are they considered and when are they imposed?

- WA: Yes, depends on the analysis results.
- SD: Yes. If live load is 5% over stress or less, no speed reduction. If the live load analysis is greater than 5% but less than the impact allowance, loads are slowed to 5 mph over the structure.
- ND: Yes, when necessary. Reduce impact, but leave a minimum of 10% impact, to allow more load to pass
- MN: Yes, we use speed restrictions when the rating factor doesn't work either for no restriction or single lane loading condition. The requirement is to drive 10mph or less. It can't be used for interstate highways.
- ID: We will impose speed restrictions sometimes when the rating factor is slightly less than one for a particular truck configuration. The theory is that this reduces the default impact for which the bridge was designed. We don't like to go much less than 20 mph.

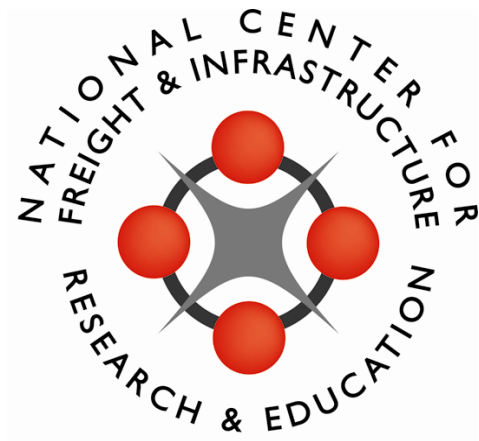
14. Do you use dual lane loading, speed restrictions and greater width to accommodate loads? If so how are they used in combination? How is the analysis done?

- WA: Dual lane loading is allowed, the carrier has to propose that type of configuration. Analysis is as stated in question 11.
- ND: We try to If so how are they used in combination? For bridges, the wider axle spacing or trailer spacing the better. Narrow gage wheels have the greatest impact on bridge analysis. How is the analysis done? We use the spreadsheets along with our live load analysis program to see if permit vehicles can safely pass a structure.
- SD: 1st Pass, Ignore dual lane, use empirical method as described in (11) above, can use 5 mph restriction and reduce impact; 2nd Pass, Using transverse tire spacing's and loads – can do a 3D Analysis
- MN: We use all of the above. We will run several conditions so it usually takes more time for these type applications.
- ID: We use all of the above.

15. Finally, what would you like to see come of this effort?

- WA: This question would probably be better answered by the carriers.
- One final comment is that the administrative side of the permitting process may have different views than on the engineering side.
- ND: What easy modification can be made to make interstate commerce easier and less work on our as well as the hauler's side.
- SD: Would like to get better awareness of what other states are allowing and how they analyze/process their overweight vehicles. If there are specific items that can identified to make it easier for the trucking industry, we need to identify these, and see what low hanging fruits can be implemented.
- MN: I think we have to realize the variations will always be there but at same time we can identify certain area to reduce the gaps/variations.
- ND: Develop possible solutions for discussion. At a minimum, uniform pilot car rules can be suggested.
- ID: Not sure I know where we are headed. I think the uniformity is more of a pressing issue for the permit folks than for the engineers.

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