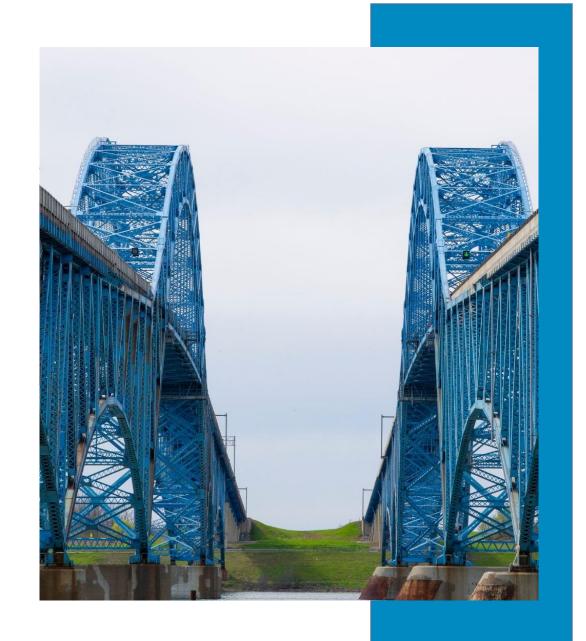


# Bridge Permitting (Alliance)

Mike Johnson, Idaho Transportation Dept.

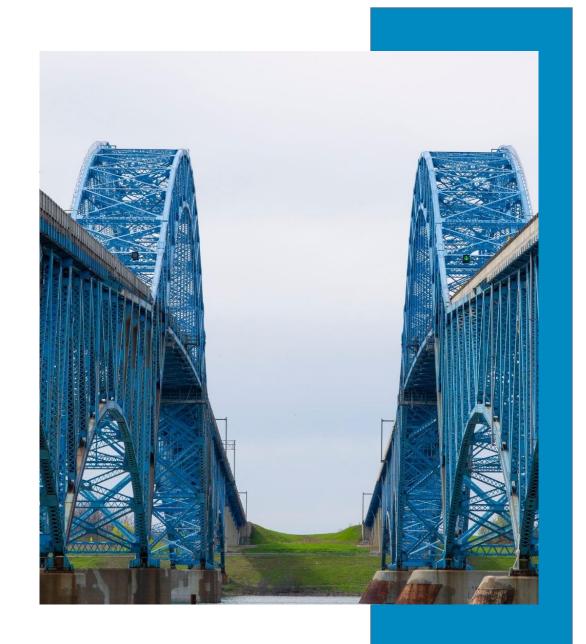
Tim Pilcher, ProMiles





# AASHTOWare PermitRoute

Powered by ProMiles



### AASHTOWare Strategic Alliance Partnership

- AASHTOWare PermitRoute powered by ProMiles
- Oversize/Overweight Permitting and Routing System
- For State and Local Transportation Agencies
- Configured and customized for each agency
- Cloud based automated real-time solution
- Turnkey solution
- Can be purchased out of the AASHTOWare catalog



## Oversize/Overweight Permitting and Routing

- All States have the authority per 23 CFR § 658 (h) to implement a program for permitting travel of vehicles that exceed federal size and weight limits for non-divisible vehicles or loads
- 2022 final rule of the National Bridge Inspection Standards (NBIS, 23 CFR§ 650 Subpart C) requires analysis for routine and special permit loads to ensure bridge safety
- OS/OW permitting is a high visibility program for each state
- Industry expects 24/7 operation and a generous self-issue envelope
- PermitRoute has self-issue rates exceeding 90% for some States



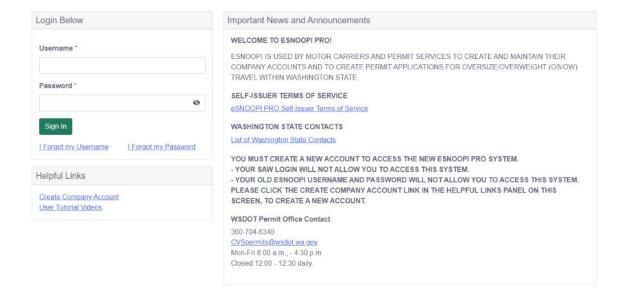
- System administration and configuration
  - Every State has different laws, rules, and permit types
  - System has extensive configuration capabilities:
    - Permit definitions
    - Permit templates
    - Permit conditions and fees
    - Envelope settings
    - Messages, help and instructions, and other





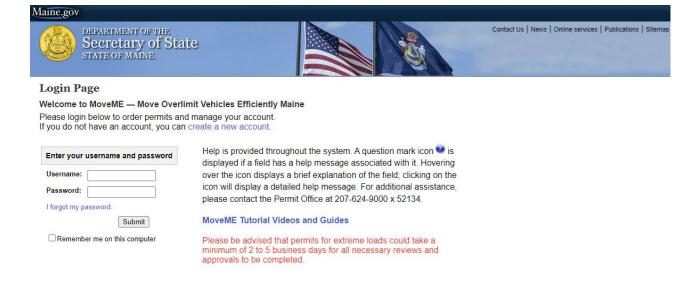
- Account Creation & Maintenance
  - Carrier self-service capabilities
  - Integration with systems providing access to the federal SAFER data to populate account data for-hire carriers
  - Options for Permit Office approval for new carriers
  - Insurance requirement options







- Permit Application
  - Uses intuitive screens to ask the permit applicant for information
  - Only asks for the information needed for that permit type



- Provides context help for each question
- Is configurable for each permit type
- All PermitRoute systems nationwide have similar permit application processes



### PermitRoute Features

- Routing and Restrictions
  - Fully automated OS/OW routing
  - Any sized vehicle (based on available restriction), any complexity of road network
  - OS/OW restriction model virtually any restriction to OS/OW travel
  - Integrated Restriction Manager to maintain restrictions
  - PermitManager routes on a number of interchanges with Wikipedia entries: Big I, High Five, and others



#### Account Creation

Click Create Customer Account in the Helpful Links section to create your account for EZ Haul Virginia DMV.

Customer Users		
Username *		
Password *		
Sign in as Customer	I Forgot my Password	
r Forgottilly Osername	Troigot IIIy Password	
Helpful Links		
Create Customer Account Structure List Upload Insurance User Tutorial Videos		
State Users		
Sign In As State User		

#### Important News and Announcements

#### Welcome to the EZ Haul Virginia DMV!

EZ Haul is used by Motor Carriers and Permit Services to create and maintain their company accounts and to create permit applications for Oversize/Overweight (OS/OW) travel within the Commonwealth of Virginia.

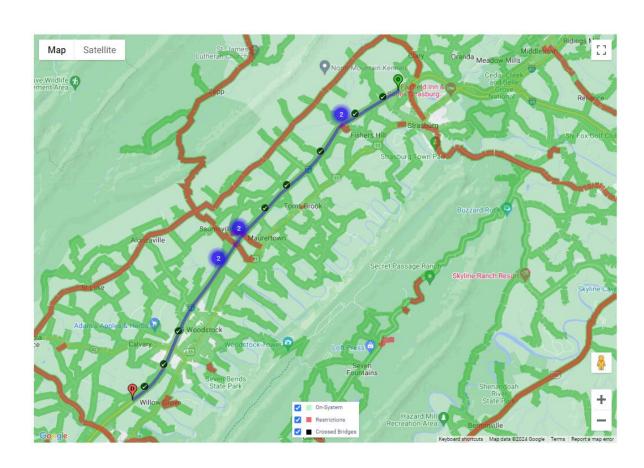
If you experience any issues during the account creation process, please email us at haulingpermit@dmv.virginia.gov or call us at 804-786-2787.

#### **Holiday Notice**

- New Year's: Permitted loads are required to stop travel at 12:00 Noon on December 29, 2023 and may resume travel on January 2, 2024 as outlined in permit.
- Memorial Day: Permitted loads are required to stop travel at 12:00 Noon on May 24, 2024 and may resume travel
  on May 28th as outlined in permit.
- Independence Day: Permitted loads are required to stop travel at 12:00 Noon on July 3, 2024 and may resume travel on July 5th as outlined in permit.
- Labor Day: Permitted loads are required to stop travel at 12:00 Noon on August 30, 2024 and may resume travel on September 3rd as outlined in permit.
- Thanksgiving: Permitted loads are required to stop travel at 12:00 Noon on November 27, 2024 and may resume travel on November 29th as outlined in permit.
- Christmas: Permitted loads are required to stop travel at 12:00 Noon on December 24, 2024 and may resume travel on December 26th as outlined in permit.



- Map Display
  - Displays routes, restrictions, failed bridges and other information on a map
  - Most systems use Google maps for the base layer. Included with the system
  - User can interact with the map to change the route: Enter locations, drag route



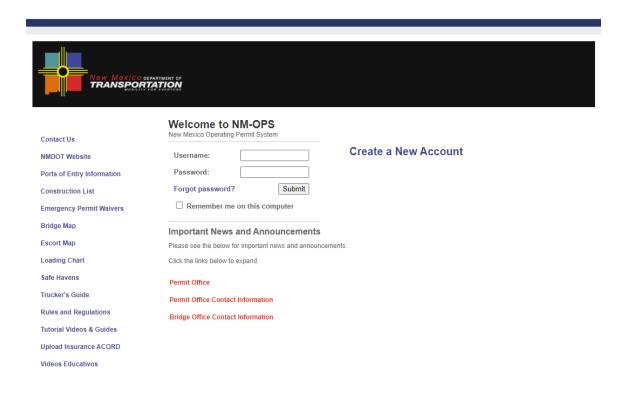


- Load Rating
  - FHWA required effective load rating as part of OS/OW permitting
  - Integrates with BrR
  - Can use LRT during the routing process
  - Uses full BrR for bridges without LRT or for NSG vehicles
  - Uses alternate rating methods as identified by the Agency



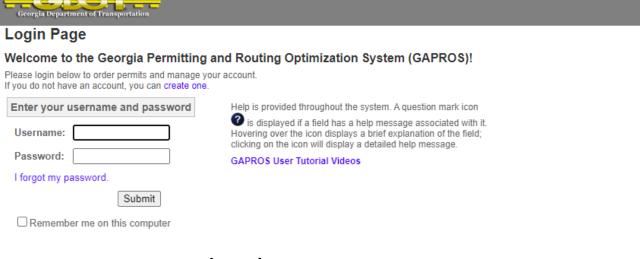


- Search and Reports
  - Extensive ad-hoc search capabilities including GIS base search
  - Extensive customized reporting capabilities
  - Numerous reports included
  - Able to make GIS files for permit travel





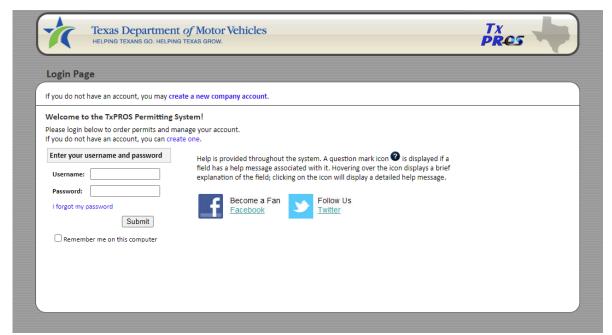
- Safety and compliance
  - Identifying non-compliant carriers is an essential part of OS/OW permitting
  - Integrates with State's CVIEW system



- Can directly access the Federal PRISM or SAFER database
- Can integrate with state level compliance systems
- Can include size and weight compliance systems

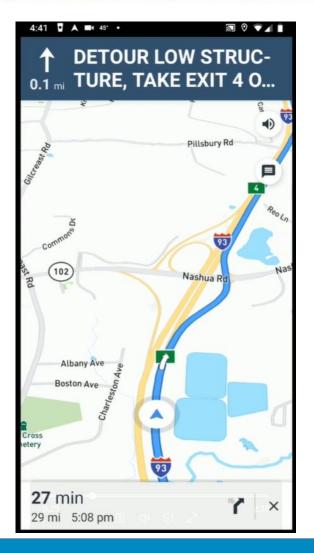


- Payment and Accounting
  - Most OS/OW permits have fees
  - Integrates with the State's chosen payment processor – a processor can be provided where necessary
  - Able to configure fees to be distributed into different fund
  - where applicable and reporting capabilities
  - Integration with Agency and State accounting systems
  - Integrated billing or escrow systems





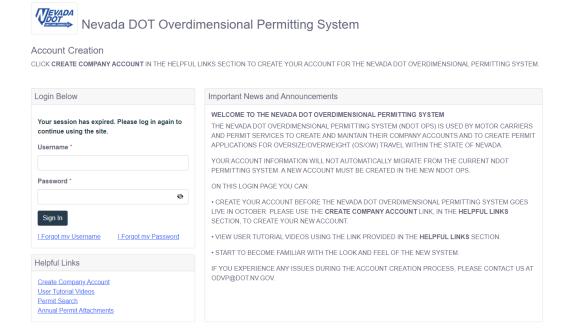
- In-cab navigation
  - PermitRoute includes an in-cab navigation app to facilitate driver compliance and safety





### PermitRoute Configuration and Customization

- GIS and Restrictions
  - Can use Agency data
  - PSDC will provide open-source based GIS data
  - PSDC will apply the Agency LRS to the data
  - PSDC add routing attributes: signage, turn restrictions, etc.
  - PSDC will apply all restrictions
  - PSDC will apply all bridges





### PermitRoute Configuration and Customization

- Integrations
  - State Single Sign On (SSO)
  - Bridge inventory
  - Traffic Alert System
  - Carrier compliance
  - Payment processors
  - Carrier information systems
  - Accounting systems



If you do not have an account, you can create a new account.

Enter your username and password

Username:
Password:
I forgot my password.

Submit

Remember me on this computer

Security and Privacy

Please login below to order permits and manage your account.

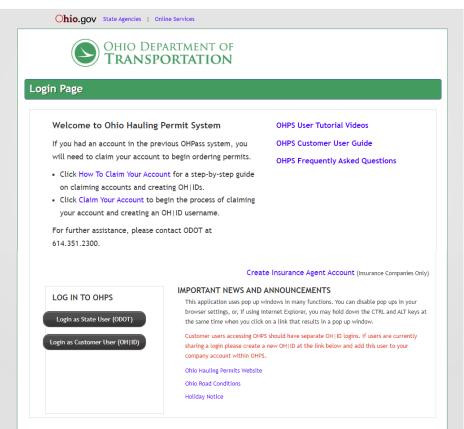
Help is provided throughout the system. A question mark icon is displayed if a field has a help message associated with it. Hovering over the icon displays a brief explanation of the field; clicking on the icon will display a detailed help message. For additional assistance, please contact the Kansas Department of Transportation Central Permitting Office at 785-368-6501, and continue to to use the chat and call-back options if you need assistance after logging into your K-TRIPS account.

Tutorial Videos | User Guide | Permit Fees | Statutes and Regulations | Escort Trip Report | Registered Escort Providers



### PermitRoute Configuration and Customization

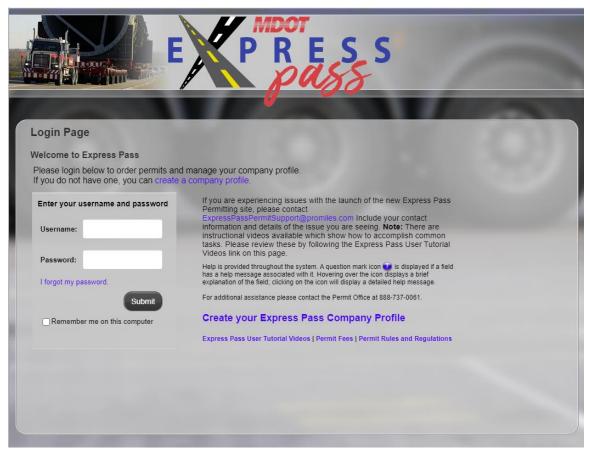
- Configure permit types, workflows, and queues
  - PSDC will work with the Agency to implement all permit types needed for that agency
  - Implement agency needed queues and workflows
  - Workflows and queues are configured for Permit Office staff and staff outside of the Permit Office





### PermitRoute Configuration and Customization

 Match Agency logos, style sheets, and interface requirements





### PermitRoute Configuration and Customization

- Agencies are encouraged to name their systems
- Be creative





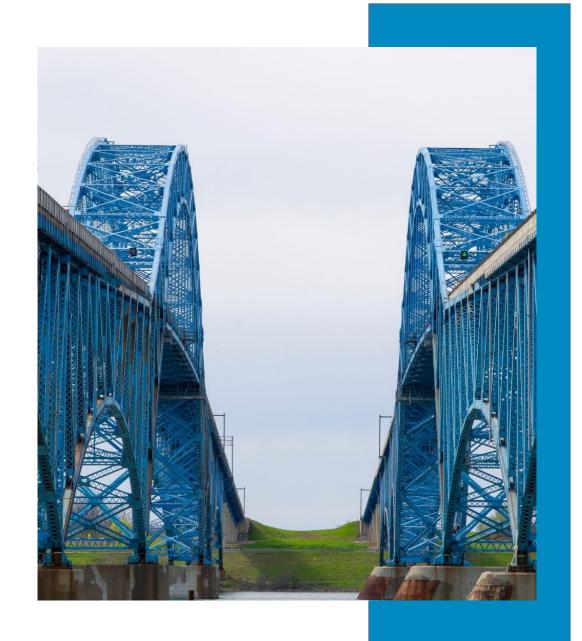
We will now do a deep dive into one of my favorite systems





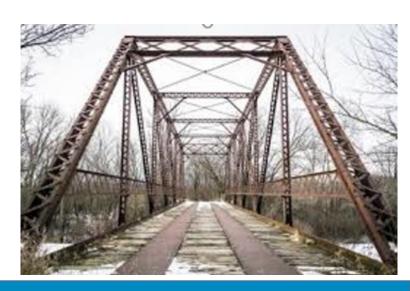
# Idaho's Bridge Permitting

Mike Johnson, Idaho Transportation Dept.



### History of Idaho Permitting

- Prior To 1990s Bridge Staff Reviewed Each Permit
  - Permits Analyzed by BARS 2 Dedicated Staff
  - Permit Numbers Increased –Staff Became Overwhelmed
  - Checked Heavy Trucks over Troubled Bridges





### History of Idaho Permitting

• Early 1990s - Developed A Bridge / Truck Factor Method

### Federal Formula B

$$W := 500 \cdot \left( \frac{L \cdot N}{N-1} + 12 \cdot N + 36 \right)$$

W = the overall gross weight on any group of two or more consecutive axles

L = Distance in feet between the outer axles of any group of two or more consecutive axles.

N = the number of axles in the group under consideration



### History of Idaho Permitting

Truck Factor

When solving for a truck factor, change 500 to "C" then solve for "C".

$$W := C \cdot \left( \frac{L \cdot N}{N-1} + 12 \cdot N + 36 \right)$$

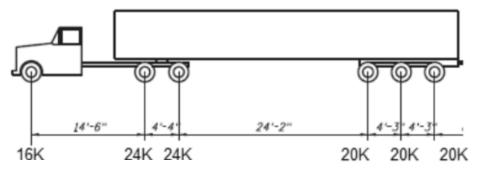
$$C := \frac{W}{\left(\frac{L \cdot N}{N - 1} + 12 \cdot N + 36\right)}$$



### History of Idaho Permitting

Truck Factor – Use Highest Of All Axle Combinations

$$C := \frac{W}{\left(\frac{L \cdot N}{N - 1} + 12 \cdot N + 36\right)}$$



W = the overall gross weight on any group of two or more consecutive axles

L = Distance in feet between the outer axles of any group of two or more consecutive axles.

N =the number of axles in the group under consideration



### History of Idaho Permitting

• Truck Factor – Use Highest Of All Axle Combinations

Axle	Туре	Weight	Spacing	Axle (1=yes, 0=no)	# Axles	Sum of Wt	Sum of Dist	1 Thru		2 Thru		3 Thru	
1a	S1	16000 lb		1	1	16000 lb		Span	Factor	Span	Factor	Span	Factor
<b>1</b> b		0 lb	0.000 ft	0	1	16000 lb	0.000 ft						
1c		0 lb	0.000 ft	0	1	16000 lb	0.000 ft	0.00	#DIV/0!				
2a	D1A	24000 lb	14.500 ft	1	2	40000 lb	14.500 ft						
2b	D1A	24000 lb	4.333 ft	1	3	64000 lb	18.833 ft						
2c		0 lb	0.000 ft	0	3	64000 lb	18.833 ft	18.83	638	4.33	699		
3a	М	20000 lb	24.167 ft	1	4	84000 lb	43.000 ft						
3b	М	20000 lb	4.250 ft	1	5	104000 lb	47.250 ft						
3c	М	20000 lb	4.250 ft	1	6	124000 lb	51.500 ft	51.50	730	37.00	759	8.50	707



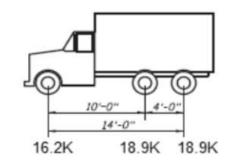
## History of Idaho Permitting

Bridge Factor



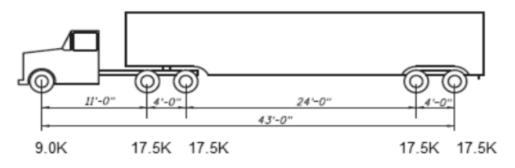


**IDAHO TYPE 3** 



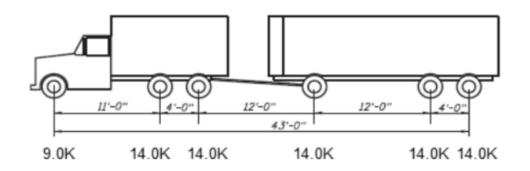
**Truck Factor = 555** 

**IDAHO TYPE 3S2** 



**Truck Factor = 527** 

**IDAHO TYPE 3-3** 



**Truck Factor = 494** 



HS-20	Truck	36	U11	Gusset	Fastener Resistance	1.76	63
Idaho - Type 3	Truck	27	U11	Gusset	Fastener Resistance	2.04	55
Idaho - Type 3S2	Truck	39.5	G2 - Int. Gir.	1.5	Flexural - Steel Strength	2.10	83
Idaho - Type 3-3	Truck	39.5	G2 - Int. Gir.	1.5	Flexural - Steel Strength	2.04	81
ldaho - 121k	Truck	60.5	G2 - Int. Gir.	1.5	Flexural - Steel Strength	1.63	99
CALTRANS P13	Truck	157	G2 - Int. Gir.	1.5	Flexural - Steel Strength	0.84	132

**IDAHO TYPE 3** 

2.04 \* 555 = 1183 - 100 = 1083

**IDAHO TYPE 3S2** 

2.10 \* 527 = 1106 - 100 = 1006

**IDAHO TYPE 3-3** 

2.04 \* 494 = 1007 - 100 = 1007

**Bridge Factor is 1006** 



### History of Idaho Permitting

- Bridge / Truck Factor Method Summary
  - Calculate Truck Factor
  - Bridge Factor
    - Calculate Truck Factors For Idaho Legal Trucks
    - Load Rate Bridge Using Idaho Legal Trucks
    - Calculate Bridge Factor Rating Factor x Idaho Legal Truck

**Factor** 

- Truck Factor < Bridge Factor</li>
  - Permit Allowed





### History of Idaho Permitting

- Early 1990s Bridge / Truck Factor Method
  - Pros
    - Quick
    - Reasonable Results With Engineering Bases
    - Can Be Sent For Refined Analysis If Appropriate
  - Cons
    - Only An Approximation
    - Can Be Conservative
    - Can Be Unconservative
    - Refined Analysis Still Time Consuming





### Current Practice of Idaho Permitting





### Current Practice of Idaho Permitting

- August 4, 2021 ITD's Automated Permitting / Routing Fully Implemented
  - Over-Legal Permits Analyzed On Every Bridge
  - Truckers Submit Permits Online
    - Create Routes
    - Enter Truck Configuration
    - Full Bridge Analysis
    - Self Issued Permits
  - 85% of Permits Issued in 5 Minutes





### Current Practice of Idaho Permitting

#### **Old System**

- Screening Estimated Using Factors
- ~225 Permits Per Week
  - Trucks Over 250K 2 Per Week
- Must Call DMV During Business Hours
- 8 FTE DMV + 2 FTE Bridge
  - Consultant On-Call To Help At Peaks
- 2-3 Weeks Turnaround From Bridge Section

#### **Automated System**

- Structural Analysis on 99% Of Bridges
- ~350 Permits Per Week
  - Trucks Over 250K 8 Per Week
- Apply For Permit Anytime
- 2 FTE DMV + Less Than 1 FTE Bridge
  - Old Way Would Require 5 FTE Now
- 1-2 Day Turnaround From Bridge Section

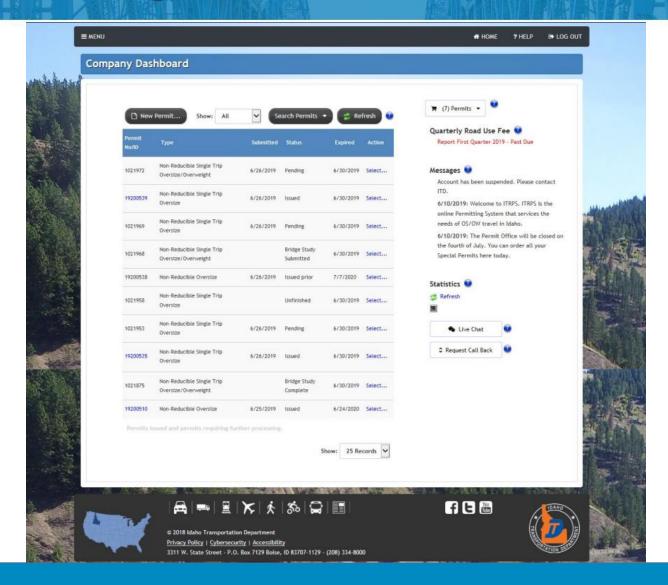




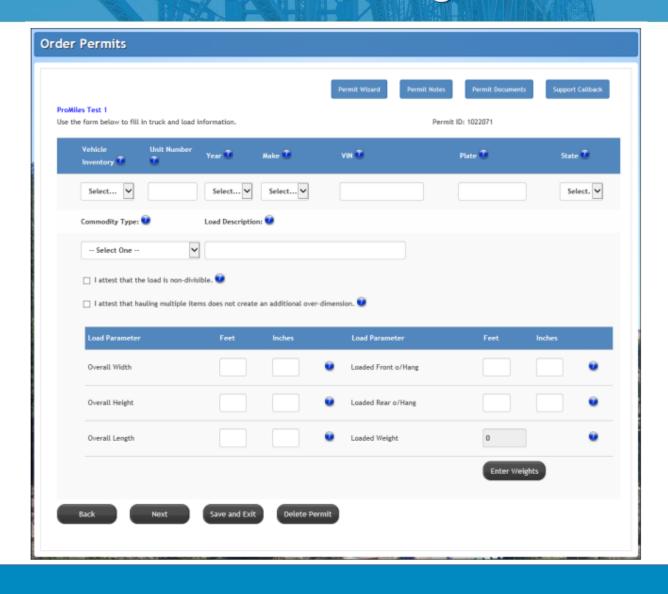






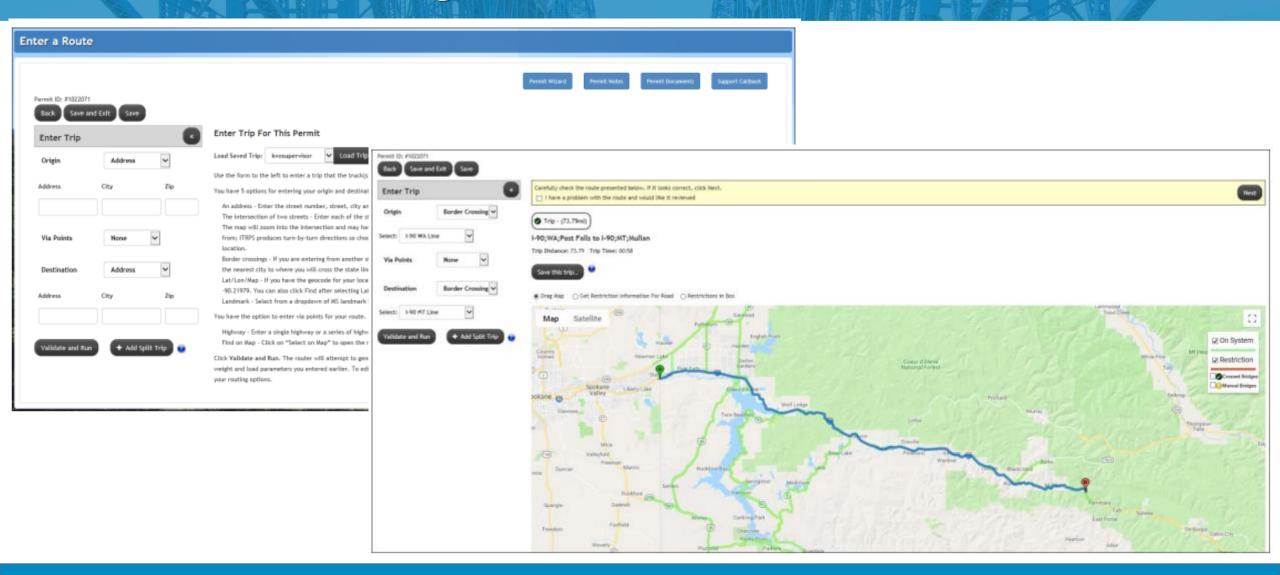




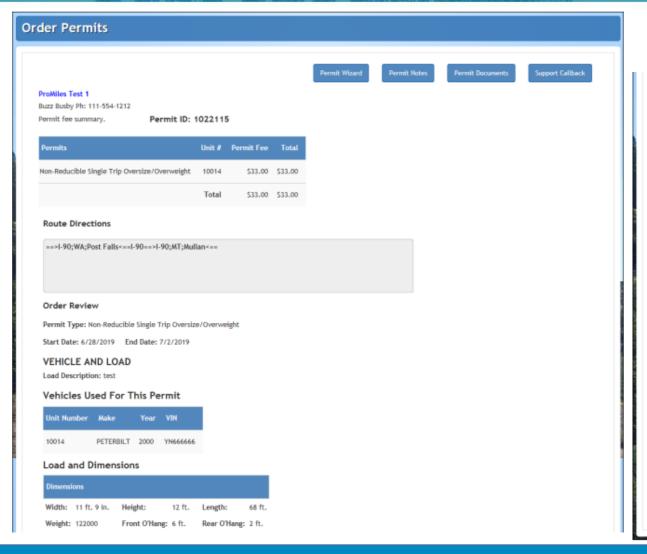


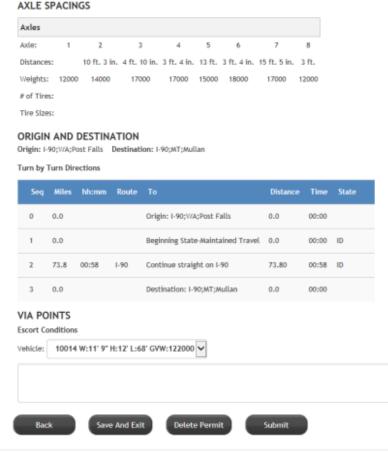
Se	t Axle We	eights						0
Ent	er spacing and	weight in	formation for	each axle.				,
Nui	mber of Axle	s:  8			# Tires:		Axle Width:	Axle Type:
Tot	al Weight:	1220	000	Total	Spacing:	53' 9	)"	
Ax	le Weight	Spacing	g (Ft. In.)					
1	12000							
2	14000	10	3					
3	17000	4	10					
4	17000	3	4					
5	15000	13	3					
6	18000	3	4					
7	17000	15	5					
8	12000	3	4					
For	optimal routi	ng, enter	exact weigh	ts.				
Dis	play Configurati	on o S	ide ⊜Top					
Va	alidate Weigh	ts and Clo	ose	ncel (Clea	rs all axles.)			













## **Closing Thoughts**

- Automated System Benefits
  - Saves Time For Trucking Industry
    - Online Now 24/7
    - Old Way 7am 5pm Monday thru Frida
  - Saves Effort For ITD
    - 70% Less Staff
  - Saving Money
    - Lowered the Cost For Permits





# Thank You

