Unified Permitting Process (UPP) is an effort that aims to streamline how haulers apply for oversize/overweight (OSOW) permits from multiple roadway authorities—townships, cities, counties, and the State of Minnesota—for a given trip.

With UPP, a hauler will submit only one permit application rather than several to haul a load across multiple roadway authority jurisdictions. UPP will increase efficiency for haulers and roadway authorities alike, saving time and money. UPP will also make enforcement easier, helping the state preserve its roads.
The purpose of this TRS is to serve as a synthesis of pertinent completed research to be used for further study and evaluation by MnDOT. This TRS does not represent the conclusions of either the authors or MnDOT.

**Project Team**

Three key groups guided the Phase II Unified Permitting Process effort. The Policy Group and Technical Advisory Panel assisted with project strategy and aligning the project with stakeholder needs. The Working Group provided “real user” testing to the interface, hauler input, permit workflow and issuance.

**Technical Advisory Panel**

Clark Moe  
MNDOT Operations Division Office of Maintenance

Rich Sanders  
Polk County, MN

Renae Kuehl  
SRF Consulting Group

Mike Marti  
SRF Consulting Group

Annette Theroux  
Pro-West & Associates

Lucas Scharenbroich  
Pro-West & Associates

**Policy Group**

Clark Moe  
MNDOT Operations Division Office of Maintenance

Rich Sanders  
Polk County, MN

Mitch Rasmussen  
MnDOT State Aid Division  
Division Director

**Working Group**

Rich Sanders  
Polk County, MN
Introduction

The Right Load on the Right Road, the Right Way, Right Away

Designed to build on Phase 1 listening discovery, Phase II of the Unified Permitting Process (UPP) project defined policies and processes that enabled the development of a proof of concept reference platform (Appendix A: UPP Reference Platform) for unified permitting. UPP Phase II brings together the policies and processes uncovered during Phase I to present a proof of concept prototype Unified Permitting Reference Platform. As was the goal in Phase I, the goal for Phase II focused on effective and efficient movement of Minnesota freight that supports economy, safety and preservation.

Summary of Project Findings

Phase II answered the questions that have surfaced during almost 30 years of discussion and research by local and state government; What are the commonalities between levels of government for policy and process and how do we eliminate barriers to collaborative data sharing and use? How do we build a technology to leverage systems, and provide transparency for permit requests, permit issuance and permit enforcement?
Phase II gained support at all levels of government, including road authorities, the hauling industry, academic institutions, state agencies, and law enforcement (Appendix B: Working Partners). The wellspring of support and cooperation after almost three decades of dialog and problem-solving made it possible to build commonalities and test a prototype for permitting. The right people were in the right room.

Paradigm Shift: The Phase II proof of concept demonstrated the feasibility of realizing a new permitting paradigm. The authoritative data critical to the permitting process was accessed and consumed by data services maintained by the appropriate local or state authorities, rather than relying on a centralizing store of aggregated data. Redundant data and access to the permitting platform was enabled by a federated collection of systems, controlled by the permitting road authorities instead of a disconnected collection of siloed access points.

Technology evolution during the last three to five years significantly improved the ability in Phase II UPP to develop a unified permitting reference platform prototype that contained the essential elements of the system, ensuring third party software and processes maintain autonomous control over permitting issuance and information storage.
UPP Phase II Methodology

Policy

Policy requirements from various local and state agencies were uncovered during listening sessions during Phase I UPP. Policies were examined with the project TAP in Phase II to analyze commonalities for permit issuance (Appendix C: Permit Application Database Summary – UPP).

General Provisions were reviewed from state and local government agencies to develop standardized provisions as a basis for all permits and all agencies. TAP members reviewed and accepted MnDOT’s general provisions as the standard for unified permitting. Provisions are located at: https://www.transportpermits.com/uploads/userfiles/files/documents/provision/MINNESOTA.PDF

Standardized Permit Request Input compiled by TAP members from a Phase I draft list was compared to define core permit issuing criteria. The resulting criteria were agreed upon by local and state government, hauling industry and law enforcement TAP members. In the future, standardized permit input will streamline the process for haulers to apply for a multi-jurisdictional permit and allow road authorities to efficiently issue permits.

Business rules were developed from the standardized permit request input as part of the UPP workflow to evaluate permit input and ensure comprehensive and transparent information exchange between UPP reference platform and external third-party permitting software and data services.

Requirements for general provisions and standardized permit request input were translated into a unified permitting workflow for interaction between systems (Appendix D: UPP Workflow).

Education and Outreach to stakeholders was accomplished through presentations to Districts 1, 2, 4 and 6, the Minnesota County Engineers Association (MCEA), City Engineer’s Association of Minnesota (CEAM), and MnDOT District State Aid Engineers.
Process

**UPP Workflow**

Consultants met with the project TAP to outline business cases to support the UPP workflow. Business cases defined the general repeatable (same load, same road, multiple times each year) and OSOW (dimensions, weight or type of load fall outside the general hauling parameters) workflow for permits and any exceptions to the process. TAP members also provided information on any causes of failure or breakdown to existing permit workflows.

The UPP workflow was developed based on the business cases encountered by road authorities, haulers and law enforcement (Appendix D: UPP Workflow). The workflow process focused on crucial drivers for unified permitting detailed below: User Authentication, Permit Application Info, Permit Submission, Permit Approval or Denial, Permit Aggregation.

**User Authentication**: User authentication was designed to give haulers the ability to log into multiple systems simultaneously. User authentication streamlined hauler permit requests by providing an easily accessible web interface that allowed interaction with multiple road authority systems across a route. Haulers were seamlessly directed to the correct identity provider for login then redirected back to UPP for permit request input.

**Permit Application Input**: General provisions and standardized permit request input from the TAP were used to create drop-downs and automated field population from third party software. The UPP prototype Reference Platform leveraged external services for information requests related to truck, trailer, company and insurance. During the prototype development geospatial data and database information provided via mocked services or static data sources were used for automated field population and routing.

![Figure 2 UPP Routing Example](image)

UPP prototype was designed to use geospatial data and databases from authoritative sources, such as Minnesota Geographic Information Office (MnGEO), Department of Public Safety (DPS), Counties, and Minnesota Department of Transportation (MnDOT), when exposed as accessible data services.

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Permit Submission: The proof of concept defined the process to pass information to road authority permitting systems once all the necessary permit application inputs are received and validated. The UPP prototype extracted the required route information from the permit application and identified the road authorities involved in the approval process for the proposed permit. The road authorities were notified of the new permit and the permit was updated to include all the relevant authority metadata.

Permit Approval or Denial: The UPP workflow included the ability of the road authority permitting system to respond to a request for permit with approval, denial or requested changes. If the permit was under review and awaiting completion, the user would notified of the status of the permit. Users were notified of the decision, including notes from the permitting agency.

When the permit process had been completed by all road authorities, a digital format permit was issued if the permit was approved, or a notification was sent to the hauler if the permit had been denied. If a permit could be issued if changes are made to the request, the road authority could communicate the required changes to the hauler.

Technology

Phase II focused on developing prototype reference platform functionality and piloted the use of the prototype for Working Group input and testing.

Reference Platform

Core Prototype Functional Capabilities: The UPP Reference Platform (Appendix A: UPP Reference Platform) core prototype functions were designed to demonstrate the basic functions expected for a unified permitting system on a statewide scale. Appendix D illustrates the core functions developed in the prototype.

The Reference Platform workflow was comprised of processes for user authentication, applying for a permit, submission and approval, and issuing approval, denial or a request to edit the submission. UPP accessed data sources that provide information for auto-populating fields and performing routing. Load specifications were analyzed against road attributes and state-provided bridge information to display an appropriate route and alternate routes. In the future, the platform could include road restrictions (seasonal, construction or weather related). All information in the workflow was sent to the permitting authority for editing, accepting or denying.

- From the haulers’ point of view, the reference platform demonstrated the ability of the hauler to log into a system which recognized the hauler, auto-populated information that existed in other systems (such as vehicle, company and insurance), provided routing from the point of access to the exit point across road authority jurisdictions, and issued a permit that can be accessed on a mobile device.
- From the road authority’s point of view, the reference platform demonstrated the ability to receive information about the company, truck and load entered by the hauler, view the route from point of access to exit point, provide an alternate route if needed, edit, accept or
deny the permit and view the decisions of road authorities from other jurisdictions affected by the permit request.

- From Law Enforcement’s point of view, the reference platform demonstrated tracking all permits issued, information about the route, load, vehicle, company and insurance, expected dates of travel, need for an escort and special requirements.

**Pilot Execution**

A pilot area of the prototype was developed and tested with the input of a Working Group ([UPP Project Team: Working Group](#), pages 2 & 3). The Working Group was comprised of local government and MnDOT staff associated with the pilot area in Northern Minnesota ([Appendix E: UPP Pilot Area](#)). The working group met in two-week iterative cycles for six sprints over 12 weeks of development. Sprints included education about the reference platform infrastructure and functionality, defining permit input, refining permit workflow, and a prototype testing period between sessions.

The three goals of the Working Group for Pilot Execution included:

1. **Define data types** necessary to create a permit. The Working Group started with the Permit Request Input as compiled by the TAP to define the data types that were required to support the input in a web interface. Units for truck, loads, and routes were established, and pick lists for drop-downs were created.

2. **Define a permitting workflow, including the approval process.** The working group was tasked with testing the permitting workflow as defined by the TAP. ([Appendix D: UPP Workflow](#))

   Circular dependencies were identified during testing of UPP by the Working Group. One example of a circular dependency was regarding who approves what at which point in the process. A state road authority might request local permit information before approving a permit, and a local government road authority may require a state permit number before approving a permit.

3. **Develop a UPP Prototype** to test the unified permitting assumptions. This proof-of-concept effort was implemented as a web application to which the working group had consistent access during the project. The core technologies that were validated were:

   - Demonstrated ability to login for multiple users.
   - Demonstrated ability to access secured resources on third-party systems on behalf of the users. Secured bridge data hosted in ArcGIS Online was successfully integrated into the permit submission process. Also, vehicle and trailer information were accessible from a third-party system, RtVision.

      - RtVision was selected as a test external system for pilot execution since RtVision’s permitting software is in use by a substantial number of Minnesota local government agencies and is used by agencies in the pilot area. The RtVision integrations demonstrated that the architecture, protocols and standards of UPP can be met by existing systems without undue burden.

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• Demonstrated ability to share permit workflow updated among the relevant permit authorities. Stakeholders designated as permit authorities in the prototype system could see and manipulate proposed routes and update the core permit document. Other permitting authorities were able view the current state of the permit across all authorities. This was an especially important use case to validate since there is often coordination between local authorities and the state, or between neighboring counties and cities.

As a hands-on exercise, the Working Group was required to set up a login and was trained in the key concepts and mechanisms for communication with other permitting systems, accessing data sources and other supporting services.

Each Working Group sprint was designed to build on information and testing from the previous session. Working Group members provided testing feedback such as checking units as input to interface fields, testing the routing function and reviewing information in auto-populated fields for accurate results, attaching documents, and providing comments about user-friendliness, efficiency and effectiveness of the platform.

• From the road authority’s point of view, the reference platform demonstrated the ability to exchange information between UPP and the road authority’s permitting software, view the status of a requested permit, use information from external third-party data services for truck, trailer, load, route, bridges and restrictions to approve or deny a permit, and attach files.
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Appendices

Appendix A: UPP Reference Platform

Appendix B: Working Partners

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<tr>
<th>Working Partners</th>
<th>Agencies, Institutions and Companies</th>
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<tr>
<td>Federal Government</td>
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| State Government  | MnDOT – Minnesota Department of Transportation  
SemiGeo – Minnesota Geospatial Information Office  
MnP – Minnesota Department of Public Safety  
MnDVS – Minnesota Department of Vehicle Services  
Highway Patrol |
| Local Government | MCEA – Minnesota County Engineers Association  
MAT – Minnesota Association of Townships  
LRRB – Local Road Research Board  
OSOW – Oversize Overweight Committee of the LRRB  
Polk County  
Itasca County  
St. Louis County  
City of Duluth  
Carlton County  
Sheriff’s Law Enforcement |
<p>| Private          | Pro-West &amp; Associates, Inc. |</p>
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<td>RtVision, Inc.</td>
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MNDOT input areas, auto-populates with logic

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### Recommendations

- Remove equipment and insurance information once.
- Once entered, these fields are auto-populated.
- Consider removing the year field.
- Use an industry rule for weight.
- Use the same year on the equipment and insurance.
- Use the state agency for吻合.
- Use the same year on the equipment and insurance.

### Meeting Comments

- MnDOT requires vehicle empty weight.
- County do with it? If not, do we want to continue to update.
- Why do we need this? It's not part of the MnDOT then the county applicant will fail unless it matches perfectly at this time.
- Need to ask who will benefit, why do we need this.
- Consider removing, may be perfect systems.
- Consider removing, may be perfect systems.
- Sometimes fax is the only option when the computer permits are faxed, but with the online system, we prefer email. The online systems are not necessarily perfect systems, sometimes have too many options.
- Why do we need this and insured amount, if something ever happens what does the insurance policy number expect?
- May be it's not part of the MnDOT then the county applicant will fail unless it matches perfectly by MnDOT. Another department does this for us. We can remove.
- If yes then you wouldn't have to get this information and insurance.
- As an industry hauler, we need to remove.
- Need to ask who will benefit, why do we need this.
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### Recommended Permit Application Inputs for Prototype Development

**Meetings:** 12/19/17 and 1/3/18

* **Enforcement Needs**
  - Patoka
  - Norborne
  - Benton
  - Muncy
  - Meiss

**Information Request**

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**Legend**

- **N**: No (remove)
- **Y**: Yes (keep)
- **AUTO**: Calculated by tool (not an input)
- **ONCE**: Input once; auto-populates with login

**Pathway**

- **RT**: Requires a permit from MnDOT, but it is a non-troubled permitting system. Permitting systems differ, but one click on the ignite will be all. 301LS-100 for a single permit, or 301LS-101 for multiple.
- **BREAK**: REvision does this automatically and gives you a figure
- **Auto - Defaults to today's date**
- **Auto - Calculated by tool (not an input)**
- **Auto - End date - Valid 7 Days on ST - 365 Annual**
- **220,000 lbs over**
- **2018**

**Information Reques**

- **Enforcement Needs**
  - Patoka
  - Norborne
  - Benton
  - Muncy
  - Meiss

**Data Information**

- **Auto**: A unique identifier is used in the system to identify the permit.
- **Y**: Yes (keep)
- **N**: No (remove)
- **X**: Optional field.
- **AUTO**: Calculated by tool (not an input)
- **ONCE**: Input once; auto-populates with login

**Meetings**

- **Jan 3, 2018 Meeting Notes**
- **Dec 19, 2017 Meeting Notes**
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Legend:
Y = yes (keep)
N = no (remove)
ONCE = input once; auto populates with login
AUTO = calculated by tool (not an input)

1/16/2018

Meetings 12/19/17 and 1/3/18

Rail - Cass, Kandiyohi, Nicollet, Waseca
Highway - Cass, Kandiyohi, Nicollet, Waseca
Public Hearings - Kandiyohi, Nicollet, Waseca

Yard waste pickup - Cass, Kandiyohi, Nicollet, Waseca

Dakota County
Blue truck over 220,000 lbs only

Polk
Carlton
Hennepin
Freeborn
Jackson
St. Louis
Renville

Dec 19, 2017 Meeting Notes
Jan 3, 2018 Meeting Notes
Appendix D: UPP Workflow

Appendix E: UPP Pilot Area