



December 13, 2018

Representative Paul Torkelson  
Chair, Transportation Finance Committee  
Minnesota House of Representatives  
100 Rev. Dr. Martin Luther King Jr. Blvd.  
Saint Paul, MN 55155

Senator Scott Newman  
Chair, Transportation Committee  
Minnesota Senate  
95 University Ave W  
Saint Paul, MN 55155

Chairs Torkelson and Newman,

Please find attached the fourth MNLARS Steering Committee report, as mandated by Minnesota Laws 2018, Chapter 101. In signing below, we affirm that the statements submitted to the committee in this document are complete and truthful to the best of our knowledge.

Please let us know if you have questions related to this report or would like any additional information.

Sincerely,

A handwritten signature in blue ink that reads 'Johanna P. Clyborne'.

Johanna Clyborne  
Commissioner and State Chief Information Officer  
Minnesota IT Services

A handwritten signature in blue ink that reads 'Ramona L. Dohman'.

Ramona L. Dohman  
Commissioner  
Minnesota Department of Public Safety



# MNLARS Quarterly Update

December 2018



**m** MINNESOTA  
IT SERVICES

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## Executive summary

This document serves as the December 10, 2018 update provided by Minnesota IT Services (MNIT) and the Department of Public Safety (DPS) to the members of the MNLARS Legislative Oversight Committee (LOC). Each item in this document responds directly to the performance requirements defined by statute: Minnesota Laws 2018, Chapter 101. The quarterly update outlines MNLARS benchmarks, describes how those benchmarks have improved since the report submitted in June 2018, and details the work that continues to improve the system and the business processes that exist between the Department of Public Safety Driver and Vehicle Services division (DVS) and its business partners.

Since the last quarterly update, MNIT has deployed another successful release into the system. The overall feedback MNIT and DPS have received from deputy registrars has been very positive.

### Release 1.14 update (release date: November 11, 2018)

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Release 1.14 addressed a number of existing defects, improved system performance, and provided improvements to several functionalities for both DVS staff and deputy registrars. Release 1.14 has provided the following functional improvements:

- Auto-population of driver's license information into MNLARS from the FAST Drivers System
- The ability of Mail Registration Renewal to process:
  - Personalized and Amateur Radio (HAM) Operator/CB Radio Plates
  - Electric Vehicles
  - Registrations that have previously been for more or less than 12 months
- The ability to add registration to vehicles that were formerly title only
- The ability of deputy registrar staff to view scanned documents attached to a title or registration transaction
- Additional editing functions for deputy liaisons, including the ability to correct the license plate on a registration
- The ability to renew Class 11 non-commercial pickups that were previously commercial class without requiring a United States Department of Transportation number
- The ability to apply for Corrected Title improvements
- The ability to renew Quarterly Registration within 7 days of the end of the quarter
- Listing Manufacturers Suggested Retail Price (MSRP) separate from Destination Charge in the Registration Tax Calculator

Thus far, all of the feedback deputy registrars provided to MNIT and DPS regarding Release 1.14 has been very positive, and no unexpected defects were introduced as a result of the release.

## Upcoming Release 1.15 (target date: February 3, 2019)

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Work on the next release is well under way. The targeted timing of this release is to launch in early February to ensure that there will be enough time to track and fix any potential issues prior to the ramp-down occurring at the end of the month. The most notable function MNIT is building into this release is the ability to transfer specialty plates. Release 1.15 will provide the following functional improvements:

- The ability to transfer specialty plates and plate replacement by deputy registrars
- Deputy registrar ability to log, track, and process data-entry errors and other corrections within MNLARS by submitting a Data Entry Ticket
- The ability to perform Change of Registration Class and Registration Class Conversion Transactions
- An extended functionality in the ability of DVS to issue refunds
- The ability to process refunds under five dollars

Currently, MNLARS Vehicle system development work is funded until February 28, 2019. At that time, all MNLARS Vehicle contractors will ramp down, and MNLARS Vehicle will consist of a small team of state staff that will continue hosting and operating the system until the end of fiscal year 2019. Beyond fiscal year 2019, there is insufficient funding to continue operating the MNLARS Vehicle system.

## Tracking the new Driver Services System

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This December report also tracks the performance of the new Driver Services System, alongside all other applications as part of Performance Measure #6. MNIT will continue to include this information as part of the metrics in all future reporting.

## Performance measures

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Updated data on the seven performance measures is available for the following areas:

- Performance measures #1 and #2: MNLARS gaps and defects (pg. 10, 11)
- Performance measure #4: Reduction in vehicle title backlog (pg. 12-14)
- Performance measure #6: System performance (pg. 17-23)
- Performance measure #7: Customer service responsiveness (pg. 24-27)

## Key milestones

The key milestones detailed within this report are measured by the performance requirements outlined in Minnesota Laws 2018, Chapter 101, as follows:

- Subd. 2 (b) (1) - Extent to which MNLARS defects have been resolved
- Subd. 2 (b) (2) - Extent to which gaps have been resolved
- Subd. 2 (b) (3) - Improvements to edit transactions
- Subd. 2 (b) (4) - Reduction in backlog of vehicle titles
- Subd. 2 (b) (5) - Extent of errors in transactions – data fixes
- Subd. 2 (b) (6) - System performance
- Subd. 2 (b) (7) - Customer service responsiveness

## Governance

MNLARS Executive Steering Committee (* = voting member)		
<b>Massey Afzali*</b> Product Manager, BCA	<b>Amber Backhus*</b> MN Auto Dealers Association	<b>Dana Bailey</b> Director of Projects and Initiatives, MNIT
<b>Anthony Anderson</b> MNLARS Program Director	<b>Tami Bartholomew</b> Administrative Supervisor, DVS	<b>Rayah Barton*</b> Management Analyst
<b>Amanda Coppin*</b> Deputy Registrar, South Saint Paul (Member MDRA)	<b>Thomas DeVita*</b> Support Services Program Director	<b>Ash Durham</b> Project Architect
<b>Jim Forsell</b> Deputy Liaison Supervisor	<b>Tom Henderson*</b> Vehicle Services Program Director	<b>Scott Lambert*</b> MN Auto Dealers Association
<b>Laura Laudенbach*</b> Deputy Registrar, Stearns County (Member MDRA)	<b>Al Lentsch*</b> Northland Independent Auto Dealer Association	<b>Neng Lor*</b> Deputy Registrar, Hennepin County (Member MDRA)
<b>Becky Mechtel</b> MNLARS Communication	<b>Vic Moore*</b> Minnesota Auto Auctions	<b>Cassandra O'Hern</b> Deputy Commissioner, DPS
<b>Dawn Olson</b> Director, Driver and Vehicle Services, DVS	<b>Joan Redwing</b> Interim CBTO, DPS	<b>Deana Schweitzer*</b> Deputy Registrar, Prior Lake (Member MDRBOA)
<b>Denise Vogel*</b> Deputy Registrar, Morrison County (Member MDRA)	<b>Donny Vosen*</b> Deputy Registrar, Brainerd	<b>Mike Wright</b> Senior Manager of Operations, MNIT

## MNLARS Project Management Team

**Dana Bailey**

Director of Projects and Initiatives, MNIT

**Tami Bartholomew**

Administrative Supervisor, DVS

**Rayah Barton**

Management Analyst

**Thomas DeVita**

Support Services Program Director

**Ash Durham**

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**Jim Forsell**

Deputy Liaison Supervisor

**Tom Henderson**

Vehicle Services Program Director

**Dawn Olson**

Director, Driver and Vehicle Services, DVS

**Joan Redwing**

Interim CBTO, DPS

**Jeff Schmitz**

DVS Deputy Director

**Anthony Anderson**

MNLARS Program Director

**Mike Wright**

Senior Manager of Operations, MNIT

## MNLARS Senior Leadership Team

**Dana Bailey**

Director of Projects and Initiatives, MNIT

**Jon Eichten**

Deputy Commissioner, MNIT

**Cambray Crozier**

Communications Director, MNIT

**Joan Redwing**

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**Bruce Gordon**

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Deputy Commissioner, DPS

**Dawn Olson**

Director, Driver and Vehicle Services, DVS

## MNLARS Executive Leadership Team

**Dana Bailey**

Director of Projects and Initiatives, MNIT

**Johanna Clyborne**

Commissioner, MNIT

**Jon Eichten**

Deputy Commissioner, MNIT

**Mona Dohman**








Commissioner, DPS

**Cassandra O'Hern**

Deputy Commissioner, DPS

## Quarterly project status summary

MNIT and DPS successfully deployed Release 1.14 to address items from the MNLARS stakeholder priority Master List. MNIT continues project management efforts to release software based on stakeholder priorities, continues to update the project methodology and reporting, and continues to provide updates to the MNLARS system design, tools, and software development standards.

Release schedule		Target deployment	Current status
1.12	Partial Electronic Vehicle Titling Registration, end of day close	Successfully Deployed June 2018	
1.13	Duplicate Title Printing	Successfully Deployed July 2018	
1.14	Majority of Top 5 Tiers of Master List Priorities – Apply for Corrected Title	Successfully Deployed Nov 2018	
1.15	Majority of Top 5 Tiers of Master List Priorities– Specialty Plate Transfer	Planned for Feb 2019	
<p>Key:  <b>Green:</b> Project performing to plan  <b>Yellow:</b> Project viability is at risk  <b>Red:</b> Project requires corrective action</p>			

**Status of recent and upcoming releases:** Release 1.14 successfully launched in the fall of 2018. Release 1.14 included corrections to both title and registration processing, improving the abilities of both deputy registrars and DVS to support customers. In addition to Release 1.14, Release 1.15 is in progress, and will address several more of the top-ranked features and fixes that the Executive Steering Committee requested and will include: specialty plate transfer, change of class, and change of class conversion, among other items.

**Team staffing and ramp down, end of February 2019:** Currently, MNLARS Vehicle system development work is funded through February 2019. In February, MNLARS contractors will begin ramping down, and MNLARS Vehicle will consist of a small team of state staff that will continue hosting and operating the system until the end of fiscal year 2019. Beyond fiscal year 2019, there is insufficient funding to continue operating the MNLARS Vehicle system.

As mentioned in the last quarterly report, MNIT and DPS are currently negotiating amending the FAST contract.

**Continued MNLARS progress:** Given the coming ramp down in contractors planned for February 2019, the team will transition to basic system support, and the application will not be staffed sufficiently to keep the fixes and new feature development progressing through the remainder of FY 2019. There are 110 items remaining on the stakeholder priority Master List – 35 gaps, 56 defects, and 19 new feature requests that are not yet fully covered in the MNLARS Vehicle release plan. In addition, there remain several legacy systems that have not been migrated to the modern MNLARS Vehicle system, as well as many maintainability and stabilization/optimization



features that would allow the system to be maintained properly post launch. Ramping back up and transitioning to a new team, versus continuing system improvements with an experienced team, will cost more and lead to lost productivity. As has been reflected in previous biennial budgets, there is not sufficient ongoing funding sources to support the maintenance of either the MNLARS Vehicle or FAST Driver systems. MNIT and DPS must secure funding for MNLARS to avoid impacting critical services upon which Minnesotans rely.

## MNLARS Vehicle development and implementation timeline

The primary focus of the MNLARS Vehicle project in 2018 has been to remediate high priority defects and gaps while delivering new features that deputy registrars, auto dealers, and other system stakeholders need. Guided by stakeholder prioritization in the Master List development process, the project milestones below reflect a focus on delivering priority defects and gaps that MNIT and DPS anticipate could be completed with remaining funding. Additionally, the majority of all MNLARS Vehicle system maintenance and support funding ends in fiscal year 2019.

### Milestones

#### Delivery deadlines

Deadline	Milestones	Status
Q1 2018	January 31, 2018 MNLARS Vehicle defects and gaps roadmap	Completed
Q2 2018	Launch Release 1.11.2	Completed
Q2 2018	Project re-charter with new project management and reporting	Completed
Q2 2018	Re-score and refresh stakeholder priority list	Completed
Q2 2018	Launch Release 1.12	Completed
Q3 2018	Launch Release 1.13 – Duplicate title printing	Completed
Q4 2018	Launch Release 1.14 – Apply for corrected title and majority of top 5 tiers gaps/defects/new feature priorities	Completed
Q4 2018	Transition to reduced staff support model (ramp-down)	In Progress
Q1 2019	Launch Release 1.15 – Specialty plates and remaining majority of top 5 tier gaps/defects/new feature priorities	In Progress
Not funded beyond Feb 2019	Deliver all defects/gaps/new features for stakeholders, migrate remaining legacy systems to MNLARS platform and deliver remaining system stabilization and workflow optimization efforts required by system users for continued system maintenance and performance	Not Started
Not funded beyond FY 2019	Provide system operations, maintenance and support	In Progress

## Additional roles staffing date milestones

Because MNIT and DPS do not have full funding to keep or recruit all of the contractors needed to enhance the system, some of the planned system optimization and mainframe migration work is put on hold. There are a number of contractor positions that are unfilled. The MNLARS Vehicle system project requires these positions to complete DVS, deputy registrar, and dealer workflow optimizations needed for system maintenance and to build remaining features needed for ultimate system acceptance. These positions are also necessary to complete the vehicle services modernization effort to get off of legacy systems. In March of 2018, the MNLARS Vehicle team's focus shifted from completing the system modernization effort to resolving stakeholder priority defects and gaps before funding ran out.

Deadline	Milestones
Completed	(3) Quality control system analysts/product management analysts
Not funded	(1) User Interface (UI) designer/programmer for dealer, DVS and deputy registrar system workflow optimization
Not funded	(3) .NET programmers to replace remaining legacy applications
Not funded	(3) DBA/SQL developers for performance tuning entity framework and data corrections
Not funded	(2) Program manager/project manager – backfills for turnover
Not funded	(2) User experience redesign analysts for dealer, DVS, and deputy registrar system workflow optimization
Not funded	(3) .NET development tech leads managing concurrent development work
Not funded	(2) Solution architects for technical oversight of parallel development – backfill for turnover
Not funded	(4) .Net developers for dealer, DVS, and deputy registrar system workflow optimization
Not funded	(5) Mainframe migration programmers to migrate from remaining legacy applications

## Legacy decommission deadlines

Deadline	Milestones
Not funded	Finance: Swift integration, accounting controls, reporting
Not funded	Prorate / IRP / IFTA (commercial trucks) title and registration functions
Not funded	Dealership licensure
Not funded	HP permits legacy systems support – commercial permitting
Not funded	Document imaging: Stellant

## MNLARS Vehicle performance measures

### Performance measures #1 and #2: extent to which MNLARS Vehicle gaps and defects have been resolved

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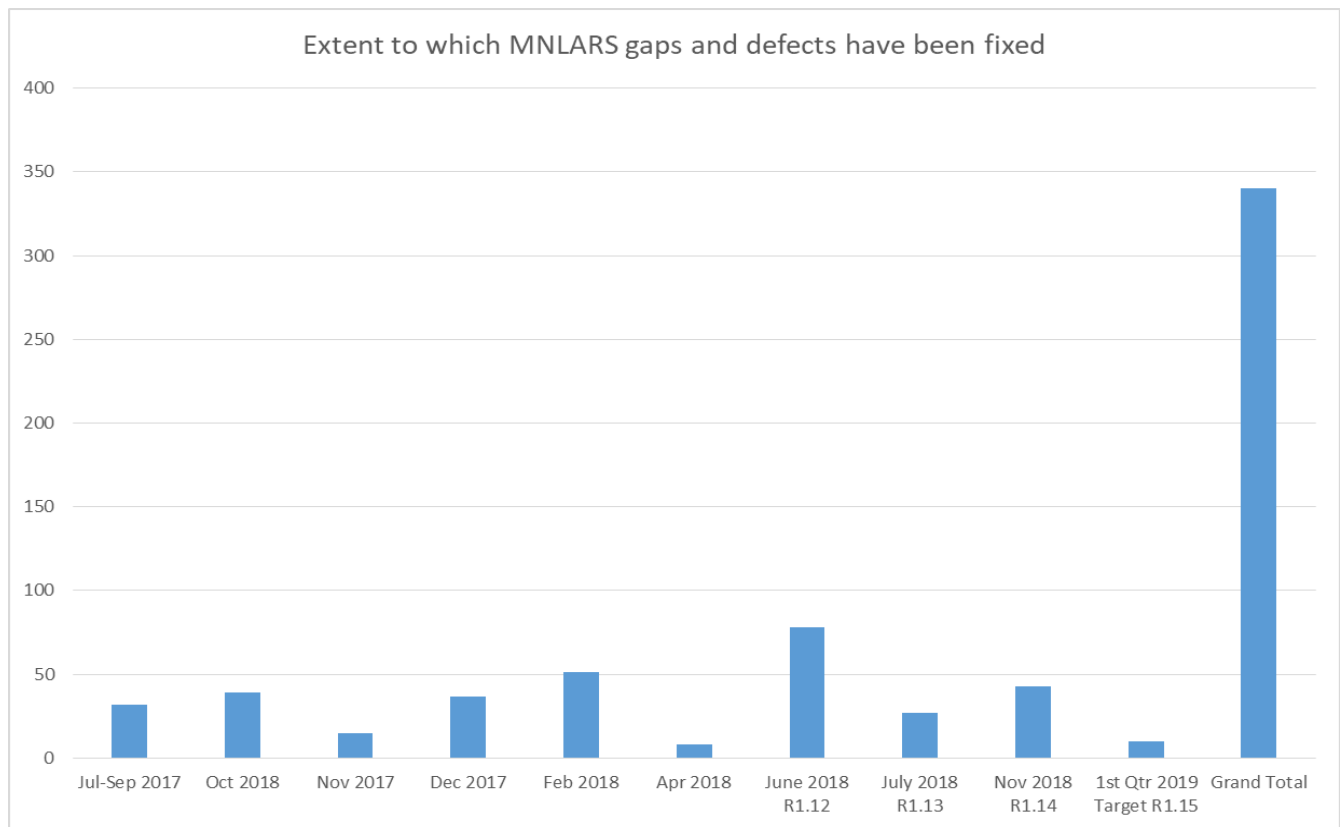
One release has launched successfully since the last report. Release 1.14 contained fixes for 42 defects, new features, and gap items. While Release 1.14 focused on Correct Title, it included enhancements to mail in registration renewal, enabled editing functionality for liaisons, integrated with FAST Driver services to leverage Driver License information, and improved the Registration Tax Calculator.

As of December 1, 2018: 110 defects, gaps, and new feature requests remain, and they have been ranked and prioritized for inclusion in future releases. This is down from 138 from the September 1 report.

Electronic Vehicle Title Registration (EVTR) code is scheduled for rollout to dealers and registrars starting in the first quarter of 2019.

#### Definitions:

- A **gap** refers to functionality that is required by the stakeholders, but has not yet been developed.
- A **defect** refers to existing functionality that is not working, or is incorrectly implemented.
- The **scale** of an individual gap or defect can range from small, simple fixes (such as creating a new fee type) to very large, complex enhancements that include significant system redesign (such as modifying editing functionality across the full MNLARS Vehicle System).
- **Electronic Vehicle Title Registration (EVTR)** allows customers to get plates and registration from a dealer in order to speed up the registration and plate process.



*Figure 1 - Extent to which vehicle services gaps and defects have been fixed*

Figure 1 does not represent the scale or size of each work item delivered but instead, the progress toward resolving the centralized list of itemized gaps, new feature requests, and defects. Some of these itemized issues are extremely large in scope and impact every workflow in the application – like specialty plates, which is planned for inclusion in Release 1.15 in February of 2019.

## Remaining gaps and defects

Since December 2017, there have been six successful releases of the MNLARS Vehicle system where MNIT and DPS have been focused on delivering defects, new features, and gaps in response to stakeholder feedback on a prioritized list called the MNLARS Vehicle Master List. The MNLARS Vehicle Master List tracks gaps, new feature requests and defects. As of December 1, 2018, there are 110 items remaining on the Master List. Of these, 35 are gaps, 56 are defects, and 19 are new feature requests. Some of the items remaining on the MNLARS Vehicle Master List are quite large (like the addition of editing functionality throughout the application) and others are small fixes (like a request to change the color of the expiration year box – “It’s grey and should be bigger”).

The MNLARS Vehicle Master List is a living document, and it requires updating to ensure it aligns with current stakeholder priorities. In June 2018, stakeholders refreshed and re-prioritized the MNLARS Vehicle Master List. This list informs the priorities of feature delivery for the remaining funded releases. Releases 1.14 and 1.15 will deliver the majority of the top 5 tiers of requested features on the Master List. With additional funding, MNIT and DPS will revisit the prioritization process again to clarify the remaining work and new feature requests for inclusion in future releases.

## Performance measure #3 - improvements in the ability of MNLARS Vehicle users to edit transactions

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**Update since September report:** As of early December 2018, 12,992 transactions have been updated for users by DVS using the administrative editing tools. The breakdown is as follows:

Updated Records Count	Type of Change
2993	Change the class, base value, county, and gross weight on a registration.
3719	Change the start and end date on the registration.
378	Change registered plate type on the registration.
87	Change the plate on a registration to a new plate.
276	Change the status of the sticker to “available.”
3461	Change the status of the plate to “available.”
1534	Delete a range of plates from a particular inventory location.
544	Delete a range of stickers from a particular inventory location.
<b>12992</b>	<b>Total Number of Records Corrected by DVS</b>

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Also, scheduled for release 1.15, DPS and MNIT are developing features for deputy registrars to submit a data correction ticket in MNLARS Vehicle and track its status. This ability to submit known issues quickly and with system-tracked follow-up is a step in the right direction toward the much larger effort it takes to build in formal transaction editing features. If funded, additional editing capabilities will likely include the following features:

- Transaction cancellation or return capability
- Additional inventory management functionality
- Editing an unpaid transaction
- Updating title and registration records outside of transactions (as permitted by statute)

To add these additional editing capabilities into MNLARS Vehicle, MNIT and DPS must complete system optimization and performance tuning work, and additional funding must be available.

## Performance measure #4 – reduction in the backlog of vehicle title applications

**Update since September report:** The MNLARS Vehicle title application work queue has risen from 96,154 to 150,231 as is shown in the following table. While both the number of titles in the queue and the turn-around time have both grown since the September report, the launch of the new Driver System has necessitated the shift of staff from title processing over to driver's license processing. Staff overtime is still used and DVS is processing both titles and driver's licenses as quickly as possible. However, due to the staffing levels, managing turn-around times at acceptable levels for both titles and driver's licenses is very challenging.

Another important metric to highlight is the actual turn-around time for title processing. Currently, customers are typically receiving their titles in 35 to 40 days for all three types of titles. Compared to February of 2018, when out-of-state (OS) applications and manufacturer certificate of origin (MCO) titles took 85-90 days to process, this is still a significant improvement.

Date	Title applications in work queue
12/1/2017	379,591
1/2/2018	311,312
2/1/2018	222,903
3/1/2018	179,253
4/1/2018	194,949
5/1/2018	204,104
6/1/2018	219,079
7/1/2018	196,247
8/1/2018	141,150
9/1/2018	96,154
10/1/2018	109,291
11/1/2018	125,420
12/1/2018	150,231

The number of transactions in the work queues represent all title applications that DVS has to work on. While the numbers in the work queue have increased since the last report, overall title turnaround times show improvement throughout the year.

DVS measures title turnaround by the number of days required to complete an application, beginning when the customer visits the deputy registrar. DVS measures title turnaround times in three classes: out-of-state (OS) applications, manufacturer certificate of origin (MCO) applications and Minnesota (MN) titles.

Figure 2 shows the longest title turnaround times for each title class since February, 2018, while Figure 3 shows historical title turnaround times since May 2009. Both figures demonstrate continued improvement in application turnaround times.

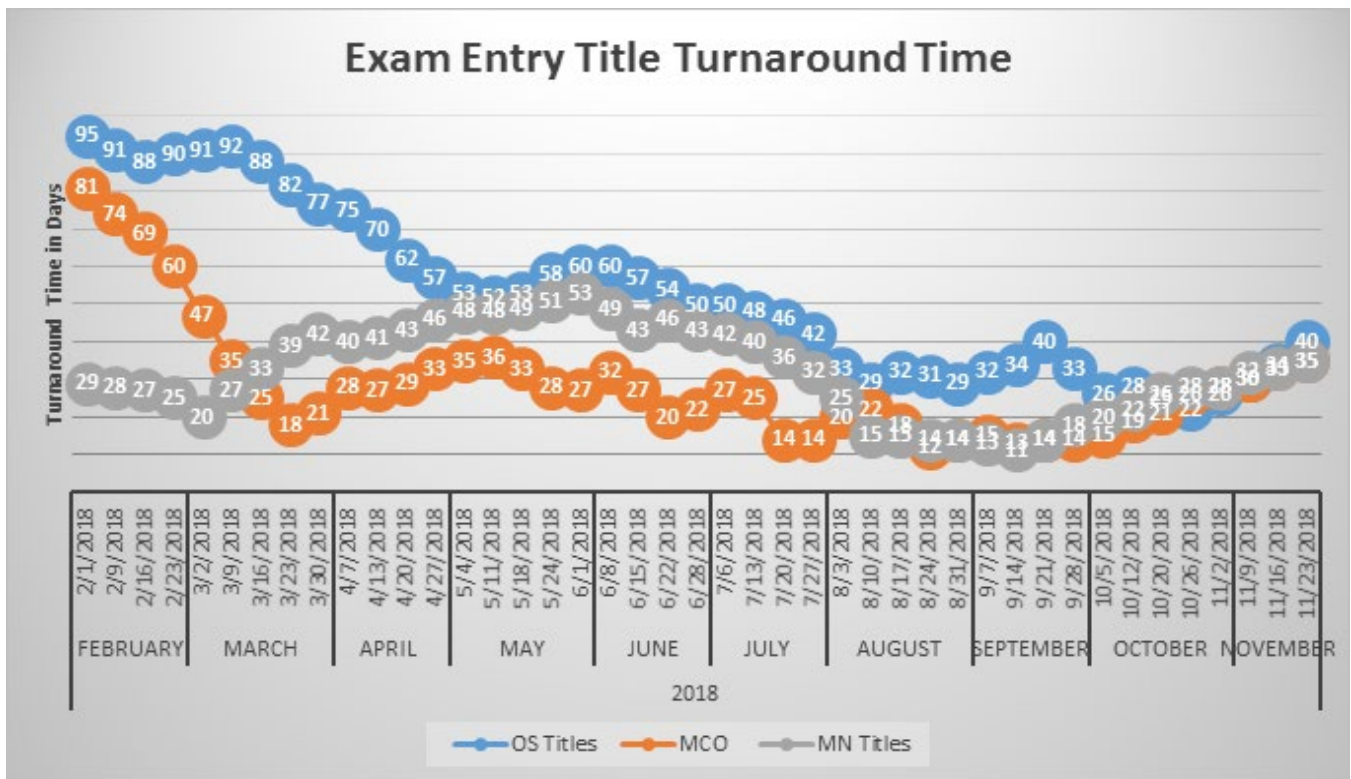


Figure 2 - Exam entry title turnaround time. Note: for November 23, 2018 MN and MCO were at 35 days and out of state at 40 days.

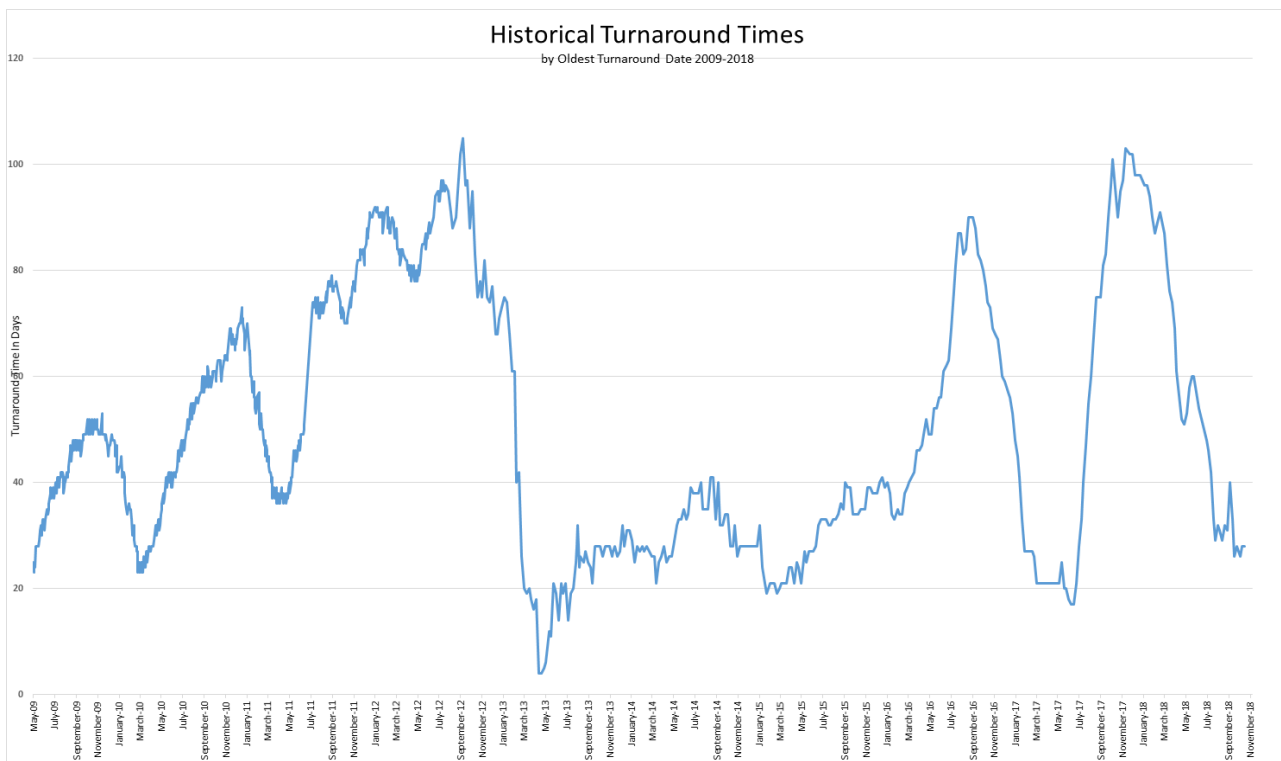


Figure 3 - Historical title turnaround times since May 2009

## Performance measure #5 - extent of errors in Driver or Vehicle services transactions

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There are two main sources of data errors in the system: data entry errors, and transactions hung up due to an error in the system. The current MNLARS Vehicle system has limited record editing capability due to the sensitivities around changing a legal title document once DVS issues one.

Release 1.15 introduces a “Data Entry Ticket” system as part of MNLARS that enables deputy registrars to handle data entry errors and other conditions that are not readily solved via the normal customer service transaction flows by reporting the issue to DVS for resolution at DVS. This new feature supports deputy registrars in resolving edge-case title or registration problems and customer requests, while enabling DVS in its responsibilities to ensure information quality, accurate records, and compliance with policy. For data entry errors, the Data Entry Ticket system is a significant improvement over the previous method of reporting and tracking fix-it requests, and it provides deputy registrars and DVS with visibility of the status of Data Entry Ticket.

The Data Entry Ticket system also satisfies the stakeholder request to edit transactions when it is easier to document an issue, after a deputy registrar has completed the customer transaction within MNLARS, without placing additional burden on the deputy registrar staff. The system enables DVS staff to resolve the reported issue, and it alerts DVS staff quickly so they can manage potential down-stream effects of the errant data; for example, they can stop an incorrectly-entered VIN from being reported to a national information system such as the National Motor Vehicle Title Information System, or NMVTIS.

In addition, the MNIT data team can fix motor vehicle transaction errors as they are reported to, or identified by, the data corrections team on the back end. Data corrections are applied to the system by the data team each Tuesday and Thursday after business hours. This includes data issues reported by deputy registrars, DPS, and the public. MNIT also runs a series of programs to search through the data, to discover and correct discrepancies.

If MNIT and DPS are given additional funding, there is a plan to deliver additional data control reporting and editing capabilities for Vehicle Services liaisons and deputy registrars, so that they can make edits to:

- Edit gross weight not entered correctly in the legacy system
- Resolve registration transactions hung up due to an error in the system
- Remove/cancel deficiencies that should be voided or waived
- Control reports to flag any payments for a transaction recorded twice due to an error in the system
- Fix general data entry errors for registrations and titles
- Control reports and searches for DVS to monitor errors in system use including input of values outside of normal usage parameters
- Edit incorrectly entered inventory
- Resolve a title transfer performed on the wrong vehicle

A report from the Office of the Legislative Auditor has confirmed that MNLARS calculated the correct fees on over 99% of the transactions.



The new Driver Services system (FAST Driver services) allows authorized users to correct driver records; in many cases this is available to all users, including driver services liaisons and driver license agents.

After 7 weeks of production, data retention issues with converted data resulted in the largest area of data anomalies. These are resolved quickly once identified. An example of this would include requiring additional historical conviction data that was not initially in scope for conversion, but has been added since October 1.

## Performance measure #6 - system performance including slowdowns, outages or other performance issues

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Load testing validates system performance prior to each MNLARS Vehicle release. In the fall of 2017, MNIT enhanced this performance testing discipline to include more tests, greater coverage, and a full copy of the MNLARS Vehicle production environment. Previously, performance testing only occurred quarterly, and it did not occur with each release that was put into the MNLARS Vehicle system.

### Definitions:

- **Uptime** means the time the system is up and available during business hours.
- A **slowdown** is any system response that returns in less than one second.
- An **outage** is a period of time that a system fails to provide or perform its primary function.
- **Legacy driver** is a legacy system that supports driver services, which was replaced by the FAST Driver system in October of 2018.
- **Mainframe** is a legacy system that supports vehicle services.

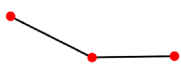

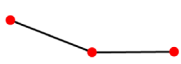
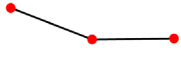
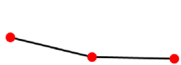
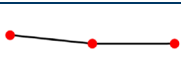
### Uptime, slowdowns and outages

In addition to load testing, the operations team tracks uptime for the systems that stakeholders use. Industry standard for a slowdown is to alert technical teams on any transaction that returns in over four seconds, but due to the importance of system performance for MNLARS Vehicle, MNIT and DPS set the bar higher for monitoring and reporting alerts for any potential performance issues. For the purposes of the graphs below, potential performance slowdowns, known performance slowdowns and outages, have been summarized as outages. However, it is important to acknowledge that downtimes and slowdowns both have adverse effects on how deputy registrars, auto dealers and other stakeholders conduct business.

## System response time test results

**Update since September Report:** There are slight system response time improvements in MNLARS Vehicle between the September 11, 2018 report and this December 10, 2018 report. One enhancement delivered in Release 1.14 was additional user activity monitoring, and that new feature did not slow down performance even though the system tracks much more user behavior. Performance remains stable, and tests between Release 1.13 and 1.14 indicated that the system performs as well as or slightly better than prior MNLARS Vehicle releases. We continue to evaluate system performance with each release to ensure performance does not degrade with subsequent releases.

The following table demonstrates the improved response time since launch and for the last 2 releases. When the system launched, response time varied by transactions. The “apply for title” transaction took 25 seconds to load, and today the same transaction takes under seven seconds. Less complicated transactions, like “sign-in,” previously took three seconds to load, and today it takes less than one second.

Release	MNLARS launch	11.12	1.13	1.14		
Test Information	90 percent - 7/19 baseline	90 percent - 5/21 baseline	90 percent - 7/10 baseline	90 percent - 11/5 baseline		
Transaction Name HTTP Load Scripts	90%				Trend	Summary
Sign-In	3.239	.82	0.755	0.89		Measures the time it takes the user's credentials to be authenticated against MNEIAM and successfully log into the system.
Title Queue	New functionality added	4.6	6.74	5.872		This is the backlog of titles that are currently being processed. These transactions represent navigating to and around the queue. <b>Uptrend is a result from larger table sizes.</b>
Deputy registrar search	2.61	.609	0.755	0.727		These transaction are the various search transaction/options that deputy registrars use throughout the workday.
Apply for title	25.676	6.87	7.5	7.329		“Apply for title” represents one of the most commonly used business transactions in MNLARS. The steps indicated in 20-28 are the typical user workflow.
Registration renewal	12.52	5.96	6.5	6.175		“Registration renewal” represents the core transaction of MNLARS. Like “apply For title,” it exercises a large part of the system's internal functionality/API calls (i.e. vehicle, inventory, finance, 3rd party calls, and online registration.)
Title transfer	15.098	5.97	6.88	6.12		“Title transfer” allows users to transfer a title to another party.

Load testing has been successfully utilized prior to each MNLARS Vehicle release for 2017 and 2018. This performance testing discipline is the most effective way to ensure the following objectives:

1. Identify software or system bottlenecks prior to production release.
2. Determine application configuration issues and provide tuning guidance.
3. Validate that system capacity is sufficient.
4. Ensure system resources scale linearly as workload increases.
5. Find memory leaks and other types of performance constraints that would impact system performance.
6. Mitigate three core risks: speed, scalability and stability.
  - a. **Speed:** How fast does the system process the request?
  - b. **Scalability:** How well do system resources scale under load and increased concurrency levels?
  - c. **Stability:** Measures system uptime under prolonged use and extreme load conditions.

Actual performance results experienced in the field are greatly depend on the consumer's network quality, i.e. bandwidth, packet loss, network congestion, and latency with latency having the greatest impact on end user performance.

### Vehicle systems uptime: September 2018 and October 2018

**Update since September 11 Report:** The FAST Driver's System has been added to the report and the MNLARS Driver, Vehicle and legacy systems have stabilized at close to or at 99% uptime, although SLA targets remain at 95% uptime. SLAs have been updated as a result of recommendations from the MNLARS OLA audit of accuracy of reporting of this performance measure. In addition, additional QA controls are in place to ensure that our manual monitoring reports are accurate, and we did not include the November 2018 uptime data in this report to ensure we have time to perform sufficient quality assurance reviews on the data collected. Also, as a result of the LOC audit, MNIT continues to mature and enhance our SLA documentation and system definitions with DPS for performance testing and monitoring for MNLARS Driver and Vehicle systems.

Figures 4 and 5 show uptime and slowdowns, measured in hours, for the months of September and October of 2018 for all vehicle systems. The systems averaged close to or slightly over 99% uptime over this two month period during system business hours. These graphs also show the downtime for each of the vehicle systems, including legacy driver and the mainframe, but system slowdowns cannot be tracked on these older legacy systems. On the far right of the graphs, uptime and outage metrics include both system slowdowns and outages for the MNLARS Vehicle system and DVS permits.

MNIT has set a one second response time alert on its monitoring tools, which is far more aggressive than the four second industry standard. The uptime numbers in the following graphs summarize all outages and slowdowns over one second.

### September 2018 uptime:

- MNLARS Vehicle – 98.90% uptime with no outages
- DVS Permits – 99.55% uptime with no outages
- ESupport – >99% uptime with no slowdowns or outages
- Mainframe – >99% uptime with no slowdowns or outages
- Driver's System (FAST) – Not yet in production in September of 2018

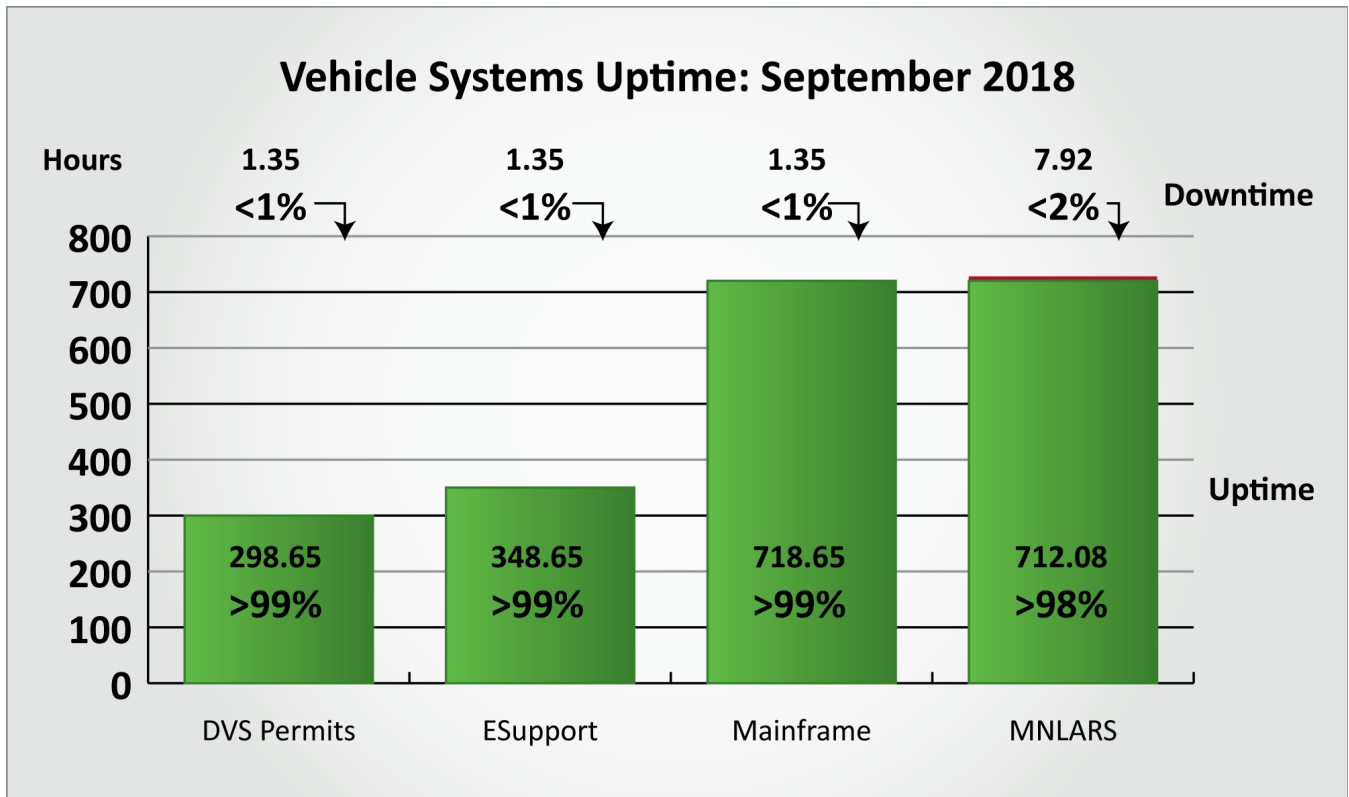


Figure 4 - Vehicle systems uptime: September 2018

## October 2018 uptime:

- MNLARS Vehicle – 99.85% uptime with no outages
- DVS Permits – 100% uptime with no outages
- ESupport – 100% uptime with no outages
- Mainframe – 100% uptime with no outages
- Driver's System (FAST) – 100% uptime with no outages (see \* footnote)

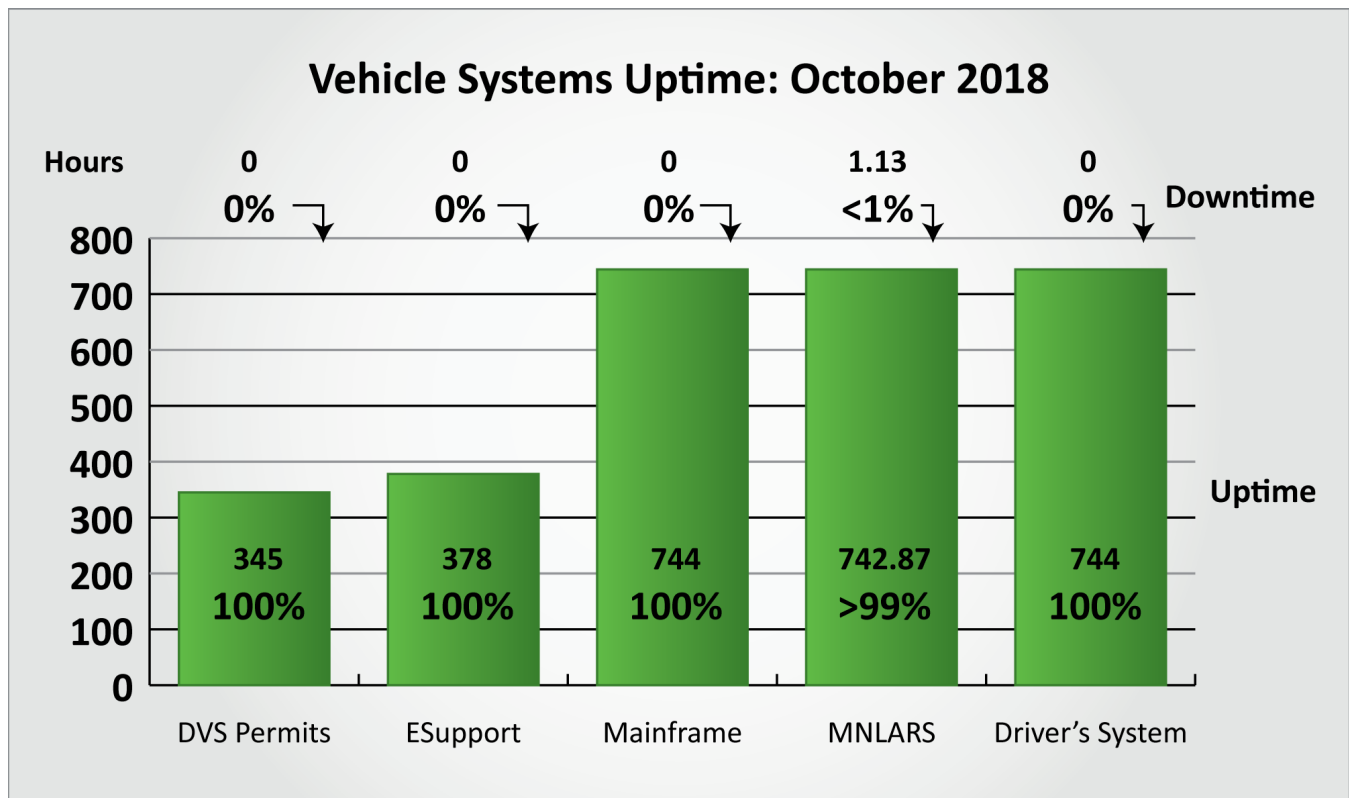
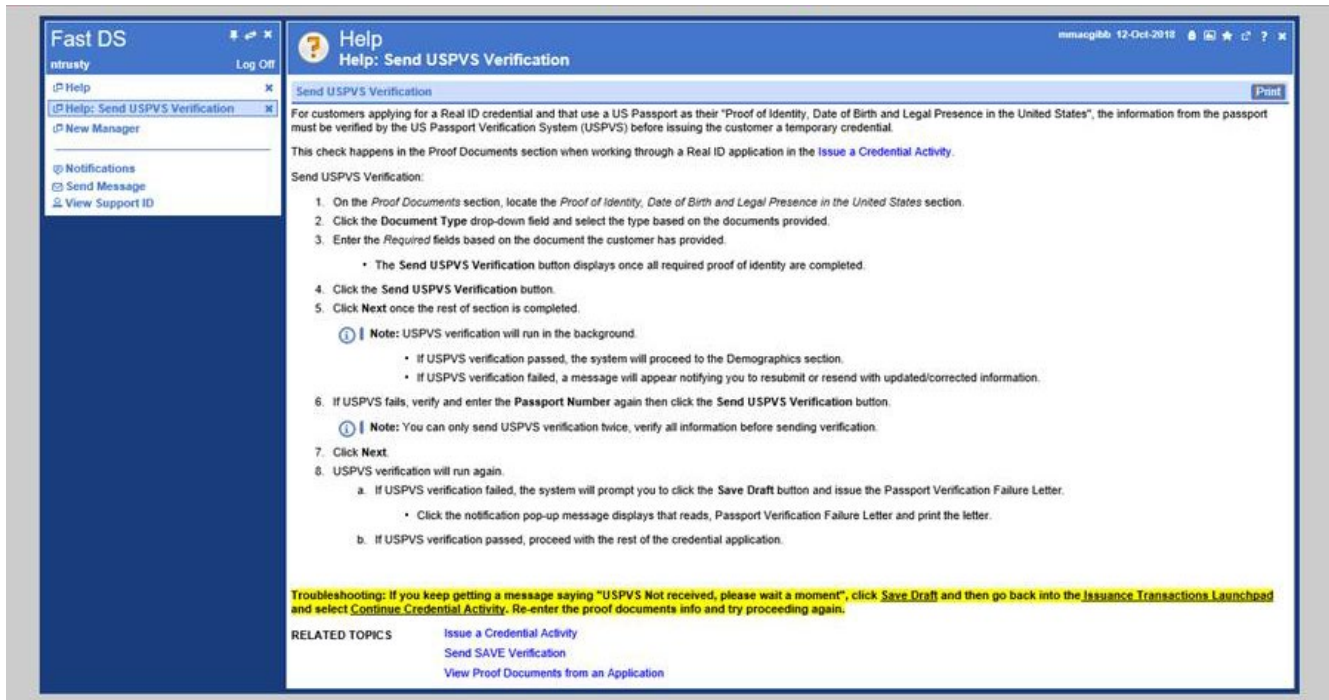


Figure 5 - Vehicle systems uptime: October 2018

\* October 23, intermittent issues were reported through DVS regarding DHS US Passport Verification (USPVS), an AAMVA third party solution for Real ID. The intermittent issues impacted nationwide services. Intermittent impact was unable to be fully quantified and no interruption was posted on AAMVA's system alerting page. All internal FAST-DS infrastructure and services were fully functioning within normal parameters.

- This message was sent from DVS to all deputy registrar and DL Agent Office Staff: *"The Department of Homeland Security US Passport Verification Service is currently experiencing intermittent system issues. If you experience a problem while processing a transaction please use your regular help channels to help process through the transaction. AAMVA Operations is currently working to resolve and mitigate the nationwide impact of this system issue. We will send an update when we have more information."*

- Information posted on HELP for FAST-DS, “If you keep getting a message saying ‘USPVS not received, please wait a moment’ click Save Draft and then go back into the Issuance Transaction Launchpad and select Continue Credential Activity. Re-enter the proof documents info and try proceeding again.” (See screenshot below)
- No incidents from October or November are reported or tracked on AAMVA’s website regarding USPVS.
  - <https://www.aamva.org/System-Alerts/>
  - <https://www.aamva.org/US-Passport-Verification-Services/>



Screenshot of troubleshooting information posted on HELP for FAST-DS

## Service Level Agreement Updates

One area of improvement for MNLARS and Driver Services has been the MNIT-wide effort to more clearly define Service Level Agreements on behalf of new systems and the partner's usage of those systems. The table below illustrates the applications, support hours, and the additional monitoring in place by MNIT at DPS Operations to ensure system availability remains high. With the launch of these two major systems, refreshing these support hours and tools is was a planned post-launch phase to help clarify the monitoring strategies for these upgraded DVS systems.

Service Availability Categorized by Customer				
MNIT Support for DVS SLA is 95% Uptime				
Customer	Service	MNIT Service Desk Core Business Hours	MNIT On Call Support	System Monitoring Hours*
<b>Law Enforcement Interfaces</b> <i>Note: All services provided to Law enforcement services are 24x7x365</i>				
	FASTDS	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
	MNLARS	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
<b>Citizen / Public Facing Website</b> <i>Note: All services provided to citizens are 24x7x365</i>				
	FASTDS	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
	MNLARS	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
<b>DVS Systems</b> <i>Note: Services provided to DVS are during Core Business Hours &amp; On Call Support Hours</i>				
	FASTDS	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
	MNLARS	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
	Permits	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
	Esupport	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
<b>Deputy Registrars</b> <i>Note: Services provided DR/DL are during core business hours &amp; On Call Support Hours</i>				
	FASTDS	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
	MNLARS	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
	Permits	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365
	Esupport	7:30 A.M. to 4:30 P.M. M-F	4:30 P.M. to 9:00 P.M. and 7 A.M to 9 P.M. Sat	24x7x365

*\*Monitoring hours also include most of our routine maintenance windows, which are communicated in advance.*



## Performance measure #7 - customer service responsiveness

The DVS Contact Center encompasses 21 phone lines and several email channels. Unlimited phone servicing is provided to law enforcement and deputy registrars, with priority routing for law enforcement calls in front of general public calls. Unlimited email servicing is provided with response times based on the capacity of available agents. Public phone lines have limited servicing based on the capacity of available agents and size of the phone network, which causes incoming calls to be rejected when exceeding these capacities. During the September 2018 - November 2018 time period, 744,535 calls were received, of which 307,968 calls (41.36%) were rejected and sent to a busy message. This represents a 31.9% decrease in HCV calls from the previous quarter. Compared to the preceding quarter (June 2018 to August 2018), call volumes decreased 11.2%.

To improve customer service, DVS implemented mandatory overtime during the month of September and hired, and continues to hire, temporary staff to reduce the number of unanswered calls and untimely emails. In addition, DVS also increased the call threshold on all Motor Vehicle and Drivers' License lines, which led to the decrease in rejected calls. Of the 307,968 rejected calls, only 6.4% were from the main Motor Vehicle and Drivers' License lines.

Figure 7 shows the call volume pre and post-MNLARS. The vertical line represents the date of the MNLARS Vehicle rollout.

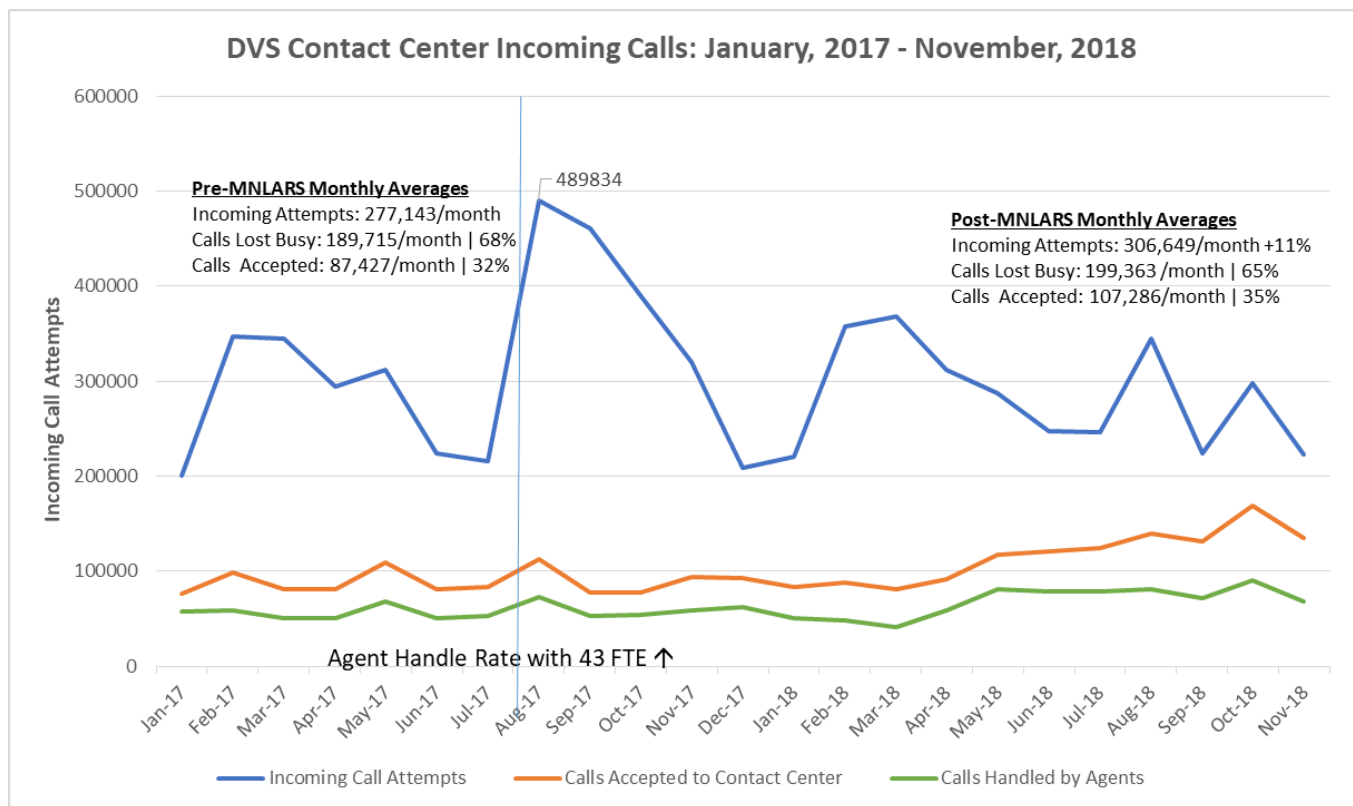


Figure 7 - DVS contact center incoming calls: January, 2017 - November, 2018

## Total calls to DVS contact center from 9/1/2018 to 11/30/2018

The following chart contains specific information about the volume of calls and emails to the Public Information Center (PIC) from September-November 2018.

Phone line	Number of calls
Public phone lines (19)	714,253
Deputy registrar* lines (1)	29,359
Law enforcement line (1)	923
Total calls	744,535

\*DPS Driver and Vehicle Services registrar lines include deputy registrar and driver's license agents.

## All public communication – public phone lines (19)

Call type	Number of calls
Incoming calls	714,253
Accepted calls	406,285
Rejected calls	307,968
Calls offered to agents	268,074
Abandoned calls	51,250
Calls handled by agents	213,244
Average speed to answer	07:17 minutes

\*Incoming calls are not tracked by call type.

## Definitions:

**Incoming calls:** All attempted calls to the contact center.

**Accepted calls:** Calls that immediately entered the contact center system upon dial without receiving a busy message.

**Rejected calls:** Calls rejected due to high volume and sent to a busy message.

**Calls offered to agents:** Caller has selected a menu option and was placed in queue to speak to a live agent.

**Abandoned calls:** Queued calls to speak to a live agent that disconnect/hang-up while in the queue.

**Calls handled by agents:** Queued callers have been connected to speak to a live agent.

## All public communication – email

Email type	Number of emails
Vehicle services emails received	20,528 emails
Driver services emails received	15,381 emails
Outgoing responses	35,492 emails
Total unprocessed emails	1,860 emails – on 11/30/18
Furthest date unprocessed	11/20/2018 (10 days) – on 11/30/18

## Deputy registrar communication – deputy registrar phone lines (1)

Call type	Number of calls
Total calls from deputy registrars	29,359
*MNLARS Vehicle specific calls	6,135
Average speed to answer	16:42 minutes

\*MNLARS Vehicle calls are those selecting option “MNLARS Navigation” or “MNLARS Transaction.”

## Deputy registrar communication – email

Email type	Number of emails
Total emails from deputy registrars	8,089
Total unprocessed emails	947 emails – on 11/30/2018
Furthest date unprocessed	10/11/2018 (50 days) – on 11/30/2018

## Plan for user acceptance testing (UAT)

DVS staff performs user acceptance testing (UAT) to ensure that all business and system requirements are met. DVS staff develops test scenarios and writes test cases based on new functionality, and DVS staff tests these scenarios and cases prior to each release. DVS staff also perform regression testing to ensure existing functionality remains as it was built. This is an ongoing process throughout the development of the MNLARS Vehicle system.

DVS conducts UAT training demonstrations to validate upcoming releases. DVS plans pre-release training demonstrations with stakeholders. DVS also engages stakeholders to do “live” UAT testing, using business test scenarios that cover the functionality that will affect them.

### Training demonstrations

DVS has modified the UAT process to host UAT webinar training demonstrations, at the request of stakeholders in the Executive Steering Committee. This provides stakeholders the ability to give more complex feedback about multiple scenarios that could happen under a given transaction. DVS included this model of UAT on the 1.14 release.

Participating stakeholders are notified five days prior to training demonstrations to make sure they can successfully sign in to WebEx. During UAT training, DVS presents how a fix or functionality will work in the system. Additionally, they collect any feedback or concerns that stakeholders have. DVS hosts the training demonstration before the release goes live.

### Stakeholder “live” user acceptance testing

During UAT testing, stakeholders come in person to St. Paul to execute business test scenarios using the MNLARS Vehicle UAT test system. DVS hosted “live” morning and afternoon sessions on Release 1.14.

Stakeholders have a choice of which method would give them the most assurance that the release works within the scope of the defects and gaps addressed.

## Plan for stakeholder input on code releases to MNLARS Vehicle

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### Executive Steering Committee

The Executive Steering Committee (ESC) is comprised of staff from the Minnesota Deputy Registrars Association, the Minnesota Deputy Registrar Business Owners Association, the Minnesota Auto Dealers Association, the Northland Auto Dealers Association, Manheim Auto Auctions, and MNIT and DPS personnel. It currently meets every other Wednesday from 2-4 p.m. During those meetings, the focus centers on how MNIT and DPS are making the MNLARS system better for end-users and instituting better processes between DVS and their business partners.

### Master List process

Members of the ESC completed the reprioritization of the Master List on June 5. Provided the project is not ramped-down, reprioritization will continue to be scheduled on a regular basis since it's a process that needs to accommodate changes bound to occur in the normal course of business.

The items in any given release will rarely be delivered in exact order of ranking. There are many factors that come into the bundling process for each release. While stakeholder priorities are the number one factor in deciding what is included in a release, with a multi-disciplined approach, it will never be the only factor. IT also determines the optimal sequence in packaging to address the priority items on the list based on the ability to build any given item into the system.

Once the content of the release is put together, the ESC reviews the list. MNIT and DPS walk through each line item and members have the opportunity to give feedback and ask questions about overall content.

### Emergency Master List additions process

MNIT and DPS have established an emergency escalation process. This process allows any member of the ESC to bring an urgent need to the table. MNIT can also bring up critical security-related items that it must act upon immediately to avoid a data or access breach.

The item of concern gets elevated to the emergency ESC subcommittee. These members volunteer for a “tour of duty” – to be available at short notice and help triage any critical issues. Different ESC members rotate to fill this role every three months. These members help decide a plan of action and assist MNIT and DPS in reporting out any decisions made on a particular emergency item at the next ESC meeting the following week.

### Post-deployment production testing

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Live-in-field release tests occur with each release. Each participating deputy registrar tests the release with actual customer transactions during post deployment check out. With this live testing, MNIT and DPS are able to confirm every transaction the deputy registrars process go through successfully in the system, to ensure there is no need to roll back the release.

Prior to the in-field testing, the UAT team sends out identified test scenarios to a number of stakeholders who then make sure that they have real transaction data that can be used to test the scenarios. This data is an actual transaction the stakeholder will process for their customer on the day of testing, since their system will be live.

MNIT and DPS notify volunteer testers 30 minutes in advance of when the test process begins. MNIT and DPS use WebEx for screen sharing and monitoring purposes. Stakeholders perform their transaction while on a conference call with the UAT team and other registrars and auto dealers. This way, testers have the ability to confirm the transaction or share any issues or concerns they have.

After testing each item, the UAT team asks stakeholders to verbally acknowledge that their test was successful. If the stakeholders are unable to do so, someone on the UAT team will get all of the details about what went wrong with the transaction and take that back to the designated emergency ESC in an immediate conference call. Should something unexpected occur, the emergency ESC, MNIT, and DPS may need to make a go/no-go decision together.

## Communications plan for transparent MNLARS Vehicle outages and system slowdowns

The communication plan is comprised of a three-part process to keep stakeholders informed and updated as soon as MNIT and DPS become aware that something is wrong with either MNLARS Vehicle or one of the DVS legacy systems (legacy driver, mainframe, motor vehicle permits). This process is also used when an issue arises with an interface partner.

**Step 1:** Send preliminary notification to stakeholders confirming there is an issue.

**Step 2:** Identify issue with stakeholders, give approximate timeline for resolution.

**Step 3:** Send final notification indicating resolution and providing additional details when necessary.

### MNLARS Vehicle service interruption - communication procedure

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To ensure continuity of operations and service, MNLARS Vehicle, legacy driver, and motor vehicle permits staff will enact the communications procedure outlined below.

<b>0-30 minutes</b>	Determination of impacted applications and services.
<b>&lt; 30 minutes</b>	<p><b>First stakeholder notification:</b></p> <p>DPS service desk sends initial communication sent to deputy registrars and dealers, acknowledging that MNIT and DPS know there is an issue with MNLARS Vehicle or one of the legacy systems (legacy driver, mainframe, motor vehicle permits). As soon as possible, DPS service desk sends the generic preliminary notification to system users.</p> <p>Delivery method:</p> <ul style="list-style-type: none"><li>• DVS staff sent via Outlook</li><li>• Deputy registrar and dealers via GovDelivery</li></ul>
<b>30-45 minutes</b>	DPS service desk further escalates and troubleshoots, implements ESC procedures, and participates in technology and management bridge calls.
<b>45-60 minutes</b>	<p><b>Second stakeholder notification:</b></p> <p>DPS service desks sends an update to initial communications – includes additional details, resolution, or estimated time to resolution. <i>Subsequent communications follow every 60 minutes until resolution.</i></p> <p>DVS communications sends the notification within 15-30 minutes of first one.</p> <p>DVS communications works with DPS service desk and the DPS Office of Communications to craft a more comprehensive message about what system is affected, what the problem may be, and, if possible, the anticipated length of the issue.</p> <p>Delivery method:</p> <ul style="list-style-type: none"><li>• DVS staff sent via Outlook</li><li>• Deputy registrars and dealers via GovDelivery</li></ul>

## **Resolution**

### **Resolution notification to stakeholders:**

Notification is sent after the resolution is found and services are confirmed as fully restored.

DVS communications works with DPS service desk and the DPS Office of Communications to craft a resolution notification with root cause analysis, total impact, and any additional information regarding the issue.

Delivery method:

- DVS staff sent via Outlook
- Deputy registrars and dealers via GovDelivery



## Proposed plan for post-release reporting on features and fixes to system stakeholders

MNIT and DPS must include three items in communications about all future releases. The first item is to socialize the actual content of the release, making sure that stakeholders are aware of what is changing and that MNIT and DPS can answer any questions they may have. The second item is to share a report once the UAT demonstration is finished, to ensure that stakeholders know that the UAT demo is complete, and to provide any necessary information or feedback received from the process. The third and final item is a post-release follow-up, confirming whether live-in-field testing went well and what, if any, additional feedback MNIT and DPS received since the release went into the system.

### Socialize release content

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Once the ESC has determined and vetted the content of each release, all stakeholders will receive the itemized release list, along with highlighted priorities, before it goes live in the system. After the content is socialized, MNIT and DPS start the UAT process.

### UAT report out

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When MNIT and DPS get into the testing phase of each of the releases, the stakeholders will receive an updated report on the status of the UAT.

If there are significant issues during the UAT phase and as a result the release is postponed, the stakeholders will receive a follow-up notification that the release has been postponed. This notification will include the reason for postponement. When possible, the notification will include the rescheduled release date.

It can be difficult to identify this date quickly because the release will still be in the testing phase. MNIT and DPS will not deliver a release until the UAT team has worked out all the issues that made it a “show-stopper” and fixed them.

### Post-release reporting

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Once a release is deployed into the system and has had three to five business days to run, the stakeholders will receive a follow-up email either notifying them of the success of the release, or notifying them of any issues they may experience as a direct result of the release. If there is additional action or notification needed, the DVS Communications team will follow up with all stakeholders.

## Plan to create greater efficiencies and streamline title processing to reduce and minimize backlogs

As was noted in earlier reports, DVS continues to use a multi-focused strategy to reduce and minimize backlogs, which includes using overtime for DVS staff, employing seasonal employees, and contracting for staff.

DVS engaged with the Department of Administration Office of Continuous Improvement and has now transitioned the continuation of this work to the Vehicle Services Process Improvement Team.

Staffing changes	Comments
<b>Driver and Vehicles Services title and registration employees.</b>	Since October 1, 2018 DVS has trained 19 title and registration team members in processing driver license applications and have been temporarily deployed to assist with driver's license applications.
<b>Dept. of Revenue seasonal employees</b> (These are seasonal staff who the Dept. of Revenue employs during the tax season.)	DVS contracted for upwards 32 temporary, seasonal employees to work on manufacturer certificate of origin (MCO) title transactions and Minnesota (MN) title transactions.
<b>Ally Business Solutions, LLC</b> (A St. Paul non-profit organization that match the skills and interests of people with disabilities to the needs of private business and government agencies.)	An average of 16 contracted employees work on manufacturer certificate of origin (MCO) and Minnesota title transactions.

## Request for information (RFI)

The following companies responded to the April 30, 2018 RFI solicitation in the *State Registrar*.

These companies submitted responses to the RFI by the May 31, 2018 4:00 p.m. deadline:

- Business Information Systems (website: <http://www2.bisonline.com/>)
- Celtic Systems (website: <https://www.celtic.bz/Hub>)
- FAST Enterprises (website: <https://www.fastenterprises.com/>)

The summary of the responses and information received from qualified vendors was submitted to the committee and the information technology auditor by August 1, 2018, as required by 2018 Minnesota Session Laws, Chapter 101, Section 2, Subd.5 (e).

## MNLARS Vehicle budget update

Provided below is the MNLARS Vehicle budget for fiscal year 2019. It should be noted that in the absence of additional funding, the state faces a number of serious concerns, including the inability to retain and recruit talent, address priority fixes and gaps in the system, fully move production from the mainframe, allow for needed maintenance, and hire sufficient staff to provide the level of oversight identified in other reports.

The budget is in a number of tables, including a budget summary (Table 1) and a special rider budget (Table 2). Please note that due to budget restrictions during FY 2018, the MNLARS project experienced a period of several months where spending was slowed due to ramp-down of the project and contractor uncertainty. As a result, some of the funding provided last session will be spent in FY 2019, rather than as expected in Q4 FY 2018.

**Table 1 – budget summary**

Table 1, the budget summary, includes a breakdown of revenues and costs rolled-up to a summary-level similar to that previously provided to the legislature as part of the full funding budget from the governor’s recommendations in January 2018. It includes revenues, expenditures, encumbrances, and forecasted spend for the reporting period ending November 30, 2018. “Expenditures” are monies paid subject to an invoice or expense incurred. “Encumbrances” are monies set aside for payment after an obligation for payment has been established, but no invoice has yet been approved or paid. “Forecasted spend” includes planned expenditures and encumbrances that are anticipated, but have yet to be either paid-out or set-aside.

Financial reporting for vehicle & driver for reporting period ending November 30, 2018 (in thousands)		FY18	FY19	
Revenues	Total	YTD spend	Encumbered & forecast	Total
Special revenue	3,738	5,912	-	5,912
Carryforward	12,632	14,080	-	14,080
Receipts	2,130	688	1,212	1,900
Transfers in	8,000	1,000	7,000	8,000
Total revenue	26,500	21,680	8,212	29,892
Expenditures - Driver	Total	YTD spend	Encumbered & forecast	Total
FAST contract	8,250	-	9,500	9,500
FAST DVS staff	-	-	832	832
MNIT Drivers staff	41	229	523	752
FAST contractors	834	370	816	1,186
Technology costs	659	256	1,390	1,646
Other spent	32	47	55	101
Total Driver	9,817	902	13,116	14,018
Expenditures - Vehicle	Total	YTD spend	Encumbered & forecast	Total
Contractors	11,020	3,404	4,897	8,301
DVS staff	416	51	637	688
MNIT staff	2,740	653	1,955	2,608
Technology costs	2,287	758	3,393	4,151
Other spent	221	55	71	127
Total vehicle	16,684	4,921	10,953	15,874
<b>Total Driver and Vehicle</b>	<b>\$26,500</b>	<b>\$5,823</b>	<b>\$24,069</b>	<b>\$29,892</b>

## Table 2 – special rider budget

Table 2, the special rider budget, contains an accounting of the use of fund provided under MN Laws 2018, ch. 101, including \$7,051,000 for contracting to perform software development on the vehicle services component of MNLARS and \$2,599,000 for technology costs. The numbers contained in this table are contained in the data provided in Table 1, but are addressed separately here.

Special rider budget for reporting period ending November 30, 2018 (in thousands)							
Budget Year 2019							
Rider	Carry forward from FY18	Transfers	Total FY19 budget	YTD	Encumbered & forecast	Total forecast	Remaining amount
Contracting	3,626	93	<b>3,719</b>	1,884	1,835	3,719	-
User authentication & access control management	83	(23)	<b>60</b>	12	41	53	<b>7</b>
Testing environment, hardware, server & data storage	2	(2)	<b>0</b>	-	-	-	<b>0</b>
Partial relocation of data center	650	-	<b>650</b>	121	529	650	-
Disaster recovery & preparedness	667	-	<b>667</b>	155	512	667	-
Contracted software review & software development Support	884	(68)	<b>816</b>	108	708	816	<b>0</b>
<b>Total</b>	<b>\$5,912</b>	<b>-</b>	<b>\$5,912</b>	<b>\$2,280</b>	<b>\$3,625</b>	<b>\$5,904</b>	<b>\$8*</b>

\*Actual total is 7.6 and is rounded up

## Spend for employees and contractors

Spend for MNIT and DPS employees is shown for Q1, which ended September 30, 2018. Tables 3 and 4 contain staff charges allocated to the MNLARS Vehicle project for each position, as well as an indication for each position of the number of dedicated staff and non-dedicated staff (those that spend part of their time supporting MNLARS Vehicle, but not assigned to the project).

**Table 3 – amount spent for MNIT employees**

Position	Dedicated staff	Non-dedicated staff	Spend (in thousands)
Managers/supervisors	2	-	21
Project managers/admin support	1	1	23
Technical/software architects	-	-	-
Software developers	8	-	123
Operations	10	4	174
Technical support	5	-	16
<b>Total</b>	<b>\$26</b>	<b>\$5</b>	<b>\$357</b>

**Table 4 – amount spent for DPS employees**

Position	Dedicated staff	Non-dedicated staff	Spend (in thousands)
Business Program Director	-	-	-
Business Management Analyst	1	-	23
<b>Total</b>	<b>\$1</b>	<b>-</b>	<b>\$23</b>

**Table 5 – amount spent (in thousands) for contractors**

Spend for MNIT contractors is shown for Q1, which ended September 30, 2018. Table 5 contains the amount (in thousands) paid by the MNLARS Vehicle project for each contractor. Each contractor may have one or more billed resources placed on the project or may be paid upon completion of deliverables without regard to the number of resources engaged.

Contractor	Amount spent (in thousands)
American Association of Motor Vehicle	3
American Databank	0
CapGemini (Sogeti USA)	1,016
Charter Solutions Inc	31
Intertech Inc	18
Lighthouse Software Solutions	85
<b>Total</b>	<b>\$1,154</b>