MINNESOTA IT SERVICES

April 30, 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 first MNLARS Steering Committee report, as mandated by Minnesota Laws 2018, Chapter 101.

This letter is to 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,

Johanna Clyborne
Commissioner and State Chief Information Officer
Minnesota IT Services

Ramona L. Dohman
Commissioner
Minnesota Department of Public Safety

MNLARS Quarterly Update

April 30, 2018

Contents

Executive summary

This document contains the first quarterly update to the members of the Legislative Oversight Committee (LOC) on MNLARS. Each item in this document is in direct response to the items due to the committee by May 1st as outlined by statute: Minnesota Laws 2018, Chapter 101. The quarterly update outlines the benchmarks, timeline for meeting those benchmarks, and methods used to include stakeholders in both the process and progress of the implementation of the MNLARS system.

Over the last five weeks, Minnesota IT Services (MNIT) and the Department of Public Safety (DPS) have been working on multiple fronts, including spending a significant amount of time preparing this report. In addition to working on legislative oversight benchmark reporting, the agencies are moving as quickly as possible to backfill the three contractors lost during the project ramp-down period in March, and to also bring in contractors to fill the talent gaps MNIT and DPS have on the technology team. These gaps include system architects, system analysts, project managers, business analysts, user interface developers, and performance tuning developers. The agencies have also begun to hold a weekly Executive Steering Committee meeting, to ensure that all stakeholders are in close coordination with MNIT and DPS on the future processes and progress made on the MNLARS project.

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 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

The MNLARS project has already met two significant benchmarks: user acceptance testing (UAT) demonstrations and live-in-field system testing were included in the latest release, 1.11.2. This release included fixes related to both refund performance (response time and page load time) and partial-year registrations.

UAT and live-in-field testing worked well and included feedback from the stakeholders on how to improve this process. MNIT and DPS also modified communications to stakeholders on system performance issues and release communications, particularly where post-release reporting is concerned. MNIT and DPS made modifications to these items with direct feedback from stakeholders at weekly meetings.

Governance

MNIT has formalized the governance process through which all strategies, priorities, ideas and decisions are made. At the core of this process is the Executive Steering Committee (ESC), where both internal and external stakeholders meet on a weekly basis to discuss system improvement timelines and processes. In addition, there is a weekly Project Management Team (PMT) meeting where DPS and MNIT leadership coordinate work and discuss any issues that come up from the ESC. There is also a weekly Sponsor Team meeting, led by the Deputy Commissioners for DPS and MNIT, where leadership discusses the ESC's and PMT's work and coordinates communications and legislative priorities.

Finally, there is the a weekly Commissioner table, where the Executive Director of Projects & Initiatives for MNIT brings significant issues, decisions, and progress reports on both the MNLARS and FAST driver services to the Commissioners and Deputies for discussion and decisions. MNIT and DPS report all of this work into the Governor's office on a weekly basis.

MNLARS Executive Steering Committee		
Amber Backhus MN Auto Dealers Association	**Dana Bailey** Director of projects and Initiatives, MNIT	**Tami Bartholomew** Administrative Supervisor, DVS
Kathy Bormann Project Manager / Scrum Master	**Amanda Coppin** Deputy Registrar, South Saint Paul (Member MDRA)	**Thomas Devita** Support Services Program Director
Ash Durham Project Architect	**Jim Forsell** Deputy Liaison Supervisor	**Tom Henderson** Vehicle Services Program Director
Scott Lambert MN Auto Dealers Association	**Laura Laudenbach** Deputy Registrar, Stearns County (Member MDRA)	**Neng Lor** Deputy Registrar, Hennepin County (Member MDRA)
Beckey Mechtel MNLARS Communication	**Steve Miller** Project Manager, MNIT	**Vic Moore** Minnesota Auto Auctions
Mike Norgaard Deputy Registar, Hastings (Member MDRBOA)	**Cassandra O'Hern** Deputy Commissioner, DPS	**Larry Ollilla** DVS Program Director
Dawn Olson Director, Driver and Vehicle Services, DVS	**Joan Redwing** Interim CBTO, DPS	**Jeff Schmitz** DVS Deputy Director
Mike Wright Senior Manager of Operations, MNIT	**Denise Vogel** Deputy Registrar, Morrison County (Member MDRA)	**Donny Vosen** Deputy Registrar, Brainerd
	Jeff Schwiesow Product Manager, BCA	

MNLARS Project Management Team		
Dana Bailey	**Tami Bartholomew**	**Kathy Bormann**
Director of projects and Initiatives, MNIT	Administrative Supervisor, DVS	Project Manager / Scrum Master
Ash Durham	**Thomas Devita**	**Jim Forsell**
Project Architect	Support Services Program Director	Deputy Liaison Supervisor
Tom Henderson	**Steve Miller**	**Larry Ollilla**
Vehicle Services Program Director	Project Manager, MNIT	DVS Program Director
Dawn Olson	**Joan Redwing**	**Jeff Schmitz**
Director, Driver and Vehicle Services, DVS	Interim CBTO, DPS	DVS Deputy Director
	Mike Wright	
	Senior Manager of Operations, MNIT	

MNLARS Senior Leadership Team		
Dana Bailey	**Jenna Covey**	**Cambray Crozier**
Director of Projects and Initiatives, MNIT	Deputy Commissioner, MNIT	Communications Director, MNIT
Jon Eichten	**Bruce Gordon**	**Cassandra O'Hern**
Legislative Director, MNIT	Communications Director, DPS	Deputy Commissioner, DPS
Dawn Olson	**Joan Redwing**	**Kate Weeks**
Director, Driver and Vehicle Services, DVS	Interim CBTO, DPS	Legislative Director, DPS

MNLARS Executive Leadership Team		
Dana Bailey	**Johanna Clyborne**	**Jenna Covey**
Director of Projects and Initiatives, MNIT	Commissioner, MNIT	Deputy Commissioner, MNIT
Mona Dohman	**Cassandra O'Hern**	
Commissioner, DPS	Deputy Commissioner, DPS	

Quarterly project status summary

This quarter, MNLARS project efforts focused on four releases, re-engaging the team after the March 2018 ramp-down, updating project methodology and reporting, and updating the MNLARS system design.

Release Schedule		Target Deployment	Current Status
1.11.2	Post ramp down fixes	Deployed	
2.0	Liaison inventory management pilot	May 2018	
2.1	Liaison fixing registration entry errors	May 2018	
1.12	Electronic Vehicle Titling Registration, end of day close	June 2018	
Key:	**Green:** Project performing to plan	**Yellow:** Project viability is at risk	**Red:** Project requires corrective action

Status of upcoming releases: This quarter, there are four releases in progress to be deployed in the MNLARS system. Release 1.11.2 was successfully launched on April 22, 2018. This release included fixes related to both refund performance (response time and page load time) and partial-year registrations. Releases 2.0 and 2.1 are planned for May 2018, and Release 1.12 is planned for June 2018.

Filling vacancies on the MNLARS project team after March ramp down: The team is hiring for vacant contractor roles, focusing on roles that bring much needed specialized skills on the team, such as: system architects, system analysts, project managers, business analysts, user interface developers and performance tuning developers.

Updating project methodology and reporting: The team has been updating project methodology to align the current resources, with the key internal and external stakeholder features and business process needs, in order to facilitate the technology team's documentation and traceability of complex business rules and business processes to MNLARS project deliverables. The use of combined iterative development (such as Agile/Scrum) with traditional software project management will enable greater transparency of reporting and is intended to provide reporting consistent with MNIT standards and the needs of the project's stakeholders, partners, and the Legislative Oversight Committee (LOC).

Design Optimization: Charged with finding the fastest path to system stability for stakeholders, the technical team has updated the application architecture to leverage a more structured approach.

There are many aspects of the original system architecture that are working and effective, such as the database model, the domain object framework, and system interfaces with over 60 external applications including law enforcement, financial institutions, and the Department of Human Services. MNIT has worked to leverage those strengths of the original system to support the upcoming project deliverables.

Through the improvement of practices in software coding and build and domain-driven design, MNIT and DPS expect to achieve more frequent releases and greater execution velocity, more complete test coverage, and overall a more stable transaction and data-processing solution.

In addition, the updated application architecture capitalizes on the state's cloud platform which frees the MNLARS system from limitations on its current hardware capacity and allows MNIT to achieve better scalability, help limit outages outside of the business day, and implement performance improvements.

The cloud-hosted enterprise solution allows MNIT to quickly develop new features in one technical environment while simultaneously stabilizing the IT system in a separate environment, so that both development activities can happen at the same time. This speeds up the development process and provides a seamless experience for our stakeholders after the features have been tested and deployed.

MNLARS development and implementation timeline

The primary focus of the MNLARS project this quarter is to address high priority defects, the gaps and features needed by deputy registrars, auto dealers, and other system stakeholders.

Guided by stakeholder's prioritization in the master list process, the project timeline below reflects a focus on delivering priority defects and gaps, which MNIT and DPS anticipated to be complete by the second quarter of 2019.

Milestones

Delivery deadlines

| Deadline	Milestone
Q1 2018	January 31 2018 MNLARS defects and gaps roadmap complete
Q2 2018	Project re-charter with new project management and reporting
Q2 2019	Complete top 32 high priority items for deputy registrars
Q2 2019	Pre-MNLARS deputy registrar facing functionality complete
Q3 2018	Launch Electronic Vehicle Title Registration (EVTR) for dealers

Additional roles staffing date milestones

Deadline	Milestone
Q2 2018	(2) Solution Architects technical oversight parallel development
Q2 2018	(3) DBA/SQL developers for performance tuning entity framework and data corrections
Q2 2018	(3) .NET tech leads managing concurrent development work
Q2 2018	(3) Business redesign analysts/product management analysts
Q2 2018	(2) Program manager/project manager
Q2 2018	(1) UI designer

Legacy decommission deadlines

Deadline	Milestone
Q1 2020	Finance: Swift integration, accounting controls, reporting
Q1 2020	Prorate / IRP / IFTA (commercial trucks) title and registration functions
Q1 2020	Dealership licensure
Q1 2020	HP permits legacy systems support - commercial permitting
Q1 2020	Document imaging

For more detail on the stakeholder prioritization process that went into the development of this project timeline, please see the "Plan for stakeholder input on code releases to MNLARS" and the "Master list process" (page 25).

MNLARS Project Timeline

Phase bands:
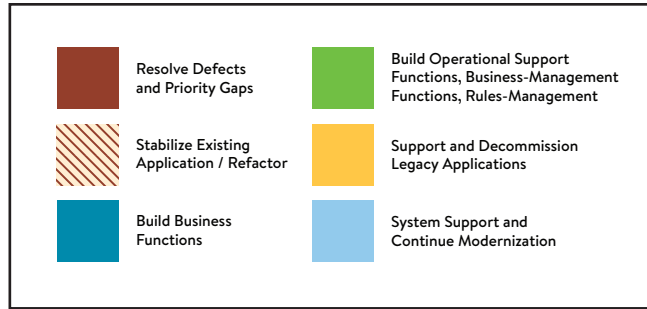
Resolve Defects and Gaps	Complete Gap Functionality	Deliver New Business Functions: DRs and DVS	System Support and Continue Modernization for Minnesotans and Deputy Registrars

| Task	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021
Mainframe Legacy Support	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy					
E-Support Legacy	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy					
Stellent Document Imaging Legacy Support	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy					
HP Permits Legacy Systems Support — Commercial Permitting	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy	Legacy					
Vehicle Registration: Core Business Functions	Defects	Defects	Defects	Defects	Stabilize	Build	Build	Build	OpSupport	Support	Support	Support	Support
Title: Core Business Functions	Defects	Defects	Defects	Defects	Stabilize	Build	Build	Build	OpSupport	Support	Support	Support	Support
Vehicle Registration: Plates/Stickers Assignment and Manufacturing	Defects	Defects	Defects	Defects	Stabilize	Build	Build	OpSupport	Support	Support	Support	Support	Support
Vehicle Registration: Special Plates, Personalized Plates, Impounded Plates	Defects	Defects	Defects	Stabilize	Stabilize	Build	Build	OpSupport	Support	Support	Support	Support	Support
Inventory: Plates/Stickers Ordering-to-Stock, Distribution to Offices, Tracking/Control over Secured Stockable Items	Defects	Defects	Stabilize	Stabilize	Stabilize	Build	Build	OpSupport	OpSupport	Support	Support	Support	Support
Finance: Cart/Payment Management, Corrections, Adjustments, Exception Handling		Defects	Defects	Stabilize	Stabilize	Stabilize	Build	Build	Support	Support	Support	Support	Support
Transactional Integrity/Exception Handling: Edit In-Process; Cancel After Paid/Finalized; Cart/Payment Corrections		Defects	Defects	Stabilize	Stabilize	Stabilize	Build	OpSupport	Support	Support	Support	Support	Support
Read-Only Consumers of DVS Data; BCA, Dealers, etc.		Defects	Defects	Support	Support	Support	Support	Support	Support	Support	Support	Support	Support
Data-Use Agreements Management, User Identity and Access Management				Build	Build	Build	Build	Build	OpSupport	Support	Support	Support	Support
Finance: SWIFT Integration, Accounting Controls, Reporting				Build	Build	Build	Build	Build	Support	Support	Support	Support	Support
Title: NMVTIS and Inter-jurisdiction Communication, Inter-agency Functions				Build	Build	Build	Build	OpSupport	Support	Support	Support	Support	Support
Vehicle Registration: Applications for Disability Status, Disability Plates/Placards						Build	Build	Build	OpSupport	Support	Support	Support	Support
Document Imaging: Replace Stellent						Build	Build	Build	Support	Support	Support	Support	Support
Dealership Licensure							Build	Build	OpSupport	Support	Support	Support	Support
Commercial Vehicle (Temporary) Permits								Build	OpSupport	Support	Support	Support	Support
Prorate / IRP / IFTA (Commercial Trucks) Title & Reg Functions								Build	Support	Support	Support	Support	Support

MNLARS performance measures

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

A total of 259 defects and gaps have been resolved since the July 2017 MNLARS launch. Another 284 defects and gaps still remain in the system. Today, stakeholders utilize 22 unique workarounds to navigate the MNLARS system. Releases into the MNLARS system are now more regimented and rigorously tested, which results in incrementally better system stability, business process stability, and improved system performance. The next releases, scheduled for May and June, will address five different stakeholder priorities, including: editing functionality for liaisons, office close-out enhancements, Electronic Vehicle Title Registration (EVTR) for auto dealers, and data fixes around inventory. Other fixes include motor vehicle registration and title stabilization.

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 system).
- A **workaround** is a process or additional clarifying information developed by Driver and Vehicle Services (DVS) to assist deputies and internal staff in an alternative way to help a customer.
- **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.

Extent to which MNLARS gaps and defects have been fixed
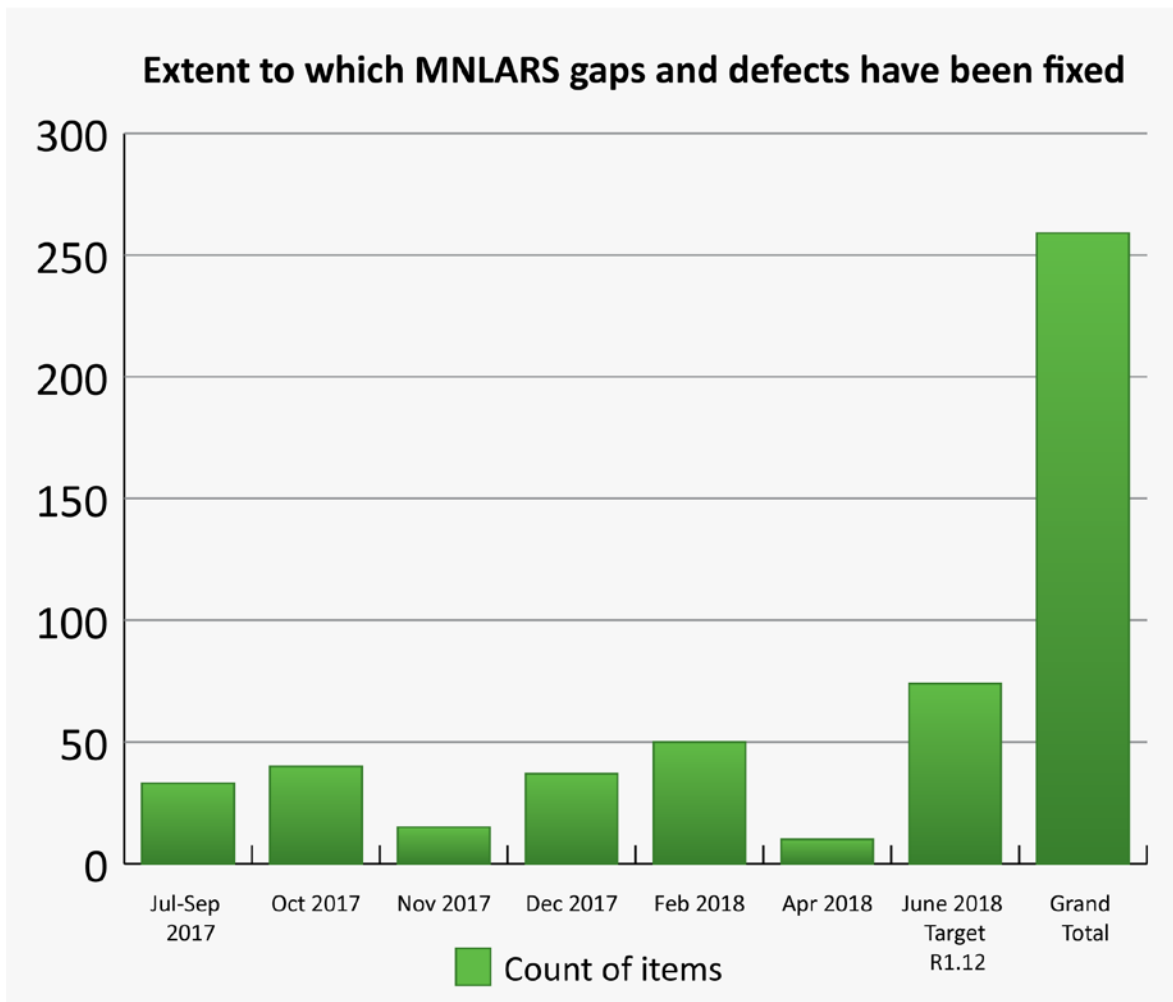
This graph does not represent the scale of work delivered, but instead, the progress towards resolving known gaps and defects. After the March ramp down, work immediately began on implementing changes that were ready with release 1.11.2, demonstrating an improvement in the MNLARS system design by launching a pilot for Driver and Vehicle Services liaisons to edit inventory and, by the end of May, make registration corrections. Planning and development is underway to deliver the largest release into the MNLARS system since July of 2017, which will be delivered in June 2018.

Remaining gaps and defects

The MNLARS master list tracks known gaps and defects that have been identified by system stakeholders. As of the publication of this quarterly update, there are 284 items on the master list. Of these, 98 are gaps and 187 are defects. It is important to note that the master list is a living document and is updated and refreshed regularly to ensure that it aligns with stakeholder priorities.

For more details, see "Plan for stakeholder input on code releases to MNLARS" and the "Master list process" (page 25).

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

Upcoming MNLARS releases scheduled for early June 2018 will provide administrative editing tools for deputy registrar liaisons that will allow them to fix plate and sticker inventory and correct registration data entry errors. MNIT and DPS are scoping, designing and scheduling additional system editing capabilities in order to make them available to deputy registrars in the future. Those capabilities include the following features:

- Transaction cancellation
- Inventory management
- Editing an unpaid transaction
- Updating title and registration records outside of transactions

To add these additional editing capabilities into MNLARS, MNIT and DPS must complete system stabilization and performance tuning work, and continued funding must be available.
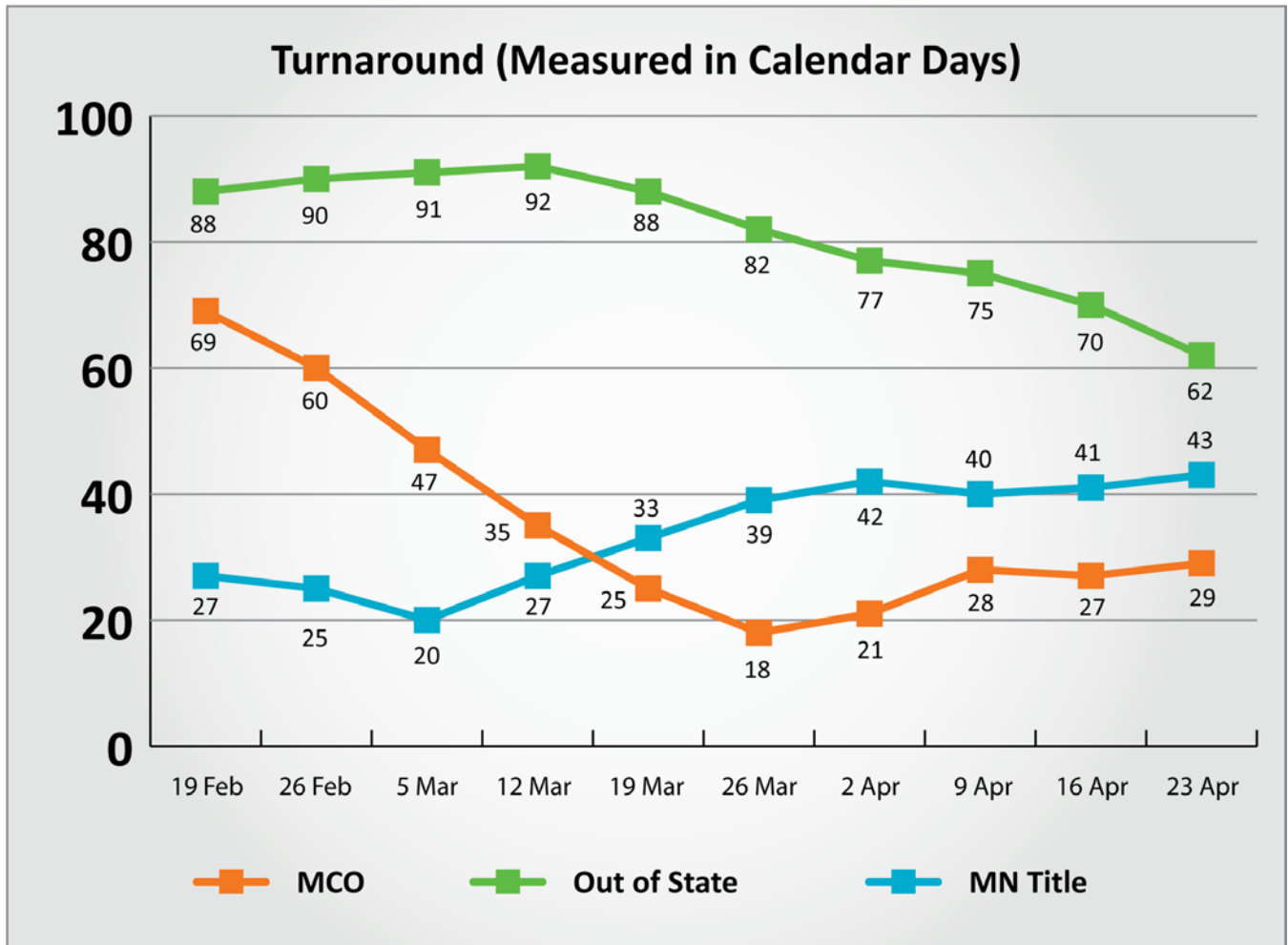
Performance measure #4 – reduction in the backlog of vehicle title applications

Since December 1, 2017, Driver and Vehicle Services (DVS) reduced the title backlog, measured by the total number of title applications for review, in the MNLARS work queue shown below.

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

The number of titles in the work queue dropped from December 2017 until March 1, 2018. The reduction was the result of mandatory overtime, the hiring of the Department of Revenue staff on a temporary basis, and the season of year for new car sales. Since mid-March, Department of Revenue staff returned to their full-time jobs, and new car sales began to increase. Mandatory and voluntary overtime continues for DVS staff.

DPS measures the backlog of vehicle titles by the number of days required to turnaround a title application. The days are measured as calendar days and begin when the customer visits the deputy registrar. DPS' expectation standard is to achieve a turnaround time of less than 30 days in three classes of title applications: out-of-state (OS), manufacturer certificate of origin (MCO) and Minnesota (MN) titles. This graph shows the title turnaround time for each title type by week since February 19, 2018. The increase in Minnesota (MN) title applications turnaround time is due to a combination of losing temporary seasonal staff and expected increasing car sales in the spring and summer months.

Turnaround (Measured in Calendar Days)

	19 Feb	26 Feb	5 Mar	12 Mar	19 Mar	26 Mar	2 Apr	9 Apr	16 Apr	23 Apr
MCO	69	60	47	35	25	18	21	28	27	29
Out of State	88	90	91	92	88	82	77	75	70	62
MN Title	27	25	20	27	33	39	42	40	41	43

Definitions:

- An **out-of-state (OS) title** is an application that issues a Minnesota title to a vehicle coming in from another state.
- The **manufacturer certificate of origin (MCO)** accompanies each new automobile manufactured and sold in the United States, and is surrendered to become the first title for a new vehicle.
- A **Minnesota (MN) title application** is the transfer of a Minnesota titled vehicle between two or more Minnesota residents.

Performance measure #5 - extent of errors in driver or vehicle services transactions*

There are two sources of data errors in the system: data entry errors, and transactions hung up due to an error in the system.

The current MNLARS system doesn't have editing capability and a backlog of errors has built up over time. MNIT is currently processing a backlog of records that need data correction. To date, approximately one fourth of one percent of the motor vehicle records in the new MNLARS system have required some type of data correction. These corrections have been managed by a new data corrections team since December 1, 2017.

Motor vehicle transaction errors are fixed as they are identified by the data corrections team. This includes data issues reported by deputy registrars, DPS, and the public. The state also runs a series of programs to search the data to discover and correct discrepancies.

Deputy registrar liaisons report that by the time they review a request for assistance from a deputy registrar, 80% of issues were fixed due to proactive data searches and programmatic corrections applied to MNLARS data. This leaves a remainder of 20% of requests that are complex and require the data corrections team to research and make a special fix.

Data issues arise from missing editing capabilities within the current MNLARS system or exception handling features in MNLARS that are planned for future releases on the project timeline.

Corrections that Driver and Vehicle Services liaisons and deputy registrars will be able to do on their own, that currently require assistance, include:

- Gross weight not entered correctly in the legacy system.
- Registration transaction is hung up due to an error in the system.
- Payment for a transaction is recorded twice due to an error in the system.
- Fixing data entry errors for registrations and titles.
- Incorrectly entered inventory.
- Title transfer was performed on the wrong vehicle.

Driver Services' legacy mainframe does not have the capability to report transaction errors; this capability will be available after October 1, 2018, in the new Driver system developed by FAST Enterprises.

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

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

Improved load testing has resulted in the ability to:

- Identify and resolve software or system bottlenecks prior to system rollout.
- Determine application configuration issues and provide tuning guidance prior to system rollout.
- Validate that system capacity is sufficient.
- Ensure system resources scale linearly as the workload increases.
- Find and resolve memory leaks and other types of performance constraints that would impact system performance.
- Mitigate three core risks; speed, scalability and stability.
    1. **Speed:** How quickly the system processes each user request.
    2. **Scalability:** How system hardware resources scale under stress and increased concurrency levels before rollout.
    3. **Stability:** How system uptime changes under prolonged use and extreme load conditions before rollout.

The 2018 MNLARS test plan enhances our performance strategy to include real end user response times over various network conditions and cross browser performance metrics, such as Internet Explorer and Google Chrome. These metrics will provide typical end user experience response times.

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 will be replaced by FAST driver services in October of 2018.
- **Mainframe is** a legacy system that supports vehicle services.

Uptime, slowdowns and outages:
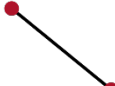
In addition to load testing, the operations team tracks uptime for the systems that system stakeholders use. Industry standard for a slowdown is to alert any transaction that returns in over four seconds, but due to the importance of system performance for MNLARS, MNIT and DPS set the bar higher for monitoring and reporting to alert us to any potential performance issues and traditional performance issues. For the purposes of the

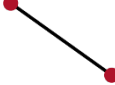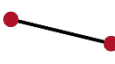graphs below potential performance slowdowns, known performance slowdowns and outages have been summarized as outages. However, it is important to acknowledge, downtimes and slowdowns both have adverse effects on how deputy registrars, auto dealers and other stakeholders conduct business.

System response time test results

MNLARS performance has improved since the July 2017 launch baseline and tuning engagement with Microsoft Premier Services. As the application is tuned further, improvements will continue.
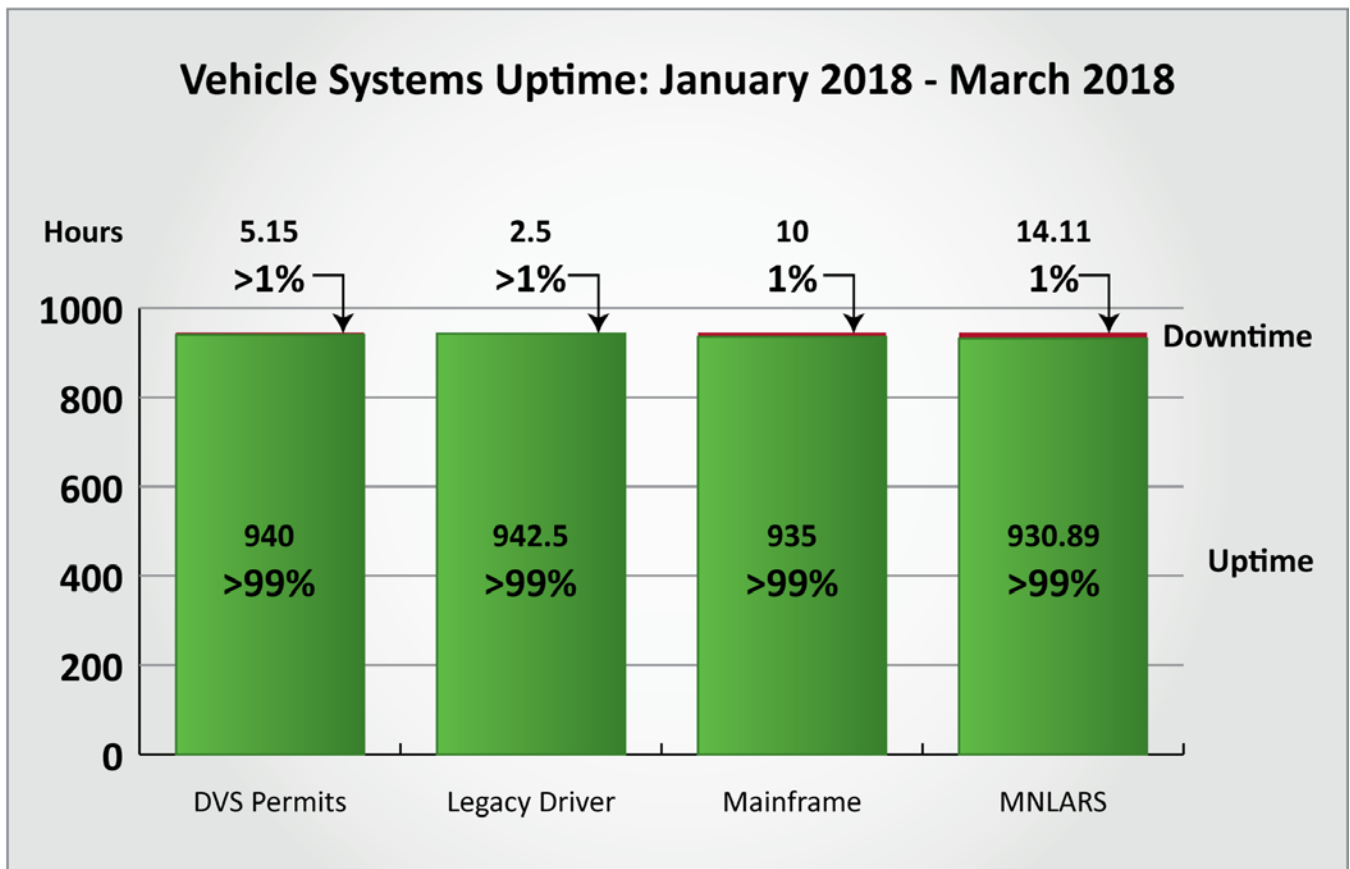
The chart demonstrates the improved response time since launch and from release to release. When the system launched, response time varied by transactions. The "apply for title" transaction took 25 seconds to load, and today the same transaction takes seven seconds. Less complicated transactions, like "sign-in", took three seconds to load, and today it takes less than one second.

Release	MNLARS launch	4/22/2018		
Transaction Name	7/19 baseline response times (seconds)	4/16 baseline response times (seconds)	Trend	Summary
Sign-In	3.239	.0869		Measures the time it takes the user's credentials to be authenticated against MNEIAM and successfully log into the system.
Deputy registrar search	2.61	.607		These transaction are the various search transaction/options that deputy registrars use throughout the workday.
Apply for title	25.676	7.294		"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	6.079		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	5.565		"Title transfer" allows users to transfer a title to another party.

Vehicle systems uptime: January 2018 – March 2018

This graph shows uptime and slowdowns, measured in hours, from January through March of 2018 for all vehicle systems. The system is trending at 99% uptime of the systems during business hours. This graph also shows the down time for each of the vehicle systems supported, including legacy driver and the mainframe, but system slowdowns cannot be tracked on these legacy systems. On the far right of the graph, uptime and outage metrics include both system slowdowns and outages for the MNLARS 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 response time below show all outages and slowdowns over one second.

Vehicle Systems Uptime: January 2018 - March 2018

|	DVS Permits	Legacy Driver	Mainframe	MNLARS
Downtime (Hours)	5.15 >1%	2.5 >1%	10 1%	14.11 1%
Uptime	940 >99%	942.5 >99%	935 >99%	930.89 >99%

Performance measure #7 - customer service responsiveness

The DVS Contact Center encompasses 24 phone lines and several email channels. Unlimited phone servicing is provided to Law Enforcement and Deputy Registrars with priority routing 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 causing incoming calls to be rejected when exceeding these capacities. During this quarter 920,439 calls were received of which 668,006 calls (72.57%) were rejected and sent to a busy message. Compared to the preceding quarter (October 2017 to December 2017), call volumes increased 31.92%.

To improve customer service, DVS implemented mandatory overtime and hired, and continues to hire, temporary staff to reduce the number of unanswered calls and untimely emails. In addition, the Department of Administration Office of Continuous Improvement is assessing the PIC to determine possible business processes that will also improve customer service.

The chart below shows the call volume pre and post MNLARS. The vertical line represents the date of the MNLARS rollout.
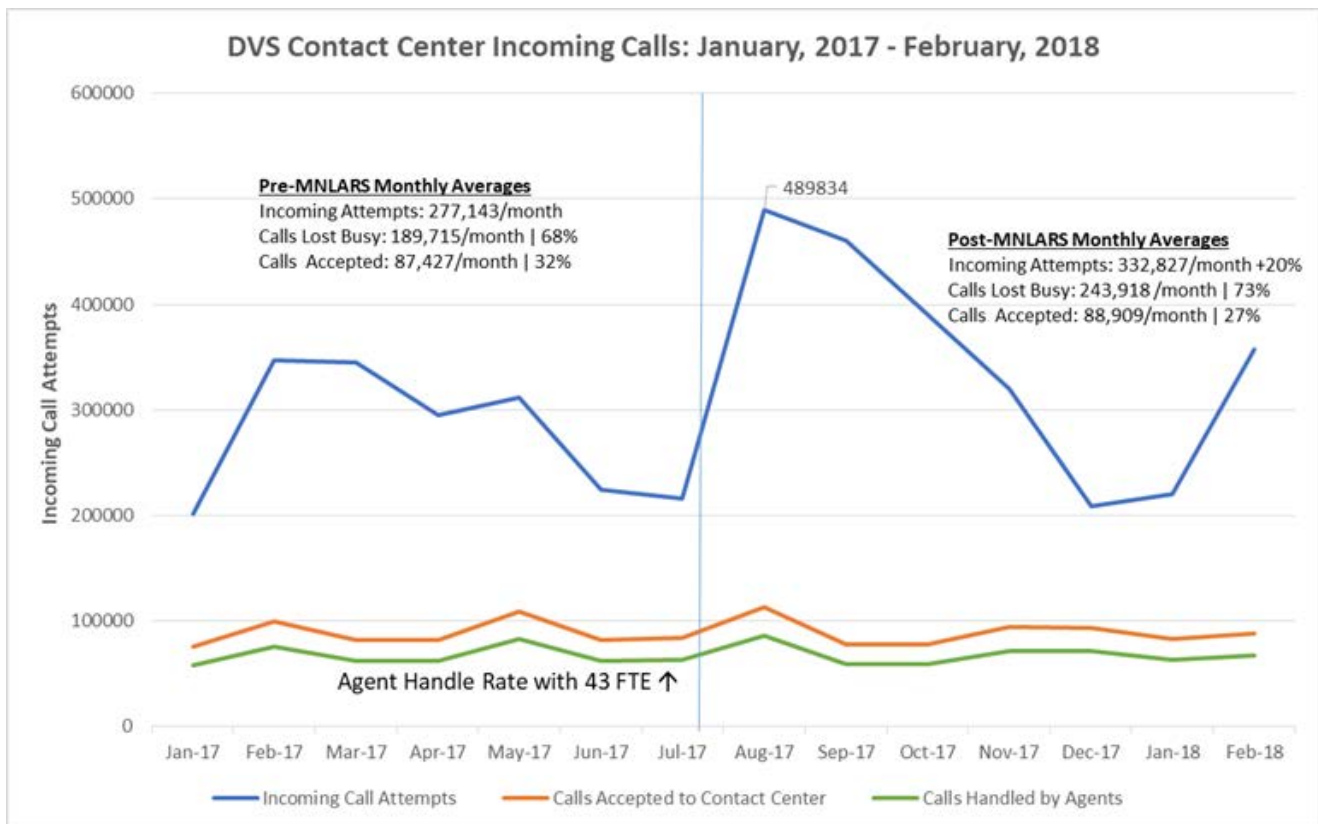
Total calls to DVS contact center from 1/1/2018 to 3/31/2018

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

Phone line	Number of calls
Public phone lines (19)	884,848
Deputy registrar* lines (4)	34,836
Law enforcement line (1)	755
Total calls	920,439

*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	884,848
Accepted calls	216,842
Rejected calls	668,006
Calls offered to agents	166,761
Abandoned calls	38,524
Calls handled by agents	125,281
Average speed to answer	10:48 minutes

*Public communication does not track MNLARS specific calls to public phone lines.

Definitions:

Incoming calls: All attempted calls to the contact center.
Accepted calls: Calls that immediately entered the contact center system upon dial without busy.
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	22,644 emails
Driver services emails received	13,510 emails
Outgoing responses	47,432 emails
Total unprocessed emails	8,191 emails – on 3/31/18
Furthest date unprocessed	3/5/18 (26 days) – on 3/31/18

Deputy registrar communication – deputy registrar phone lines (4)

Call type	Number of calls
Total calls from deputy registrars	34,836
Segment: MNLARS specific calls	6,188
Average speed to answer	8:16 minutes

MNLARS calls* are those selecting option "MNLARS Navigation" or "MNLARS Transaction".

Deputy registrar communication – email

Email type	Number of emails
Total emails from deputy registrars	13,109
Total unprocessed emails	321 emails – on 3/31/18
Furthest date unprocessed	3/27/2018 (4 days) – on 3/31/18

Plan for user acceptance testing (UAT)

DVS staff perform user acceptance testing (UAT) to ensure that all business and system requirements are met. DVS staff develop test scenarios and write 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 building of the MNLARS system.

MNIT is conducting two types of UAT to validate upcoming releases 1.11.2 and 1.12. MNIT plans pre-release demonstrations with stakeholders, and shares test scenarios ahead of demonstrations in order to elicit feedback on test coverage and system functionality. MNIT also will engage stakeholders to do "live" UAT testing, using the same business test scenarios as in the demonstration.

UAT demonstration

The latest release, 1.11.2, implemented the UAT demonstration method. MNIT used this method over WebEx, and the audience included 283 stakeholder participants. Stakeholders were able to see how each new fix worked within the system, and then they had an opportunity to vote on each fix.

Based upon the feedback received during the 1.11.2 demonstration, MNIT has modified the process to work in parallel to demonstrations and live UAT, providing stakeholders with the ability to give more complex feedback about multiple scenarios that could happen under a given transaction. MNIT will test this modification on the next release, 1.12.

MNIT will send an email to participating stakeholders five days before a UAT demonstration to make sure that they can successfully sign in to WebEx. During UAT, MNIT presents to a stakeholder how a fix or functionality will work in the system, and collects any feedback stakeholders have and discuss whether they had any concerns. MNIT hosts the UAT demonstrations before the release goes live and polls the stakeholders at the end of the UAT to get feedback on whether or not they believe the defect was corrected. Conversations continue on the feasibility for onsite UAT demonstrations in the future.

Stakeholder "live" user acceptance testing

Subsequent UAT will also include stakeholders coming in person to St. Paul to execute business test scenarios using the MNLARS UAT test system. This way, stakeholders will 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. Between 10 and 20 stakeholders will be doing live user acceptance testing.

Plan for stakeholder input on code releases to MNLARS

Executive Steering Committee

The Executive Steering Committee is comprised of deputy registrars, members of the Minnesota Auto Dealers Association, and MNIT and DPS personnel. It currently meets every Wednesday from 2-4 p.m. During those meetings, the focus centers on how MNIT and DPS are making MNLARS better. This happens through discussions on future releases, the utilization of UAT, and the live testing process that happens in stakeholder offices. MNIT and DPS also discuss the MNLARS governance process and how to fine-tune it to make it work for everyone involved. This includes MNIT and DPS rethinking how stakeholders have been involved, starting with prioritizing all known defects, missing functionality, and additional features they'd like built into the system.

Master list process

MNIT and DPS completed the initial part of the master list process through a series of prioritization and ranking meetings with the stakeholder Executive Steering Committee (ESC). MNIT and DPS put all identified defects and gaps in front of ESC members and, over a three-day period (20 hours of work), the ESC members scored all of the defects and gaps to get a priority score. The ESC then force-ranked the list from high to low priority order. This provided stakeholders and the IT team with a consensus on all of the identified priorities.

The master list process must be repeated on a regular cadence. It is scheduled on a monthly basis, to accommodate stakeholders' priority changes, and score and rank new defects or gaps added to the list since the prior month. It is a living, breathing process that quickly and easily accommodates changes that are bound to occur in the normal course of business. The items in any given release will rarely be in exact order of ranking. There are many factors that come into the bundling process for each release. While stakeholder priorities are the #1 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

The first live-in-field release test occurred with the 1.11.2 release. Each deputy registrar that participated tested the release with actual customer transactions on Sunday, April 22nd. As a result, every transaction the deputy registrars processed went through successfully in the system, so there was no need to roll back the release. There have not been any reports of loss of functionality or problems with the system as a result of release 1.11.2. Live-in-field testing will be done on all future releases.

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, a go/no-go decision may be required. The emergency ESC makes that decision with DPS and MNIT.

Plan for communications for transparent MNLARS 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 or one of the DVS legacy systems (legacy driver, mainframe, motor vehicle permits).

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 service interruption - communication procedure

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

0-30 minutes   Determination of impacted applications and services.

< 30 minutes   **First stakeholder notification:**

DPS service desk sends initial communication sent to deputy registrars and dealers, acknowledging that MNIT and DPS know there is an issue with MNLARS 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.

Delivery method:
- DVS staff sent via Outlook
- Deputy registrar and dealers via GovDelivery

30-45 minutes   DPS service desk further escalates and troubleshoots, implements ESC procedures, and participates in technology and management bridge calls.

45-60 minutes   **Second stakeholder notification:**

DPS service desks sends an update to initial communications – includes additional details, resolution, or estimated time to resolution. *Subsequent communications follow every 60 minutes until resolution.*

DVS communications sends the notification within 15-30 minutes of first one.

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 outage.

Delivery method:
- DVS staff sent via Outlook
- Deputy registrars and dealers via GovDelivery

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 service outage or slowdown.

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

Three items need to be included 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 about the release. The second item is to share a report once the UAT demonstration is finished, to ensure 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 or not 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

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

When MNIT and DPS get into the testing phase of each of the releases, the stakeholders will receive an updated 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 (as it has been for 1.11.2), 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

Once a release has been deployed into the system and has had a couple of 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 UAT team will follow up with all stakeholders.

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

DPS employs a multi-focused strategy to reduce and minimize backlogs that involve using overtime for the title and registration staff, employing seasonal employees from the Department of Revenue, and contracting staff from All Business Solutions, LLC to augment current DVS staff.

Staffing changes	Comments
Driver and Vehicles Services title and registration employees. (DVS title and registration employees have been working mandatory overtime since the summer of 2017 to address title turnover.)	Working mandatory overtime to address title backlog.
Dept. of Revenue seasonal employees (These are seasonal staff who the Dept. of Revenue employs during the tax season.)	An average of 27 seasonal employees who work on Minnesota (MN) title transactions. In March, DVS lost these employees for the tax season.
Ally Business Solutions, LLC (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 working first on manufacturer certificate of origin (MCO) title transactions then on out-of-state (OS) title transactions.

In early April 2018, DVS engaged with the Department of Administration's Office of Continuous Improvement to assess business processes to identify process improvements.

Request for information (RFI)

MNIT and DPS submitted the RFI solicitation to the *State Register* for publication on April 30th. It will be posted on the Department of Administration Office of State Procurement website at that time. To assure that as many potential vendors as possible can view the RFI, DPS will also upload the document in the Statewide Integrated Financial Tools system (SWIFT) by May 1st.

The RFI seeks to identify and obtain information from industry leaders that have the ability, capacity and experience to replace the functionality of the state's former legacy motor vehicle information system and the current MNLARS system. The quantitative data included is the most current available; and the goals and requirements of a replacement system are clearly identified, including that it must contain the functionality and features that substantially match those of the former legacy motor vehicle system prior to implementation of MNLARS.

Requirements of the new system must include

- Ability to interface with a new driver's license system currently under development by Fast Enterprises, LLC, which will be deployed no later than October 2018;
- Ability to interface with current and future third-party vendors;
- Intuitive and user-friendly format for deputy registrars, licensed automobile dealers and DVS staff;
- Efficient and time-sensitive implementation; and
- Functionality and features that substantially match those of the former legacy motor vehicle system prior to implementation of MNLARS.

To ensure sufficient time is provided for drafting and submitting high-quality, comprehensive documents, the deadline for responders is May 31st. Subsequent to initial review by DPS and MNIT, DPS intends to invite qualified vendors who responded to the RFI to present their solutions and technical framework at DPS headquarters during June 2018.

MNLARS budget update

Provided below is the MNLARS budget for fiscal year 2018 and 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 requested funding will likely be spent in Q1 2019, rather than as expected in Q4 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. It includes revenues, expenditures, encumbrances, and forecasted spend. "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 4/25/2018 ($000)	FY2018			FY2019
Revenues			**Total**	**Budget**
Special revenue			6,467	3,183
Carryforward			26,702	13,687
Receipts			1,900	1,900
Transfers in			8,000	8,000
Total revenue			43,069	26,770
Expenditures - Driver	**YTD spend**	**Encumbered & forecast**	**Total**	**Budget**
FAST contract	4,250	4,000	8,250	9,500
FAST DVS staff	-	-	-	881
FAST contractors	-	891	891	1,875
Technology costs	-	664	664	2,754
Total driver	4,250	5,555	9,805	15,010
Expenditures - Vehicle	**YTD spend**	**Encumbered & forecast**	**Total**	**Budget**
Contractors	7,764	4,107	11,871	4,800
DVS staff	289	74	363	867
MNIT staff	1,844	852	2,696	2,522
Technology costs	877	3,526	4,403	3,336
Other spent	203	41	244	235
Total vehicle	10,977	8,600	19,577	11,760
Total driver and vehicle	**$15,227**	**$14,155**	**$29,382**	**$26,770**

Table 2 – special rider budget

Table 3, 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 4/25/2018 ($000)	FY2018					FY2019	Total
Rider	Budget	YTD spend	Encumbered	Forecast	Total	Budget	Total
Contracting	7,051	-	3,760	347	4,107	2,944	7,051
User authentication & access control management	100	-	-	-	-	100	100
Testing environment, hardware, server & data	20	5	-	-	5	15	20
Partial relocation of data center	650	-	-	650	650	-	650
Disaster recovery & preparedness	780	-	-	780	780	-	780
Contracted software review & software development	1,049	-	-	925	925	124	1,049
Total	**$9,650**	**$5**	**$3,760**	**$2,702**	**$6,467**	**$3,183**	**$9,650**

FY 2018 Q3 spend for employees and contractors

Spend for MNIT and DPS employees in FY 2018 Q3 are identified below and contain staff charges allocated to the MNLARS 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, but not assigned to the project).

Table 3 – amount spent for MNIT employees in FY 2018 Q3

Position	Dedicated staff	Non-dedicated Staff	Q3 spend
Managers/supervisors	2	0	$31,031.00
Project managers/admin support	2	0	$30,098.00
Technical/software architects	0	0	$0
Software developers	8	3	$209,128.00
Operations	10	5	$485,823.00
Technical support	5	0	$38,862.00
Total	**27**	**8**	**$794,942.00**

Table 4 – amount spent for DPS employees in FY 2018 Q3

Position	Dedicated Staff	Non-Dedicated Staff	Q3 Spend
Business Program Director	1	0	$39,696.00
Business Management Analyst	1	0	$24,354.00
Total	**2**	**0**	**$64,050.00**

Table 5 – amount spent (in thousands) for contractors in FY 2018 Q3

Spend for MNIT contractors in FY 2018 Q3 is identified below and contains the amount (in thousands) paid by the MNLARS 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. In total, 26 contractors engaged in staff augmentation work on the MNLARS project, providing 53 individual resources (26 software developers, 1 solution/business architect, 4 project managers, and 22 quality assurance and performance staff). All contracts below are entered into with MNIT, unless otherwise indicated.

Contractor	Amount spent (in thousands)
Software Engineering Services	83
Ambient Consulting Solutions	41
Analysts International Corp.	69
Charter Solutions Inc.	330
Dahl Consulting	67
Elegant Enterprise Wide Solutions Inc.	29
Fast Enterprises LLC	4,250
Global Source Info Tech III	73
Iceberg Tech Group	40
Integration Architects Inc.	159
International Projects	172
Intertech Inc.	59
Knowledge It A Cooperative	287
Lighthouse Software Solutions	631
Logisolve LLC	58
Minnesota Management & Budget	90
SDK Technical Services	65
Sogeti USA LLC	1,253
Supersonic	86
Systems Advantage Inc.	109
Talent Software Services Inc.	69
Trissential	54
Zinncorp Inc.	69
American Association of Motor Vehicle	5
American Databank	2
Edchunk Inc. (DPS Training Contract)	80
Total	**8,231**