CITIZENS IN THE DRIVER'S SEAT

VERMONT'S CASE STUDY IN A PROGRESSIVE TECHNOLOGY IMPLEMENTATION TO CONTINUE OPERATIONS WHILE EXPANDING STATE DIGITAL GOVERNMENT SERVICES.

STATE OF VERMONT

AGENCY OF TRANSPORTATION

DEPARTMENT OF MOTOR VEHICLES

DIGITAL SERVICES: GOVERNMENT TO CITIZEN

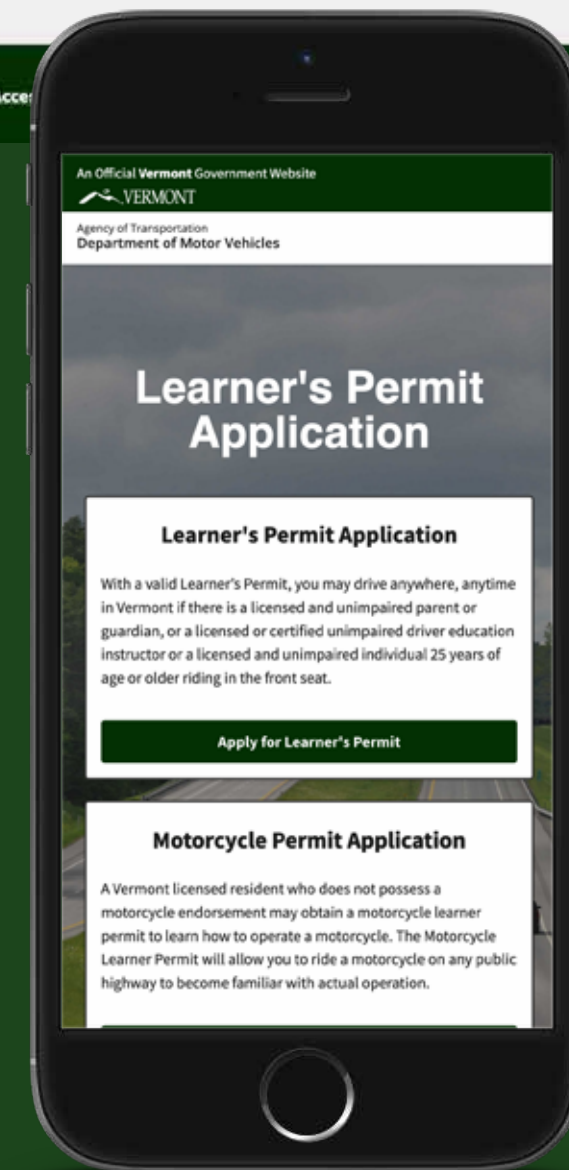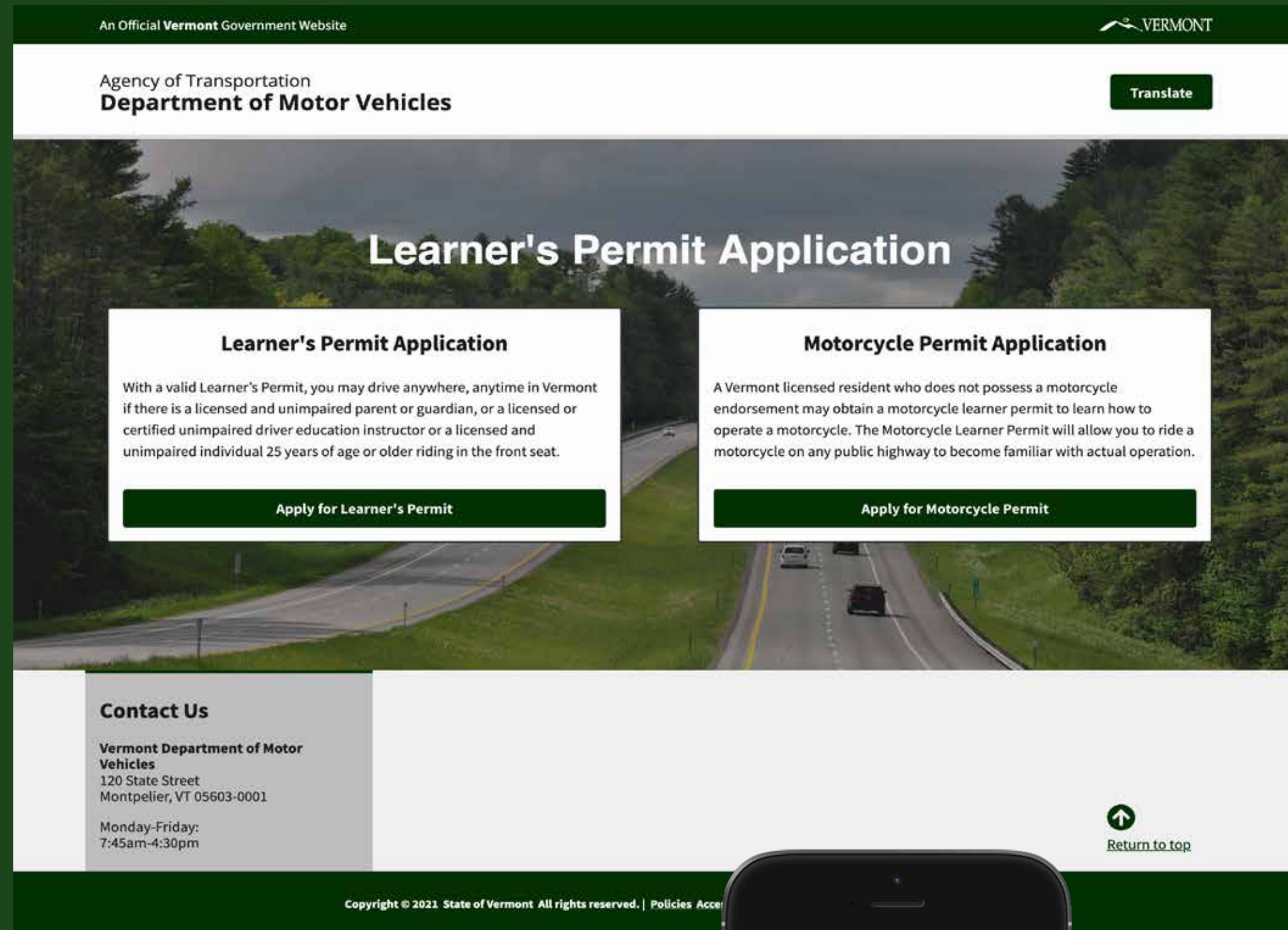## DMV APPLICATION FOR LEARNER'S PERMIT

VERMONT

Website: mydmvlearnerspermit.vermont.gov

Project Initiation Date: May 2020

Project Launch Date: August 2020

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Officers of the States

EXECUTIVE SUMMARY

The Vermont Department of Motor Vehicles provides driver license permits for citizens new to driving automobiles and motorcycles. Prospective licensed drivers have traditionally contacted the Department of Motor Vehicles to apply for a learner or motorcycle permit and to arrange associated testing. Prior to the COVID-19 pandemic, this application and testing process was conducted in a paper-based, in-person format. With the advent of—and accordance with—safe social distancing practices for COVID-19 response and mitigation (which resulted in multiple DMV office closures and increased processing timeframes) the Vermont Department of Motor Vehicles implemented a new online system, the DMV Application Learner's Permit website (mydmvlearnerspermit.vermont.gov), to manage both learner's permit applications and testing. The new DMV Learner's Permit Application provides a new digital government service that promotes social distancing best practices while also realizing continuous, meaningful value for citizens through increased convenience as well as increased operational efficiency for State of Vermont government agencies.

CONCEPT

OUR IDEA

PROBLEM

The State of Vermont, like many states, began statewide office closures in March 2020 in response to the increased rates of reported COVID-19 cases in the state. This included the closure of Vermont Department of Motor Vehicle offices at various locations throughout the state. However, personal and commercial driving operations needed to continue for citizens in Vermont and the Department of Motor Vehicles would continue to perform operations related to the processing of applications, testing, and provision of permits for automobiles and motorcycles.

The Vermont DMV found itself needing to continue administration and oversight of new permit services for citizens while at reduced capacity due the office closures. In order to alleviate and resolve this issue, the Vermont DMV decided to digitize the learner's permit process in a manner that provided both immediate relief in managing reduced capacity while also providing meaningful return of value for citizens and State of Vermont agency personnel.

This digitization of a process which was previously completed in a paper-based, in-person format would require a technology solution that would provide citizens with a user-friendly, accessible online interface with the Vermont DMV for the application and testing required by citizens in obtaining a new learner's permit. Furthermore, this new digital solution would need to provide both short-term success as an interim method of operational continuity for the Vermont DMV as well as long-term success as a permanent tool that both facilitates and improves overall learner's permit application and testing process for both citizens and DMV administrators via this new, digital format.

WHY DOES IT MATTER?

Driving is an important social, economic, and personal activity in all states, including Vermont. In many respects, driving is a form of communication as much as a conveyance. Goods, services, and information all travel by road with the people who carry them by driving. Therefore, any limitation to the ability to drive — for whatever the purpose — will have significant social and economic impacts.

Each year, a high volume of applications, test results, and issued permits are processed by the Vermont Department of Motor Vehicles. In 2019, **7,480 driver permit tests were taken** and **6,112 permits were subsequently issued**, in addition to the **819 motorcycle permit tests** taken that same year which resulted in **526 motorcycle permits issued**. This represents a substantial portion of the eligible driving population for Vermont, the 2nd least populous state in the U.S.

New drivers contribute to the transportation environment in which safe driving delivers value to citizens of Vermont, through the provision and receipt of these goods, services, and information. The limitation of driving is the limitation of getting to or from somewhere for some purpose; in short, limited ability to drive is not just limited convenience, it's also a limitation of utility.

Maintaining ongoing administration and operation of driving services includes maintaining the continued capacity to onboard new drivers to Vermont roadways in a safe, diligent manner. In this mission, the Vermont DMV identified two opportunities in a digital transformation initiative to implement an online learner's permit solution: **a.)** to mitigate the operational risk the COVID-19 pandemic has introduced to driving services for Vermont citizens, and **b.)** to improve the lives of Vermont citizens by providing a user-friendly, efficient digital platform to interact with State of Vermont government services.

CONCEPT

OUR IDEA

WHAT MAKES IT DIFFERENT?

The Vermont Department of Motor Vehicles is in good company in having a sudden change of environmental circumstances and need to respond accordingly. Many state agencies — including those who have already established a solid digital foundation and technological capabilities such as the Vermont DMV — have needed to adopt to new temporary (and in some cases, potentially permanent) ways of delivering government services. The Vermont DMV's approach is exceptional in that it recognizes the nuance of short-term vs. long-term needs (and opportunities) and has designed a digital transformation effort accordingly.

Rather than solely address a workaround "fix" to the decreased capability to perform processes based around a popular, in-person and paper-based service, the Vermont DMV identified that the resolution of immediate needs can also work towards a larger goal with increased benefit and return of value. The investment and efforts of the Vermont DMV would be transformative in nature, not just corrective. This transformative approach focused on ensuring that work needed to continue providing the necessary driver permit services for Vermont citizens would yield value in both an immediate timeframe and a further, long-term timeframe.

In this approach to evolve immediate corrective action to remediate an environmental issue into a positive transformation with benefit to multiple stakeholders, the focus of the initiative became decoupled from any given single technology constraint. Instead, the Vermont DMV approached the continuity of driver permit services as both an operational and capital endeavor, one in which the chosen technology was selected as best-fit for the time and could evolve over time to provide increasing return of value.

In order to address the immediate concerns of continuing operations, the Vermont DMV employed a rapid application development platform with custom software development to extend upon core functionality, both provided by a long-term technology partner. This first iteration of the digital transformation of the learner's permit services allowed the Vermont DMV to provide new online application and payment options for citizens while also simultaneously planning the design of the replacement system. This replacement system would expand the capabilities of a digital government service and incorporate additional sections of the overarching permit processing workflow, including testing and administrative processing.

In the digital transformation of the learner's permit, the difference exhibited by Vermont DMV is one of approach to address a narrow set of immediate operational needs that ultimately lend themselves toward a transformative improvement effort. Rather than attempt a "one size fits all" approach that may serve to inadequately meet requirements or introduce/exacerbate risks by extending implementation timeframes of a digital solution, the Vermont DMV looked at the best tool for the job and recognized the job will change over time, and therefore the tools should as well.

WHAT MAKES IT UNIVERSAL?

Driving is an integral activity for personal communication and commercial transit. Vermont drivers share the same experiences and obligations as drivers of other states and municipalities in order to safely traverse roadways for whatever purposes they may require. Obtaining a new permit to operate a motor vehicle is a modern rite of passage of sorts, and thus identifies a popular government service which should be the focus of efforts to achieve continuous availability and an overall pleasant user experience for citizens.

In particular, the Vermont DMV Application for Learner's Permit addresses in a particularly strong regard the following identified items of the State CIO Top Ten Priorities:

DIGITAL GOVERNMENT/DIGITAL SERVICES

Civic experience is improved by both iterations of the DMV Application for Learner's Permit system by providing an online, accessible means to apply and test for vehicle driving permits in Vermont while maintaining social distance standards.

BUDGET, COST CONTROL, FISCAL MANAGEMENT

Reduction of operational costs are achieved by reducing the in-person and paper-based requirements of the learner's permit application and testing process. An online format reduces or removes the need for paper-based material expenses (application forms, checks, receipts, mailings and envelopes) as well as the labor expenses incurred in processing times.

CUSTOMER RELATIONSHIP MANAGEMENT

The need to reduce in-person customer interaction due to COVID-19 social distancing practices was an unfortunate catalyst in the implementation of the DMV Application for Learner's Permit digital services; however, despite this negative impact, the new systems were able to continue and improve citizen interaction with State of Vermont agencies in an expedient, online format in order to receive popular government services.

IMPLEMENTATION

PHASE 1: APPLICATION & PAYMENT

An online application form with integrated online payment processing capabilities provided immediate risk mitigation to interrupted vehicle permit application services with the Vermont Department of Motor Vehicles. A rapid application development platform was used to implement this first iteration within 30 days.

The Vermont DMV approved the implementation initiative on May 1, 2020 and the service was launched on May 26, 2020 with the first online submission received the following morning. This identifies the first of 2 system deliverables that constitute the DMV Application for Learner's Permit services, which has (by design) evolved in a relatively short lifespan to return increasing value for citizens and State of Vermont agency personnel. During this Phase 1 timeframe, the planning and design of a custom web application was finalized, and development started for the subsequent replacement system deliverable to provide expanded functionality. These first system deliverables (Application & Payment solutions) were decommissioned shortly after the launch of the next system deliverable, a new Application Management System.

PHASE 2: APPLICATION MANAGEMENT SYSTEM

An online system that provides full end-user and administrator workflow management functions of the vehicle learner's permit application process, including: initial application, payment, test system integration, and administrative closeout for background checks. This custom-developed web application replaced and expanded upon functions first made available with the interim Application & Payment services built with the rapid application development platform.

Examples of expanded functionality include integration with a third-party testing system (for scheduling a test in multiple languages and receiving test results). This 2nd iteration of the DMV Application for Learner's Permit system deliverable was implemented on 8/3/2020. This system serves as the current online digital government solution for Vermont citizens to apply and test for learner's permits and recently underwent a significant enhancement to incorporate the application process for 2-wheel or 3-wheel motorcycle permits.

INVOLVEMENT

STATE OF VERMONT DEPARTMENT OF MOTOR VEHICLES

The Agency of Transportation, Department of Motor Vehicles (DMV) is the official State of Vermont government entity providing citizens and businesses of Vermont with driver and vehicle services such as licensing/ permits, education, testing, and enforcement. The Vermont DMV sponsored the Application for Learner's Permit initiatives as the key agency stakeholder with oversight and responsibility for management of the learner's permit application process.

STATE OF VERMONT AGENCY OF DIGITAL SERVICES

The Vermont Agency of Digital Services (ADS) is the official State of Vermont government entity providing enterprise technology advisory and management services for citizens, businesses, and State of Vermont administrative personnel. ADS coordinates with State of Vermont agencies to identify, implement, and maintain the key technology strategy, initiatives, and resources required to support a successful digital government environment. ADS manages the Vermont Web Portal program through which the Application for Learner's Permit initiative was completed.

NIC VERMONT

NIC Vermont (NIC VT)—a wholly-owned subsidiary in the NIC Division of Tyler Technologies, Inc.--implements and manages a diverse enterprise portfolio of digital government solutions for State of Vermont agencies through the Vermont Web Portal program. NIC VT developed and maintains the Application for Learner's Permit systems on behalf of the Vermont Department of Motor Vehicles.

ITI

Intellectual Technology, Inc. (ITI) provides a variety of driving-related technology solutions and coordinates with DMV and NIC VT to establish and maintain an integration with the ITI testing system used as part of the permit application process for prospective Vermont drivers.

Implementation of the Application for Learner's Permit service was a coordinated, evolving effort between the Vermont Department of Motor Vehicles, the Vermont Agency of Digital Services, NIC VT, and ITI. In April 2020, the Vermont Department of Motor Vehicles reached out to NIC VT to inquire about a prospective new digital government service to be developed that would provide an online method for driver's permit applicants to complete the registration and testing process. The Vermont DMV and NIC VT reviewed the initial requirements and conditions for such a new system, including the need to provide an expedited, short-term solution to mitigate impacts from the recent of DMV office closures due to the COVID-19 pandemic.

After initial exploratory discussions, the Vermont DMV and NIC VT determined that a two-phase approach would provide an optimal solution. NIC VT would develop the first iteration of the Application for Learner's Permit digital government service using NIC AppEngine, a proprietary rapid application development platform to build and deploy online forms and applications. The NIC AppEngine platform would allow the Vermont DMV to provide a new online service within a matter of weeks, greatly reducing the timeframe to provide a meaningful online resource and tool for Vermont citizens. This first version of the Application for Learner's Permit would serve as an interim solution while NIC VT then implemented the next, permanent version of the Application for Learner's Permit as a custom-developed web application that would provide additional functionality, integration with the third-party ITI testing system, and enhanced administrative capabilities for DMV agency personnel to review and process applications.

Implementation of this first iteration of Vermont Application for Learner's Permit within the NIC AppEngine platform began on May 1, 2020. The new service was developed, tested, and ready for production deployment within the next 3 weeks. The commissioning deployment of the new Application for Learner's Permit service was completed on May 26, 2020 and provided core features for the online filing, payment, and processing intake of driver permit applications in Vermont.

The first iteration of the Application for Learner's Permit in the AppEngine platform proved a successful, expedited implementation, albeit one meant as an interim solution. While this initial version of the new government service was in development, DMV project leads and NIC VT began planning and implementation of the next iteration of the service: a new, custom-developed web application built with the Drupal CMS platform. The Drupal CMS is the standard website CMS platform used by State of Vermont agency websites and web applications, which provided enterprise technology consistency in addition to expediting development timeframes and ongoing operational maintenance requirements compared with a custom-developed, standalone software solution.

The Vermont DMV and NIC VT coordinated to design a new system that would provide the core filing, payment, and intake functions that were currently available with the first AppEngine version of the service, with additional enhancements for end-users. This included coordinating with ITI to develop integration between the 2 systems. The new Application for Learner's Permit system would have an established data exchange with the testing system used by applicants. A subset of application data from applicants would be sent from the Learner's Permit system to the ITI system. Applicants who successfully registered via the Learner's Permit system would receive a link via email to the ITI testing system, wherein they could validate themselves to then take required testing. In turn, the ITI system would then send back test results to the Learner's Permit system, which allow DMV agency administrators to login and securely process applications accordingly. In addition, the new system would provide DMV agency administrators with reporting features to provide ongoing evaluation regarding the volume and details of applications received and processed online.

Development of the second iteration of the Application for Learner's Permit as a custom-developed, web application officially began on May 27, 2020, i.e., the immediate day after launch of the first AppEngine iteration. This new version of the Application for Learner's Permit launched on August 3, 2020 and replaced the first, interim iteration of the service. In addition, a data migration from the old system to new helped facilitate the transition and minimized impact to both the applicant audience and the DMV administrative personnel processing applications.

IMPACT

WHAT DID THE PROJECT MAKE BETTER?

The Vermont DMV Application for Learner's Permit service has made several beneficial impacts.

First and foremost, the new digital government service was rapidly deployed to mitigate the impact that DMV office closures had on Vermont citizens by providing an online format to conduct traditionally in-person operations. Within weeks of DMV office closures, Vermont citizens were able to continue applying for vehicle license permits in a new online format and therefore able to continue the vital activities dependent on the safe driving of Vermont roads.

Second, the new Application for Learner's Permit service (in both forms of the system deliverables it has taken thus far over its lifecycle) were able to provide the Vermont Department of Motor Vehicles with a new digital asset: a secure and centralized online tool to provide operational efficiencies in completing daily workflows of the agency. The new systems each provided input and validation components that minimized the occurrence and degree of errors that new applications could contain, thereby providing opportunities to facilitate application processing.

Third, the new Application for Learners' Permit service provided applicants with an enhanced digital government experience as end-users. The new digital format allowed for automated guidance and feedback to applicants, thereby increasing both usability and efficiency of the process while decreasing the administrative support time required from DMV personnel. In addition, the new Application for Learners' Permit served as a valuable addition to the digital government portfolio for the State of Vermont and provides a convenient, secure, and efficient format for citizens to complete interactions with state government in order to receive services for their own individual benefit and for benefit to the general public.

HOW DID WE KNOW?

Since this initial launch, the new Application for Learner's Permit systems have received over **18,800 online filings**. In September, 2020, the ability to apply for motorcycle permits was added to the system, further centralizing online digital government services for Vermont citizens. To date, over **16,300 driver permit applications** and over **2,400 motorcycle permit applications** have been processed online through both versions of the Application for Learner's Permit systems. One citizen described the new system as follows:

> **"The online permit system was easy and interactive. My son was able to study for the test using practice tests and videos before taking the exam. Having the videos and interactivity provided him the confidence to take the exam."**

WHAT'S NEXT?

The Vermont Department of Motor Vehicles Application for Learner's Permit is part of the Vermont Web Portal portfolio of valuable digital government services available to the citizens, businesses, and visitors of Vermont. While the implementation itself can be seen as a successful example of a phased implementation to provide an increasing level of value through an evolving digital government services, there nonetheless remains the need for ongoing maintenance, support, and enhancement to meet changing needs and continual optimization of the citizen experience.

The Vermont Department of Motor Vehicles and NIC VT maintain a permanent software development roadmap for the service of changes that will both maintain and optimize the system. New features or functionality are explored and scheduled as part of an established software development lifecycle common to all digital government services within the Vermont Web Portal. This ongoing maintenance and optimization approach allows digital government services to be continuously fine-tuned in order to introduce more capabilities and operational efficiencies in order to providing increasing returns of value. **In conclusion**, the overall approach of the Application for Learner's Permit is to put citizens safety in the driver's seat: both online and on the roads.