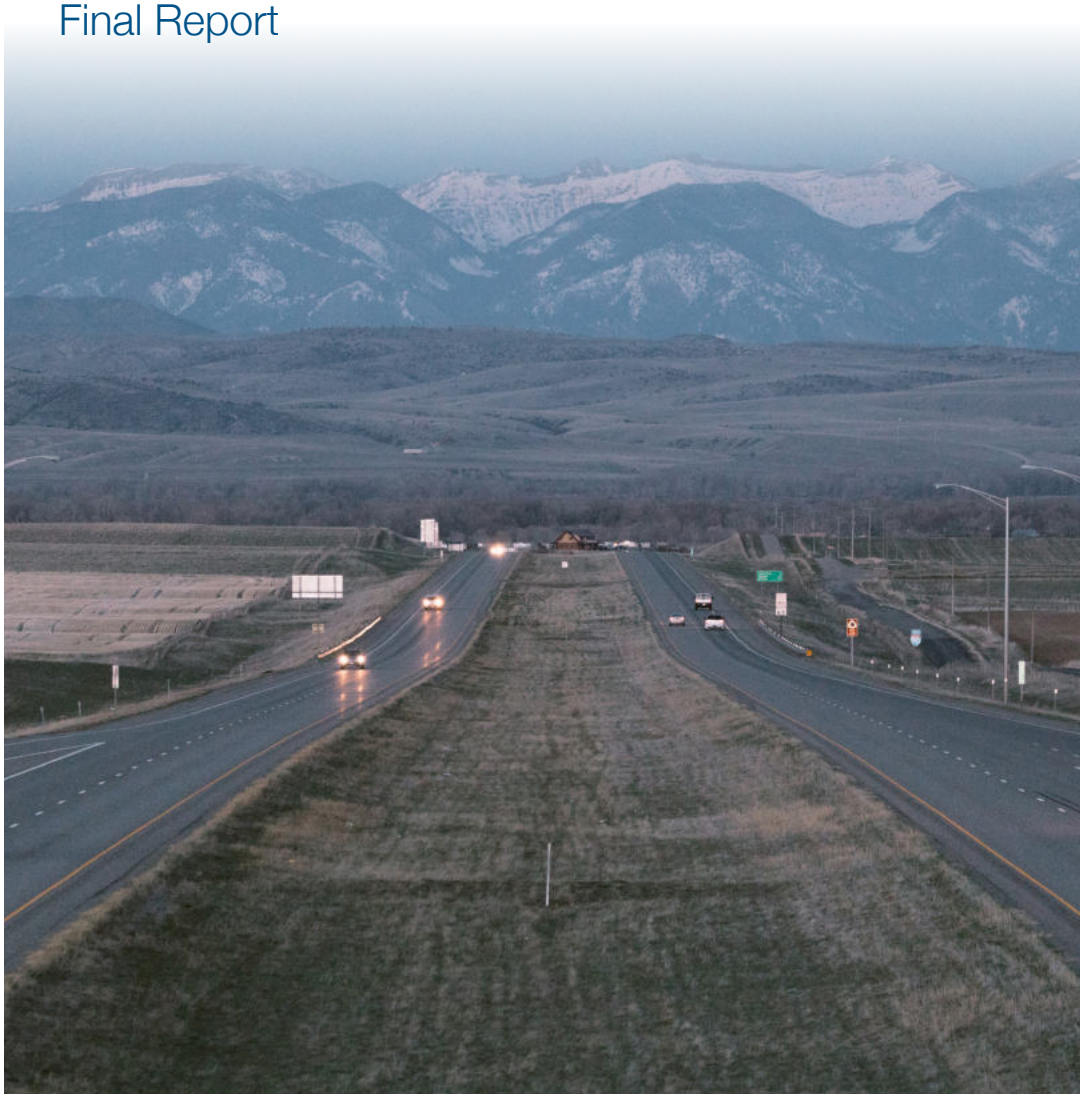
MONTANA
Department of Transportation
Research

EFFECTIVENESS OF HIGHWAY SAFETY PUBLIC EDUCATION AT MONTANA MOTOR VEHICLE REGISTRATION STATIONS BY STREAMING A VARIETY OF SAFETY CONTENT

FHWA/MT-23-003/9832-766

Final Report



August 2023

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THE STATE OF MONTANA DEPARTMENT OF TRANSPORTATION

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FEDERAL HIGHWAY ADMINISTRATION

August 2023

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Effectiveness of Highway Safety Public Education at Montana Motor Vehicle Registration Stations by Streaming a Variety of Safety Content

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16. Abstract

State departments of transportation, including the Montana Department of Transportation (MDT) focus on eliminating fatalities and serious injuries on our roadways. To accomplish this, MDT employed several strategies including an emphasis on improving traffic safety culture. Traffic safety culture strategies, including public awareness campaigns and traffic safety videos, are an important way to educate the public and possibly change their beliefs and influence their behaviors related to traffic safety. This project aimed to improve traffic safety culture through displaying traffic safety videos in waiting areas at motor vehicle division driver license stations and county treasurer offices. The project had three phases: 1) pre-deployment planning, 2) deployment, and 3) evaluation and support. The videos reached a broad demographic including those that are the focus of MDTs media campaigns. The location of the television significantly influenced whether or not the videos were viewed; the location behind staff entering data is preferred.

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STANDARD CONVERSION TABLE – ENGLISH TO METRIC				
Symbol	To convert from	Multiply by	To determine	Symbol
		LENGTH		
IN	inch	25.4	millimeters	mm
FT	feet	0.3048	meters	m
YD	yards	0.9144	meters	m
MI	miles	1.609344	kilometers	km
		AREA		
SI	square inches	645.16	square millimeters	mm^2
SF	square feet	0.09290304	square meters	m^2
SY	square yards	0.83612736	square meters	m^2
A	acres	0.4046856	hectares	ha
MI^2	square miles	2.59	square kilometers	km^2
		VOLUME		
CI	cubic inches	16.387064	cubic centimeters	cm^3
CF	cubic feet	0.0283168	cubic meters cubic	m^3
CY	cubic yards	0.764555	meters liters	m^3
GAL	gallons fluid	3.78541	liters	L
OZ	ounces	0.0295735	cubic meters	L
MBM	thousand feet board	2.35974		m^3
		MASS		
LB	pounds	0.4535924	kilograms	kg
TON	short tons (2000 lbs)	0.9071848	metric tons	t
		PRESSURE AND STRESS		
PSF	pounds per square foot	47.8803	pascals	Pa
PSI	pounds per square inch	6.89476	kilopascals	kPa
PSI	pounds per square inch	0.00689476	megapascals	Mpa
		DISCHARGE		
CFS	cubic feet per second	0.02831	cubic meters per second	$m^3/_s$
		VELOCITY		
FT/SEC	feet per second	0.3048	meters per second	m/s
		INTENSITY		
IN/HR	inch per hour	25.4	millimeters per hour	mm/hr
		FORCE		
LB	pound (force)	4.448222	newtons	N
		POWER		
HP	horsepower	746.0	watts	W
		TEMPERATURE		
˚F	degrees Fahrenheit	5 X (˚F – 32)/9	degrees Celsius	˚C
		DENSITY		
lb/ft^3	pounds per cubic foot	16.01846	kilograms per cubic meter	kg/m^3
		ACCELERATION		
g	freefall, standard	9.807	meters per second squared	m/s^2

TO CONVERT FROM METRIC TO ENGLISH, DIVIDE BY THE ABOVE CONVERSION FACTORS.

Acronyms

AAA	American Automobile Association
ADA	The American with Disabilities Act
BZN	Bozeman
CHSP	Comprehensive Highway Safety Plan
COVID-19	Coronavirus pandemic
CTO	County Treasurer Office
DMS	Dynamic Message Sign
DOJ	Department of Justice
DOT	Department of Transportation
DUI	Driving Under the Influence
EMS	Emergency Medical Services
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
GB	Gigabite
GHSA	Governor Highway Safety Administration
HD	High-Definition
HDMI	High-Definition Multimedia Interface
IR	InfraRed
LCD	Liquid Crystal Display
LTAP	Local Technical Assistance Program
MBPS	Megabits Per Second
MDT	Montana Department of Transportation
MVD	Motor Vehicle Division
NHTSA	National Highway Traffic Safety Administration
PC	Personal Computer
PDF	Portable Document File

PSA	Public Service Announcement
QR	Quick Response
SETT	Safety Enforcement Traffic Team
STEP	Selective Traffic Enforcement Program
TV	Television
UHD	Ultra-High Definition
USB	Universal Serial Bus
WTI	Western Transportation Institute

1 Introduction

As state departments of transportation look to eliminate fatalities and serious injuries through initiatives like Toward Zero Deaths, it is important to utilize a 5E approach (engineering, emergency medical services (EMS), enforcement, education, and evaluation) to improve safety. Educating the public on safety initiatives helps to improve an area's traffic safety culture. Traffic safety culture is the shared beliefs (including values and assumptions) of a group that affect behaviors related to traffic safety. Traffic safety culture strategies, such as public awareness campaigns and safety videos, are an important way to educate the public and possibly change their beliefs and influence their behaviors. These strategies can be used to convey the need for and benefits of safety countermeasures (e.g., roundabouts and rumble strips), as well as the consequences of risky behaviors (e.g., texting while driving, driving while impaired, distracted driving, driving unbuckled).

The Montana Department of Transportation (MDT) finds value in educating Montanans about traffic safety. This project focused on displaying traffic safety videos during wait times at Motor Vehicle Division (MVD) driver license stations and county treasurer offices (CTOs). The project also encompassed an evaluation to identify if the strategy showed a change in traffic safety culture.

The objectives of this project were:

1) Identify and secure already available traffic safety content (i.e., videos) (as opposed to creating new content) and purchase and deploy the appropriate equipment to display the traffic safety content;
2) Survey the public to determine if they were paying attention to the videos shown at the MVD driver license stations and CTOs; and
3) Determine if the safety messages had an impact on the behavior of the viewing public.

This report begins by discussing the pre-deployment planning conducted for the project. Then after, details associated with the deployment are described. Next, the evaluation and support phase is described. Finally, conclusions and recommendations are provided.

2 Pre-Deployment Planning

The pre-deployment planning phase included identification of equipment, finalizing the locations for deployment, securing video content, storyboard creation, and additional resource creation.

2.1 Identification of Equipment

This section describes the process used for equipment identification, information for each equipment option, and the final recommendation for purchase.

2.1.1 Process for Equipment Identification

Prior to submitting the project proposal, the researchers investigated many equipment options. For this discovery process, online research was conducted as well as reaching out to various retailers of consumer electronics for advice and recommendations. Little to no information was found in literature searches, physical bookstores or online search engines. In total, seven possible equipment options were identified.

During the proposal acceptance process, the Technical Panel approved the use of "off the shelf" consumer electronics for the project. After the project started, each of the seven systems was reconsidered in order to verify whether or not advances in technology or changes in pricing would influence the final system recommended. No significant changes were discovered.

Prior to making the final recommendation, the researchers set up two test systems (shown in Figure 1) in various configurations to determine potential challenges. While the final system utilized new and up-to-date technology, the researchers determined that two test systems could be set up using older, on-hand (surplus) equipment combined with the purchase of two media players. The two systems in various configurations had been in continuous operation for four months and intermittent operation for over eight months. Having these systems in operation allowed the researchers to test the ability to display closed or open captions and consider production concerns for various videos. It also enabled the researchers to confirm the device's ability to continuously play media for long periods of time; to practice changing media; and to test reliability, usability, start up and shutdown time, and other functions.

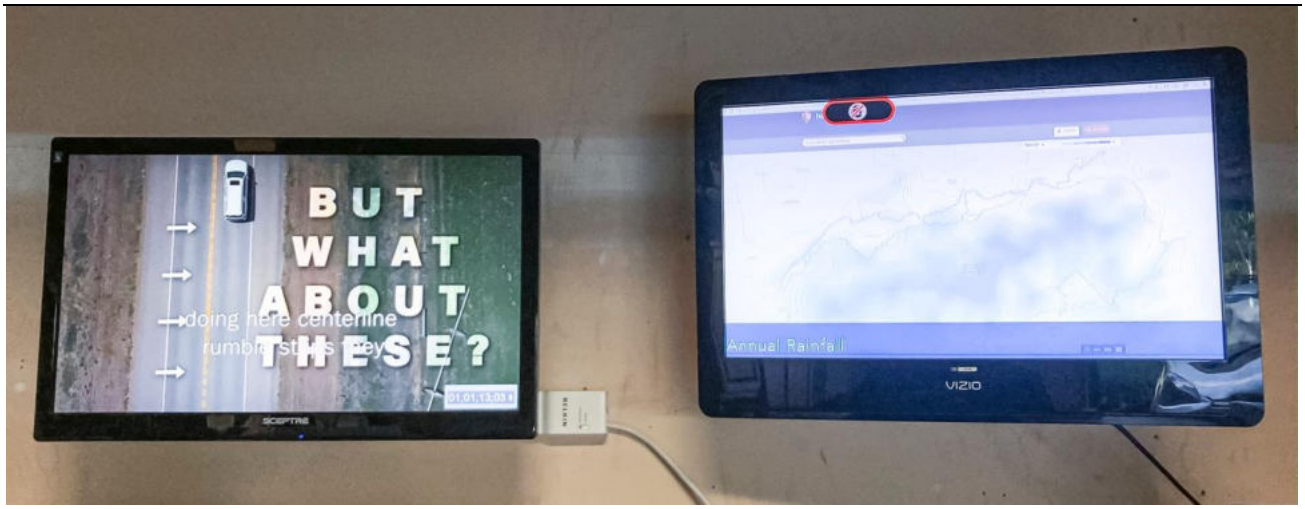


Figure 1: Two wall mounted test systems using surplus equipment and purchased media players.

Details on the seven systems can be found hereafter.

2.1.2 Equipment Requirements

In identifying the seven options, the following requirements were deemed essential for displaying videos in the Montana vehicle registration and licensing locations:

- Video display screen with minimum resolution of 1080 High Definition (HD) and 40-inch size.
- Sound (optional).
- Mechanism for playing predetermined and sequenced HD video content through a physically connected media source (i.e., not streamed wirelessly). Video content needs to continuously loop and display captions at all times.
- Ability to mount the system on a suitable wall for optimal viewing while providing access to the back of the screen to swap out media content and check the media player.
- Ability to physically secure the media player device and media storage to the system.

2.1.3 Seven Equipment Options Considered

Seven systems were considered. Each system is described below with attention given to advantages or disadvantages as they relate to the system requirements and the system that was chosen.

1. **Digital Media Player and Smart Liquid Crystal Display (LCD) Television (TV).** The media player was connected to the TV using a High-Definition Multimedia Interface (HDMI) cable and powered directly through the TV (5 Volt Universal Serial Bus (USB) power). It was secured inside a translucent thermostat lock box, which was securely attached to both the TV and a wall mounting bracket that utilizes "universal" wall mounting specifications. The video media was stored on an interchangeable USB 3 thumb drive with an 8 Gigabyte (GB) storage capacity. The system required power from a single 110 Volt standard wall outlet. The TV and media player were operated with separate remote controls. The primary advantages of this system were the relative simplicity of installation

and operation, lower maintenance and lower cost. No significant disadvantages were determined.

2. **Personal Computer (PC) Stick Combined with Smart LCD TV.** This system was suggested as an option by the researchers, as it was the one the Montana Department of Justice (DOJ) was already operating in Helena, Montana. A stick PC is a miniature (palm sized) fully functional PC that uses the Microsoft Operating System. While a viable option, the PC had functions beyond the scope of the project. Being a computer with an operating system, it was more complex to operate, required more peripherals (keyboard and mouse) to interface with, and potentially required more maintenance and software updates. Stick PCs were also more expensive to purchase and had a higher power consumption. The researchers viewed the working system of this type, which has been in operation in Helena for a number of years. While successful, the researchers recommended utilizing the simpler and less expensive option described above (option #1). **Note:** The pros/cons of the proposed system (option #1) versus the Montana DOJ system (option #2) were discussed at the kick-off meeting on March 30, 2020. The Technical Panel preferred the system proposed by the researchers because of the reasons described above, although primarily because it was simpler and had a lower cost. Since the Montana DOJ was not represented at the meeting, the researchers reached out to the Montana DOJ and sought approval regarding the proposed option. The Montana DOJ reminded the researchers of the requirement to ensure the physical security of the media player and media storage by locking it inside a lock box, attached to the backside of the TV/mounting bracket. The solution for this is discussed as part of the complete system description below.

3. **All-in-one PC**. This type of system had the advantage of being relatively self-contained. However, there were similar disadvantages (as option #2) with regard to complexity of operating a PC, peripherals to interface and a higher price. Further disadvantages with regard to project specific requirements were the relatively limited screen size and the limited ability to mount on a wall.

4. **All-in-one Chrome PC.** These systems were similar to the all-in-one PC described above (option #3), other than this one utilizes the Google Chrome operating system. While this one was more affordable and simpler to operate than option #3, it was still relatively expensive and has limited screen size.

5. **Commercial Advertising/Information Systems.** While these systems were able to meet the requirements of the project, they have several features that make them more expensive or unsuitable for the project. Namely, these systems often require the ability to stream content from a centrally or locally managed server. They were also geared more for displaying editable content in a slide presentation format, as opposed to continuously looping video with captions.

6. **Stand-alone Smart LCD TV.** As technology advances, more features and functionality are added to smart TVs. As such, it was possible with some smart TVs to simply plug in a USB storage device and play videos, looping continuously with or without captions. This made for a “simple system”; however, it was not as simple to operate as implied. At this time the functionality was only available in more expensive TVs. It was determined that the added simplicity was not enough to off-set the higher price.

7. **LCD TV Connected to a Digital Media Streaming Device**. Digital media streaming

devices such as Apple TV or Roku essentially made TVs smarter by providing functionality and wireless connectivity. While also served the function of a non-streaming media player, this was not their primary purpose. The primary functions of these devices did not pertain to the requirements of the project, they did not provide any improved functionality or features over the proposed media player, and they were typically more expensive.

The researchers submitted the proposed system information to the Montana DOJ for review. It was approved via email on April 23, 2020. Once approved by the Montana DOJ, the researchers provided the feedback from the Montana DOJ to the Technical Panel during the meeting on May 27, 2020. At that time, the Technical Panel provided preliminary approval of the recommended system.

2.1.4 System Equipment/Component Selection Detail Recommendations

The final system chosen (option #1) was "off the shelf" consumer technology that did not require any custom development or interface. The wall mounted video display system was comprised of several components, including: 1) an LCD flat screen "smart" TV, 2) a digital media player, 3) USB power cable, 4) HDMI cable, 5) digital media storage, 6) lockbox, and 7) wall mount.

It was determined that sound would not be used. This means that the internal speakers were muted, and that there was no anticipation of purchasing additional speakers to mount underneath the TV.

The following sections describe in more detail each of the components.

2.1.4.1 LCD Smart TV

With the continuous evolution of technology, the LCD TVs available at the time of the project were more advanced than those available a year ago. While this was good to a point, not all of the advances were necessarily useful to this project. The most significant, relevant change was screen resolution. This is discussed below in the fourth bullet. Some of the brands that were reviewed were Samsung, LG, and Vizio.

Considerations in selecting an appropriate smart TV included:

- *Screen size:* The final TV size ranged between 40" and 50", reflecting variations in room size and viewing distance at each installation site. If the TV was too small, it may not be noticed. Furthermore, the visuals/text could be hard to read. If the TV was too large, the visuals can be overwhelming, and could cause discomfort to viewers. In addition, the TV may not fit in an available space. Estimated viewing distances are described in the location description section.
- *Price:* While some retailers tend to push certain brands, with well-known names often being at the top of the price range, for the purposes of the project it was considered acceptable to choose a mid-price brand without significant compromises on build or picture quality. Nonetheless, availability and pricing can vary at different times. The target price range was in the $250-$300 range for a 43", 4K TV.
- *Lifespan:* Since the researchers were unable to find consistent information relating to the lifespan of TVs or a comparison of various brands, the following was meant as background information. At the time of pre-deployment planning, LED TVs were engineered to last around six years. The biggest detriment to a TV under normal environmental conditions (room temperature, room brightness, relative humidity, limited dust, etc.) was the amount of

time the screen was running and the brightness of the screen setting. These two factors impact the use of the backlight. It was the backlight that most commonly starts failing over time with a gradual loss in brightness, contrast and color range/quality. Other parts such as the image processor or power controller were also susceptible to failure. There was not one brand consistently recommended over another, other than some instances where paying a premium price may lengthen the lifespan. No information gathered caused the researchers to prefer one particular brand over another within the range of reputable brands available at retail stores.

- *Resolution:* When a proposal was being developed for this project, 1080 HD TVs were more common and 4K TVs were available, but more expensive. Since that time, 4K had become more common for TVs at or above 42". The price for the higher resolution dropped to what was considered the "standard consumer price range." During the pre-deployment planning phase, several retailers only carried a majority of 4K TVs with 1080 HD being relegated to online sales or smaller screen sizes. (It was cost prohibitive to squeeze 4K resolution into smaller consumer TVs.) Consequently, it was recommended that for screens at or around 40", the 4K resolution was preferred since it was becoming the current "mainstream" resolution. Even though the videos for this project were only 1080 HD resolution or less, they displayed better on a 4K screen.
- Additionally, it was good to have higher resolution TV for possible future uses if they remain on location after the project concludes. Another benefit to the 4K technology was the lifespan of the LEDs that make up the screen. The newer technology has a longer lifespan, which was good if the TVs were played continuously every day during business hours.
- *HDMI and USB cable connection ports:* During the pre-deployment planning phase, these were the default interface connections for media/audio input and supplemental power. They were available on all TVs that were reviewed. HDMI was used to transfer video content from the media player to the TV. A USB port was used to provide power to the media player.
- *Color gamut and anti-reflectivity*: Knowing more about the locations where the TVs were likely to be mounted (based on images), the lighting conditions in the rooms fall within the normal parameters of TV viewing. That is to say, there does not seem to be a situation where the rooms had too much intense light or obscure viewing angles. As such, color range, contrast and glare were not expected to be an issue.
- *Energy consumption*: Energy consumption was important considering the amount of time the TVs were expected to be running. Generally, all smart TVs of reputable brands have Energy Star ratings and have similar efficiencies for the same size screen.
- *User interface*: A logical and user-friendly interface assisted in the ease of use and engagement of the staff that were trained and tasked with operating the TVs. Most TVs meet The Americans with Disabilities Act (ADA) standards in providing accessible user interfaces with features such as high contrast, large text and audio menus.
- *Warranty/Extended Warranty:* At the time of pre-deployment planning, warranties for Smart TVs were understood to be rather similar. Inquiries were made about extended warranties, however, those that are readily available at retail locations are intended for personal/residential use only, not commercial or government use. One option available

through Costco Wholesale was to use the "Costco Citi Visa card" to make the purchase, which automatically extended the warranty by two years.

Two options were provided for the final LCD TV recommendation in case of limited availability and are shown in Table 1.

Table 1: Recommendations for LCD TV

Recommendation #1	Samsung (UN43TU7 00D) 43" 4k Ultra-High Definition (UHD) LED LCD TV
Price	$280
Retailer	Retailer Costco Wholesale warehouse.
Image	 *43" 4K Samsung TV on display at a Costco warehouse.*
Recommendation #2	VIZIO - 43" V-Series 4k Ultra HD Smart LCD TV with High Dynamic Range
Price	$279.99
Retailer	Best Buy

Note #1: The term "Smart TV" alludes to the fact that the TV had capabilities for wireless internet connection via wireless fidelity and built-in computer and applications that provide a range of functionality that, for the most part, were not necessary within the scope of the project. However, despite not using all of the functionality, there were no cost savings in choosing a TV with similar size and resolution that does not have the built-in smart features. They were not available or they were more expensive.

Note #2: As a part of most conversations with TV sales personnel and installation experts, everyone indicated that the simplest solution would be to insert a USB thumb drive directly into the TV and play videos through the built-in functionality of the TV. While acknowledging this possibility, the response was that, based on the scope of the project, it was not certain that the TVs with a USB

thumb drive can: 1) automatically play the videos, 2) provide closed captioning functionality, 3) loop the videos continuously and, 4) be effectively secured from theft. The researchers proceeded with the understanding that securing the thumb drive from theft was a requirement.

2.1.4.2 Digital Media Player

The device described in option #1 was a "1080P Media Player." This simple device added functionality to any display device with an HDMI input such as LCD TV, digital projector or computer monitor. It could play a large variety of video formats, still images and music. The media input for the device could be provided through memory cards (like those used in digital cameras), USB thumb drives, or external hard drives with a USB connection.

The following features and specifications indicated the media player's suitability for the task.

- Low price: At the time of pre-deployment planning, the price was $36 - $40.
- Little to no maintenance.
- Low power usage. The device required only 5 Volts at 1 ampere and could be powered by a 110 Volt power adaptor (included with purchase) or, more conveniently, by a USB cable powered through a USB port on the LCD TV. The cable could be purchased separately at a cost of about $3 each. Although an additional cost, use of this cable provided additional benefits.
- Ability to played continuously with relatively quick (less than 10 seconds) start up time.
- Simplicity of set up and operation. All operation was through an InfraRed (IR) remote control. This brought up one minor disadvantage: the secure lock box needed to be transparent to allow the remote control to transmit a signal to the media player. This was solved and is described below.

At the time, very similar products were available that played 4K video resolution. However, they were more expensive (about $65) and not considered necessary for the requirements of the project.

The final Digital Media Player recommendation is shown in Table 2.

Table 2: Recommendation for Digital Media Player

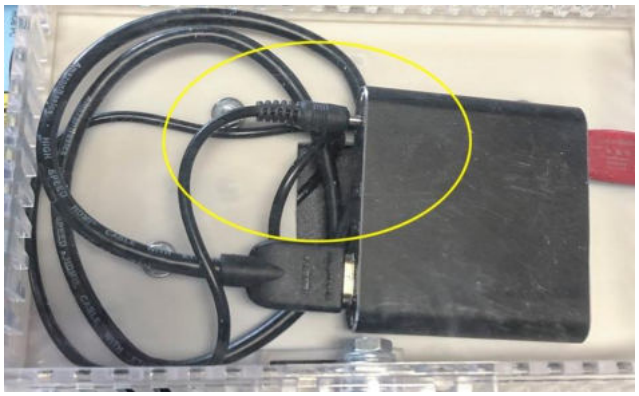
Recommendation	AGPtEK Mini 1080P Full HD Digital Media Player
Price	$34
Retailer	Amazon
Image	 *Digital media player and remote control.*

2.1.4.3 USB Power Cable

This cable could be used as an alternative to the provided adaptor. The two primary benefits were that it helped the system remain more compact (there was no need to use a separate power adaptor that would be plugged into a wall socket or power strip) and the power of the media player could be tied to the power of the TV. This would power up the media player when the TV was turned on. It resulted in the videos playing immediately without doing anything else. This was successful on the two basic test systems that were in operation. Occasionally the sound would come on, but that can be muted with either the remote from the TV or the media player.

The final USB Power Cable recommendation is shown in Table 3.

Table 3: Recommendation for USB power cable.

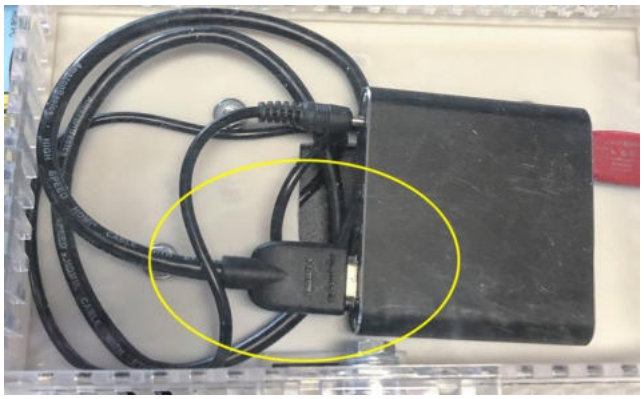
Recommendation	HUACAM HC06 3 Pack 3 feet USB to 3.5mm Barrel Jack 5 Volt DC Cable Plug
Price	3 pack $8.00, $2.7 each
Retailer	Amazon
Image	 *USB to 3.5mm jack power cable providing power from the TV to the media player.*

2.1.4.4 HDMI Cable

This cable provided the connection from the media player to the TV; sometimes it was included with the purchase of the TV.

The final HDMI Cable recommendation is shown in Table 4.

Table 4: Recommendation for HDMI cable.

Recommendation	Maximm High-Speed HDMI 2.0 4K Braided Cable, 1.5 Feet, (5-Pack)
Price	5 pack $20, $4 each
Retailer	Amazon
Image	 *HDMI cable providing data connection between the digital media player and the TV.*

2.1.4.5 Media Storage

Considerations in selecting an appropriate media storage device included:

- *Capacity:* Depending on the final length of the video sequence and possible additional videos, 4-8GB was sufficient. It was increasingly difficult to find thumb drives with less than 8GB and there was not a significant price benefit for the smaller capacity. 8GB drives could be purchased in 10 packs to reduce their cost.
- *Data Transfer rate:* 1080 HD video with audio (if needed), transfers at a rate of 22 megabits per second (Mbps) depending on the codec that the video was rendered/encoded with. The standard data transfer rate for a USB2 thumb drive was 480 Mbps. This was more than enough for the purposes of this project.
- *Durability:* These drives were solid state. Some had moving parts to protect the exposed connection point. For the purposes of the project, it was not anticipated that the thumb drives would be exposed to external environment, pockets, purses etc. So, protection was not a high priority.

The memory chip should be from a reputable manufacturer to ensure better quality due to continuous data transfer over a long period of time.

The final Media Storage recommendation is shown in Table 5.

Table 5: Recommendation for Media Storage

Recommendation	SanDisk 8GB Cruzer Blade USB 2.0 Flash Memory Drive.
Price	10 pack $36.55
Retailer	Amazon
Image	 *USB thumb drive connected to the digital media player.*

2.1.4.6 Lockbox for Physical Security for Media Player and Media Storage (USB thumb drive)

The requirement was to securely attach a lockable, transparent box to the back of the TV at one or two of the wall mount fastening points. Additional considerations included:

- The box needed to be a relatively slim profile (less than 3") in order to minimize the amount of space required between the wall and the back of the TV.
- The box was transparent in order to allow IR remote control transmissions to the media player.
- One key was provided per box.

The recommended solution, shown in Table 6, was to use a wall mounted thermostat lock box with a back plate. This solution required some basic modification to allow for passage of cables and attachment to the wall mount/TV.

Table 6: Recommendation for Lockbox.

Recommendation	BiSupply AC Thermostat Lock Box 8.5” x 2.9” x 5.6”
Price	$14.99
Retailer	Amazon
Image	 *Recommended lockbox mounted to the back of an LCD TV using the TV wall mounting bracket.*

2.1.4.7 Wall Mounting Bracket for TV

Various brands and styles were available. Functional durability, moderate price and range of movement were considered.

- *Load bearing:* Almost all types of wall mounts were rated for a range of TVs and associated weights. Selection was made based on the size and weight of TV chosen.
- *Range of movement:* Some compact wall mounts had little or no range of movement. This limits the possible viewing angles and limits access to the back of the TV for checking cables etc., and in the case of this project limited space for positioning the lockbox. A mounting bracket with the ability to pull away from the wall and to move from side to side was recommended.

The final TV wall mount recommendation is shown in Table 7.

Table 7: Recommendation for TV Wall Mount.

Recommendation	SANUS Simplicity 22" - 55" Full-Motion TV Mount
Price	$70
Retailer	Costco Warehouse
Image	 *Recommended wall mount in use, holding one of the test display systems.*

2.1.5 Final System Recommendation

The final recommendation presented to the Technical Panel for approval is shown in Table 8 (note this information was consolidated from the separate tables in the previous sections). The total cost for a system was around $450.

Table 8: Summary of Recommendations for a Complete System

Component	Brand-Model	Retailer	Price
LCD Smart TV	Samsung (UN43TU7 00D) 43” 4k UHD LED LCD TV	Costco Wholesale Warehouse	$279.99
Digital Media Player	AGPtEK 1080 HD Digital Media Player	Amazon	$35.99
USB Power Cable	HUACAM USB to 3.5mm Barrel Jack 5V DC Cable	Amazon	3 pack $8.00 $2.7 each
HDMI Cable	Maximm High-Speed HDMI 2.0 4K Braided Cable	Amazon	5 pack $20.00 $4.00 each
Media Storage	SanDisk 8GB Cruzer Blade USB 2.0 Flash Memory Drive	Amazon	10 pack $36.55 $3.7 each
Lockbox	AC Thermostat Lock Box 8.5” x 2.9” x 5.6”	Amazon	$14.99
Wall Mount Bracket	SANUS Simplicity 22" - 55" Full-Motion TV Mount	Costco	$70
Hardware	Nuts to secure lockbox	Ace Hardware	$1.00
Power cord/surge protector	NXT Technologies 6 Outlet Surge Protector 8’ Cord 900 Joules NX54314	Staples Office Supplies	$14.99
Estimated Shipping*		Amazon	$20.00
		Total for one system	**$447.36**

**For test order 20200722, shipping was free. $20 is an estimate.*

2.2 Deployment Location Finalization

This section describes, in detail, the process used for finalizing deployment locations, deployment considerations, deployment location options, and the final recommendation.

2.2.1 Process for Deployment Location Finalization

The researchers suggested a total of five locations for deployment, with two at MVD locations and three at CTO locations.

At one of the first Technical Panel meetings, the researchers provided the list of MVD and CTO locations within two hours of Bozeman to the Technical Panel for review. From here, the list was further reduced by Montana DOJ staff, who assisted with contacting locations to see which were willing to participate in the study.

Due to the coronavirus pandemic (COVID-19), the ability to visit locations was no longer an option. Therefore, the researchers put together an email (shown in Appendix A: Location Email) requesting all the necessary information to determine the suitability of the locations for the final recommendations list. Ultimately, to keep the project moving forward, three locations were visited in order to gather information.

The researchers used the information collected to inform the final five recommended locations.

2.2.2 Deployment Considerations

In narrowing down locations, several considerations were taken into account, including:

- *2-hours drive of Bozeman* – This was to facilitate trouble shooting of equipment by team members if necessary.
- *Duplication of locations* - The researchers recommended avoiding duplicate locations (i.e., choose the same location for an MVD and CTO), but the Montana DOJ thinks duplication is not a concern, as the typical Montanan visits MVD every eight years whereas they renew license plates annually. However, the researchers still recommend not duplicating locations (e.g., Billings/Yellowstone County, Bozeman/Gallatin County, Kalispell/Flathead County, Helena/Lewis & Clark County, and Butte/Silver Bow County.)
- *Permanent driver license stations only* - To ensure the equipment can remain deployed after the pilot project was complete.
- *Visitation data to achieve statistically significant evaluation results* – MDT was very interested in statistically significant findings. Therefore, a significant number of surveys needed to be collected, while remaining within the project budget. Visitation data should include who visits the County Treasurer's office, and why? (e.g., was there a bias as to typical ages or demographics of patrons), how many days the offices were open annually (particularly during the time periods during which surveying was conducted), and average visitors per day which varied by population (this impacted the amount of survey data that can be collected). Visitation statistics were not available. As an alternative, the professional experience and judgement of the DOJ representative was used.
- *Room layouts for the equipment* – It was important to understand the available space, viewing distance, access to power and feasibility of securing the unit. It was also necessary to understand if space was available for the surveyors to remain in during unfavorable weather (e.g., too cold). This consideration is discussed in detail later in this section.
- *Technical panel suggestions/concerns* –The Technical Panel had concerns that limiting locations to within two hours of Bozeman may possibly miss some diversity across the

state. The Technical Panel felt that while Montana was not very racially and ethnically diverse, one element that should be captured was Montana's Native American population. To accommodate this, it was decided that Billings should be included to try to cover some of the reservations in Northeast Montana. The researchers also recommended adding Kalispell as a location in the Northwest to cover some of the reservations (e.g., Confederated Salish and Kootenai Tribes) in that area. Two researchers that were located in Kalispell and Billings were willing to assist with surveying in these areas.

2.2.3 Deployment Location Options

Within the two-hour radius, there were twenty-four potential locations. The project team recommended selecting two MVD (only five total candidate locations) and three CTO (only nineteen total candidates) locations.

The MVD locations within two hours of Bozeman include:

1. Billings
2. Bozeman
3. Helena
4. Livingston
5. Butte

The CTOs within two hours of Bozeman include:

1. Beaverhead (Dillon)
2. Broadwater (Townsend)
3. Carbon (Red Lodge)
4. Deer Lodge (Anaconda)
5. Flathead (Kalispell)
6. Gallatin (Bozeman)
7. Gallatin (Belgrade Satellite Office)
8. Golden Valley (Ryegate)
9. Jefferson (Boulder)
10. Lewis & Clark (Helena)
11. Madison (Virginia City)
12. Meagher (White Sulphur Springs)
13. Park (Livingston)
14. Powell (Deer Lodge)
15. Silver Bow (Butte)
16. Stillwater (Columbus)
17. Sweet Grass (Big Timber)
18. Wheatland (Harlowton)
19. Yellowstone (Billings)

Of those twenty-four potential locations, Carbon County declined the invitation to participate. Consent was received from the following locations to potentially participate:

- MVDs: Billings, Bozeman, Helena, and Kalispell

- CTOs: Broadwater (Townsend), Gallatin (Bozeman or Belgrade Satellite Office), Lewis & Clark (Helena), and Sweet Grass (Big Timber).

Utilizing the Belgrade CTO satellite instead of the Bozeman CTO allowed for high visitation but removed the duplication of having both a CTO and MVD in Bozeman.

The room layout was the last filter applied in order to choose the final five locations.

2.2.4 Visitation Data

Although visitation information was not available, the Montana DOJ representative was able to provide the researchers with the total number of registrations by CTO location and estimated that the in-person portion of this number is approximately fifty percent with the remainder being online or mail-in registrations. The 2019 county vehicle registration information (the most recent data at the time) was utilized to estimate the expected number of visitors (Montana Department of Justice, 2023). This data is shown in Table 9.

Table 9: CTO Estimated Visitation Data

Type	Name	City	County	Total vehicle registrations completed in 2019 by county	50% in-person visits	Avg. /month	Avg/week in a month
CTO	Broadwater County Treasurer Motor Vehicle Office	Townsend	Broadwater	8293	4147	346	86
CTO	Gallatin County Treasurer Motor Vehicle Office	Bozeman	Gallatin	120453	30113	2509	627
CTO	(Satellite) Gallatin County Treasurer Motor Vehicle Office	Belgrade	Gallatin	120453	30113	2509	627
CTO	Lewis & Clark County Treasurer Motor Vehicle Office	Helena	Lewis & Clark	76732	38366	3197	799
CTO	Sweet Grass County Treasurer Motor Vehicle Office	Big Timber	Sweet Grass	5232	2616	218	55
CTO	Park County Treasurer Motor Vehicle Office	Livingston	Park	21643	10822	902	225
CTO	Stillwater County Treasurer Motor Vehicle Office	Columbus	Stillwater	12019	6010	501	125
CTO	Yellowstone County Treasurer Motor Vehicle Office	Billings	Yellowstone	168324	84162	7014	1753
CTO	Carbon County Treasurer Motor Vehicle Office	Red Lodge	Carbon	15451	7726	644	161
CTO	Golden Valley County Treasurer Motor Vehicle Office	Ryegate	Golden Valley	1117	559	47	12
CTO	Wheatland County Treasurer Motor Vehicle Office	Harlowton	Wheatland	2430	1215	101	25
CTO	Meagher County Treasurer Motor Vehicle Office	White Sulphur	Meagher	2613	1307	109	27
CTO	Jefferson County Treasurer Motor Vehicle Office	Boulder	Jefferson	15460	7730	644	161
CTO	Silver Bow County Treasurer Motor Vehicle Office	Butte	Silver Bow	36669	18335	1528	382
CTO	Powell County Treasurer Motor Vehicle Office	Deer Lodge	Powell	7114	3557	296	74
CTO	Deer Lodge County Treasurer Motor Vehicle Office	Anaconda	Deer Lodge	11335	5668	472	118
CTO	Beaverhead County Treasurer Motor Vehicle Office	Dillon	Beaverhead	11072	5536	461	115
CTO	Madison County Treasurer Motor Vehicle Office	Virginia City	Madison	13595	6798	566	142
CTO	Flathead County Treasurer Motor Vehicle Office	Kalispell	Flathead	117751	58876	4906	1227

In Table 9, the light orange highlights indicate the final five CTO locations being considered and the red highlights indicate that the weekly average is below 100. In order to collect as many surveys as possible, the Broadwater and Sweet Grass CTOs should not move forward as options. (It should be noted that the Gallatin vehicle registrations were split 50-50 between Bozeman and Belgrade when calculating the fifty percent in person numbers).

For MVD locations, it was acknowledged that Bozeman, Helena, Butte, and Billings would all have consistently high visitation numbers. However, without documented visitation data and due to the possible changes in visitation due to COVID-19, the researchers cannot say with one hundred

percent certainty that a sufficient number of surveys can be collected to allow for statistical significance to be possible during the evaluation phase within the project's budget.

2.2.5 Response to Location Inquiries

A detailed summary of the responses for each location can be found in Appendix B: Responses to Location Inquiries.

The location email was sent by Sky Schaeffer on behalf of the researchers. It was sent to Billings, Bozeman, and Kalispell MVD locations and Broadwater (Townsend), Gallatin (Bozeman), and Sweet Grass (Big Timber) CTO locations. Responses were received from all but one of the locations (Sweet Grass County CTO, Big Timber).

From these responses, it was determined that Bozeman, Kalispell and Billings MVD and Gallatin (Bozeman) CTO locations would be suitable. However, due to lack of space or suitable mounting location, it was determined that Broadwater (Townsend) would not be suitable.

After discussion in the July meeting, it was decided that the Sweet Grass (Big Timber) and Gallatin (Belgrade) CTOs be visited in person in order to assess their suitability. The Technical Panel was hopeful that Sweet Grass could be used to represent a more "rural" location. However, from the visits to these locations, the researchers and Sky Schaeffer decided that the Gallatin satellite CTO was suitable, but the Sweet Grass CTO would not be suitable for reasons of low visitation numbers and no suitable location for the TV with access to power.

Based on this decision, Sky Schaeffer offered to visit the Lewis & Clark CTO to assess it for its suitability and provide photos. After the visit, the Lewis & Clark CTO was deemed a suitable location.

2.2.6 Final Location Recommendation

The following locations were found to be acceptable for the suitable placement of the TV, have a higher visitation, and have researchers nearby to administer surveys. As a caveat, the term "suitable placement of the TV" was subjective given the necessary spacing of seating to accommodate social distancing requirements due to COVID-19.

The final five locations recommended for Technical Panel approval were:

- MVDs: Billings, Bozeman, and Kalispell
- CTO: Gallatin (Belgrade Satellite Office) and Lewis & Clark (Helena).

2.3 Securing Video Content

The next task was to secure video content that could be used to create the video loops to be shown at the MVD and CTO locations. New videos were not created as a part of this project. Securing content required obtaining the proper permissions for MDT to display this information.

2.3.1 Process for Securing Video

The process was started by searching for existing transportation safety videos aimed at the public. This was done through internet and YouTube searches of transportation safety topics or by

searching the websites of agencies known to have transportation safety videos. Some of the organizations included, but were not limited to:

- Federal Highway Administration (FHWA)
- Federal Motor Carrier Safety Administration (FMCSA)
- National Highway Transportation Safety Administration (NHTSA)
- Governor Highway Safety Administration (GHSA)
- Montana Highway Patrol
- MDT's Safer Roads Website
- Local Technical Assistance Programs (LTAPs)
- State Departments of Transportation (DOTs)
- Traffic Safety Marketing

The researchers also used their experience running the National Center for Rural Road Safety to suggest known content. For example, one video that was added to the list was the *Sweet Sound of Safety* video created by FHWA as part of the Every Day Counts 5 FoRRRwD initiative and another was a curve video created by Clackamas County in Oregon.

The MDT Research Manager then sent out an email (see Appendix C: Email to Other DOTs to Secure Video Content) from the researchers to all state DOTs requesting any videos that meet the project's criteria. Specifically, videos on certain underrepresented topics were prioritized. Responses were received from almost twenty state DOTs amounting to more than five more videos for consideration.

2.3.2 Video Considerations

To identify candidate videos for the storyboard, all of the videos were reviewed with the following considerations:

- The preferred format for a video is mp4 with H.264 encoding.
- Videos should have subtitles/captions or should be easily modified to have subtitles. The captions were utilized both because no sound was to be provided and to ensure ADA compliance (required for displaying videos as part of a state funded project in a state funded operation). The researchers understood "narrative captioning" to be the compliance requirement. Relying on a particular TV's ability and audience interaction to activate and display closed captioning may lead to frustration and inconsistencies in viewer experiences. As such, the recommendation from the team was to "burn" the captions (i.e., captioning was included directly in the video so they cannot be turned off and would be difficult to update) into the video as "open captioning."
- Videos and captions needed to be available as downloadable files.
- Written permission for MDT to use an agency's video and captions was needed.
- The priority for video use was (1) Montana specific, (2) generic, and (3) another state's videos.
- The video clips should be short clips (generally less than two minutes and preferably less although slightly longer videos could be considered). The greater the number of short clip videos, the more content presented in the loop.

- Videos related to upcoming safety awareness days/weeks/months and considered which season to be displayed in (e.g., snowplows), but the priority was on the issues MDT was focused on addressing and not the season (e.g., seatbelts, driving under the influence, and speed).
- The video topics lined up with the priorities (e.g., emphasis areas) in MDT's CHSP and Vision Zero plans; were a safety focus area for MDT, FHWA, or NHTSA; or were a Montana DOJ priority which were to create better and more safe drivers and display their awareness campaigns.
- The safety measures in the chosen videos had to have been proven to be effective in Montana. For example, MDT does not use the Safety Edge. They have a modified version.
- The videos should have actionable items for the public. The Montana DOJ's priority was to create better and more safe drivers and to be able to display its awareness campaigns.
- As no sound was used, videos were viewed with sound off and closed captioning on to test the understanding of the concept presented in the video (as this was how the public viewed them). Screening the videos in this manner checked that the video was not too wordy and that the announcer was not talking too fast, as this could make the video hard to watch and read without sound. Videos were also reviewed to ensure that they still "packed the same punch" without the sound.

2.3.3 Video Topics

The potential video topics were identified in the Request for Proposals. In cooperation with the Technical Panel, additional topics were identified in subsequent meetings. Potential safety topics included:

- Roundabouts
- Flashing yellow arrows
- Snowplows
- Rumble Strips
- Driving Under the Influence (DUI)
- Seatbelt Use
- Myth Busters
- Winter Driving
- Emergency Vehicles – What to do when they are present and Move Over laws (a Montana DOJ Priority)
- Work Zones – How to navigate them
- Traffic Incident Management
- School Buses
- Sharing the Road - Nonmotorized Users
- Motorcycles
- Speeding
- Distracted Driving
- Agricultural Equipment
- Real ID
- Maintenance videos

- Railroad crossings (although this may be a lower priority because this crash type occurs infrequently)
- Tribal transportation safety
- Child passenger safety
- Roadside clear zones, although an "engineering concept"
- Overcorrection (rollovers were the number one crash type in Montana, and it was an MDT priority)

Several discussions with the Technical Panel were related to whether or not to include the Real ID videos in the final loop. At first, the Technical Panel could not reach a consensus on this decision. It seemed like a moot point when the equipment would be deployed in November 2020 because the Real ID deadline was October 2020. However, due to COVID-19, the Real ID deadline was moved to October 2021 (and again to May 5, 2025). Therefore, the Technical Panel discussed this issue again. The final consensus was that although the Real ID video was not transportation safety related (the goal of the project), it was a priority to the Montana DOJ. The Montana DOJ serves on the Technical Panel and was willing to deploy the equipment at its locations; therefore, one short (thirty second) Real ID video was added to the final video loop. The researchers worked with the Technical Panel to determine how this should be accounted for in the surveys and evaluation.

2.3.4 Final Recommendations

Details relating to specific project criteria were compiled into a spreadsheet. This information was helpful in the filtering process in the next subtask. In total, over two hundred videos were identified from more than sixty different sources.

2.4 Storyboard Creation

During the Deployment phase, the researchers created the "video mix" (defined as the entirety of the video content and still frames that were to be displayed). In preparation for this, storyboards were created for approval by the Technical Panel. The storyboards serve as an outline showing the proposed topics, media (video content, still frames), and their order.

2.4.1 Storyboard Creation Process

Criteria considered when evaluating the videos included length (less than two minutes), audience type (priority for Montana-specific videos, then generic videos, then other states), sound needed (no), and caption readability (easy, too fast, or too wordy). It should be noted that a video was assumed to be generic if it either did not reference a particular state or if the only reference to that state was a closing or opening logo which could be removed if permission was received.

Of the 206 videos, ninety videos were suggested to be considered based on the filters of length, audience (i.e., either Montana specific or generic), and sound. A few of these videos were other state specific or would be better if used with sound, but the message was impactful, so they were kept on the consideration list. These videos are listed in audience type order in Appendix D: Filtered Safety Video Content.

From the remaining videos, the researchers then selected a mix of videos that lined up with the priorities (e.g., emphasis areas) in MDT's CHSP and Vision Zero plans; were a safety focus area for MDT, FHWA, or NHTSA; or were a Montana DOJ priority. The videos were then checked to

ensure the safety measures in the chosen videos were proven safety countermeasures used and effective in Montana and have easily actionable items for the public.

Then, four storyboards were created for MDT's review. The storyboards provided a proposed mix of topical videos, as well as still frames.

2.4.2 Storyboard Considerations

- *Video mix length* – In terms of length, the goal was for the video mix to be short enough that a viewer can watch it in its entirety while waiting, but long enough for a viewer to see a variety of safety topics. The Technical Panel preliminarily agreed to a ten-minute video loop. With the assumption of a ten-minute loop, the video mix could only be five, two-minute videos, unless shorter videos were used. There was also the need to leave time to display some static information between videos as well. Depending on a viewer's wait time and the overall length of the video mix, there was a chance that a viewer would not see the entire content loop. There was also a high probability that a viewer would not start the loop at the very beginning. All of these factors needed to be considered when creating the mix (e.g., determining the length, when to add stills, and when to brand with the MDT logo).
- *Number of video mixes* - For ease of surveying and to keep costs reasonable, no more than two video mixes were created and used throughout the project life. Two video mixes (rather than one) allowed for more video content to be shown and to possibly accommodate seasonal changes. The Technical Panel recommended that the two video mixes have some overlap. It was intended for Mix #1 to be displayed from November 2021 to April 2022 and Mix #2 to be displayed from May 2022 to October 2022.
- *Still frames* – Still frames were proposed to be used in the video mix similar to the current Montana DOJ video loop, which included trivia questions (Figure 2) and "did you know" questions (Figure 3). The Technical Panel agreed that this was a good idea and would possibly draw people in, separate the videos, and assist with determining whether people were paying attention. They also suggested it would be important for the topics to be transportation safety related and the researchers should be careful not to choose questions that may need to be updated frequently over time.
- *Seasonal video* – The researchers and the Technical Panel discussed the use of seasonal videos. Because license and registration renewals were infrequent, a viewer may only come for renewal in summer, but a winter video could be educational to them. Other members questioned whether seeing a winter video in summer would change the driver's behavior months later. The discussion also included having a base of non-seasonal videos in the mix and then adding a few seasonal ones into each of the two mixes that were used. It was also noted that safety videos aimed at motorcycle riders (e.g., encouraging them to wear helmets) would be more impactful during motorcycle testing which only occurs in the spring/summer and sometimes the fall at the permanent locations.
- *Local population* – While not within the scope of this research, the Technical Panel recommended that in the future, the video mixes could be tailored to the location's population. For example, the mixes could use Tribal specific information in some locations or tailor a countermeasure to a particular area (e.g., roundabouts).

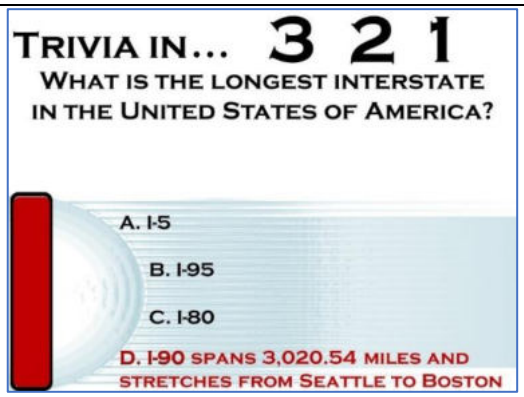


Figure 2: Trivia Slide Example from MVD PPT

Figure 3: Did You Know Example from MVD PPT

2.4.3 Final Recommendations

Four storyboards were created for the Technical Panel's consideration. They each included a mix of pictures, videos, infographics, trivia, and "Did you know?" questions. Each storyboard contained at least one reference to the priority CHSP topics (i.e., occupant protection, impaired driving, and roadway departure), as well as a mix of other important transportation safety topics (e.g., rail, active transportation, share the road, slow moving vehicles, school bus safety, commercial vehicle safety). After the Technical Panel reviewed them and a final decision was made, some of the photos had to be replaced to match the storyboard content and additional work was done to the aesthetics of the trivia, infographics, and the "Did you know?" slides.

The four storyboards ranged in length from ten minutes and five seconds to ten minutes and forty-eight seconds. The length was an estimate and may be slightly shorter or longer once the loop was created and tested for readability. In the end, the Technical Panel chose two storyboards to be deployed; therefore, pieces from the four storyboards were mixed and matched as desired by the Technical Panel.

Storyboard #1 was ten minutes and forty-eight seconds in total estimated length and more detail can be seen in Table 10. Storyboard #2 was ten minutes and forty-two seconds in total estimated length and more detail can be seen in Table 11. Storyboard #3 was ten minutes and five seconds in total estimated length and more detail can be seen in Table 12. Storyboard #4 was ten minutes and twenty-three seconds in total estimated length and more detail can be seen in Table 13.

The four originally proposed storyboards for the Technical Panel's review and approval were shown in Appendix E: Storyboard Drafts. Changes requested by the panel to the two chosen storyboards are documented in subsequent sections.

Table 10: Storyboard #1 Details

Type	Description	CHSP Category	Timing	Notes
Picture	Generic Montana	NA	10 sec	
Video	Just 1 Reason (MDT)	Occupant Protection	31 sec	
Infographic	Just 1 Reason (MDT)	Occupant Protection	25 sec	
Video	Work Zone Safety is Your Responsibility Too (National Asphalt Pavement Assoc)	Other: Work Zone	111 sec	
Picture	Work Zone	Other: Work Zone	10 sec	We are using this trivia question as part of Rural Road Safety Awareness Week on Sept 28-Oct 2 and could make this graphic look similar after.
Video	What is a Roundabout (MDT)	Other: Intersection Safety	63 sec	
Trivia	Roundabouts	Other: Intersection Safety	25 sec	
Video	MT Real ID	Other: Real ID	31 sec	
Picture	Generic Rural Montana	Other	10 sec	
Video	Sober Friend (MDT)	Impaired Driving	31 sec	
Infographic	DUI	Impaired Driving	25 sec	This is a portion of MDT's brochure. If you choose this infographic, then we will ask for the original artwork so we can use this information but make it better fit the slide.
Video	Tips for Safe Winter Driving (AAA)	Other: Winter	101 sec	
Picture	Snow in Montana	Other: Winter	10 sec	
Video	Rumble Strips – Sweet Sound of Safety (FHWA)	Roadway Departure	73 sec	
Trivia	Rumble Strips	Roadway Departure	25 sec	This trivia question is part of Rural Road Safety Awareness Week on Sept 28-Oct 2 and could make this graphic look similar after.
Video	Motorcycle Safety (Colorado DOT)	Other: Motorcycles	31 sec	
Picture	Motorcycle	Other: Motorcycles	10 sec	Need to locate a picture
Video	Cycling Safety is Everyone's Responsibility	Other: Active Transportation/Share the Road	16 sec	
Vision Zero Logo		NA	10 sec	

Table 11: Storyboard #2 Details

Type	Description	CHSP Category	Timing	Notes
Picture	Generic Montana	Other	10 sec	
Video	Embrace Life – Always Wear Your Seatbelt (Sussex Safer Roads)	Occupant Protection	89 sec	
Infographic	We Care Buckle Up	Occupant Protection	25 sec	
Video	Snow Rumble (MDT)	Roadway Departure	31 sec	
Trivia	Roadway Departure	Roadway Departure	25 sec	
Video	Motorists in Roundabouts (MDT)	Other: Intersection Safety	71 sec	
Infographic	Roundabout	Other: Intersection Safety	25 sec	
Video	School Bus Safety Public Service Announcement (PSA) Video 1 (Child Safety Network)	Other: School Bus	31 sec	
Infographic	School Bus Travel (American School Bus Council)	Other: School Bus	25 sec	
Video	Emoji 30 (NHTSA)	Other: Distracted Driving	31 sec	
Trivia	Distracted Driving	Other: Distracted Driving	25 sec	
Video	MT Real ID Airport (MT DOJ)	Other: Real ID	31 sec	
Picture	Generic Montana	Other	10 sec	
Video	I'm Not Driving – DUI (WA Traffic Safety Commission)	Impaired Driving	31 sec	
Infographic	High Visibility Enforcement	Impaired Driving	25 sec	
Video	Truck Smart: Avoiding Blind Spots (Zero Fatalities)	Other: Commercial Vehicles	41 sec	
Picture	Commercial Vehicles	Other: Commercial Vehicles	10 sec	
Video	Share the Road (Michigan DOT)	Other: Active Transportation/Share the Road	30 sec	
Infographic	Share the Road	Other: Active Transportation/Share the Road	25 sec	
Trivia	Roadway Departure	Roadway Departure	25 sec	
Video	Judging a Motorcycle's Distance (NHTSA)	Other: Motorcycle	16 sec	
Vision Zero Logo		NA	10 sec	

Table 12: Storyboard #3 Details

Type	Description	CHSP Category	Timing	Notes
Picture	Commercial Vehicle	Other: Commercial Vehicle	10 sec	
Video	What Kind of Driver are you Raising (Transport Accident Commission Victoria)	Occupant Protection	61 sec	
Picture	Generic Montana	Other	10 sec	
Video	Our Family Protecting Yours (Iowa DOT)	Other: Winter	31 sec	
Infographic	Winter Driving Checklist	Other: Winter	25 sec	
Video	Buckle Up What You Love – Click It or Ticker (NHTSA)	Occupant Protection	31 sec	
Infographic	Why Buckle Up?	Occupant Protection	25 sec	
Video	Stay Safe in Nighttime Work Zones (MDT)	Other: Work Zones	66 sec	
Trivia	Work Zones	Other: Work Zones	25 sec	
Video	Eye Contact Saves Lives (Colorado DOT)	Other: Active Transportation/Share the Road	16 sec	
Picture	Bicyclist	Other: Active Transportation/Share the Road	10 sec	
Video	Feel Different (NHTSA)	Impaired Driving	31 sec	
Infographic	I Prioritize Road Safety By…	Other: Safety Culture	25 sec	This will be used during Rural Road Safety Awareness Week (RRSAW) on Sept 28-Oct 2. It can be filled in after.
Video	Flashing Yellow Light (MDT)	Other: Intersection Safety	61 sec	
Trivia	Flashing yellow turn arrow	Other: Intersection Safety	25 sec	
Video	MT Real ID Airport (MT DOJ)	Other: Real ID	31 sec	
Picture	Animals of Road	Other: Animals on Road	10 sec	
Video	Safe Around Semis (Iowa DOT)	Other: Commercial Vehicles	77 sec	
Infographic	Blind Spots	Other: Commercial Vehicles	25 sec	
Vision Zero Logo		NA	10 sec	

Table 13: Storyboard #4 Details

Type	Description	CHSP Category	Timing	Notes
Picture	Agriculture	Other: Slow Moving Vehicle	10 sec	
Video	There's No One Someone Won't Miss (Transport Accident Commission Victoria)	Other: Safety Culture	61 sec	
Infographic	Zero	Other: Safety Culture	25 sec	This will be used at RRSAW and can be updated after the fact (i.e., remove hashtags)
Video	Together We Can End Impaired Driving (Foundation for Advancing Alcohol Responsibility)	Impaired Driving	62 sec	
Did You Know?	Impaired Driver Statistics	Impaired Driving	25 sec	
Video	The Right Seat – If You Love Them Enough – Play Place (NHTSA)	Occupant Protection	31 sec	
Trivia	Booster Seats	Occupant Protection	25 sec	
Video	MT Real ID Airport (MT DOJ)	Other: Real ID	31 sec	
Picture	Montana Generic	Other	10 sec	
Video	Slow Down for the Curve (Clackamas County)	Roadway Departure	49 sec	
Trivia	Roadway Departure	Roadway Departure	25 sec	
Video	Slow Down, Move Over (NY State DMV)	Other: Move Over Law	33 sec	
Did You Know	Move Over Law	Other: Move Over Law	25 sec	
Video	Be Seen – Pedestrian Safety	Other: Active Transportation/Share the Road	115 sec	
Picture	Montana Generic	Other	10 sec	
Video	Use Caution Around Slow-Moving Vehicles (Iowa DOT)	Other: Slow Moving Vehicles	31 sec	
Did You Know	Slow Moving Vehicles	Other: Slow Moving Vehicles	25 sec	
Video	Railroad Safety – Rural Signs (Colorado DOT)	Other: Rail Safety	20 sec	
Vision Zero Logo		NA	10 sec	

2.5 Additional Resource Creation

As a part of the Scope of Work, the researchers suggested providing additional information outside of the video content at the MVD and CTO locations. The idea for these additional resources stemmed from the research on potential TV stands and finding ones that included a brochure holder. Additional information options could include rack cards, a Quick Response (QR) code on a poster, or adding information to the MVD/CTO emails or website.

There was a potential for this information to provide a more robust educational campaign as it provided viewers with additional information on the project, links to the videos they saw so they can share them with others, more information about topics they viewed in the videos, or additional safety information to fill in the gaps left by the videos.

While additional information could have also allowed for measurement of subsequent actions taken due to the videos (e.g., a survey question asking if viewers took this information and what they did with it), it also could have affected the video evaluation and budget. Therefore, while this was recommended, it was determined that a further discussion on this topic with the Technical Panel would occur prior to the Interim Meeting.

The discussion with the Technical Panel occurred during the bi-monthly meeting held on May 27, 2020. Due to the requirement that the technology was wall mounted, the additional resources no longer seemed necessary. Should additional resources have been provided, they did not all have to be newly created, as existing MDT safety resources could be leveraged.

The Technical Panel felt that additional resources on the priority safety topics could be useful to either complement the videos or fill in the gaps. However, Technical Panel members suggested that before new materials were created, the storyboards should be finalized first; existing MDT resources should be identified; and the MVD and CTO offices must agree to having brochures in their offices.

Following the May 27, 2020 meeting, members of the Technical Panel reached out to MVD and CTO offices. The MVD and CTO offices were not in favor of having brochures. Therefore, this subject was not pursued, and no additional resources were created.

3 Deployment

This section covers Deployment, whose topics include equipment purchase, video production, equipment deployment, video deployment, and staff training. More details are provided hereafter.

3.1 Equipment Purchase

Pre-Deployment Planning documented the proposed video display system equipment to be purchased. This system consisted of "off the shelf" consumer level products. The equipment was originally scheduled to be purchased and tested in the fall of 2020 with deployment to five locations in the winter of 2021. Due to COVID-19 outbreak levels and the potential effects on researchers, participants, and data collection, the research team and the Technical Panel agreed to delay these dates to spring 2021 (purchase and testing) and early summer 2021 (deployment).

3.1.1 Changes from Prior Recommendations

Given the pace at which technology changes, the presence of COVID-19, and supply chain limitations, there were challenges when it came time to purchase the equipment. In the time between initially identifying suitable equipment for the system (see Pre-Deployment Planning) and making the actual purchases, there were some changes in the specifications of items, pricing and availability. None of the changes were enough to significantly impact the scope of the project or the budget but are detailed below.

3.1.1.1 TVs

The main challenge was the availability and pricing of the TVs. Typically, as new technology becomes available, the price for the preceding technology drops as it becomes the standard and remains readily available. UHD 4K resolution TVs became the standard. Due to high demand and limited or unpredictable availability, the price for both 1080 HD and 4k UHD TVs remained the same or increased. The 40" TVs increased in price by $25. Despite these challenges, there was no significant budget impact or delay in setting up, testing, and installing the systems. In the Pre-Deployment Planning section, a range of TV sizes were described. After discussions with staff at each site and restrictions in availability of products, two different size monitors were purchased, 40" and 50".

3.1.1.2 Media Player

At purchase time, a new media player with the ability to play 4K resolution video was available at a slightly higher price than the originally proposed 1080 HD media player. A sample was purchased and tested. Aside from being able to play video at a higher resolution, the 4K player provided no additional benefit or features beyond what the proposed 1080 player could do. In addition, the 4K player functionality was not as intuitive as the proposed player, the video playback was somewhat unstable and would freeze while playing videos, and the ability to play 4K video was beyond the needs of the project. For these reasons the 4K test model was returned and the proposed 1080 HD media player was purchased.

3.1.2 System Purchase

A variety of retail and professional supply companies were checked for selection, pricing, and availability. Amazon and Costco were chosen as providers for all equipment. The choice primarily came down to price, quality, availability, and convenience. All of the equipment was purchased during the second week of April 2021.

The final system components and costs are shown in Table 14. The total cost for a system with a 40" TV was $442.96 and the total cost for a system with a 50" TV was $456.46.

Table 14: Summary of a Complete System as Purchased

Component	Brand-Model	Retailer	Price
LCD Smart TV	Vizio V-Series 40" 4k UHD LED LCD TV Vizio V-Series 50" 4k UHD LED LCD TV	Amazon	$305.5 $319
Digital Media Player	AGPtEK 1080 HD Digital Media Player	Amazon	$32.99
USB Power Cable	HUACAM USB to 3.5mm Barrel Jack 5V DC Cable	Amazon	3 pack $8.00 $2.7 each
HDMI Cable	Maximm High-Speed HDMI 2.0 4K Braided Cable	Amazon	5 pack $20.00 $4.00 each
Media Storage	SanDisk 8GB Cruzer Blade USB 2.0 Flash Memory Drive	Amazon	5 pack $19.91 $3.9 each
Lockbox	AC Thermostat Lock Box 8.5" x 2.9" x 5.6"	Amazon	$12.99
Wall Mount Bracket	SANUS Simplicity 22" - 55" Full-Motion TV Mount	Costco	$65
Hardware	Nuts to secure lockbox Cable cover	Home Depot	$5.00
Power cord/surge protector	3 Outlet Surge Protector 8' Cord 900 Joules NX54314	Home Depot	$10.88
		Total for one system	**$442.96 (40") $456.46 (50")**

3.1.3 System Set-up and Testing

Each system was fully set up so that there was minimal work needed to complete installation at each location. Optimal settings were chosen across all systems. In particular, the settings ensured that the media player would draw power from the TV even if the TV was not turned on, the video would start playing automatically when the media player had power, and the video would loop continuously. These settings ensured that the system could display the video with a minimal amount of effort from the office staff on site.

One unforeseen issue was a change in the size of the barrel plug power socket for the media player between the time of pilot testing and purchasing the complete set-up. The socket on the player had increased in size from 3.5mm to 5.5mm as shown in Figure 4. This meant that the USB to barrel plug cable that had been ordered and tested previously would not fit. A new power cable with a plug size of 5.5mm was found and purchased from Amazon. The price for the

5.5mm was slightly less than that for the 3.5mm (a five pack for $5.99 or $1.20 each), so the final cost was slightly less.

Figure 4: Different Sizes for the Barrel Power Plug Showing the Old 3.5mm and New 5.5mm

Prior to deployment in the field, the systems were operated for a minimum of one month. The systems were run both continuously for two weeks and on-off during office hours. Testing the system included pulling the power cord to simulate power outage and repeated on-off sequences.

3.2 Video Production

Initially four storyboard options, detailed in Pre-Deployment Planning, were offered to the Technical Panel for review. From the four, two were selected for further development.

3.2.1 Storyboard Format

The storyboards were created in PowerPoint in order to develop a visual representation of what videos, graphics and other still images were used in the final video loops. The order of the content and the timing was also established. Using a storyboard allowed for an easier pre-production decision and review process to be completed before moving to the video editing stage which consumes more time to make content changes and manage the review process.

The storyboard allowed for various production decisions to be made such as:

- Content for title and closing scenes;
- Choice of videos – represented by a single screen capture and a link provided to watch the video;
- Content use for information scenes or infographics;
- Content for trivia questions;
- Timing and sequencing of content; and
- Other topics such as photo credit, video and image captions and logo use could be discussed.

PowerPoint is not a tool specifically designed for creating a video storyboard; however, it was considered effective for this project for the following reasons:

- Universally available in today's professional work environment;
- Easy to use for editing and review purposes;
- Presented an accurate representation of what the screen content would look like at various screen sizes;

- Provided space for production notes and review comments;
- Provided design tools that allowed for basic/conceptual content creation;
- Slides could be exported to use as placeholders when creating the actual video timeline (e.g., information scenes and trivia); and
- The presentation file was easily shared between members of the development and review team as a native file or portable document file.

The use of PowerPoint for pre-production initially worked well. However, to enable the Technical Panel to better understand the overall flow of information, timing of content, and sequencing, the storyboards were moved to the sequenced video production stage. One challenge of this early movement to video production was that video permissions had not yet been obtained. Late in the production process, notification was received that permission to use two videos was not granted. Consequently, the videos could not be used.

3.2.2 Final Storyboard Content

Ultimately, the Technical Panel chose storyboards #1 and #4 for further development and updates.

3.2.2.1 Universal Updates

Some universal changes made to both storyboards included the:

- MDT logo was removed from the slides and added to the credits in the final slide;
- Montana Real ID video was updated to the latest version with Evel Knievel;
- Opening slide was changed from a generic Montana picture to the Montana Vision Zero logo;
- Generic photos were swapped out for infographics or trivia where possible;
- Closing slide was changed to include a thank you to the owners of the materials used in the storyboard;
- Timings were updated on the pictures (5 seconds instead of 10 seconds), infographics (5-10 seconds instead of 25 seconds), and trivia questions (from 5-10 seconds instead of 10-15 seconds); and
- Information was reordered.

3.2.2.2 Storyboard #1 Updates

Changes made to storyboard #1, requested by the Technical Panel, included:

- Removing the "Rumble Strips – Sweet Sound of Safety" video and subsequent trivia question as it was determined that sound would not be used, and it was felt that this video did not have the same impact without the use of sound;
- Replacing the MDT "What is a Roundabout" video with the Federal Highway Administration (FHWA) "Rules of the Roundabout" video;
- Replacing the MDT "Sober Friend" video with the new MDT "Gratitude" video;
- Adding the New York "Don't Crowd the Plow" video;
- Requesting that the "Embrace Life – Always Wear Your Seatbelt" video from storyboard #2 (see Pre-Deployment Planning) be incorporated into this storyboard; and

- Removing the Colorado specific statistics from the "Motorcycle Safety" video as it would not change the flow or message of the video.

In addition to the requests above, the researchers also:

- Obtained the original files for the MDT "Driving Under the Influence (DUI)" infographic and recreated it in a horizontal format to better fit the video specifications;
- Replaced two of the generic photos with a NHTSA "Share the Freedom of the Open Road" infographic from storyboard #2 and a NHTSA "Move Over" infographic;
- Added the Emergency Responder Safety Institute's "Slow Down Move Over" video; and
- Removed items that did not receive copyright permissions (see permissions section below).

The final storyboard #1 can be seen in Appendix F: Final Storyboard #1 and the final video loop created was 7 minutes and 5 seconds long.

3.2.2.3 Storyboard #4 Updates

Changes made to storyboard #4, requested by the Technical Panel, included:

- Adding trivia questions on centerline rumble strips;
- Adding the MDT Flashing Yellow Arrow video and related trivia questions; and
- Adding the Connecticut DOT "Work Zone Safety" video.

In addition to the requests above, the researchers also:

- Replaced generic photos with a NHTSA speeding infographic and the Find Me Driving "SAM I Am" infographic;
- Replaced the pedestrian video with one created by the Pedestrian Bicycle Information Center called "Understanding Crash Scenarios and Safe Behaviors to Help Prevent Them – Driver Passing a Bicyclist";
- Added the MDT "Buckle Up – Enough Reasons" video;
- Replaced the "impaired driving" trivia with "texting and driving" trivia from storyboard #2; and
- Removed items that did not receive copyright permissions (see permission section below).

Donate Life Montana also requested information be incorporated into storyboard #4. While the Technical Panel felt that while this was an extremely important topic, the storyboard was focused on driving safely and these graphics focus on what happens when you do not. From a messaging perspective, the inclusion of this information did not work well. Additionally, the length of the storyboard was intended to be short to limit the complexities of surveying. Therefore, it was decided to not include this information.

The final storyboard #4 can be seen in Appendix G: Final Storyboard #4 and the final video loop created was 5 minutes and 25 seconds long.

3.2.3 Copyright Permissions

This project intended to leverage existing materials; therefore, correct permissions were required to use the information selected for the project. Any materials created by the researchers, MDT or FHWA did not need additional permission, but all videos and infographics from other sources required copyright permissions. MDT did not have a standard permission form that they use, so the research team created a form (see Appendix H: Permission Form) that was reviewed and approved by MDT communications staff. The researchers individually contacted the owners of the materials to obtain permission for use in this project.

In some cases, permissions were not able to be obtained because the correct contact could not be found; the contact did not respond (including after several attempts to make contact); the contact was unable to provide permission due to trademarks; permissions were provided after the deadline; or there was a fee associated with using the materials.

For storyboard #1, the following videos were removed from consideration because permissions could not be obtained:

- "Work Zone Safety is Your Responsibility" by National Asphalt Pavement Association
- "Tips for Safe Winter Driving" by American Automobile Association
- "Embrace Life – Always Wear Your Seatbelt" by Sussex Safer Roads

For storyboard #4, the following videos were removed from consideration because permissions could not be obtained:

- "There's No One Someone Won't Miss" by Transport Accident Commission Victoria
- "Together We Can End Impaired Driving" by Foundation for Advancing Alcohol Responsibility
- "Slow Down, Move Over" by New York State Department of Motor Vehicles
- "Use Caution Around Slow Moving Vehicles" by Iowa DOT

Table 15 shows the details for the permissions obtained in Storyboards # 1 and #4. In addition to permission to use the videos, Colorado DOT provided permission to remove the short clip that showed Colorado specific statistics and Connecticut DOT sent an edited version of the video which removed clips that included their former Governor.

Table 15: Storyboard #1 and #4 Permissions Obtained

Storyboard #	Title	Media Type	Permission From	Date
1	Cycling Safety Is Everyone's Responsibility	Video	Canadian Automobile Association South Central Ontario	6/25/21
1	Look Twice. Save a Life.	Video	Colorado DOT	6/30/21
1	Slow Down Move Over	Video	Emergency Responder Safety Institute	6/23/21
1	Don't Crowd the	Video	New York State	6/22/21

	Plow		DOT	
4	Slow Down for the Curve	Video	Clackamas County	3/23/22
4	Work Zone Safety	Video	Connecticut DOT	4/4/22
4	Understanding Crash Scenarios and Safe Behaviors to Help Prevent Them – Driver Passing a Bicyclist	Video	Pedestrian Bicycle Information Center	3/22/22
4	SAM I AM	Infographic	Find Me Driving	3/25/22
4	Railroad Safety - Rural Signs	Video	Colorado DOT	3/22/22

3.2.4 Final Loop

The technical requirements to produce the videos were not challenging because the video content was already created. The primary task was to combine existing content into one compilation video. As a result, it was feasible to move from the storyboard stage relatively early.

The software used for editing was Camtasia. This choice was driven by two main considerations. First, the software was more readily available if there was any future work needed on the video files beyond the time of this project. Second, the software had a better interface for creating captions for the video and burning them into the final rendering.

One of the more time-consuming parts of video production was the creation of captions that were to be "burned" into the video to ensure that there was no option for them to be turned off. These are known as open captions which are an alternative to closed captions which can be turned on or off at the viewer's discretion. It was considered important to have open captions as part of the video file given that the videos would be rendered without any sound. The process created some review delays while decisions were made as to whether the captions should be left in simple form with no grammatical editing, or to have partial or full grammatical editing.

As an anecdotal observation, it may be quite difficult to read the captions while looking and comprehending the visual information on the screen at the same time. The pace of the PSA style videos can be quite fast. If the content takes effort to watch, it can be difficult to engage with. This was expected to potentially play a role in the retention of information.

3.2.4.1 Changes from Recommendations Made during Pre-Deployment Planning

Initially, motion graphics were planned for text that would be used in the trivia questions and some other scenes generated specifically for the video loop. However, it was determined that the motion would be more distracting than engaging and to add motion would unnecessarily add time to the overall video timeline. As such, the source videos were the only sections that had motion, all other content was left as still images.

Although the original intent for loop creation was not to edit any existing video or graphic content, there were a few situations that caused a shift in this decision. Specifically, these situations included:

- Replacing text to match the tagline in a video;
- Reformatting an existing brochure layout to fit the 16:9 video ratio;
- Reducing the amount of text in a graphic so that it could be read on screen from a distance; and
- Cutting a statistic segment from one video that did not pertain to Montana.

There was consideration of creating a graphic with generic winter driving tips specific for this project, rather than using one from another state. The final decision was that the graphic was not needed.

3.2.4.2 Video Renders

Due to the early transition from storyboard production to video production, more renders than would be typical were created due to ongoing video substitutions, graphic selection, and sequencing. The rendered videos were uploaded to YouTube for review purposes only. The videos were set as unlisted, meaning that only a person with the exact link could view the video. When the review process was complete, the videos were deleted from YouTube.

The final video loop was rendered at HD resolution (1080x720), without audio and copied to the thumb drives. These were then added to each purchased system and set up to run continuously before deployment to validate that the system would work as intended.

3.3 Equipment and Video Deployment

The final five location recommendations for Technical Panel approval included:

- MVDs: Billings, Bozeman, and Kalispell and
- CTOs: Gallatin County in Bozeman and Lewis & Clark County in Helena.

After receiving approval to move forward with installing the system, an email was sent to each of the five locations (in April 2021) to remind staff of the plan to install a video display TV, where within the facility it would be located, and to solicit information to help facilitate the installation of the TV wall mount bracket. In the span of time that had lapsed since previous communications, three of the five locations (Bozeman MVD, Billings MVD and Kalispell MVD) had completed some level of remodeling. Additionally, the Helena site indicated concerns about visibility of the TV in the proposed location and proposed alternate installation locations within the waiting area. The manager for the Gallatin County registration office also aired concerns about the unsettled nature of business operations in the Belgrade satellite office due to customers ignoring and acting out about COVID-19 restrictions and suggested that the main CTO office in Bozeman be used instead. On July 1, 2021, the decision was made to change from the Belgrade satellite office to the CTO office in Bozeman. The final five selected locations are shown in Figure 5.

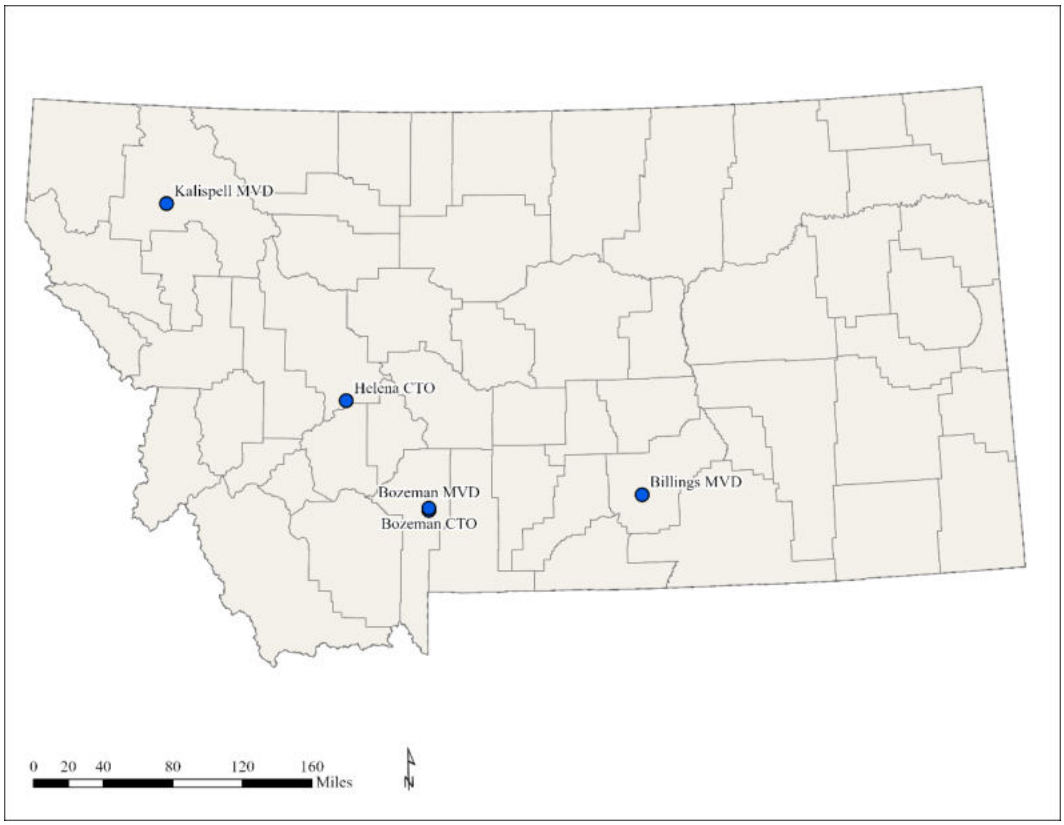


Figure 5: Five locations of video deployment and data collection.

Coordination for equipment installation was different for each location as they all had their own protocols regarding who had the authority to provide approval for the work and who could complete the installation (specifically the wall mount prior to hanging the TV). Guidance on mounting the TV on the wall can be found in Appendix I: Guide TV Wall Mount. Details for each location are provided in the following sections.

3.3.1 Billings MVD

A remodel within the Billings MVD facility took place while the project was on hold for COVID-19. Ultimately, the facility essentially had three waiting areas and two entrances. This resulted in facility staff suggesting a new installation location. The location changed from the right wall shown in Figure 6 to where the TV is shown in Figure 6. The right wall's opening was part of the remodel and provided access to the exam area. This resulted in the location being less of a waiting area and more of an access way.

Figure 6: Video Display System Installed in Billings (MVD)

The bracket was shipped to Billings on May 8, 2021 and was installed by facility maintenance personnel on May 18, 2021. The system installation, including a 40" TV, was completed on July 19, 2021 by the researchers and took fifteen minutes including adding a cover for the cable. During installation, it became apparent that the new location was not ideal for customers to view the TV, especially due to the seating arrangement necessary for social distancing. The impacts of the TV location shown in Figure 6 are discussed further in Evaluation and Support.

3.3.2 Bozeman MVD

While the project was on hold for COVID-19, the layout of this facility was changed. The Bozeman MVD staff indicated that the proposed installation location would not work, and an alternative location was suggested. The researchers visited the location and agreed that the location was suitable under the circumstances. The location was changed from the right wall shown in Figure 7 to the rear wall where the TV is shown.

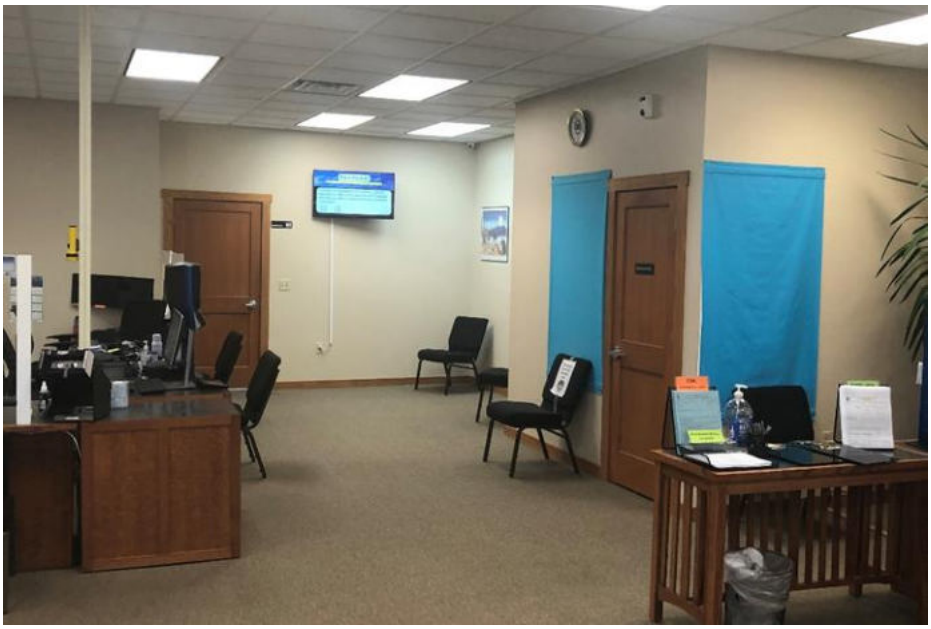


Figure 7: Video Display System Installed in Bozeman (MVD)

The TV bracket was delivered to Bozeman MVD on April 29, 2021. The installation of the bracket was completed by facility maintenance staff and confirmed by the research team on July 8, 2021. The system installation, including a 40" TV, was completed on July 16, 2021 by the researchers and took fifteen minutes including adding a cover for the cable.

3.3.3 Kalispell MVD

A remodel within the facility took place while the project was on hold due to COVID-19. This resulted in a new installation location being suggested by the Kalispell MVD staff. The installation location changed from the right wall shown in Figure 8 to the rear wall where the TV is shown.

Figure 8: Video Display system installed in Kalispell (MVD)

The TV bracket was shipped to Kalispell on May 15, 2021 and installed by office staff on May 21, 2021. The researchers provided information to assist staff with the appropriate height for bracket installation. The system installation, including a 40" TV, was completed on July 21, 2021 by the researchers and took ten minutes. The system was installed behind a reception desk and a clear plastic shield, so it was determined that a cord protector was not necessary.

3.3.4 Bozeman CTO

The change in location, from Belgrade to Bozeman, resulted in a delay in having the TV bracket installed, as the Gallatin County office maintenance staff were understaffed. Once an installation date was identified, the bracket and system were delivered to the location on July 20, 2021. The installation of both the wall bracket and the 50" TV were completed by facility maintenance staff on July 23, 2021 (Figure 9). Once notified of completion, a researcher returned to power up the TV and make sure the video was playing and looping correctly. This location has a web camera found at https://www.ipcamlive.com/6047cf8055452 which was useful to the researchers to periodically check if the videos were playing.

Figure 9: Video Display System Installed in the Waiting Area at Bozeman CTO

3.3.5 Helena CTO

The intended installation location within the facility was determined by the recommendation of staff at the location and the Montana DOJ. However, when communications were restarted regarding installation, concerns were provided, asking "Who do you want to view the TV?" indicating that the clerks at the windows would be able to see the TV more than the customers. The researchers requested alternative suggestions that would provide a better viewing angle. It was consequently decided to install the TV on a wall in proximity to an existing 60" TV, but with a better viewing angle (the left TV in Figure 10). This would mean that the TV was viewable by customers both waiting in line, and those sitting on the waiting bench facing the service counter.

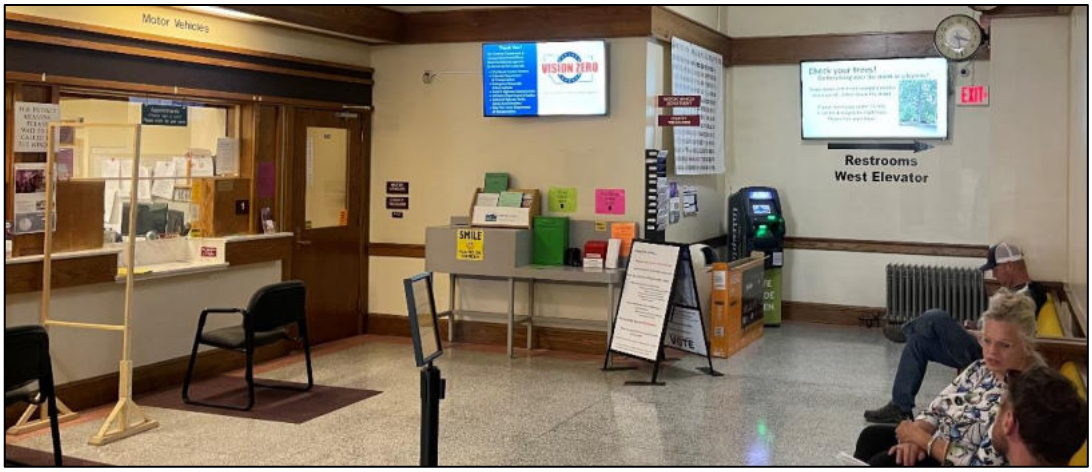


Figure 10: Video Display System Installed in the Waiting Area at Helena CTO

The new installation location was confirmed and approved on May 14, 2021 and the bracket was shipped to Helena on May 20, 2021. Facility maintenance staff requested additional bracket installation information on June 16, 2021 and completed the installation on July 10, 2021. The system, including a 50" TV and cover for the cable, was installed by the researchers on July 17,

2021 and took fifteen minutes. This location also has a web camera found at https://g1.ipcamlive.com/player/player.php?alias=5b633c65a034d&autoplay=1. The camera does not provide a view of the TV. Rather, it is looking in the same direction as the TV.

3.3.6 Video Loop Deployment

The video loop for storyboard #1 was deployed in July 2021 while equipment was being installed by the researchers. This loop ran until it was replaced with the video loop for storyboard #2.

While the original intention was to change the video loops in January 2022, the COVID-19 levels were elevated at this time and there was concern about the implications on customers, staff, researchers, and data collection numbers. Due to this, the Technical Panel approved a delay in the video loop change, and subsequent surveying, until April 2022. It was hoped that spring would coincide with a decrease in the reported COVID-19 cases.

To switch the video loop, the new loop was added onto a thumb drive and mailed to researchers located near the MVD and CTO locations. The researchers simply needed to open the box at the back of the system using the key which MVD and CTO staff had. They then removed the old thumb drive, inserted the new thumb drive, and selected the new video file, using the media player remote to press play. The settings for the playback remained the same (i.e., auto playback and continuous loop).

3.4 Staff Training

Training office personnel on the use of the video display system turned out to be short and simple since most people were familiar with the operation of TVs and remotes.

A reference document was created by the research team to provide the locations with step by step start up instructions and basic trouble shooting (see Appendix J: Guide Video System Operation). Using the reference document as a guide, system components and basic operations were demonstrated to one member of staff at each location and two of the researchers conducting surveys. Several scenarios were demonstrated to simulate power outage, media player disconnection or TV input change.

Based on the simplicity of the system and settings in place to ensure auto play, all staff members indicated that they were comfortable with operating the system after only a few minutes. Contact information was included within the instructions and attached to the system in case support was needed by any of the staff.

A packet was left at each location containing an extra copy of the operation guide, a key to the lockbox and the two remote controls (one for the media player and one for the TV). It was determined by the research team and technical panel that no specific cleaning supplies would be provided. Basic information was provided to occasionally check for dust build up or marks on the screen that would interfere with the viewing of the videos.

3.4.1 System Support and Troubleshooting

Each location adopted their own process as to how to manage their system. Some chose to simply leave the system on at all times, and others chose to only run the system during normal business hours.

While there were no technical problems with the systems, there were two situations where assistance was required.

The Bozeman CTO location had a situation in which the system seemed to be shutting down over night. As this location had a web cam that provided a public online view of the waiting room and TV, the researchers could check and see that the system was not operating. When this occurred, they could contact the location and have the system restarted.

It was never fully determined why the system was shutting down. Possibilities included a staff member or janitorial staff person who turned it off at night or if there was a switch that controlled the wall outlet to which the system was connected. All cables were checked to make sure they had a good connection. At no point was there any problem in restarting the system. Systems could be restarted by using the remote control or the operation buttons on the back of the TV.

The Bozeman MVD contacted the researchers on November 30, 2021 expressing concern that the system had shut down and was not restarting. The researchers planned to visit the location to troubleshoot the issue because they were nearby, but before arriving, it was communicated that the system was back up and running. This was a miscommunication, and through follow-up, it was determined that the TV was not running. A visit to the location on January 4, 2022 fixed the problem quickly by changing the input back to HDMI 1. Note that this occurred between the time periods for surveying.

4 Evaluation and Support

This phase of the project consisted of equipment maintenance, creation of survey instruments, surveying (intercept and follow-up), and analysis of survey data (intercept and follow-up).

The subsequent sections detail the literature reviewed; describe the methodology utilized; present the data and analysis conducted on the intercept surveys and follow-up surveys; and finish by drawing conclusions and recommending future research as a result of the surveys collected.

4.1 Literature Review & Information Gathering

This section highlights relevant aspects of MDT's media plan, MDT's CHSP, literature on traffic safety culture, and literature on learning styles.

4.1.1 MDT's Media Plan

As a part of their efforts to disseminate traffic safety information, MDT purchased media spots on broadcast radio, streaming services, social media, local media, and TV. For FY21, there were an: 1) Alcohol Awareness Media Plan, 2) Holiday Montana Highway Safety Patrol Safety Enforcement Traffic Team (SETT) Selective Traffic Enforcement Program (STEP) Radio Media Plan, 3) September Mobilization NHTSA Plan, 4) 4th of July Impaired Driving, and 5) Labor Day – Impaired Driving Plan. All of the plans focused on men, ages eighteen to thirty-four (twenty-one to thirty-four for the two impaired driving plans), for the dissemination of the information.

4.1.2 MDT's CHSP

MDT's most recent CHSP was completed in 2020 (Montana Department of Transportation (MDT), 2020). The four emphasis areas identified in the plan are: 1) roadway departure and intersection-related crashes, 2) impaired driving, 3) unrestrained vehicle occupant, and 4) emergency response – after-crash care. While only accounting for a small percentage of crashes (10%), impaired driving crashes account for a large portion of fatalities (60%). Just under ninety percent of Montanans were observed wearing seatbelts during a survey in 2019; unrestrained fatalities and serious injuries have declined over a ten-year period. The CHSP highlights that crashes involving older drivers and pedestrians have decreased since 2015. In contrast, younger drivers are "*disproportionately represented in the total crash fatalities and serious injuries*," particularly those between the ages of twenty and twenty-nine. At least one change to policy was highlighted: non-use of child safety seats was changed to a primary offense. The plan highlights "*Vision Zero – a vision of zero fatalities and zero serious injuries on Montana's roadways*." The CHSP described the need to collaborate across agencies in order to reach their goals. The plan discussed a goal of encouraging Montanans to "*make safe driving choices*." The CHSP measured an improvement in traffic safety culture as "*not accepting that loss of life is an expected cost of getting around*." It also highlighted the need to change the nomenclature from "accidents" to "crashes," a relatively subtle but pointed distinction. The CHSP highlighted the public health, economic and social impact of crash occurrence. The CHSP does not try to parse out how traffic safety messages may be geared to specific localized areas within Montana, with the assumption that from a traffic safety culture perspective, Montana is not homogenous. The CHSP described the months of July, August, and September (summer for Montana) as being associated with the greatest number of roadway departure fatalities and serious injuries. Intersection crashes, in contrast, were reported as occurring most frequently during January, February and March (winter months). Defined within the strategies and opportunities for roadway departure and intersection-related crashes, #7 specifically identified as an opportunity: "*Research*

effectiveness of highway safety public education at Montana Motor Vehicle Division and Vehicle Registration Stations by streaming safety videos." Therefore, this project satisfies the identified strategy. The infographic, "*What Will a DUI Cost You?*", incorporated into the video sequences, was highlighted in the CHSP. Finally, Section 6.4 of the CHSP indicated a desire to address the "*risk of deaths and disability of [Emergency Medical Services] EMS professionals and other emergency responders*."

4.1.3 Traffic Safety Culture

Traffic safety culture was defined as a collection of underlying assumptions, beliefs, values, and points of view commonly shared by community members who interact with the community's structures and systems to influence road safety-related behaviors (Sujon & Dai, 2021).

An editorial by Ward and Ozkan discussed traffic safety culture (Ward & Ozkan, 2014). They began by identifying education, engineering, and enforcement as traditional safety strategies. They suggested that while these approaches had been effective, their impact was reduced over time. The article linked behaviors to four cognitions and defined them:

1. "Values – the core ideals to which we aspire (e.g., protecting family)."
2. "Beliefs – the way we think the world works including the consequences of behaviors (e.g., "My drunk driving does not put anyone else at harm other than me") and our control over choosing behaviors (e.g., "The traffic around me determines my speed")."
3. "Perceived norms – the behaviors we think most people do (e.g., "None of my family wear their seatbelts") and condone ("Speeding is encouraged in my group of friends")."
4. "Attitudes – the adjectives we use to describe our preferences for certain behaviors or objects (e.g., good, bad, fun, exciting, useful, effective)."

Coogan et al. (Coogan, Campbell, Adler, & Forward, 2014) investigated the idea that risky drivers are not homogeneous; rather, there are sub-groups of risky drivers. A mix of urban, suburban, and rural geographic representations were included in this cluster. The analysis was based on 990 surveys of residents in three northeastern states (Maine, New Hampshire, Vermont). The findings from Coogan et al.'s research suggested three sub-groups: 1) excitement seeking and optimism bias; 2) societal values denial; and 3) rational justifications. Optimism bias, in the context of traffic safety, denied personal vulnerability. An example of a question from their survey that related to this concept was: "The risk of dying in a traffic crash is so low that you can ignore it." Those in this group were described as the "least rural." The denying of societal values was the lack of altruism. An example of a question related to denying society value was: "Hurting someone else with my car would scar me for life." Those in this group were described as the "most urban." For those that used rational justifications, they believed that "restricting themselves to the speed limit" would be difficult. This group was described as "Determined, Calculated Speeders."

Edwards et al. (Edwards, Freeman, Soole, & Watson, 2014) sought to better understand the differences between traffic safety culture and organizational safety culture, defined components of traffic safety culture, and sought to understand whether traffic safety culture could be changed. While traffic safety culture and organizational safety culture were found to be different applications, Edwards et al. concluded that they were drawn from the same foundational concept. Shared beliefs, attitudes, and values were identified as cultural factors, whereas community structures and systems were defined as contextual factors. Edwards et al. described how efforts in Australia to impact the

traffic safety culture surrounding drinking and driving had been impacted, while speeding traffic safety culture remained unchanged.

Islam et al. (Islam, Thue, & Grekul, 2017) surveyed 1,012 residents in 2014 in the City of Edmonton, Canada and the surrounding suburbs to describe the traffic safety culture of the region. They described an advantage of traffic safety culture as enabling a proactive approach to addressing safety. Proactively addressing safety means one does not have to wait for crash data to become available to develop strategies for improving safety. In particular, Islam et al. wanted to uncover public opinions with respect to distracted driving, impaired driving, and speeding issues. The results suggested that the public does not understand the relationship between enforcement, law, policy, and the mitigation of threatening behaviors (i.e., speeding, driving while distracted, driving under impairment). The findings suggested that females, those who were married (or had common law partners), older individuals, and those living in the City of Edmonton (i.e., city dwellers) perceived more of a threat to personal safety from the three issues of focus (distracted driving, impaired driving and speeding). Those with higher levels of education perceived a lower threat to safety. Household size and the presence of children in the household were found to have indirect effects.

Responding to a significant increase in the number of crashes involving foreigners, Yoh et al. (Yoh, Uchiyama, Hung, & Doi, 2019) used videos to teach foreign visitors about driving in Japan. The videos were created in a style termed: "branded entertainment." Branded entertainment blended advertisement and entertainment. It emphasized a viewer's empathy with the characters in the video. Participants were recruited at a travel fair and asked to view a four-minute video (several lengths were created) and then take a questionnaire. Two important conclusions when considering this study were: 1) the length of the video was important to ensure both attracting and maintaining the viewer's attention, and 2) one's ability to find empathy with those in the video was correlated with a video's appeal. Yoh et al. recommended delaying the follow-up questionnaire to test the longer-term impact for future research.

Silva et al. (Silva, Laiz, & Tabak, 2020) conducted a study that focused on the overconfidence of undergraduate university students in Brazil from a traffic safety perspective. To impact their overconfidence, Silva et al. had participants watch traffic safety videos. They noted that, "*Films induce changes in participants' emotional states, making them respond in different ways depending on the film content and form of exhibition*." The experiment employed four randomly assigned groups that related to the three types of videos: technical, punitive, shocking, and control (did not watch a video). The videos were similar in length. The technical video (from Europe) described what alcohol does to the body. The shocking video (from Australia) had "*tense and life-threatening scenes*." The punitive video (from America) showed consequences and penalties of drinking and driving. All of the videos focused on discouraging driving under the influence. A questionnaire utilizing a Likert scale (i.e., Good, Fair, Poor (Brown, 2010)) was administered immediately after the students had watched the video. It was also given to the control group who did not watch the video. Similar to Yoh et al. (Yoh, Uchiyama, Hung, & Doi, 2019), there was no evaluation of whether the videos had a long-term effect. Silva et al. highlighted the value of using videos because they catch one's attention. Only the shocking and punitive videos were found to be effective, with the shocking video found to be more impactful. The technical video group and control group were found to have similar results, suggesting no impact on changing behavior by the technical video.

When considering gender, Silva et al. reported that punitive videos were found to be effective in influencing the behavior of female students but not of male students.

Sojuon and Dai (Sujon & Dai, 2021) leveraged data from social media (Twitter) to define the traffic safety culture in Washington State. In particular, they wanted to better understand people's beliefs and attitudes towards high-risk behaviors (impaired driving, speeding, distracted driving, unrestrained vehicle occupants, teenage drivers, and older drivers). Four questions were identified as priorities: 1) "*Do we all see traffic safety as an important issue for most people in our communities*?" 2) "*Do we all believe it is possible to prevent fatal and serious injury crashes*?" 3) "*Do we all have the attitude that police enforcement of traffic laws is beneficial*?, and 4) "*What are the public's attitudes towards high-risk behaviors that involve impairment, speeding, distractions, unrestrained vehicle occupants, young drivers, and older drivers*?" Tweets from March 2015 through February 2019 were used. A total of 210,335 data files, each consisting of 10 minutes of data were analyzed. Keywords were identified that prioritized which tweets were purchased for analysis. The following were findings from Sojuon and Dai's work: 1) just over half of Washington residents (55%) recognized the importance of traffic safety in their daily lives, while thirty percent placed little priority and fifteen percent had a neutral viewpoint; 2) the data captured an increase in the importance of traffic safety from March of 2015 to February of 2019 (40% to 60%), although the more recent data suggested a plateauing of this viewpoint; 3) the public generally held neutral and negative attitudes towards the idea of preventing fatal and serious injury crashes; and 5) the public generally held a negative viewpoint regarding police enforcement of traffic laws. Two noted drawbacks include the inability to identify the qualitative geographic location (rural, suburban, urban) of users, and not being able to associate demographic information (age, race, gender, education, income level) with viewpoints, which may allow a traffic safety agency to better target future messaging.

The AAA Foundation for Traffic Safety conducted their thirteenth annual Traffic Safety Culture Index (AAA Foundation for Traffic Safety, 2021) in 2020. Survey responses from 2,800 U.S. motorists, collected between October 23 and November 23, 2020, were used to draw conclusions. In 2020, motor vehicle fatalities increased by seven percent. Driving without seat belts, impaired driving, and speeding were identified as primary contributors. It has been suggested that drivers had not changed their perception of associated danger; rather, there was a significant change in the belief as to whether or not one would be apprehended if they exhibited these behaviors.

Benzaman et al. (Benzaman, Ward, & Schell, 2022) developed regression models for every state within the United States whose error term was assumed to encompass traffic safety culture. The developed model identified physical environment (average annual temperature), social environment (unemployment rate, seatbelt law, cellphone law, number of beds in community hospitals, state population, physicians per 1,000 residents, percentage of votes for Democratic and Republican candidates), system hazards (length of rural classified roads), and behavioral hazards (proportion of inattentive driving crashes, annual average consumption of alcohol in gallons) that all contributed to the predicted crash fatality rate. Overall, the model fit was 13.81%, which is relatively poor. However, the authors suggested that the poor fit is not unexpected as the model represents human behavior. Benzaman et al. suggested that race and ethnicity as a cultural factor may impact traffic safety culture and would be a desirable variable to include; however, there was limited data to work from.

4.1.4 Learning Styles

Jabbour (Jabbour, 2012) discussed findings related to multimedia education. Within the document, graphics were defined as being pictures, drawings, diagrams, charts, animations, videos or simulations. Graphics were further defined as being static (drawings or photos) or dynamic (an animation or video). Texts could either be spoken or printed. The article also discussed the three types of human memories: sensory memory, working memory, and long-term memory. Sensory memory makes use of information obtained through the five senses (sight, hearing, smell, taste, and touch). Working memory can only store seven pieces of information at a time. Without rehearsal of the information, it cannot be transferred into long-term memory. Long-term memory permanently stores the information, which can be accessed at a later time. The cognitive theory of learning suggested two channels: visual and auditory. Both graphics and printed texts must be processed via the visual channel; the auditory channel is not engaged. The cognitive theory suggests that instruction provided via spoken text *and* graphics was more effective. The article also suggested that those who were less familiar with the content benefit more by a combination of information disseminated via the visual and auditory channels, as it helped to minimize the cognitive load.

4.2 Task Methodology

The objective of this research project was to create video sequences that can be displayed on TVs at MVD stations and CTOs to convey traffic safety information to the public who visit these facilities. CTOs were used in cooperation with MVD stations, as in more rural Montana counties, CTOs may also be used as driver license stations.

A single, consistent surveyor was present at the Billings, Helena, and Kalispell facilities. Three different surveyors collected data at the Bozeman locations. Four of the five surveyor administrators were female; one was male. Four of the five survey administrators were professional staff; one was an undergraduate student. It is possible that the gender or age of surveyors impacted whether or not a customer at one of the facilities was willing to participate.

As described in Jabbour (Jabbour, 2012), based on the theory of cognitive learning, because the video sequences did not have sound, the approach was only able to engage the visual channel.

A stated goal of MDT's CHSP (Montana Department of Transportation (MDT), 2020) was to collaborate across agencies; this effort reflected successful collaboration between MDT and the Montana DOJ.

During each video sequence deployment period, researchers conducted on-site intercept surveys. The intercept survey was pilot tested in July 2021 to address any needed changes. The format of the intercept surveys was consistent across the two deployment periods; however, some content (i.e., the screen captures and slogans) was changed to reflect the specific video sequence shown during the deployment period. Patrons eighteen years of age and older leaving a facility during the surveying period were asked to complete an intercept survey. Candy was offered as an incentive to participate.

A total of six blocks of time (three in the morning, three in the afternoon) across a variety of days throughout each data collection period were targeted for each location. Two data collection periods were completed for each video sequence. Therefore, a total of twenty-four blocks of time to collect surveys were set as the goal for each location. Montana DOJ staff noted that the offices can be busier towards the end of the month when people try to get in before their documents expire.

Consequently, the researchers tried to collect some of the data towards the end of the month, although this presented a potential bias.

Approximately two weeks after completing an intercept survey, any respondents who indicated they had both seen the TV and agreed to be contacted for a follow-up survey were either emailed or mailed a follow-up survey. The follow-up survey was tailored to the month in which, and the location where, a survey respondent completed an intercept survey. The time was taken to personalize the participation request in this manner, as the researchers have found such an approach to encourage a response. Those willing to participate in a follow-up survey online were sent an individual email from the researcher with a link tailored to their email address. Those willing to participate in a follow-up survey via mail were sent a hard copy survey along with a self-addressed, stamped envelope. In addition to the original invite, survey respondents (both online and via mail) were sent a reminder (one week later for online respondents and two weeks later for mail respondents). The researchers were able to link intercept and follow-up survey responses. All surveys were submitted to and received approval through Montana State University's Internal Review Board Protocol, #NV-W070221-EX.

4.2.1 COVID-19 Impacts

The intercept survey data collection was delayed twice due to surges in the number of COVID-19 infections. To address health and safety concerns associated with COVID-19, disinfectant wipes were used to clean pens and clipboards after each use, masks were worn by surveyors per local directives, and hand sanitizer was provided. In some cases, COVID-19 surges may have impacted a potential participant's interest in taking a survey. Some locations had reduced seating or rearranged waiting areas to accommodate social distancing or implemented "wait in your vehicle" policies during longer wait times. This reduced participants' potential video viewing time. Additional impacts because of COVID-19 are throughout hereafter.

4.2.2 Pilot Surveying

There were concerns regarding whether or not the anticipated numbers of customers at MVD/CTOs may be less (when compared with data from 2019), both with COVID-19 and many MVD offices and CTOs requiring appointments. Therefore, to better understand the number of potential surveys that could be collected, a pilot of the survey was conducted in July of 2021 at the Bozeman MVD and Helena CTO. In addition, this pilot also allowed for further refinement of the intercept survey instrument. For a half day of data collection at both the Bozeman MVD and Helena CTO, respectively, six and sixteen intercept surveys were collected. This was a significant reduction in the expected number of collected surveys for Bozeman MVD from the pre-COVID-19 pandemic estimates of thirty intercept surveys.

The ongoing COVID-19 pandemic and the survey pilot resulted in several changes to the survey data collection approach that was originally proposed. Data collection was reduced to four-hour days to reduce survey administrator fatigue. To accommodate this change, the survey collection period changed from two, eight-hour days at each location per data collection period to six, four-hour days. This change resulted in an increase in the number of total hours per location during each data collection period from sixteen hours to twenty-four hours. In addition to reducing survey fatigue, this change allowed for more data collection time to accommodate potentially low response rates (as seen in the pilot testing). In addition, research team members were identified in closer

proximity to the survey locations. This reduced the need for long-distance travel during a time when COVID-19 travel restrictions were continually changing. It also allowed for data to be collected at the Kalispell MVD, which was originally not considered as a location as discussed in preceding sections.

4.3 Intercept Surveys

This section details the intercept surveys collected and findings from the analysis of this data.

4.3.1 First Video Sequence

The first video sequence was shown from July 2021 to April 2022. Topics covered included encouraging Montanans to buckle up; bicycle safety; motorcycle safety; emergency responder safety; roundabout safety and how to properly drive through a roundabout; Real ID; obtaining a sober driver; the costs of driving under the influence; and operating safely around snowplows. The video topics reflected the following initiatives identified in the CHSP: sober transportation, practicing safe driving behaviors, and buckling up. Appendix K: Intercept Surveys provides more details about the various videos, infographics, transition images, and trivia that constituted the first video sequence. It also shows the days, times, and survey locations for the first and second data collection periods (August/September 2021 and October/November 2021) for the first video sequence and the capture rate (i.e., the percentage of people that were asked to take the intercept survey that accepted). Figure 11 presents the intercept survey developed for the first video sequence.

MONTANA STATE UNIVERSITY VISION ZERO

Date: _____

The Western Transportation Institute at Montana State University (MSU) is working with the Montana Department of Transportation to improve safety for Montanans. Participation is voluntary. You may skip any question you want, and you may stop at any time. We anticipate that the survey will take about 5 minutes to complete. Please direct any questions about the survey to Natalie Villwock-Witte: n.villwockwitte@montana.edu or 505-414-8935.

What is your 5- digit **zip code**? _____

What is your **age**? _____

What is your **gender**? ☐ Male ☐ Female ☐ Non-Binary

Did you look at the **TV monitor** during your visit? ☐ Yes ☐ No

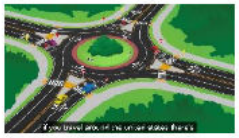
If you did **not** watch the TV monitor during your visit, how did you spend your wait time?

☐ Filling out forms ☐ On a phone/smartphone ☐ Other (please specify): _____

Which of the following best describes the amount of **time** you spent at the **Motor Vehicle Division (MVD)/County Treasurers' Office**?

☐ Less than 15 min. ☐ 15 to 30 min. ☐ 31 to 45 min. ☐ 46 to 60 min. ☐ More than 60 min

Please **circle all** of the following that you **saw today** viewing the videos in the **MVD/County Treasurers' Office**?



Please share anything particularly **memorable** that you may recall from the **videos** in the **MVD/Treasurers' Office**.

_____

Which of the following slogans or phrases (check **all** that apply) did you **learn** from **viewing the videos** in the **MVD/Treasurers' Office**?

☐ Slow down and move over. ☐ What's your one reason? ☐ Slow down, look around, be ready to yield.
☐ Never Drink and Drive ☐ Don't Crowd the Plow

Including yourself, how many **adults** _____ and **children (under 18)** _____ live in your household?

Would you be willing to complete a **short follow-up** survey in two weeks? ☐ Yes ☐ No

The information that you provide will be solely used for research purposes. Personal information about respondents will remain strictly confidential and will not be sold or shared per MSU's IRB.

If yes, please either provide us with your email address (survey **will** be sent via email) or mailing address:

Email Address: _____

or

Mailing Address

Name: _____

Address: _____

City, State, Zip: _____

Figure 11: First video sequence intercept survey instrument.

The intercept surveys were kept to a page to reduce the burden to survey respondents (Dillman, Smyth, & Christian, 2014).

4.3.2 Second Video Sequence

The second video sequence was shown from April 2022 to August 2022. Topics included buckling one's seat belt, rumble strips, railroad crossing safety, slow vehicles, reducing speed when entering a horizontal curve, the impacts of texting on situational awareness, the flashing yellow arrow treatment at traffic signals, Real ID, and speeding. The video topics reflected the following initiatives identified in the CHSP: practicing safe driving behaviors and buckling up.

Appendix K: Intercept Surveys provides more details about the various videos, infographics, transition images, and trivia that constituted the second video sequence. It also shows the days, times, and survey location for the first and second data collection periods (April/May 2022 and June/July 2022) for the second video sequence and the capture rate (i.e., the percentage of people that were asked to take the intercept survey that accepted). Figure 12 presents the intercept survey developed for the second video sequence. Notice the consistency in format of the intercept surveys used for both video sequences, with only the screen captures and slogans changing.

MONTANA STATE UNIVERSITY VISION ZERO

Date: _____

The Western Transportation Institute at Montana State University (MSU) is working with the Montana Department of Transportation to improve safety for Montanans. Participation is voluntary. You may skip any question you want, and you may stop at any time. We anticipate that the survey will take about 5 minutes to complete. Please direct any questions about the survey to Natalie Villwock-Witte: n.villwockwitte@montana.edu or 505-414-8935.

What is your 5- digit **zip code**? _____

What is your **age**? _____

What is your **gender**? ☐ Male ☐ Female ☐ Non-Binary

Did you look at the **TV monitor** during your visit? ☐ Yes ☐ No

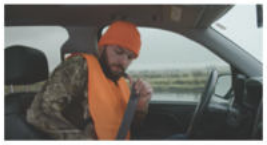
If you did **not** watch the TV monitor during your visit, how did you spend your wait time?

☐ Filling out forms ☐ On a phone/smartphone ☐ Other (please specify): _____

Which of the following best describes the amount of **time** you spent at the **Motor Vehicle Division (MVD)/County Treasurers' Office**?

☐ Less than 15 min. ☐ 15 to 30 min. ☐ 31 to 45 min. ☐ 46 to 60 min. ☐ More than 60 min

Please **circle all** of the following that you **saw today** viewing the videos in the **MVD/County Treasurers' Office**?




Please share anything particularly **memorable** that you may recall from the **videos** in the **MVD/Treasurers' Office**.

_____

Which of the following slogans or phrases (check all that apply) did you **learn** from **viewing the videos** in the **MVD/Treasurers' Office**?

☐ Check for trains ☐ The right seat ☐ Stop speeding before it stops you

☐ SAM I AM ☐ Slow down for the curve

Including yourself, how many **adults** _____ and **children (under 18)** _____ live in your household?

Would you be willing to complete a **short follow-up** survey in two weeks? ☐ Yes ☐ No

The information that you provide will be solely used for research purposes. Personal information about respondents will remain strictly confidential and will not be sold or shared per MSU's IRB.

If yes, please either provide us with your email address (survey will be sent via email) or mailing address:

Email Address: _____

or

Mailing Address

Name: _____

Address: _____

City, State, Zip: _____

Figure 12: Second video sequence intercept survey instrument.

4.3.3 Intercept Survey Data

This section discusses the intercept survey data collected. First, a summary of the total number of surveys collected by video sequence, by data collection period, and by location are identified. Next, the number of survey respondents who reported seeing the video sequences on the TVs are identified; if they did not see the video sequences, a summary of what they reported doing during their wait time is discussed. Then after, zip codes reported by intercept survey respondents will be analyzed. Finally, demographics, including age, gender, and number of adults and children reported in households will be described.

4.3.3.1 Number of Collected Surveys

Table 16 summarizes the number of intercept survey data collected during both video sequences.

Table 16: Intercept surveys collected by location and video sequence.

	Data Collection Period	**Billings MVD**	**Bozeman MVD**	**Bozeman CTO**	**Helena CTO**	**Kalispell MVD**	**TOTAL**
First Video Sequence	Aug/Sept 2021	93	113	126	57	92	481
	Oct/Nov 2021	76	146	80	54	100	456
	Subtotal	169	259	206	111	192	937
Second Video Sequence	April/May 2022	72	79	63	61	93	368
	June/July 2022	62	64	68	74	59	327
	Subtotal	134	143	131	135	152	695
TOTAL		303	402	337	246	344	1,632

Overall, the second video sequence resulted in the fewest number of intercept surveys collected, with the June/July 2022 data capture having the lowest. The biggest change was seen for the Kalispell MVD. Three explanations have been suggested that may explain the lower intercept survey counts during the second video sequence: flooding, seasonal differences, and normalizing post-COVID-19. The area experienced significant flooding within this time frame, including road closures in some areas, which may have impacted a potential customer's interest in accessing the services at the facility or even their ability to physically get to the facility. In addition, the lower intercept survey data collected could also represent seasonal differences in people accessing the facilities. The reduction in the number of intercept surveys collected could also reflect those needing

to access the services at the facilities post-COVID-19 in 2021, where the facilities had reduced hours and were closed previously, with more normal numbers occurring in 2022.

4.3.3.2 Reported Conspicuity of TV Monitor

For both video sequences, the same question, "Did you look at the TV monitor during your visit?" was asked. A total of 238 intercept survey respondents (25.4%) reported seeing the TV during the first video sequence with an increase both by numbers and percent for the second video sequence: 280 intercept survey respondents (40.3%) (Table 17).

Table 17: Reported conspicuity of television monitor by location, video sequence, and data collection period.

	Data Collection Period	**Billings MVD**	**Bozeman MVD**	**Bozeman CTO**	**Helena CTO**	**Kalispell MVD**	**TOTAL**
First Video Sequence	Aug/Sept 2021	7 (7.5%)	23 (18.3%)	38 (30.2%)	21 (36.8%)	21 (22.8%)	110 (22.9%)
	Oct/Nov 2021	9 (11.8%)	42 (28.8%)	29 (36.3%)	19 (35.2%)	29 (29.0%)	128 (28.1%)
	Subtotal	16 (9.5%)	65 (25.1%)	67 (32.5%)	40 (36.0%)	50 (26.0%)	238 (25.4%)
Second Video Sequence	April/May 2022	49 (34.3%)	16 (11.2%)	29 (20.3%)	27 (18.9%)	22 (15.4%)	143 (38.9%)
	June/July 2022	44 (32.1%)	14 (10.2%)	37 (27.0%)	28 (20.4%)	14 (10.2%)	137 (41.9%)
	Subtotal	93 (33.2%)	30 (10.7%)	66 (23.6%)	55 (19.6%)	36 (12.9%)	280 (40.3%)
TOTAL		109 (21.0%)	95 (18.3%)	133 (25.7%)	95 (18.3%)	86 (16.6%)	518 (31.7%)

Overall, it was estimated that many more customers would see the TVs, as suggested by Silva et al. (Silva, Laiz, & Tabak, 2020) because videos tend to capture one's attention. The lack of visibility was particularly acute for the Billings MVD location during the first video sequence. During the August/September 2021 data collection, the researchers observed that the data suggested many survey respondents did not view the TV. As a result of the modification to the waiting area and seating area in response to COVID-19, the location for the TV was no longer conspicuous for many customers. Chairs were rearranged to facilitate social distancing, and plastic partitions were installed between desks. In addition, while survey collections were delayed due to COVID-19, one location was remodeled which altered the planned location of the TV. The researchers brainstormed opportunities to bring visibility to the TVs that would not require assistance from on-site staff. One idea was to add links to the videos on the website where appointments were made. A suggestion that

was enacted was to hang posters with a QR code that would direct users to the location of the video online (Figure 13).

Figure 13: Poster with QR code.

One benefit of the posters was that several could be hung within the facilities at a relatively low cost or at other relevant locations without having to purchase equipment (i.e., the TV). In addition, the video accessed using this method included audio; therefore, as discussed by Jabbour (Jabbour, 2012), one's auditory channel was engaged. A drawback of the posters was that a user had to take the extra step of scanning the QR code, which potentially limited the effectiveness. The location and visibility of the poster influenced the number of times a poster was scanned. For example, the poster located in the entrance lobby at the Bozeman MVD was highly visible. Yet, this location was found to be ineffective based on the limited number of scans (Table 18). The researchers concluded that it was not convenient for a patron to stop and scan the poster.

Table 18: Posters: Hang Date and Number of Times Accessed.

Posters	Billings MVD	Bozeman MVD	Bozeman CTO	Kalispell MVD	Helena CTO	Total
Date poster was hung	October 29, 2021	October 22, 2021	November 28, 2021	November 24, 2021*	November 3, 2021	-
Scans, October 22, 2021 through April 9, 2022	47	3	17	9	31	107
Scans, April 10, 2022 through September 10, 2022	23	2	11	31	38	105
Total number of times QR code was scanned	70	5	28	40	69	212

*The poster was delivered on October 26, 2021; however, the first scan was not until November 24, 2021. Therefore, it was unclear when the poster was hung.

Between October 22, 2021 and April 9, 2022, (approximately 114 business days), the QR code for the first video sequence was scanned 107 times, on average 0.94 times/day. Once the code was scanned, however, the online video was only actually viewed 12 times (not necessarily in its entirety). Between April 10, 2022 and September 9, 2022, (approximately 108 business days), the QR code for the second video sequence was scanned 105 times, on average 0.97 times/day. During that time, the online video was viewed 59 times. Table 19 provides an overview of the QR code scans and video views per sequence.

Table 19: Comparison of QR Code Scans and Video Views per Sequence.

	QR Code for 1st Video Sequence	QR Code for 2nd Video Sequence
Poster Displayed	October 22, 2021 - April 9, 2022	April 10, 2022 to September 9, 2022
Days Available for Scanning (no weekends/holidays)	114	108
Total Scans Per Sequence	107	105
Average QR Scans Per Day	0.94	0.97
Total Video Views	12	59

The significant increase in video viewing for the second sequence was likely due to the removal of a landing page that required an additional click by the user for the video to play after the QR code was scanned. The process was adjusted by removing the landing page so that the video played as soon as the QR code was scanned. The average view time across both video sequences was one minute and twenty seconds. This averages out to only approximately 21% of the video viewed once accessed. Based on the limited number of times the posters were used to access the video, the researchers concluded that the posters with QR codes were not an effective tool to bring conspicuity to the traffic safety messages conveyed through the video sequences.

After noting that the posters were not as effective as hoped, the Montana DOJ coordinated with the researchers in an effort to find a better location for the TVs. The following sections discuss challenges of TV placement at each location.

Billings MVD

One of the most notable changes made was at the Billings MVD location, where the TV was relocated (Figure 14).

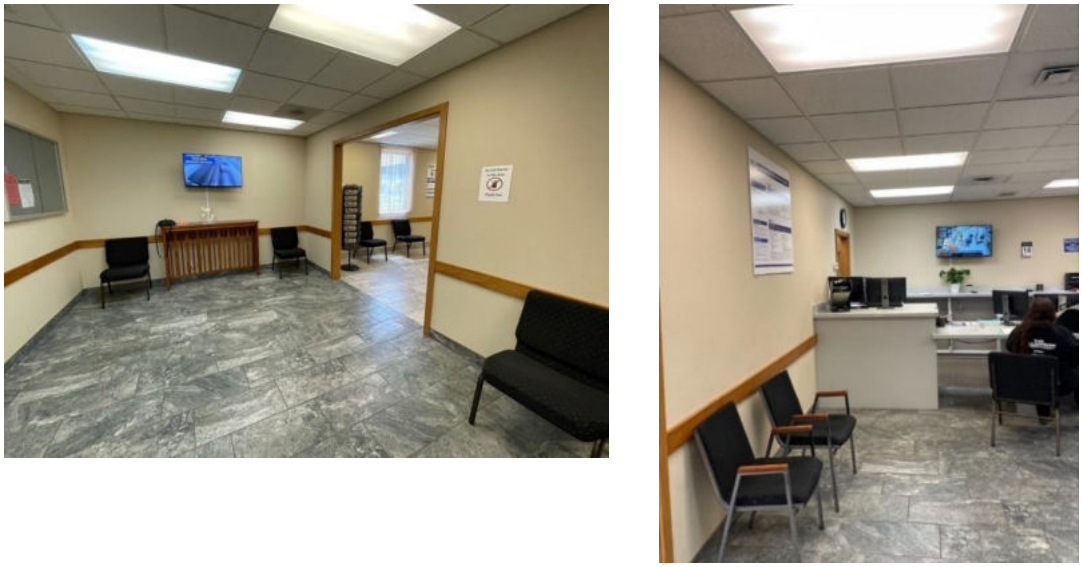


Figure 14: Location of TV within Billings MVD during the first (left) and second (right) video sequence.

During the first video sequence, the TV was located *behind* where patrons may be seated. Prior to deploying the second video sequence, the TV was re-located behind the staffing desk. Thus, the customer was facing the TV while data was being entered by staff (Figure 14 and Figure 15).

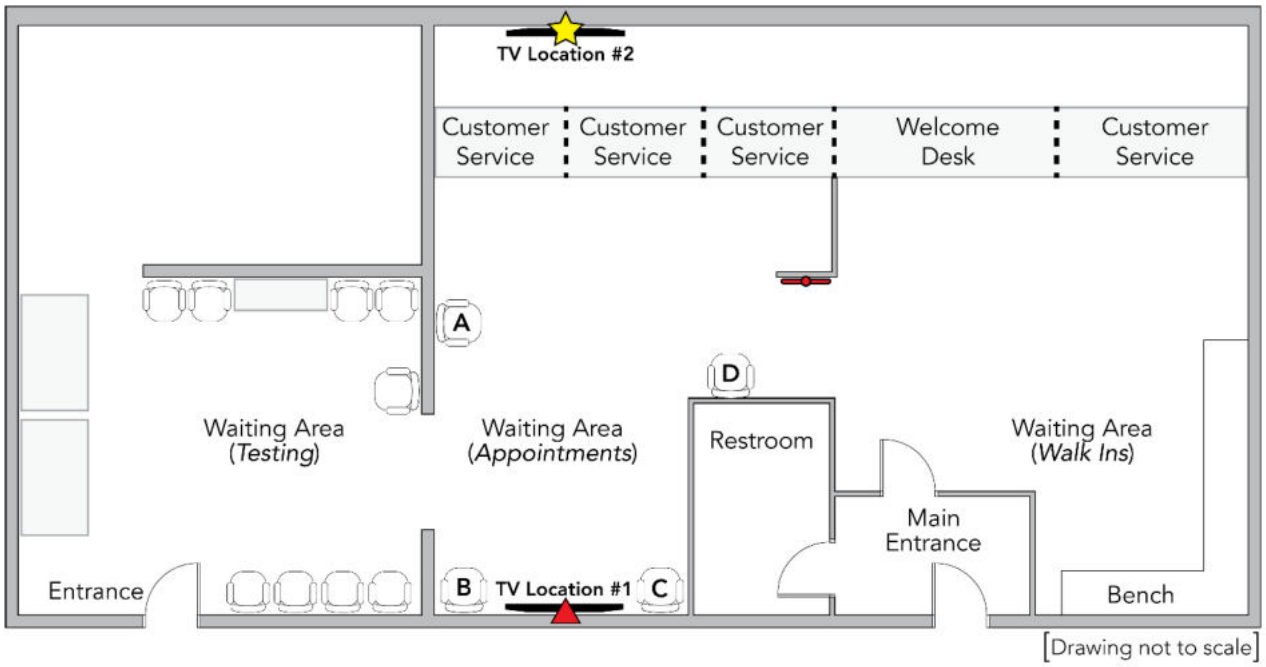


Figure 15: Plan view of Billings MVD, with first and second TV location.

Bozeman MVD

The TV at the Bozeman MVD location had a few chairs in proximity to it, but some seats next to the entry doors could not view the TV (Figure 16). In addition, the distance from the TV to the main waiting area made reading the slogans and trivia slides difficult. It also made reading the sub-text of the video sequences difficult. With no audio provided, the ability to convey the information from the videos to customers was limited.

Figure 16: Location of TV within Bozeman MVD.

The following layout shows the TV location in relationship to the seating (Figure 17). Note that although there were two doors built into the entrance, the left one was locked and blocked from both sides so that it cannot be used. Consequently, most patrons entered and sat in the chairs just to the right of the entrance. Therefore, the TV was not always viewed by many customers.

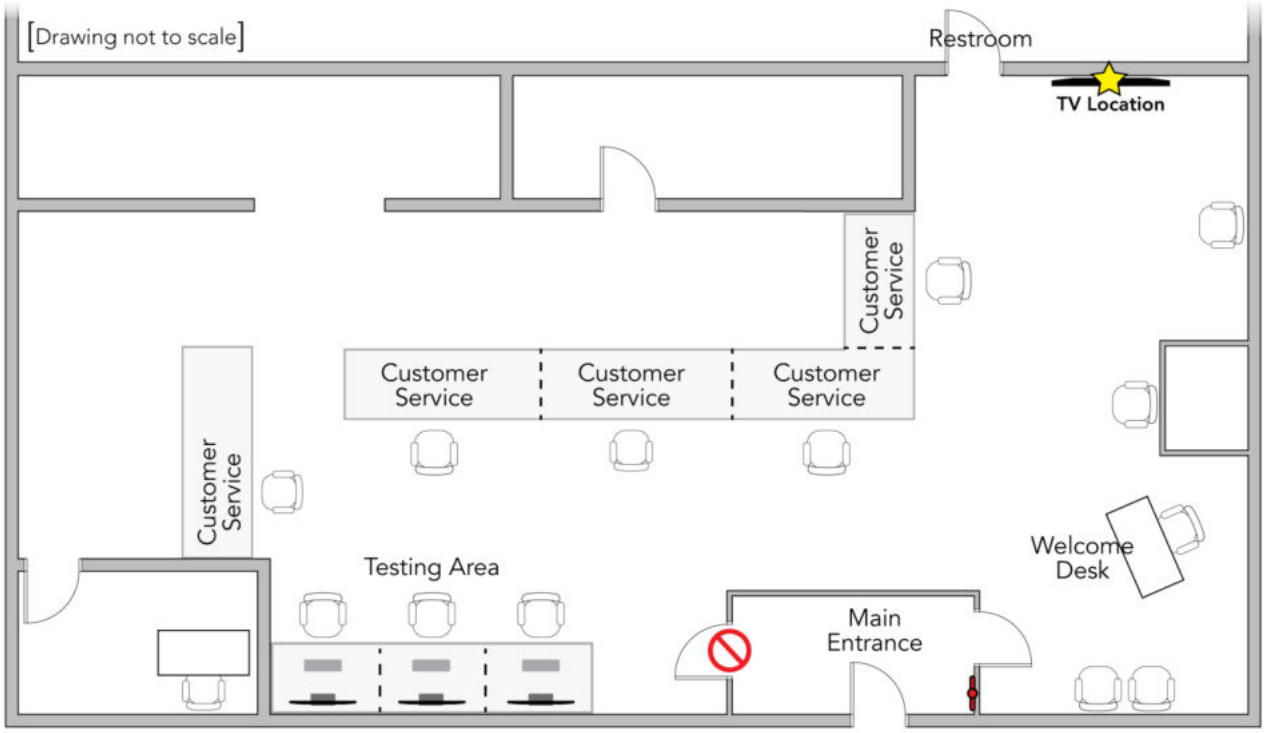


Figure 17: Plan view of Bozeman MVD showing TV and poster location.

Bozeman CTO

The Bozeman CTO TV was reported by about a third of patrons as being visible. The location of the TV in relationship to the seating was viewable by the majority of the waiting room chairs (Figure 18 and Figure 19).

Figure 18: Location of TV within the Bozeman CTO.

However, a challenge with this location was that patrons could track their place in line via the website. Thus, they did not necessarily have to wait in the seating area.

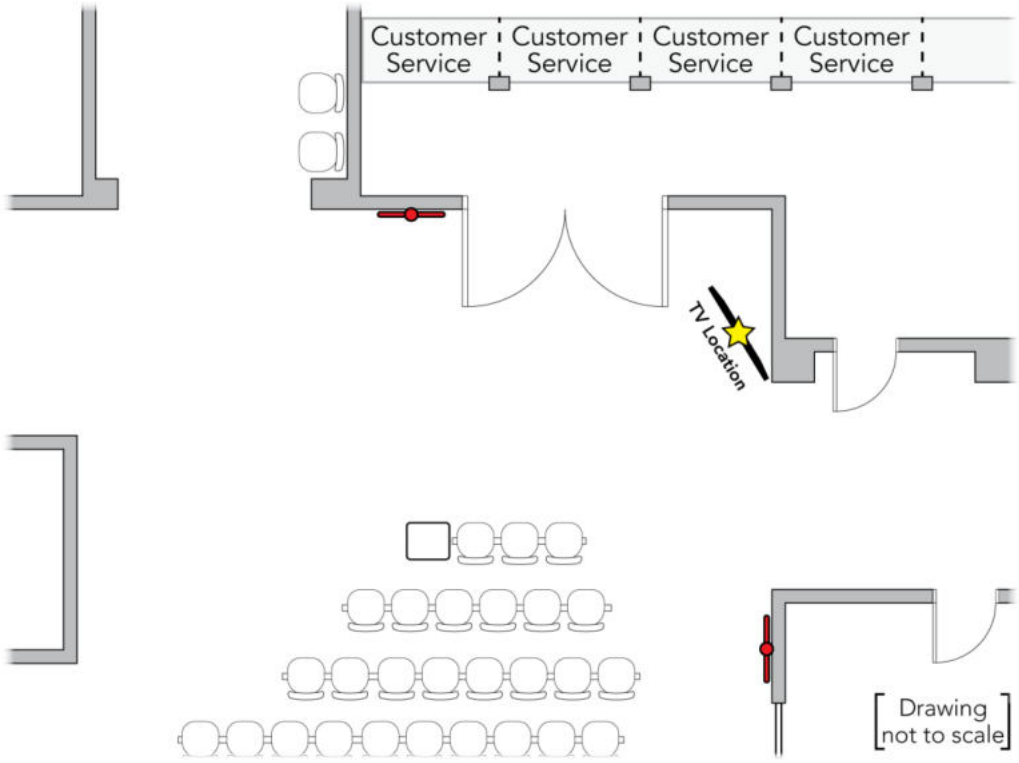


Figure 19: Plan view of Bozeman CTO showing TV and poster locations.

Helena CTO

For the Helena CTO location, the placement of the TV was not necessarily the challenge. Rather, the challenge was that the content of the TV for the research project (left TV in Figure 20 and Figure 21) was competing with the content provided by the City of Helena's TV (right TV in Figure 20 and Figure 21).

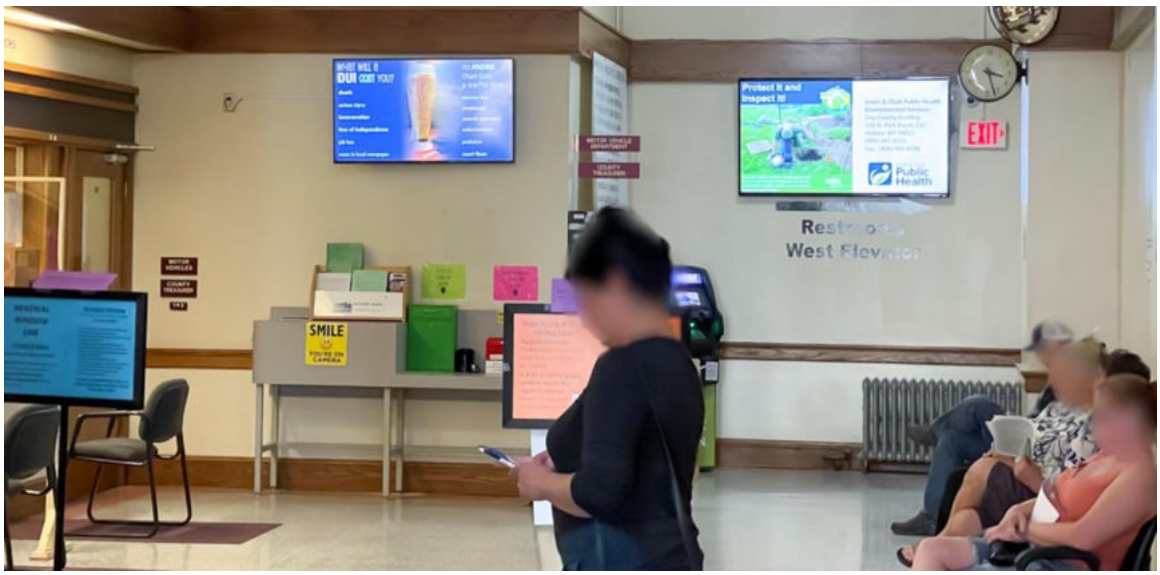


Figure 20: TVs with competing information at the Helena CTO.

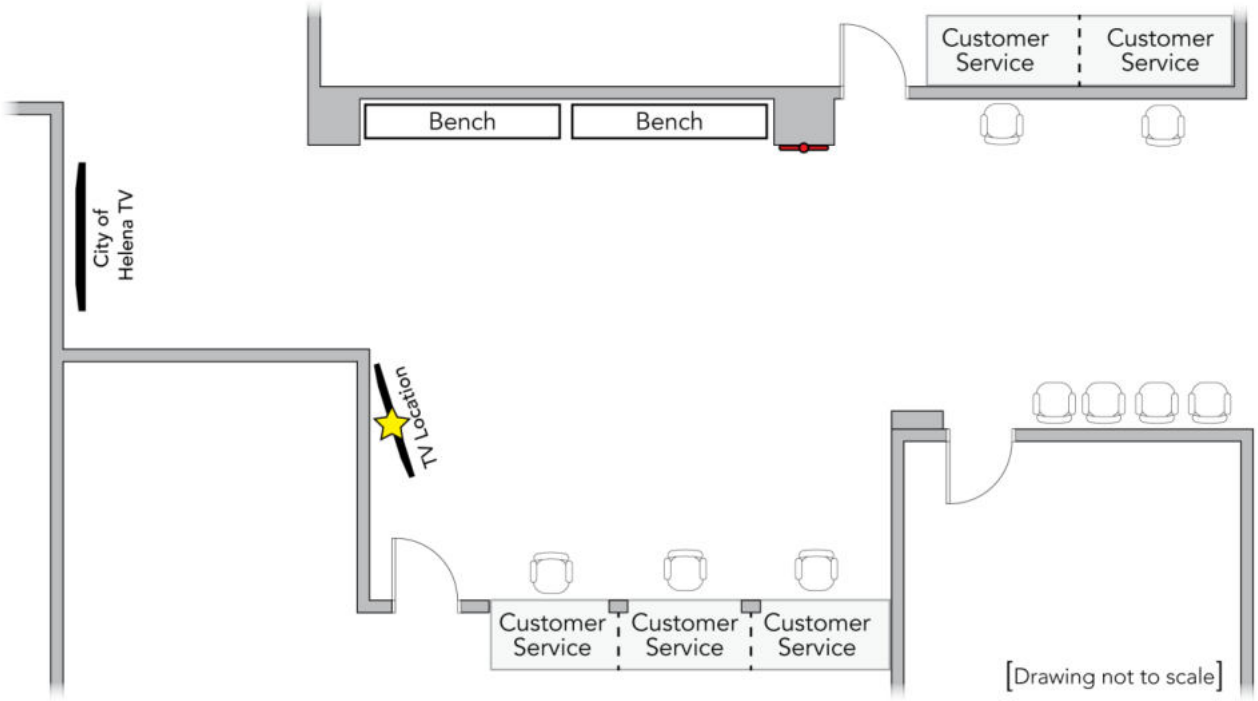


Figure 21: Plan view of Helena CTO showing the locations of the TVs and poster.

A request had been made to display the content for the project on both TVs when surveyors were on-site. Unfortunately, the researchers were unable to identify the appropriate manager; therefore, the two monitors displayed different content.

Kalispell MVD

For the Kalispell MVD, two of the four waiting room seats were unable to see the TV because the TV was set relatively far back behind the welcome desk (see bottom hatching in Figure 22). In addition, another divider further impeded individuals sitting in additional seats from viewing the TV. The researchers had proposed relocating the TV along the wall where patrons entered. Unfortunately, due to the lack of an electrical outlet on the proposed wall, the TV was not moved.

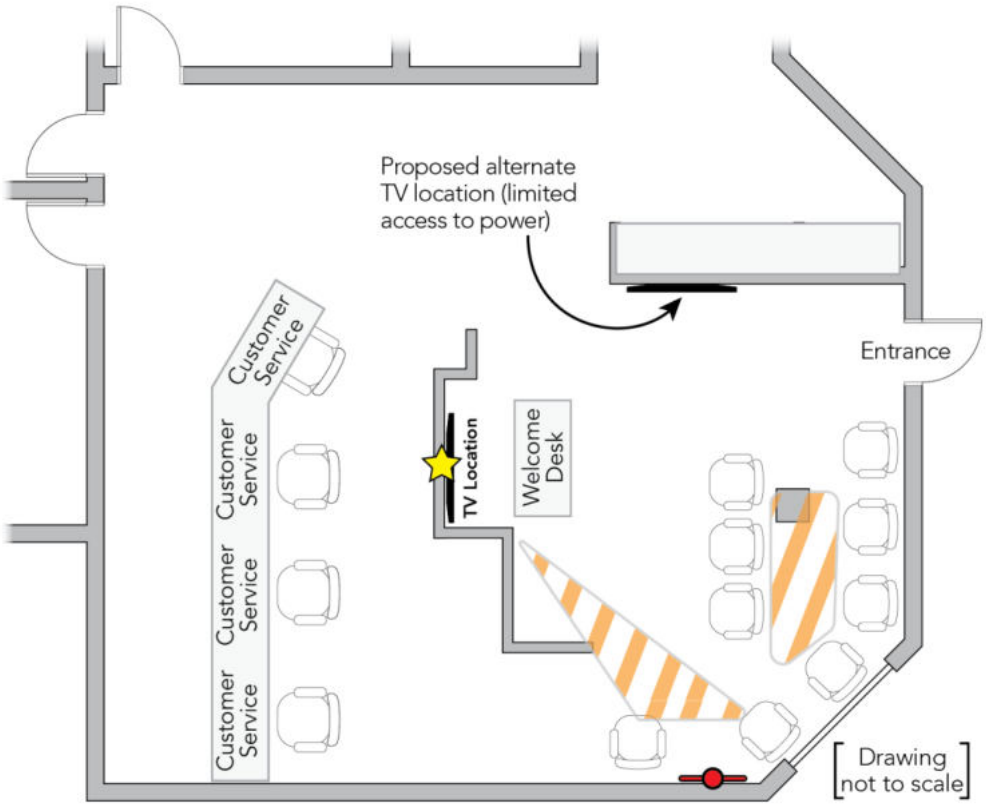


Figure 22: Plan view of Kalispell MVD showing the locations of the TV, proposed TV, and poster.

Summary

Results from this data suggest that the location of the TV significantly influenced whether or not the content was viewed. However, as experienced during this project, there was a need to continually review the location of the TV, as there may be changes to the facility and locations of the chairs over time. Office remodels, chair re-arrangements, power limitations, no requirement to wait onsite, lack of audio, and walls or other visual obstructions were all challenges of ensuring that the TV was seen and the content viewed.

4.3.3.3 How did intercept survey respondents spend their time if they did not see the TVs?

To better understand why intercept survey respondents may not be watching the videos on the TVs, intercept survey respondents were asked how they passed their time. Respondents were provided with three options: filling out forms, using one's phone, and other.

For the first video sequence, during the August/September 2021 data collection period, the majority of intercept survey respondents (146 or 30.4%) reported filling out forms, followed by making use of their smartphone (133 or 27.7%). Ninety-one intercept survey respondents reported other. Activities ranged from people watching, to talking with staff, to reading a book, to thinking and waiting. A similar pattern was observed during the October/November 2021 data collection period where the majority of intercept survey respondents reported filling out forms (150 or 33%), followed by making use of their smartphone (110 or 24%). Eighty-three survey respondents reported

other. Reported activities included reading, waiting, people watching, reading a manual, sitting still, and looking around.

For the second video sequence, during the April/May 2022 data collection period, the majority of intercept survey respondents (101 or 27%) reported filling out forms, followed by making use of their smartphone (81 or 22%). Fifty-six reported other. People reported talking to their spouse, visiting with their daughter, standing, sitting, reading (a magazine), watching people, and visiting as other ways that they occupied their time. The June/July 2022 data collection period was different than the other three data collection periods in that the majority of survey respondents reported making use of their smartphones (98 or 30%) as compared with the next most popular response which was filling out forms (88 or 27%). Forty-seven survey respondents reported other. People reported watching people, talking (with wife), visiting, walking their dog, reading, eavesdropping, daydreaming, watching their baby, working on their computer.

Overall, the majority of feedback given by those waiting was similar.

During busy periods, the Billings MVD would ask patrons to wait in their vehicle (if available) until they were called into the building by the receptionist (if they were waiting for a walk-in appointment) or until closer to their appointment time (if they had a pre-scheduled appointment) in order to reduce the number of people waiting in the building. Both Bozeman locations allowed patrons to wait outside or in their vehicles.

4.3.3.4 Location of Residence as Identified by Zip Codes

Intercept survey respondents were asked to provide their zip codes to better understand the origins of customers of each facility which helps to explain how far the information was disseminated.

Figure 23 through Figure 25 show the zip codes provided by survey respondents during the first data collection period (August/September 2021), the second data collection period (October/November 2021), and for all intercept surveys collected during the first video sequence, respectively. (Note: Not all survey respondents provided their zip codes.) Maps showing the counts by data collected, by data collection period, and by location for the first video sequence can be found in Appendix K: Intercept Surveys.

Figure 26 through Figure 28 show the zip codes provided by survey respondents during the first data collection period (April/May 2022), the second data collection period (June/July 2022), and for all intercept surveys collected during the second video sequence, respectively. (Note: Not all survey respondents provided their zip codes.) Maps showing the counts by data collected, by data collection period, and by location for the second video sequence can be found in Appendix K: Intercept Surveys.

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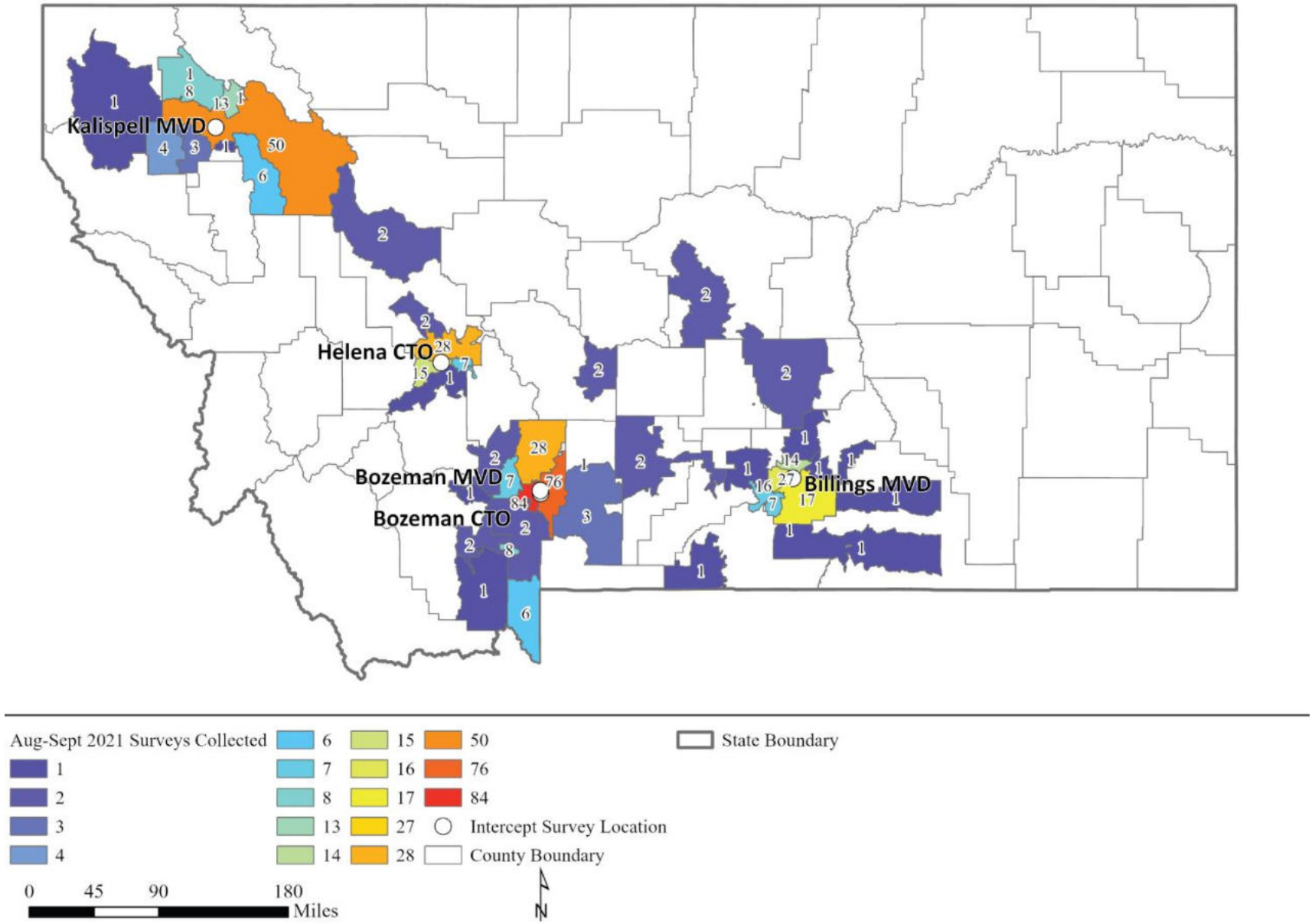


Figure 23: Zip codes of intercept surveys, first data collection period (August/September 2021), first video sequence.

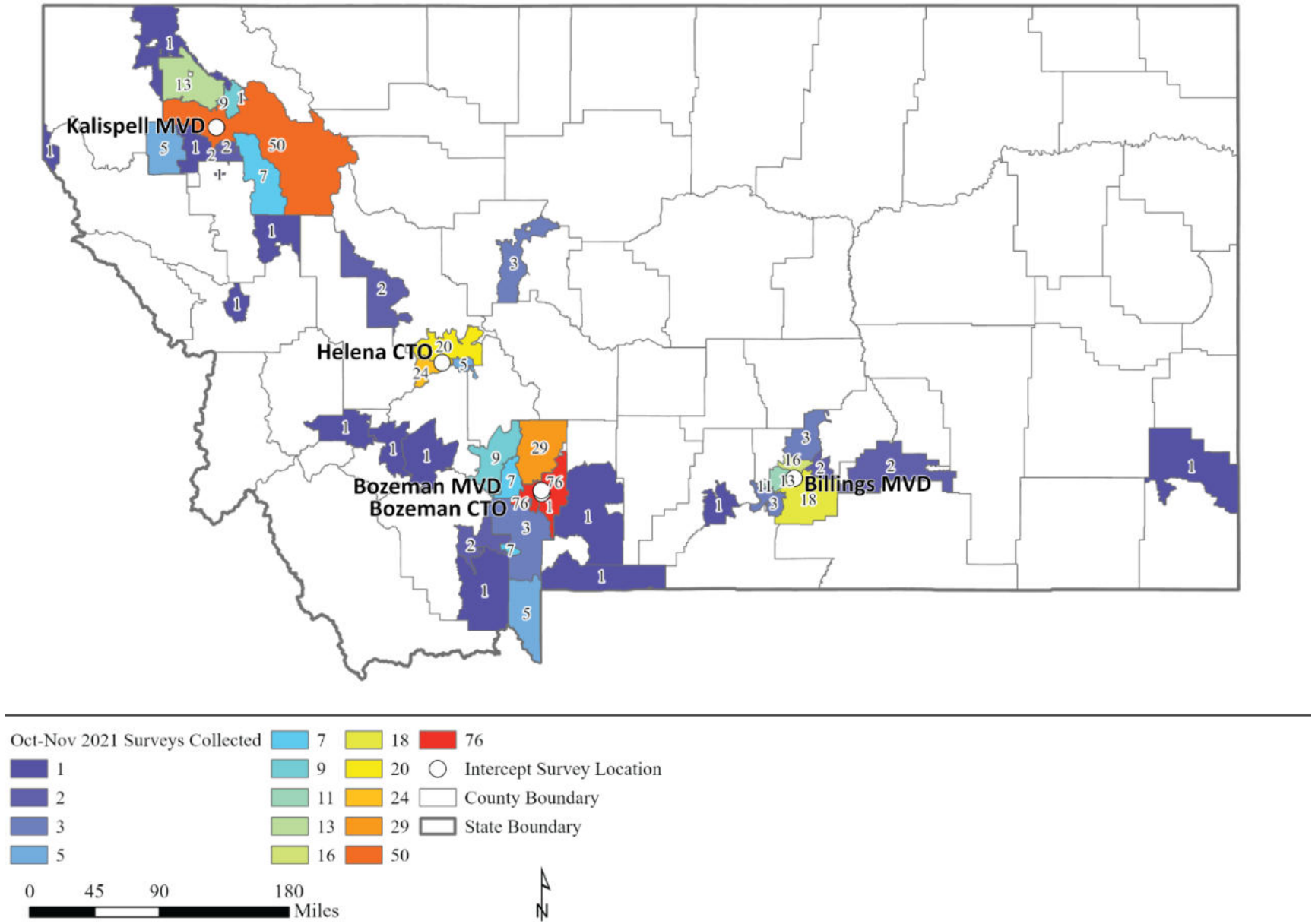


Figure 24: Zip codes of intercept surveys, second data collection period (October/November 2021), first video sequence.

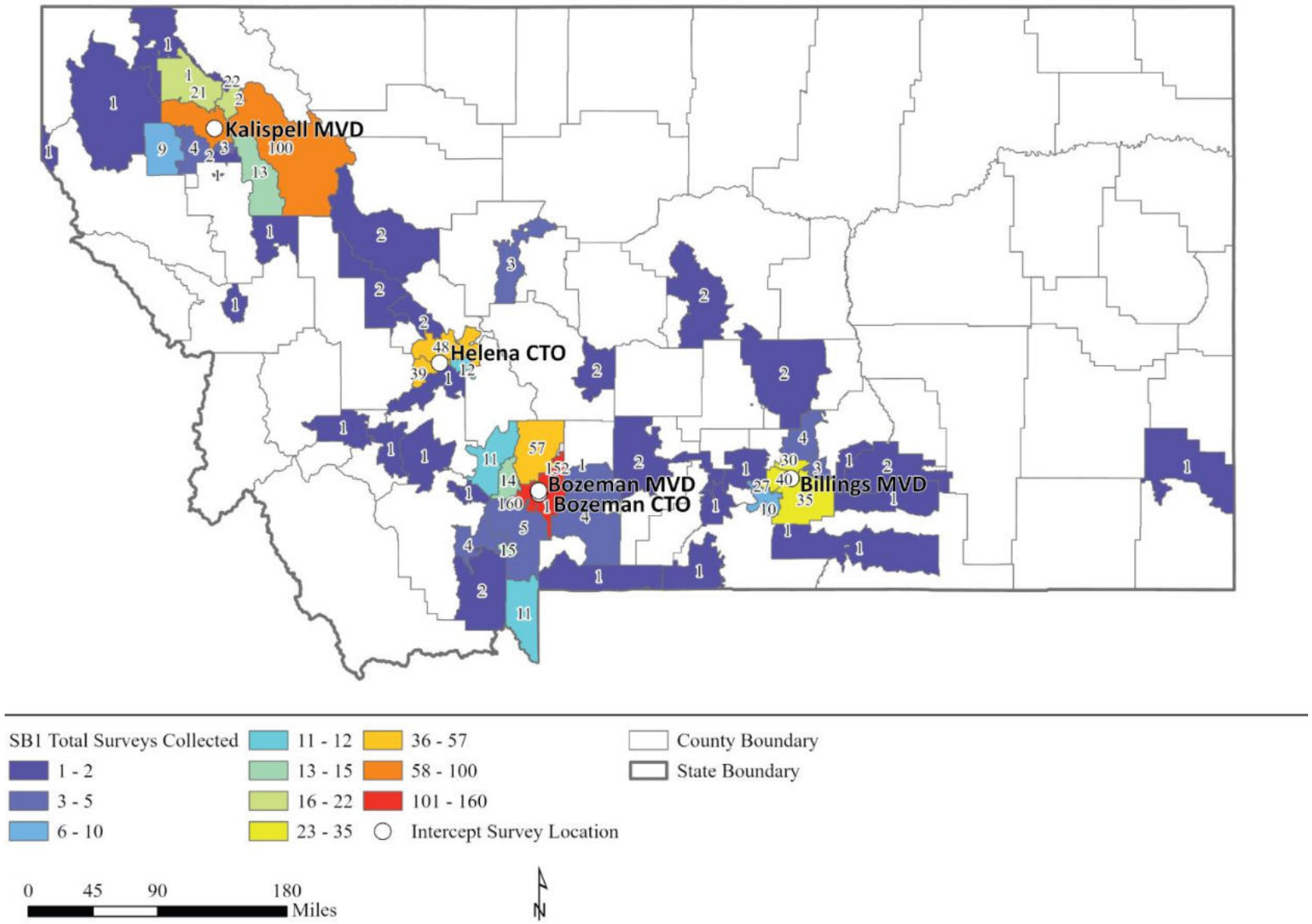


Figure 25: All zip codes of intercept surveys from both data collection periods during the first video sequence.

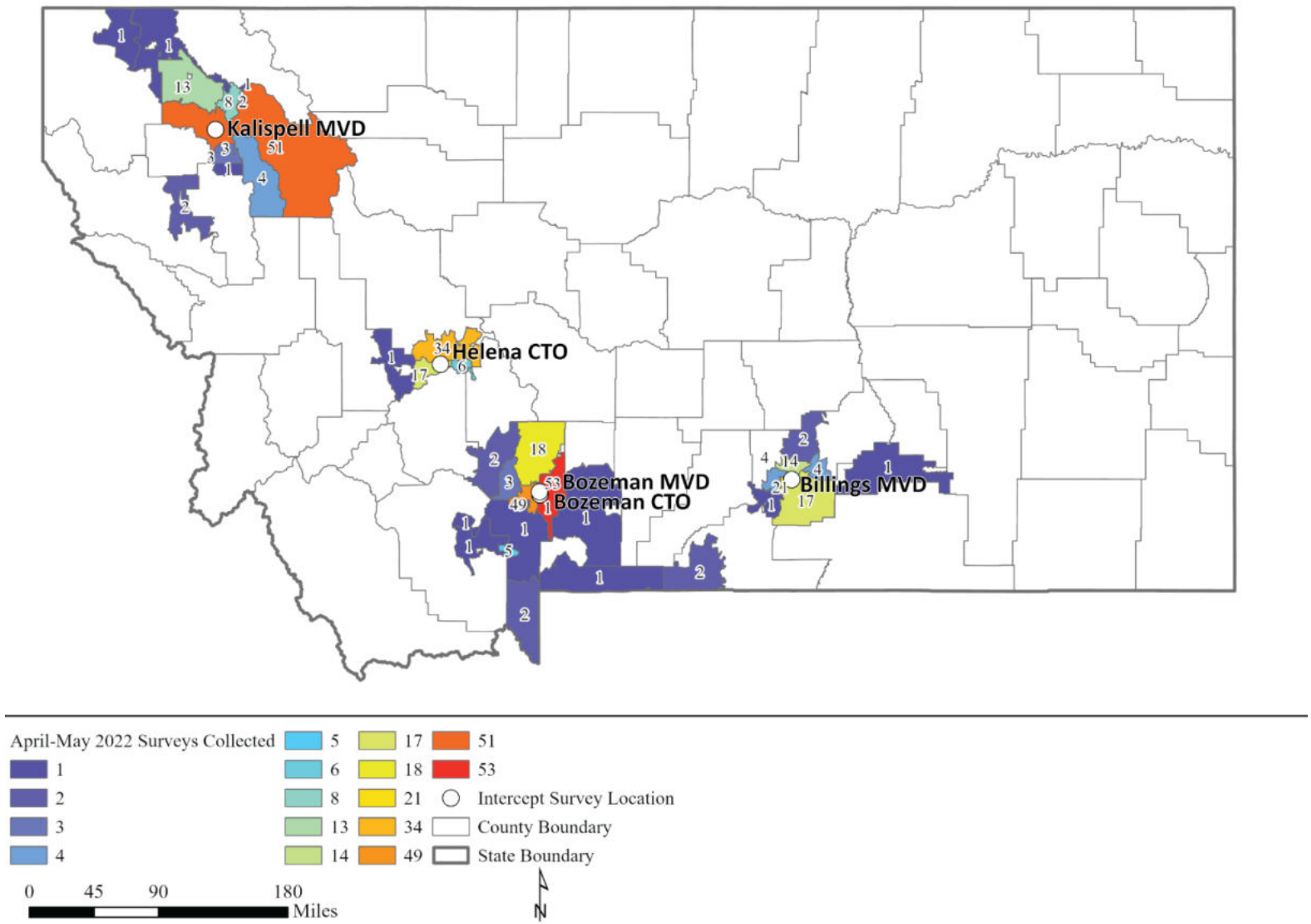


Figure 26: Zip codes of intercept surveys, first data collection period (April/May 2022), second video sequence.

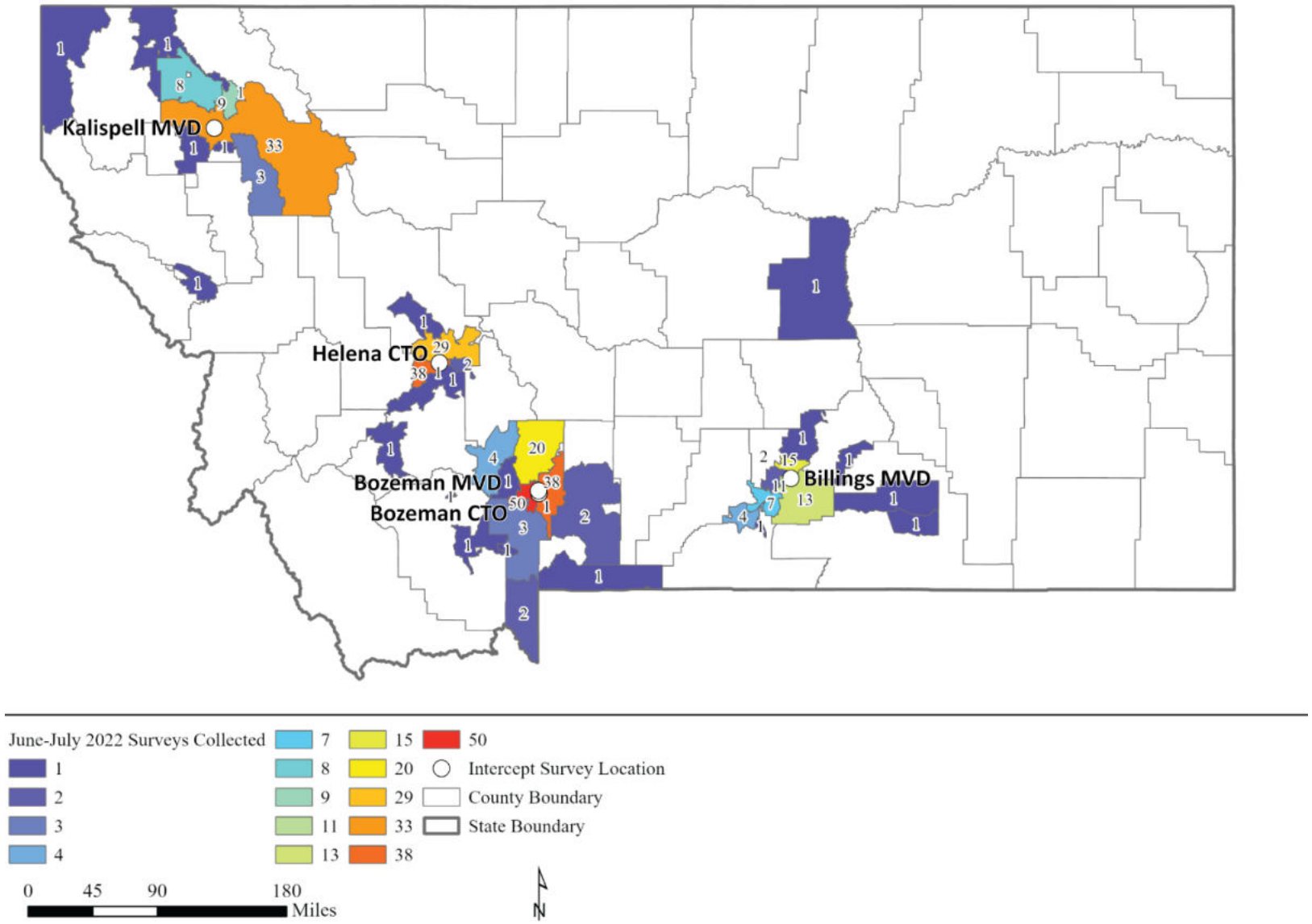


Figure 27: Zip codes of intercept surveys, second data collection period (June/July 2022), second video sequence.

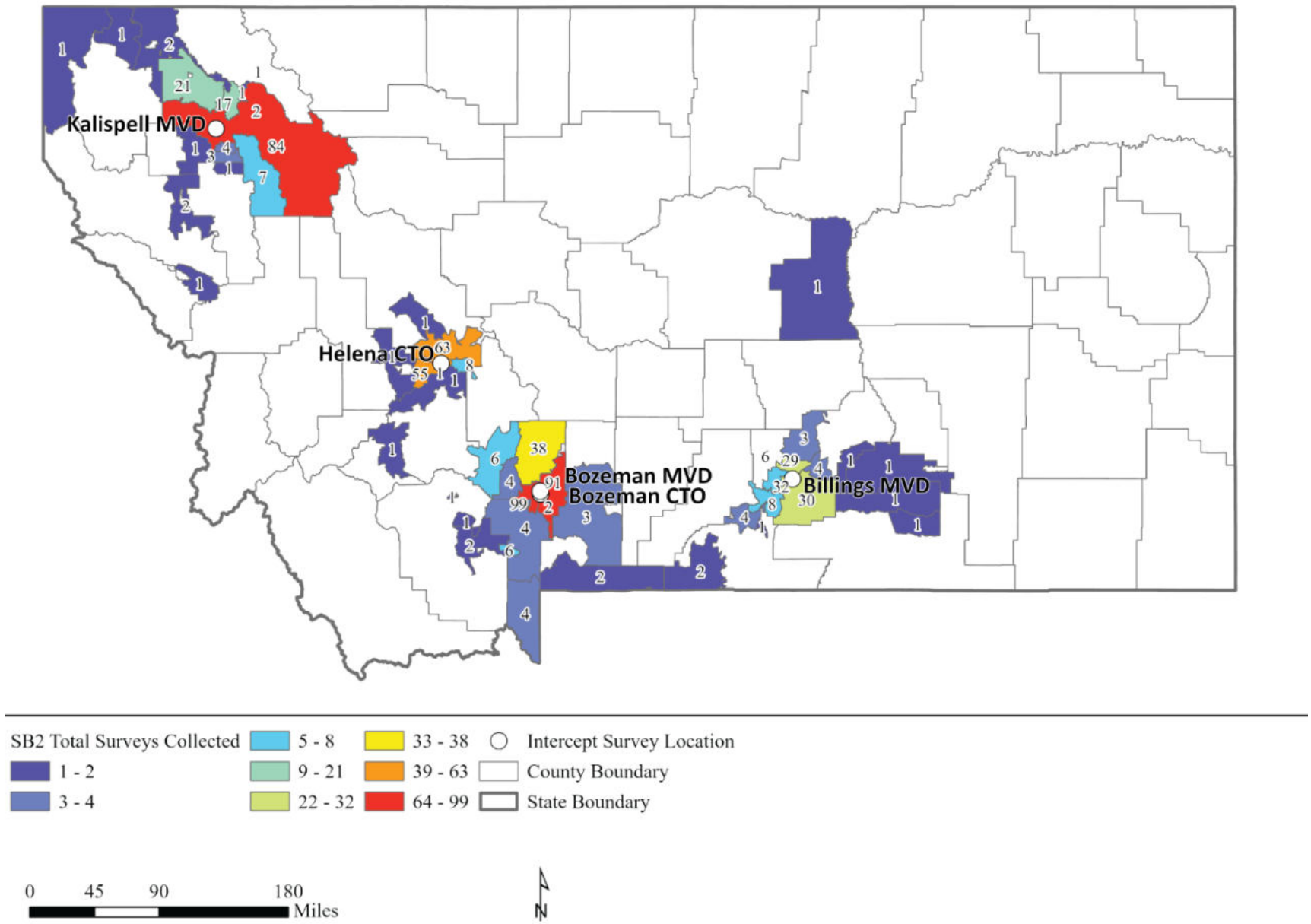


Figure 28: All zip codes of intercept surveys from both data collection periods during the second video sequence.

Compared with the first video sequence, the second video sequence respondents reported zip codes that were more clustered around each facility. One possible explanation was that during the first video sequence, with people having been restricted from accessing services at facilities during COVID-19, more people were willing to access services from further away MVD/CTO locations that may have had more appointment availability. By the second video sequence, this queued up demand had been addressed. As noted in the earlier discussion, the number of intercept surveys was fewer during the second video sequence when compared with the first video sequence. The areas that were further away from the data collection locations were more rural parts of Montana. Consequently, it does suggest that maybe these more rural Montanans were able to access the services that they needed during the first video sequence, and consequently, there were fewer people accessing the services from these more remote, less populous, counties during the second video sequence.

4.3.3.5 Reported Wait Time

There was the potential that the amount of time spent at a facility can influence if a customer was able to watch or how well they could absorb the information that was presented. Consequently, to enable an analysis of this impact, intercept survey respondents were asked to report their wait times. However, how an intercept survey respondent interpreted this question may vary, as some may have also included how long it took them to address their business. Figure 29 shows the percentage of intercept survey respondents reporting each category of wait duration. Appendix K: Intercept Surveys presents the number of intercept survey respondents and percentage reporting the amount of wait time that were present at each facility by video sequence.

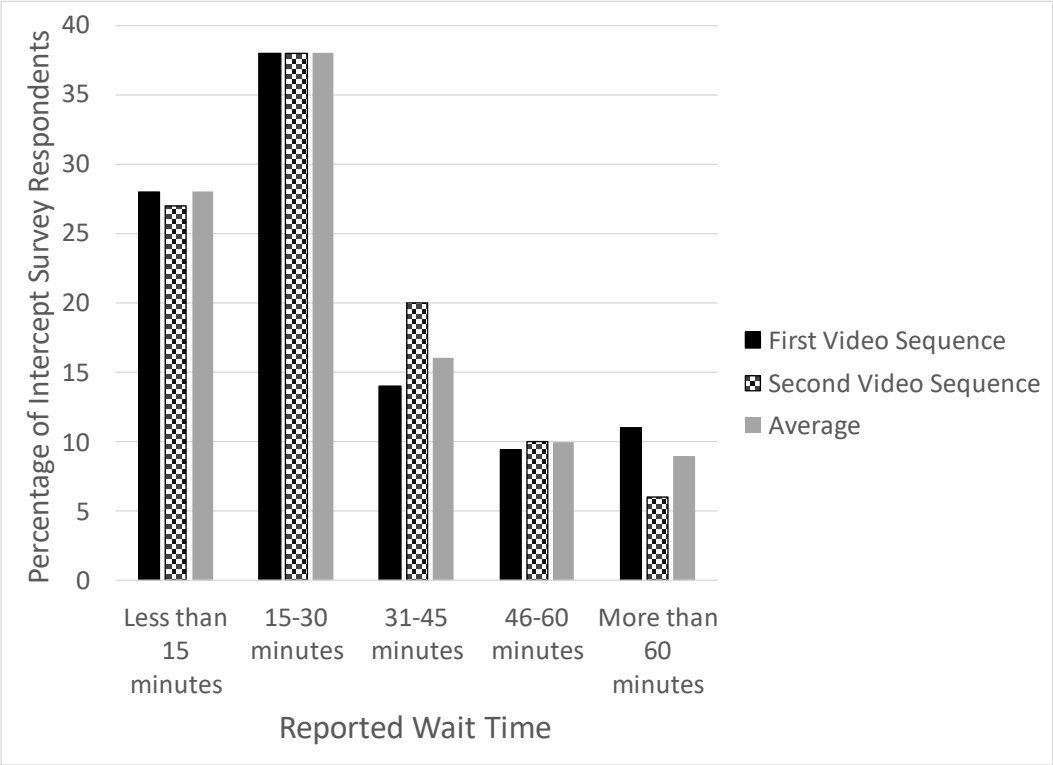


Figure 29: Percent of Intercept Survey Respondents, Reported Wait Time.

Overall, the reported wait times were consistent, with only the "31-45 minutes" and "More than 60 minutes" categories seemingly changing when comparing video sequences. It appears that during the second video sequence, survey respondents may have experienced slightly shorter wait times at the facilities. This could potentially reflect the increased demand for the services during the first video sequence when facilities reopened after COVID-19 closures transitioning to more normal operations during the second video sequence.

For each video sequence, the numbers by data collection period can be found in Appendix K: Intercept Surveys.

Figure 30 shows the wait times reported by data collection location for both video sequences.

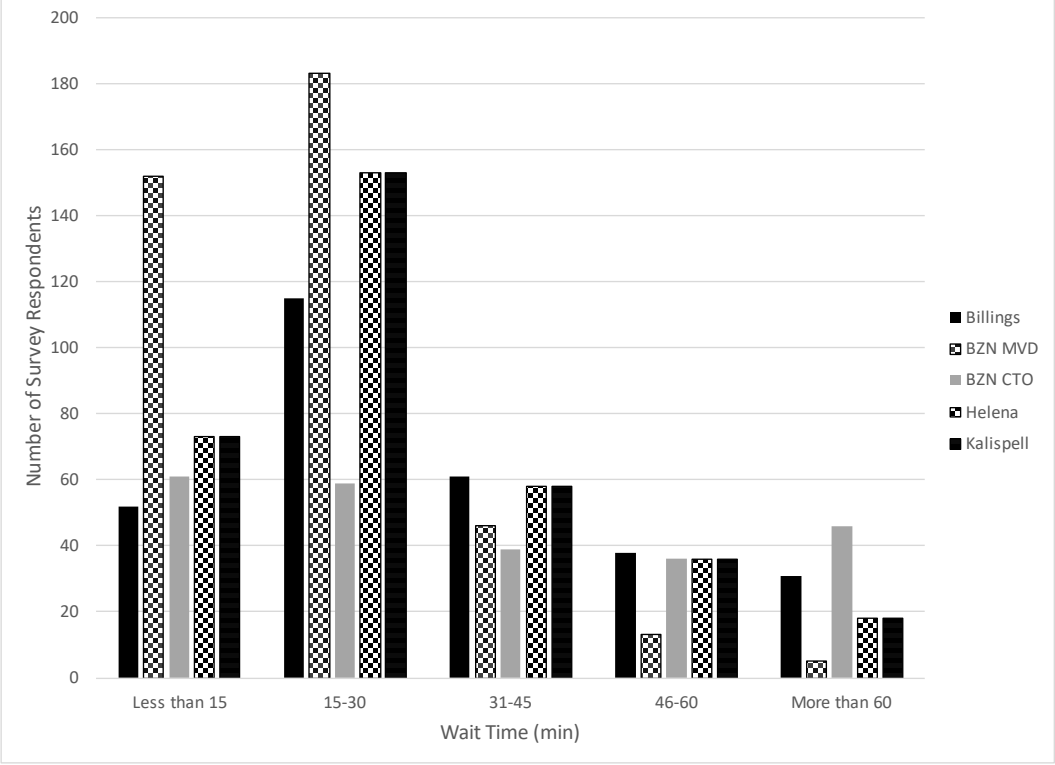


Figure 30: Reported wait times by location for both video sequences.

The reported wait times by location for each video sequence can be found in Appendix K: Intercept Surveys. Overall, Bozeman MVD seems to have had the shortest wait time. In contrast, the Bozeman CTO seems to have had one of the longest overall wait times when considering all intercept survey respondents. The other locations fell somewhere in between Bozeman MVD and Bozeman CTO. The longer wait times associated with the Bozeman CTO may reflect the fact that CTOs only managed walk-ins whereas MVDs allowed for prescheduled appointments.

4.3.3.6 Demographics

Intercept survey respondents were asked to provide information about their age, gender identity, and the number of adults and children living in their household. Table 20 summarizes the data collected by video sequence.

Table 20: Age, Gender, Household Size, & Number of Children in Household.

Age, Gender, Household Size, & Number of Children in Household		Video Sequence		
		One	Two	All Data
		n = 932	n = 693	n = 1,625
Age	Minimum	18	18	18
	Average	45	47	46
	Median	43	46	44
	Maximum	86	90	90
		n = 933	n = 694	n = 1,627
Gender Identity	Male	504 (54.1%)	403 (58.1%)	907 (55.7%)
	Female	425 (45.6%)	288 (41.5%)	713 (43.8%)
	Non-Binary	3 (0.3%)	3 (0.4%)	6 (0.4%)
		n = 779	n = 599	n = 1,378
Household Size	Minimum	1	1	1
	Average	2.6	2.6	2.6
	Median	2	2	2
	Maximum	23	10	23
		n = 216	n = 185	n = 401
Number of Children in a Household (for households with children)	Minimum	1	1	1
	Average	1.9	2.0	2.0
	Median	2	2	2
	Maximum	7	6	7

Collecting this data enabled analyzing the impact of demographic information on traffic safety culture. For example, Islam et al. (Islam, Thue, & Grekul, 2017) found that age and gender influence traffic safety culture. Silva et al. (Silva, Laiz, & Tabak, 2020) similarly reported gender differences based on the type of video. Hence, survey respondents were asked this information during the intercept surveys to ensure that even if intercept survey respondents declined to participate in the follow-up survey, an analysis of this information could be conducted using the intercept survey data. Furthermore, as detailed in the Literature Review & Information Gathering section, MDT's media plans tended to focus on males ages eighteen to thirty-four. As shown in Table 20, men were

slightly overrepresented and the desired age range falls within the data captured. The subsequent Analysis of Intercept Survey Data section provides details of how age, gender and the presence of children in a household may impact whether or not someone sees the TV, if they recalled screen captures from the traffic safety videos, and if they recalled slogans from the traffic safety videos.

4.3.3.7 Age

Overall, the data shows that a good age range was captured, with intercept survey respondents ranging in age from 18 to 90 years old; the second video sequence saw a slightly older sample. When comparing the median age of intercept survey respondents with U.S. Census Bureau data for Montana, the intercept survey respondents have a slightly older median age of 46 as compared with 40.1 (U.S. Census Bureau, 2020). While on-site data collectors had to restrict participation from those under eighteen years old, it was identified, that since younger folks were accessing these facilities to take driver license testing, future research efforts should include these individuals by obtaining approval from MSU's IRB to do so. It would allow for a better understanding of how traffic safety messages may or may not be getting to younger Montanans. For the first video sequence, one Helena CTO survey respondent did not provide their age for the first data collection period (August/September 2021). Four survey respondents (Bozeman MVD - 1 and Kalispell MVD - 3) did not provide their age during the second data collection period (October/November 2021). For the second video sequence, two Bozeman MVD and one Kalispell MVD survey respondent did not provide their age (or only provided an age range) during the first data collection period (April/May 2022). All survey respondents provided their age for the second data collection period of the second video sequence.

4.3.3.8 Gender Identity

Overall, there was a slight bias to more males (55.7%) responding to the survey than females (43.8%). Compared with the U.S. Census Bureau data for the state, 50.3% of Montana's population is male, so males were somewhat overrepresented in the sample (U.S. Census Bureau, 2020). In addition, while limited, a few intercept survey respondents identified as non-binary. Because of the relatively balanced distribution of females as compared with males, conveying traffic safety information at MVDs and CTOs may enable more evenly distributing the traffic safety education information to all gender identities. In addition, with males slightly overrepresented, this approach provided an opportunity to get to MDT's target population, as identified in their CHSP (males, aged eighteen to thirty-four).

One Helena CTO survey respondent did not provide their gender during the first data collection period (August/September 2021). Four survey respondents (Billings MVD – 2, and Kalispell MVD - 2) did not provide their gender during the second data collection period (October/November 2021).

For the second video sequence, every survey respondent in the second data capture provided their gender identity. For the first data capture, one survey respondent from Billings MVD and one from Bozeman MVD did not provide their gender identity.

4.3.3.9 Memorable Aspects of the Traffic Safety Videos

Intercept survey respondents were asked to report if they recalled something particularly memorable about the information within the video sequence. All of the responses to this question (three hundred thirty-five total), organized by video sequence and data collection period, can be found in Appendix K: Intercept Surveys.

For both video sequences, even though survey respondents were instructed to provide comments specific to the traffic safety videos, many survey respondents commented on their overall experience (i.e., "Fast & polite"). Comments related to staff were referenced the most for the first video sequence (first data collection = 21, second data collection = 23, total = 44) with fewer mentioned during the second video sequence (first data collection = 28, second data collection = 10, total = 38).

Some also used this comment line as an opportunity to share that they had not seen the videos. Survey respondents reported not seeing the videos more frequently during the first video sequence (9 for the first data collection; 15 for the second data collection) than the second video sequence (5 for the first data collection; 3 for the second data collection), potentially reflecting, in part, the move of the TV at the Billings MVD.

Eleven intercept survey respondents were able to cite specific statistics (i.e., roundabouts contribute to an eighty percent reduction in crashes; the average time it takes looking away to send a text is five seconds). Citing a detailed statistic may suggest that the information presented had an impact on the viewer.

Topics reported as memorable during the first video sequence were: all (1), know all slogans (2), seatbelt infographic (3); slow down, move over infographic (3); trivia [generic mention (4), motorcycles (3), roundabouts (14)]; REAL ID video (8); screen captures [Slow Down and Move Over (6); Rules of the Roundabout (43); Gratitude Video (7); and Vision Zero – Just One Reason (9)]; bicycle safety video (1); don't crowd the plow video (3); look twice, save a life video (on motorcycles) (6); Toward Zero Deaths (2); none (8), and other (12).

Topics reported as memorable during the second video sequence were: nothing was memorable (3); all (6); comment related to lack of video sound (2); trivia [general mention (8), distracted driving (14)]; infographic on train crossings (1); infographic on rumble strips (4); infographic on child car seats (5); infographic on SAM I AM (6); screen captures [REAL ID video (6); BuckleUp (8); Slow Down for Friends (30); Yield (8); Slow Down for the Curve (19)]; "The Right Seat – If You Love Them Enough – Play Place" video (6); roundabouts (3); Vision Zero (1); Helena 2nd Monitor topics (5); and other (12).

A few comments to highlight included:

- "'Slow down for friends' – This was a great reminder of people are valuable."
- "the seconds it takes to look at your phone"
- "Looking away from the road distracts you for longer than you think"
- "almost cried at slow down one"
- "The people spilling groceries all over; him saying would you drive this way?"

For the second video sequence, the texting trivia information resonated with intercept survey respondents, as fourteen survey respondents specifically referenced it in their responses. It potentially suggested that viewers honestly did not understand that looking away for such a seemingly short period of time resulted in a vehicle traveling as far. Advancing this topic may be more about education than necessarily changing behaviors (i.e., safety culture).

Overall, the comments suggested that the information conveyed within the video sequences provided additional value. However, the feedback suggests there existed more value in the

information conveyed through the video sequences than could be captured in the intercept surveys due to the limited space for questions. For example, no questions were specifically asked about the impacts of the trivia on people's perceptions of whether or not they would be a safer driver or if it made them change a driving behavior. These present opportunities for future research.

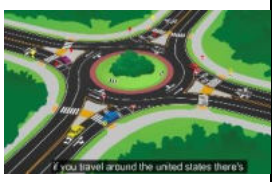
4.3.3.10 Recall of Video Screen Capture

As mentioned earlier, the video sequences were a compilation of videos, infographics, trivia slides, and transition slides. As described by Silva et al. (Silva, Laiz, & Tabak, 2020), videos have been found to captivate one's attention, and can be effective when trying to impact behavior. Consequently, a select screen capture from videos within the video sequence was included in the associated intercept survey. They were also expected to be an effective way to assist visual learners with recall of the traffic safety information.

On average, for the first video sequence, 1.6 screen captures were recalled, with four being the maximum and one the median. For the second video sequence, the average recall was 1.9, with four the maximum and two the median.

Similar percentages of survey respondents recalled at least one screen capture for each video sequence (24.2% vs. 25.6%) (Table 21). Not every intercept survey respondent who reported seeing the TV also reported recalling a screen capture. Since the screen captures were not consistent across the survey instruments for the first and second video sequences, caution should be used when comparing these results. For the first video sequence, the "Rules of the Roundabout" screen capture was reported by most intercept survey respondents. For the second video sequence, the "Slow Down for Friends" screen capture was the most recalled. Because the roundabout video was by far the longest video in the first video sequence, the number of intercept survey respondents who reported recalling this screen capture was likely reflective of the length. Therefore, these differences could be attributed to the different run time of the videos in each video sequence, or the screen capture shown may have resonated more with intercept survey respondents. It could also have been some combination of the two factors. In particular, MDT is constructing many roundabout intersections statewide. The video itself can be described as technical, so when considering the results from Silva et al. (Silva, Laiz, & Tabak, 2020), one would not have anticipated the recall to be as significant as say, the "Slow Down for Friends" video, which may have been better described as shocking (Silva, Laiz, & Tabak, 2020) or as intending to engage the viewer's empathy as with branded entertainment (Yoh, Uchiyama, Hung, & Doi, 2019). An important difference between Silva et al.'s research (Silva, Laiz, & Tabak, 2020) and the videos shown within the first video sequence in this project was that Silva et al. used videos of comparable lengths.

Table 21: Number and Percent of Survey Respondents Recalling Screen Captures, Length of Video, Percent of Video Length Representing Entire Video Length.

First Video Sequence	Screen Capture	 **Slow Down and Move Over**	 **Rules of the Roundabout**	 **Gratitude Video**	 **Vision Zero – Just One Reason**
	Number & % Recall	• 70 intercept survey respondents (30.8%) • Length of video = 32 seconds (7.5% of video sequence loop)	• 189 intercept survey respondents (83.3%) • Length of video = 137 seconds (32.2% of video sequence loop)	• 40 intercept survey respondents (17.6%) • Length of video = 30 seconds (7.1% of video sequence loop)	• 57 intercept survey respondents (25.1%) • Length of video = 30 seconds (7.1% of video sequence loop)
		n = 227 (24.2%)			
Second Video Sequence	Screen Capture	 **Buckle Up – Enough Reasons**	 **Work Zone Safety – the Signs**	 **Flashing Yellow Light**	 **Slow Down for the Curve**
	Number & % Recall	• 53 intercept survey respondents (29.8%) • Length of video = 30 seconds (9.2% of video sequence loop)	• 122 intercept survey respondents (68.5%) • Length of video = 30 seconds (9.2% of video sequence loop)	• 72 intercept survey respondents (40.4%) • Length of video = 40 seconds (12.3% of video sequence loop)	• 94 intercept survey respondents (52.8%) • Length of video = 45 seconds (13.8% of video sequence loop)
		n = 178 (25.6%)			

For the second video sequence, the videos were of comparable lengths. Therefore, the greater reporting of recall by intercept survey respondents of the "Slow Down for Friends" video suggested that it captures more attention than the other videos based on the style of the video, without relying on greater length for recall. It tried to leverage the empathy of viewers in order to disseminate its message, which has been suggested as an effective method by Yoh et al. (Yoh, Uchiyama, Hung, & Doi, 2019). The results of this data suggested that two successful methods to convey priority messages would be to choose videos that are longer than the other videos and to choose videos that engage the viewer's empathy. A similar trend held for the second data collection period. Figure 31 provides an overview of the screen capture recall frequency during the first and second video sequence, broken down by data collection period. For each video sequence, the reported recall of each screen capture remained consistent across the data collection periods, suggesting that seasonality does not have an influence.

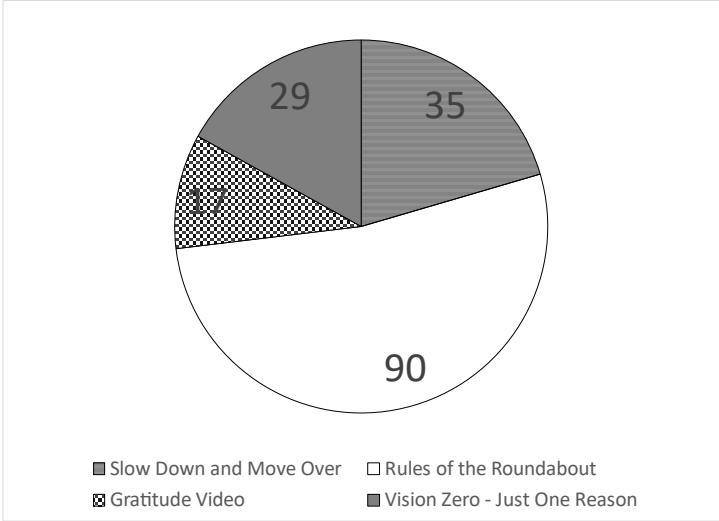
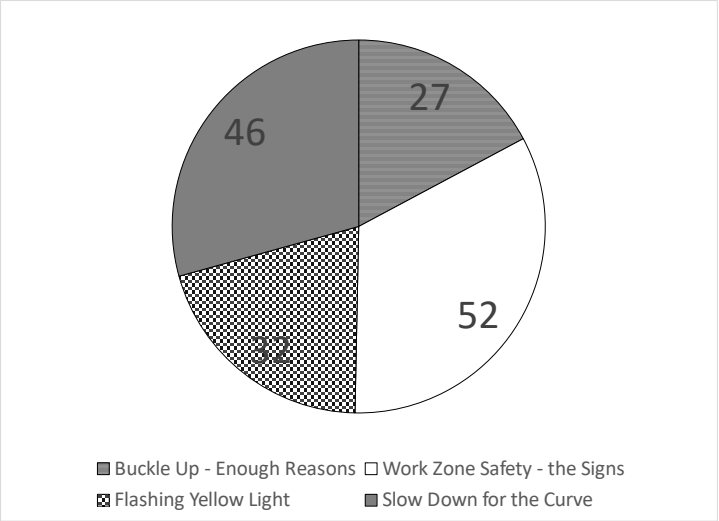
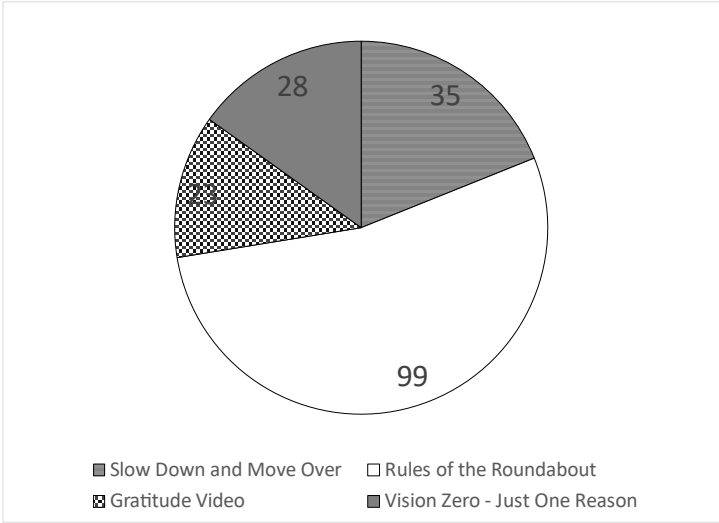
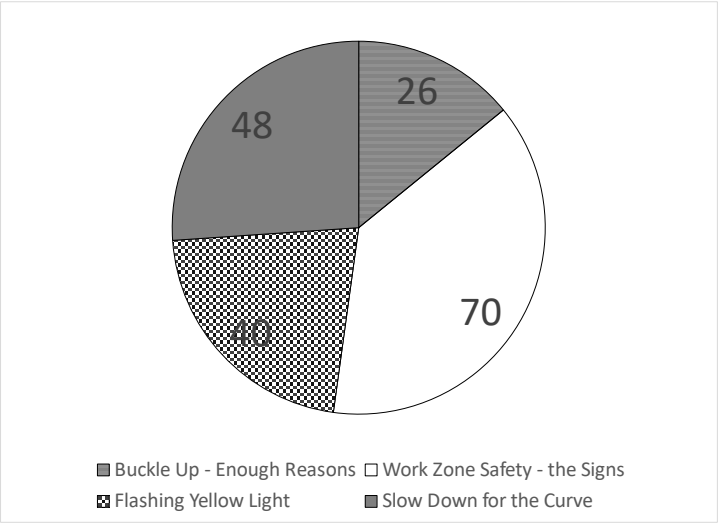
	First Video Sequence	Second Video Sequence
First Data Collection Period		
Second Data Collection Period		

Figure 31: Frequency that each screen capture was recalled during the first and second video sequence, broken down by data collection period.

4.3.3.11 Recall of Slogans

In addition to the videos, slogans were included in the video sequences. Intercept survey respondents were asked whether they recalled the slogans included throughout the video sequence shown on the TVs. Table 22 shows the number of intercept survey respondents reporting the recall of each slogan, broken down by location. Each intercept survey respondent could identify more than one slogan if applicable; therefore, the subtotal could far exceed the 176 and 194 intercept survey respondents who reported recalling at least one slogan for each video sequence (i.e., 379 exceeding 194 means that many more intercept survey respondents in the second video sequence recalled more than one slogan).

Table 22: Number and Percent of Survey Respondents Recalling Slogans.

	Slogan	Billings MVD	Bozeman CTO	Bozeman MVD	Helena CTO	Kalispell MVD	TOTAL
First Video Sequence		n = 176 (18.8%)					
	Slow down and move over.	3	18	38	23	22	104
	Never Drink and Drive	11	27	30	25	33	126
	What's your one reason?	3	12	21	12	5	53
	Don't Crowd the Plow	4	16	22	17	16	75
	Slow down, look around, be ready to yield.	8	30	38	20	24	120
	Subtotal	29	103	149	97	100	178
Second Video Sequence		n = 194 (27.9%)					
	Check for trains	37	8	19	12	7	83
	SAM I AM	28	5	14	7	4	58
	The right seat	22	0	11	8	0	41
	Slow down for the curve	50	10	28	24	16	128

	Stop speeding before it stops you	23	7	13	16	10	69
	Subtotal	160	30	85	67	37	379
TOTAL		189	133	234	164	137	557

"Never Drink and Drive" and "Slow down, look around, be ready to yield" were the two most frequently reported slogans from the first video sequence (Figure 32).

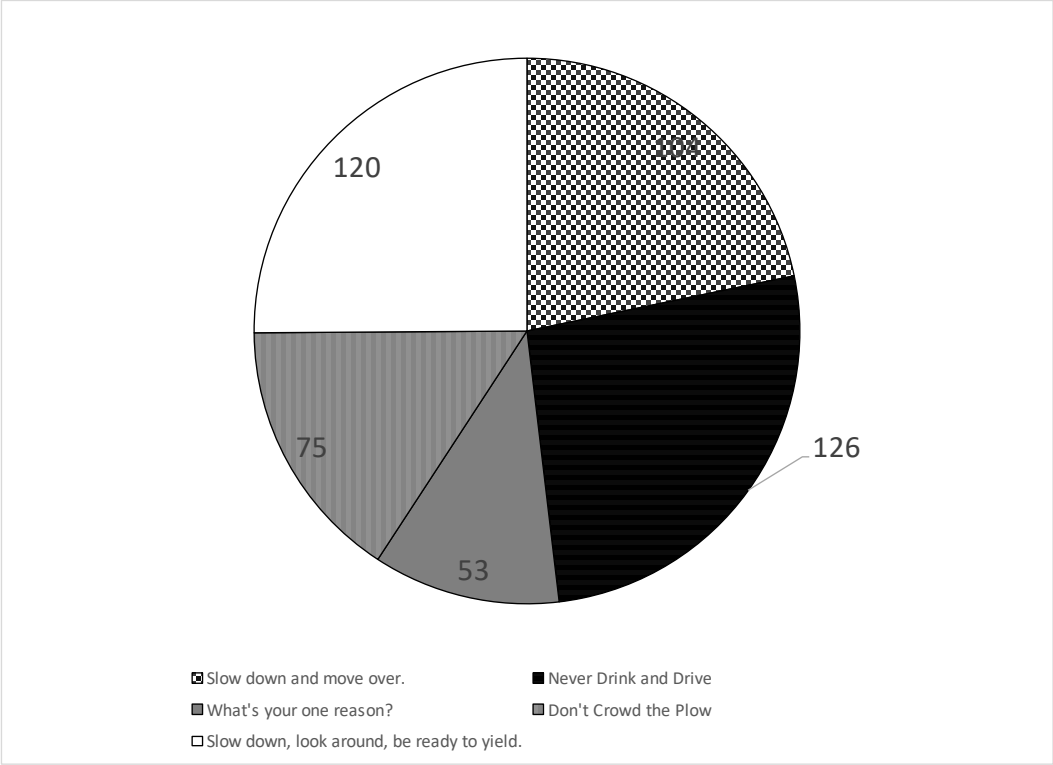


Figure 32: Number of times a slogan was recalled during the first video sequence.

While intercept survey respondents were instructed to report what they recalled from the videos, it is very likely that reporting "Never Drink and Drive" most frequently also represents an overall saturation of that slogan from other educational efforts (i.e., TV and radio public service announcements).

"Slow Down for the Curve," by far, was the most frequently reported slogan for the second video sequence (Figure 33).

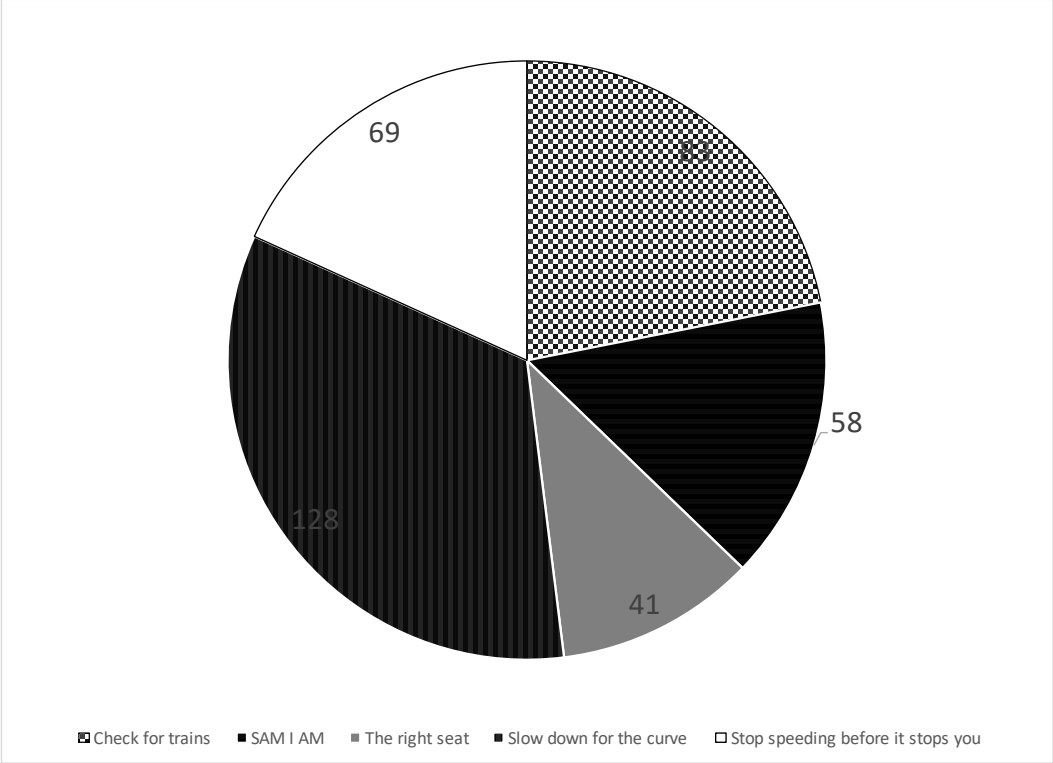


Figure 33: Number of times a slogan was recalled during the second video sequence.

Whereas videos may have different run times, slogans were generally displayed for a similar time frame. Consequently, there should be a similar expectation for them to be recalled. However, for those that were recalled, they were either associated with a video ("Slow down for the curve" and "Slow down, look around, be ready to yield") or were associated with a long-term campaign effort ("Never drink and drive").

4.3.4 Analysis of Intercept Survey Data

After reviewing the data collected, the researchers analyzed the relationships between the collected data and hypotheses. The following sections investigated: 1) the zip code relationship to screen capture and slogan recall; 2) the influence of data collection location, reported wait time, gender, and age on seeing the TV; 3) the influence of data collection location, reported wait time, gender, age, and presence of children in a household on screen capture recall; 4) the influence of data collection location, reported wait time, gender, age, and presence of children in a household on slogan recall, and 5) confusion demonstrated within the survey as evident by unexpected responses.

4.3.4.1 Zip Code Relationship to Screen Capture and Slogan Recall

The researchers were interested in determining if there existed a bias regarding which screen captures from the videos and which slogans were recalled based on their reported residence, as identified based on the zip code provided by the survey respondent, as it may highlight other on-going MDT educational efforts or suggest localized safety culture differences across Montana. The following figures show the percentage of intercept survey respondents that reported recalling the roundabout video screen capture (which had one of the largest recalls) (Figure 34); those that

recalled the "Slow Down & Move Over" screen capture (Figure 35); and the "Never Drink and Drive" slogan (which was one of the most commonly recalled slogans) (Figure 36).

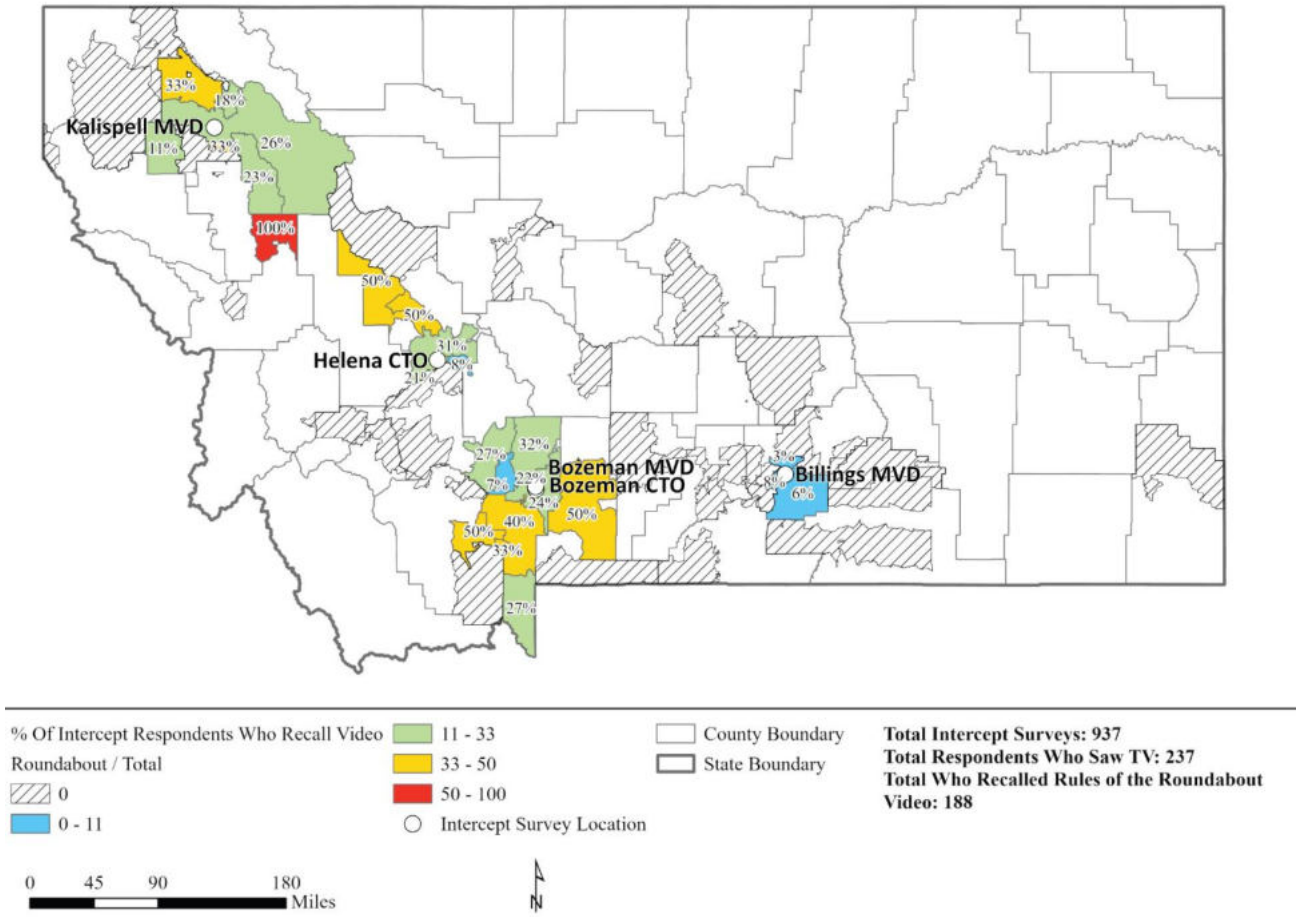


Figure 34: Recall of Rules of the Roundabout Screen Capture (First Video Sequence).

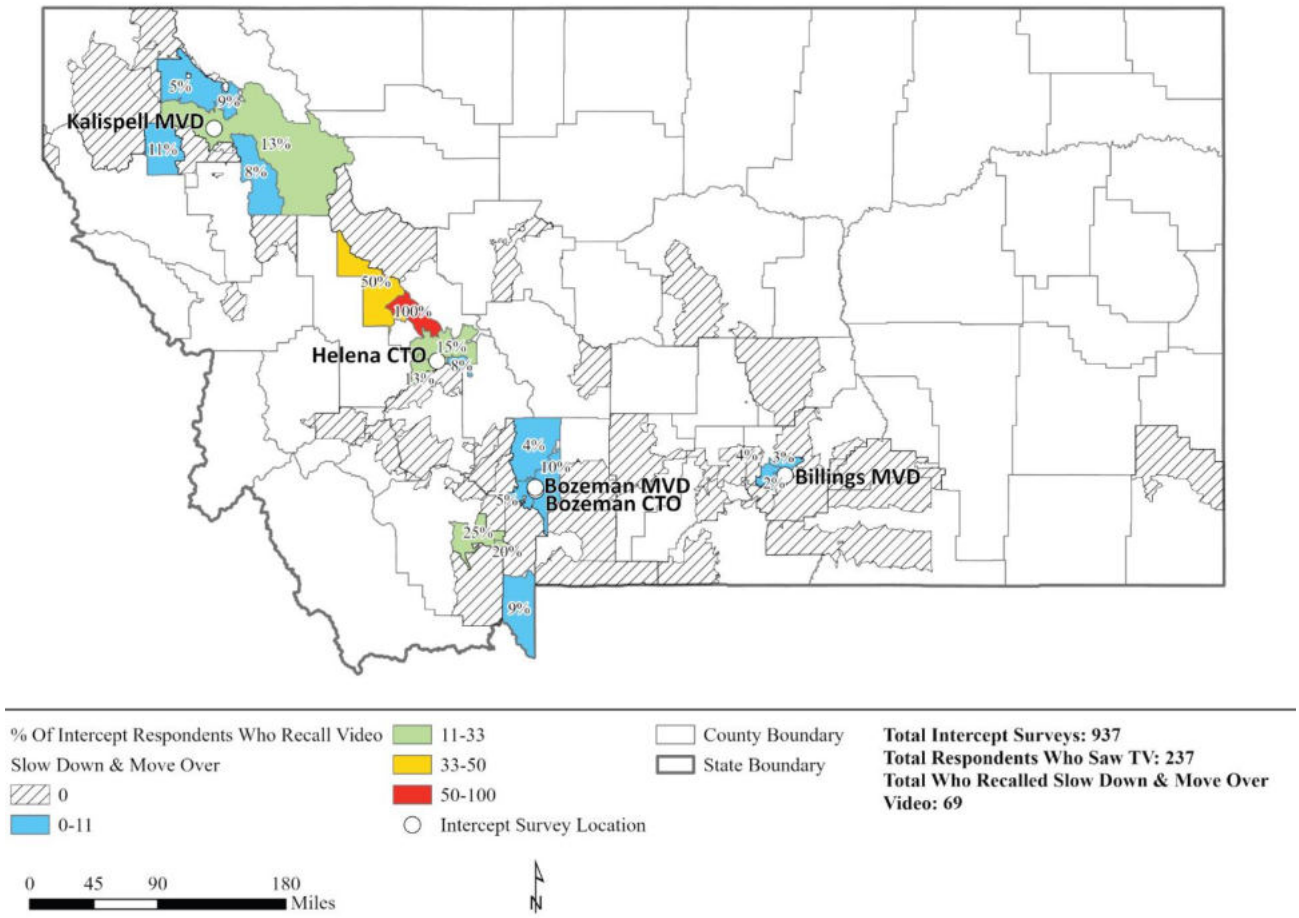


Figure 35: Recall of Slow Down & Move Over Screen Capture (First Video Sequence).

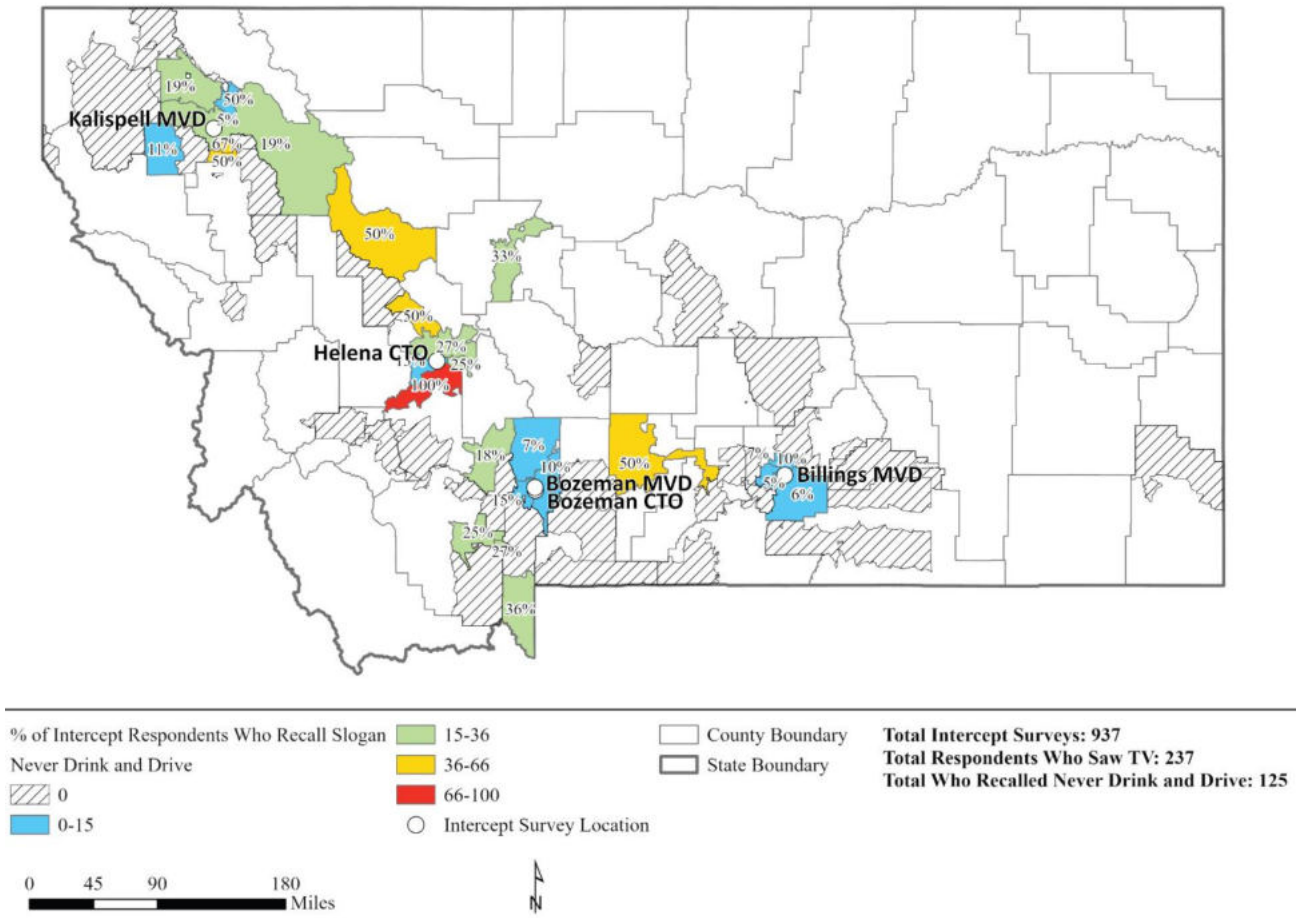


Figure 36: Recall of the Never Drink and Drive Slogan (First Video Sequence).

Overall, with limited data, the ability to draw meaningful conclusions was elusive. As the data was subdivided into zip codes, the number of survey respondents in outlying zip codes becomes fewer, with some exceptions (see Figure 25 for the number of survey respondents by zip code). Therefore, the percentages go from very low to high for most of the outlying zip code polygons based on whether or not a survey respondent reports or does not report recalling a screen capture or slogan. Hence, if a significantly larger sample size, or purposeful oversampling of survey respondents from the outlying zip codes were achieved, there was a possibility that there were differences of reporting different video screen captures or slogans by location. Such an analysis could be considered for future research efforts if substantially more data could be collected. However, to do so would be a large financial investment. The value of the information learned from such efforts must be weighed with fiscal resources available.

4.3.4.2 Influences in Seeing the TV: Data Collection Location, Reported Wait Time, Gender, & Age

This section looked at several factors that may influence whether or not a patron saw a TV: 1) data collection location, 2) reported wait time, 3) gender, and 4) age. Two different statistical comparison tools were used: differences between two population proportions and testing differences between two means with independent samples dependent upon if the data was an

indicator variable or continuous. All of the results were compared to the 95% confidence interval, where Z = 1.96. If the value is greater than Z = 1.96, the cell is shaded.

4.3.4.2.1 Data Collection Location

First, the researchers investigated if there was a statistical difference when comparing facilities to one another regarding whether or not someone reported viewing the TV. Because whether or not someone viewed a TV was a binary, yes or no response, the appropriate test was to look at the differences between two population proportions (Table 23). (Note: The data includes that from both video sequences, where the TV at the Billings MVD location was moved between video sequences.)

Table 23: Number of Survey Respondents Who Reported Seeing the TV, Where No Response was Provided, and the Total Number of Observations for Each Data Collection Location.

	Billings MVD	**Bozeman MVD**	**Bozeman CTO**	**Helena CTO**	**Kalispell MVD**
Number of observations, n	303	402	337	246	344
Number of observations where no response was provided	7	10	10	5	3
Number of visitors that reported seeing the TV	109	95	133	95	86
Proportion of visitors who saw the TV	0.37	0.24	0.41	0.39	0.25

The resulting Z statistic when comparing each of the locations individually was summarized in Table 24.

Table 24: Z Statistic for Comparing Locations Seeing a TV.

	Billings MVD	**Bozeman MVD**	**Bozeman CTO**	**Helena CTO**	**Kalispell MVD**
Billings MVD	-	3.6	-0.98	-0.62	3.2
Bozeman MVD	-	-	-4.7	-4.4	-0.31
Bozeman CTO	-	-	-	0.30	4.3
Helena CTO	-	-	-	-	3.6

The results showed that the absolute value of the Z statistic would suggest that the Kalispell MVD and Bozeman MVD had the greatest differences from the other locations. As noted in the prior section, the TV monitor in Kalispell MVD was not in a desirable location. For Bozeman MVD, this could potentially reflect people's ability to not have to remain in the lobby until called. Also, as discussed in the previous sections, the Bozeman MVD TV location was less than

desirable. Both of these locations (Kalispell MVD and Bozeman MVD) had the lowest reported proportion of visitors who saw the TV. These results suggest that the location of the TV and policies regarding whether or not one had to wait in the facilities may have influenced whether or not the traffic safety messages on the TV were viewed. Consequently, if traffic safety messages are to be displayed on TVs in these facilities as a way to educate the public and potentially influence traffic safety culture, the location of the TV and policies regarding waiting can expect to impact their effectiveness.

4.3.4.2.2 Reported Wait Time

Next, the researchers investigated if there was a statistical difference when comparing the length of reported wait time to whether or not an intercept survey respondent reported seeing the TV. Because time was binned into categories rather than a true wait time value (i.e., 34 minutes), the appropriate test was to look at the differences between two population proportions (Table 25).

Table 25: Overview of Observations Based on Reported Wait Time.

	Less than 15 minutes	**15-30 minutes**	**31-45 minutes**	**46-60 minutes**	**More than 60 minutes**
Number of observations, n	446	603	262	157	137
Number of observations where no response was provided	12	12	4	5	5
Number of visitors that reported seeing the TV	99	180	105	66	63
Proportion of visitors who saw the TV	0.23	0.30	0.41	0.43	0.48

The resulting Z statistic when comparing each of the locations individually was summarized in Table 26.

Table 26: Z Statistic for Reported Wait Time & Seeing a TV.

	Less than 15 minutes	**15-30 minutes**	**31-45 minutes**	**46-60 minutes**	**More than 60 minutes**
Less than 15 minutes	-	-2.7	-5.0	-4.9	-5.5
15-30 minutes	-	-	-2.9	-3.7	-3.8
31-45 minutes	-	-	-	-0.54	-1.3
46-60 minutes	-	-	-	-	-0.73

The results suggested that there were three appropriate categories regarding whether or not someone saw the TV based on their reported wait time: Less than 15 minutes; 15-30 minutes;

and More than 30 minutes. It also suggested that, as expected, the longer someone waited, the more likely they were to see the TV.

4.3.4.2.3 Gender

The researchers wanted to test if gender, across both video sequences, had a statistically significant influence regarding whether or not a survey respondent viewed the TV with the safety content. (Note: With only six survey respondents identifying as non-binary, the data sample was too small to compare). Because a category was created where male was identified as 0 and female as 1, the appropriate test was to look at the differences between two population proportions.

The researchers wanted to understand: Is there a statistically significant difference between whether or not males reported viewing the TV when compared with females? With Z = -0.41, a statistically significant difference was not found.

Table 27: Viewing the TV, by Gender.

Gender	n	Reported seeing a TV	Did not provide a response regarding if he/she viewed the TV
Male	907	283	22
Female	713	229	18
Non-Binary	6	2	0

4.3.4.2.4 Age

The researchers wanted to test if age, across both video sequences, had a statistically significant influence regarding whether or not a survey respondent viewed the TV with the traffic safety videos. Because survey respondents were asked to provide their age, rather than choose a category that represented an age range, the appropriate test is differences between two means with independent samples. Therefore, the researchers compared the average age of survey respondents who reported seeing the TV with the average age of those who did not.

Table 28: Viewing the TV, by Age.

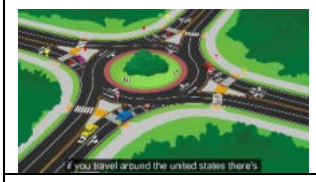
Statistic	Saw TV	Did Not See TV
Minimum	18	18
Average	44	47
Maximum	87	90
Standard Deviation	17	18
n	517	1068
Z	-3.0	

As shown, those who reported seeing the TV were slightly younger. The result was statistically significantly different. This result would suggest that age was a factor when evaluating whether someone saw the TV. However, caution must be taken when drawing such conclusions, as the standard deviations were large (seventeen and eighteen) and the differences between the average ages were small (three). Because n is large, the test may be overly sensitive (Armstrong, 2019).

4.3.4.3 Screen Capture Recall

To test if visual learners may recall the videos, eight screen captures were presented in the intercept surveys across the two video sequences. For the reader's reference, the screen capture and associated video title were presented in Table 29.

Table 29: Screen Capture and Associated Video Title, by Video Sequence.

	Screen Capture	Associated Video Title
First Video Sequence		Slow Down and Move Over
		Rules of the Roundabout
		Gratitude Video
		Vision Zero – Just One Reason
Second Video Sequence		Buckle Up – Enough Reasons
		Work Zone Safety – the Signs
		Flashing Yellow Light
		Slow Down for the Curve

This section reviewed if any screen capture images resonated with subgroups within Montana by looking for patterns by location (i.e., Helena CTO versus Bozeman MVD) for each video sequence. Then after, it discussed the relationship between longer reported wait times and a greater retention of the number of screen captures. Next, it examined if gender influences whether a screen capture was recalled, followed by age, then if the presence of a child in a household influences if a screen capture was recalled.

4.3.4.3.1 Data Collection Location

Each video screen capture was investigated to determine if there was a difference between whether or not it was recalled by location. First, the screen captures included for the first video sequence were considered followed by the screen captures included for the second video sequence.

4.3.4.3.1.1 Screen Captures for the First Video Sequence

Overall, the number of survey respondents that reported seeing each of the screen captures for the first video sequence was small: 70 for "Slow Down and Move Over;" 189 for "Rules of the Roundabout;" 40 for "Gratitude Video"; and 57 for "Vision Zero – Just One Reason," with the "Rules of the Roundabout" screen capture being recalled by the greatest number of people for every location (Figure 37).

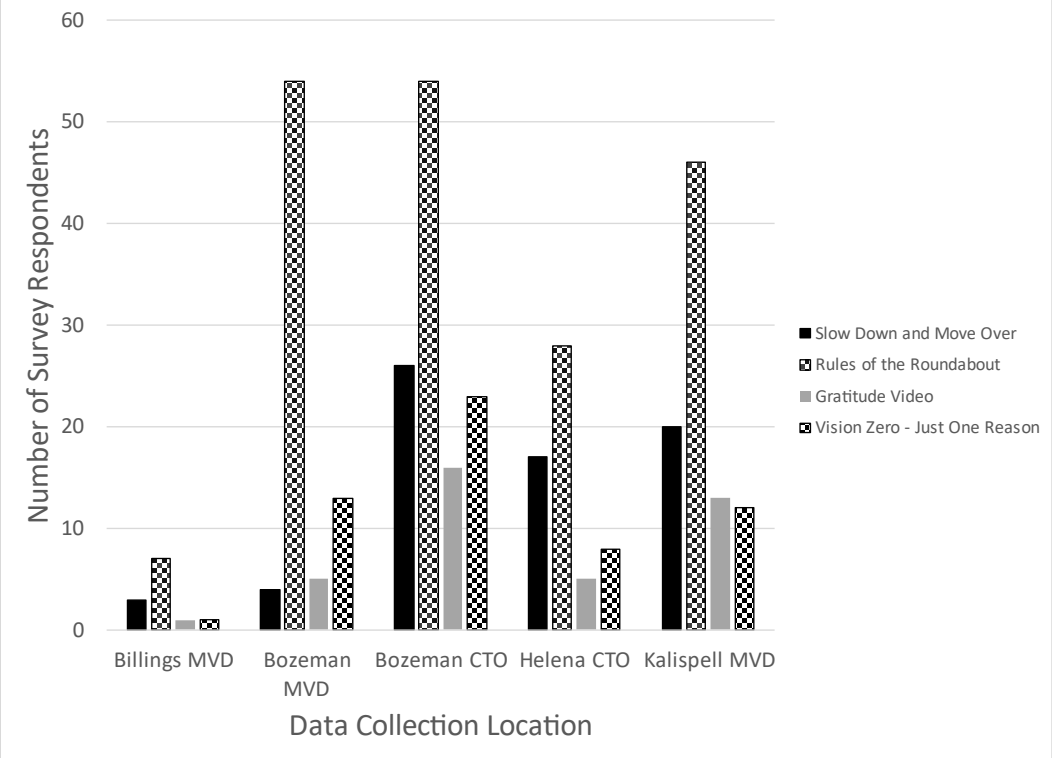


Figure 37: Number of Survey Respondents Recalling Each Screen Capture for the First Video Sequence by Data Collection Location.

The "Rules of the Road Roundabout" screen capture had the greatest number of survey respondents reporting that they viewed it. Consequently, the researchers investigated if there were any statistically significant differences when considering the location where the data was collected (Table 30).

Table 30: Z Statistic for "Rules of the Roundabout" Screen Capture Recall, by Data Collection Location.

	Billings MVD	**Bozeman MVD**	**Bozeman CTO**	**Helena CTO**	**Kalispell MVD**
Billings MVD	-	-4.8	-5.8	-5.2	-5.3
Bozeman MVD	-	-	-1.4	-1.1	-0.79
Bozeman CTO	-	-	-	0.19	0.51
Helena CTO	-	-	-	-	0.25

The only observable statistically significant difference was between Billings MVD and the other locations. However, since the data sample was small, and the TV was in a less than desirable location for the first video sequence, this probably reflects the location of the TV rather than differences between the locations.

Overall, it does not seem like statistics can be used to uncover any potential recall differences with respect to the screen captures based on data collection location, given the limited data sizes.

4.3.4.3.1.2 Screen Captures for the Second Video Sequence

Overall, the number of survey respondents that reported seeing each of the screen captures for the second video sequence was small: 53 for "Buckle Up – Enough Reasons;" 122 for "Work Zone Safety – the Signs;" 72 for "Flashing Yellow Light;" and 94 for "Slow Down for the Curve," with the "Work Zone Safety – the Signs" screen capture being recalled by the greatest number of people for every location (Figure 38).

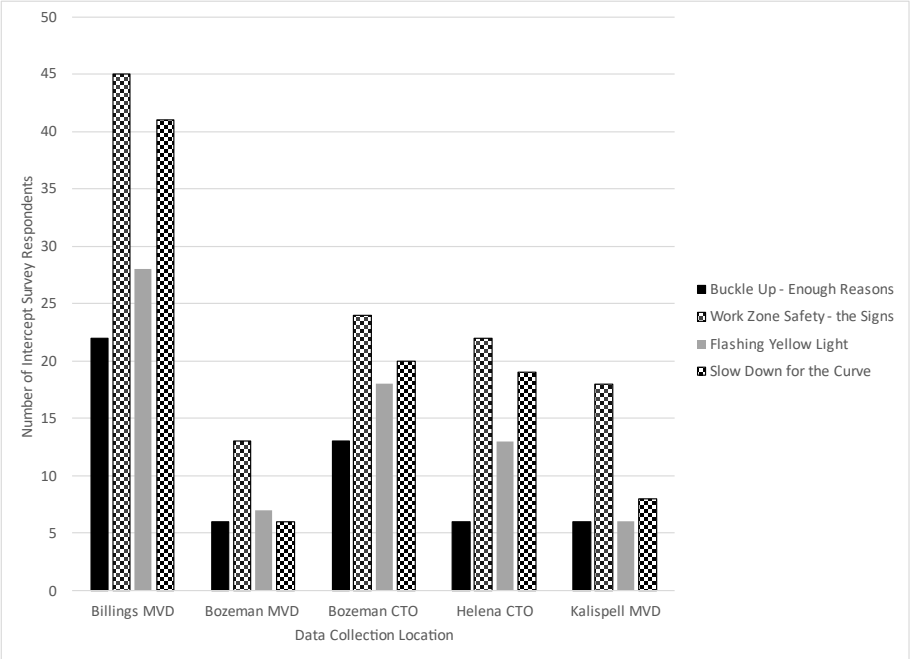


Figure 38: Number of Survey Respondents Recalling Each Screen Capture for the Second Video Sequence by Data Collection Location.

4.3.4.3.2 Reported Wait Time

Next, the researchers wanted to better understand if the reported wait time influenced whether or not they reported recalling at least one screen capture. Consequently, by video sequence, the researchers investigated the relationship between recalling at least one screen capture and the reported wait time.

The majority of intercept survey respondents that reported recalling at least one screen capture reported their wait time to be between 15 and 30 minutes; however, from a rate perspective (i.e., recall of at least one screen capture as compared with the number of intercept survey respondents reporting the wait time), those that waited the longest had the greatest proportion. The rates of the number of people recalling at least one screen capture based on their reported wait time increased as the reported wait time increased. Overall, 223 intercept survey respondents reported recalling at least one screen capture from a video during the first video sequence (Table 31).

Table 31: Recall of at Least One Screen Capture by Reported Wait Time, First Video Sequence.

	Less than 15 minutes	**15-30 minutes**	**31-45 minutes**	**46-60 minutes**	**More than 60 minutes**
Number of observations, n	262	346	128	87	98
Recalled at least one screen capture	39	84	34	30	36
Proportion of visitors who recalled at least one screen capture for the first video sequence	0.15	0.24	0.27	0.34	0.37

The data was analyzed to identify if the reported wait time categories had similar proportions of intercept survey respondents recalling at least one screen capture. The results suggested that whether or not an intercept survey respondent during the first video sequence observed at least one of the screen captures was impacted by their reported wait time (Table 32). The results suggested that the five categories potentially break down into the following three categories: less than 15 minutes; 15-45 minutes; more than 45 minutes.

Table 32: Z Statistic for Reported Wait Time & Recalling at Least One Screen Capture for the First Video Sequence.

	Less than 15 minutes	**15-30 minutes**	**31-45 minutes**	**46-60 minutes**	**More than 60 minutes**
Less than 15 minutes	-	-2.9	-2.8	-4.0	-4.5
15-30 minutes	-	-	-0.51	-2.2	-2.5
31-45 minutes	-	-	-	-1.2	-1.6
46-60 minutes	-	-	-	-	-0.32

The same analysis was conducted for the second video sequence; however, the overall sample size was smaller, with 177 intercept survey respondents reporting recalling at least one screen capture from a video (Table 33).

Table 33: Recall of at Least One Screen Capture by Reported Wait Time, Second Video Sequence.

	Less than 15 minutes	**15-30 minutes**	**31-45 minutes**	**46-60 minutes**	**More than 60 minutes**
Number of observations, n	184	257	134	70	39
Recalled at least one screen capture	25	63	47	27	15
Proportion of visitors who recalled at least one screen capture for the first video sequence	0.14	0.25	0.35	0.39	0.38

The categories for the second video sequence were somewhat different: 1) less than 15 minutes, 2) 15-30 minutes, and 3) more than 30 minutes (Table 34).

Table 34: Z Statistic for Reported Wait Time & Recalling at Least One Screen Capture for the Second Video Sequence.

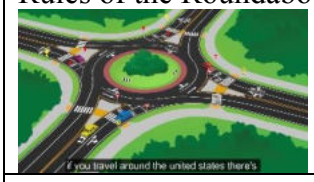
	Less than 15 minutes	**15-30 minutes**	**31-45 minutes**	**46-60 minutes**	**More than 60 minutes**
Less than 15 minutes	-	-2.8	-4.5	-4.4	-3.7
15-30 minutes	-	-	-2.2	-3.0	-1.8
31-45 minutes	-	-	-	-0.49	-0.39
46-60 minutes	-	-	-	-	0.011

Overall, considering both video sequences, a survey respondent was more likely to have reported at least one screen capture if they reported a longer wait time. Therefore, if changes were made at the facilities which would significantly and consistently reduce the wait time, the effectiveness of displaying traffic safety information on TVs can expect to diminish.

4.3.4.3.3 Gender

The researchers wanted to understand: Is there a statistically significant difference when comparing if more males than females reported recalling a screen capture for each video sequence? The researchers first investigated if there were differences in recall by gender for the screen captures used for the first video sequence (Table 35).

Table 35: Z Statistic for Male versus Female Screen Capture Recall, First Video Sequence.

	Male	Female	Non-Binary	Total	Z
n	504	425	3		-
Slow Down and Move Over 	38	31	0	70	0.14
Rules of the Roundabout 	100	88	0	189	-0.33
Gratitude Video 	21	18	0	40	-0.052
Vision Zero – Just One Reason 	34	22	0	57	1.0

Overall, as shown, the sample sizes for each screen capture were small. (Note: Recall that one survey respondent did not identify their gender for the first video sequence.) While not statistically significantly different at the 95% confidence level, the results suggested a potential that the screen capture associated with the video, "Vision Zero – Just One Reason," was more impactful for males than females. A larger sample size was needed to confirm or refute this result. A difference would not be surprising considering that the focus of this video was to encourage males to wear a seatbelt.

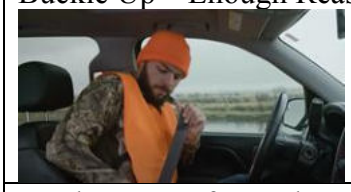
To more fully aggregate the information, the data from the first video sequence was then analyzed to better understand if males as compared to females differed in recalling at least one screen capture (Table 36). With Z = 0.14, there was no statistically significant difference when comparing male versus female recall of at least one screen capture.

Table 36: Reported Recalling at Least One Screen Capture, by Gender, First Video Sequence.

Gender	n	Reported recalling at least one screen capture
Male	504	123
Female	425	102
Non-Binary	3	0

This entire process was repeated for the second video sequence (Table 37).

Table 37: Z Statistic for Male versus Female Screen Capture Recall, Second Video Sequence.

	Male	Female	Non-Binary	Total	Z
n	403	288	3	694	-
Buckle Up – Enough Reasons 	31	21	1	53	0.20
Work Zone Safety – the Signs 	62	58	1	121	-1.6
Flashing Yellow Light 	43	27	2	72	0.56
Slow Down for the Curve 	51	40	2	93	-0.47

Overall, as shown, the sample sizes for each screen capture were small. The results suggested that the screen capture associated with the video, "Work Zone Safety – the Signs," was more impactful for females than males. This result was somewhat unexpected, as women were only mentioned once within the video. One intercept survey respondent even noted the lack of female representation within the video. A larger sample size was needed to confirm or refute this result.

To more fully aggregate the information, the data from the second video sequence was then analyzed to better understand if males as compared to females differed in recalling at least one screen capture when compared with the other (Table 38). With Z = -0.37, there was no statistically significant difference when comparing male versus female recall of at least one screen capture.

Table 38: Reported Recalling at Least One Screen Capture, by Gender, Second Video Sequence.

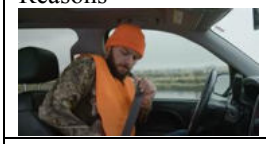
Gender	n	Reported recalling at least one screen capture
Male	403	100
Female	288	75
Non-Binary	3	2

With the available data, there currently exists no statistically significant difference (at the 95% confidence level) comparing males to females with respect to the recall of all eight screen captures or when comparing the proportion of males with females that recalled at least one screen capture. However, one screen capture for both video sequences (Vision Zero – Just One Reason; Work Zone Safety – the Signs) would be statistically significantly different at a reduced confidence level.

4.3.4.3.4 Age

The researchers were interested in determining if statistically significant differences (at the 95% confidence level) existed when comparing the average age of survey respondents who reported seeing each and at least one screen capture with the average age of those that did not. The results suggested a difference in age for each screen capture being recalled from the first video sequence, except for "Vision Zero – Just One Reason" (Table 39). The average age of the sample that recalled the screen captures during the first video sequence was slightly younger. The opposite was true for the screen captures associated with the second video sequence, where there was no statistically significant difference between the samples that recalled the screen capture when compared with those that had not, except for the screen capture associated with the video "Work Zone Safety – the Signs." For both video sequences, a statistically significant difference (at the 95% confidence level) was found between the average age of those who recalled at least one screen capture, again, with those that recalled at least one having a slightly younger average age. While some of the differences between recall samples may reflect a reduced ability to recall information with age, there was potentially a compounding factor associated with the topic of the video, as not all videos were found to have a statistically significant difference. Furthermore, those differences were not specific to only the smallest of sample sizes.

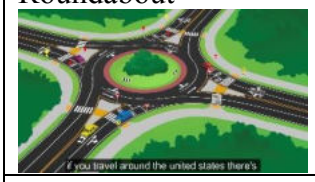
Table 39: The Influence of Average Age in Recall of Each and At Least One Screen Capture.

	Video		Minimum	Average	Maximum	Std Dev	n	Z
First Video Sequence	Vision Zero – Just One Reason 	Saw	18	43	86	18	69	1.4
		Did Not See	18	46	86	18	861	
	Slow Down and Move Over 	Saw	18	36	86	15	40	4.3
		Did Not See	18	46	86	18	890	
	Rules of the Roundabout 	Saw	18	40	86	16	188	5.5
		Did Not See	18	47	86	18	742	
	Gratitude Video 	Saw	18	40	86	17	57	2.8
		Did Not See	18	46	86	18	873	
	At least one screen capture was recalled	Yes	18	40	86	16	226	5.5
		No	18	47	86	18	706	
Second Video Sequence	Buckle Up – Enough Reasons 	Saw	18	44	79	18	53	1.1
		Did Not See	18	47	90	17	639	
	Work Zone Safety – the Signs 	Saw	18	44	79	17	122	2.1
		Did Not See	18	47	90	17	570	
	Flashing Yellow Light 	Saw	18	43	75	16	72	1.7
		Did Not See	18	47	90	17	620	
	Slow Down / Curve 	Saw	18	44	79	16	94	1.5
		Did Not See	18	47	90	18	598	
	At least one screen capture was recalled	Yes	18	44	79	17	178	2.8
		No	18	48	90	18	514	

4.3.4.3.5 Presence of Children in a Household

This section presents the results of determining if there was a statistically significant difference regarding whether or not survey respondents with children in their household reported a screen capture of a video as compared with survey respondents without children in their household. First, the Z statistics at the 95% confidence level are presented for the first video sequence followed by those of the second video sequence (Table 40).

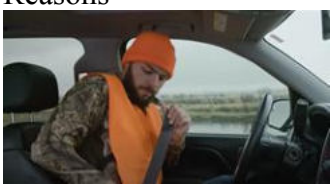
Table 40: Comparing Recall of Screen Captures in First Video Sequence for Households with and without Children.

Screen Capture	Measure	Households with children	Households without children
Vision Zero – Just One Reason 	n	216	722
	Reported recalling the video when prompted with the screen capture	19	38
	Z (95%)	1.9	
Slow Down and Move Over 	n	216	722
	Reported recalling the video when prompted with the screen capture	21	49
	Z (95%)	1.4	
Rules of the Roundabout 	n	216	722
	Reported recalling the video when prompted with the screen capture	65	124
	Z (95%)	4.2	
Gratitude Video 	n	216	722
	Reported recalling the video when prompted with the screen capture	13	27
	Z (95%)	1.5	

The results suggested that the only difference that exists was for the roundabout video, where those with children report recalling the video when presented with the screen capture more than survey respondents who did not report having children in their household. However, as noted earlier, with such small sample sizes, there was the potential that other differences exist for the screen captures that cannot be uncovered as a result of these small sample sizes.

The same analysis was conducted for the second video sequence (Table 41).

Table 41: Comparing Recall of Screen Captures in Second Video Sequence for Households with and without Children.

Screen Capture	Measure	Households with children	Households without children
Buckle Up – Enough Reasons 	n	184	511
	Reported recalling the video when prompted with the screen capture	15	38
	Z (95%)	0.31	
Work Zone Safety – the Signs 	n	184	511
	Reported recalling the video when prompted with the screen capture	39	83
	Z (95%)	1.5	
Flashing Yellow Light 	n	184	511
	Reported recalling the video when prompted with the screen capture	26	46
	Z (95%)	2.0	
Slow Down for the Curve 	n	184	511
	Reported recalling the video when prompted with the screen capture	33	61
	Z (95%)	2.0	

The limited sample size must again be acknowledged. However, here, there was a suggestion that the "Flashing Yellow Light" and "Slow Down for the Curve" screen captures resonated more with survey respondents who reported children in their households when compared to those households without children. This result was somewhat unexpected, as the primary protagonists in the "Buckle Up – Enough Reasons" was what one may assume to be a father and his little girl. Consequently, the researchers had anticipated that there would be a difference in recall for those with children in the household as compared with those without children in the household. The data suggest that this was not the case.

4.3.4.4 Slogan Recall

Ten slogans were presented in the intercept surveys across the two video sequences:

1. Slow down and move over.
2. Never Drink and Drive.
3. What's your one reason?
4. Don't Crowd the Plow
5. Slow down, look around, be ready to yield.
6. Check for trains
7. SAM I AM
8. The right seat
9. Slow down for the curve
10. Stop speeding before it stops you.

This section first investigated if any of the slogans may resonate with subgroups within Montana by looking for patterns by data collection location (i.e., Helena CTO versus Bozeman MVD) for each video sequence. It then investigates if there was a potential correlation between longer reported wait times and a greater retention of the number of slogans. Next, it examined if gender influences whether each slogan was recalled, followed by the influence of age. Finally, the presence of children in a household was investigated for influence of slogan recall.

4.3.4.4.1 Data Collection Location

Each slogan was investigated to determine if there was a difference in slogan recall between data collection locations. The following figures report the number of times a slogan was reported as recalled for the first (Figure 39) and second (Figure 40) video sequences by data collection location.

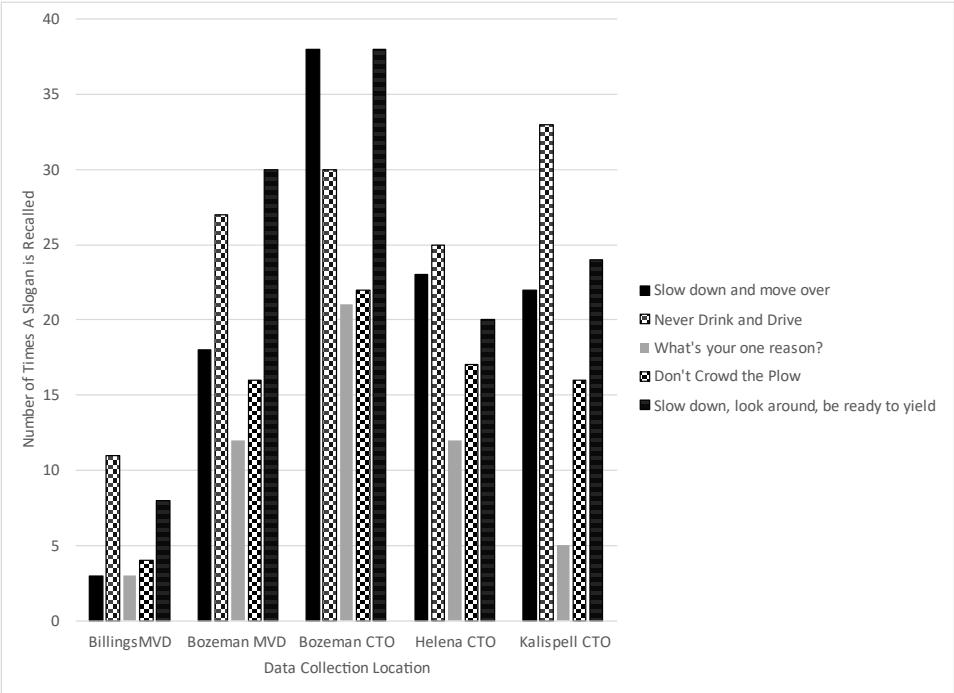


Figure 39: Number of Times a Slogan was Recalled for the First Video Sequence by Data Collection Location.

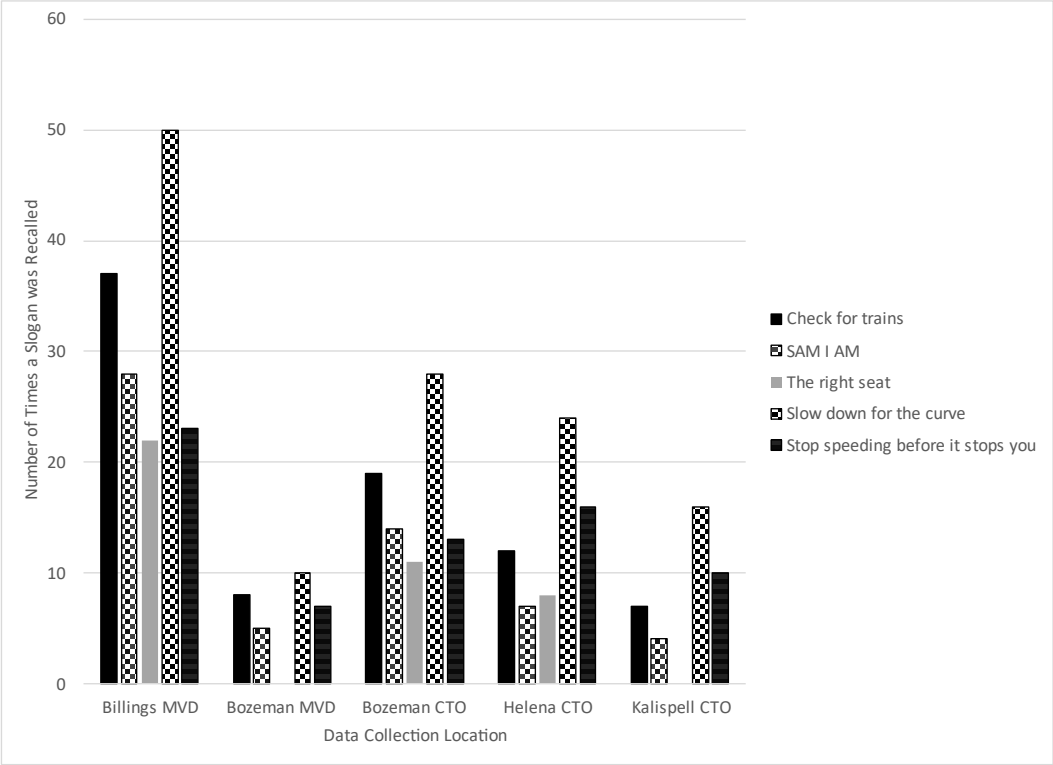


Figure 40: Number of Times a Slogan was Recalled for the Second Video Sequence by Data Collection Location.

For the first video sequence, "What's your one reason?" was consistently reported the least across all locations. This would suggest that this slogan does not resonate when considering what people recalled from the video sequences. "Don't Crowd the Plow" was the second least reported slogan, except at the Billings MVD. Hence, similarly, it does not seem this slogan resonates with viewers. Overall, three slogans were reported most frequently for the first video sequence: "Slow down and move over," "Never Drink and Drive," and "Slow down, look around, be ready to yield." The researchers were aware of messaging related to "Don't Crowd the Plow" on dynamic message signs (DMSs) and in PSAs on the radio. Hence, these results may suggest that survey respondents were reporting their recall specific to the video sequences, as instructed, if the PSAs on the radio and messaging on the DMSs have been observed by the public. No statistical comparisons for data collection location were made, as the sample sizes were small in some instances (i.e., only three intercept survey respondents reported recalling the slogan "Slow Down and Move Over".)

The Billings MVD had the fewest number of recalled slogans during the first video sequence, when the TV was in a less optimal location. In contrast, the Billings MVD has the greatest number when considering all locations. The change in the number of reported recalled slogans between the first and second video sequences suggests that survey respondents were, in fact, reporting what they viewed from the traffic safety messages, and not just general slogans that they may have heard from other sources (i.e., radio, TV, billboards).

During the second video sequence, the "Slow Down for the Curve" slogan had the greatest number of survey respondents reporting that they viewed it (Billings MVD = 50; Bozeman MVD = 10; Bozeman CTO = 28; Helena CTO = 24; Kalispell MVD = 16; and Total = 128). Consequently, the researchers investigated if there were any statistically significant differences when considering the location where the data was collected (Table 42).

Table 42: Z Statistic for "Slow Down for the Curve," by Data Collection Location.

	Billings MVD	**Bozeman MVD**	**Bozeman CTO**	**Helena CTO**	**Kalispell MVD**
Billings MVD	-	7.5	3.8	1.5	5.2
Bozeman MVD	-	-	-3.8	-6.6	-2.0
Bozeman CTO	-	-	-	-1.8	1.7
Helena CTO	-	-	-	-	3.3

The results suggest similarities between Billings MVD and Helena CTO.

4.3.4.4.2 Reported Wait Time

Next, the researchers wanted to better understand if the reported wait time influenced if they reported recalling at least one slogan. Consequently, by video sequence, the researchers investigated the relationship between recall of at least one slogan and the reported wait time.

The majority of intercept survey respondents that reported recalling at least one slogan reported their wait time to be between 15 and 30 minutes; however, from a rate perspective (i.e., recall of at least one slogan as compared with the number of intercept survey respondents reporting the wait time), those that waited the longest had the greatest proportion (i.e., 0.32 in Table 43). The rates of the number of people recalling at least one slogan based on their reported wait time increased as the reported wait time increased. Overall, 175 intercept survey respondents reported recalling at least one slogan from a video during the first video sequence.

Table 43: Recall of at Least One Slogan by Reported Wait Time, First Video Sequence.

	Less than 15 minutes	**15-30 minutes**	**31-45 minutes**	**46-60 minutes**	**More than 60 minutes**
Number of observations, n	262	346	128	87	98
Recalled at least one slogan	35	60	29	20	31
Proportion of visitors who recalled at least one slogan for the first video sequence	0.13	0.17	0.23	0.23	0.32

The data was analyzed to identify if the reported wait time categories had similar proportions of respondents recalling at least one slogan. The results suggested that slogan recall was impacted by reported wait time during the first video sequence (Table 44). The results suggested that the five categories potentially break down into the following three categories: less than 15 minutes; 15-60 minutes; more than 60 minutes.

Table 44: Z Statistic for Reported Wait Time & Recalling at Least One Slogan for the First Video Sequence.

	Less than 15 minutes	**15-30 minutes**	**31-45 minutes**	**46-60 minutes**	**More than 60 minutes**
Less than 15 minutes	-	-1.3	-2.3	-2.1	-4.0
15-30 minutes	-	-	-1.3	-1.4	-3.1
31-45 minutes	-	-	-	-0.057	-1.5
46-60 minutes	-	-	-	-	-1.3

The same analysis was conducted for the second video sequence. The overall sample size was larger, with 193 intercept survey respondents reporting recalling at least one slogan (Table 45).

Table 45: Recall of at Least One Slogan by Reported Wait Time, Second Video Sequence

	Less than 15 minutes	**15-30 minutes**	**31-45 minutes**	**46-60 minutes**	**More than 60 minutes**
Number of observations, n	184	257	134	70	39
Recalled at least one slogan	30	68	51	29	15
Proportion of visitors who recalled at least one slogan for the second video sequence	0.16	0.26	0.38	0.41	0.38

The categories for the second video sequence were somewhat different: 1) less than 15 minutes, 2) 15-30 minutes, and 3) more than 30 minutes (Table 46).

Table 46: Z Statistic for Reported Wait Time & Recalling at Least One Slogan for the Second Video Sequence.

	Less than 15 minutes	**15-30 minutes**	**31-45 minutes**	**46-60 minutes**	**More than 60 minutes**
Less than 15 minutes	-	-2.5	-4.4	-4.2	-3.1
15-30 minutes	-	-	-2.4	-3.1	-1.6
31-45 minutes	-	-	-	-0.47	-0.045
46-60	-	-	-	-	0.30

minutes					

Similar to the conclusions noted in section 4.4.3.2 Screen Capture Recall, a survey respondent was more likely to recall at least one slogan if they reported a longer wait time. Therefore, if changes were made at the facilities which would significantly and consistently reduce the wait time, the effectiveness of displaying traffic safety information on TVs can expect to diminish.

4.3.4.4.3 Gender

The researchers wanted to understand: Is there a statistically significant difference (at the 95% confidence level) when comparing if more males than females reported recalling a slogan for each video sequence? There were several cases where a survey respondent reported recalling a slogan even though they did not report having viewed the TV. Therefore, only those survey respondents that reported seeing a TV were included in the analysis.

First, the researchers investigated if there were differences for the slogans used for the first video sequence (Table 47).

Table 47: Z Statistic for Male versus Female Slogan Recall, First Video Sequence.

	Male	**Female**	**Non-Binary**	**Total**	**Z**
n	504	425	3	932	-
Slow down and move over	56	47	0	103	0.025
Never Drink and Drive.	77	47	0	124	1.9
What's your one reason?	20	32	0	52	-2.4
Don't Crowd the Plow	42	31	0	73	0.59
Slow down, look around, be ready to yield.	64	55	0	119	-0.11
Recalled at least one slogan	101	73	0	174	1.1

Overall, the sample sizes for a slogan that was reported as recalled was small, particularly for "What's your one reason?" and "Don't Crowd the Plow". However, of the collected data, there seemed to be a significant difference when comparing males with females for the slogan, "What's your one reason?". This result was somewhat unexpected, as the focus of the video were males. Consequently, it may suggest that the difference was more reflective of the limited data available for this slogan (the fewest number of survey respondents reported recalling this one). More data was needed to draw a more definitive conclusion. To try to more fully aggregate the information, the data from the first video sequence was then analyzed to better understand if males as compared with females had a difference regarding if one group recalled at least one slogan when compared with the other. With Z = 1.1, there was no statistically significant difference when comparing male versus female recall of at least one slogan.

This entire process was repeated for the second video sequence (Table 48).

Table 48: Z Statistic for Male versus Female Slogan Recall, Second Video Sequence.

	Male	Female	Non-Binary	Total	Z
n	403	288	3	694	-
Check for trains	41	41	1	83	-1.6
SAM I AM	28	29	1	58	-1.5
The right seat	20	21	0	41	-1.3
Slow down for the curve	69	56	2	127	-0.78
Stop speeding before it stops you	30	37	1	68	-2.4
Recall at least one slogan	104	87	2	193	-1.3

Overall, except the slogan "Slow down for the curve," the majority of times each slogan was reported as being recalled is small (less than 100). However, there was a suggested difference between males versus females reported recalling "Stop speeding before it stops you." Since the crash statistics suggest that males are involved in more fatal speeding crashes, this result was not surprising (National Highway Traffic Safety Admininistration, 2022). It may indicate that this slogan was not as effective at reaching the male audience. To try to more fully aggregate the information, the data from the second video sequence was then analyzed to better understand if there was a difference in reporting of one slogan recall between males and females. With Z = -1.3, there was no statistically significant difference when comparing male versus female recall of at least one slogan.

With the available data, only two slogans were suggested to show some statistically significant difference when comparing males with females: "What's your one reason?" and "Stop speeding before it stops you." However, it should be highlighted once more that limited data was used to draw these conclusions.

4.3.4.4.4 Age

The researchers were interested in determining if a statistically significant difference (at the 95% confidence level) existed when comparing the average age of survey respondents who recalled each slogan with the average age of those that did not. In addition, the researchers were interested in understanding if there was a statistically significant difference in the average age of survey respondents who recalled at least one slogan during each video sequence. The results suggested that three of the five slogans ("Never Drink and Drive;" "What's your one reason?" and "Slow down, look around, be ready to yield") were typically reported as recalled by a younger average age of intercept survey respondents (Table 49). In addition, it was only in the first video sequence that younger intercept survey respondents were found to have a statistically significant difference regarding if they reported recalling at least one slogan. In contrast, no slogan was found to have a statistically significant difference when comparing the average age of those who reported recalling them for the second video sequence. In addition, there was no statistically significant difference in the average age when comparing those that reported recalling at least one slogan. However, again, the difference between the averages was a

maximum of nine years (for "What's your one reason?"), and the standard deviations are larger than this difference (typically about 18 years).

Table 49: The Influence of Average Age in Recall of Each and At Least One Slogan.

	Video		Minimum	Average	Maximum	Std Dev	n	Z
First Video Sequence	Slow down and move over.	Recalled	18	46	84	18	103	0.030
		Did Not	18	46	86	18	827	
	Never Drink and Drive.	Recalled	18	41	86	18	125	2.8
		Did Not	18	46	86	18	805	
	What's your one reason?	Recalled	18	37	72	16	52	4.0
		Did Not	18	46	86	18	878	
	Don't Crowd the Plow	Recalled	20	47	86	18	74	-0.83
		Did Not	18	46	86	18	856	
	Slow down, look around, be ready to yield.	Recalled	18	40	78	17	119	3.5
		Did Not	18	46	86	18	810	
	Recalled at least one slogan	Yes	18	42	86	18	175	3.0
		No	18	46	86	18	757	
Second Video Sequence	Check for trains	Recalled	18	48	79	18	94	-0.83
		Did Not	18	46	90	18	598	
	SAM I AM	Recalled	19	47	85	18	58	-0.34
		Did Not	18	46	90	17	634	
	The right seat	Recalled	20	50	74	16	41	-1.6
		Did Not	18	46	90	17	651	
	Slow down for the curve	Recalled	18	46	85	17	128	0.72
		Did Not	18	47	90	18	564	
	Stop speeding before it stops you	Recalled	18	47	85	20	69	-0.20
		Did Not	18	46	90	17	623	
	Recalled at least one slogan	Yes	18	45	85	17	194	1.6
		No	18	47	90	17	498	

4.3.4.4.5 Presence of Children in a Household

This section presents the results of determining if there was a statistically significant difference (at the 95% confidence level) regarding whether survey respondents with children in their

household reported recalling a slogan as compared with survey respondents without children in their household. First, the Z statistics are presented for the first video sequence (Table 50) followed by those of the second video sequence (Table 51).

Table 50: Comparing Recall of Slogans in First Video Sequence for Households with and without Children.

Slogan from the First Video Sequence	**Measure**	**Households with children**	**Households without children**
Slow down and move over.	n	216	721
	Reported recalling the slogan	29	75
	Z (95%)	1.2	
Never Drink and Drive	n	216	721
	Reported recalling the slogan	36	90
	Z (95%)	1.6	
What's your one reason?	n	216	721
	Reported recalling the slogan	11	42
	Z (95%)	-0.41	
Don't Crowd the Plow	n	216	721
	Reported recalling the slogan	23	52
	Z (95%)	1.6	
Slow down, look around, be ready to yield	n	216	721
	Reported recalling the slogan	39	81
	Z (95%)	2.6	
Recalled at least one slogan	n	216	721
	Reported recalling at least one slogan	50	126
	Z (95%)	1.9	

The results suggested that the only difference that exists was for the slogan, "Slow down, look around, be ready to yield", where those with children report recalling the slogan more than survey respondents who did not report having children in their household. However, the sample sizes for households with children that reported recalling this slogan were small (i.e., 39). In addition, overall, there was not a statistically significant difference regarding whether a household with or without children reported recalling at least one slogan during the first video sequence.

For the second video sequence, when considering each slogan, there was not a statistically significant difference regarding if a household with or without children reported recalling each

slogan. The limited sample size must again be acknowledged. However, there was a suggestion that households with children were more likely to recall slogans than those without children.

Table 51: Comparing Recall of Slogans in Second Video Sequence for Households with and without Children.

Slogan	Measure	Households with children	Households without children
Check for trains	n	184	511
	Reported recalling the slogan	27	56
	Z (95%)	1.3	
SAM I AM	n	184	511
	Reported recalling the slogan	19	39
	Z (95%)	1.1	
The right seat	n	184	511
	Reported recalling the slogan	12	29
	Z (95%)	0.42	
Slow down for the curve	n	184	511
	Reported recalling the slogan	41	87
	Z (95%)	1.6	
Stop speeding before it stops you	n	184	511
	Reported recalling the slogan	19	50
	Z (95%)	0.21	
Recalled at least one slogan	n	184	511
	Reported recalling at least one slogan	64	130
	Z (95%)	2.4	

4.3.4.5 Confusion

The researchers made every effort to ensure that the intercept survey was written clear and was presented in an easy to understand/interpret format. However, even though pilot surveying results were promising, a review of the data collected indicated that there was some confusion. This could be for a multitude of reasons, including, but not necessarily limited to survey respondents hurrying and consequently not reading the survey questions in their entirety.

A very important question that the intercept survey asked was, “Did you look at the TV monitor during your visit?” with a prompt for yes or no response. There were several instances where a survey respondent selected no but then they would circle a screen capture or indicate that they

had recalled a slogan. There was some potential that a small portion of the patrons considered the traffic safety videos to be just "videos" as compared with a TV monitor, suggesting a nomenclature difference. While at least each screen capture and slogan was chosen once, the vast majority of survey respondents who reported that they did not see the TV but reported recalling a screen capture or slogan reported "Never Drink and Drive." Since this slogan has been used in traffic safety messaging for an extended period of time, it is possible they were reporting their awareness of the message as compared with recalling it from the traffic safety videos.

4.3.4.6 Summary of Analysis of Intercept Survey Data

With respect to those who saw the TVs, they tended to be viewed by younger patrons and those who waited longer. Gender identity did not appear to have an impact on if a TV was seen.

With respect to recalling screen captures, those who waited longer were more likely to report recalling at least one screen capture. No gender identity differences were found, but age differences were observed. Younger patrons were more likely to report: "Slow Down and Move Over," "Rules of the Roundabout," the "Gratitude Video," and "Work Zone Safety – the Signs." For the "Slow Down and Move Over" and "Work Zone Safety – the Signs" videos, younger people may more closely see themselves or someone they love as potentially filling these positions.

The response to the "Rules of the Roundabout" video could potentially suggest that the younger patrons may be more open to these new traffic safety treatments; and therefore, they were interested in learning more about how to navigate a roundabout. Since the "Gratitude Video" included a protagonist of both the younger and older generations, the result was a bit unexpected in that no difference in recall of the average age was found. When considering households with children, the screen captures for "Rules of the Roundabout," "Flashing Yellow Light," and "Slow Down for the Curve" were recalled more often when compared with households without children.

With respect to recalling slogans, similar to screen captures, the longer the reported wait time, the more likely it was that an intercept survey respondent would recall at least one slogan. One gender identity difference was found for slogans: "Stop speeding before it stops you" was more likely to be recalled by those identifying as female as compared with males. This result coincides with that of Islam et al. (Islam, Thue, & Grekul, 2017), where females were found to see more risk with speeding. This result may suggest that this slogan will not impact the traffic safety culture of males. During the first video sequence, age was also found to impact the recall of slogans, with younger patrons more likely to recall at least one slogan from the first video sequence. In addition, younger patrons were more likely to recall the following slogans: "Never Drink and Drive," "What's your one reason?" and "Slow down, look around, be ready to yield." Age was not found to have impacted the recall of slogans from the second video sequence.

Overall, age generally slanted towards younger patrons as more likely to see and recall screen captures and slogans. While some of these results could be attributed to less recall as one ages, it may also suggest that certain traffic safety messages resonate less with someone older. To have a greater impact on traffic safety culture, MDT may want to consider tailoring some traffic safety

messages to an older audience. However, as MDT's CHSP has indicated, for several years now, the statewide traffic fatalities and serious injuries for older Montanans has already been declining. Therefore, having traffic safety messages tailored so that they reach a younger audience, as was found for this research project, may be desirable.

Ultimately, the video content and location of the TV determined audience attention. However, considering the videos and slogans within this experiment, those who waited longer and those who were younger had higher rates of seeing and reporting recall of information from the traffic safety videos during the intercept surveys. To ensure the information from any included videos is received, videos similar in length should be chosen. However, if MDT would prefer to bias traffic safety information disseminated to viewers, they could also lengthen a particular video, as this seemed to influence respondents' recall when presented with a screen capture of the video.

Overall, videos that may be described as "shocking" (Silva, Laiz, & Tabak, 2020) or blended entertainment (Yoh, Uchiyama, Hung, & Doi, 2019) seemed to resonate more with viewers. However, not all of the videos included in this research effort fit well with the three categories (shocking, punitive, technical) identified by Silva et al. (Silva, Laiz, & Tabak, 2020). Consequently, if MDT wants to capture the attention of viewers and ensure more effective messaging, videos that are shocking or those that engage a viewer's empathy with the protagonist should be selected or created.

As discussed in the design of the intercept survey and experiment, to ensure that the intercept surveys were succinct, consequently allowing for a greater participation rate, limited questions could be asked. Demographic information (i.e., age, gender) that was expected to impact recall of information was prioritized. In addition, questions targeting the main objective of the project (i.e., did you see the TV), were prioritized as well. Future studies like this could potentially leverage other incentives, such as monetary compensation, to enable participation with lengthier surveys that included questions about trivia or other priority topics. When asked what was most memorable about the videos, survey respondents reported recalling detailed trivia information such as the length a vehicle travels when one is texting.

While more intercept survey respondents indicated a willingness to participate in a follow-up survey, only those who indicated that they had viewed the TV were asked to complete one. The next section details the analysis of the follow-up surveys.

4.4 Follow-Up Surveys

A follow-up survey was created to obtain a richer understanding regarding what, if any, longer-term impact the traffic safety videos had on those that viewed them while in an MVD or CTO office. Appendix L: Follow-up Surveys provides an example of the online and hard copy surveys administered to potential respondents. This section discusses the results of the collected follow-up surveys. First, the collected data is described. Then after, the sample is compared with the intercept survey data. Finally, results of additional analyses on the data are reported.

4.4.1 Description of Data

Table 52 shows the number of follow-up surveys and their percent of the entire sample for that data collection, subtotal and total.

Table 52: Number of follow-up surveys and percentage of sample for that data collection period, subtotal, and total.

	Data Collection Period	Billings MVD	Bozeman CTO	Bozeman MVD	Helena CTO	Kalispell MVD	TOTAL
First Video Sequence	Aug/Sept	0 (0%)	7 (47%)	2 (33%)	3 (33%)	1 (17%)	13
	Oct/Nov	0 (0%)	3 (25%)	5 (31%)	1 (13%)	3 (21%)	12
	Subtotal	0 (0%)	10 (40%)	7 (28%)	4 (16%)	4 (16%)	25
Second Video Sequence	Apr/May	8 (40%)	2 (10%)	1 (5%)	8 (40%)	1 (5%)	20
	Jun/Jul	6 (26%)	11 (48%)	2 (9%)	2 (9%)	2 (9%)	23
	Subtotal	14 (33%)	13 (30%)	3 (7%)	10 (23%)	3 (7%)	43
TOTAL		14 (21%)	23 (34%)	10 (15%)	14 (21%)	7 (10%)	68

Overall, the sample size is small. However, the sample has some rich information when considering whether or not the traffic safety videos may have impacted traffic safety culture. Appendix L: Follow-up Surveys includes tables describing the number of completed follow-up surveys as compared with the number of intercept survey respondents who had indicated a willingness to participate in the follow-up surveys (and saw the TV), both online and via a mailed hard copy version, broken down by video sequence and data collection period within each video sequence. A notable change between video sequences was the greater completion of follow-up surveys during the second video sequence. In part, this reflects the greater number of customers who viewed the TV during the second video sequence, particularly at the Billings MVD location where the TV had been moved (see the zero for the Billings MVD for the first video sequence as compared with fourteen for the second video sequence in Table 52).

The majority of the follow-up surveys were representative of customers of the Bozeman CTO (Figure 41).

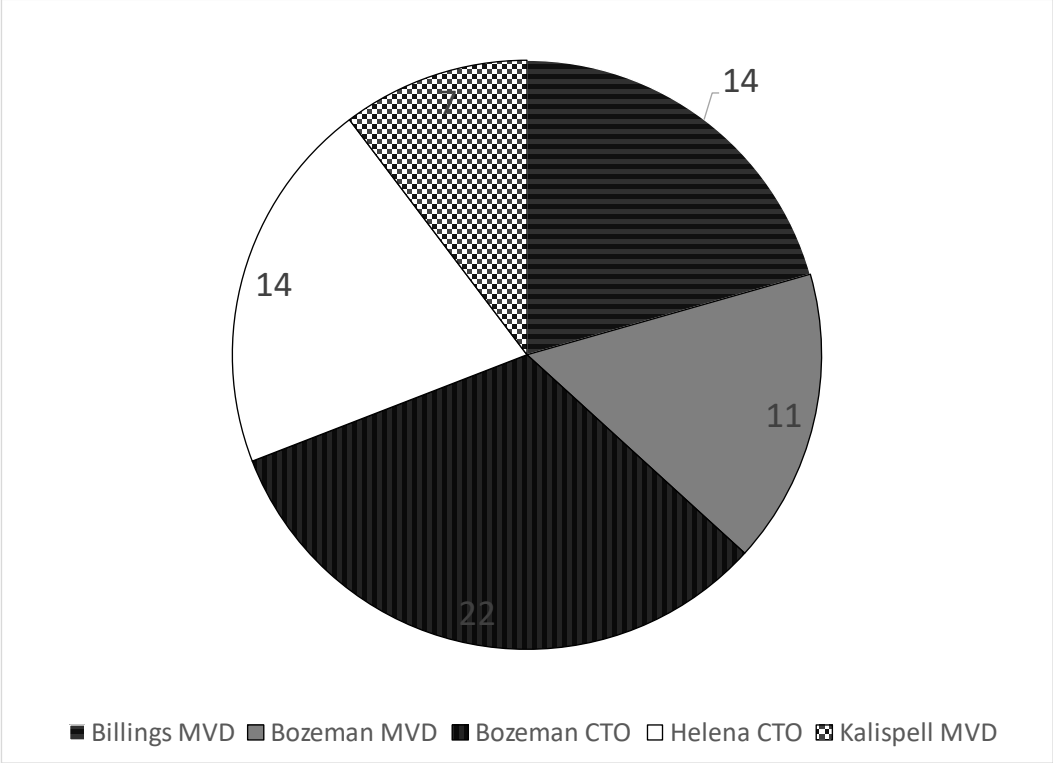


Figure 41: Follow-Up Survey Data Collection Location.

Overall, the majority of follow-up surveys were completed online (62 responses or 91%). By the time the survey respondent had completed the follow-up survey, eleven (16%) of survey respondents reported, "I do not recall any of these videos." when presented with screen captures from them.

If a follow-up survey respondent reported that they had recalled the videos when presented with the screen captures, they were then asked if any of the following four statements apply:

- I learned something new.
- It made me think of my children.
- It made me think of my family members.
- It made me think of a time when I had a close call.

Of the forty-seven follow-up survey respondents who provided input for this question, the majority chose: "It made me think of my family members." (14 or 30%) and "It made me think of a time when I had a close call." (14 or 30%).

Follow-up survey respondents were asked if they had shared the information from within the videos. Ten survey respondents (20%) indicated that they had. They reported sharing the following:

- "How to use a roundabout. There are so many people out there who stop and wait like at a stop sign. More public education is needed."
- "Discussed roundabouts with my son."

- "Round[ ]about info"
- "About how people do not know yield laws"
- "round[ ]about"
- "The carts running into each other at the grocery store."
- "I discussed all of the information with my wife. We both agree that a large number of drivers need to adhere to the information provided in the videos. Too many people drive way to[o] fast for road conditions and do not have the courtesy for other drivers."
- "Talked with my granddaughter about flashing yellow light."
- "Slowing down in work zone"

The positive takeaway was that salient information was being shared. If the impact found for those who responded to the follow-up survey can be extrapolated to the entire sample, then there was a potential that around three hundred people of those who participated in the intercept surveys may have absorbed the traffic safety information provided by the videos. With an extensive range of customer ages (see Intercept Survey Data for more details on the intercept survey age distribution), the value of disseminating traffic safety messages in this relatively passive manner could hold value. For example, MDT's Holiday Mobilization plan cost $4,145 to disseminate local law enforcement messaging in the Bozeman area to an estimated 325-350 individuals; this may suggest that this effort holds of value of more than $4,000 based on its ability to disseminate traffic safety information, as the extrapolated data only represents the number of people responding to the survey on select days and times.

When presented with the slogans and the statement, "I do not recall reading or seeing any of these slogans", twenty (29%) of follow-up survey respondents indicated that they did not recall any of the slogans. When compared with the number of folks that reported not recalling any of the videos, it would appear as if recall of slogans was less likely than recall of the screen captures. This result was expected based on the literature (i.e., (Silva, Laiz, & Tabak, 2020)), where videos were identified as being more captivating than text.

Survey respondents were then asked if the same four statements (shown in the bullets above) apply with respect to the slogans. Thirty-two survey respondents provided a response. Again, the same two slogans ("It made me think of my family members." (10 or 31%) and "It made me think of a time when I had a close call." (11 or 34%)) were the most frequently selected statements.

Follow-up survey respondents were then asked if they had shared the slogans. Only two (5%) survey respondents reported having done so. One reported "Slow down for curves with my husband". The other survey respondent did not provide specific information. Therefore, when compared with the screen captures, the results suggested more of an impact as a result of the screen captures when compared with slogans for the sharing of information. The impact of screen captures versus slogans may be somewhat biased, as questions about the screen captures were listed first in the survey with questions about the slogans presented later in the follow-up survey; the order of survey questions can have an impact on response.

The majority of survey respondents (69%) reported that the videos did not result in them changing their beliefs. (Note: Only 51 of the 68 total respondents provided a response to this question.) Thus, this result suggested a minimal impact to traffic safety culture, where a change

in beliefs is associated with an impact in traffic safety culture.

Follow-up survey respondents seemed to suggest that they would be safer drivers more than they changed a driving behavior (Figure 42).

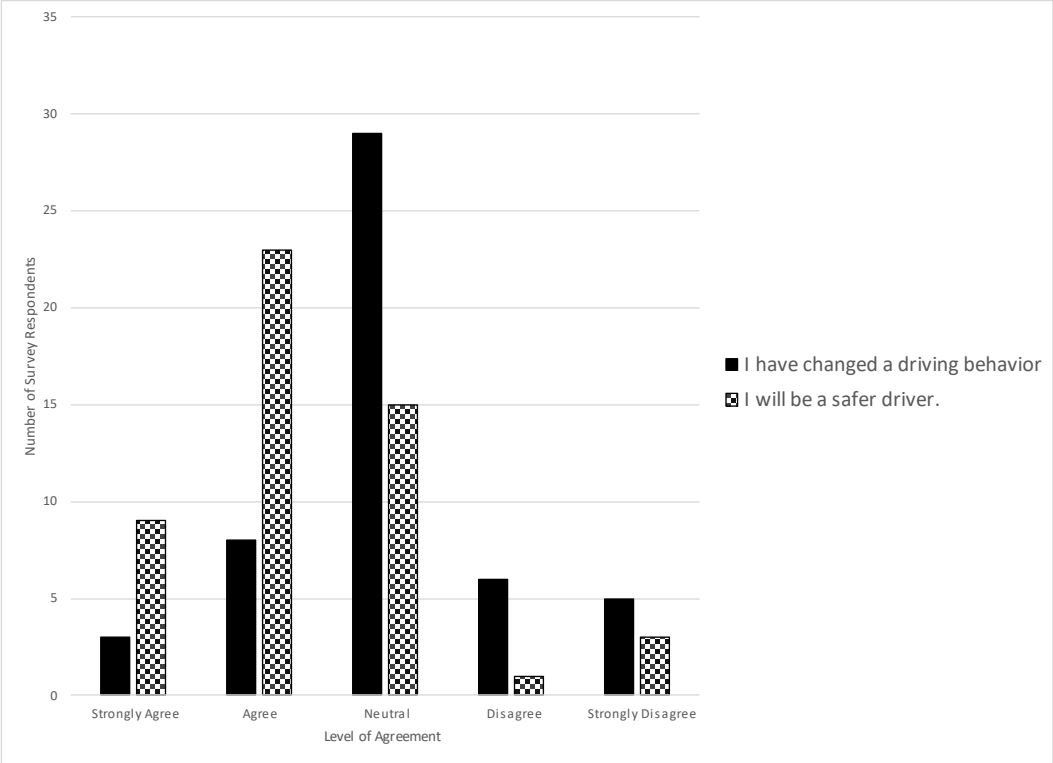


Figure 42: Reported change in driving behavior and driving safe.

Follow-up survey respondents had a minimum reported age of 19, average of 48 and maximum of 78 years of age. More survey respondents were female than male; no survey respondents that reported identifying as non-binary participated in the follow-up survey. Follow-up survey respondents lived in households ranging from one to four people, with an average of just under two people. The median was two. Twenty-six follow-up survey respondents (38% of the sample) were from households with children.

Based on a survey respondent's self-identification, the follow-up survey data was biased towards representing respondents identifying as White/Caucasian. Of those providing information about race, all but one survey respondent reported being White/Caucasian (91%); the only other reported race was Asian (1.5%). Comparing the results to the U.S. Census Bureau data for individuals identifying as one race for Montana (85.1%) (U.S. Census Bureau, 2020), the follow-up survey data has an overrepresentation of White/Caucasian. With no follow-up survey respondents indicating that they are American Indian and Alaska Native, individuals identifying as such may not well represented in the follow-up survey data. However, five follow-up survey respondents did not provide information about race. One individual reported identifying as Hispanic/Latino (1.5%). Therefore, from an ethnicity perspective, individuals

identifying as Hispanic/Latino are underrepresented when compared with the U.S. Census for Montana (4.3%) (U.S. Census Bureau, 2020). Therefore, when considering Benzaman et al.'s (Benzaman, Ward, & Schell, 2022) findings, which suggest that race and ethnicity have an impact on traffic safety culture, with little variability in the data, the influence of race and ethnicity on responses cannot be considered.

Most follow-up survey respondents (37 respondents) reported holding a bachelor's degree or greater. (Note: Only 63 of the 68 total respondents provided a response to this question.) In addition, the majority of survey respondents (21 respondents) reported making more than $100,000 annually. (Note: Only 56 of the 68 total respondents provided a response to this question.) The majority of follow-up survey respondents had reported spending between fifteen and forty-five minutes at a facility (Figure 44).

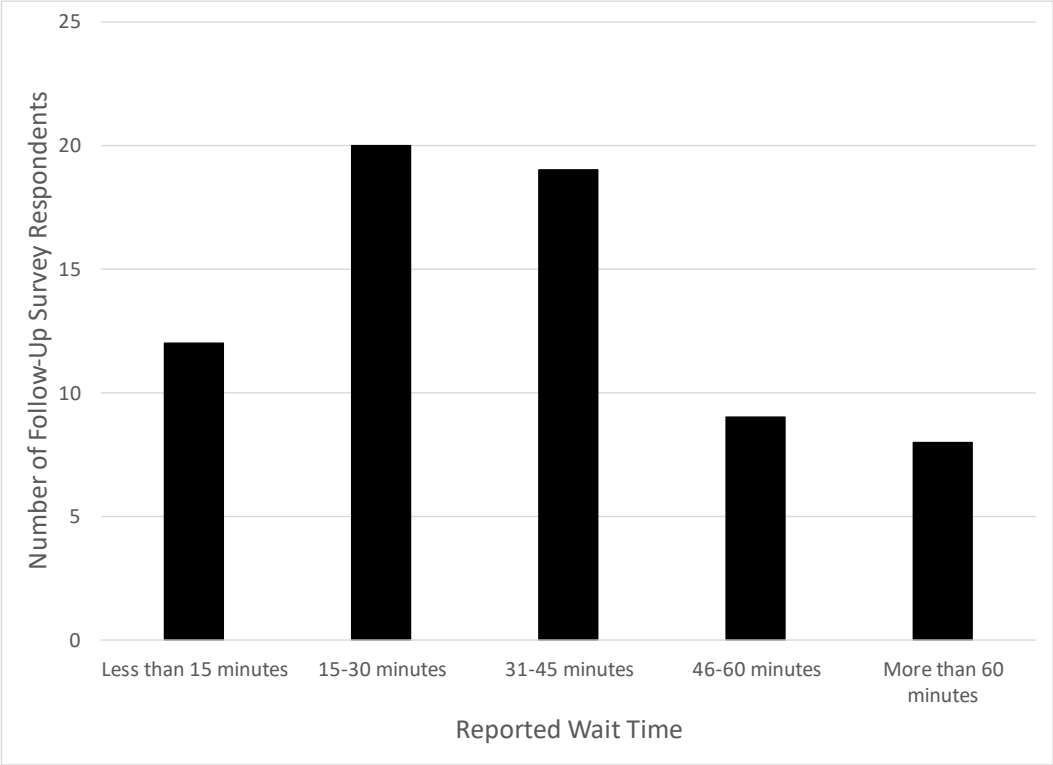


Figure 43: Reported Wait Time of Follow-Up Survey Respondents.

Follow-up survey respondents were asked if they had heard about the topics elsewhere. Most survey respondents did not provide a response. Nine said no. Another indicated that they had seen similar information on "roadside electric signs" (i.e., DMSs). Three follow-up survey respondents reported that they had heard similar information on the TV/radio: "don't crowd the plow", Real ID, and texting were recalled as being disseminated via these forums. As discussed in MDT's Media Plan, MDT did have on-going media campaigns in addition to this research effort. One person indicated that they had heard the work zone and child safety information on the radio. Two people reported reading information via a billboard: seatbelts and people dying from passing snowplows were the two reported topics. One person reported, "I was in for such a short time and my business was upstairs, so I really did not see any of these materials but I think

it[']s a great idea for those who spend time waiting." Finally, one survey respondent indicated learning about such information via their employer: "At my place of work we have regular safety meetings with many about driving since we all have CDL[']s [Commercial Drivers Licenses] and are in many different driving situations."

The data suggested that the videos, not the slogans, were prompting survey respondents to share what they learned. At least one survey respondent's nomenclature changed between the intercept and follow-up survey: a roundabout was described as a "traffic circle" in the intercept and a roundabout in the follow-up survey. In addition, the responses suggested that survey respondents were unconvinced regarding a roundabout's ability to reduce severe crashes. There was a potential that survey respondents may be overlooking the benefit that roundabouts bring in terms of reducing severe crashes because roundabouts can result in an increase in less severe crashes (i.e., property damage only crashes). It could also have been a reflection that motorists do not see or experience the majority of the crashes that occur at intersections, so they do not truly understand the change. There may be a need to better tailor information to locations that are "local" to an area.

For both screen captures and slogans, "It made me think of a time I had a close call." was one of the most frequently chosen statements (albeit by only a small number). What this suggests was that although crash frequency and severity data was available, there were more instances occurring on the roadways where crashes were avoided. It highlighted the challenges associated with ensuring a safe roadway was greater than reported crashes suggest. Therefore, efforts such as this research project, which can assist with educating the public about more modern traffic engineering treatments (roundabouts, flashing yellow lights) or disseminating approaches that can reduce the number of crashes (moving over for first responders), can help to reduce errors made by drivers which have been found to lead to crash occurrence.

4.4.2 Comparing Intercept & Follow-Up Survey Data

This section discusses how the subsample of those completing the follow-up surveys compares to the intercept survey sample from which it originated. Percentage of children in the household, age, gender, the reported number of screen captures and slogans reported in the follow-up survey as compared with the intercept survey and reported wait time were all compared.

With thirty-eight percent of follow-up survey respondents reporting that they had children in their household, compared with twenty-five percent reported in the intercept survey respondent sample, a larger proportion of follow-up survey respondents were from survey respondents living in households with children.

The researchers then considered how the samples compared from the viewpoint of age and gender. All results were compared with the 95% confidence interval (Z=1.96). While the average age of follow-up survey respondents was slightly older, the average age was not found to be statistically significantly different (Table 53). Similarly, comparing the proportion of males to females responding to the intercept and the follow-up surveys were not found to be statistically significantly different (Table 54) even though a larger proportion of males responded to the intercept survey as compared with the follow-up surveys. (Note: Only the proportion of males

and females were compared, as no intercept survey respondents identifying as non-binary participated in the follow-up survey.)

Table 53: Comparing the age of intercept and follow-up survey participants.

Statistic	Intercept	Follow-Up
n	1,625	68
Minimum	18	19
Average	46.0	48.1
Maximum	90	78
Standard Deviation	17.8	16.1
Z	-1.03	

Table 54: Comparing the gender of intercept and follow-up survey participants.

Statistic	Intercept	Follow-Up
n	1,632	68
Male	907	31
p_{male}	0.556	0.456
Z_{male}	1.62	
n	1,632	68
Female	713	37
p_{female}	0.437	0.544
Z_{female}	-1.74	

Not everyone reported recalling the same number or fewer screen captures when comparing the intercept with the follow-up survey data as would be expected. Of the sixty follow-up survey respondents who answered this question, fifteen (25%) reported recalling fewer, eighteen (30%) reported the same amount and twenty-seven (45%) reported recalling more screen captures in the follow-up survey as compared with the intercept survey. One possible explanation for this was that the intercept survey served, to some degree and in some cases, as a tool to enable intercept survey respondents to recall the screen captures. In addition, while the follow-up survey data sample was slightly overrepresented by females, those who reported recalling more was slightly overrepresented by males (15 of 27 or 56%). For those survey respondents who reported recalling more screen captures in the follow-up survey when compared with the intercept survey, the average time between the two surveys was slightly above the average (93 days versus 80 for the first video sequence; 23 days versus 22 for the second video sequence). For the first video sequence, the screen capture from the "Slow Down and Move Over" video was the most frequently reported screen capture being recalled during the follow-up survey that was not reported as being recalled during the intercept survey (seven of nine). [The screen capture for "Rules of the Roundabout" was reported by three; the screen capture for "Vision Zero – Just One Reason" was reported by four.] For the second video sequence, there was no bias regarding

which screen capture was recalled when comparing that reported in the intercept survey with the follow-up survey ("Buckle Up – Enough Reasons" = five; "Work Zone Safety – the Signs" = six; "Flashing Yellow Light" = six; and "Slow Down for the Curve" = five).

While the general distribution was similar when comparing the time spent waiting at facilities for intercept with follow-up survey respondents, those who completed the follow-up surveys had spent a slightly longer time at the facilities (Figure 44).

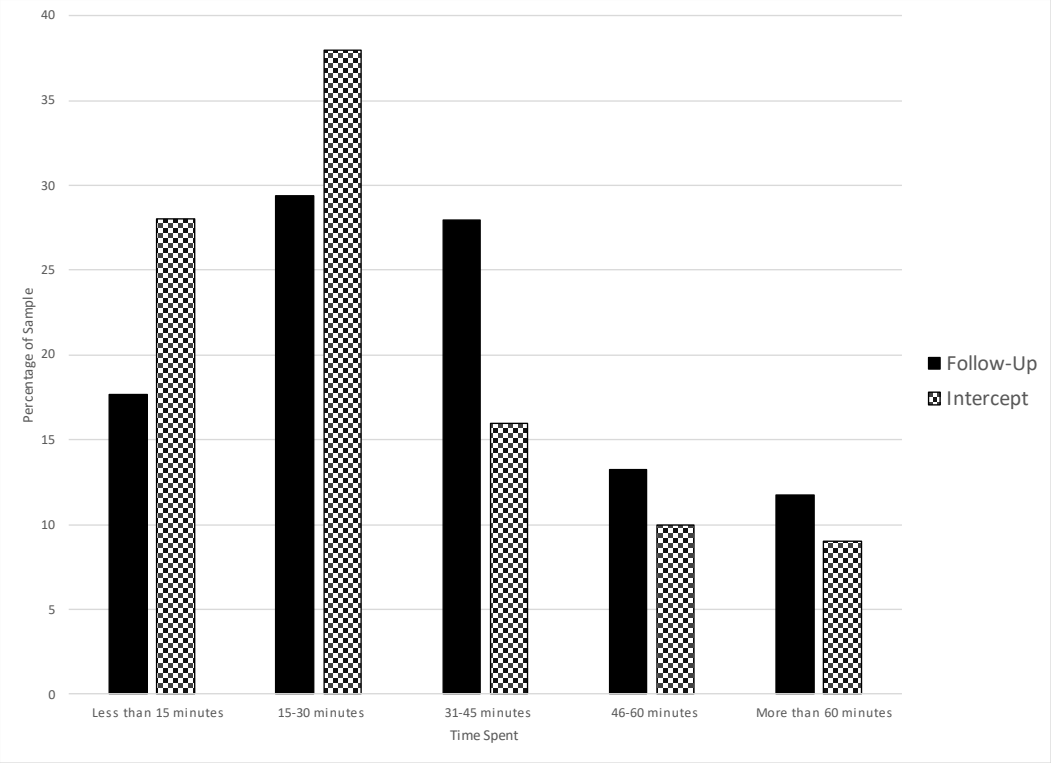


Figure 44: Reported Wait Time: Intercept vs. Follow-Up Survey Sample.

Therefore, the results of the follow-up survey have a bias towards survey respondents who spent a longer timeframe at the facilities and may have generally viewed the videos and absorbed the content for a more extended timeframe.

4.4.3 Analyses of Follow-Up Survey Data

This section discusses statistical analyses of the follow-up survey data. First, the researchers considered if age and gender influence the method in which someone was willing to participate in a follow-up survey. Next, the researchers evaluated how gender, age, and the time between when the intercept and follow-up surveys were taken and its impact on recall of screen captures. Finally, the researchers investigated if there was an influence of whether or not beliefs were reported as being changed based on one's gender.

4.4.3.1 *Influences of Follow-Up Methods: Age and Gender*

First, the researchers wanted to consider if there was a statistically significant difference when comparing the average age of those who responded online as compared with hard copies of the follow-up surveys (Table 55). No statistically significant difference was found. Again, with limited data (i.e., only six hard copy surveys), the result was most likely reflective of this small sample size.

Table 55: Comparing the age of those participating online versus via hard copy.

Statistic	Online	Hard Copy
Minimum	19	29
Average	48.2	47.3
Maximum	78	67
Standard Deviation	16.3	15.5
n	62	6
Z	0.124	

Next, the researchers wanted to understand if the surveying method (online as compared with hard copy) influenced participation based on gender. However, due to the small sample size (two of thirty-one males; four of thirty-seven females), it does not make sense to compare the statistics of online versus hard copy participation by gender.

4.4.3.2 *Influences of Number of Recalled Screen Captures: Age, Gender, and Length of Time*

Next the researchers wanted to better understand if the number of screen captures that were reported as being recalled for the follow-up survey were fewer based on the time between the two surveys, and if there were differences in the level of recall based on age and gender.

The results suggest a depreciating benefit purely from a recall perspective (Figure 45).

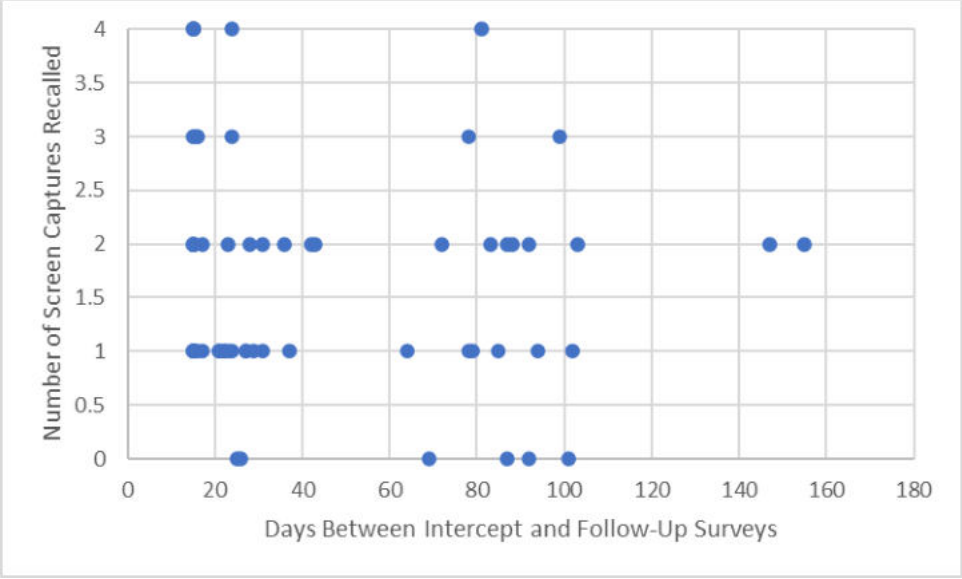


Figure 45: Days between intercept and follow-up surveys as compared with screen capture recall.

However, if there were a linear association between more days and a reduced recall, more survey respondents who reported recalling zero screen captures should be captured further to the right in the x-axis. Hence, overall, it seems to be a weak relationship and suggests that there are factors beyond just time to consider.

When comparing the difference between the number of recalled screen captures during the intercept and follow-up surveys with the days between intercept and follow-up surveys, it appears that some survey respondents either did not accurately recall what they had seen or they recalled some of the screen captures from the intercept survey (Figure 46). This is reflected by the negative values for the difference (i.e., recalled screen captures during intercept survey minus the recalled screen captures during follow-up survey). When the negative results were removed, the results showed that as time progressed, fewer screen captures were recalled.

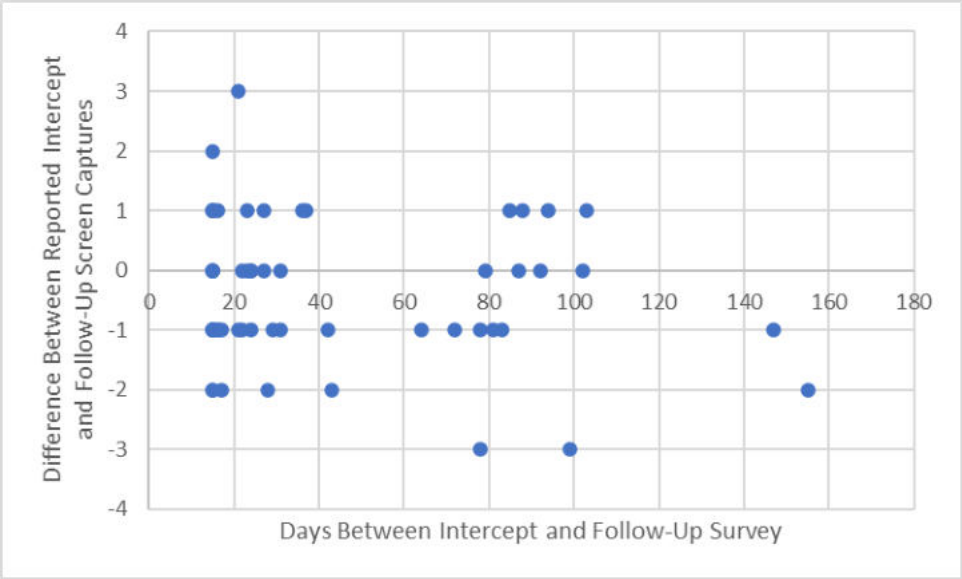


Figure 46: Difference in intercept and follow-up survey screen capture recall as compared with days between surveys.

The researchers then considered how age may relate to the number of screen captures recalled. While Figure 47 shows that the majority of follow-up survey respondents reported recalling one or two screen captures, there does seem to be a slight slant toward younger survey respondents reporting recalling more (four) and the older survey respondents reporting the same or less (one). However, one of the older survey respondents also reported three. So, while some influence of screen capture recall may relate to age, there were clearly other factors that influenced how many screen captures one recalled.

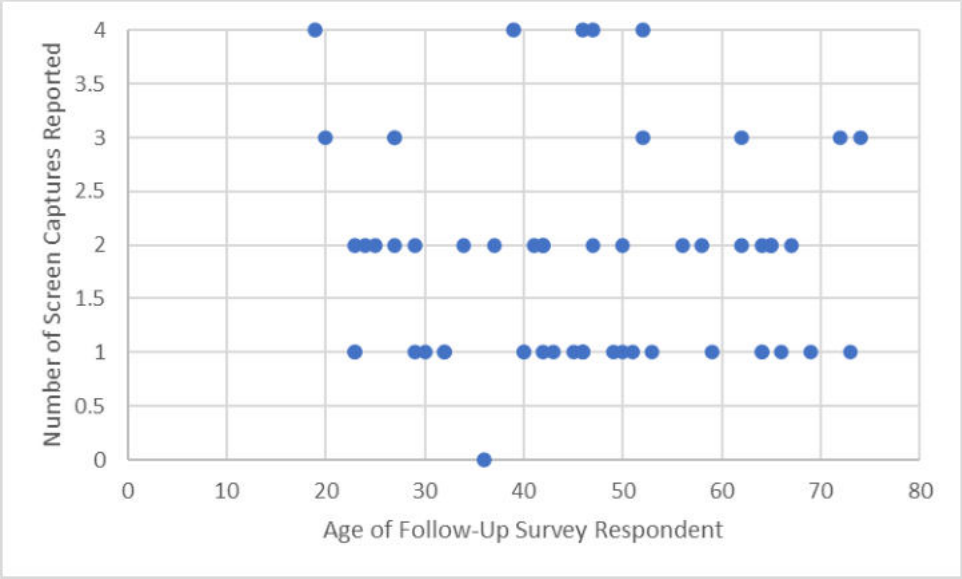


Figure 47: Number of screen captures recalled during the follow-up survey as compared with survey respondent's age.

The researchers then compared whether or not males or females recalled more, the same, or fewer screen captures based on the average number recalled. With Z = -0.18, no statistically significant difference was found (Table 56).

Table 56: Comparing the average of screen captures recalled by males and females.

Statistic	Males	Females
Minimum	0	1
Average	1.81	1.86
Maximum	4	4
Standard Deviation	1.08	0.92
n	27	29
Z	-0.18	

4.4.3.3 Safety Messaging Influences on Beliefs: Gender, Age, and Data Collection Location

Next the researchers wanted to better understand if gender, age, and data collection location influenced whether or not they selected the statement, "The videos did not change my beliefs." Overall, the number of survey respondents providing information for this question was limited (n = 52).

Of those responding to this question who indicated either what belief may have changed or identifying if their beliefs had not changed, there appears to be no difference with respect to age (Table 57).

Table 57: Comparing the age of those reporting a change in beliefs with those who did not report a change.

Statistic	Beliefs were unchanged	A change in at least one belief was reported
Minimum	19	25
Average	46.3	46.4
Maximum	74	73
Standard Deviation	16.6	14.3
n	35	17
Z	-0.021	

More males reported that the videos did not change their beliefs even while the sample size (i.e., 24 versus 28) was smaller (Table 58). However, from a statistical perspective, there does not appear to be a difference at the 95% confidence level. One may expect that if a larger sample size could be achieved, a difference would become statistically significant.

Table 58: Comparing the gender of those reporting a change in beliefs with those who did not report a change.

Statistic	Male	Female
n	24	28
Reported that, "The videos did not change my beliefs."	19	16
p	0.79	0.57
Z	1.69	

The researchers then wanted to understand if a specific data collection location may have had an influence regarding whether or not a follow-up survey respondent reported a change in their beliefs. While the sample size was small when divided out by data collection location, of the available data, at every location, the results averaged around 35% of survey respondents having reported a change in their beliefs. Hence, data collection location, which may serve as a proxy for traffic safety culture differences, does not seem to have an impact (based on the available data) regarding whether or not the videos were reported as changing one's beliefs.

Table 59: Comparing the data location of those reporting a change in beliefs with those who did not report a change.

	Billings MVD	Bozeman MVD	Bozeman CTO	Helena CTO	Kalispell MVD	Subtotal
A change was reported.	4 (33%)	2 (22%)	6 (32%)	3 (38%)	2 (50%)	17
Reported that, "The videos did not change	8	7	13	5	2	35

my beliefs."						
Total	12	9	19	8	4	52

4.4.3.4 Influence of Safety Messaging on Behavior: Gender, Age, and Data Collection Location

Next the researchers wanted to better understand if gender, age, and data collection location influenced whether or not a survey respondent reported either Strongly Agree or Agree when presented with the statement, "I have changed a driving behavior."

The researchers began considering the influence of age by looking at all categories separately. However, with the Strongly Agree and Strongly Disagree categories composed of three and five survey respondents, respectively, these categories were grouped with the next interior category (i.e., Strongly Agree and Agree). From this analysis perspective, younger survey respondents were less likely to have reported changing a driver behavior as a result of the traffic safety videos (Table 60).

Table 60: Comparing ages of reporting of a driving behavior change.

Statistic	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
Minimum	25	30	19	23	23
Average	36.67	57.38	45.90	47.17	36.00
Median	34	63	46	46	27
Maximum	51	69	74	67	59
Standard Deviation	13.20	12.67	16.17	14.93	16.16
n	3	8	29	6	5
Minimum	25		19	23	
Average	51.73		45.90	42.09	
Median	56		46	46	
Maximum	69		74	67	
Standard Deviation	15.52		16.17	15.81	
n	11		29	11	

Therefore, while younger survey respondents may recall more screen captures (intercept survey), these results suggest that changes in driving behavior may be less impactful for younger customers. This may suggest that while younger customers were receiving the information, as discussed in Islam et al. (Islam, Thue, & Grekul, 2017), older customers may be more receptive to the information if it is received.

When considering gender, the most notable difference was for the "Strongly Agree" category, which was not chosen by any male follow-up survey respondent (Figure 48). Overall, males were more likely to report a "Neutral" level of agreement, with females generally reporting more

agreement towards indicating that they had made a behavior change. Again, this result which suggests a difference in response between males and females, seems to coincide with findings from Islam et al. (Islam, Thue, & Grekul, 2017).

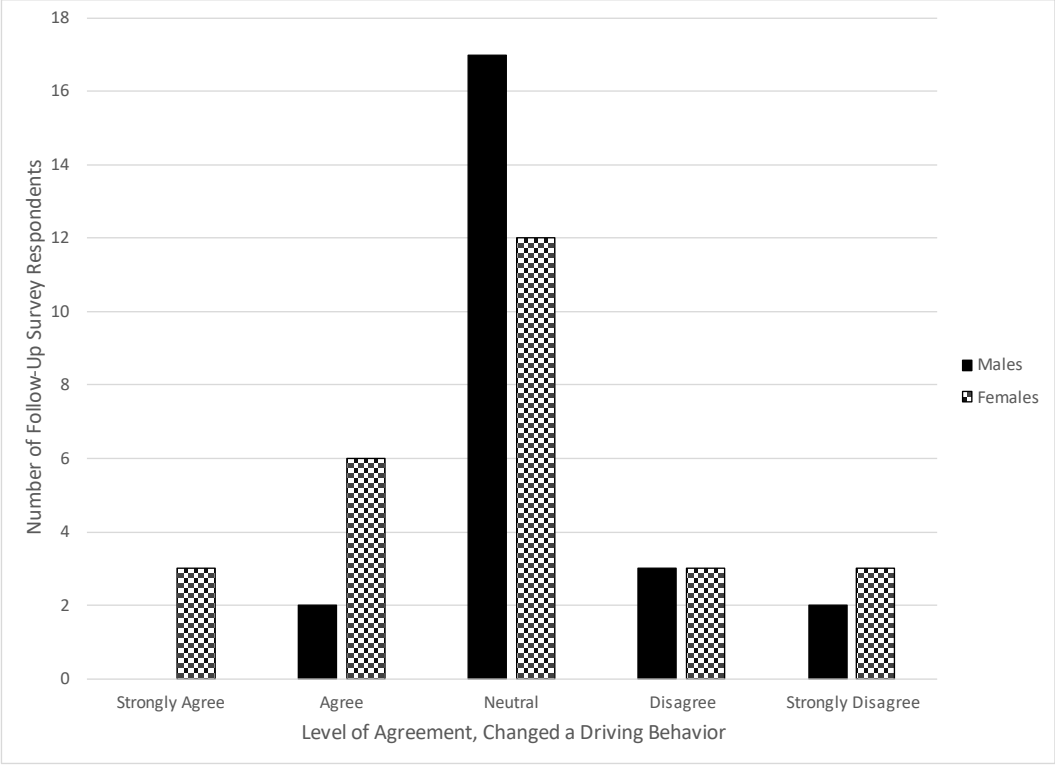


Figure 48: Level of agreement with changing a driving behavior: males versus females.

This section considers follow-up survey respondent's level of agreement regarding whether or not they made a change to their driving behavior. Because there were five categories of agreement and five data collection locations, the subdivided data means that there were limited numbers for each subcategory. Many follow-up survey respondents reported a "Neutral" level of agreement; however, the results seemed to suggest that customers of the two Bozeman facilities tend to disagree that their behaviors were changed (Figure 49). In contrast, the other locations (Billings MVD, Helena CTO, and Kalispell MVD) seemed to be slightly more positive. This may suggest a variation in traffic safety culture when considering the Bozeman area as compared with Billings, Helena, and Kalispell.

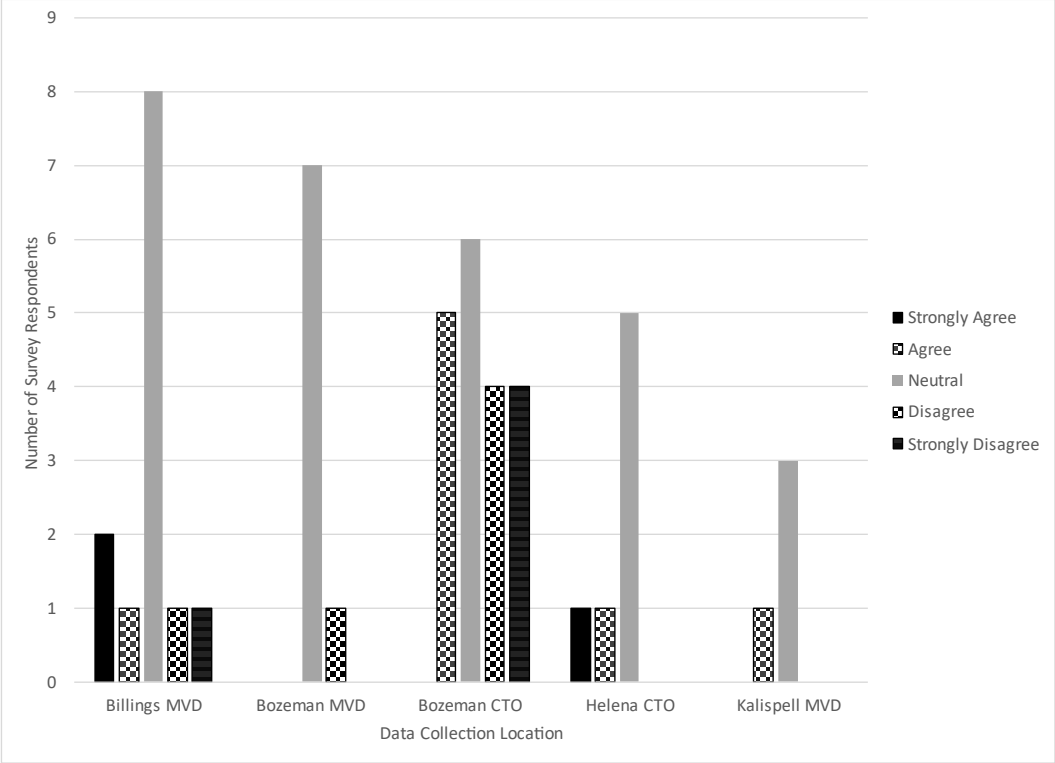


Figure 49: Level of agreement with changing a driving behavior: data collection location.

4.4.3.5 Influence of Traffic Safety Messaging on Safe Driving: Gender, Age, and Data Collection Location

Next the researchers wanted to better understand if gender, age, and data collection location influenced whether or not a survey respondent either Strongly Agree or Agree when presented with the statement, "I will be a safer driver."

Considering age, based on those providing input, it would appear that older survey respondents tended to report being a safer driver as a result of viewing the traffic safety videos (Table 61).

Table 61: Comparing ages of being a safer driver.

Statistic	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Minimum	25	19	23	46	24
Average	53.33	46.96	41.80	46	43.33
Median	62	50	42	46	47
Maximum	74	72	64	46	59
Standard Deviation	19.83	17.30	10.71	-	17.79
n	9	23	15	1	3

Again, this result would seem to correlate with the findings of Islam et al. (Islam, Thue, & Grekul, 2017).

While follow-up survey respondent input to this statement was overall more positive, males as compared with females were more likely to report stronger levels of agreement (i.e., eight females "Strongly Agree" compared with one male) (Figure 50).

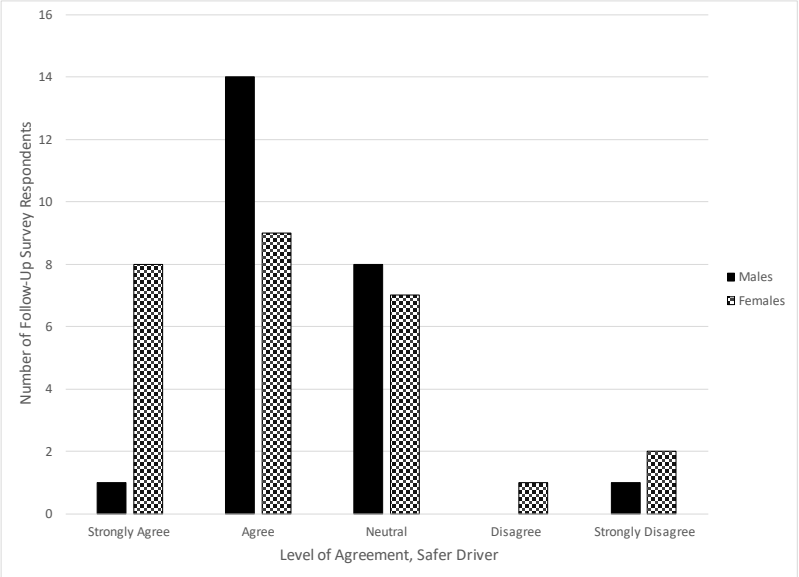


Figure 50: Level of agreement with being a safer driver: gender.

Overall, level of agreement regarding whether or not someone reported being a safer driver as a result of viewing the traffic safety videos was "Neutral." However, as seen with respect to whether or not someone reported a change in driver behavior, it would appear that the Bozeman facilities both had follow-up survey respondents who reported lower levels of agreement when compared with the other locations (Figure 51). So again, some differences in traffic safety culture for the Bozeman area may exist when compared with the other locations included in this study.

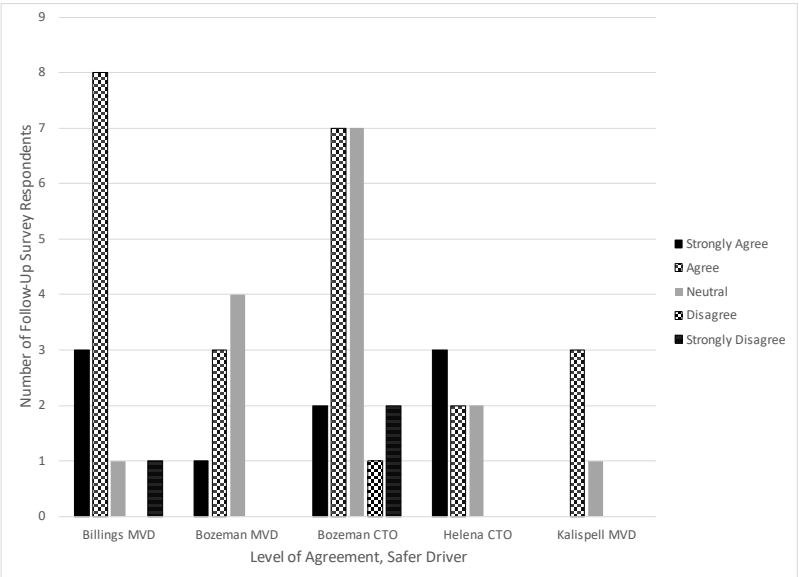


Figure 51: Level of agreement with being a safer driver: data collection location.

4.4.3.6 Statements Related to Screen Captures

Next the researchers wanted to better understand how age, gender and data collection location of individuals who selected the statements "It made me think of my family members" and "It made me think of a time when I had a close call", as these statements were selected by the greatest number of follow-up survey respondents.

First, consider the statement, "It made me think of my family members". With the limited data, no statistically significant difference was found (Table 62).

Table 62: Comparing the ages of follow-up survey respondents who selected "It made me think of my family members." as compared with those who did not.

Statistic	**Did not indicate agreement**	**Agreed with the statement, "It made me think of my family members."**
n	33	14
Minimum	19	27
Average	47.94	44.79
Maximum	73	65
Standard Deviation	16.07	13.19
Z	0.70	

Next, the researchers considered the impact of gender on whether or not a survey respondent agreed with the statement, "It made me think of my family members" (Table 63). Again, no statistically significant difference was found.

Table 63: Comparing the gender of those reporting agreement with the statement, "It made me think of my family members.".

Statistic	**Male**	**Female**
n	31	37
Reported that, "It made me think of my family members."	6	8
p	0.19	0.22
Z	-0.23	

When considering the data collection location with respect to this statement, the results suggested that consideration for one's family members was most impactful for patrons of the Bozeman CTO and least impactful for the patrons of the Kalispell MVD (Figure 52).

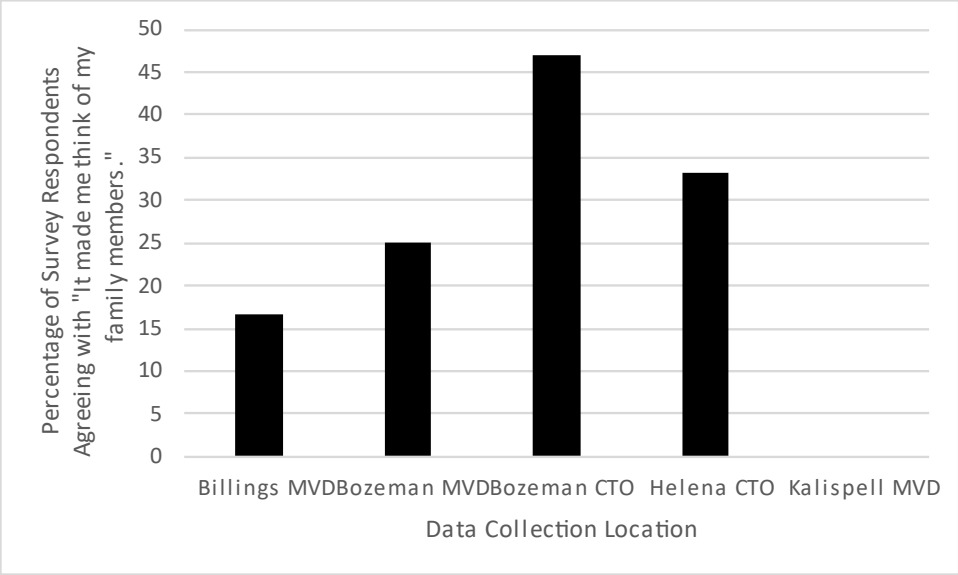


Figure 52: Agreement with "It made me think of my family members." by data collection location.

When considering the statement, "It made me think of a time when I had a close call.", the researchers wanted to understand if age impacted whether or not a survey respondent agreed with the statement. The results suggested that age does not impact one's agreement with the statement (Table 64).

Table 64: Comparing the ages of follow-up survey respondents who selected "It made me think of a time when I had a close call." as compared with those who did not.

Statistic	**Did not indicate agreement**	**Agreed with the statement, "It made me think of a time when I had a close call."**
n	33	14
Minimum	20	19
Average	47.21	46.50
Maximum	72	73
Standard Deviation	13.91	18.44
Z	0.13	

Next, the researchers wanted to determine if the gender of the survey respondent influenced whether or not they agreed with the statement, "It made me think of a time when I had a close call". The results suggested that females were more likely to agree with the statement (Table 65); however, again, the sample size for males was small (i.e., 3).

Table 65: Comparing the gender of those reporting agreement with the statement, "It made me think of a time when I had a close call.".

Statistic	**Male**	**Female**
n	31	37
Reported that, "It made me think of a time when I had a close call."	3	11
p	0.097	0.30
Z	-2.04	

Finally, the researchers considered whether or not data collection location influenced the survey respondents' level of agreement with this statement. Survey respondents from Helena CTO followed by Kalispell MVD reported the greatest level of agreement (Figure 53). However, these two locations have the fewest survey respondents (Helena CTO = 6; Kalispell MVD = 4).

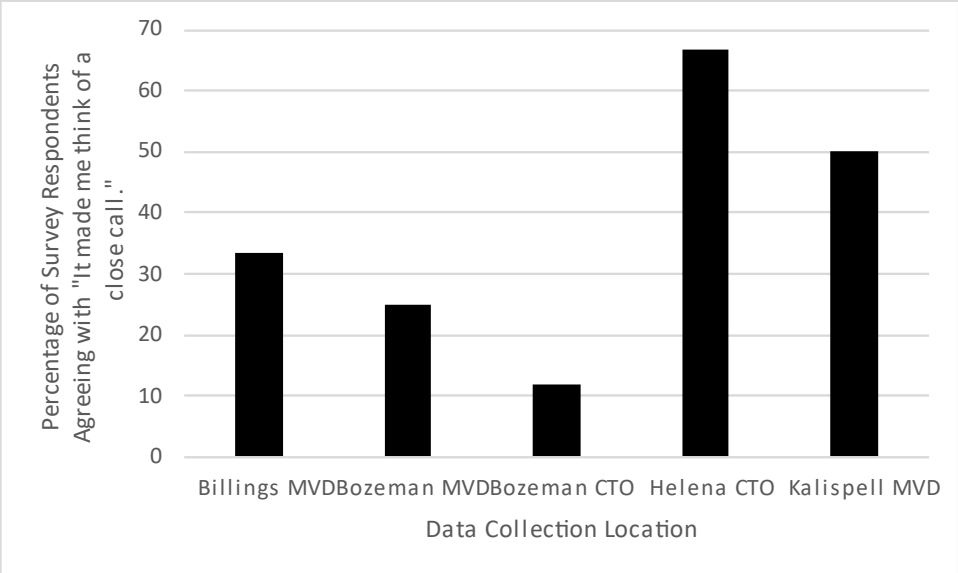


Figure 53: Agreement with "It made me think of a close call." by data collection location.

4.4.3.7 Follow-Up Survey Data Summary

Overall, the limited data available for follow-up surveys presented challenges due to limited responses. Therefore, caution should be taken regarding assigning too much value to the results, as a larger data set is recommended in order to draw more definitive conclusions. However, the results do provide a rich data source, as they represent a compilation of all of the questions from the intercept and follow-up surveys.

While some survey respondents took advantage of the hard copy survey option, in large part, most of those that participated did so online. This could have influenced the limited demographic variability associated with the follow-up surveys.

For both screen captures and slogans, the majority of follow-up survey respondents who indicated an impact on behavior noted as such in the context of thinking of their family or a close call. The information associated with the screen captures was more likely to be shared as compared with slogans.

Follow-up survey respondents reported a lower likelihood in their beliefs being changed, although they did suggest that the traffic safety information resulted in them being safer drivers. When considering if age, gender, and the length of time waiting at a facility, neither the recall of screen captures nor a change in beliefs was found to have occurred. When considering if changes in driving behaviors were made as a result of the traffic safety information, survey respondents were more likely to report a change in behavior if they were older, if they were female, and if the follow-up survey respondent was accessing services at the Billings MVD, the Helena CTO or the

Kalispell MVD locations. Identifying as female and being older coincided with the findings from Islam et al. (Islam, Thue, & Grekul, 2017). Follow-up survey respondents who had completed the intercept survey at the Bozeman CTO were more likely than the other locations to report that they thought of family members when viewing the traffic safety information. Finally, those who reported thinking of a close call when presented with the traffic safety information tended to be female, and the intercept survey was completed at the Helena CTO or Kalispell MVD locations.

4.5 Evaluation & Support Discussion, Conclusions & Future Research

Overall, the videos were recalled more often than the slogans, both during the intercept surveys and the follow-up surveys. Additionally, if the information was shared, it was more likely to be shared when the information was provided via one of the videos as compared with a slogan. The length of time that a video represented within the traffic safety video loop seemed to influence its recall. Furthermore, the type of video influenced recall, with videos that engage an emotional response resulting in greater recall. Furthermore, while relatively few people reported behavioral changes as a result of the traffic safety videos, they were more likely to report that they expected to be safer drivers. Overall, the traffic safety videos had an impact. Once they are set-up and can run for a period of time (i.e., six months), the level of effort and cost associated with disseminating the information was, relatively speaking, low. In addition, when considering the demographics reached at these facilities, there was promise in reaching the desired age and gender demographic (male, aged eighteen to thirty-four) that many of MDTs media campaigns were currently targeting.

The influence of the location of the TV on enabling the dissemination of traffic safety information cannot be understated. This effort suggests that locating the TV where it was most conspicuous was best, either within direct view for visitors waiting to be seen by an examiner or behind the examiner desk while a visitor waits for them to enter information. While each site was meticulously reviewed and the location of the TVs identified, in some cases, construction occurred between when the facility was reviewed and when the TV was installed. In addition, as a result of COVID-19, chairs were re-organized to allow for social distancing, impacting the TV location. Similarly, only a few individuals were allowed in the MVD or CTO at a time to facilitate social distancing; hence, those individuals entering the facilities may only see the TVs, and consequently the videos, for an abbreviated period of time.

An important point that must be made regarding the data which was analyzed was that the data analyzed was only from those individuals willing to complete an intercept survey. Persons over the age of eighteen exiting the MVDs and CTOs were asked to participate in the intercept survey. As outlined in the previous sections, the participation rate was low. Hence, there was a possibility that the results may not represent the average Montanan dependent upon how well the collected data represents those making use of services at the MVDs and CTOs. In addition, considering that individuals as young as fifteen can drive in Montana, extending the surveys to include Montanans fifteen and older would enable a better understanding of the impact of the traffic safety videos on disseminating information to the youngest of Montana drivers.

Technology continues to evolve. It was only about twenty years ago when the concept of a smartphone seemed futuristic. Therefore, when trying to consider other ideas that may be

pursued that would allow traffic safety information to get to the end user may be the following: geofence the locations and pay for social media dissemination of the videos; have the videos play on the website as a part of the process to make an appointment; hand out a rack card that has factual information on it with a QR code to a video (without a landing page) on both sides of the card; and require customers to watch a video to access free internet at a facility (similar to that done at airports).

Sound was not included with the videos so as not to be a nuisance for the employees at the MVDs and CTOs. However, some survey respondents reported that they could not hear sound, suggesting that including this additional sensory approach to disseminating information may have been of value to some MVD/CTO patrons. In addition, based on the theory of cognitive learning (Jabbour, 2012), using both the visual and auditory channels can ensure that the disseminated information does not overload them. Sound may also draw more attention to the TVs, and subsequently the video sequences, as well. A future research project could test the impact of including sound with the videos.

The longer a survey is, the less likely it will be fully completed by a survey respondent. As a result, surveys short in length were targeted. Therefore, while the complexity of the research approach could warrant many more detailed questions, the questions ultimately included had to be prioritized to obtain information that would directly answer the research questions. As a result, questions that asked about, for example, the impact of trivia on people's perception of whether or not they may be a safer driver were omitted. Yet, in open-ended questions, survey respondents suggested that trivia may have been impactful. Therefore, future research studies could seek to add compensation which may encourage a survey respondent's participation in a longer survey. Future survey efforts for similar projects could also include in the budget survey efforts that were tiered, where they asked about the impacts of the video sequences and then a subsequent survey would be developed based on what was learned during the first surveying effort.

5 Conclusions, Recommendations & Future Research

This section summarizes the conclusions, recommendations, and future research as a result of this project.

5.1 Conclusions

The research project had three objectives: secure existing traffic safety video content and purchase and deploy technical equipment to show the content; determine if facility users viewed the traffic safety videos; and evaluate if displaying the videos impacted the traffic safety culture.

The researchers successfully acquired videos and purchased and deployed the equipment. The video loops were visible on the televisions in the MDT and CTO facilities for the duration of the project.

In coordination with the Technical Panel, the researchers developed and deployed intercept and follow-up surveys. Through these surveys, the researchers determined that some of the TV locations were not conspicuous. At the Billings facility, this was able to be rectified by changing the TV position. At Kalispell, limited power sources restricted moving the TV to a more visible location. Therefore, if MDT in cooperation with the Montana DOJ desire to make this a more permanent approach, funding will need to be allocated to pay to ensure that TVs can be located in the most conspicuous places (e.g., behind the counter, in view of the seats in a waiting area), including potentially providing power to locations that do not currently have it.

Survey respondents did not report changing their behavior as a result of viewing the traffic safety messages. They did, however, suggest that they would be safer drivers. Therefore, based on the limited follow-up survey data that was collected, the traffic safety videos displayed on TVs in the MDT and CTO facilities did not constitute any behavior changes in the viewing public. However, this conclusion should be qualified: some follow-up survey respondents reported sharing the information they watched on the project TVs with others. This alone can be considered a success. Additionally, from research, we know that to change behaviors, we must change beliefs, and the fact that several survey respondents noted that they would be a safer driver or were able to recall information from the traffic safety videos to share with others is one step in this process.

Each system deployed cost approximately $450 and minimal time was requested by the staff at each facility to maintain the videos throughout the project. The videos were seen by all genders (and evenly balanced) and by a wide range of ages (18 to 90 years old). The TV and video set-up was shown to run effectively for around a year. The researchers estimated that MDT and the Montana DOJ should consider updating the system every five years, as technology rapidly advances. They should also consider whether system requirements have changed (i.e., are staff no longer entering information and the videos no longer visible) or if the content of the video sequences should be updated. There was a slight positive bias in dissemination of safety information to males, including MDT's age range of interest (18-34), and the monetary investment required for this educational approach is very low. Therefore, this effort could be considered a low-cost solution for educating the public about traffic safety.

5.2 Recommendations

The placement of a TV was found to significantly influence whether or not it was viewed. Office remodels, chair re-arrangements, power limitations, no requirement to wait on-site, lack of audio, and walls or other visual obstructions between seating and the TV were also found to negatively impact whether it was seen. Therefore, a review of the location of each TV should be conducted periodically (maybe every three, four or six months).

The results of this project suggest that, on average, a ten-minute video sequence is long enough to effectively communicate traffic safety information. It also suggests that a video loop consisting of photos, videos, infographics, trivia and "Did you know?" content was effective. As identified in the literature search, if new videos are to be added to the video sequence, they should be styled as "shocking" or engage the viewer's empathy (e.g., Embrace Life – Always Wear Your Seatbelt by Sussex Safer Roads). Researchers were unable to obtain permissions to use several of these style videos from international sources, therefore it is recommended that traffic safety organizations (e.g., MDT, NHTSA) focus on the creation of additional videos in this style.

5.3 Future Research

Several future research needs were identified based on survey responses. To avoid disturbing the staff at the various facilities, no sound was used in the videos. In addition to potentially impacting viewers seeing the TVs, the lack of sound also prevented some videos, like the rumble strips segment, from being included in a video sequence. Survey respondents expressed frustration with the lack of sound and it would be of value for a future research effort to compare the educational benefit of the videos with sound with the drawback of distracting facility staff. If this is an interest, more discussions with MDT and the Montana DOJ should be pursued to determine the appropriate balance.

The following are two additional options that may result in more views of the video sequences by the public. First, MDT or CTO facility visitor internet access could be restricted until a patron watches the traffic safety video sequence. Second, the video could also be displayed on the appointment website.

If a future research project is pursued, fifteen, sixteen and seventeen year olds should be included in the survey audience. This will require additional permissions from MSU's IRB, should they be leveraged to assist MDT and the Montana DOJ. Future survey respondents should also be enticed to participate in the follow-up survey (and potentially the intercept survey) with a financial incentive so the response rate is higher. This would require funding be specifically allocated for this purpose.

Future research efforts should include the development of tailored videos that address needs identified in MDT's CHSP. Videos should be styled to either "shock" or engage the viewers empathy to be most successful. The video sequences could also be tailored to the locations where they will be deployed. In addition, at the 2023 Transportation Research Board's International Conference on Road Weather and Winter Maintenance, discussions suggested that the general

public could benefit from being instructed on how to behave around snowplows. This would improve the safety of both the snowplow operators and the driving public.

To stay within the project budget, locations were partially chosen based on their proximity to staff able to carry out the surveys. Future efforts could include additional locations where the TV is placed behind those entering the data. Reaching out to private partners, such as large companies with TVs in their break rooms (e.g., Blue Cross Blue Shield), the American Automobile Association (AAA) or MVD Express, who administer driver's licenses in Montana, could also be a source of additional locations. In particular, AAA may be interested in participating in a future study because of their support of research that improves the safety of motorists. If an evaluation effort is to correspond with such an implementation, funding should be allocated for on-site surveying. In addition, it would be desirable to choose locations with greater representation of a variety of Montana demographics (e.g., Native Americans).

This iteration of the project was only deployed in Montana. Future research efforts could include other states. For example, one of the researchers recently obtained her driver's license in Minnesota and, while waiting for her data to be entered into the computer at the Plymouth – West Metro Exam Station, observed a wall directly behind the staff person. This station, and other locations in Minnesota with a similarly desirable TV location, could be included in a similar effort. It would allow for an analysis, from a traffic safety behavior perspective, of whether some populations (i.e., rural or urban; Minnesota or Montana) are more amenable to changing their behavior than others.

This effort concentrated in large part on evaluating the impact of the traffic safety videos within the video sequences. However, several survey respondents particularly noted the trivia. Therefore, future research could investigate whether one media type is more effective at engaging viewers than another.

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Appendix A: Location Email

Thank you for agreeing to be a pilot site for our safe driving TV pilot. Below is information about the pilot and some questions we're looking for you to help answer. We're also looking for some information and photos of your location.

Thanks, Sky

To Whom It May Concern,

As you know, as part of the MDT funded research project "Effectiveness of Highway Safety Public Education at Montana Motor Vehicle Division and Vehicle Registration Stations by Streaming a Variety of Safety Content," your location has been chosen as one of the five pilot locations to have an LCD TV (Flat screen/Smart TV) installed at your licensing/registration facility.

In light of COVID-19 and the current restrictions for in-person visits and understanding that each facility is unique in its size and layout, we are asking that you provide the research team and Technical Panel with information and images that will help determine the most suitable location for the LCD TV.

Regarding the location of the LCD TV, the three main considerations are to:

- provide the highest visibility to visitors,
- be mounted on a wall, and
- have safe access to AC power.

To accommodate this are several considerations including:

- The wall would need to have space for a minimum of a 36" LCD TV.
- The viewing height needs to be optimal for viewing at various distances, assuming several rows of seats.
- The screen size would be determined by size of room and viewing distance.
- The wall material should allow for safe and secure mounting of the LCD TV.
- Safe access to power outlet. i.e., not running power cables across a floor, with foot traffic.

Mounting method and power cord management and standards will be coordinated with the research team and Sky Schaefer.

At this time, the intention is that sound will not be played, and the videos will be captioned; however, the use of sound may be considered in the future.

With the above in mind, we kindly ask that you provide the following details and images to help us in this process.

Details

How many entrances are there?

Is there an entrance lobby? If so, would this area be suitable for a person to conduct exit surveys? Where can the survey person stand or sit?

Is there one waiting area, or multiple areas?

If more than one, is there an obvious preference for which area be used based on the number of seats, the seating arrangement/direction and the availability of a suitable wall?

If one area is obviously preferable, please provide details of that area and why? If either area is a possibility, please provide details for both.

What is the number of seats in the waiting area? What is the number of seats oriented toward the wall most likely to have the TV mounted?

What is the approximate distance of the rear seats to the potential viewing wall?

What is the approximate distance to the front seats to the potential viewing wall?

Photos

Interior of entrance lobby – this will enable the research team to determine if usable by the person giving the surveys.

Immediately inside the main entrance – to provide context of the licensing or registration facility as a whole. Approximately three images one facing left, one forward and one facing right. Please provide more if it helps understand the general layout of the facility.

Visitor sitting area - four images from the center looking outward in each direction.

Visitor sitting area - images one from each wall facing towards the center.

Visitor sitting area - facing the wall most likely for the LCD TV mounting from or behind the rearmost seats.

Visitor sitting area - facing the wall most likely for the LCD TV mounting from the front seats.

Thank you for your assistance! We look forward to working with you on this project. If you have any questions, please feel free to reach out to Neil Hetherington at hetherington@montana.edu or 406-994-3566.

Neil Hetherington and Jaime Sullivan
WTI Research Team

Appendix B: Responses to Location Inquiries

Table 66: Responses from Billings MVD

Question	Response
Number of entrances?	1
Entrance lobby suitable for conducting exit surveys?	Billings would be able to accommodate a spot, maybe not right in front of the entrance.
Number of waiting areas?	There are currently 2 waiting areas
Preference if more than one?	Replacement and renewal entrance would be preferable.
Why preferable?	The space is larger and accommodates more people.
Number or seats oriented towards TV?	Approximately 20 seats. We could position so all seats can view the TV.
Approximate viewing distance from rear of waiting area?	Approximately 40 feet.
Approximate viewing distance from front of waiting area?	Approximately 15’
 *Entrance lobby for Billings, MT DMV office.*	 *Suitable wall for mounting the TV at the Billings DMV office. Customers would sit perpendicular to the counter which is to the right of this image.*

Table 67: Responses from Bozeman DMV

Question	Response
Number of entrances?	We have 2 entrances.
Entrance lobby suitable for conducting exit surveys?	Yes, we do have an entrance to the lobby as depicted in the photos. Yes, we do have space avail to conduct exit surveys.
Number of waiting areas?	1 is for appts the 2nd is for walk in customers.
Preference if more than one?	The waiting area for appts is preferable as it has the wall space and outlet.
Why preferable?	
Number or seats oriented towards TV?	We have approx. 14 seats per waiting area.
Approximate viewing distance from rear of waiting area?	There is approx. 14ft from the last row of chairs to the wall where the TV would be.
Approximate viewing distance from front of waiting area?	Approximately 6ft from the 1st row of chairs to the wall.
 *Entrance lobby to Bozeman, MT DMV office.*	 *Waiting area with suitable wall for mounting the TV*

Table 68: Responses from Kalispell MVD

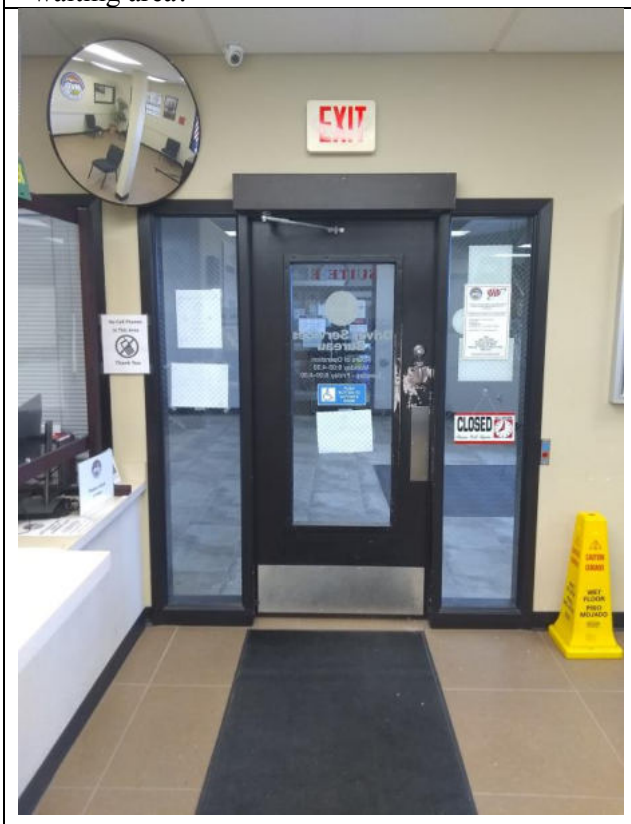
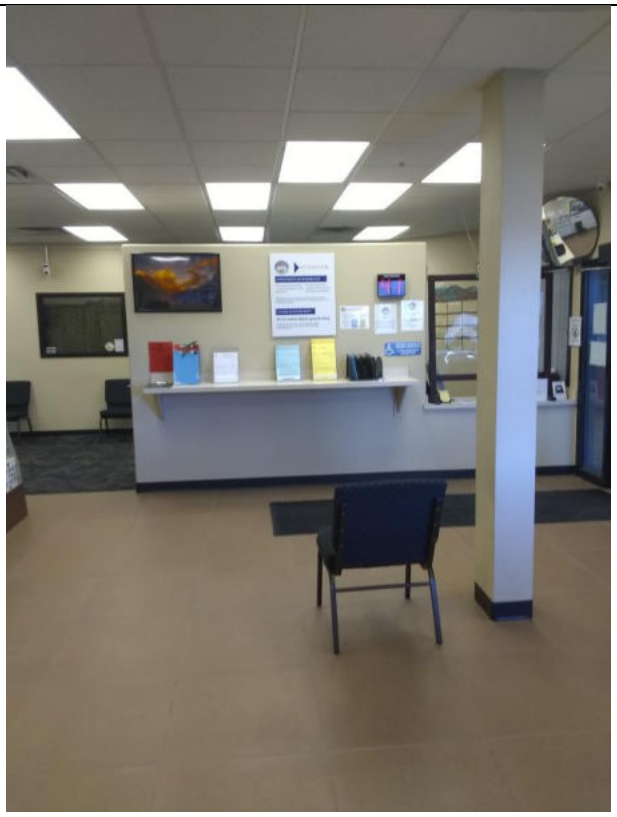
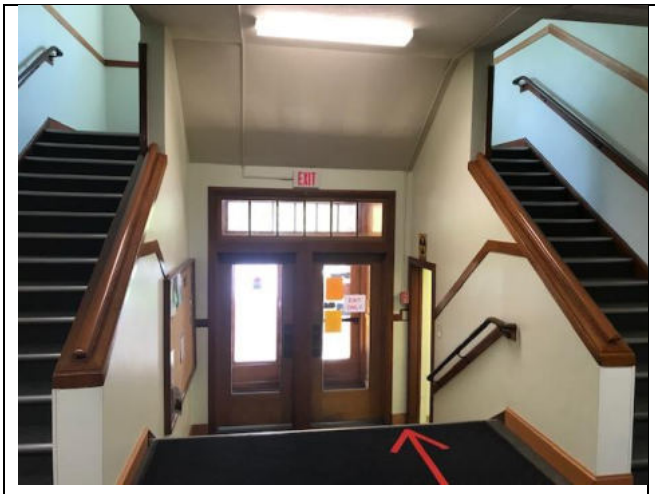
Question	Response
Number of entrances?	1
Entrance lobby suitable for conducting exit surveys?	They have multiple locations to sit or stand in our waiting area.
Number of waiting areas?	One main waiting area
Preference if more than one?	n/a
Why preferable?	n/a
Number or seats oriented towards TV?	25 Seats all facing TV area
Approximate viewing distance from rear of waiting area?	22 FT
Approximate viewing distance from front of waiting area?	10FT
 *Entrance area for Kalispell, MT DMV office.*	 *: Suitable wall for mounting the TV.*

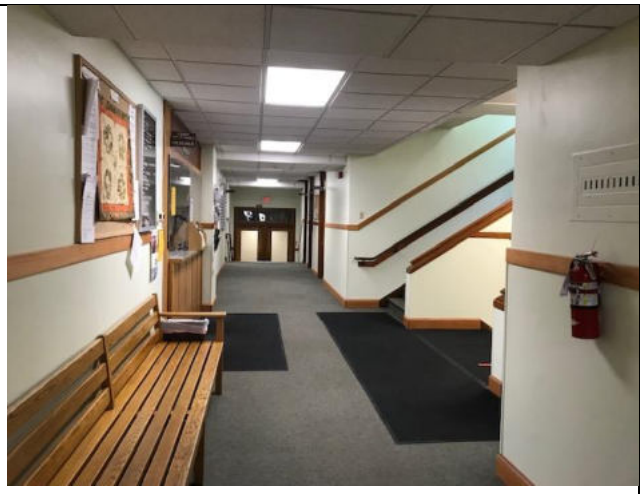
Table 69: Responses from Broadwater CTO (Townsend)

Question	Response
Initial comment from respondent.	"Sky; I have enclosed some pictures of our lobby. There really isn't any seating area to speak of, other than the bench that sits in front of our office. We have a long hallway and a short distance between our front door and the windows into our motor vehicle office."
Number of entrances?	We have 3 entrances.
Entrance lobby suitable for conducting exit surveys?	No
Number of waiting areas?	One waiting area.
Preference if more than one?	There is a bench in a very confined area.
Why preferable?	n/a
Number or seats oriented towards TV?	One bench
Approximate viewing distance from rear of waiting area?	5 feet
Approximate viewing distance from front of waiting area?	5 feet

It seems that the Broadwater CTO may not be a suitable location based on the number of entrances, restricted seating area and limited space to mount a TV.

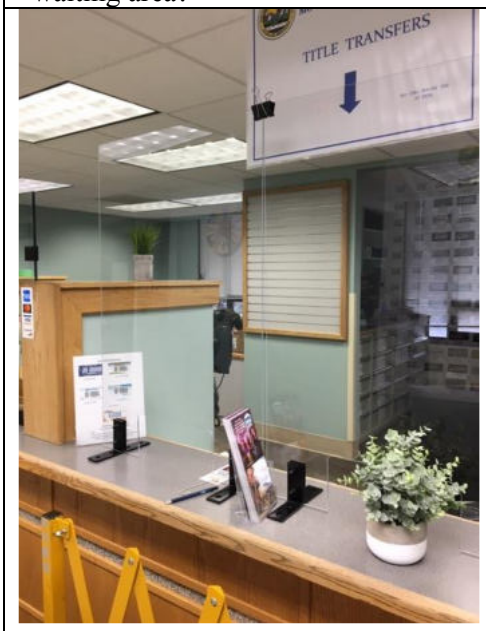
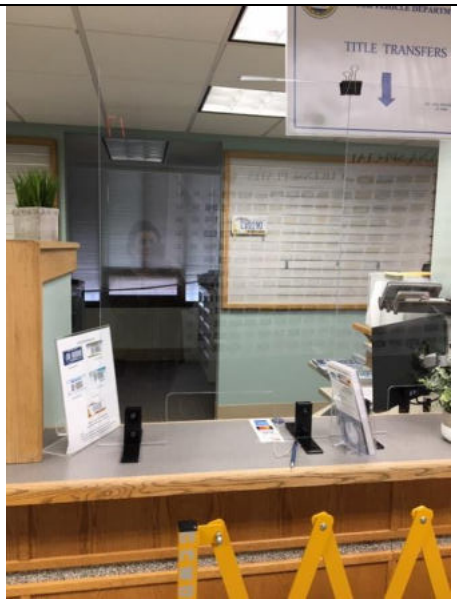


Entrance lobby to Broadwater County CTO, Townsend, MT



Waiting area in Broadwater County CTO. Limited seating with only one bench and limited viewing area, across a five-foot corridor.

Table 70: Gallatin CTO (Bozeman)

Question	Response
Number of entrances?	2
Entrance lobby suitable for conducting exit surveys?	Yes – In the lobby
Number of waiting areas?	2
Preference if more than one?	See below
Why preferable?	We would actually like to put it in the office behind the three primary desks. We don't generally have a long wait time, and most of the time our customers are staring at their phones when they are waiting. Putting it on the wall we're suggesting will actually give the customer something to watch rather than staring at the tops of our clerks' heads. J
Number or seats oriented towards TV?	During busy times, we process approximately 150 titles a day. The number of seats and space accommodates around 40.
Approximate viewing distance from rear of waiting area?	The span from the customer at the desk to the tv would range from 7 to 10 feet.
Approximate viewing distance from front of waiting area?	n/a
 *Wall suggested for mounting the TV located behind the registration counter.*	 *The location of the TV would be visible from the three primary registration desks. Note the Covid-19 license plate)*

While there were no images provided for either of the two entrance lobbies, the WTI Team is aware that one entrance is from the sidewalk on Main Street, and the other enters from a side street that has closer access to parking. By observation, it seems that the second is the more frequently used entrance.

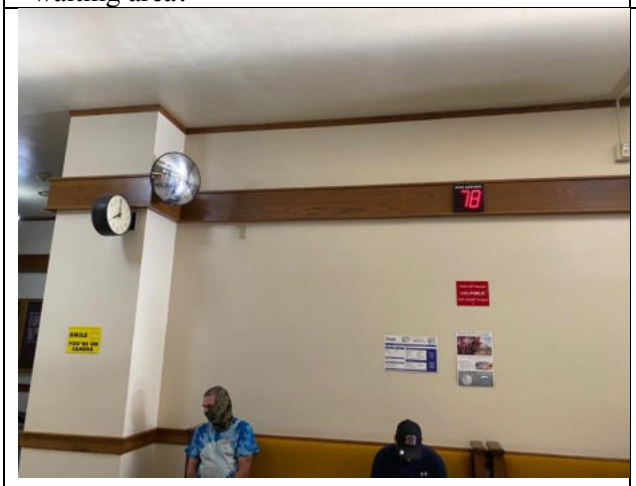
In order to expedite the decision process, a WTI team member visited two locations and Sky Shaeffer (DOJ) visited one location. The following is the information gathered from those visits.

Table 71: Gallatin CTO #2 (Belgrade) – in person visit

Question	Response
Number of entrances?	2 - only one is being used
Entrance lobby suitable for conducting exit surveys?	No lobby, but space is available in close proximity to the entrance.
Number of waiting areas?	1
Preference if more than one?	
Why preferable?	
Number of seats oriented towards TV?	5-8
Approximate viewing distance from rear of waiting area?	25 feet
Approximate viewing distance from front of waiting area?	7 feet
 *Entrance area with no lobby. Currently, with warm temperatures, there is seating available outside, and no one is waiting inside.*	 *The location of the TV (two options shown) would be visible from the counter position on the left, and from the waiting room chairs. The view of the TV would be at an angle, not direct.*

Table 72: Lewis and Clark CTO (Helena) – in person visit

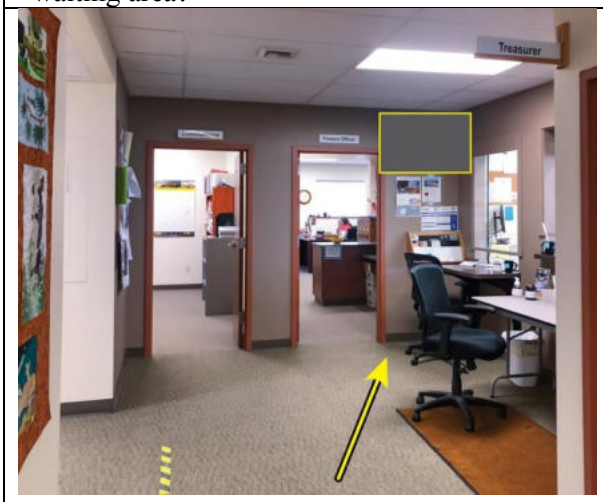
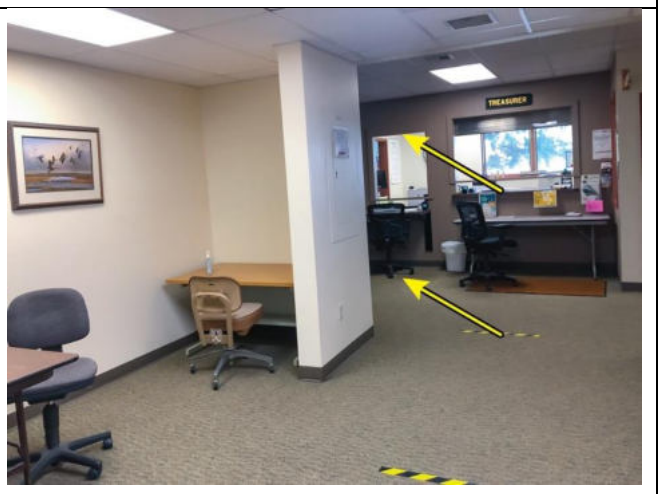
Question	Response
Number of entrances?	
Entrance lobby suitable for conducting exit surveys?	Yes
Number of waiting areas?	1
Preference if more than one?	
Why preferable?	
Number of seats oriented towards TV?	5-8
Approximate viewing distance from rear of waiting area?	15 feet
Approximate viewing distance from front of waiting area?	5 feet



The TV would be mounted behind some of the customers in the waiting area. This is determined to be OK by Sky.

We think people who are in line can watch it (if it's angled, possibly), people waiting on the bench, at the counter can turn around....we could potentially ask if they'd be willing to show some of the videos on their TV too. (Comment from Sky Schaeffer)

Table 73: Sweet Grass County CTO, Big Timber - in person visit.

Question	Response
Number of entrances?	1
Entrance lobby suitable for conducting exit surveys?	Yes
Number of waiting areas?	3 – Two hallway standing areas + 1 seated area
Preference if more than one?	Yes
Why preferable?	Most feasible location is in the registration desk area. But does not have reasonable access to power.
Number of seats oriented towards TV?	0
Approximate viewing distance from rear of waiting area?	15 feet
Approximate viewing distance from front of waiting area?	10 feet
 *Standing waiting area #1 entrance hallway. Only feasible location for TV in upper right corner, but with no easy access to power.*	 *Standing waiting area #2 + seated waiting area. Less used than area #1. Feasible TV mounting areas offer limited viewing options for anyone waiting in line or in the seated area.*

Appendix C: Email to Other DOTs to Secure Video Content

Greetings,

The Montana Department of Transportation (MDT) is undertaking a new research project to evaluate the use of road safety videos at motor vehicle registry and licensing offices to change driver behavior. While our contractor is identifying videos that meet the project criteria, MDT wanted to reach out to our peers to see if you have any videos that should be considered for use. **If so, please send them as indicated below by 5/1/20.**

The project criteria for videos includes:

- 2 minutes or shorter (although slightly longer videos could be considered),
- Captions provided,
- Meant for a generic audience and not specific to your state,
- Your willingness to provide written permission for MDT to use your video and captions, and
- Your ability to send the video and captions as downloadable files.
- The video topics/themes MDT is most in need of include:
- Roadway Departure (including overcorrection and rollovers)
- Intersection Crashes
- Impaired Driving
- Occupant Protection (including child safety seats)
- Tribal specific
- Speeding
- Traffic Incident Management

Other topics/themes MDT is collecting include:

- Winter Driving
- Agricultural Equipment
- Emergency Vehicles
- Sharing the Road
- School Buses
- Work Zones
- Motorcycles

If you have any of the above topical videos you are willing to share, please send them, along with captions and written permission for use to our contractor Jaime Sullivan at jaime.sullivan2@montana.edu. If you have any questions, you can also contact her via email (above) or phone at 774-571-3503.

Thank you so much for your consideration!

Best,

Sue

Appendix D: Filtered Safety Video Content

Video Title	Storyboard #	Link	Source	Length	What is discussed?	Notes	Audience	Topic Category
Cycling Safety Is Everyone's Responsibility	1	https://www.youtube.com/watch?v=rKoMJKEauj8	AAA	0:15	Cycling safety is responsibility of biker and driver.		Generic	Sharing the Road - Nonmotorized Users
Tips for Safe Winter Driving	1	https://www.youtube.com/watch?v=m5LkTkW3TDY	AAA	1:40	All the good safety tips for driving in the winter.	Captions need work before using without sound.	Generic	Winter Driving
2019 CDOT Motorcycle Safety - Drivers	1	https://www.youtube.com/watch?v=ilXEs_DSHbQ	Colorado DOT	0:30	Gives tips to drivers on how to be safe around motorcycles so to not add to the amount of motorcycle fatalities there are annually	great video with lots of tips. Logo at end.	Generic	Motorcycles
Rumble Strips: The Sweet Sound of Safety	1	https://www.youtube.com/watch?v=2V6-M4-O70E&feature=youtu.be&fbclid=IwAR1XV6EbDt6HI8ezBExOcFWK8BqO9mHA9Ig6amnCwdkvo9sUI4tRD8a3HQ	FHWA	1:12	What rumble strips are and how they keep you safe		Generic	Rumble Strips
Work Zone Safety is Your Responsibility Too	1	https://www.youtube.com/watch?v=xnPs9uEXS6U	National Asphalt Pavement Assoc	1:50	Protecting worker's lives in a work zone and actions to take	says accident	Generic	Work Zones – How to navigate them
Vision Zero - Just One Reason - Dad	1	https://www.youtube.com/watch?v=5XaUzOEWDYM	Montana DOT	0:30	What's your one reason to use a seatbelt? Shows a dad driving with his young daughter and staying safe for the sake of her is the only reason he needs to buckle up.	Captions need work before using without sound.	MT specific	Seatbelt Use
What is a roundabout?	1	https://www.youtube.com/watch?v=Cst1y4b4WOs	Montana DOT	1:02	What a roundabout is, why it's safer, and how to use.	Captions need work before using without sound.	MT specific	Roundabouts
Sober Friend	1	https://www.youtube.com/watch?v=lnYtYSwfvvc&feature=youtu.be	plan2live.mt.gov	0:30	If you plan to drink, make sure you have a sober friend to drive you home. Used a horse to be the "sober driver".		MT specific	Impaired driving (drug, drunk, etc)
"Share the Road" PSA	2	https://www.youtube.com/watch?v=MUt8l9_65Ic	Michigan DOT	0:29	Treat cyclists like cars. Same roads, same rights, same rules. Give them space.	Logo at beginning.	Generic	Sharing the Road - Nonmotorized Users
Judging a Motorcycle's Distance	2	Scroll down to web videos... https://www.trafficsafetymarketing.gov/get-materials/motorcycle-safety/motorist-awareness-motorcycles	NHTSA	0:15	because they are small it is hard to judge how far away a motorcycle is		Generic	Motorcycles
Emoji 30	2	https://www.youtube.com/watch?v=jKErdr0sd_0	NHTSA	0:30	Shows the emotional aftermath of texting and driving crashes.		Generic	Distracted Driving
Don't Be This Driver	2	https://www.youtube.com/watch?v=kmYFYYGzHNw	NHTSA	0:34	Stop means stop at a school bus. Children's' lives depend on it. Children's' greatest risk isn't riding on the bus, but approaching or leaving one.		Generic	School Busses
Embrace Life- Always Wear Your Seatbelt	2	https://www.youtube.com/watch?v=h-8PBx7isoM&feature=youtu.be	Sussex Safer Roads	1:28	Shows a family serving as the seat belt for a loved one in a crash.		Generic	Seatbelt Use
I'm Not Driving - DUI PSA	2	https://www.youtube.com/watch?v=li6WPqTQPeA	WA Traffic Safety Commission	0:30	Can't drive if you're drinking, high, or on certain medications	Captions need work before using without sound. Talks about alcohol, marijuana, and prescription meds. Logo at end	Generic	Impaired driving (drug, drunk, etc)
Truck Smart: Avoiding Blind Spots	2	https://www.youtube.com/watch?v=JWmb4ox3Zkg&feature=youtu.be	Zero Fatalities	0:40	Semis have four blind spots and we need to be aware of them all, especially the right	Captions need work before using without sound.	Generic	
Snow Rumble	2	https://www.youtube.com/watch?v=8mvK1abLWaY&list=PLxseor6tLx1FLsjQwg26AU3ZDg-IhBaZm&index=2	Montana DOT	0:30	Rumble strips are important all year round, especially the center line rumble strips in the winter. They will alert you when you are	Captions need work before using.	MT specific	Rumble strips
Motorists in Roundabout	2	https://www.youtube.com/watch?v=p_ClO8ZY2_s&feature=youtu.be	Montana DOT	1:10	How to properly navigate a roundabout as a motorist	Captions need work before using.	MT specific	Roundabouts
Eye Contact Saves Lives - Animation	3	https://www.youtube.com/watch?v=ZCCVr9NH3Nc	Colorado DOT	0:15	Always make eye contact as you're crossing the street as a pedestrian with oncoming	logo at end	Generic	Sharing the Road - Nonmotorized Users
Our Family Protecting Yours	3	https://www.youtube.com/watch?v=Q_XU8A0a7ZQ	Iowa DOT	0:30	winter driving tips	great video. Logo at end	Generic	Winter Driving
Safe Around Semi	3	https://www.youtube.com/watch?v=9kQWC3m3s5g	Iowa DOT	1:16	what not to do near semis	great tips	Generic	Other

Video Title	Storyboard #	Link	Source	Length	What is discussed?	Notes	Audience	Topic Category
Feel Different	3	https://www.youtube.com/watch?v=XfaJsPXv8CQ	NHTSA	0:30	Impaired driver almost hits a pedestrian due to impaired driving. If you feel different, you drive different.	Would be better with sound, but you get the point. Also shows marijuana use and not just alcohol.	Generic	Impaired driving (drug, drunk, etc)
Buckle Up What You Love - Click it or Ticket	3	https://www.youtube.com/watch?v=NJpcPAhYHDk	NHTSA	0:30	Funny catchy tune about buckling everything your love (food, plants, stuffed animals, etc.) so why not buckle up yourself?	Better with sound because it is a song.	Generic	Seatbelt Use
What Kind Of Driver are you Raising	3	https://www.youtube.com/watch?v=ooeGooDfPAY	Transport Accident Commission Victoria	1:00	Kid in the back seat is learning all the bad driving habits of his dad up front.	No talking so no captions needed.	Generic	
Flashing Yellow Light	3	https://www.youtube.com/watch?v=GChdZedjCWk	Montana DOT	1:00	Explains how flashing-yellow arrows work. Clear and catchy.	Captions need work before using without sound.	MT specific	Flashing yellow arrows
Stay Safe in Nightwork Zones	3	https://www.youtube.com/watch?v=ob5-XEHM_pM	Montana DOT	1:05	Several headlines about construction workers being struck, killed by motorists in zones at night. Crews can be out any time of the day, so be aware and be cautious.	Captions need work before using without sound.	MT specific	Work Zones – How to navigate them
Slow Down for the Curve	4	https://www.youtube.com/watch?v=V5fKGMriqI4	Clackamas County	0:48	Woman with full cart at grocery store going around a corner way too fast and her cart ends up tipping over. You wouldn't do that in a grocery store, so don't do it on the road.	Logo at beginning and end. No captions but worth it to create them as this is a top priority of the project panel.	Generic	Speeding
Railroad Safety - Rural Crossing	4	https://www.youtube.com/watch?v=ytgHnYHDqW8	Colorado DOT	0:19	Even if there are no crossing arms and no flashing lights, doesn't mean there's no train	logo at end	Generic	Railroad crossings
Together We Can End Impaired Driving	4	https://www.youtube.com/watch?v=IjMH8Q39VKk	Foundation for Advancing Alcohol Responsibility	1:01	Imagine a world where we can get home safely, tuck our kids into bed every night, pursue our dreams without having to worry about other people ruining it by driving impaired.	Great video. Definitely use...shows all sides of impaired driving.	Generic	Impaired driving (drug, drunk, etc)
Use Caution Around Slow Moving Vehicles	4	https://www.youtube.com/watch?v=MSG_zEF1uXE	Iowa DOT	0:30	how to drive near a SMW	logo at end.	Generic	
Slow Down, Move Over PSA	4	https://www.youtube.com/watch?v=74SgAZv89wE&feature=youtu.be	New York State DMV	0:32	Cops, paramedics, construction workers telling the viewer in a firm voice to slow down and move over when they are present. They are trying to do their jobs and people who don't slow down and move over make it unsafe for them.	Logo at end	Generic	Emergency Vehicles – What to do when they are present, Move Over laws
The Right Seat – If You Love Them Enough – Play Place	4	https://www.youtube.com/watch?v=L6Ku5_TSYdU	NHTSA	0:30	right child seat		Generic	Seatbelt Use
Be Seen - Pedestrian Safety	4	https://www.youtube.com/watch?time_continue=40&v=xDlPSQpnQ-s&feature=emb_logo	WA Traffic Safety Commission	1:54	There are a lot of pedestrians in native communities and there is a disproportional amount of pedestrians deaths in native communities.	logo at end. Captions need work before using.	Generic	Tribal specific
There's No One Someone Won't Miss	4	https://www.youtube.com/watch?v=k2tOve9DKdQ	Transport Accident Commission Victoria	1:00	Asks a man what an acceptable number of people to die on the roadways in a given year is (given 200 people died last year). He said 70. Then 70 of his family members walked out from around the corner. He quickly changes his number to zero. Zero people should be dying on the roadways.	Logo at end and in bottom right corner. Captions are overtop the words in the video.	Other state specific	
Funeral		https://www.youtube.com/watch?time_continue=25&v=nom2wPVjn1U&feature=emb_logo	Bureau of Highway Safety	0:30	Shows the scene of a funeral. Losing a loved one always hurts, but it's especially painful when they are lost due to distracted driving... it's pain that could've been avoided	Logo at end. Captions need work before using.	Generic	Distracted Driving
Share the Road Safety Video		https://www.youtube.com/watch?v=tSvRVftd17U&feature=youtu.be	CAA South Central Ontario	0:30	Bikes need to stop a behind semi trucks otherwise the driver can't see them.	Captions need work before using without sound. Logos at end.	Generic	Sharing the Road - Nonmotorized Users
School Bus Safety PSA Video 1		https://www.youtube.com/watch?v=Z2KZunoQi4A	Child Safety Network	0:30	Don't ever pass a stopped school bus with it's flashing red lights. Kids' lives depend on it.	Captions need work before using without sound.	Generic	School Busses
School Bus Safety Video 4		https://www.youtube.com/watch?v=Ybrzi-UUjeE	Child Safety Network	0:30	Don't break the law, don't drive distracted, don't take chances. Always stop for school busses. Children's lives depend on it.	Captions need work before using without sound.	Generic	School Busses

Video Title	Storyboard #	Link	Source	Length	What is discussed?	Notes	Audience	Topic Category
What Will YOU lose? - Andrea		https://www.youtube.com/watch?v=yznKldUTTQ	Colorado DOT	0:15	Interviews a woman who's in prison because she killed someone because she was drinking and driving	logo at end. Captions need work before using.	Generic	Impaired driving (drug, drunk, etc)
Railroad Safety - Rural Signs		https://www.youtube.com/watch?v=6xjdBZmWuWg	Colorado DOT	0:20	Shows the different railroad crossing signs. When you see these, always be looking for trains	logo at end	Generic	Railroad crossings
Crash Survivor		https://www.youtube.com/watch?v=vAZkdScSoZM	Colorado DOT	1:11	Interviews a couple who was in a car crash, and it wasn't there fault. It can happen to anybody. They wouldn't be alive if they hadn't been wearing their seatbelts	logo at end. Captions need work before using.	Generic	Seatbelt Use
Distracted Driving: Shame		https://www.youtube.com/watch?v=npjbScdhurg	Connecticut DOT	0:15	Interviewing people about they're phone use while driving. There is no shame in what they're saying and that's the problem	Logo at end. Captions need work before using.	Generic	Distracted Driving
Distracted Driving Pull Over Here		https://www.youtube.com/watch?time_continue=9&v=_el0KyZcOFA&feature=emb_logo	Connecticut DOT	0:30	It's great that you're pulling over to send that text or take that call, but make sure you're pulling over in a safe place... like a parking lot or rest area. Don't pull over on the side of a very bus highway.	Logo at end. Captions need work before using.	Generic	Distracted Driving
Work Zone Safety		https://www.youtube.com/watch?time_continue=30&v=2bWQdFoJjnA&feature=emb_logo	Connecticut DOT	0:30	In work zones, there are more than trucks behind the cones. There are people who have families. Slow down.	logo at end	Generic	Work Zones – How to navigate them
Innovation Spotlight: Rural Roadway Departures		https://www.youtube.com/watch?v=IcOYVgz3W9c&amp=&feature=youtu.be	FHWA	1:55	Discusses the statistics of roadway departures on rural roads and what is being done to prevent these sort of crashes.	this may be too much for practitioners and not resonate with the public	Generic	Road side/clear zone
Distracted Driving PSA		https://www.youtube.com/watch?time_continue=29&v=VztOISZxeaw&feature=emb_logo	Governor's Traffic Safety Committee - NY	0:30	Texting and driving is "crazy." Spoken by race car drivers who are typically the ones being called "crazy." When they're driving, they're 100% focused on what their doing, as should any regular person driving	Logo at end. Captions need work before using. Multiple race car drivers, not one specific celebrity.	Generic	Distracted Driving
Drugged Driving PSA		https://www.youtube.com/watch?time_continue=25&v=sSi5EpWl_2c&feature=emb_logo	Governor's Traffic Safety Committee - NY	0:30	Alcohol and other drugs are dangerous on their own, but when you add a vehicle to the mix, it becomes a whole lot more dangerous	logo at end	Generic	Impaired driving (drug, drunk, etc)
How roundabouts work		https://www.youtube.com/watch?v=1DIDiaa25Co&feature=youtu.be	IIHS	1:59	What roundabouts are and step by step how to use them. How right angle crashes are greatly reduced by roundabouts.		Generic	Roundabouts
Slow Moving Vehicle Bumper		https://www.youtube.com/watch?v=xYY0LTckULw	Iowa DOT	0:06	how to drive near SMV	logo at end	Generic	
Don't Crowd the Plow		https://www.youtube.com/watch?v=y9e9ecrHCWU&feature=youtu.be	Kansas DOT	1:49	Animated snow plow giving safety tips when it comes to plows and why it is dangerous to pass. Be patient and then they can do their job best.	Captions need work before using without sound. Check to make sure MDT uses salt, sand, salt bring, wing plows, and tow plows before using. Logo in bottom right entire time.	Generic	Snow Plows
Minnesota Motorcycle Safety Center: Don't Drink and Ride		https://www.youtube.com/watch?v=nDPFqKDRTeI	MN DPS	0:30	Talks about how you can ruin your precious, new, expensive bike in just a couple of seconds if you drink and ride	logo and mention on MN DPS at very end. Captions need work before using.	Generic	Motorcycles
Camryn "Cici" Callaway died Feb. 22, 2018		https://www.youtube.com/watch?v=M1NYHTYbWZg&list=PL337F74DED367FDE7	National Safety Council	1:22	A mother talking about how she lost her 17 year old daughter because she was texting and driving		Generic	Distracted Driving
Distracted Driving Awareness Month		https://www.youtube.com/watch?v=MkVevmrj1LU&list=PL337F74DED367FDE7&index=2	National Safety Council	1:59	A woman who was hit by a 40 mph car talks about her experience. She was hit by somebody texting and driving.		Generic	Distracted Driving
Watch for Intersection Obstructions (Motorcycles)		Scroll down to web videos... https://www.trafficsafetymarketing.gov/get-materials/motorcycle-safety/motorist-awareness-motorcycles	NHTSA	0:15	watch for motorcycles at intersections with obstructions		Generic	Motorcycles
No Money		https://www.youtube.com/watch?time_continue=1&v=j6PSng0QtV0&feature=emb_title	NHTSA	0:15	DUI's are expensive. Shows a guy sad about how much money it cost him to get a DUI and him imagining where he would be if he didn't lose that money.		Generic	Impaired driving (drug, drunk, etc)

Video Title	Storyboard #	Link	Source	Length	What is discussed?	Notes	Audience	Topic Category
Motorcycle Fatalities at Intersections		Scroll down to web videos... https://www.trafficsafetymarketing.gov/get-materials/motorcycle-safety/motorist-awareness-motorcycles	NHTSA	0:15	many motorcycle fatalities happen at intersections. Watch for motorcycles.		Generic	Motorcycles
Adjust Your Mirrors Properly (Motorcycles)		Scroll down to web videos... https://www.trafficsafetymarketing.gov/get-materials/motorcycle-safety/motorist-awareness-motorcycles	NHTSA	0:15	adjust your mirrors properly to help you see motorcycles		Generic	Motorcycles
Know Your Blind Spots (Motorcycles)		Scroll down to web videos... https://www.trafficsafetymarketing.gov/get-materials/motorcycle-safety/motorist-awareness-motorcycles	NHTSA	0:15	know your blind spots and look for motorcycles		Generic	Motorcycles
No Lights When Braking (Motorcycles)		Scroll down to web videos... https://www.trafficsafetymarketing.gov/get-materials/motorcycle-safety/motorist-awareness-motorcycles	NHTSA	0:15	motorcycles don't always use their brakes to slow down.		Generic	Motorcycles
Proper Braking Cushion (Motorcycles)		Scroll down to web videos... https://www.trafficsafetymarketing.gov/get-materials/motorcycle-safety/motorist-awareness-motorcycles	NHTSA	0:15	motorcycles stop quickly so leave room between them and you		Generic	Motorcycles
Visual Conspicuity (Motorcycles)		Scroll down to web videos... https://www.trafficsafetymarketing.gov/get-materials/motorcycle-safety/motorist-awareness-motorcycles	NHTSA	0:15	motorcycles blend in with their surroundings		Generic	Motorcycles
Weaving for a Purpose (Motorcycles)		Scroll down to web videos... https://www.trafficsafetymarketing.gov/get-materials/motorcycle-safety/motorist-awareness-motorcycles	NHTSA	0:15	motorcycles weave to stay out of blind spots		Generic	Motorcycles
No Big Deal		https://www.youtube.com/watch?v=4BCdnoM6UMM	NHTSA	0:30	You know the risks when you decide to drive drunk, but you are wrong when you say "it's no big deal." Shows an intense crash scene caused by a drunk driver.	Scare tactic	Generic	Impaired driving (drug, drunk, etc)
Manifesto - Texting While Driving		https://www.youtube.com/watch?v=O8MQV40pOtk	NHTSA	0:30	Car filled with teenagers, driver is texting and gets into a serious crash.	Scare tactic but addresses why enforcement is important.	Generic	Distracted Driving
Tyler's Story		https://www.youtube.com/watch?v=jDbxIO6lwX4	NHTSA	0:30	Talks about a young man named Tyler who had so much life ahead of him. He decided to video record himself driving home one night, which ended up ending his life.	Logos at the end	Generic	Distracted Driving
No Good Excuse		https://www.youtube.com/watch?v=stzrWDJ66MQ	NHTSA	0:30	People listing the reasons why they don't wear a seatbelt... But there's no good excuse. Seatbelts are 100% necessary.	Scare tactic but impactful.	Generic	Seatbelt Use
You Know It's True		https://www.youtube.com/watch?v=IzExNYQ4Msw&list=PL2GlXO1j4M73GB1HIYSR0EDTMiT9wFtcc&index=1	NHTSA	0:30	Voice over of woman calling 911 after seeing a vehicle get thru train crossing but didn't make it. Shows footage leading up to the crash.		Generic	Railroad crossings
Spotted Driving High		https://www.youtube.com/watch?v=dMRVvdNdYS8	NHTSA	0:30	Driving high		Generic	Impaired driving (drug, drunk, etc)
Famous Last Words		https://www.youtube.com/watch?v=L6uepXw9gZA	NHTSA	0:31	Young driver killed in a car crash due to texting and driving. Shows the scene of her funeral.	Scare tactic	Generic	Distracted Driving
July 4th Drunk Driving Uncle Sam Busted		https://www.youtube.com/watch?v=udH433R8mZo&list=PL2GlXO1j4M702UNxzI9lSJxd4kTZbzok6&index=12	NHTSA	0:35	Shows visibly drunk man getting into his car during 4th of July, and a cop shows up before he can even start driving. The cops will see you before you see them.	July 4th specific	Generic	Impaired driving (drug, drunk, etc)

Video Title	Storyboard #	Link	Source	Length	What is discussed?	Notes	Audience	Topic Category
Find the Blue and White ENS Sign PSA		https://www.youtube.com/watch?time_continue=29&v=e_aoLar4GIA&feature=emb_logo	Operation Lifesaver	0:30	What to do if you are stuck at a railroad crossing.	Captions need work before using.	Generic	Railroad crossings
I Should Have Read the Label		https://www.facebook.com/watch/?v=1563829233662606	Orange County District Attorney Office	1:34	Shows clips from the lives of two different people. One of which is very distracted in general and the other who is not. Both take	logo at end	Generic	Impaired driving (drug, drunk, etc)
Move It PSA		https://www.youtube.com/watch?v=VQXYUYs1QB0	Oregon DOT	0:30	If you're in a non-life threatening crash, move over and don't hold up traffic behind you! It significantly increases danger if you don't, could result in a more serious crash.	Logos at closing	Generic	Traffic Incident Management
Transportation Safety ODOT - What it Takes		https://www.youtube.com/watch?v=6rhb1ZDB5CE	Oregon DOT	0:30	Why you need to use a booster seat for your children until they are 4' 9". Their safety is in your hands.	Logos at closing. Captions in foreign language, but good message.	Generic	Seatbelt Use
Motorcycle Safety PSA - Pef's Mom		https://www.youtube.com/watch?v=njS2oTm7RwM	WA Licensing	1:39	Interview with a mom whose son was killed on a motorcycle due to a car turning out in front of him	Logo at end.	Generic	Motorcycles
Officer Hides Motorcycle Behind Pen		https://www.youtube.com/watch?v=3_koL4f4MXI&feature=youtu.be&fbclid=IwAR16ABWRZmaH_	WKRG	0:20	Police officer speaking to camera while holding up a pen that is blocking a motorcycle. Something so small as that can	Police office mentions where he is from.	Generic	Distracted Driving
Making a Left Turn from a Roundabout		https://www.youtube.com/watch?v=F1bc7R4eXTs&feature=youtu.be	Montana DOT	0:28	Shows animated car maneuvering a left turn in a roundabout.	No sound	MT specific	Roundabouts
Making a Right Turn from a Roundabout		https://www.youtube.com/watch?v=GU3o_pDSU_0&feature=youtu.be	Montana DOT	0:28	Shows animated car maneuvering a right turn in a roundabout.	No sound	MT specific	Roundabouts
Going Straight in a Roundabout		https://www.youtube.com/watch?v=aAZyEDLrmMo&feature=youtu.be	Montana DOT	0:28	Shows animated car going straight through a roundabout.	No sound	MT specific	Roundabouts
Buckle Up		https://www.youtube.com/watch?v=e_o1A883VUo	Montana DOT	0:30	Guy talking to his kid about why he uses his seatbelt. Kid says he uses his seatbelt	Captions need work before using without sound.	MT specific	Seatbelt Use
Let's Rumble		https://www.youtube.com/watch?v=7Vct1k5ZoK4	Montana DOT	0:30	Why centerline rumble strips are becoming more popular in MT. They're making the roads	Captions need work before using without sound.	MT specific	Rumble Strips
Buckle Up MT - Holidays		https://www.youtube.com/watch?v=ebNzhLbZfXY&list=PLxseor6I1x1EaJJMR87MqfYC8fjcUaLLB	Montana DOT	0:30	Woman talking about a scary crash her and her family was in. Luckily they were all wearing their seatbelts and are able to continue spending holidays with each other.	Captions need work before using.	MT specific	Seatbelt Use
A DUI Can Cost You		https://www.youtube.com/watch?v=sxS7wcKOtcM	Montana DOT	0:36	So many reasons to plan a sober ride. Getting a DUI can cost you your license, cost you lots of money, can put you in jail... There are better ways to spend your time.	Captions need work before using without sound.	MT specific	Impaired driving (drug, drunk, etc)
Emergency Vehicles in Roundabouts		https://www.youtube.com/watch?v=UEZF4L-Jw_w&feature=youtu.be	Montana DOT	0:40	What to do if an emergency vehicle approaches behind you in a roundabout	Captions need work before using.	MT specific	Roundabouts
Truck Apron		https://www.youtube.com/watch?v=_5aZe3MnHKM	Montana DOT	0:54	Explains what a truck apron is and how getting though a roundabout as a large	Captions need work before using.	MT specific	Roundabouts
Why Roundabouts		https://www.youtube.com/watch?v=pFVSJZnS8h0&feature=youtu.be	Montana DOT	1:34	Statistics about roundabout safety and then the reasons behind roundabout safeness.		MT specific	Roundabouts
Trooper Inman		https://www.youtube.com/watch?v=UYWds56wmYw	Montana DOT	1:51	People in MT are skeptical about roundabouts because they aren't too common. But it's really easy to learn and	Captions need work before using.	MT specific	Roundabouts

Video Title	Storyboard #	Link	Source	Length	What is discussed?	Notes	Audience	Topic Category
Flashing Yellow Left-Turn Arrows in Montana		https://www.youtube.com/watch?v=xluNo-9t6eQ&feature=youtu.be	Montana DOT	1:53	Explains how flashing-yellow arrows work and why they are becoming more popular.	Captions need work before using without sound.	MT specific	Flashing yellow arrows
2019 MOAZ :30 - English		https://www.youtube.com/watch?v=Y34	Arizona DOT	0:29	If there are any flashing lights (emergency, utilities, construction) move over	logos at end. Captions need work before using.	Other state specific	Emergency Vehicles – What to do when they
Go Safely		https://www.youtube.com/watch?v=EiR7DSzD_qs	California Office of Traffic Safety	0:30	We should be holding the wheel, not the phone	Great video but last part is specific to California...possibly cut with permission.	Other state specific	Distracted Driving
Crash, Not an Accident		https://www.youtube.com/watch?v=6_dqA9kI6JA	Michigan DOT	1:07	There's a difference between a "crash" and an "accident." Most of the time it's a crash because there usually is someone to blame.	last 10 seconds are specific to Michigan but fantastic message.	Other state specific	Distracted Driving

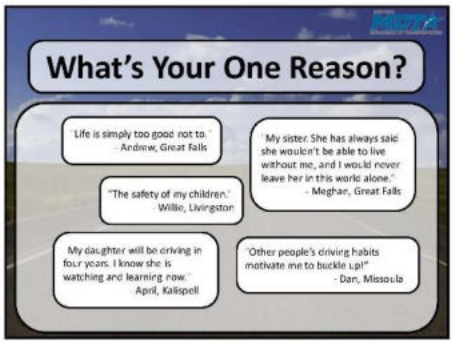
Appendix E: Storyboard Drafts

Storyboard #1

1/20/2021

1

2



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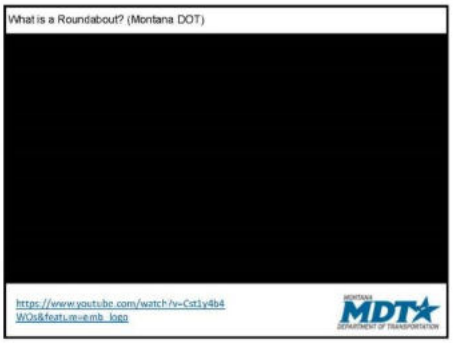

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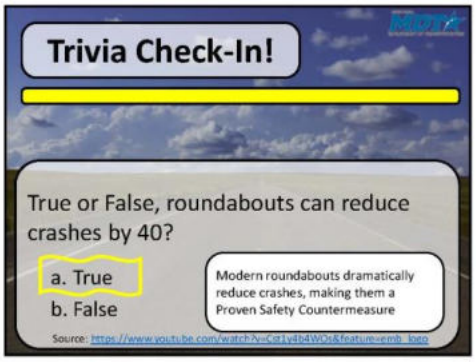
1/20/2021



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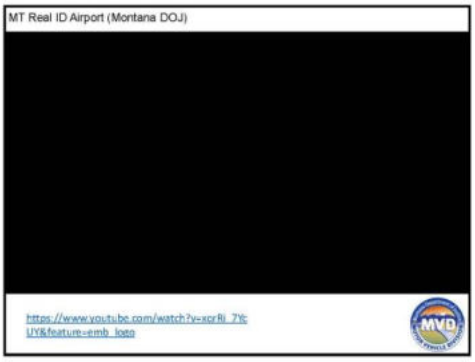

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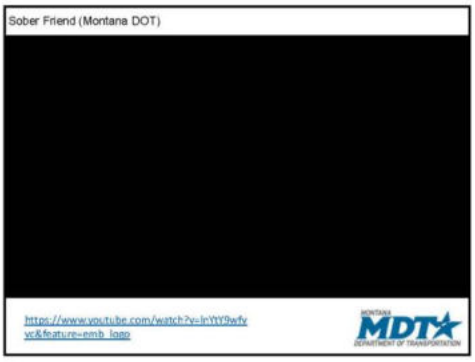

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1/20/2021

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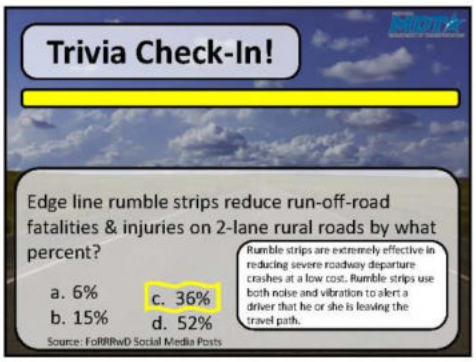

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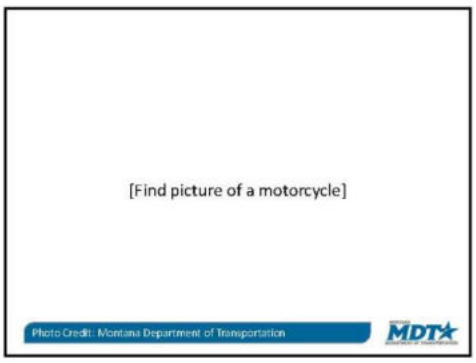

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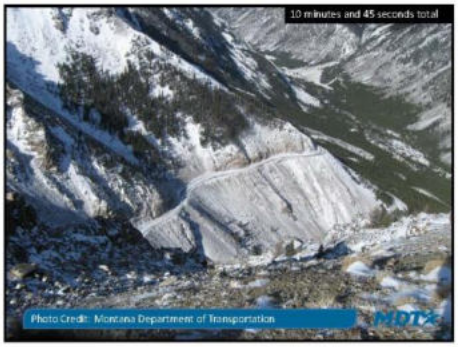
1/20/2021

19

4

Storyboard #2

2021



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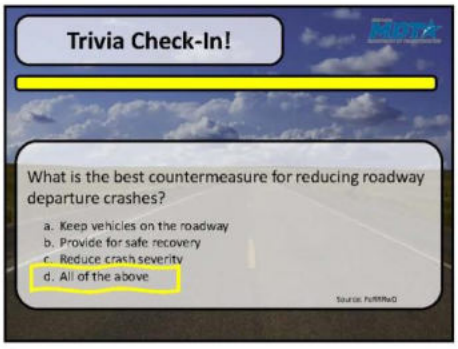

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2021

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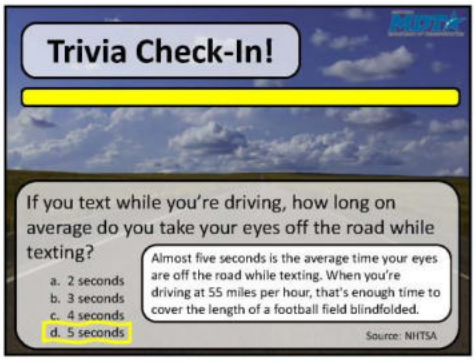

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2021

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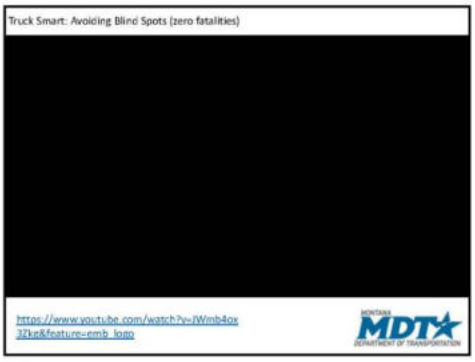

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2021

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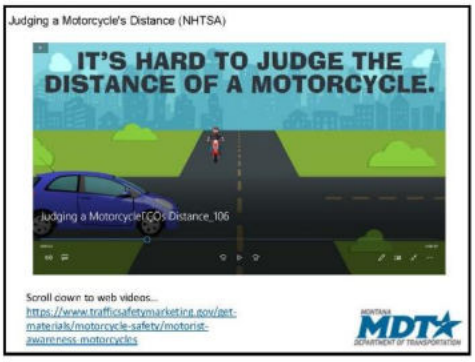

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21

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Storyboard #3

2021

1

2

3

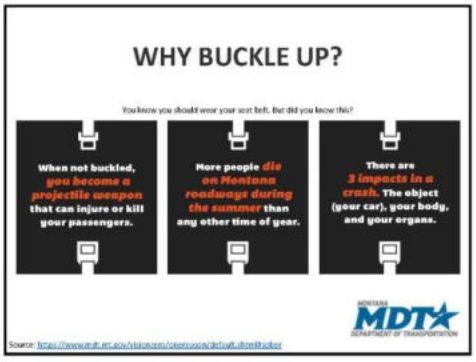
4

5

6

1

2021



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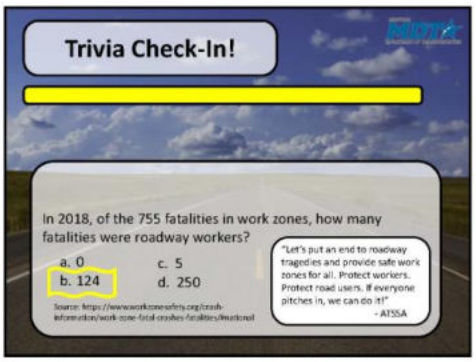

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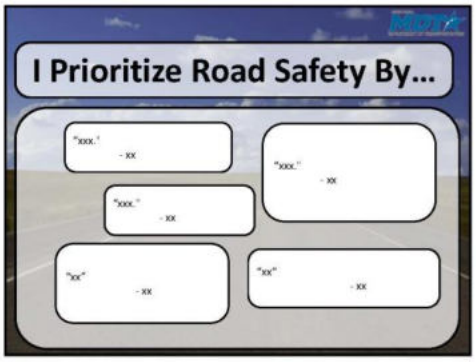
2021



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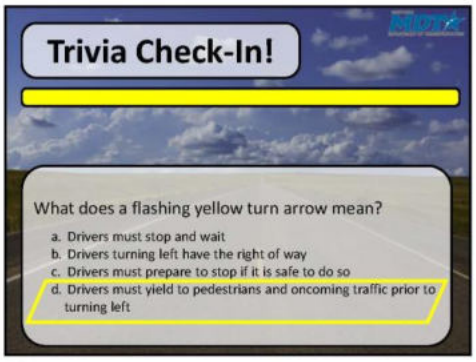

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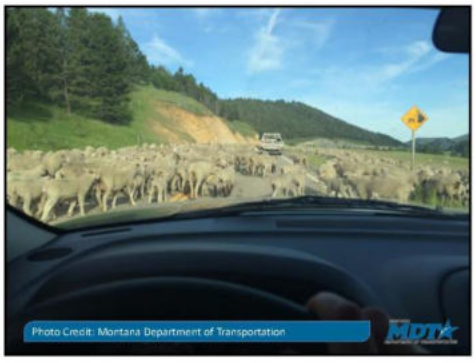

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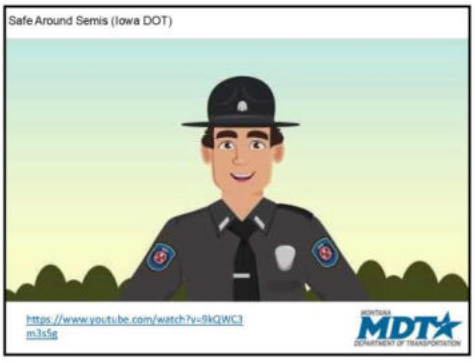


18

3

2021


20 ft
OK
1 lane
2 lanes
30 ft
OK
OK
OK
STAY OUT OF BLIND SPOTS
Photo Credit: FMCSA
MDT

19


VISION ZERO
zero deaths · zero serious injuries

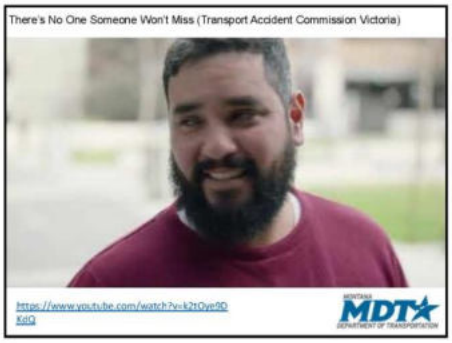
20

4

Storyboard #4

2021

1



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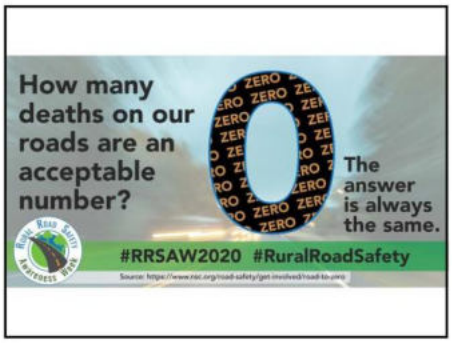

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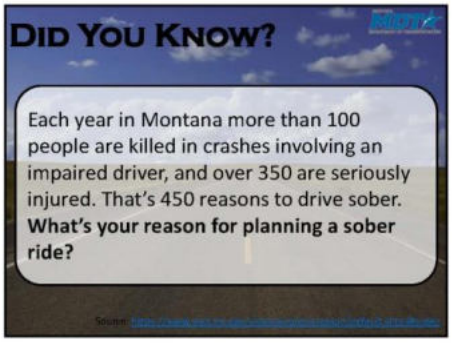

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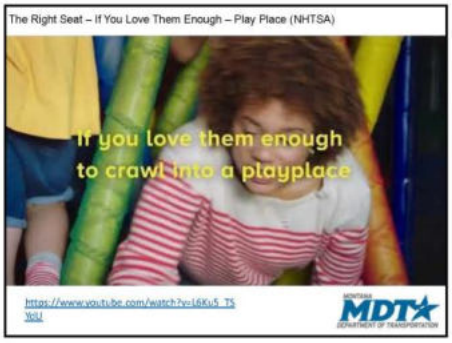
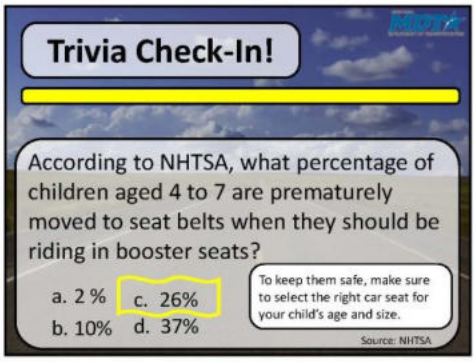


6

1

2021



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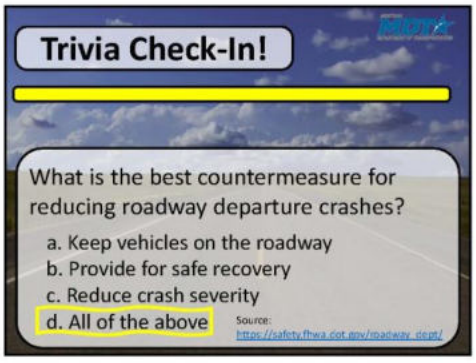

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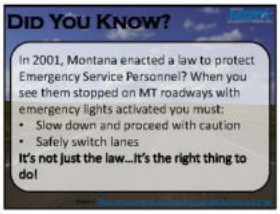
2

2021



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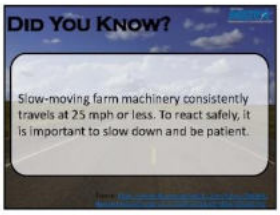

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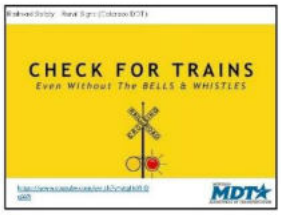

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3

2021

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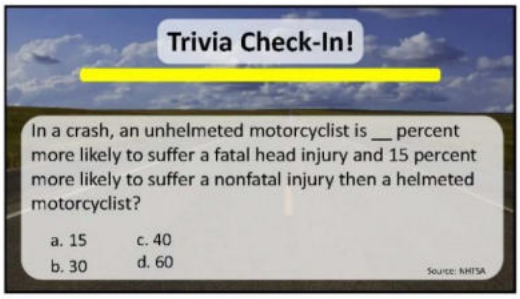
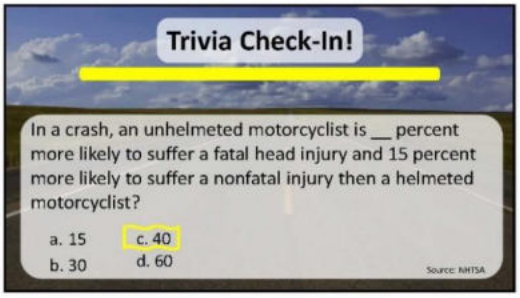
4

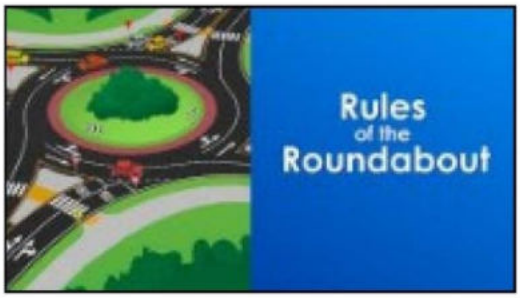
Appendix F: Final Storyboard #1

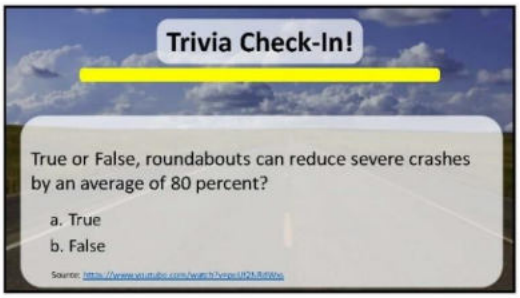

Trivia Check-In!
In a crash, an unhelmeted motorcyclist is __ percent more likely to suffer a fatal head injury and 15 percent more likely to suffer a nonfatal injury then a helmeted motorcyclist?
a. 15
b. 30
c. 40
d. 60
Source: NHTSA

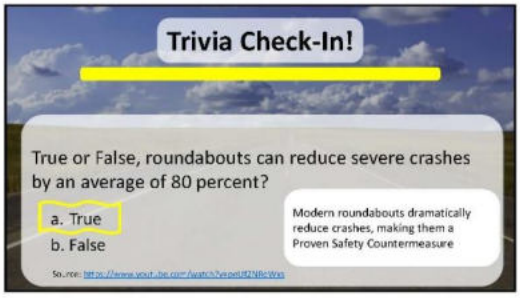

Trivia Check-In!
In a crash, an unhelmeted motorcyclist is __ percent more likely to suffer a fatal head injury and 15 percent more likely to suffer a nonfatal injury then a helmeted motorcyclist?
a. 15
b. 30
c. 40
d. 60
Source: NHTSA


15


SEE THESE?
NHTSA
DO THIS.
MOVE OVER
MOVE OVER FOR EMERGENCY VEHICLES
#MOVEOVER
MOVE OVER


Rules
of the
Roundabout


Trivia Check-In!
True or False, roundabouts can reduce severe crashes by an average of 80 percent?
a. True
b. False


Trivia Check-In!
True or False, roundabouts can reduce severe crashes by an average of 80 percent?
a. True
b. False
Modern roundabouts dramatically reduce crashes, making them a Proven Safety Countermeasure

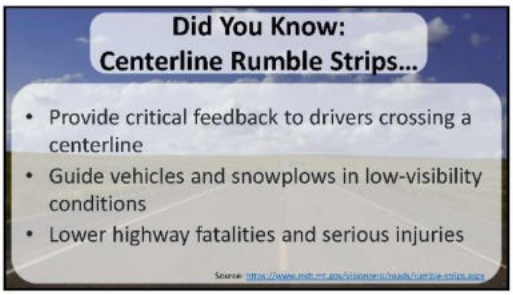

I'm ready.
Ok, on my way.
Delivered
Thanks Mom.
Appreciate the sober ride home.

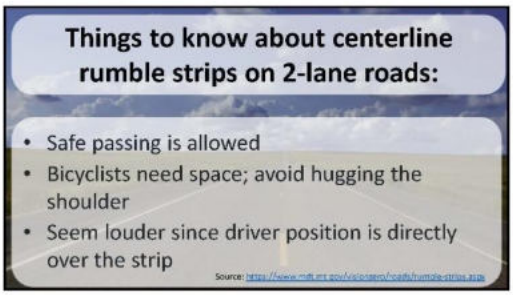

WHAT WILL A DUI COST YOU?
death
serious injury
incarceration
job loss
search warrants
probation
court fines
Its MORE than just a traffic fine.
attorney fees
treatment
no access to Canada
embarrassment
loss of independence
name in local newspaper

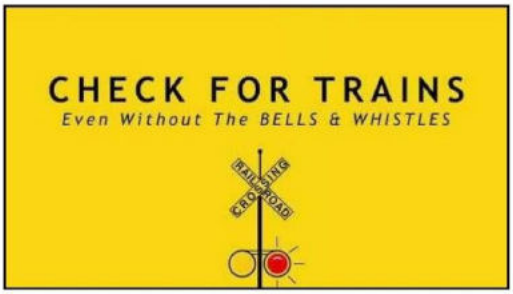

Experience

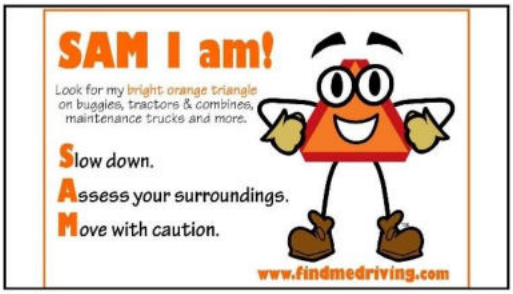

Thank You!
The Montana Department of Transportation would like to thank the following agencies for the use of their materials:
• CAA South Central Ontario
• Colorado Department of Transportation
• Emergency Responder Safety Institute
• Federal Highway Administration
• Montana Department of Justice
• National Highway Traffic Safety Administration
• New York State Department of Transportation
VISION ZERO
MDT

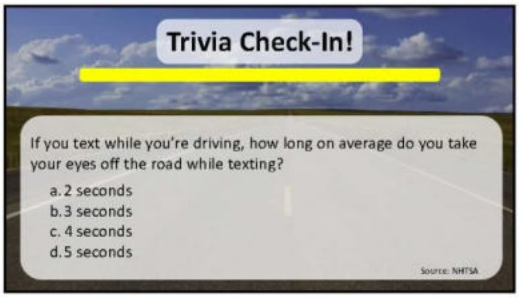
Appendix G: Final Storyboard #4

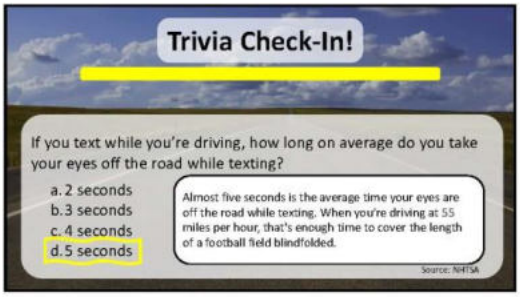




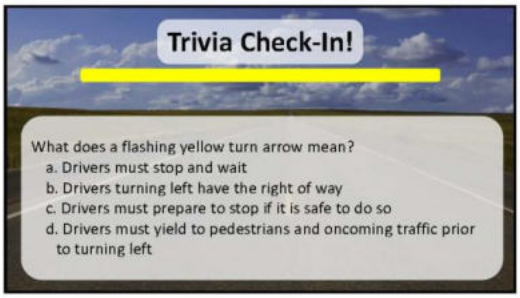


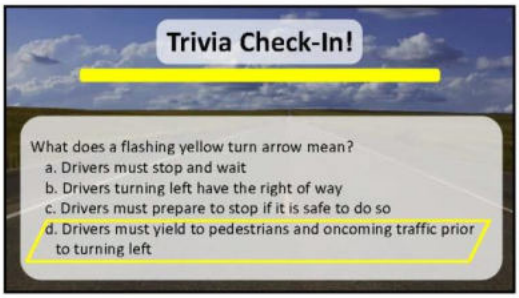



Trivia Check-In!
If you text while you're driving, how long on average do you take your eyes off the road while texting?
a. 2 seconds
b. 3 seconds
c. 4 seconds
d. 5 seconds
Source: NHTSA

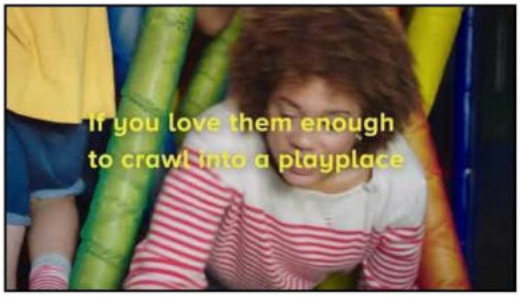

Trivia Check-In!
If you text while you're driving, how long on average do you take your eyes off the road while texting?
a. 2 seconds
b. 3 seconds
c. 4 seconds
d. 5 seconds
Almost five seconds is the average time your eyes are off the road while texting. When you're driving at 55 miles per hour, that's enough time to cover the length of a football field blindfolded.
Source: NHTSA

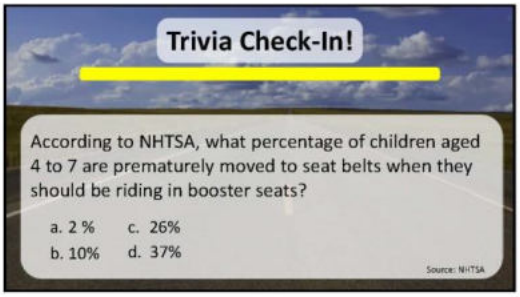

YIELD

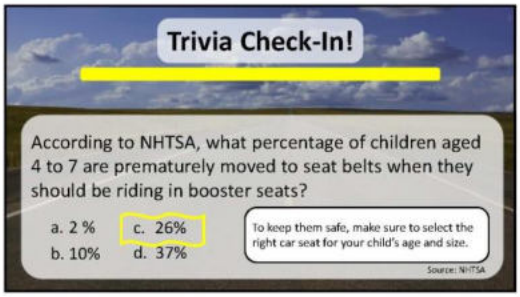

Trivia Check-In!
What does a flashing yellow turn arrow mean?
a. Drivers must stop and wait
b. Drivers turning left have the right of way
c. Drivers must prepare to stop if it is safe to do so
d. Drivers must yield to pedestrians and oncoming traffic prior to turning left


Trivia Check-In!
What does a flashing yellow turn arrow mean?
a. Drivers must stop and wait
b. Drivers turning left have the right of way
c. Drivers must prepare to stop if it is safe to do so
d. Drivers must yield to pedestrians and oncoming traffic prior to turning left

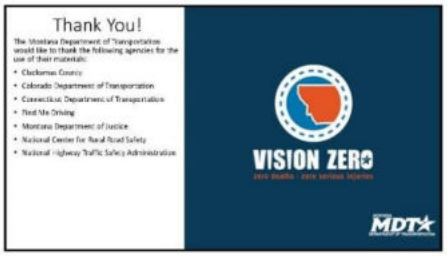

How many deaths on our roads are an acceptable number?
ZERO
The answer is always the same.
www.ruralsafetycenter.org


If you love them enough to crawl into a playplace


Trivia Check-In!
According to NHTSA, what percentage of children aged 4 to 7 are prematurely moved to seat belts when they should be riding in booster seats?
a. 2 %
c. 26%
b. 10%
d. 37%
Source: NHTSA


Trivia Check-In!
According to NHTSA, what percentage of children aged 4 to 7 are prematurely moved to seat belts when they should be riding in booster seats?
a. 2 %
c. 26%
b. 10%
d. 37%
To keep them safe, make sure to select the right car seat for your child's age and size.
Source: NHTSA


TELL THEM YOU WERE RUNNING LATE.
THEY'LL UNDERSTAND.
SPEEDING


Thank You!
VISION ZERO
MDT

Appendix H: Permission Form

Form: Request for Permission for Use of Copyright Material

Date:_____

Name:_____

Address:_____

Phone:_____ **Email:**_____

1. As the Licensor, you hereby grant the Montana Department of Transportation (collectively referred to herein as "MDT") permission to use the following material:

   Title:_____

   (the "Material")

   Web link:

   in the work entitled "*Effectiveness of Highway Safety Public Education at Montana Motor Vehicle Division and Vehicle Registration Stations by Streaming a Variety of Safety Content*" (the "Work")

(a) for worldwide distribution
(b) in all formats and platforms in any and all media now known or hereafter developed
(c) for non-commercial gain and
(d) in advertisements and promotional materials for the Work

2. You represent that

(a) you are the sole owner of all copyright, trademark, and other intellectual property and proprietary rights in and to the Material;
(b) publication of the Material as authorized herein will not violate or infringe any copyright, trademark, or other intellectual property or proprietary right of any person or entity;
(c) content and statements in the Material indicated as fact are true or based upon generally accepted professional research practices;
(d) you are not a party to and the Material is not subject to any contract or arrangement which would conflict with your permission herein;

3. You agree to indemnify and hold MDT harmless from any claim arising out of any breach or alleged breach of the above-mentioned representations.

4. This agreement shall be governed by and interpreted in accordance with the copyright laws of the United States.

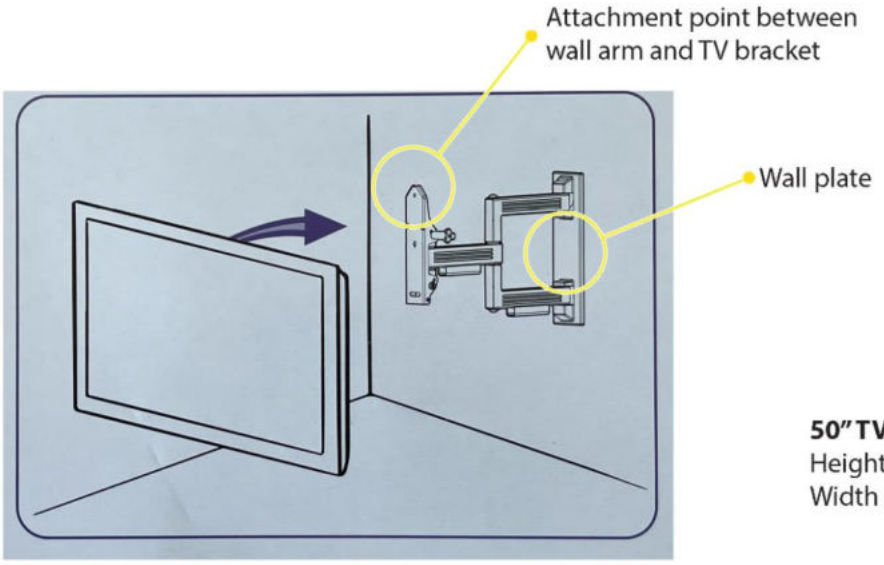
I hereby grant permission for the use of the material requested above.

Name:_____

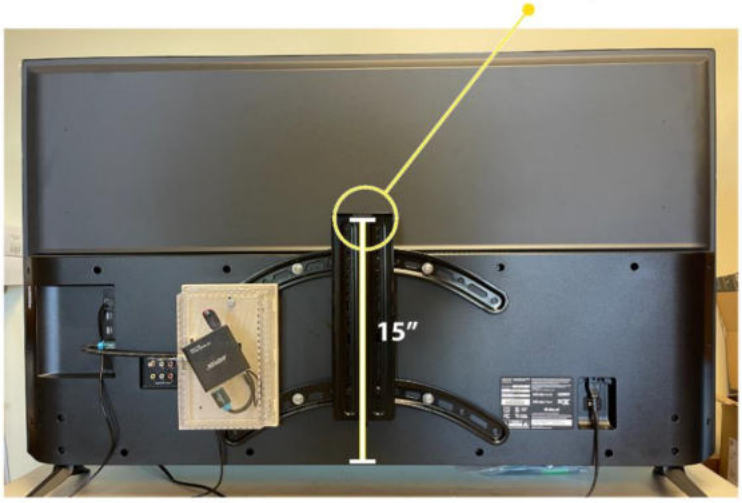
Signature: _____ **Date:**_____

Appendix I: Guide TV Wall Mount

TV hanging point between wall plate and TV bracket



50" TV
Height 26"
Width 44"



TV base to bracket attachment point **15"**

Top hole for mounting the plate to the wall

Example:
Base of TV to be at 48".
Top hole for mounting plate to the wall should be at 48" + **15"** from the floor.

Appendix J: Guide Video System Operation

Video Display System Operating Instructions.

In case of any issues with operating the video display system, please contact the following project personnel.

Neil Hetherington
Email: hetherington@montana.edu Ph: 406-581-7681

System Start Up and Operation

- This start up process may not be necessary if the system has already been in operation. The video will usually start playing as soon as power to the TV is turned on.
- There is no audio track on the safety video loop, so using the volume or mute buttons will have no effect. The captions will always display as they are "burned" into the video.
- Please note that there are two remote controls on for the TV and one for the media player.

1. Power up the TV

a. While pointing the TV remote towards the lower left corner of the TV, press the power button.

- Power on is indicated by the LED light at the bottom right corner of the TV.

2. Select TV input

a. Press the input button on the TV remote repeatedly until HDMI 1 is selected.

- The media player should power up and start playing the video automatically. If not, the following will be displayed on the TV.

- If this is this case, please continue with the next step(s).

3. Power up the media player

a. While pointing the **media player remote** towards the back of the TV, press the RED power button.

- If the media player does not automatically start playing the video, the following will be displayed on the screen, please continue with the next step(s).

4. Select Movie

a. either by using the arrow selection button, or
b. the MOVIE button on the media player remote.
c. press the OK button on the remote to confirm selection.

5. Select media

a. Select USB Device using the up down arrow buttons on the remote.
b. Press OK to confirm the selection

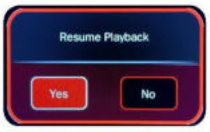
c. Select media folder displayed on the screen using the OK button.

d. Select the video file (SafetyVideo_SB4-20220403.mp4)
e. Press the OK button on the remote to confirm selection.

- The video name may be different after the system is installed, or a different file is provided.
- The video should start playing.

6. Verify video playback

a. If the screen displays "Resume Playback" select either Yes or No.



- If no action is taken within ~45 seconds, the media player will automatically do whichever option was already selected.

7. Play video as a continuous loop

a. Press the repeat button until "**Repeat One**" is displayed.
- No other action is required for this to take effect.

Additional Notes:

- When not active, the media player will time-out after one minute. Press any button on the media player remote to reactivate (except the power button).
- After the system has already been in operation, it should only take powering on the TV to have the video loop play automatically.
- If, due to a power outage, or other complete power down situation, follow the complete start up instructions.

Troubleshooting:

The following covers some basic issues that may occur during operation. The list is not extensive, if an issue occurs that is not indicated here, or cannot be resolved please do not hesitate to contact the project personnel listed on the previous page.

1. TV does not power on.

a. Check all power connections between the wall socket, extension cord and the TV.
b. Check that there is power to the wall socket.
c. Attempt to power on the TV using the power button on the back of the TV.
d. Check the batteries in the TV remote control.

2. Media player does not respond to the media player remote control.

a. Check the line of site view between media player remote and the front of the media player.

b. Check connection to USB power between the back of the TV and the media player.

c. Check the batteries in the media player remote control.

3. USB thumb drive does not display as a media option for playing video.

a. Open the lock box and verify that the thumb drive is fully inserted.
b. Remove and reinsert the thumb drive.

4. HDMI "input1" does not display the media player options.

a. Check that the media player is powered on. (Step 3 page 1)
b. Check the connections of the HDMI cable between the media player and the TV.

Appendix K: Intercept Surveys

First Video Sequence, Video/Content, Source, Topics and Duration

Video/Content	**Source**	**Topic(s) Covered**	**Media Type**	**Duration (seconds)**
Title slide	Researchers	Introduction	Static Title	5
Vision Zero – Just One Reason	Montana Department of Transportation (MDT)	Buckle up	Video	30
What's Your One Reason?	MDT	Buckle up	Infographic	20
Cycling Safety Is Everyone's Responsibility	Canadian Automobile Association of South Central Ontario	Bicycle safety	Video	15
Share the Freedom of the Open Road	National Highway Traffic Safety Administration (NHTSA)	Bicycle safety	Infographic	5
Look Twice, Save a Life	Colorado Department of Transportation, Colorado State Patrol	Motorcycle safety	Video	22
Trivia Check-In! - question	Researchers	Motorcycle safety	Trivia	16
Trivia Check-In! – answer	Researchers	Motorcycle safety	Trivia	5
Slow Down and Move Over	Emergency Responder Safety Institute	Emergency responder safety	Video	32

Video/Content	Source	Topic(s) Covered	Media Type	Duration (seconds)
See These? Do This.	NHTSA	Emergency responder safety	Infographic	10
Rules of the Roundabout	U.S. Department of Transportation, Federal Highway Administration	Roundabout safety, roundabout driving tips	Video	137
Trivia Check-In! – question	Researchers	Roundabouts	Trivia	10
Trivia Check-In! – answer	Researchers	Roundabouts	Trivia	8
MT Real ID 2021 03 Fly	Montana Department of Justice Motor Vehicle Division	Real ID	Video	30
Photo of an open road	Neil Hetherington, WTI	Transition	Transition image	5
Gratitude Video	MDT	Sober Ride Home	Video	30
What will a DUI cost you?	MDT	Costs of driving under the influence	Infographic	15
Don't Crowd the Plow	New York State Department of Transportation	Snow plow operating safety	Video	15
Photo of a road in the snowy mountains	MDT	Transition	Transition image	5
End Credits	Researchers	Credits	Transition picture	10
			Total Run Time	7 minutes, 5 seconds

First Video Sequence, Intercept Surveys, August/September 2021 Data Collection

Date	**Billings MVD**	**Bozeman CTO**	**Bozeman MVD**	**Helena CTO**	**Kalispell MVD**
August 16, 2021	12:30-4:30pm (32.7%)				
August 17, 2021	7:30-11:30am (53.1%)				
August 18, 2021					12:40-4:45pm (70.4%)
August 19, 2021					8-12pm (82.4%)
August 23, 2021		12:30-4:30pm (38.7%)			12-4:30pm (81.0%)
August 24, 2021				2-6pm (31.3%)	8-12pm (68.0%)
August 25, 2021				7-11am (60.9%)	
August 26, 2021	7:30-11:30am (40.0%)		12:30-4:30pm (30.0%)		
August 27, 2021	7:30-11:30am (56.0%)	8-12pm (38.2%)			
August 30, 2021				2-6pm (25.0%)	9-12:20pm (66.7%)
August 31, 2021		12:30-5pm (45.7%)			
September 1, 2021	12:30-4:30pm (36.4%)	8-12pm (32.1%)			
September 2, 2021	12:30-4:30pm (33.3%)		7:30-11:30am (51.6%); 1:45-4:30pm (37.9%)		

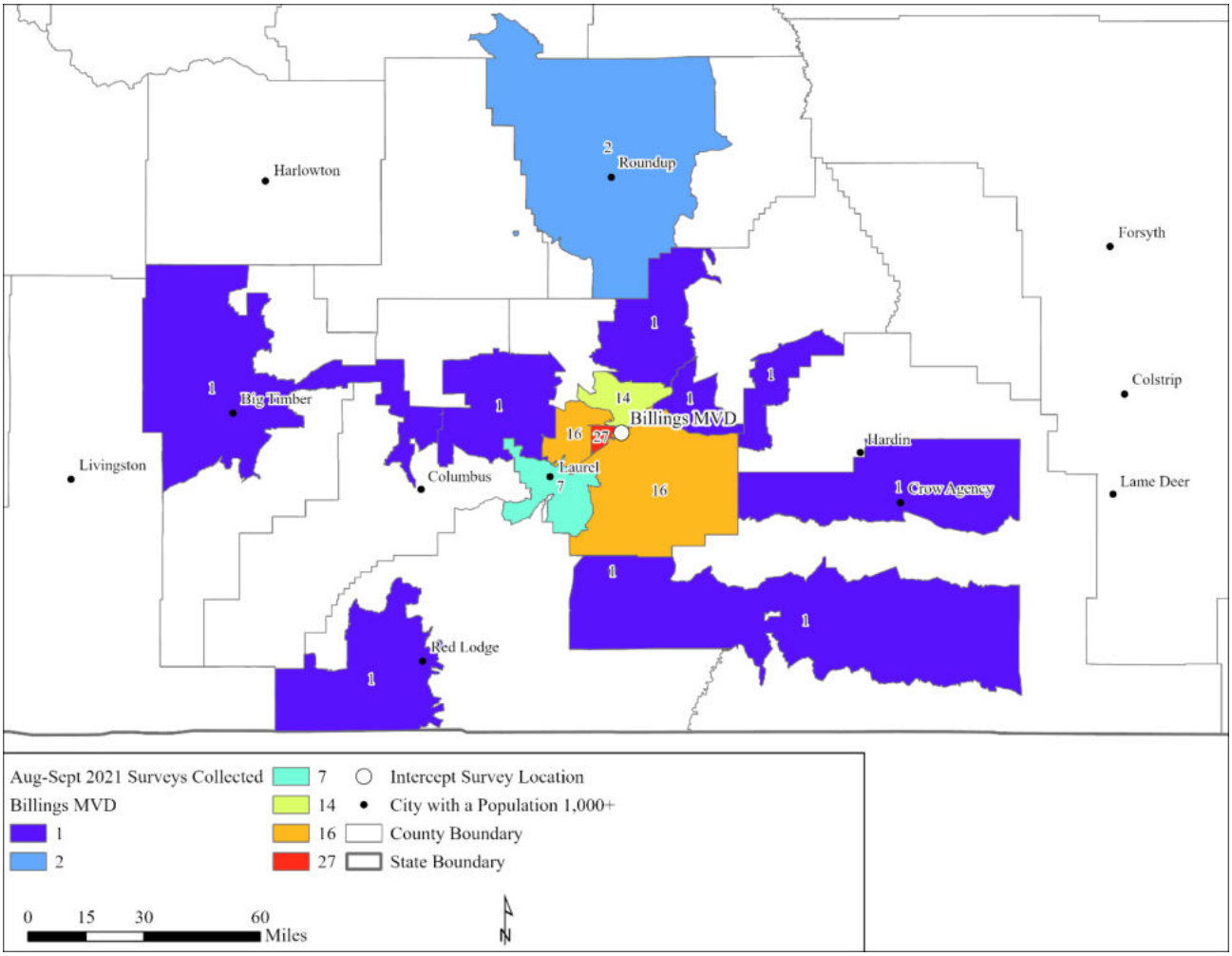
September 3, 2021		7:30-11:30am (55.3%)			
September 7, 2021		1-5pm (33.3%)	12-4:30pm (55.6%)		
September 8, 2021				2-6pm (33.3%)	
September 9, 2021			7:30-11:30am (61.2%)	7-11am (27.3%)	
September 10, 2021				7-11am (23.7%)	1-4:30pm (46.2%)

First Video Sequence, Intercept Surveys, October/November 2021 Data Collection

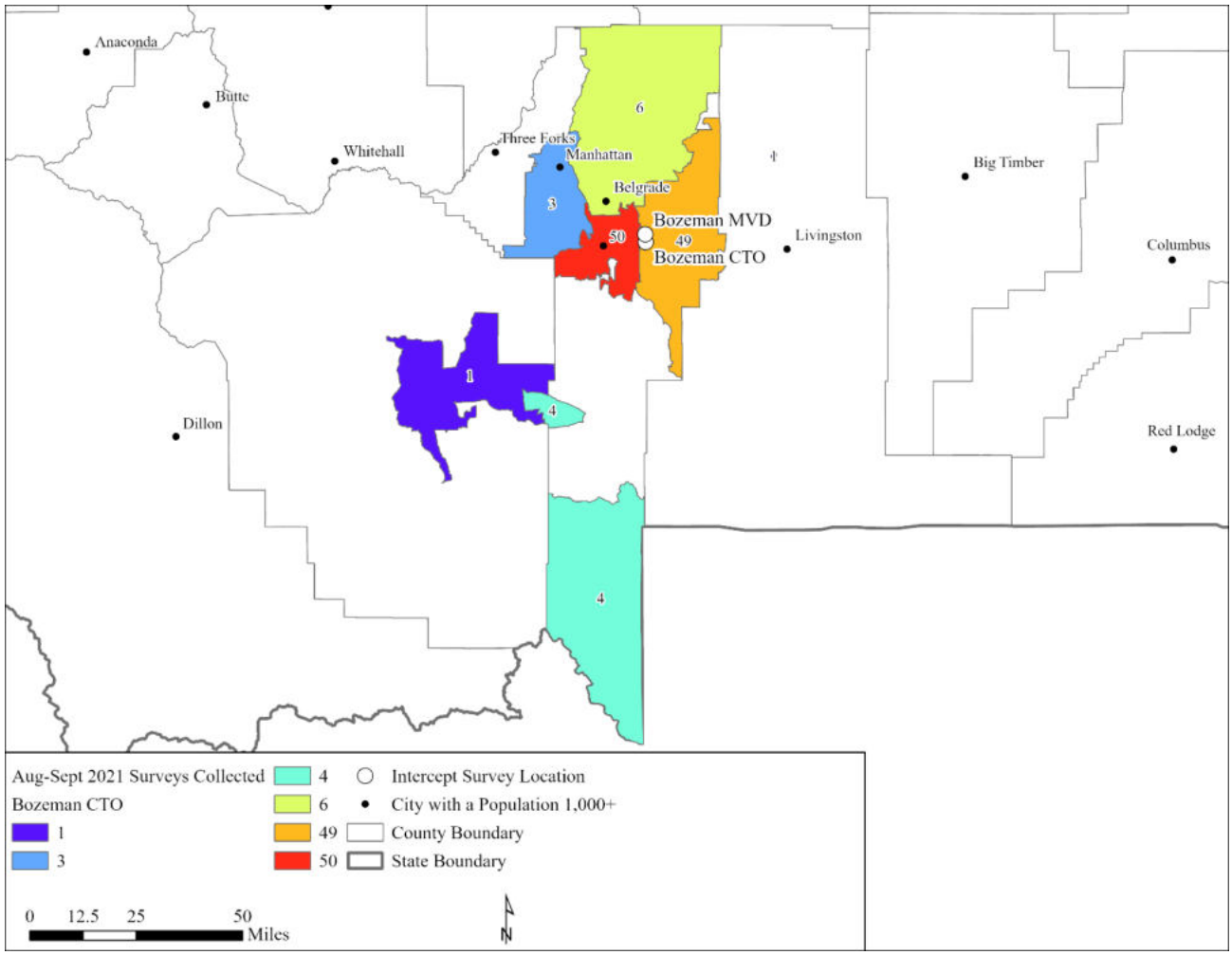
Date	Billings MVD	Bozeman CTO	Bozeman MVD	Helena CTO	Kalispell MVD
October 18, 2021		8-12pm (22.5%)			
October 19, 2021	7:30-11:30am (55.3%)	12:30-5pm (48.8%)			
October 20, 2021	12:30-4:30pm (38.2%)			7:30-11:30am (34.8%); 2-6pm (44.4%)	
October 21, 2021				7:15-11:15am (26.3%); 12:30-4:30pm (20.0%)	
October 22, 2021			12:30-4:30pm (26.5%)		
October 25, 2021	12:30-4:30pm (44.8%)				
October 26, 2021			12:15-4:30pm (47.4%)		8-12pm (64.7%)
October 27, 2021					1-4:45pm (58.1%)
October 28, 2021		8-12pm (23.9%)	7:30-12pm (50.9%)		
October 29, 2021	12:30-4:30pm (36.8%)	1-5pm (33.3%)			
November 1, 2021	9-1pm (28.6%)				

November 2, 2021			12:30-4:30pm (46.2%)	8-12pm (18.8%); 1:30-5:30pm (10.4%)	
November 3, 2021					8-12pm (69.2%)
November 4, 2021	7:30-11:30am (72.7%)	9-1pm (42.9%)	7:30-11:30am (46.7%)		1-4:30pm (84.6%)
November 5, 2021			8-12pm (37.1%)		1-4:50pm (77.3%)
November 9, 2021			12:30-4:30pm (59.2%)		1-4:45pm (70.0%)

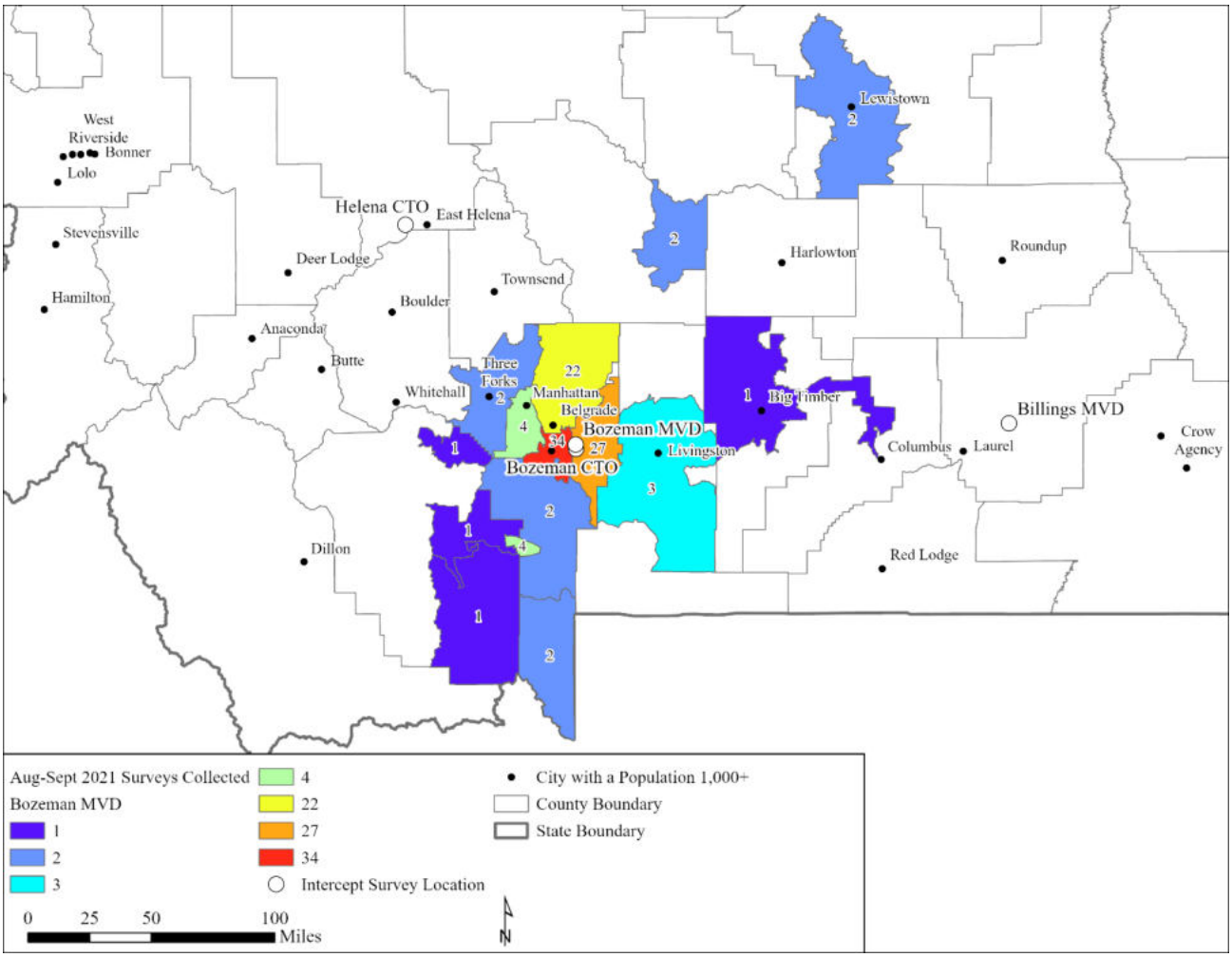
First Video Sequence, Intercept Surveys, August/September, Billings MVD


Harlowton
Roundup
Forsyth
Colstrip
Big Timber
Billings MVD
Livingston
Columbus
Laurel
Hardin
Crow Agency
Lame Deer
Red Lodge
Aug-Sept 2021 Surveys Collected
Billings MVD
1
2
7
14
16
27
Intercept Survey Location
City with a Population 1,000+
County Boundary
State Boundary
0 15 30 60
Miles
N

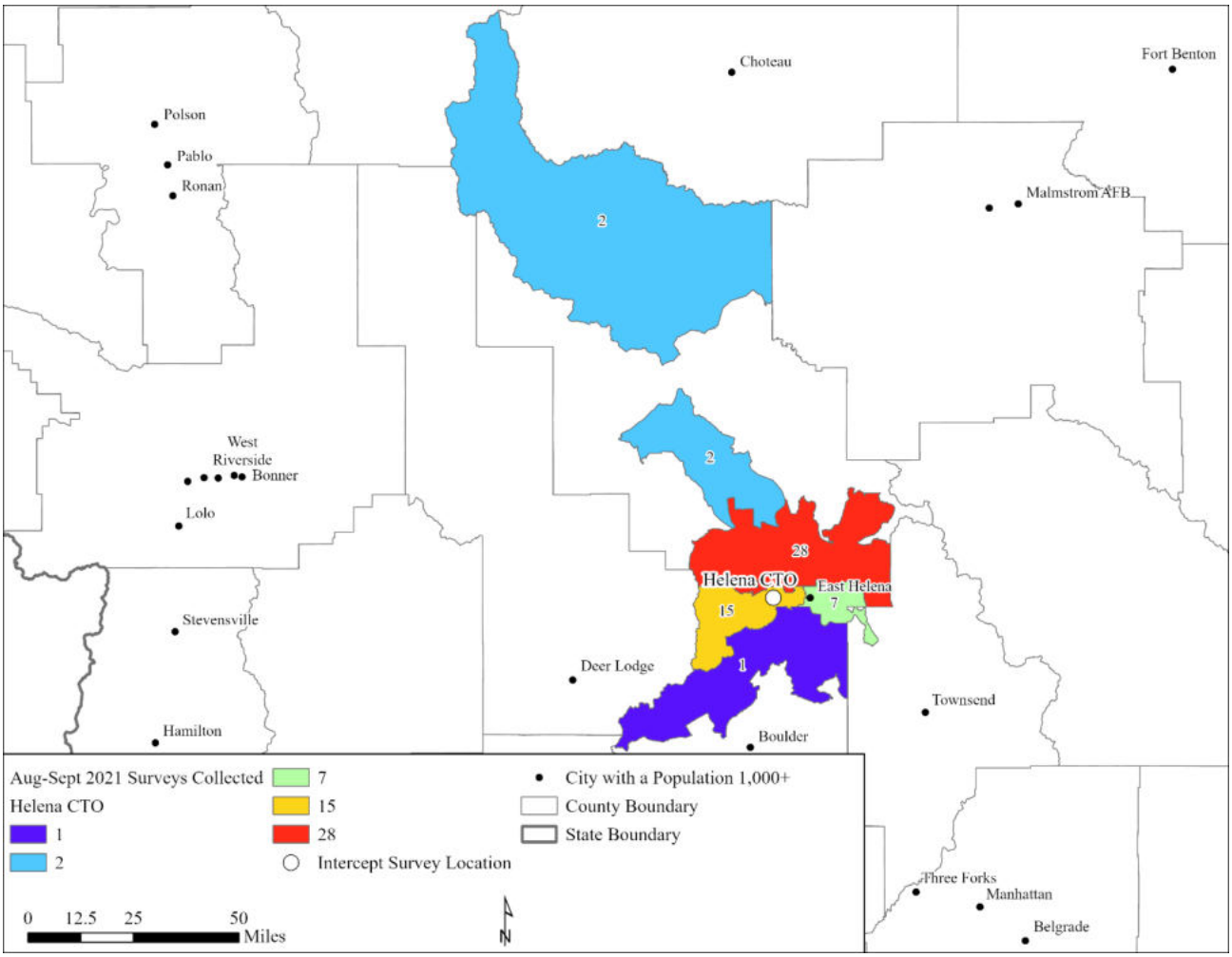
First Video Sequence, Intercept Surveys, August/September, Bozeman CTO



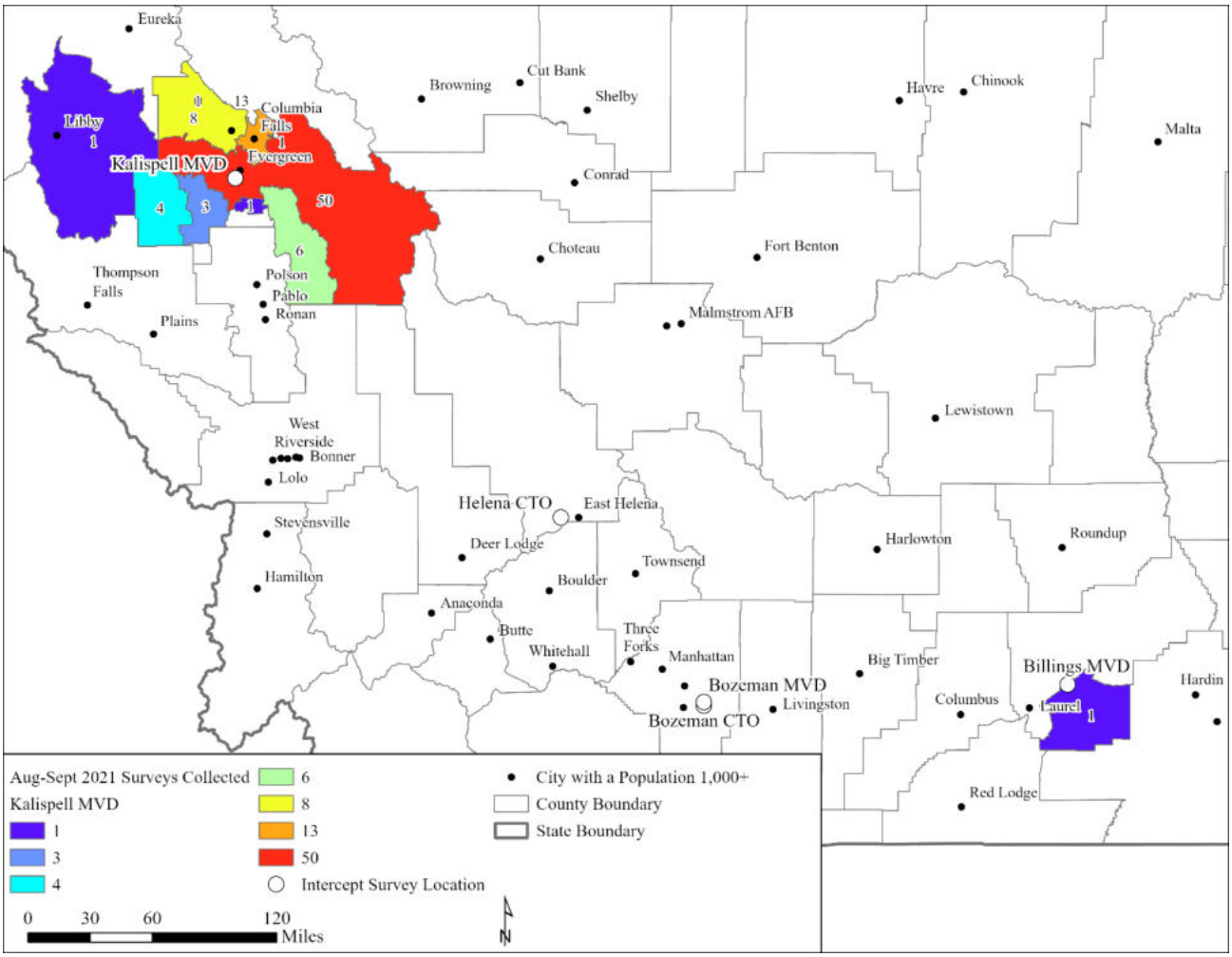
First Video Sequence, Intercept Surveys, August/September, Bozeman MVD



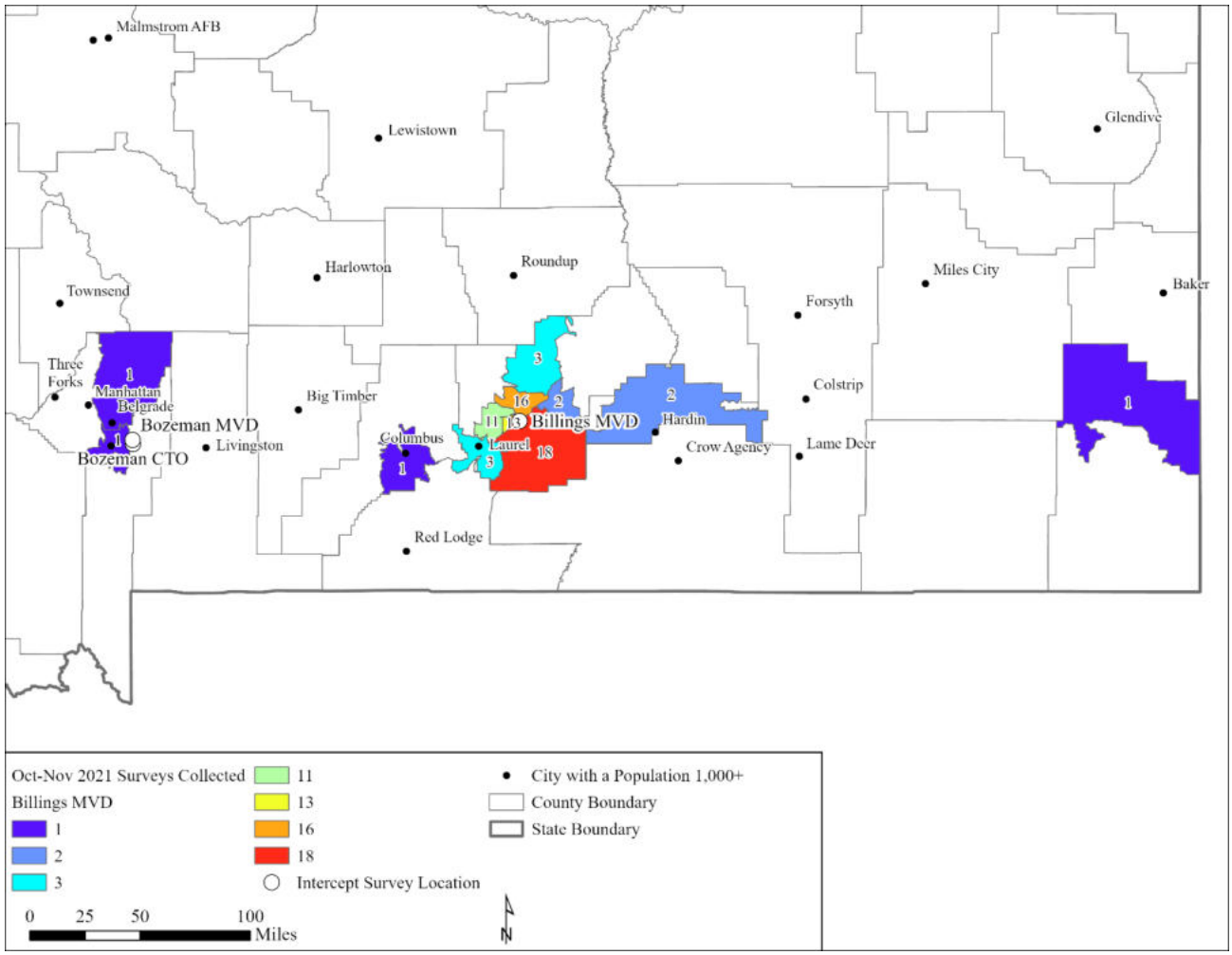
First Video Sequence, Intercept Surveys, August/September, Helena CTO



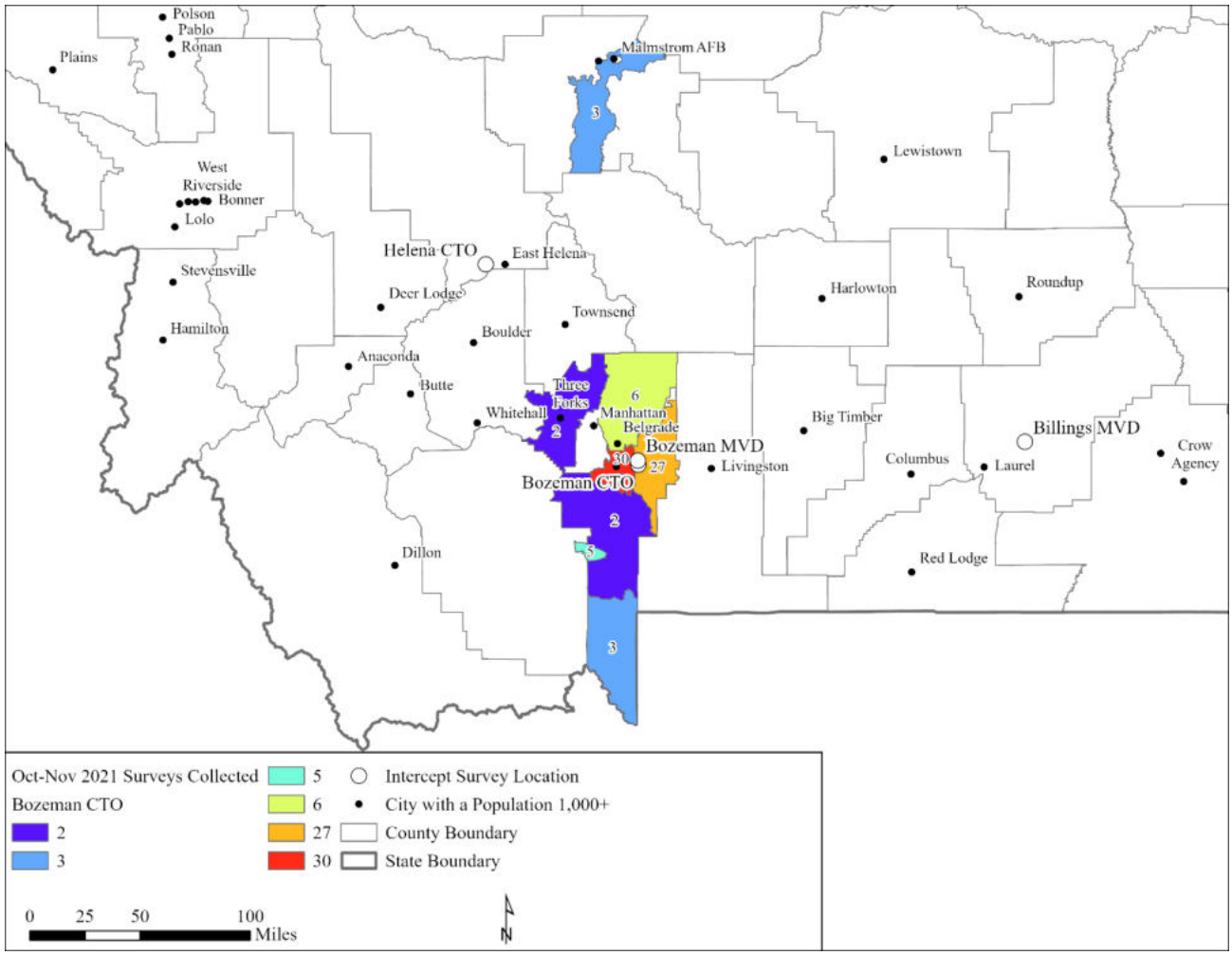
First Video Sequence, Intercept Surveys, August/September, Kalispell MVD



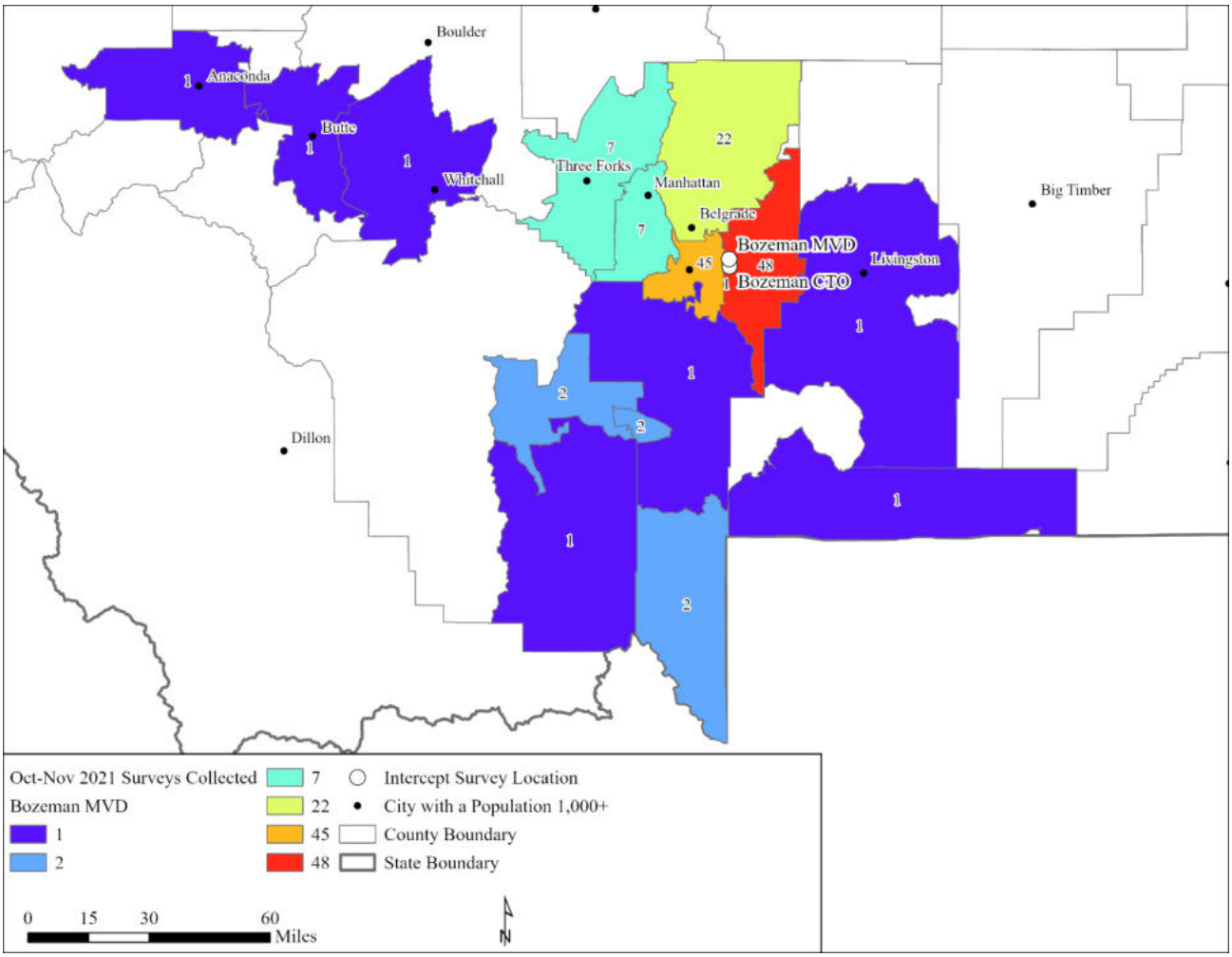
First Video Sequence, Intercept Surveys, October/November, Billings MVD



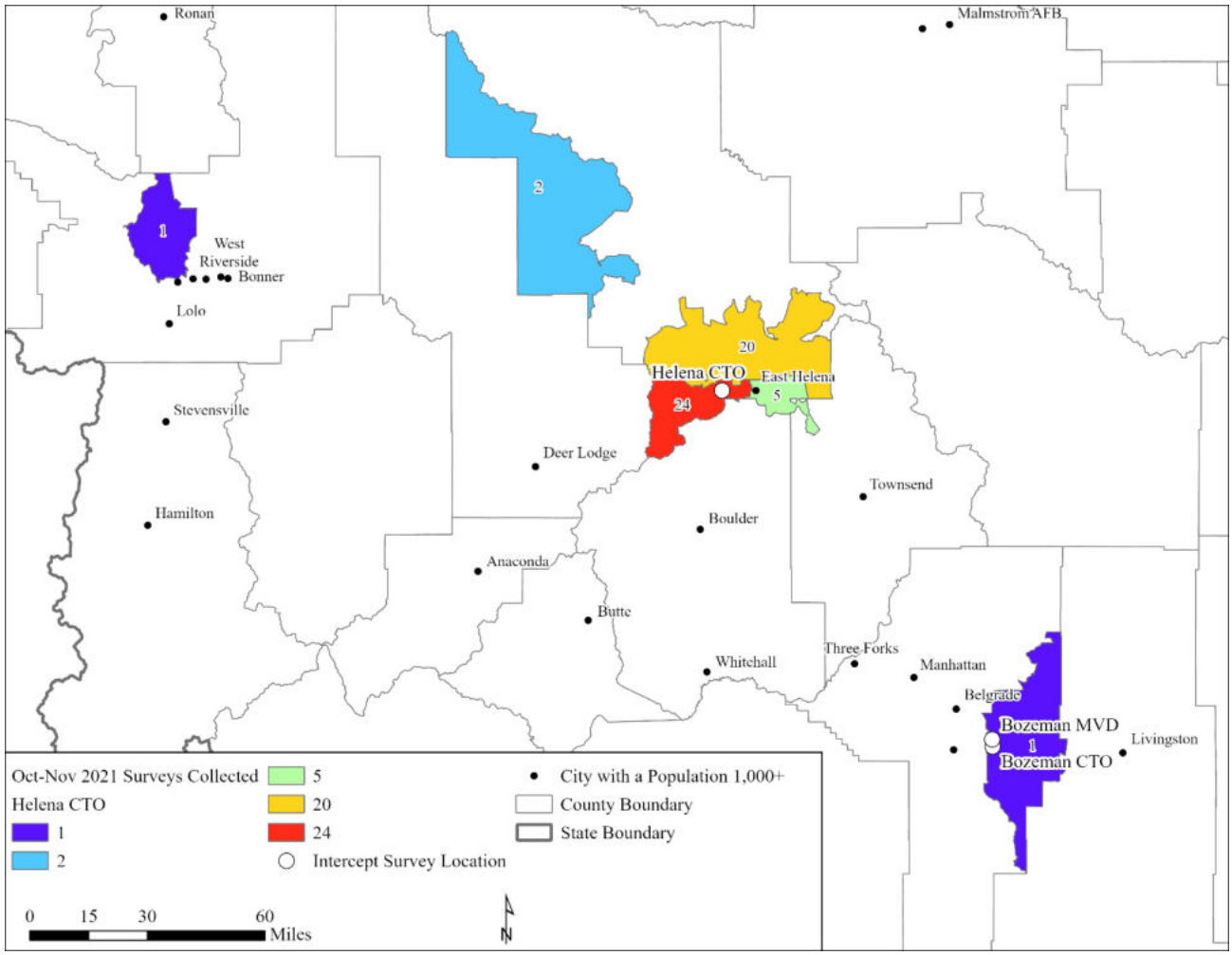
First Video Sequence, Intercept Surveys, October/November, Bozeman CTO



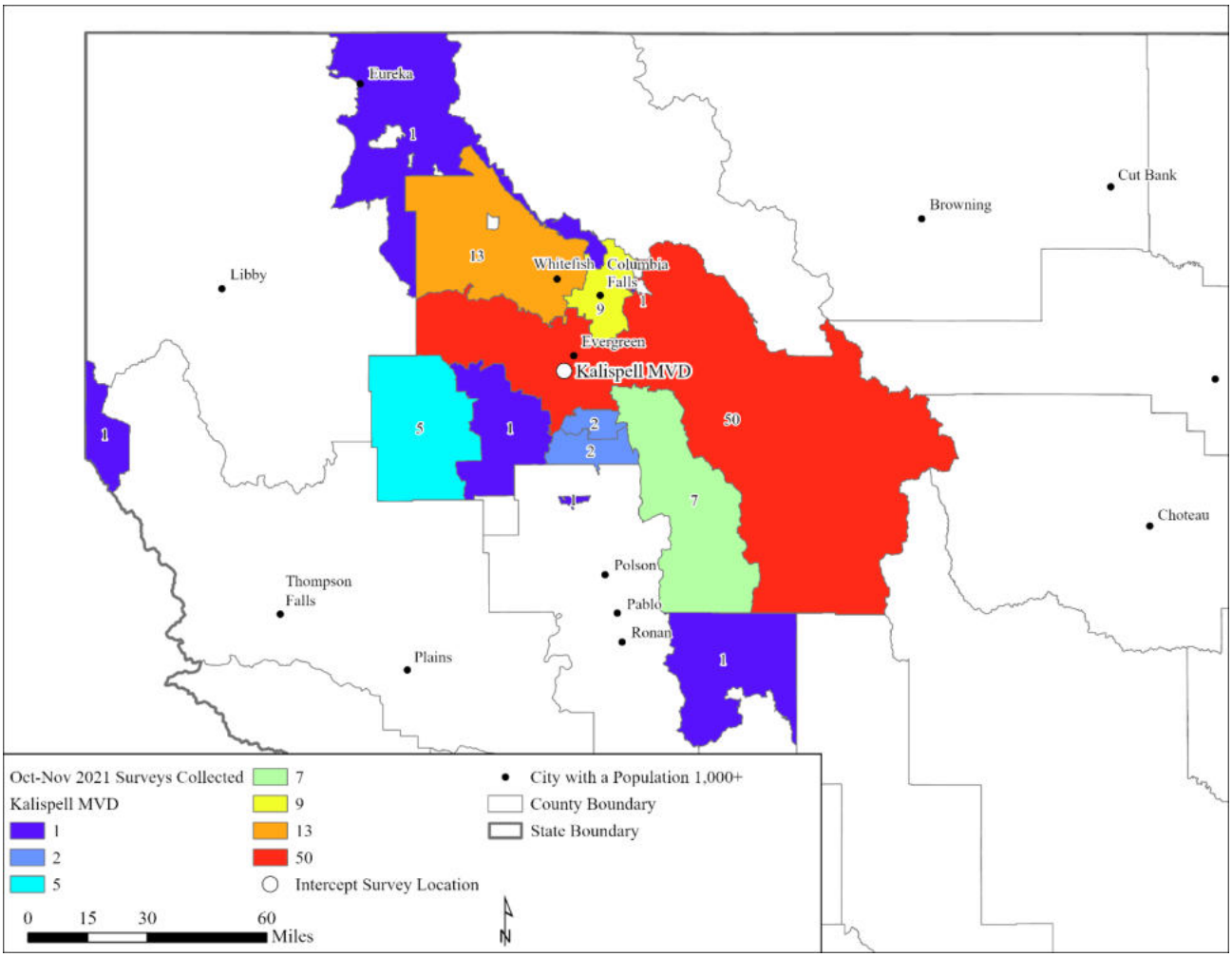
First Video Sequence, Intercept Surveys, October/November, Bozeman MVD



First Video Sequence, Intercept Surveys, October/November, Helena CTO



First Video Sequence, Intercept Surveys, October/November, Kalispell MVD



Memorable Notes, First Video Sequence

The following are comments received when intercept survey respondents were asked what was most memorable about the videos from the first data collection period (August/September):

1) Nice staff
2) Good graphics
3) Fast & polite
4) Robert – the Evil one. "Life is too good not to"
5) Great staff
6) Great rep.
7) Roundabout instructions
8) Great representative
9) Evil kinevil meets lewis & clark skit was fantastic
10) Staff is very friendly
11) I've seen these @ other visits here, just didn't watch the screen this time.
12) How to use a roundabout – some people can't…lol
13) None, was at a different area
14) Roundabouts reduce severe crashes by 80%
15) Support firemen & police "got your back"
16) Snowplows and the roundabout
17) Nice employees
18) The correct way to operate around a roundabout.
19) Percentage that they help
20) The part about the roundabout. I believe a lot of people need a reminder!
21) Guy in evil caneaval outfit
22) Everyone nice & helpful
23) Quiz question
24) The explanation of how to use a roundabout
25) Nice people
26) Irritation @ the roundabouts being put in…again
27) Safety info on seat belts, etc.
28) The lady who helped us was very pleasant and helpful
29) The receptionists were very polite and knowledgeable
30) 80% decrease in accidents
31) No video
32) 4hr + on 3 different time
33) One quiz about motorcycle helmet safety
34) Good attitude
35) Roundabouts
36) Buckle up
37) Very friendly staff
38) Real ID ad
39) First time I came here we all ate McDonalds together, 10/10 recommend this DMV
40) Very nice visit

41) Great customer service!
42) Some dc questions
43) Roundabout
44) Roundabouts are safe
45) Motorcycle safety
46) Using a traffic circle
47) No rules about roundabout…would like to know more
48) The comments on why they wear a seatbelt
49) Drive slow/wear a helmet
50) Roundabouts help with safety by 40%
51) Seatbelts – zero
52) Driving trips/reminders/rules of the road
53) Watch for motorcycles; roundabouts are safe!
54) Move over for emergency vehicles; zero thing
55) Didn't watch
56) Didn't see a monitor
57) None
58) Renewal line is always faster!
59) None, I just looked @ maps
60) To stop at the yield sign and check all ways
61) How to on roundabout
62) Carrie, Dee & Sharon were very pleasant, and helpful
63) I didn't see any videos
64) Roundabout instructions and safety
65) Motorcycle
66) DUI
67) Helpful and prop…people
68) Fast
69) I'm sorry, I didn't notice any videos.
70) Very nice receptionists
71) Look twice. Save a life.
72) Emergency vehicles move over. Snow plow
73) Trivia was catchy
74) Kindness of employees

The following are comments received when intercept survey respondents were asked what was most memorable about the videos from the second data collection period (October/November):

1) Very friendly people at checkin and service
2) Real ID poster
3) Was good
4) There is not a clear identification online to let a woman know a marriage certificate is not a marriage license.
5) How to operate on a roundabout
6) Dereck's personality was awesome
7) Good service; very nice people

8) Lady was so very nice and wonderful
9) Sober driving videos
10) Stay in your lane
11) All
12) Trivia questions
13) Liked the roundabout rules
14) I did not watch it
15) Did not see TV
16) Buckle up, roundabouts decrease accidents by 80%, request designated/sober driver; buckle up
17) Roundabout = great info.
18) Remember evil conivel
19) Went to county planning office
20) Nope
21) I did not watch anything
22) Very helpful both places
23) I didn't see the video; we went to the 2nd floor
24) Not applicable – multiple offices
25) Mostly looked at my phone
26) Roundabout = great info.
27) Friendly helpful staff!
28) Directions for roundabout
29) None
30) Nothing
31) I only recall a few smiles
32) None
33) Reason to buckle up – quotes
34) Seat belts
35) Trivia
36) Robbie Kneival in red white & blue; already knew "Never Drink and Drive" and "Slow down, look around, be ready to yield," but "refreshed"
37) Real ID & DUI
38) Very nice staff and traine
39) "already know them all" – the slogans
40) My theatre teacher from high school is the sober grandfather
41) Didn't watch
42) Didn't see it
43) That it was $80
44) The roundabout
45) 80% decrease in accidents around roundabouts
46) The boss was calling out an employee in front of guest. She does this all the time. Not cool at all
47) Clear pictures
48) Watch for motorcycles
49) n/a; no videos watched
50) very quiet, extremely nice people

51) very nice lady helped me
52) good service, friendly
53) The roundabout video
54) None
55) I didn't have colourblindness today.
56) Nice staff
57) Attendant was very helpful
58) All the main roundabout rules/diagrams
59) Did not have time to watch
60) Kevin was fun to talk with
61) Nice people
62) The roundabout
63) Katherine was wonderful
64) Roundabout safety
65) Snowplow drivers are busy!
66) Didn't see
67) Did not watch
68) The cars going through the roundabout
69) None
70) I saw people moving traffic cones
71) Buckle up – slow down – move away whole roundabout process
72) "knew already" was written wrt to the slogans
73) Staff was great
74) Happy staff :)
75) Roundabout video – I'm a fan of roundabouts
76) Did not see
77) I hate Oabout
78) n/a; I didn't notice the TV monitor until after survey
79) how to use a roundabout
80) smiling scene between people
81) bicycle safety
82) roundabout trivia
83) roundabout rules and sober driver
84) did not watch any
85) very nice clerk who helped me
86) n/a – didn't see
87) how to drive a roundabout
88) drivers need more of this (drew arrow to roundabout)
89) A lovely clerk helped me out today!
90) Yielding
91) Deb my instructor was awesome!
92) No
93) Nothing
94) Good service

Memorable Notes, Second Video Sequence

The following are comments received when intercept survey respondents were asked what was most memorable about the videos from the first data collection period (April/May):

1) Nice people
2) “Slow down for friends" - This was great reminder of people are valuable.
3) “Evil Kinevil”
4) Rob did a great job - professional and present
5) Egg drop
6) buckle up add, carseats
7) the seconds it takes to look at your phone
8) My son got his Driver's License! We went over rules of how many passengers allowed
9) Very efficient, polite
10) Roundabouts
11) cart fell over and eggies got broken
12) very kind workers
13) Everyone was so nice! Keep up the good work!
14) person standing at desk turning in paperwork
15) Office people were really nice!
16) texting and driving
17) I don't recall any
18) car seat
19) volume was too low
20) shopping cart crash
21) The evil knieval ad
22) I saw one with a stunman airplane
23) very quick and nice experience
24) trivia?
25) saw construction equipment, but that's it
26) used [?] statements on signs
27) I am SAM
28) almost cried at slow down one
29) seatbelts save lives
30) broken eggs
31) Didn't watch them. They got me right in
32) All important
33) [e]very thing was fine
34) laughing with Derek
35) Slow down for Dad's Mom's
36) Liked the questions
37) The evil kinival dirt bike for real ID
38) texting while driving statistic
39) The yielding video
40) Quick easy and friendly

41) roundabouts are hard
42) slow down for ---
43) nothing really
44) yellow arrow and slow down
45) Didn't watch any videos
46) saw but did not watch
47) slow down for Dads, Moms,
48) Looking away from the road distracts you for longer than you think
49) reading pamphlets regarding commercial drivers license
50) This may sound stupid but they only mention women once on the signs in the form of moms (referring to the "Slow Down for Friends")
51) Ladies were awesome! Very helpful and good at their job!
52) Sheila was knowledgeable and very pleasant
53) 'Slow down for husbands' struck me as fun[n]y when I looked up - thanks for the gig[g]les and lessening monotony
54) I forgot; montana drivers
55) very pleasant staff
56) Clever videos on curves
57) The people spilling groceries all over; him saying would you drive this way?
58) very kind
59) average time it takes looking away to send a text is 5 seconds
60) The shopping cart comparison to taking a curve too fast in a vehicle
61) pleasant people
62) The funny yet informative video with the signs (pointed to the "Slow Down for Friends)
63) nice workers; orange slow down
64) The yield video it was really informative
65) a disaster at the supermarket
66) grocery cart sign helpers
67) The whole staff was helpful and made my time enjoyable
68) very smooth. Loves how the triage was handled
69) Attention road; big trucks
70) very helpful
71) I saw a sign that said slow down for dads
72) very fast at attending
73) she was very nice and friendly
74) nice vibes; good people
75) texting duration (length of football field)
76) slow for the curve video
77) short and to the point
78) nice people on staff
79) slow down
80) very helpful and nice
81) Trivia questions were informative!
82) L[ura] was very professional
83) SAM

84) texting 5 sec
85) positive experience, friendly staff
86) did not see any videos
87) quick assistance - helpful employee – courteous
88) Man that checks paperwork/now windows; text rule
89) quiz questions
90) People were very kind & helpful
91) Pump septic/hate roundabouts/trash pick-up/school buses rumble stops
92) watch left turns, slow for orange
93) That people didn't perceive this as common sense
94) Blinking turn lane light

The following are comments received when intercept survey respondents were asked what was most memorable about the videos from the second data collection period (June/July):

1) The eggs falling on the floor
2) Interesting info.
3) The shopping cart one was memorable.
4) Did not see any videos
5) something about time/distance for 5 sec of cell phone viewing
6) I liked the slow down ad
7) info about rumble strips; saw some of the words, but didn't focus on them
8) I liked the staff and environment
9) great service
10) Need to pay attention to signs
11) You wouldn't do this in a store, so why driving
12) Safety; couldn't hear, didn't read captions
13) The survey percentages about motorcyclists/crashes
14) Multiple choice questions on the video. Quizzed my daughter who recently finished driver's ed
15) Slow down for wife, husband, friend, be aware
16) I liked the way they "triage" the lobby to get people in the right lines and to expedite things
17) Trivia! How long do you look away when texting
18) video was dramatic
19) The eggs breaking
20) Vision zero
21) My examiner was awesome!
22) 5 seconds driving 55 mph can be as long as a football field.
23) rumble strips
24) Eggs breaking when cart flips
25) Thought it handy to see reminders of traffic rules/regulations
26) eggs breaking
27) Ladies were awesome
28) Stop for husband, fathers, sons, shopping cart spillover
29) Excellent!

30) Slowing down during construction/Real ID
31) Safety
32) yield arrow
33) baby seat info
34) Circled the image of the man buckling his seatbelt because the respondents reported that he thought it was important
35) Did not view videos
36) bumpy line, median in road, "what are those used for"
37) Don't be the other guy
38) Ladies were wonderful - very informative - good sense of humor
39) The trivial questions + answers
40) slowing down for workers as they are more than their job.
41) obey the orange
42) car seat
43) only looked up a few times
44) I had signed up on kiosk, did not realize I needed to for renewal, staff personally asked what I needed and directed me to window
45) seen some natives
46) what the stop signs said
47) nothing
48) Nothing
49) buckling up
50) texting while driving is not safe
51) Tell the other guy
52) Why seatbelts? My response - It's the law.
53) Child seat safety
54) Slow down for workers
55) Evil knievel, slow down for fathers/sons, train without bells + whistles
56) Best service ever
57) just glanced
58) slow down 4 people
59) none
60) reinstated road laws
61) shopping cart falling
62) the ad for slowing down in work zones
63) slow down for friends is very effective
64) didn't watch
65) lives are behind orange cones
66) guy in camo (at end said Colorado?)
67) round-a-bout directions, handicap, COVID-19 info, road construction
68) 5 seconds/text
69) Potholes
70) 26% to[o] young to move to seat belt
71) slow down for husbands
72) Quick service, respectable staff
73) The speed that I got in without an appointment and the politeness

Second Video Sequence, Video/Content, Source, Topics and Duration

Video/Content	**Source**	**Topic(s)**	**Media Type**	**Duration (seconds)**
Title screen	Researchers	Introduction	Static title	5
Buckle Up – Enough Reasons	MDT	Buckle up	Video	30
Did You Know: Centerline Rumble strips	MDT	Rumble strips	Infographic	10
Things to know about centerline rumble strips on 2-lane roads	MDT	Rumble strips	Infographic	10
Railroad Safety – Rural Signs	Colorado Department of Transportation, Colorado State Patrol	Railroad crossing safety	Video	15
SAM I am!	www.findmedriving.com	Slow vehicles	Infographic	10
Slow Down for the Curve	Clackamas County (Oregon)	Reduce speed when entering a horizontal curve	Video	45
Trivia Check-In! – question	Researchers	Impacts of texting on situational awareness	Trivia	10
Trivia Check-In! – answer	Researchers	Impacts of texting on situational awareness	Trivia	10
Flashing Yellow Light	MDT	The flashing yellow	Video	40

Video/Content	Source	Topic(s)	Media Type	Duration (seconds)
		arrow treatment		
Trivia Check-In! – question	Researchers	The flashing yellow arrow treatment	Trivia	10
Trivia Check-In! – answer	Researchers	The flashing yellow arrow treatment	Trivia	5
MT Real ID 2021 02 EVEL	Montana Department of Justice Motor Vehicle Division	Real ID	Video	30
How many deaths on our roads are an acceptable number?	National Center for Rural Road Safety	Towards Zero Deaths	Infographic	10
The Right Seat – If You Love Them Enough – Play Place	NHTSA	Using the appropriate seat to ensure a child's safety while in a motor vehicle	Video	30
Trivia Check-In! – question	Researchers	Using the appropriate seat to ensure a child's safety while in a motor vehicle	Trivia	10

Video/Content	**Source**	**Topic(s)**	**Media Type**	**Duration (seconds)**
Trivia Check-In! – answer	Researchers	Using the appropriate seat to ensure a child's safety while in a motor vehicle	Trivia	5
Work Zone Safety – the Signs	Connecticut Department of Transportation	Work zone safety	Video	30
Tell them you were running late. They'll understand.	NHTSA	Speeding	Infographic	5
Credits	Researchers	Credits	Transition picture	10
			Total Run Time	5 minutes, 25 seconds

Second Video Sequence, Intercept Surveys, April/May 2022 Data Collection

Date	Billings MVD	Bozeman CTO	Bozeman MVD	Helena CTO	Kalispell MVD
April 12, 2022			10:30-3:30pm (29.8%)		
April 13, 2022			12:30-4:30pm (32.4%)		
April 14, 2022		10:15-1:15pm (18.5%)			
April 15, 2022					12:30-4:30pm (71.4%)
April 19, 2022	7:30-11:30am (53.1%)		10:30-3:30pm (38.6%)		12:30-4:30pm (71.4%)
April 20, 2022		1-5pm (34.1%)			
April 21, 2022		10:15-1:15pm (46.9%)			
April 22, 2022	12:30-4:30pm (57.9%)				8-12pm (62.5%)
April 25, 2022	12:30-4:30pm (52.9%)				9:30-1:30pm (66.7%)
April 26, 2022		10:30-3:30pm (25.5%)			
April 27, 2022					8-12pm (63.9%)
April 28, 2022			10:15-1:15pm (47.4%)		12:30-4:30pm (70.0%)

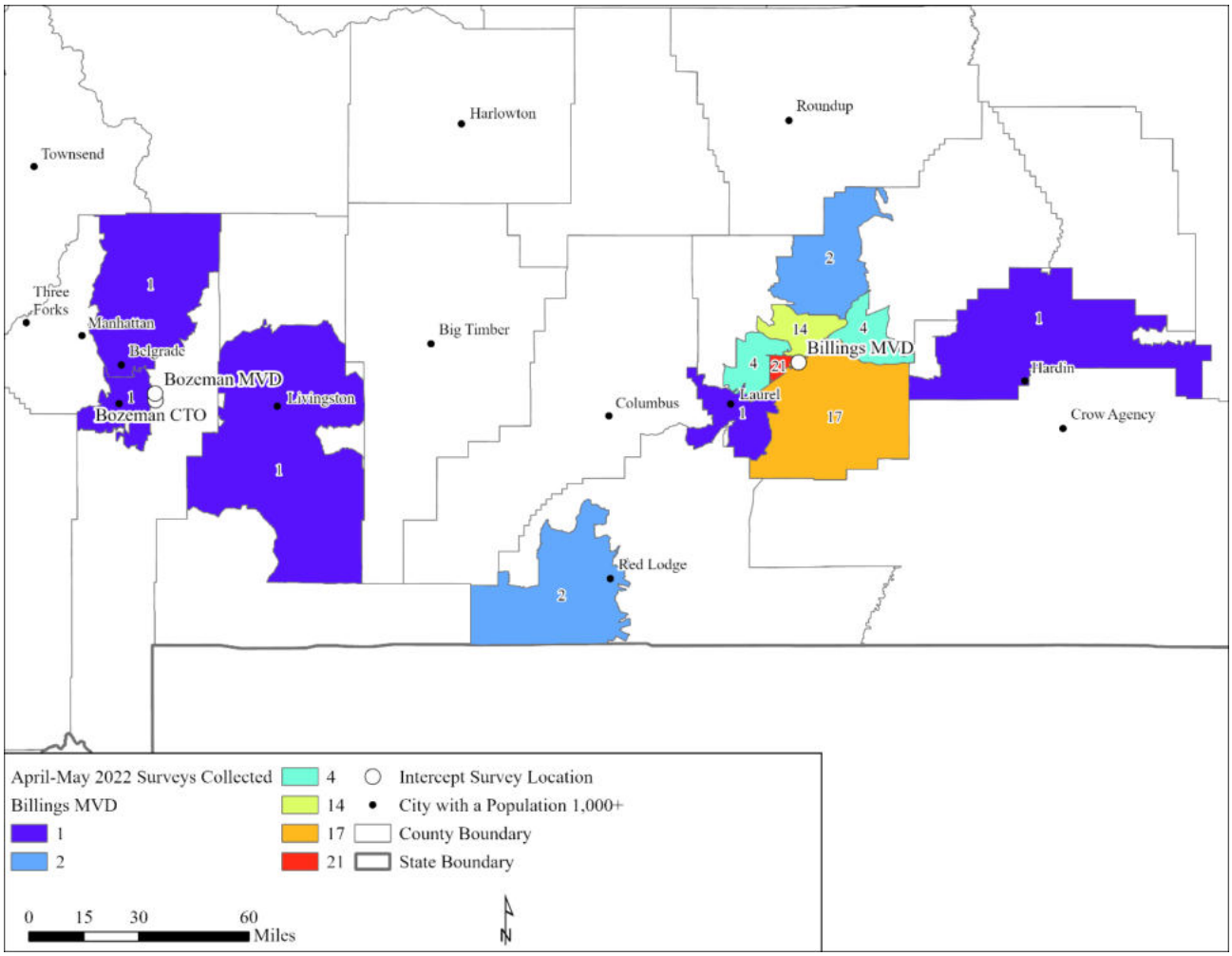
Date	Billings MVD	Bozeman CTO	Bozeman MVD	Helena CTO	Kalispell MVD
April 29, 2022	7:30-11:30am (73.7%)		7:30-11:30am (43.8%)		
May 2, 2022		8-12pm (13.5%)			
May 3, 2022	12:30-4:30pm (46.4%)	10:15-3:15pm (21.1%)			
May 4, 2022	2-4pm (58.3%)				
May 5, 2022			10:15-1:15pm (23.1%)		
May 6, 2022				7-11am (27.1%); 12-4pm (28.1%)	
May 9, 2022				8-12am (28.1%); 1-5pm (33.3%)	
May 10, 2022				7-11am (30.3%); 1-5pm (35.5%)	

Second Video Sequence, Intercept Surveys, June/July 2022 Data Collection

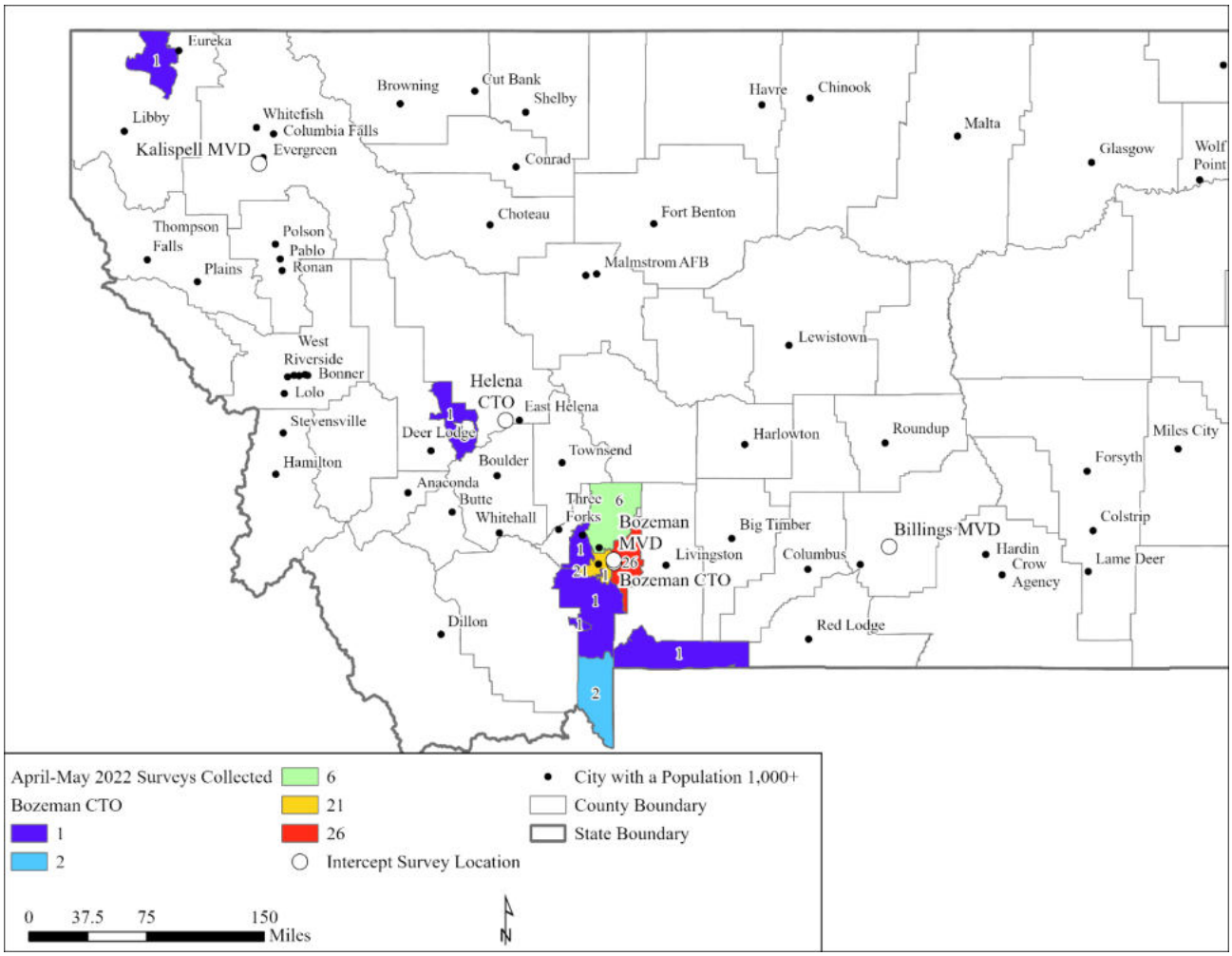
Date	**Billings MVD**	**Bozeman CTO**	**Bozeman MVD**	**Helena CTO**	**Kalispell MVD**
June 6, 2022	9-1pm (57.9%)	8-12pm (38.8%)			9-1pm (66.7%)
June 8, 2022	12:30-4:30pm (60.9%)				
June 9, 2022		1-5pm (29.2%)			
June 10, 2022		1-5pm (27.3%)			
June 14, 2022	7:30-11:30am (52.4%)	8-12pm (39.5%)			
June 16, 2022				7:30-11:30am (41.7%); 1-5pm (26.2%)	8-12pm (69.2%)
June 17, 2022	12:30-4:30pm (36.0%)		7:30-11:30am (48.1%)		1-4:30pm (64.3%)
June 20, 2022				7:30-11:30am (33.3%); 12:30-4:30pm (31.3%)	1-4:30pm (66.7%)
June 21, 2022					8-12pm (64.7%)
June 22, 2022	7:30-11:30am (40.9%)	1-5pm (21.7%)			
June 23, 2022	12:30-4:30pm (37.5%)	8-12pm (32.4%)			

Date	Billings MVD	Bozeman CTO	Bozeman MVD	Helena CTO	Kalispell MVD
June 24, 2022			7:30-11:30am (39.1%)		
June 27, 2022			12:30-4:30pm (23.1%)		
June 28, 2022			12:30-4:30pm (23.8%)	7:30-11:30am (38.2%); 1-5pm (45.2%)	
June 29, 2022					1:00-4:30pm (46.7%)
June 30, 2022			7:30-11:30 (48.3%)		
July 5, 2022			7:30-11:30am (52.9%)		

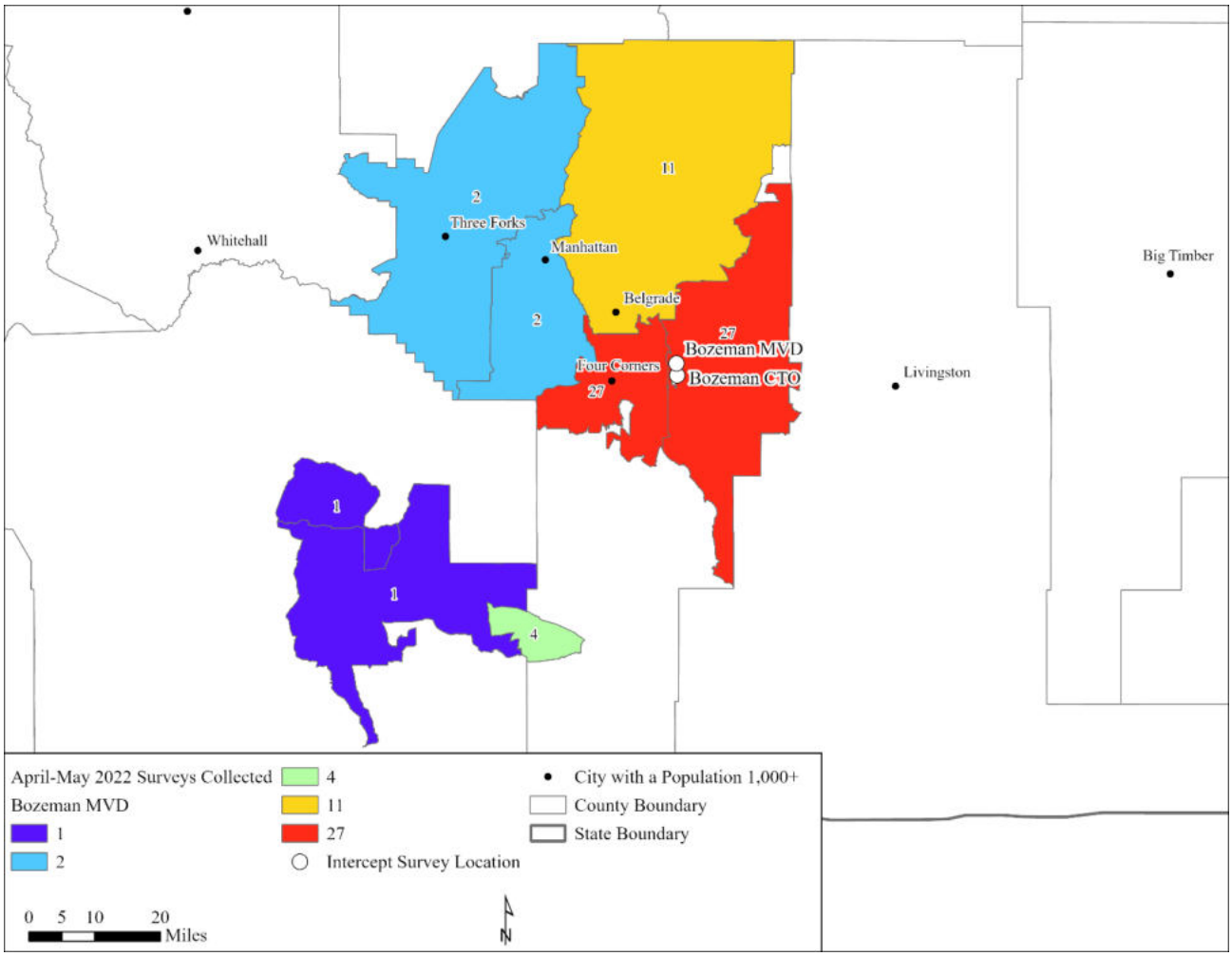
Second Video Sequence, Intercept Surveys, April/May, Billings MVD



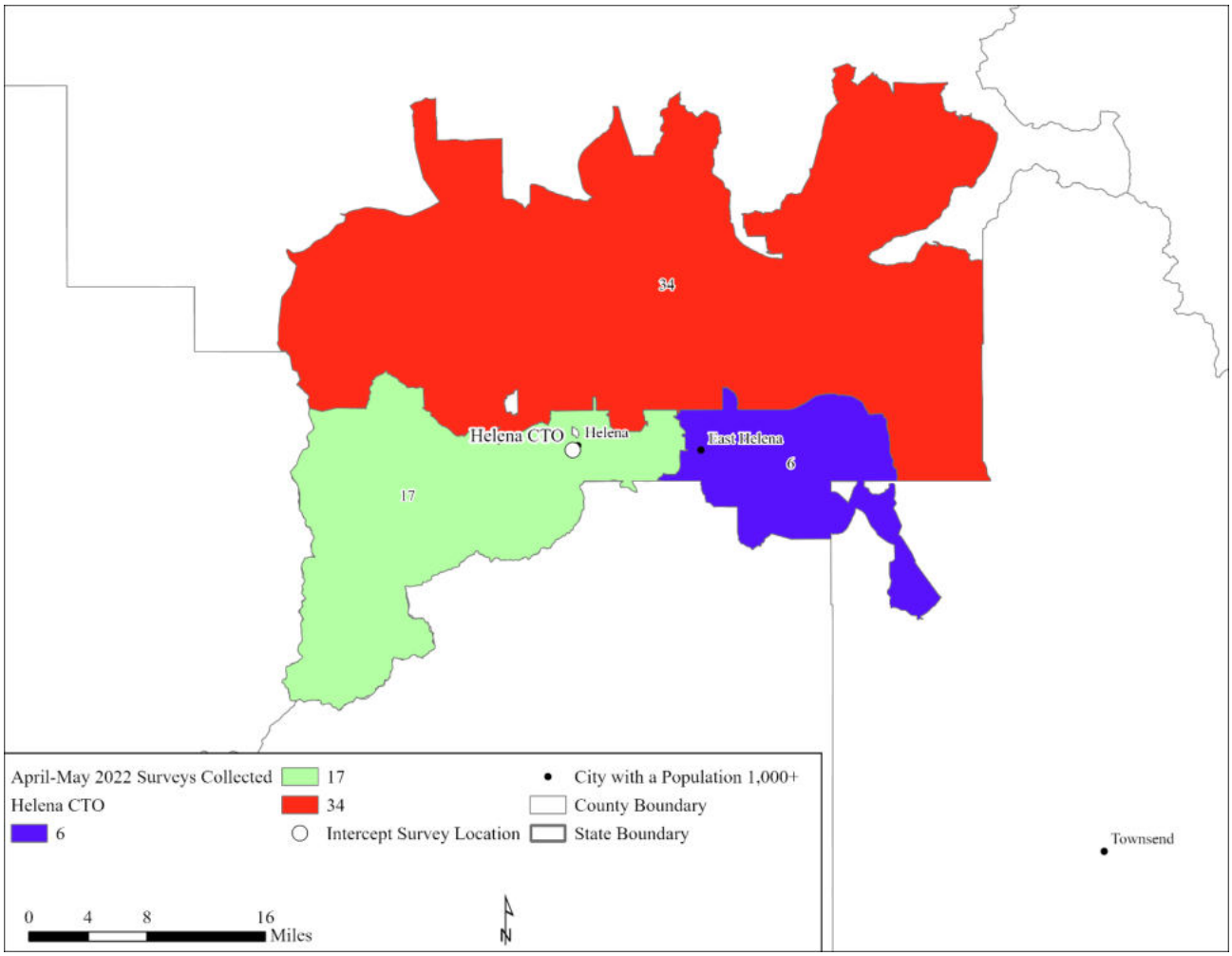
Second Video Sequence, Intercept Surveys, April/May, Bozeman CTO



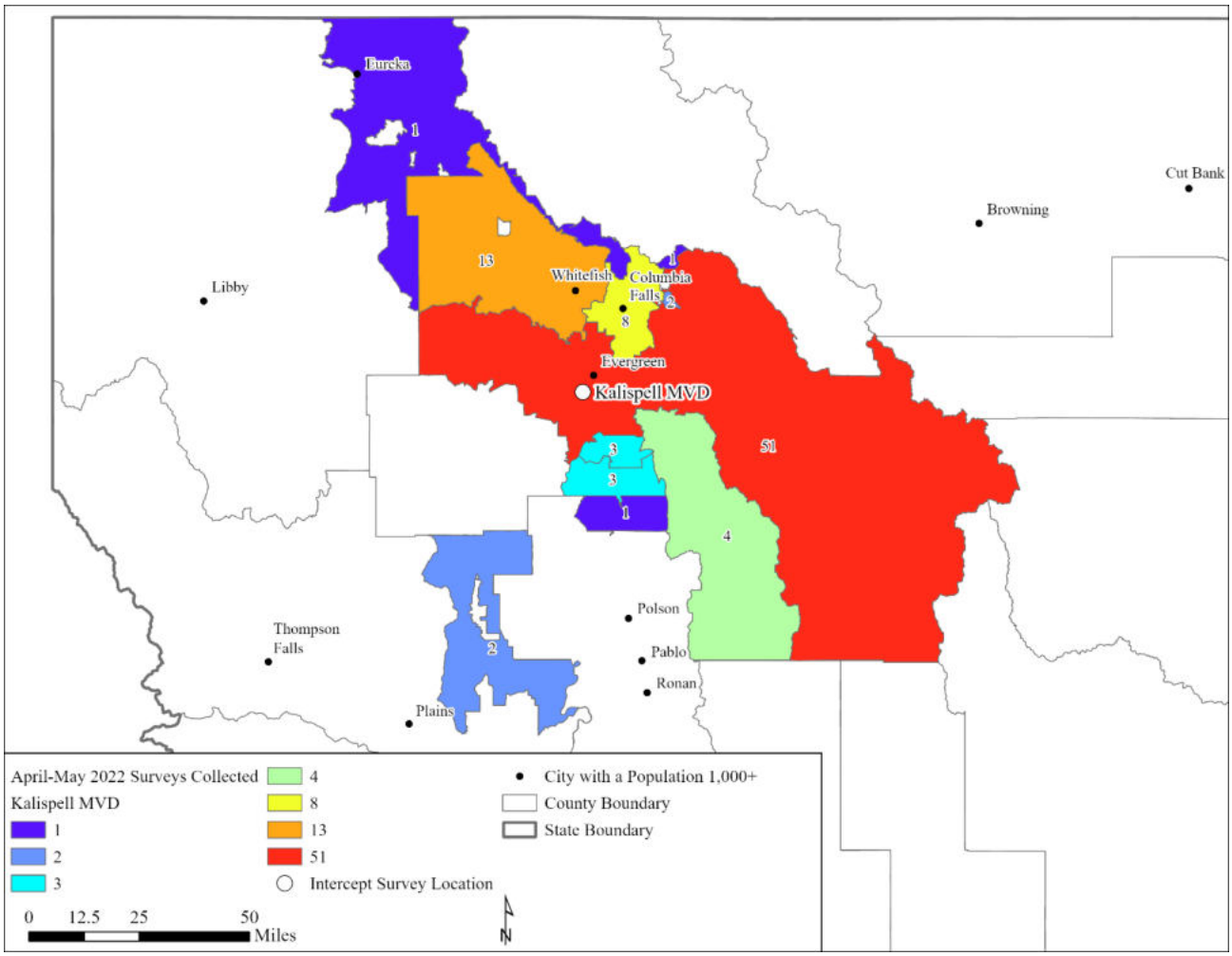
Second Video Sequence, Intercept Surveys, April/May, Bozeman MVD



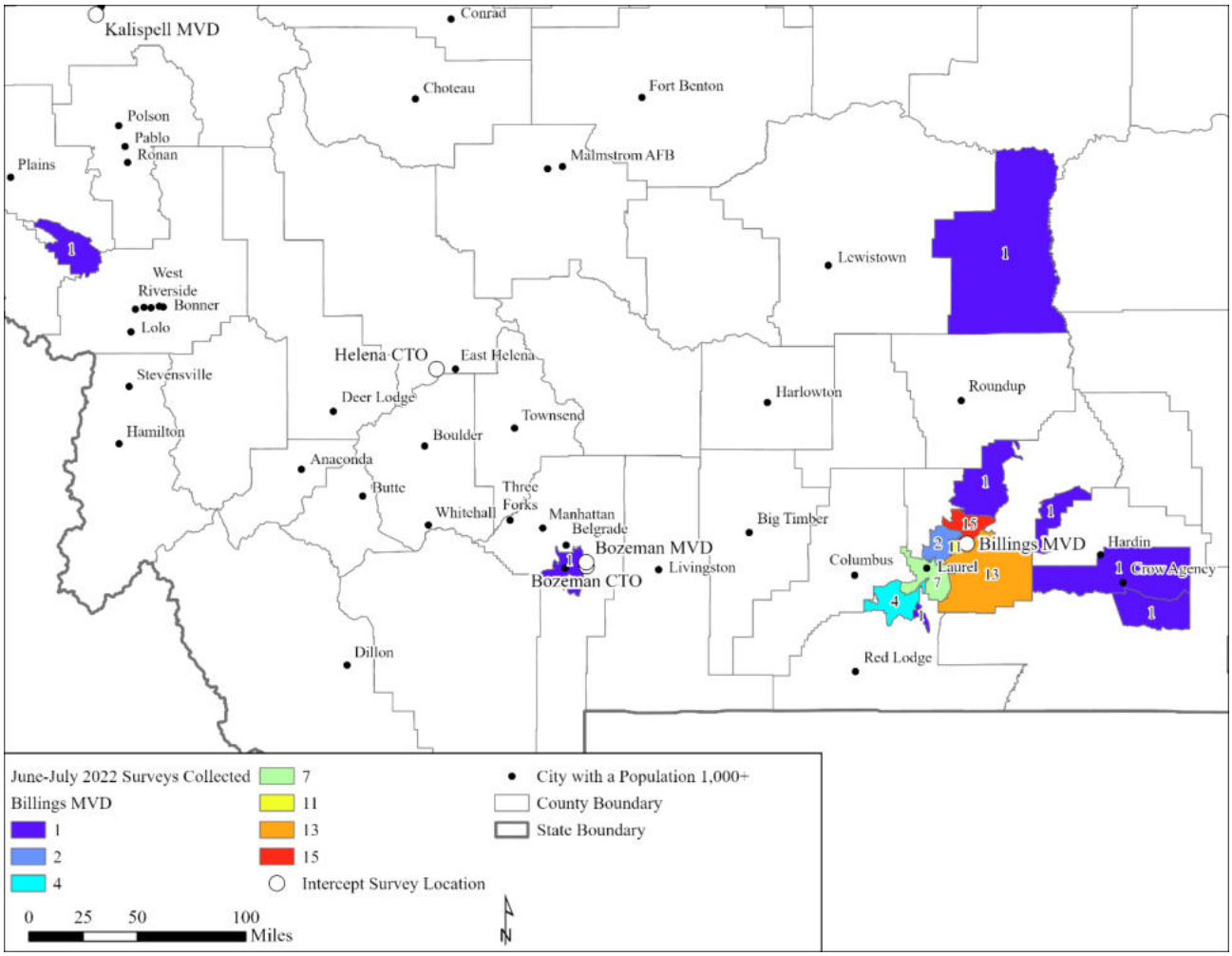
Second Video Sequence, Intercept Surveys, April/May, Helena CTO



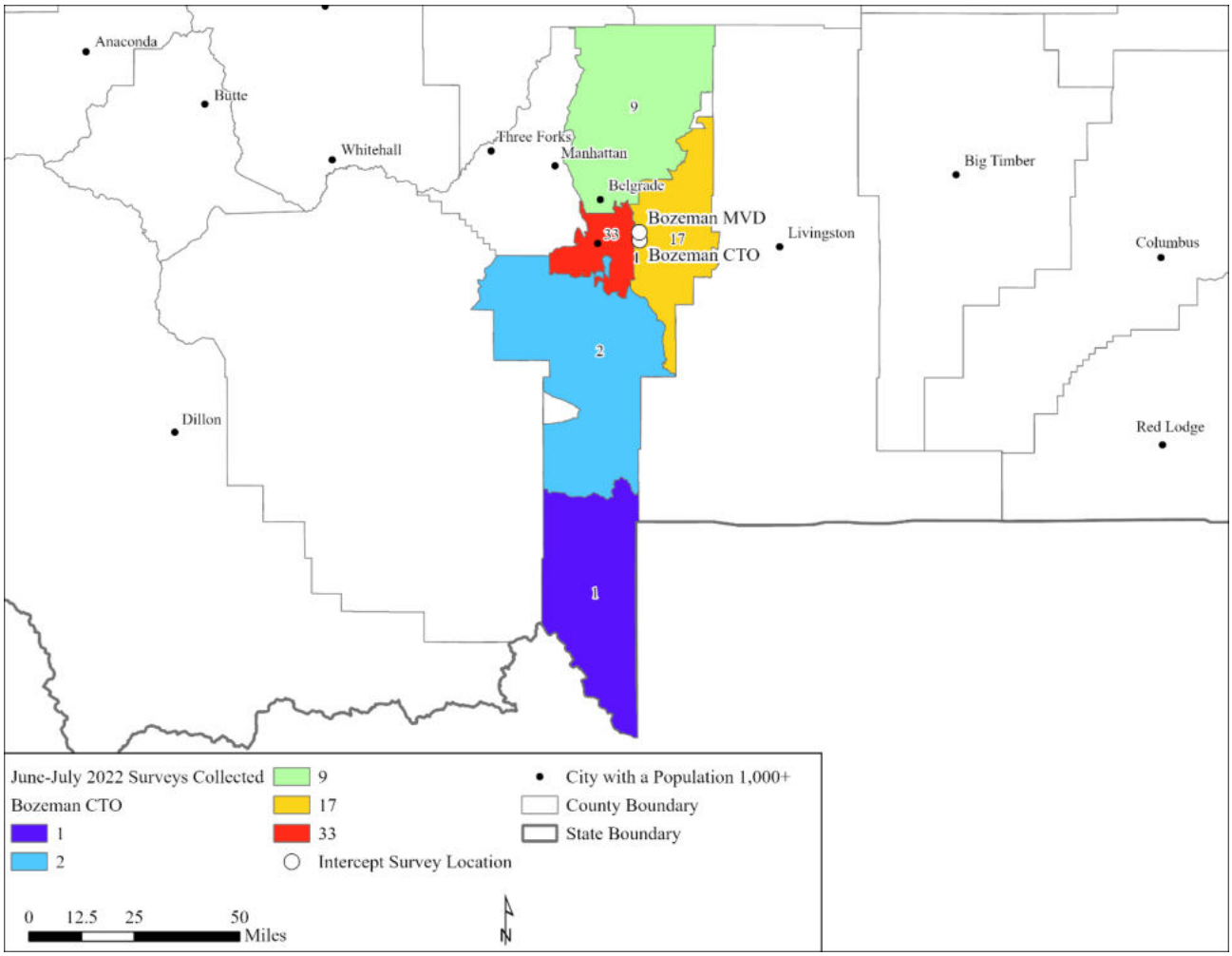
Second Video Sequence, Intercept Surveys, April/May, Kalispell MVD



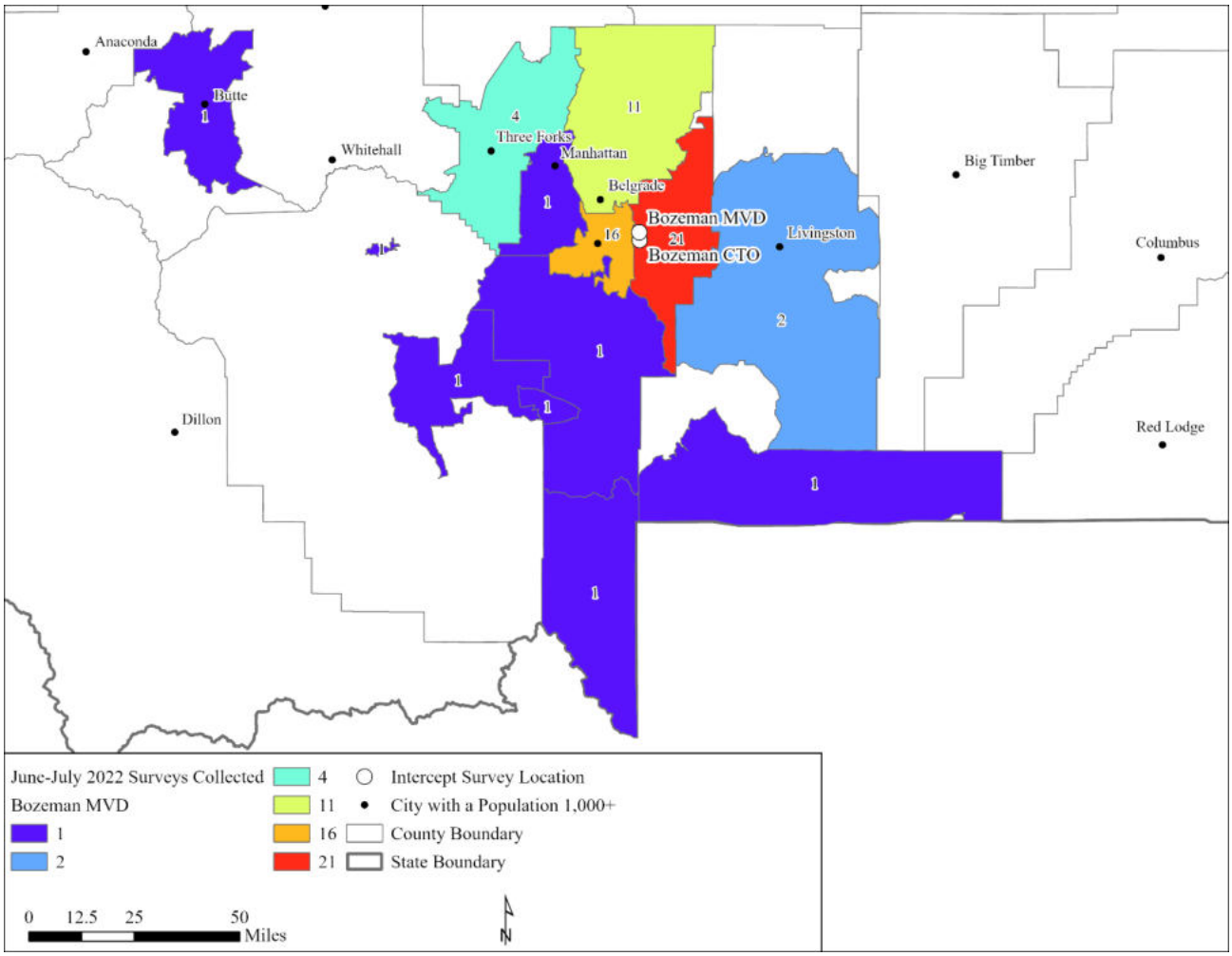
Second Video Sequence, Intercept Surveys, June/July, Billings MVD



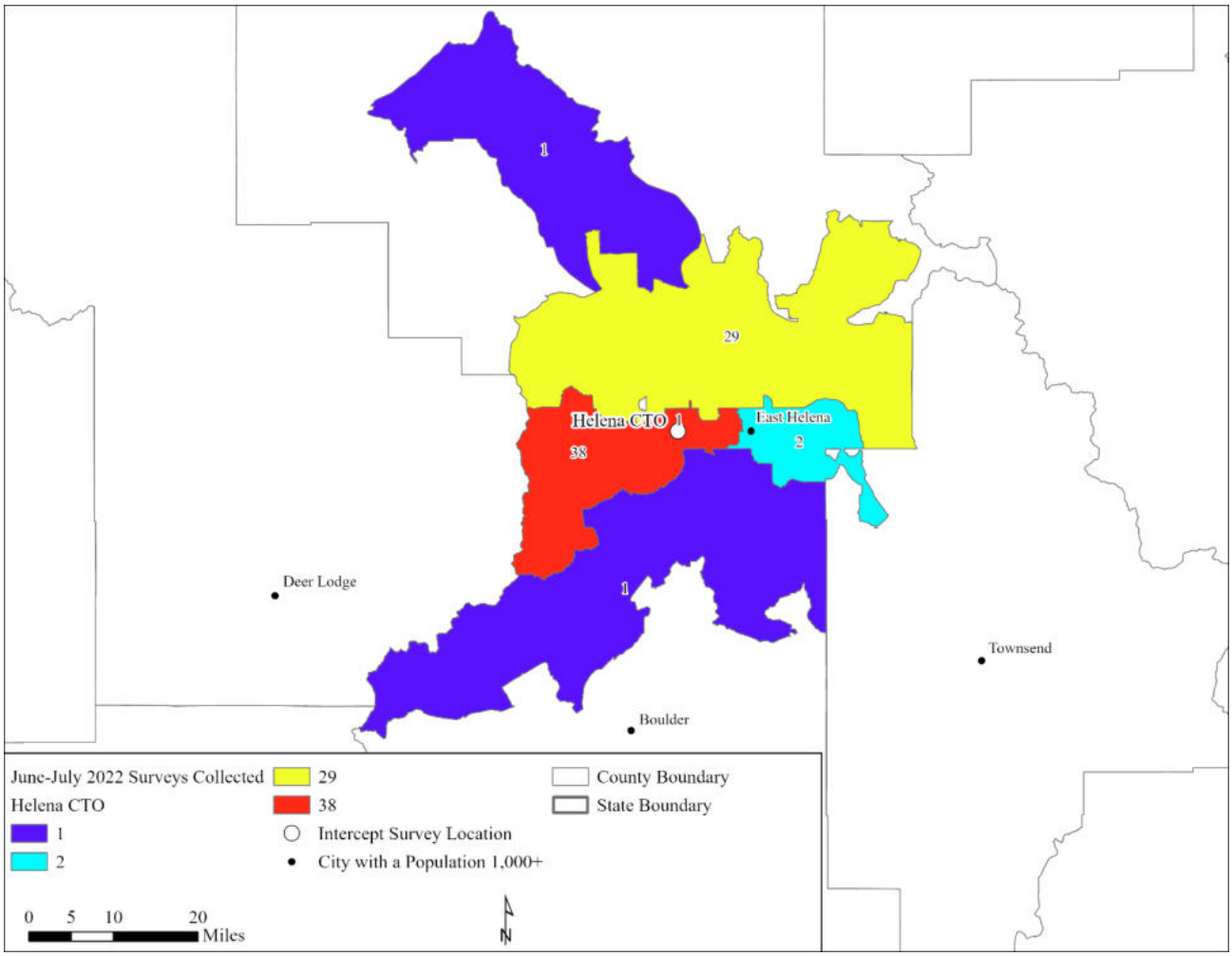
Second Video Sequence, Intercept Surveys, June/July, Bozeman CTO



Second Video Sequence, Intercept Surveys, June/July, Bozeman MVD



Second Video Sequence, Intercept Surveys, June/July, Helena CTO



Second Video Sequence, Intercept Surveys, June/July, Kalispell MVD

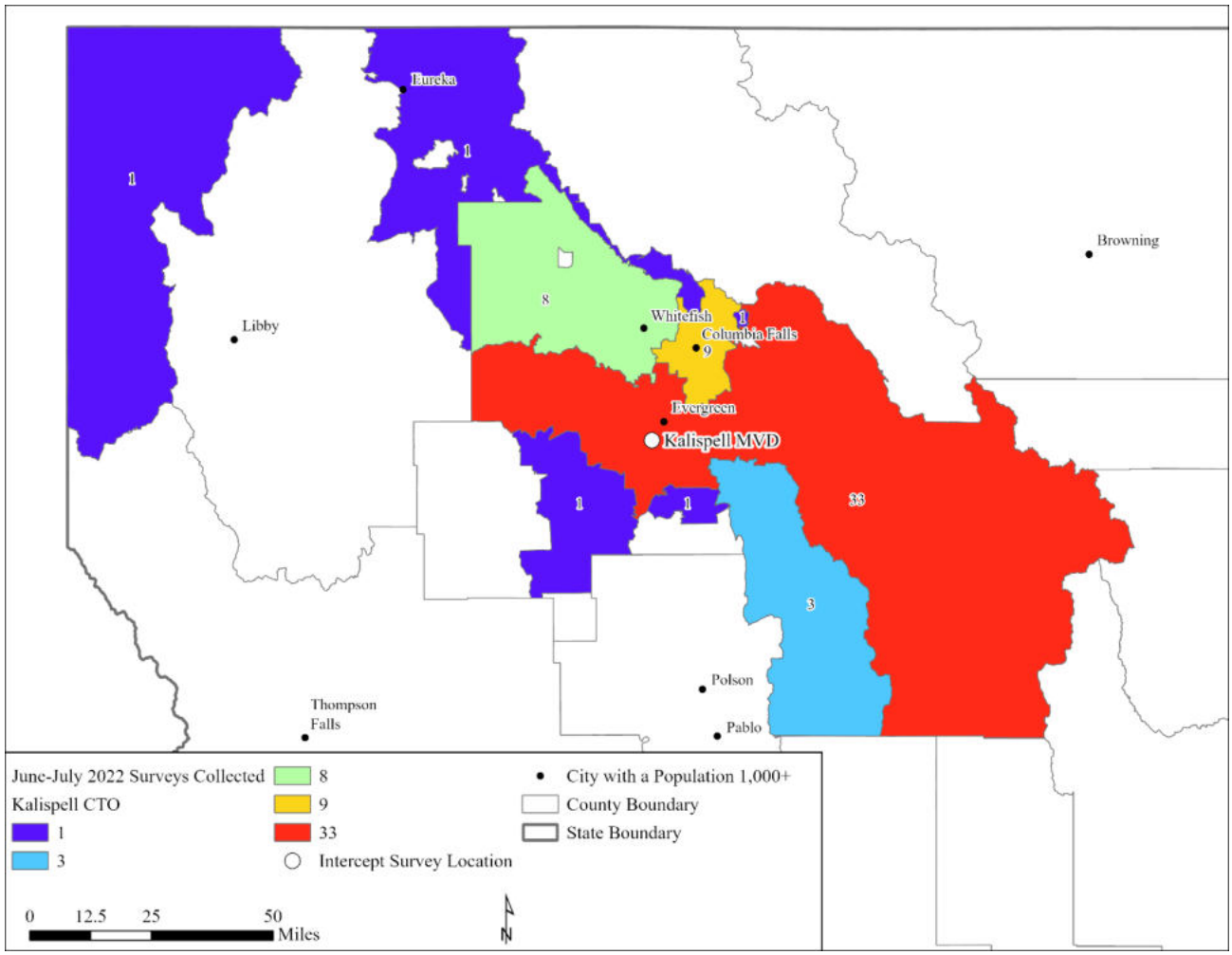


Table 74: Reported Wait Times by Video Sequence, Number and Percentage of Intercept Survey Respondents.

Video Sequence	n	Less Than 15 Minutes	15-30 Minutes	31-45 Minutes	46-60 Minutes	More Than 60 Minutes
First	921	262 (28%)	346 (38%)	128 (14%)	87 (9.4%)	98 (11%)
Second	684	184 (27%)	257 (38%)	134 (20%)	70 (10%)	39 (6%)
Total	1605	446 (28%)	603 (38%)	262 (16%)	157 (10%)	137 (9%)

Table 75: First video sequence, reported estimated duration of wait by data collection period.

Data Collection Period (First Video Sequence)	Less than 15 minutes	15-30 minutes	31-45 minutes	46-60 minutes	More than 60 minutes	Total
First (August/September)	133	171	61	44	65	474
Second (October/November)	129	175	67	43	33	447
TOTAL	262	346	128	87	98	921

Table 76: Second video sequence, reported estimated duration of wait by data collection period.

Data Collection Period (Second Video Sequence)	Less than 15 minutes	15-30 minutes	31-45 minutes	46-60 minutes	More than 60 minutes	Total
First (April/May)	112	143	64	28	14	361
Second (June/July)	72	114	70	42	25	323
TOTAL	184	257	134	70	39	684

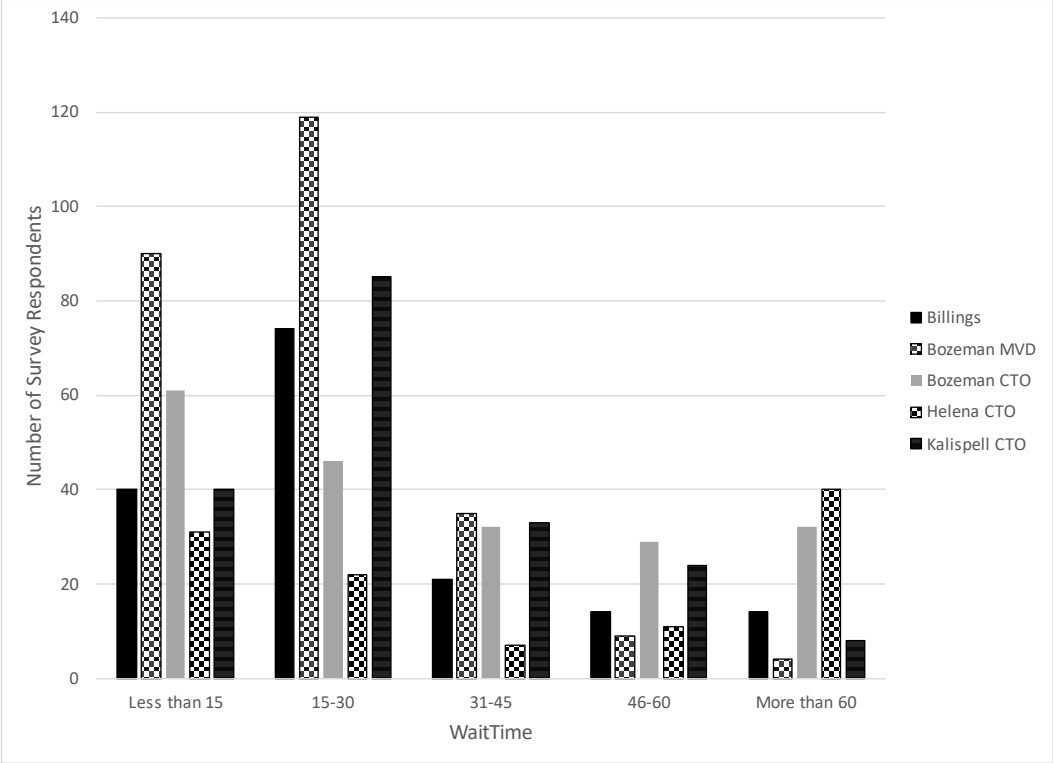


Figure 54: Wait times, by location, for the first video sequence.

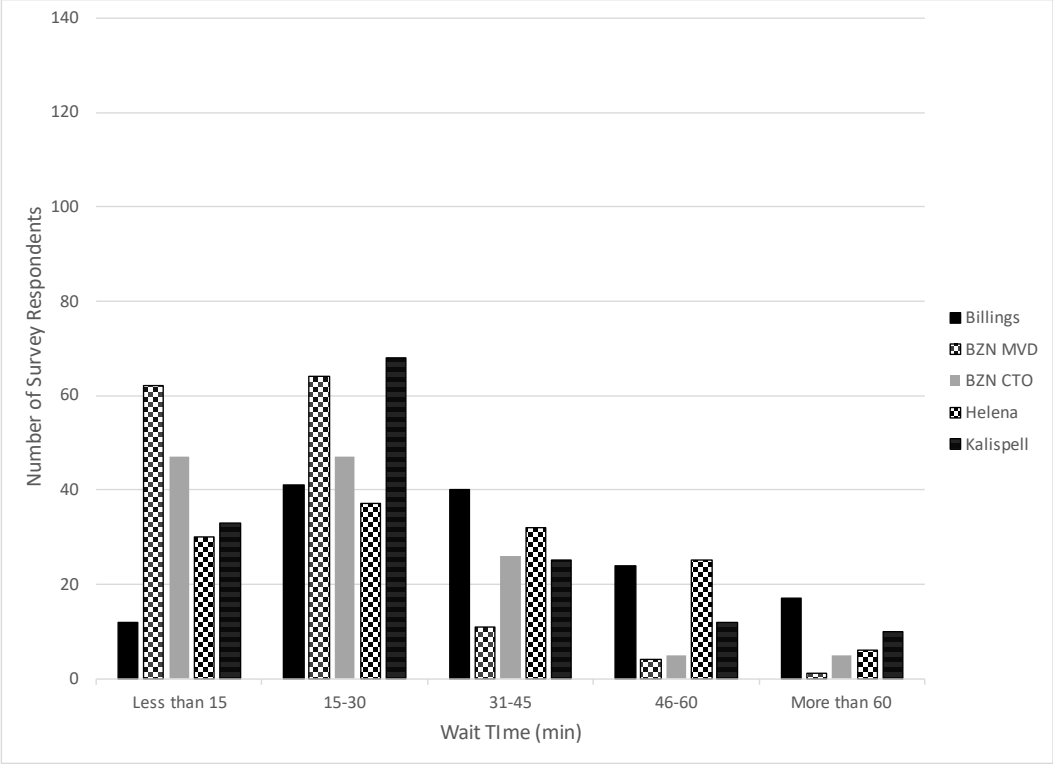


Figure 55: Wait times, by location, for the second video sequence.

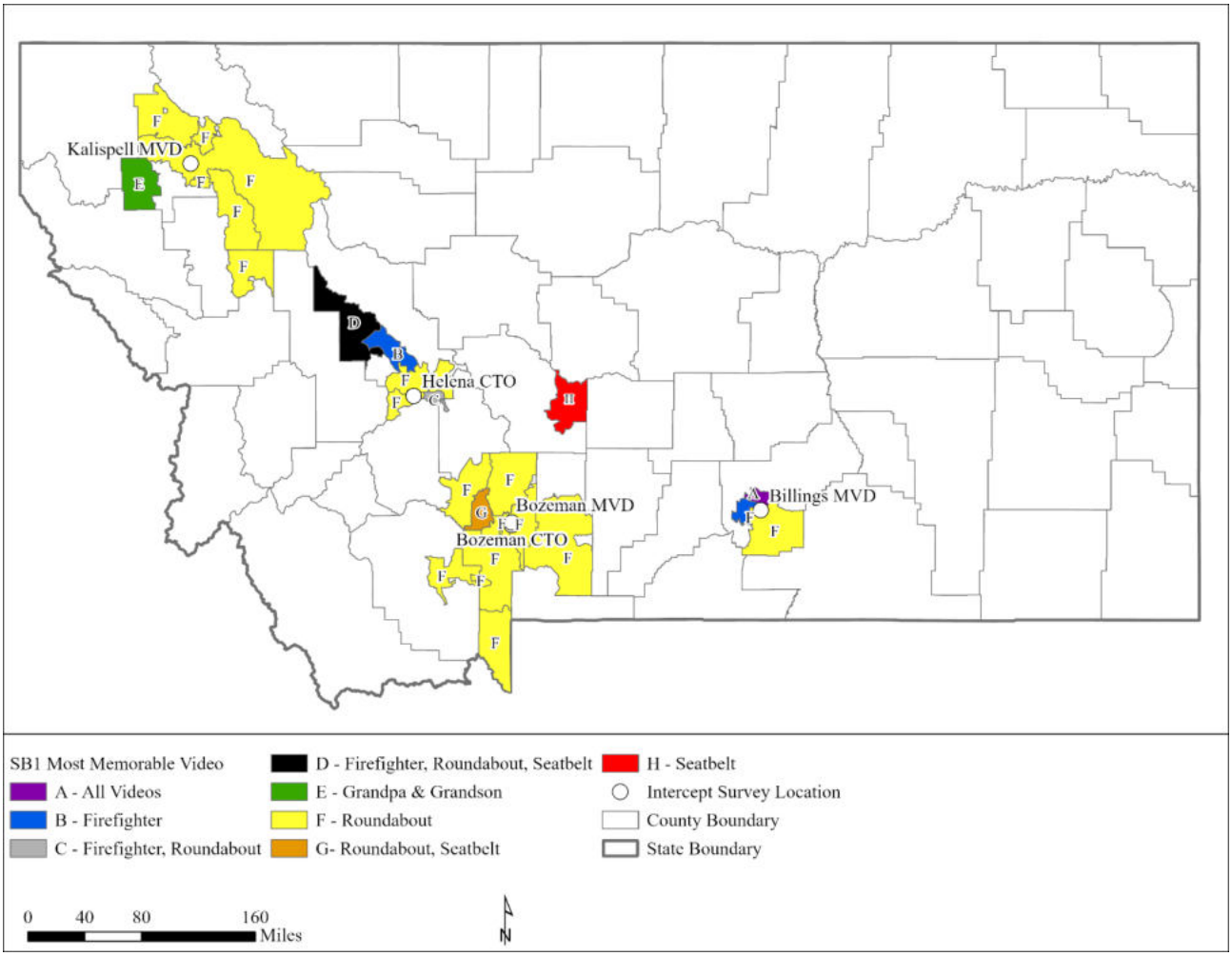


Figure 56. Most Recalled Video for Each Zip Code (Video Sequence 1)

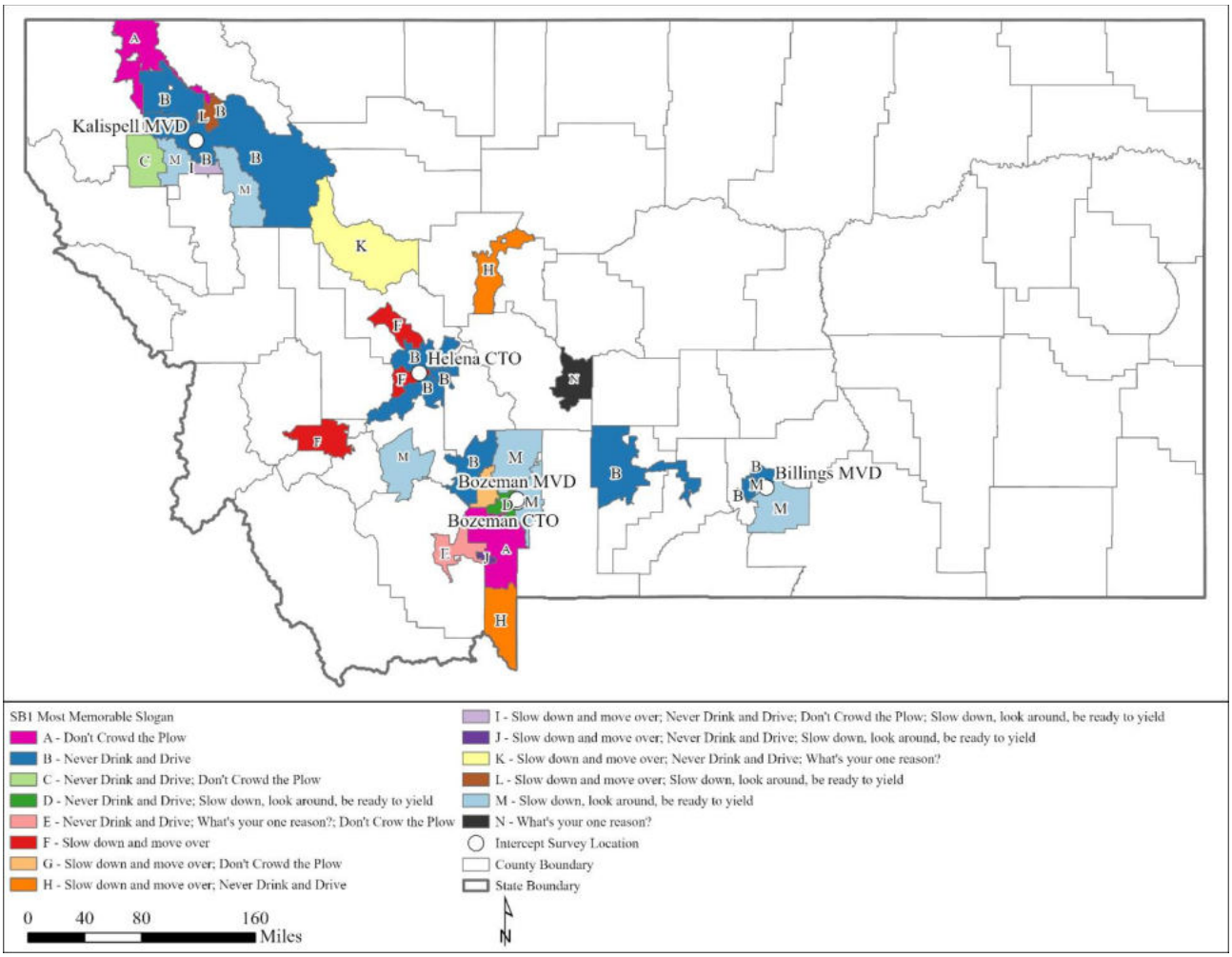
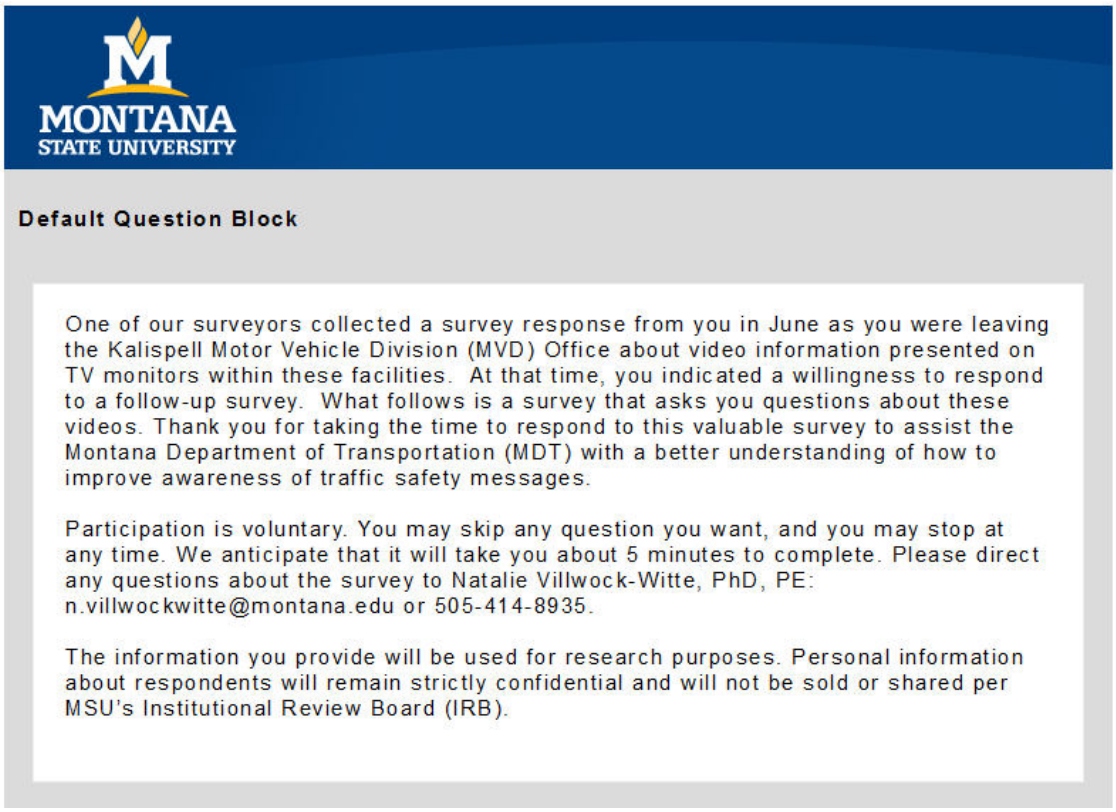


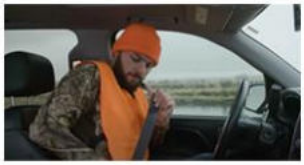
Figure 57. Most Recalled Slogan for Each Zip Code (Video Sequence 1)

Appendix L: Follow-up Surveys

Follow-up Survey, Online, Example



Please check all of the following that **you recall** based on your time in the Kalispell Motor Vehicle Division (MVD) Office.



☐ I do not recall any of these videos.

Do any of the following statements relate to the videos that you remember watching at the Kalispell Motor Vehicle Division (MVD) Office (*please check all that apply*)?

- ☐ I learned something new.
- ☐ It made me think of my children.
- ☐ It made me think of my family members.
- ☐ It made me think of a time when I had a close call.
- ☐ Other

Did these videos change your beliefs about any of the following subjects (*please check all that apply*)?

- ☐ Wearing a seat belt
- ☐ Slowing down in work zones
- ☐ Driving through a signal with a flashing yellow arrow
- ☐ Slowing down for a curve
- ☐ The videos did not change my beliefs.

As a result of seeing the videos, using a scale of Strongly Agree to Strongly Disagree, please indicate your level of agreement with the following statements.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I will wear a seat belt.	○	○	○	○	○
I will slow down for work zones.	○	○	○	○	○
I understand the meaning of a flashing yellow arrow.	○	○	○	○	○
I will slow down for a curve.	○	○	○	○	○

Please tell us your level of agreement with the following statement: After watching the videos at the Kalispell Motor Vehicle Division (MVD) Office, ***I have changed a driving behavior***.

- ○ Strongly Agree
- ○ Agree
- ○ Neutral
- ○ Disagree
- ○ Strongly Disagree

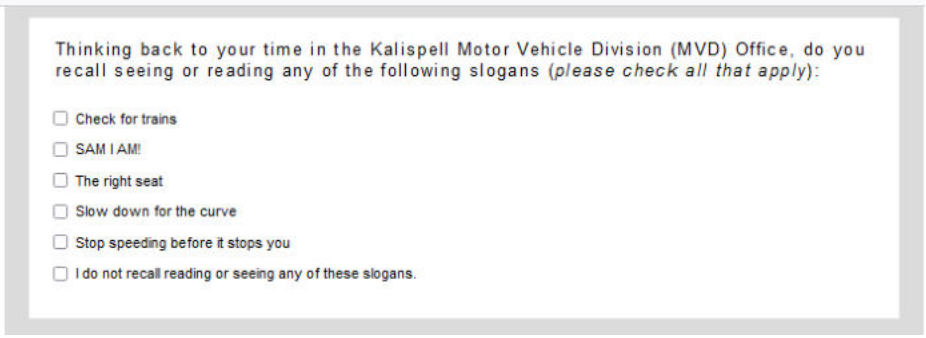
Please tell us your level of agreement with the following statement: After watching the videos at the Kalispell Motor Vehicle Division (MVD) Office, ***I will be a safer driver***.

- ○ Strongly Agree
- ○ Agree
- ○ Neutral
- ○ Disagree
- ○ Strongly Disagree

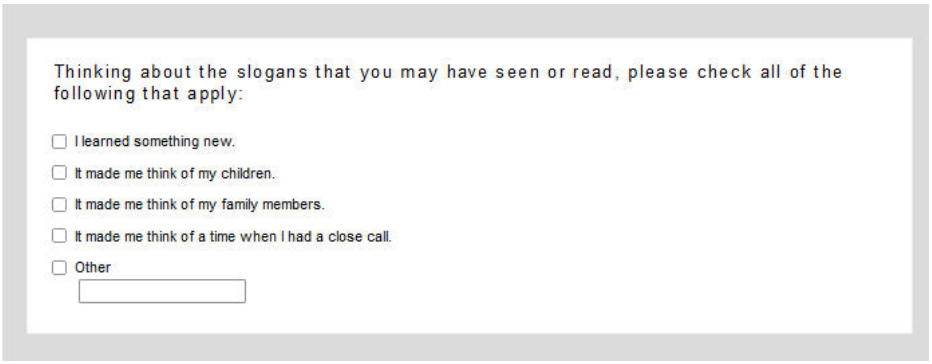
Did you share what you saw in the videos with anyone else?

- ○ Yes
- ○ No

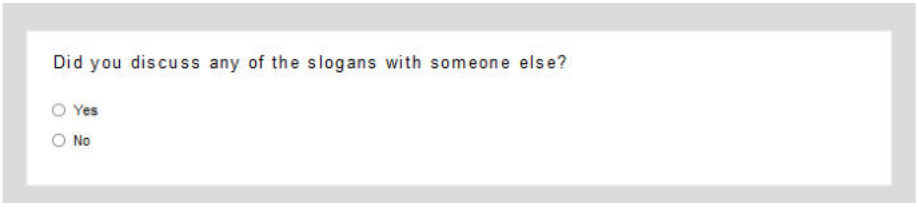
What video or information did you share?


Thinking back to your time in the Kalispell Motor Vehicle Division (MVD) Office, do you recall seeing or reading any of the following slogans (*please check all that apply*):

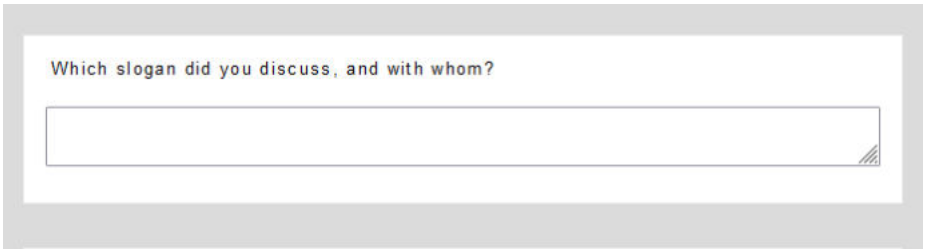
- ☐ Check for trains
- ☐ SAM I AM!
- ☐ The right seat
- ☐ Slow down for the curve
- ☐ Stop speeding before it stops you
- ☐ I do not recall reading or seeing any of these slogans.

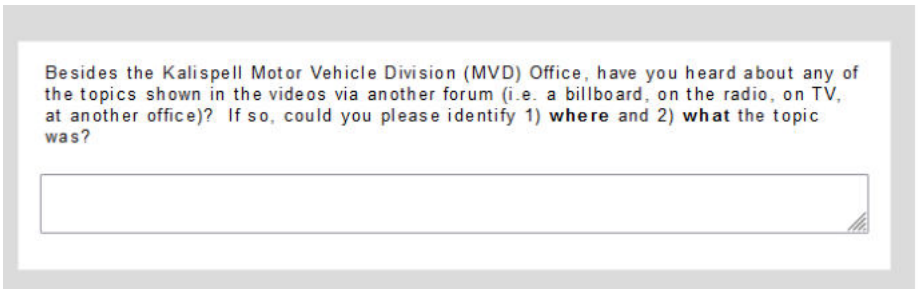

Thinking about the slogans that you may have seen or read, please check all of the following that apply:

- ☐ I learned something new.
- ☐ It made me think of my children.
- ☐ It made me think of my family members.
- ☐ It made me think of a time when I had a close call.
- ☐ Other


Did you discuss any of the slogans with someone else?

- ○ Yes
- ○ No


Which slogan did you discuss, and with whom?

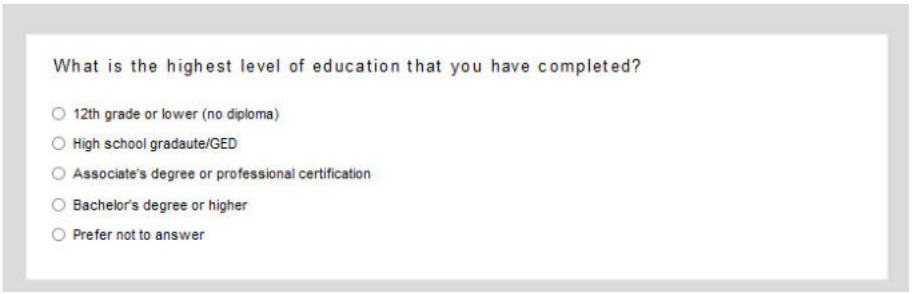

Besides the Kalispell Motor Vehicle Division (MVD) Office, have you heard about any of the topics shown in the videos via another forum (i.e. a billboard, on the radio, on TV, at another office)? If so, could you please identify 1) **where** and 2) **what** the topic was?


With which racial group(s) do you most closely identify (*please select all that are applicable*)?

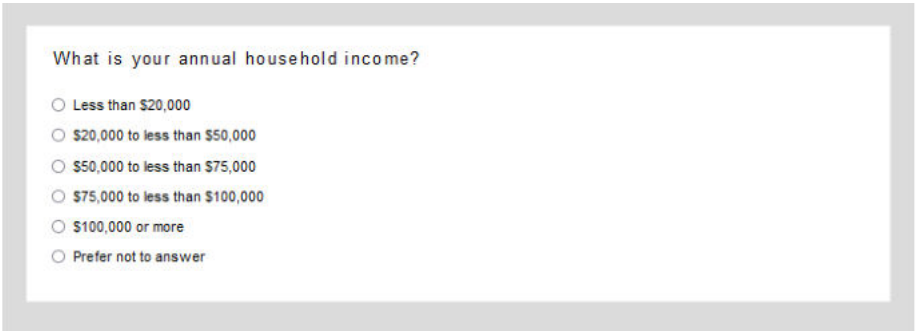
- ☐ American Indian/Alaska Native
- ☐ Asian
- ☐ White/Caucasian
- ☐ Black/African American
- ☐ Prefer not to answer


Are you of Hispanic or Latino origin or descent?

- ○ Yes, Hispanic or Latino
- ○ No, not Hispanic or Latino
- ○ Prefer not to answer


What is the highest level of education that you have completed?

- ○ 12th grade or lower (no diploma)
- ○ High school gradaute/GED
- ○ Associate's degree or professional certification
- ○ Bachelor's degree or higher
- ○ Prefer not to answer


What is your annual household income?

- ○ Less than $20,000
- ○ $20,000 to less than $50,000
- ○ $50,000 to less than $75,000
- ○ $75,000 to less than $100,000
- ○ $100,000 or more
- ○ Prefer not to answer

Follow-Up Survey, Hard Copy, Example

MONTANA STATE UNIVERSITY
Western Transportation Institute

January 26, 2022

One of our surveyors collected a survey response from you in October of 2021 as you were leaving the Kalispell Motor Vehicle Division Office about video information presented on TV monitors within these facilities. At that time, you indicated a willingness to respond to a follow-up survey. Enclosed, please find a survey that asks you questions about these videos. Thank you for taking the time to respond to this valuable survey to assist the Montana Department of Transportation (MDT) with a better understanding of how to improve awareness of traffic safety messages.

Participation is voluntary. You may skip any question you want, and you may stop at any time. We anticipate that it will take you about 5 minutes to complete. Please direct any questions about the survey to Natalie Villwock-Witte, PhD, PE: n.villwockwitte@montana.edu or 505-414-8935.

Rural
Transportation
Research
Matters

The information you provide will be used for research purposes. Personal information about respondents will remain strictly confidential and will not be sold or shared per MSU's Institutional Review Board (IRB).

Sincerely,

Natalie Villwock-Witte, PhD, P.E.
Western Transportation Institute
Montana State University
P.O. Box 174250
Bozeman, MT 59717-4250
n.villwockwitte@montana.edu
Tel: 505-414-8935
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Fax: (406) 994-1697
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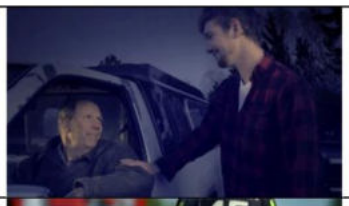
westerntransportationinstitute.org
P.O. Box 174250
Bozeman,
MT 59717-4250

Mountains & Minds

1. Please check all of the following that **you recall** based on your time in the Kalispell Motor Vehicle Division (MVD) Office.

☐ 

☐ 

☐ 

☐ 

☐ I do not recall any of these videos. ⟶ **Go to Question 9.**

2. Do any of the following statements relate to the videos that you remember watching at the Kalispell MVD Office (*please check all that apply*)?
   - ☐ I learned something new.
   - ☐ It made me think of my children.
   - ☐ It made me think of my family members.
   - ☐ It made me think of a time when I had a close call.
   - ☐ Other _____

     _____

3. Did these videos change your beliefs about any of the following subjects (*please check all that apply*)?
   - ☐ Obtaining a sober ride home
   - ☐ Wearing a seat belt
   - ☐ Slowing down and moving over for emergency responders.
   - ☐ I am more confident in driving through a roundabout.
   - ☐ The videos did not change my beliefs.

4. As a result of seeing the videos, using a scale of Strongly Agree to Strongly Disagree, please indicate your level of agreement with the following statements.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I will obtain a sober ride home.	○	○	○	○	○
I will wear a seat belt.	○	○	○	○	○
I will slow down and move over for emergency responders.	○	○	○	○	○
I see the benefit of roundabouts for reducing severe crashes.	○	○	○	○	○

5. Please tell us your level of agreement with the following statement: After watching the videos at the Kalispell MVD Office, ***I have changed a driving behavior***.
   - ○ Strongly Agree
   - ○ Agree
   - ○ Neutral
   - ○ Disagree
   - ○ Strongly Disagree

6. Please tell us your level of agreement with the following statement: After watching the videos at the Kalispell MVD Office, ***I will be a safer driver***.
   - ○ Strongly Agree
   - ○ Agree
   - ○ Neutral
   - ○ Disagree
   - ○ Strongly Disagree

7. Did you share what you saw in the videos with anyone else?
   - ○ Yes
   - ○ No ⟶ **Go to Question 9.**

8. What video or information did you share?

   _____

   _____

9. Thinking back to your time in the Kalispell MVD Office, do you recall seeing or reading any of the following slogans (*please check all that apply*):
   - ☐ Slow down and move over
   - ☐ Never drink and drive
   - ☐ What's your one reason?
   - ☐ Don't crowd the plow
   - ☐ Slow down, look around, be ready to yield
   - ☐ I do not recall reading or seeing any of these slogans. ⟶ **Go to Question 14.**

10. Thinking about the slogans that you may have seen or read, please check all of the following that apply:
    - ☐ I learned something new.
    - ☐ It made me think of my children.
    - ☐ It made me think of my family members.
    - ☐ It made me think of a time when I had a close call.
    - ☐ Other _____

      _____

11. Did you discus the slogans with someone else?
    - ○ Yes
    - ○ No ⟶ **Go to Question 14.**

12. Which slogan did you discuss, and with whom?

_____

_____

13. Besides the Kalispell MVD Office, have you heard about any of the topics shown in the videos via another forum (i.e. a billboard, on the radio, on TV, at another office)? If so, could you please identify 1) **where**, and 2) **what** the topic was?

_____

14. With which racial group(s) do you most closely identify (*please select all that are applicable*)?
    - ☐ American Indian/Alaska Native
    - ☐ Asian
    - ☐ White/Caucasian
    - ☐ Black/African American
    - ☐ Prefer not to answer

15. Are you of Hispanic or Latino origin or descent?
    - ○ Yes, Hispanic or Latino
    - ○ No, not Hispanic or Latino
    - ○ Prefer not to answer

16. What is the highest level of education that you have completed?
    - ○ 12th grade or lower (no diploma)
    - ○ High school graduate/GED
    - ○ Associate's degree or professional certification
    - ○ Bachelor's degree or higher
    - ○ Prefer not to answer

17. What is your annual household income?
    - ○ Less than $20,000
    - ○ $20,000 to less than $50,000
    - ○ $50,000 to less than $75,000
    - ○ $75,000 to less than $100,000
    - ○ $100,000 or more
    - ○ Prefer not to answer

We thank you for the time you spent completing the survey. Please return the finished survey in the provided envelope. Postage has been provided.

Table 77: Number of completed follow-up surveys as compared with those who stated a willingness to complete one for the first video sequence.

First Data Collection Period (August/September 2021)		
Location	**Success Rate**	**Percentage**
Billings MVD	0/3	0%
Bozeman CTO	7/15	47%
Bozeman MVD	2/6	33%
Helena CTO	3/9	33%
Kalispell MVD	1/6	17%
Second Data Collection Period (October/November 2021)		
Location	**Success Rate**	**Percentage**
Billings MVD	0/1	0%
Bozeman CTO	3/12	25%
Bozeman MVD	5/16	31%
Helena CTO	1/8	13%
Kalispell MVD	3/4	21%

Table 78: Number of completed follow-up surveys as compared with those who stated a willingness to complete one for the second video sequence.

First Data Collection Period (April/May 2022)		
Location	**Success Rate**	**Percentage**
Billings MVD	5/24	21%
Bozeman CTO	1/10	10%
Bozeman MVD	2/7	29%
Helena CTO	5/16	31%
Kalispell MVD	1/8	13%
Second Data Collection Period (June/July 2022)		
Location	**Success Rate**	**Percentage**
Billings MVD	6/21	29%
Bozeman CTO	11/17	65%
Bozeman MVD	2/5	40%
Helena CTO	2/6	33%
Kalispell MVD	2/5	40%