



## PROGRAMMATIC REVIEW AND CLEARANCE PROCESS FOR NPS-SPONSORED PUBLIC SURVEYS



The scope of the Programmatic Review and Clearance Process for NPS-Sponsored Public Surveys is limited and will only include individual surveys of park visitors, potential park visitors, and residents of communities near parks. Use of the programmatic review will be limited to non-controversial surveys of park visitors, potential park visitors, and/or residents of communities near parks that are not likely to include topics of significant interest in the review process. Additionally, this process is limited to non-controversial information collections that do not attract attention to significant, sensitive, or political issues. Examples of significant, sensitive, or political issues include: seeking opinions regarding political figures; obtaining citizen feedback related to high-visibility or high-impact issues like the reintroduction of wolves in Yellowstone National Park, the delisting of specific Endangered Species, or drilling in the Arctic National Wildlife Refuge.

SUBMISSION DATE: 4-20-2018

**PROJECT TITLE: Yellowstone Summer Visitor Use Patterns, Preferences, Expectations, and Values.**

**IC TITLE: Yellowstone Summer Visitor Use Survey: Geofencing and On-site Surveys**

**ABSTRACT:** (not to exceed 150 words)

Yellowstone managers have observed significant annual increases in park visitation since 2014. Recent research in Yellowstone has demonstrated potential safety issues on roadways due to traffic and conflicting results related to the visitor experience; while overall satisfied with their experience, visitors report problems with crowding on both the boardwalks, and parking. The purpose of this study is to inform site-specific management decisions in the park by documenting visitors' real time evaluations of their perceptions, expectations, and experiences across park locations. This study adopts two, in situ, data collection methodologies: 1) A randomly selected sample will be intercepted near gate entrances and asked to travel the park with a provided tablet and take brief surveys as they pass through preselected geofenced areas of concern; and, 2) A second randomly selected sample will be intercepted at attractions within the park to assess their experience on-site, at locations representing varying crowding gradients.

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**PROJECT INFORMATION:**

**Where will the collection take place?** Yellowstone National Park (YELL)

**Sampling Period Start Date:** 5-20-18

**Sampling Period End Date:** 9-30-18

**Type of Information Collection Instrument:** (Check ALL that Apply)

Mail-Back Questionnaire     Face-to-Face Interview     Focus Groups

On-Site Questionnaire     Telephone Survey

Other (List) Tablet survey via a tablet provided to respondents

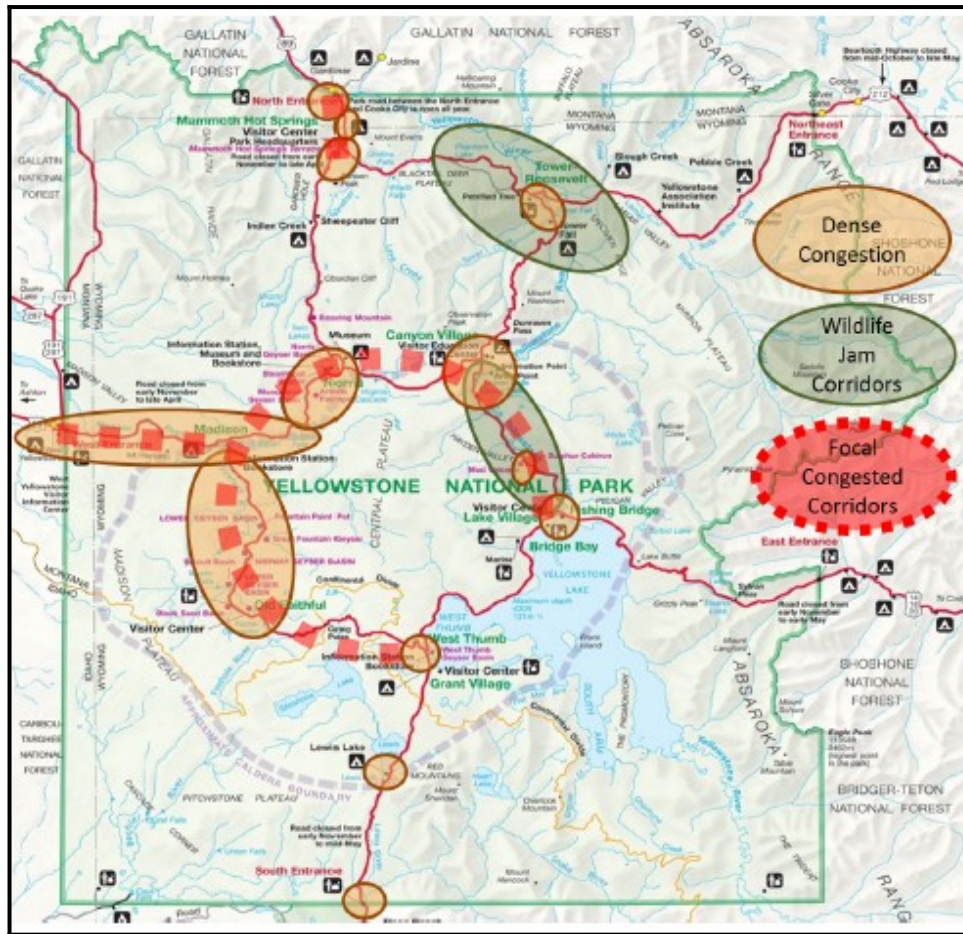
**Will an electronic device be used to collect information?**  No  Yes – Type of Device: Android Tablet

**SURVEY JUSTIFICATION:**

*Social science research in support of park planning and management is mandated in the NPS Management Policies 2006 (Section 8.11.1, "Social Science Studies"). The NPS pursues a policy that facilitates social science studies in support of the NPS mission to protect resources and enhance the enjoyment of present and future generations (National Park Service Act of 1916, 38 Stat 535, 16 USC 1, et seq.). NPS policy mandates that social science research will be used to provide an understanding of park visitors, the non-visiting public, gateway communities and regions, and human interactions with park resources. Such studies are needed to provide a scientific basis for park planning and development.*

Annual Yellowstone NP (YELL) visitation has increased more than 40% over the past ten years including a 21% increase from 2014-2016 to a historic level of use of 4.2 million visitors. Based on historic visitation trends, growing international visitation, retirement of Baby Boomers, and high levels of visitation from Gen X, demand for visitation is expected to continue to increase. Results from the 2016 RSG Yellowstone visitor survey indicated that the majority of visitors (84%) were satisfied with their experience. However, many visitors think that parking (67%), crowding (57%), traffic (55%), and other visitors acting unsafe around wildlife (55%) are big or moderate problems. In addition, a 2016 traffic mobility study (Otak) found the level of service on most Yellowstone roads rated a D, indicating serious platooning and delays causing safety issues for visitors. Using data garnered from the mobility study, park management has identified multiple areas of concern as "focal congested corridors", largely stemming from either dense congestion or wildlife jams (Figure 1). With this knowledge, Yellowstone managers have identified a desire and need to evaluate experiences of different visitor segments at a subset of focal attractions within the park's focal congested corridors. Currently, a gap exists in the knowledge of how visitor experiences are impacted by conditions in real-time and across time and space. Thus, the park's stated goal is to understand the specific experiences of the visitor during the experience itself, not after leaving the park and reflecting back on their overall experience. In preparation for future management plans, park managers seek data about their summer visitor as closely as possible to the actual times, locations, and situations in which visitors experience the park.

Figure 1: YELL Areas of Concentrated Congestion and Crowding



\*Source: Yellowstone National Park

Given this background, the purpose of this study is to document visitors' evaluations of their experience of visitor use conditions, in real time, across park locations to inform future management decisions at a site-specific level. Capturing "real-time" data has been conducted at smaller levels in a national park setting through visitor journals/trip diaries or GPS monitoring of travel patterns (Otak, 2017). However, to understand how levels of crowding affect the experience at different locations, a more robust methodology is needed to simultaneously capture both the perceived experience and the travel pattern of visitors throughout space and time. In addition, site-specific data, in conjunction with park wide aggregate data, is needed to inform the pre-planning process of YELL's future management plan.

To achieve this level of detail and explore in situ experiences at the site-specific level, this study will use two data collection methodologies:

- 1) A tablet-based set of surveys in which a random sample of park visitors are provided tablets soon after entering the park. The tablets will remain in the visitors' vehicle for the duration of one day in the park. The tablet will automatically, via geofence technology, deliver intermittent surveys to respondents at preselected sites;

2) On-site intercept surveys of a random sample of visitors at attraction areas of interest as defined by YELL management planning scenarios.

The tablet-based survey (from this point forward referred to as the “Geofencing Survey”) will allow participating visitors to share their experiences, perceptions, and expectations as their trip progresses throughout a day, while the on-site intercept surveys will gauge how visitors perceive conditions of the park at sites. Intercept timing will allow for variation across a crowding gradient. The on-site intercept survey will also provide a more robust sample of visitors to conduct segmentation analysis for comparison of YELL’s diverse visitor base.

The Geofencing Survey will use a GPS based technology known as “Geofencing” to deliver the desired surveys to respondents as they pass through key attractions and roadway segments in order to understand how visitors’ perceptions of crowding and evaluation of the visitor experience changes based on location and conditions. A ‘geofence’ is as a virtual geographic boundary, defined by GPS, that enables software to trigger a response when a mobile device enters or leaves an area in YELL. Participating respondents will be asked to take a tablet with them for 1-day of their YELL experience, and dropped off at the end of the day. Respondents who participate in the tablet-based methodology will be notified to take a survey about their current experience as they pass through each geofence. The tablet will recognize when a visitor passes through a geofence location based on their vehicle’s GPS coordinates. In addition, the electronic tablets will record GPS data as visitors travel throughout the park to understand traffic congestion in relation to their responses to the survey. Through this methodology, the travel pattern of visitors along with their quantitative responses to the geofencing surveys will be analyzed together, giving a complete picture of how different locations, settings, and conditions impact the visitor experience.

Coinciding with the geofence surveys, an intercept survey will be administered to a separate sample of visitors about their experience at specific attractions of interest in the park. The intercept surveys will be conducted across 13 sites that receive different levels of use (defined as high use, moderate use, and low use). The areas were selected across three crowding gradients identified in aforementioned park studies and internal scoping processes.

The combination of both data collection methodologies will provide YELL managers with site-specific understandings of visitor experiences, perceptions, and expectations as close as practical to the actual visitor experience. We will examine how travel patterns, route length, and location-specific conditions affect the visitor experience to support Yellowstone’s planning efforts for the future. Analyses enabled by the above methods include: an assessment of the identifiable variation in responses to the geofence survey compared to on-site intercept surveys; an assessment, based on the sequential nature of the geofence survey, of how potential repeated exposure to high crowding conditions impacts respondents’ experience (e.g. does the respondent’s experience decline with more exposure, or do they acclimate to it and accept the conditions?); and, and an assessment of whether demographics or visitor characteristics are linked to in situ experiences. This study will further elucidate how visitors perceive the park’s current conditions.

YELL managers and planners will use these data to identify:

- 1) if site specific management actions are needed throughout the park and,
- 2) if potential site-specific management actions could prove effective to improve transportation and visitor experience issues.

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## **SURVEY METHODOLOGY:**

### **(A) Respondent Universe:**

According to the NPS visitor use statistics, approximately 4,116,525 people visited Yellowstone National Park in 2017. The respondent universe for this collection will be a systematic sample of all adult recreation users (age 18 and older), during the proposed study period (May 20-September 30, 2018). The population for the Geofencing Survey are all adults (18 and older) passing through one of Yellowstone's five entrance gates during daylight hours. The population for the on-site surveys are all adult respondents (18 and older) visiting one of 13 attraction sites throughout the park at a given time.

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### **(B) Sampling Plan / Procedures:**

During a 35-day sampling period, one week (Sunday through Saturday) for five months (May 20-September 30, 2018), we plan to contact a combined total of 7,175 visitors (Geofencing survey 3,005; Onsite Intercept survey 4,170). During each sample period, a team of five researchers will administer both the Geofencing Survey and the on-site intercept survey each day. Surveyors will be assigned the following regions of the park:

- West region (Old Faithful, Midway Geyser Basin, Fairy Falls / Grand Prismatic Overlook, Fountain Paint Pot).
- North region (Mammoth Hot Springs, Norris Geyser, Tower Falls).
- Canyon region (Canyon Village, North/South Rim and Upper Falls, Dunraven / Mt. Washburn, Hayden Valley, Lamar Valley).
- South/East region (West Thumb Geyser Basin, Old Faithful, Fishing Bridge & Lake Village, Hayden Valley).

Each surveyor will sample 6-days per week with 1-day off per sampling week. The tablets for the Geofencing survey will be delivered between 8:00 A.M. – 12:00 P.M.; and the on-site survey between 12:00 P.M. – 5:00 P.M. at designated locations within the park each sampling day. Following each survey day, surveyors will collect returned tablets from drop boxes located in designated areas of the park (select visitor centers and exits), upload data and recharge tablets.

### Geofencing Survey

This method will require that a systematic sample of visitors will use an Android tablet (provided to them) to monitor their movement throughout the park for one day of their visit. Survey questions will be activated as the user passes designated "geofenced" areas inside the park. A stratified random sampling method (every 5th vehicle from the time the surveyor completes the previous tablet hand out) will be used to stop visitors after they have entered one of the five entrances into the park. Once inside, each entrance will have a staging area in a safe pullout

location where visitors will be asked to participate, explained the use of the tablet, and begin the initial survey upon leaving.

The surveyors will proportionately distribute 100 tablets based on the proportion of vehicle traffic per gate during the sampling periods. The 2017 NPS Visitor Use Statistics, were used to determine the proportionate visitor traffic at each sampling site during the sampling period (Table 1a). We expect to distribute all 100 tablets on the first day of the sampling week; however, during the following five tablet distribution days (with one day off in the survey week) we expect to distribute 50 tablets per day. This lower number of tablets in subsequent days is due to the expectation that not all respondents will return the tablet prior to the designated pick-up time by surveyors. Late drop offs tablets will be available for the following day's collection. Therefore, over the course of six days, we plan to distribute a total of 350 tablets (Table 1b).

**Table 1a Vehicle Traffic at each sample location during the sample period\***

Geofence Survey Locations	May	June	July	August	September	Total
West Entrance	63,924	112,999	139,195	131,190	93,451	540,759
South Entrance	25,169	63,349	76,391	75,011	48,540	0
North Entrance	32,395	50,239	60,358	58,278	41,675	0
East Entrance	17,705	40,223	48,634	42,618	25,364	0
Northeast Entrance	9,729	20,183	24,492	23,244	16,710	0
<b>TOTAL</b>	0	0	0	0	0	0

\*NPS 2017 Visitor Use Statistics (Total Vehicles) <https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Park%20All%20Months?Park=YELL>

**Table 1b. Example schedule during a typical sampling week**

Geofence Survey Locations	Number of sampling days per week	Vehicle traffic at each site*	Number of Visitors Contacted	Number of Tablets distributed	Number of Returned Tablets
West Entrance	6	40%	241	140	140
South Entrance	6	22%	120	70	70
North Entrance	6	18%	120	70	70
East Entrance	4	13%	85	50	50
Northeast Entrance	2	7%	34	20	20
<b>TOTAL</b>			596	350	350

Based on a study by Manning (2009) we could reasonably expect a response rate of approximately 83% if GPS were the only information source to track location. However, since our study will use GPS tracking and subsequent questionnaires imbedded in the tablet, we have adjusted our expected response rate to 58%. Due to the novelty of our tablet approach, we assume a lower participation rate because of the added responsibility for the tablet and



requirement to complete multiple surveys as they travel throughout the park. We assume that 100% of visitors who agree to participate in the study will complete the surveys and return the tablet based on Borrie and Roggenbuck (1996).

Table 2a (below) highlights the estimated number of visitor contacts per distribution site for a typical week-long sample period. As described, we will distribute 100 tablets initially on Sunday, and 50 tablets on each consecutive day. Surveyors will pick up tablets by 6:00 P.M. each day and prepare them for distribution the next day. The 50% decrease in the number of tablets is based on the expected number of late returns that will not be retrieved in time for the next day's distribution. Therefore, daily returned tablets in Table 2b is based off a 58% participation rate from the estimated visitor contacts in Table 1, along with the 50% decrease in distributed tablets on Monday-Saturday due to turnover in preparation of the devices. Surveyor days off during the week are indicated by 0 visitor contacts and 0 returned tablets. Surveyors are given one day off due to limited personnel and a need to ensure surveyors are not overburdened each week. Days off throughout the sampling period will be randomized each week. The East and Northeast entrances have 4 and 2 days assigned each week with Thursday the off day for the surveyor.

**Table 2a. Estimated Number of Visitor Contacts during a typical Sampling week\* - Geofencing Survey**

	SUN	MON	TUES	WED	THURS	FRI	SAT	TOTAL
West Entrance	69	34	34	0	34	34	34	239
South Entrance	34	0	17	17	17	17	17	119
North Entrance	34	17	17	17	17	0	17	119
East Entrance	34	0	17	17	0	17	0	85
Northeast Entrance	0	17	0	0	0	0	17	34
<b>TOTAL</b>	171	68	85	51	68	68	85	596

\*Note: 58% of visitor contacts are estimated to agree to participate in the Geofencing Survey. Monday-Saturday visitor contacts are determined by 50 available tablets to distribute.

**Table 2b. Estimated Number of Returned Tablets (Completed Surveys) during a typical Sampling week**

	SUN	MON	TUES	WED	THURS	FRI	SAT	TOTAL
West Entrance	40	20	20	0	20	20	20	140
South Entrance	20	0	10	10	10	10	10	70
North Entrance	20	10	10	10	10	0	10	70
East Entrance	20	0	10	10	0	10	0	50
Northeast Entrance	0	10	0	0	0	0	10	20
<b>TOTAL</b>	100	40	50	30	40	40	50	350*

Intercept Survey:

The second phase of this collection will consist of an intercept survey. The surveyor will randomly select every 5th visitor near a parking or pull-out area throughout the sampling day. Park managers have identified areas of the park using a gradient to describe levels of use and crowding (high, moderate, and low) that will serve as the sample sites and primary focus for this collection.

We expect to contact 4,170 visitors throughout the sample period in order to receive 3,750 completed questionnaires. For each use group (high, moderate, low), on-site visitor surveys will be conducted with the high use areas receiving more visitor contacts than the moderate and low use areas. Visitation statistics at each site do not exist, but through a series of park planning initiatives, these sites have been identified as receiving a higher volume of visits on average. In each month, the high use areas will receive a combined 416 visitor contacts for a total of 2,080 contacts throughout the 5-month period. The moderate use areas will receive a combined 278 visitor contacts each month for a total of 1,390 contacts. The low use areas will receive a combined 140 visitor contacts each month for a total of 700 visitor contacts. Thus, a total of 4,170 visitors will be contacted across the 5-month sampling period (Table 3).

**Table 3. Estimated Number of Visitor Contacts during Sampling Period – Intercept Survey**

Sampling Location	Number of Visitor Contacts					Total
	May	June	July	August	September	
<b>High</b> Old Faithful, Midway Geyser Basin, Fairy Falls/Grand Prismatic Overlook, Norris Geyser Basin, North/South/Upper Falls Rim Area	416	416	416	416	416	2,080
<b>Moderate</b> Canyon Village, Mammoth Hot Springs Area, West Thumb Geyser Basin, Hayden Valley, Fountain Paint Pot	278	278	278	278	278	1,390
<b>Low</b> Dunraven Pass/Mt. Washburn, Lake Village/Fishing Bridge, Tower Falls	140	140	140	140	140	700
<b>Total</b>	<b>834</b>	<b>834</b>	<b>834</b>	<b>834</b>	<b>834</b>	<b>4,170</b>

Example weekly schedule:

Table 4 below, depicts the location and the number of visitors contacted at intercept surveys locations. After the geofencing tablet distribution is complete, all surveyors will administer the intercept survey location for the remainder of their day.

**Table 4: Estimated number of visitors contacted for intercept survey collection during a typical sampling week**

Surveyor/Site*	SUN	MON	TUES	WED	THURS	FRI	SAT	Total Visitor Contacts Per



									Week
<b>West Entrance - Old Faithful Area</b>									
Fountain Paint Pot	55			<b>DAY OFF</b>					55
Midway Geyser			55						55
Old Faithful		55			55		55		165
Fairy Falls/Grand Prismatic Overlook						55			55
<b>Subtotal</b>	<b>55</b>	<b>55</b>	<b>55</b>	<b>0</b>	<b>55</b>	<b>55</b>	<b>55</b>	<b>55</b>	<b>0</b>
<b>South Entrance - West Thumb Area</b>									
West Thumb Geyser basin	28	<b>DAY OFF</b>				28			56
Hayden Valley			28						28
Lake Village/Fishing Bridge					28			28	56
Old Faithful				28					28
<b>Subtotal</b>	<b>28</b>	<b>0</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>0</b>
<b>East &amp; Northeast Entrance - Canyon Village Area</b>									
Canyon Village			28		<b>DAY OFF</b>		28		56
North, South Rims and Upper Falls Area	28			28					56
Dunraven		28							28
Hayden Valley							28		28
<b>Subtotal</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>0</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>0</b>
<b>North Entrance - Mammoth Hot Springs Area</b>									
Mammoth Hot Spring Area	28			28		<b>DAY OFF</b>			56
Tower Falls		28			28				56
Norris Geyser			28					28	56
<b>Subtotal</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>	<b>28</b>		<b>0</b>	<b>28</b>	<b>28</b>
<b>Total</b>	<b>139</b>	<b>111</b>	<b>139</b>	<b>84</b>	<b>111</b>	<b>111</b>	<b>139</b>	<b>139</b>	<b>834</b>

**(C) Instrument Administration:**

The survey administration for both the 1) Geofencing Survey and 2) Intercept Surveys is presented below:

Geofencing survey administration:

A staging area will be set up at safe and unobtrusive locations inside each of the five park entrances. The surveyor will begin by flagging every 5<sup>th</sup> vehicle into the staging area. The surveyor will close the staging site by placing a traffic cone once a vehicle is flagged for initial contact. Visitors will be asked if they would be interested in participating in the study where they will use an Android Tablet to complete a series of questions that automatically pop up when they pass key areas of interest while traveling throughout the park. Participants will be informed they will only have use of the tablet for 1-day. Single-occupant vehicles will be instructed to only use the tablet when parked in a safe location. In multiple-occupant vehicles, the adult passenger (18 years and older) with the closest birthday will be asked to complete the survey. Finally, the respondent will be instructed to return the tablet to one of the five visitor centers, or the North and West entrances of the park at the end of the day. If the respondent agrees to participate, a tablet will be provided to them. Immediately after leaving the staging area, the tablet's first prompt will be to complete the *Demographic and Characteristic Survey* on the tablet. As the car exits the staging area the surveyor will open the area again for the 5<sup>th</sup> next vehicle.

As visitors move throughout the park, the tablet's GPS will use the vehicle's location to identify when the respondent crosses into pre-designed geofenced locations defined as "roadway" and "attraction" segments (Table

5). As the vehicle passes the boundary of the geofence, the tablet will ask the respondent to complete a brief survey about current conditions and their experience at the time.

**Table 5: Geofence Survey Locations**

Road Segments	Attraction Segments
1) West Entrance to Madison Junction	11) Old Faithful Parking Area
2) Madison to Old Faithful	12) Midway Geyser Parking Area/Fountain Paint Pot
3) Old Faithful to West Thumb Geyser Basin	13) Norris Geyser Area
4) Madison Junction to Norris Geyser Basin	14) Canyon Village
5) Norris Geyser Basin to Canyon Village	15) South Rim Area/North Rim/Upper falls area
6) Canyon Village to Fishing Bridge	16) Mammoth Hot Springs Area
7) North Entrance to Mammoth Hot Springs	17) Fairy Falls Parking Area
8) Tower Falls to Lamar Valley (Hitching Post)	18) Tower Falls Parking Area
9) Dunraven Pass	19) West Thumb Geyser Basin Area
10) Lake Village to West Thumb Geyser Basin	20) Hayden Valley Parking / Overlooks
	21) Lamar Valley Pullouts / Overlooks
	22) Dunraven Pass / Mt. Washburn
	23) Boiling River
	24) Lake Village

As respondents enter a geofence road segment, an audio and visual notification will appear on the tablet, prompting the respondent to complete the Geofence Roadway Survey. Similarly, when respondents exit a geofence attraction segment, respondents will be notified to complete the Geofence Attraction Survey. Each roadway and attraction geofence will have 5-10 questions about their recent experience at the site. Survey length depends on their recorded answers and designed skips. Upon completion of each set of questions, the tablet will thank them for their continued participation and remind them to look for future notifications along the way. At the end of their 1-day experience, respondents will be asked to return the tablet to drop off locations at the visitor centers or North/West entrances, where ever is most convenient for them.

The following script will be used during the initial roadside contact:

*“Hello, I am conducting a study for Yellowstone National Park on visitor experiences throughout their time in the park. We would like for you to use this tablet for today only. As you drive throughout the park, the tablet will automatically prompt you to respond to a few questions about your experience. The tablet is also equipped with a GPS that will track your movement through the park. We are doing this because we are interested in the most popular routes taken to get to certain destinations in the park and to also understand which areas in the park people visit the most and what their experiences are when they are there. This information is completely anonymous and will never be connected to you personally. The number of questions you answer is dependent on the route you take. It should take you no more than 60, 40 or 15 minutes depending on the route you take today to complete all of the questions you will be prompted to answer throughout the day. This is not intended to be intrusive, instead it is intended to provide park managers a better understanding of where management efforts should be focused to improve the visitor experience. At the end of the day, you can return the tablet at one of the five visitor center locations (Old Faithful, Mammoth, Fishing Bridge, Canyon Village, or Grant Village) or at the West Entrance (nearest to West Yellowstone, MT) or North Entrance (nearest to Gardiner, MT) there will be a volunteer there to receive it or a place designated*

*where you can safely leave it. Are you interesting in helping us today by taking a tablet and answering a few questions as you travel through the park to day? Would you be willing to participate?"*

- ➡ If **NO** – The surveyor will thank the visitor and ask them to answer the four questions that will serve as a non-response bias check (in Section E below)
- ➡ If **YES** – The surveyor will provide the respondent with the tablet and open the survey application. The respondent will be informed of drop off locations and additional instruction to navigate the tablet throughout their day.

The survey software will provide: instructions on how to open / complete surveys, notifications for each geofence stop, and where to return the tablet at the end of the survey.

**On-site Survey administration:**

At each of the on-site survey intercept locations, surveyors will contact potential respondents as they are leaving the site. Visitors will be approached near the parking area of the site. If the visitor agrees to participate in the study, surveyors will verbally administer the survey questions and record responses on an Android Tablet. If the visitor does not agree, surveyors will thank them for their time, ask the four non-response bias questions, and then sample the 5<sup>th</sup> next visitor.

**Script for On-site Survey:**

*"Hello, I am working with Yellowstone National Park conducting a 6-minute survey to improve visitor experiences in the park. May I ask you questions about your Yellowstone experience?"*

- ➡ If **NO** – The surveyor will thank the visitor and ask them to answer the four questions that will serve as a non-response bias check (in Section E below)
- ➡ If **YES** – The surveyor will begin the on-site visitor survey with the recruited individual after reading the Paperwork Reduction and Privacy Act below. The surveyor will verbally administer the survey and record responses on an Android Tablet. Upon completion of the on-site survey, the respondent will be thanked for their time.

*Before we begin, I would like to let you know that this survey has been approved by the Office of Management and Budget. It is important to note that a Federal agency may not conduct or sponsor, and you are not required to respond to, a collection of information unless it has a valid OMB control number. The control number for this collection is 1024-0224 and this number is valid through 05/31/19. Secondly, your participation is voluntary and your name will never be connected with your individual responses. This survey will only take about six minutes of your time today.*

As indicated in Table 6, for both surveys, we anticipate contacting a combined total of 7,175 visitors (On-site n= 4,170 and Geofencing n=3,005) during the sampling period. We estimate that 58% (n=1,743) of respondents will agree to participate in the Geofencing Survey. The number of refusals will be recorded and will be used in calculating the actual response rate. We expect that of the 42% (n=1,262) of visitors refusing to participate by taking a tablet, at least 90% (n=1,135) will answer the non-response bias questions and the remaining 127 visitors will completely refuse to participate in any part of the collection. Visitors who participate in the tablet surveys will be asked the non-response bias questions within the survey on the tablet and do not require any extra time to answer these questions.

We estimate that 90% (n=3,750) will agree to participate in the on-site survey based on previous research experience with this method (Note: RRC Associates and ITRR conducts frequent on-site surveys across the U.S. and these percentages are based upon the average refusals obtained). We expect 90% of those who do not agree to participate in the on-site survey to answer the non-response bias questions (n=375) with 42 completely refusing to participate in any part of the collection.

**Table 6: Survey response rates**

Location	Initial Contacts	Acceptance Rate	Completed Responses	Total Number of Refusals		Non-response survey (90%)	Hard Refusals
Geofencing survey	3,005	58%	1,743	42%	1,262	1,135	127
On-site survey	4,170	90%	3,750	10%	417	375	42
<b>TOTAL</b>	7,175		5,493		0	0	0

**(E) Strategies for dealing with potential non-response bias:**

To account for potential non-response bias for visitors not agreeing to participate in either the tablet or intercept study, visitors who do not agree to complete either study will be asked the following questions:

1. "What language would you prefer to use in the park?"
2. "How many adults, 18 years and older, are in your group?"
3. "How many children (under 18 years) are in your group?"
4. "Over the past three years, how many visits have you made to Yellowstone National Park?"

These questions will be compared to those who are participating in each study, separately, to identify if weighting is necessary to correct for non-response bias. Data will also be compared with recent summer visitor studies conducted in Yellowstone National Park (summer 2015 and summer 2016).

**(F) Description of any pre-testing and peer review of the methods and/or instrument:**

The questions in this study come from the Pool of Known Questions, have been tested by numerous studies, and are pre-approved through the Programmatic Review Process from OMB. The tablet-based survey methodology has been pre-tested in the Yellowstone region and in Denver, Colorado prior to data collection. All geofence locations are accurate and responded as expected by delivering surveys to participants as they moved throughout the pre-test area. In addition, voluntary test participants selected by the research team identified no issues answering the questions about

their visit or experience at test sites. We have estimated that it will take 6 minutes for the respondent to complete the on-site survey. This estimate is based on averages from RRC Associate's ongoing field studies across the Western U.S. (375 burden hours). All concepts on the questionnaire and methods have been found to be valid and reliable through peer-reviewed academic studies and through other NPS projects.

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## **BURDEN ESTIMATES:**

The combined estimated totals for the three surveys in this collection are as followed: Number of Responses: 7,003 and Respondent Burden Hours: 1,409 (see Tables 7 and 8)

### Geofencing Survey:

We expect that the initial contact time will take at least 3 minutes per person to establish participation and to answer any questions the respondent may have (estimated as part of the overall burden for each group below). The estimated time to complete the geofencing surveys is based upon one of three routes identified by park managers. We will use the following routes-types to estimate the burden for this collection:

- **Long Route** - 6+ geofence locations. This route is estimated to take a maximum of 60 minutes per respondent to complete (60 minutes + 3 minutes initial contact) x 343 respondents= 360 hours).
- **Medium Route** - 3-6 geofence locations. This route is estimated to take a maximum of 40 minutes per respondent to complete (40 minutes + 3 minutes initial contact x 875 respondents = 627 hours)
- **Short Route** - 1-2 geofence locations. This route is estimated to take a maximum of 15 minutes per respondent to complete (15 minutes + 3 minutes initial contact x 525 respondents = 157 hours)

All visitors refusing to participate in the collection will be asked to answer the non-response bias questions. Visitors who participate in the geofencing survey will be asked the non-response bias questions within the survey distributed on the tablet. We anticipate 90% (n=1,135) of all non-respondents will no more than three minute to complete the initial contact and answer the non-response bias questions (1,135 respondents x 3 minutes = 57 hours). The burden for the remaining visitors completely refusing to participate in the collection (n=127) will not be estimated due to the de minimis nature of their participation. With these estimates, the total burden for the geofence survey will be 1,201 hours (Table 7).

**Table 7: Visitor burden estimate for geofence survey**

	Total number of Completed Responses	Completion Time * (minutes)	Burden Hours
Geofencing Survey			
Long Route	343	63	360
Medium Route	875	43	627
Short Route	525	18	157
Non-response survey	1,135	3	57
<b>Total burden requested:</b>	<b>2,878</b>		<b>1,201</b>

**On-site Survey**

We expect that contact time will include at least 1 minutes per person to establish participation and to answer any questions the respondent may have and then an additional five minutes to complete the on-site survey (3,750 respondents x 6 minutes = 375 hours). We expect that in addition to the one minute initial contact it will take an additional minute to conduct the non-response bias check for visitors who do not agree to participate in the on-site survey (375 respondents x 2 minutes = 13 hours). The burden for the remaining visitors completely refusing to participate in the collection (n=42) will not be estimated due to the de minimis nature of their participation. Respondents who agree to participate will answer the non-response bias questions as part of their on-site survey and will have no extra time added to their burden. Therefore the total burden for the on-site survey will be 388 hours.

**Table 8: Visitor burden estimate for On-site Survey**

	Total number of Completed Responses	Completion Time * (minutes)	Burden Hours
		<i>Initial Contact time added to completion time</i>	
Completed On-site Survey	3,750	6	375
Non-response survey	375	2	13
<b>Total burden requested:</b>	<b>4,125</b>		<b>388</b>

**REPORTING PLAN:**

The study results will be presented in a comprehensive report that will be shared with NPS staff, both in Yellowstone National Park and in Fort Collins, CO. Questionnaire results will be presented in tables or figures with descriptive text. Results will include frequencies, measures of central tendency (e.g. mean, median, and standard deviation), cross-tabulations from chi-square tests and ANOVAs will be conducted where appropriate. GPS data will be analyzed using GIS software to produce shapefiles and displayed graphically on maps. Yellowstone National Park will also be provided an interactive dashboard to track survey progress throughout the sampling period. The reports will be archived with the



NPS Social Science Program for inclusion in the Social Science Studies Collection as required by the NPS Programmatic Approval Process. Hard copies and electronic copies of the final report will be submitted to the park. Finally, results will be presented to NPS staff at two periods: 1) a mid-term reporting period and 2) final reporting period.

## NOTICES

### Privacy Act Statement

**General:** This information is provided pursuant to Public Law 93-579 (Privacy Act of 1974), December 21, 1984, for individuals completing this form.

**Authority:** National Park Service Research mandate (54 USC 100702)

**Purpose and Uses:** This information will be used by The NPS Information Collections Coordinator to ensure appropriate documentation of information collections conducted in areas managed by or that are sponsored by the National Park Service.

**Effects of Nondisclosure:** Providing information is mandatory to submit Information Collection Requests to Programmatic Review Process.

### Paperwork Reduction Act Statement

We are collecting this information subject to the Paperwork Reduction Act (44 U.S.C. 3501) and is authorized by the National Park Service Research mandate (54 USC 100702). This information will be used by The NPS Information Collections Coordinator to ensure appropriate documentation of information collections conducted in areas managed by or that are sponsored by the National Park Service. All parts of the form must be completed in order for your request to be considered. We may not conduct or sponsor and you are not required to respond to, this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number. OMB has reviewed and approved The National Park Service Programmatic Review Process and assigned OMB Control Number 1024-0224.

### Estimated Burden Statement

Public Reporting burden for this form is estimated to average 60 minutes per collection, including the time it takes for reviewing instructions, gathering information and completing and reviewing the form. This time does not include the editorial time required to finalize the submission. Comments regarding this burden estimate or any aspect of this form should be sent to the Information Collection Clearance Coordinator, National Park Service, 1201 Oakridge Dr., Fort Collins, CO 80525.