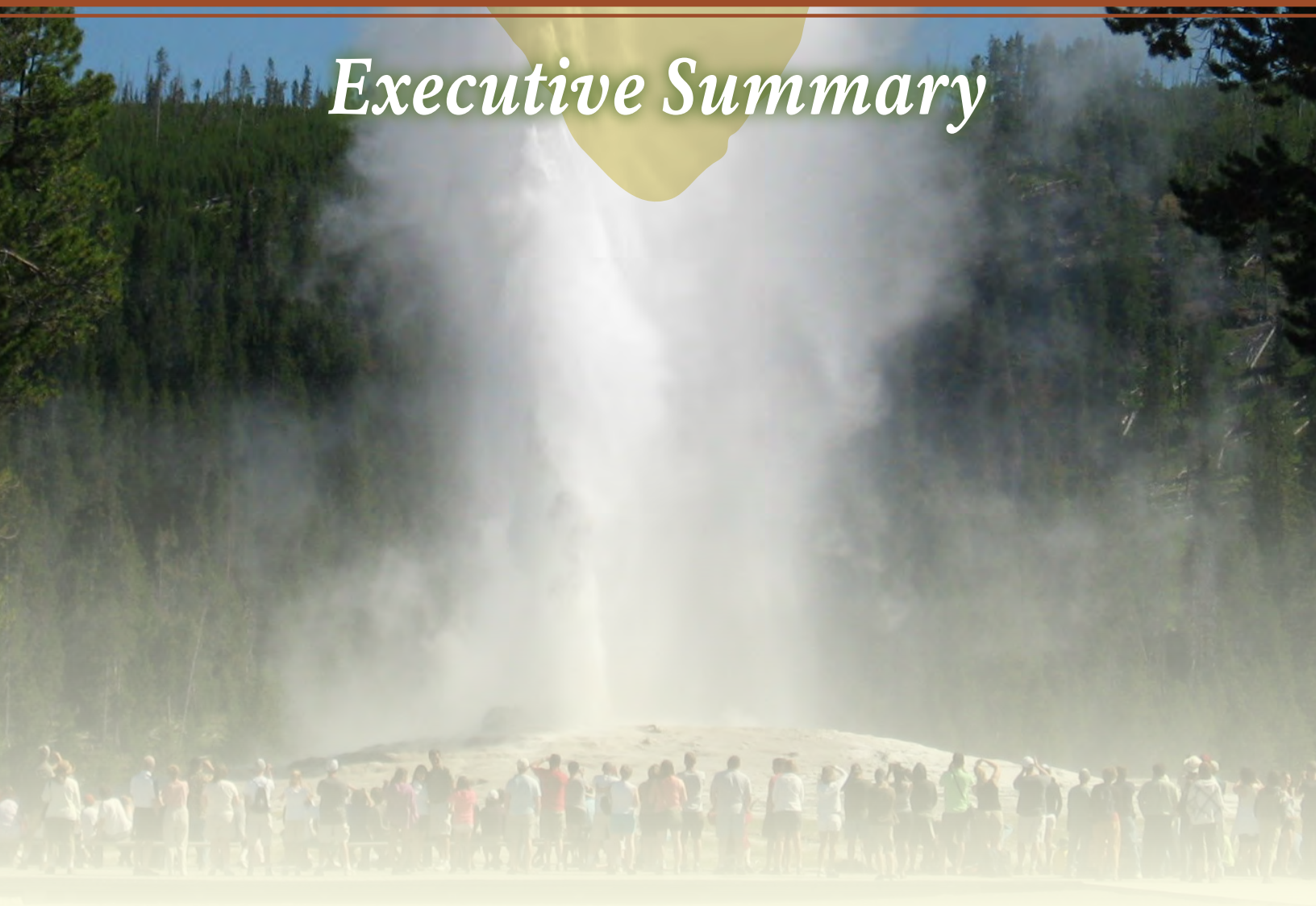
National Park Service
U.S. Department of the Interior

Yellowstone National Park
NOVEMBER 2019

Summer 2018 Visitor Use Surveys

In the Moment Park Experiences and Perceptions

Executive Summary



A Visitor Study by the National Park Service, Yellowstone National Park, and facilitated by Otak, RRC Associates, and the University of Montana Institute for Tourism and Recreation Research

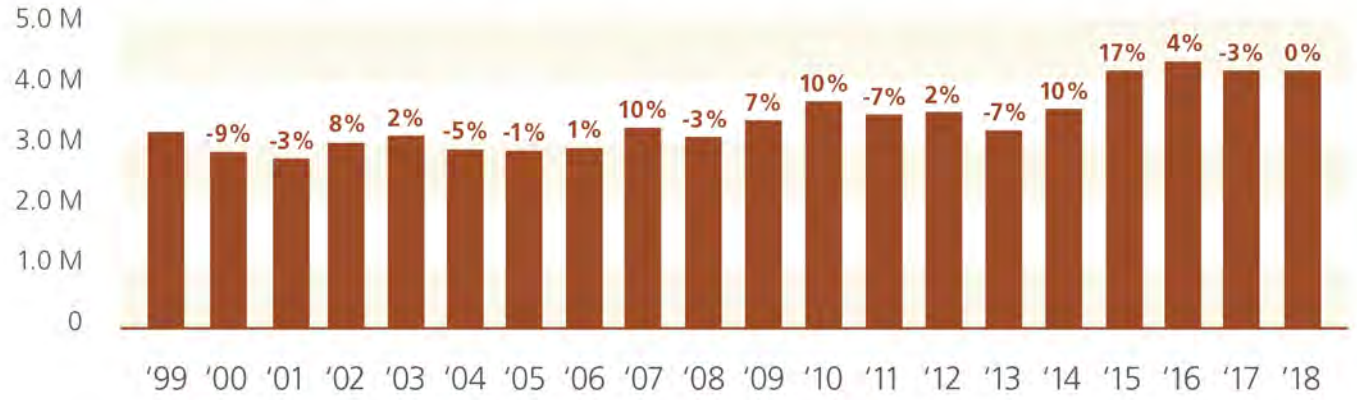
National parks across America historically have visitation ups and downs from year-to-year. Over time, however, the trend is upwards. Visitation to Yellowstone National Park has increased close to 45% since the early 2000s. Much of this increase has come in the past five years (Figure 01).

In Yellowstone National Park, congestion and crowding problem areas have been documented through previous research showing the West Gate to Old Faithful and around the Grand Loop past Canyon and Norris Geyser Basin as the most vulnerable areas. Due to increases in visitation and areas of congestion concern, more information was gathered to assess the visitor experiences throughout the park.

Two studies were conducted during one week each month from May through September 2018.

1. **Geofence Survey:** Respondents took a tablet in their vehicle and answered surveys as they traveled and stopped in the park. The purpose was to capture an array of information about their perceptions of crowding, values, expectations, and trip characteristics 'in the moment' of their visit and travels through the park. Understanding how those experiences changed across different park locations and seasons was assessed. These geofence respondents who took the tablet in their vehicle had the GPS device turned on which also recorded their vehicle speed, stopping points and parking times.
2. **Intercept Survey:** Respondents were intercepted at a range of attractions within the park and asked to complete an on-site survey. The purpose of this survey was to provide information on different visitor segments within the park.

FIGURE 01. 20-YEAR TREND OF RECREATION VISITS WITH % CHANGE



This study involved virtual geographic boundaries, called geofences, to allow surveys to 'pop up' on a tablet that visitors agreed to take in their car as they traveled throughout Yellowstone. "In-the-moment" responses by visitors collected thoughts and reactions as the events happened. Techniques using geofences provided the ability for immediate behavioral responses. Additionally, with data collected on the tablet, the research team provided weekly visitor feedback through dashboards to park managers.

This research was informed by the 2017 project, "Yellowstone National Park Transportation and Vehicle Mobility study" by Otak and Fehr & Peers where weekend and weekday vehicle use levels and circulation were examined during peak periods from April through October when park roads were open (Figure 02).

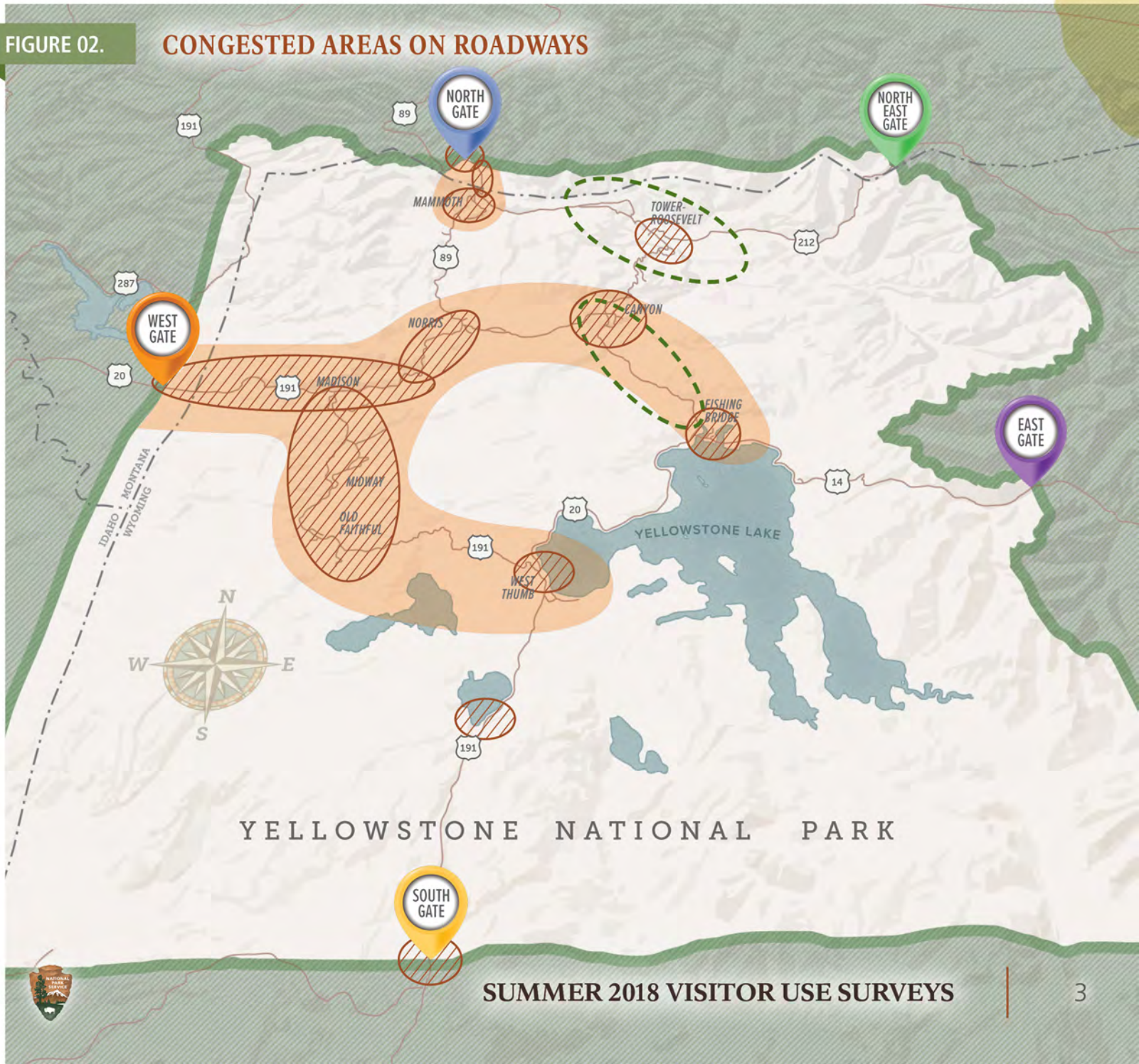
LEGEND

Focal Corridors

Dense Congestion

Wildlife Jam Corridors

FIGURE 02. CONGESTED AREAS ON ROADWAYS



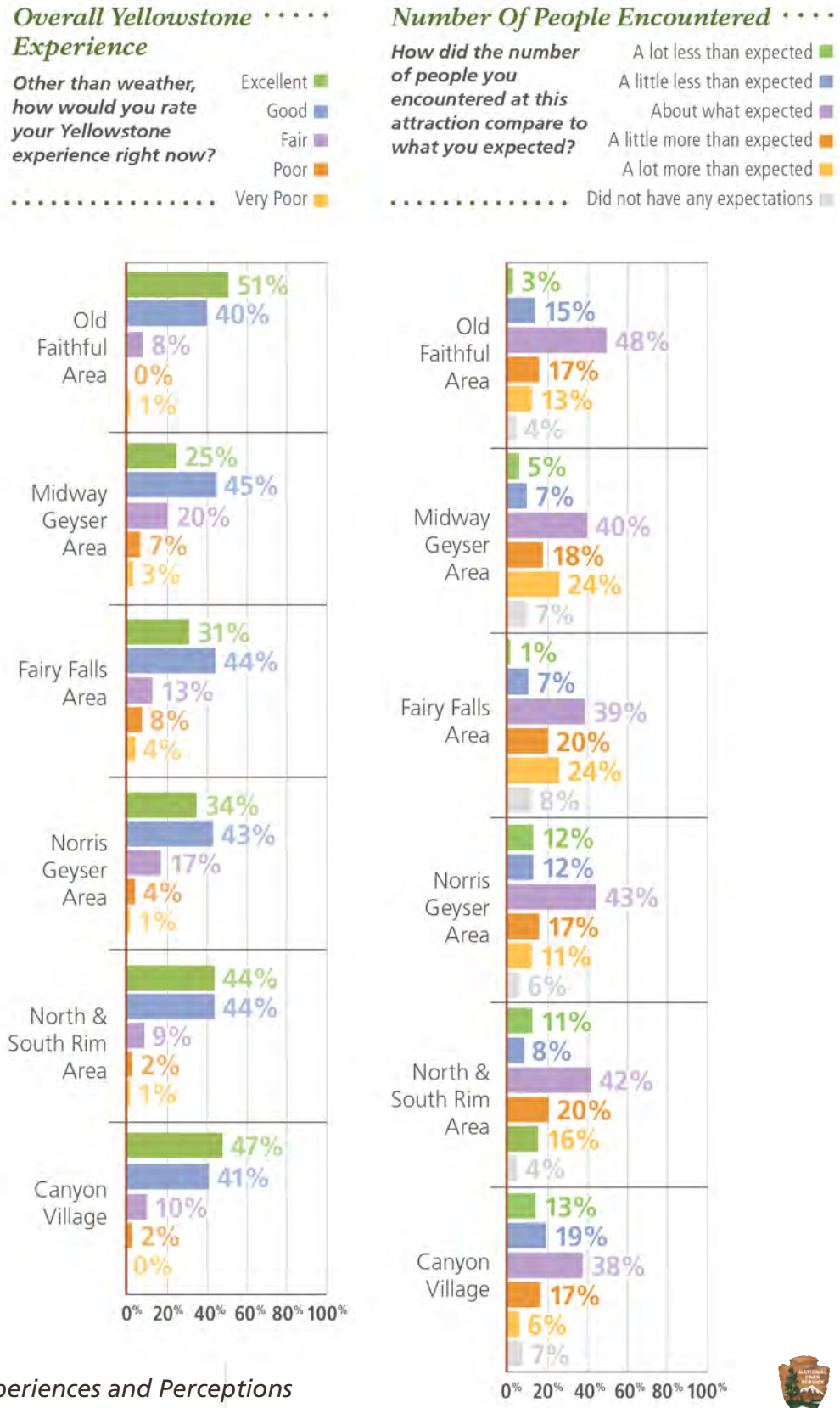
Geofence Survey Results by Site

Respondents at each site in the Geofence survey rated the quality of their overall Yellowstone experience highly with the means ranging from 3.8 at Midway Geyser Basin to 4.4 at Old Faithful (1=very poor to 5=excellent).

Between 38% to 48% of visitors at each attraction said the number of people they encountered was what they expected. However, at Midway Geyser Basin and Fairy Falls, 42% to 44% of people encountered a little or a lot more people than they expected.

Yellowstone National Park ranger pointing to one of the eight Geofence survey tablet drop-off boxes located throughout the park.

FIGURE 03. EXPERIENCE AND NUMBER OF PEOPLE



Sixty percent of respondents at Midway Geyser Basin indicated that traffic was a moderate to big problem. Traffic was less likely to be considered a problem at Old Faithful, North and South Canyon Rims, and Canyon Village (Figure 04).

Parking was less likely to be a problem at Old Faithful, Canyon Village and the North and South Canyon Rims. At Midway Geyser Basin, 56% of respondents said parking was a moderate or big problem. Additionally, 48% at Fairy Falls and 33% at Norris Geyser Basin found parking to be a problem (Figure 05).

FIGURE 04. TRAFFIC CONGESTION

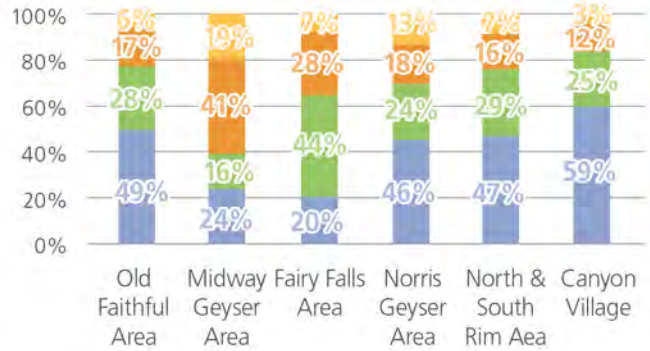
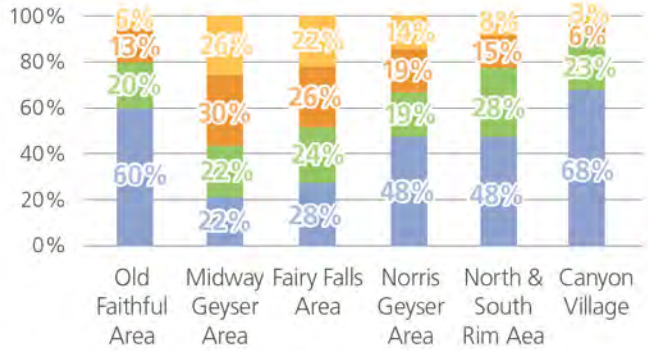


FIGURE 05. AVAILABILITY OF PARKING



Not a Problem Small Problem Moderate Problem Big Problem

FIGURE 06. CLEANLINESS OF RESTROOMS

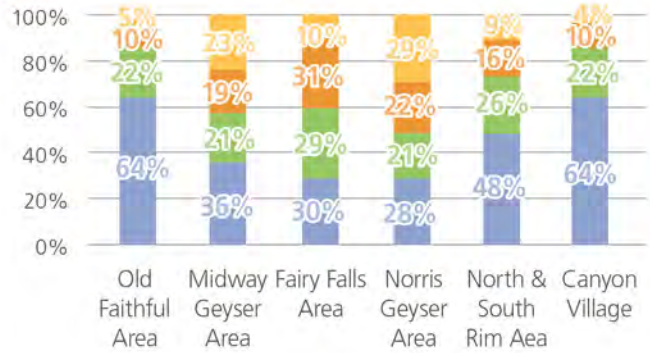
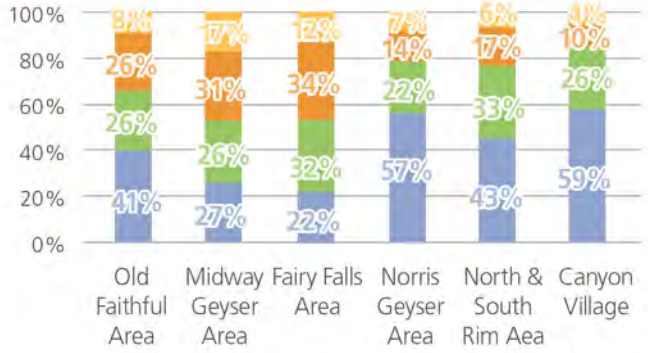


FIGURE 07. TOO MANY PEOPLE



Cleanliness of restrooms was not a problem at Old Faithful, North and South Canyon Rims, or Canyon Village. However, Norris Geyser Basin saw 51% of respondents rate it as a moderate or big problem. Furthermore, 42% of respondents at Midway Geyser Basin and 41% of respondents at Fairy Falls rated cleanliness a moderate or big problem (Figure 06).

When asked if there was a problem with too many people at the site they just visited, few people rated it as a big problem. The area with the highest number of respondents saying it was a moderate to big problem was Midway Geyser Basin (48%) and Fairy Falls (36%) (Figure 07).

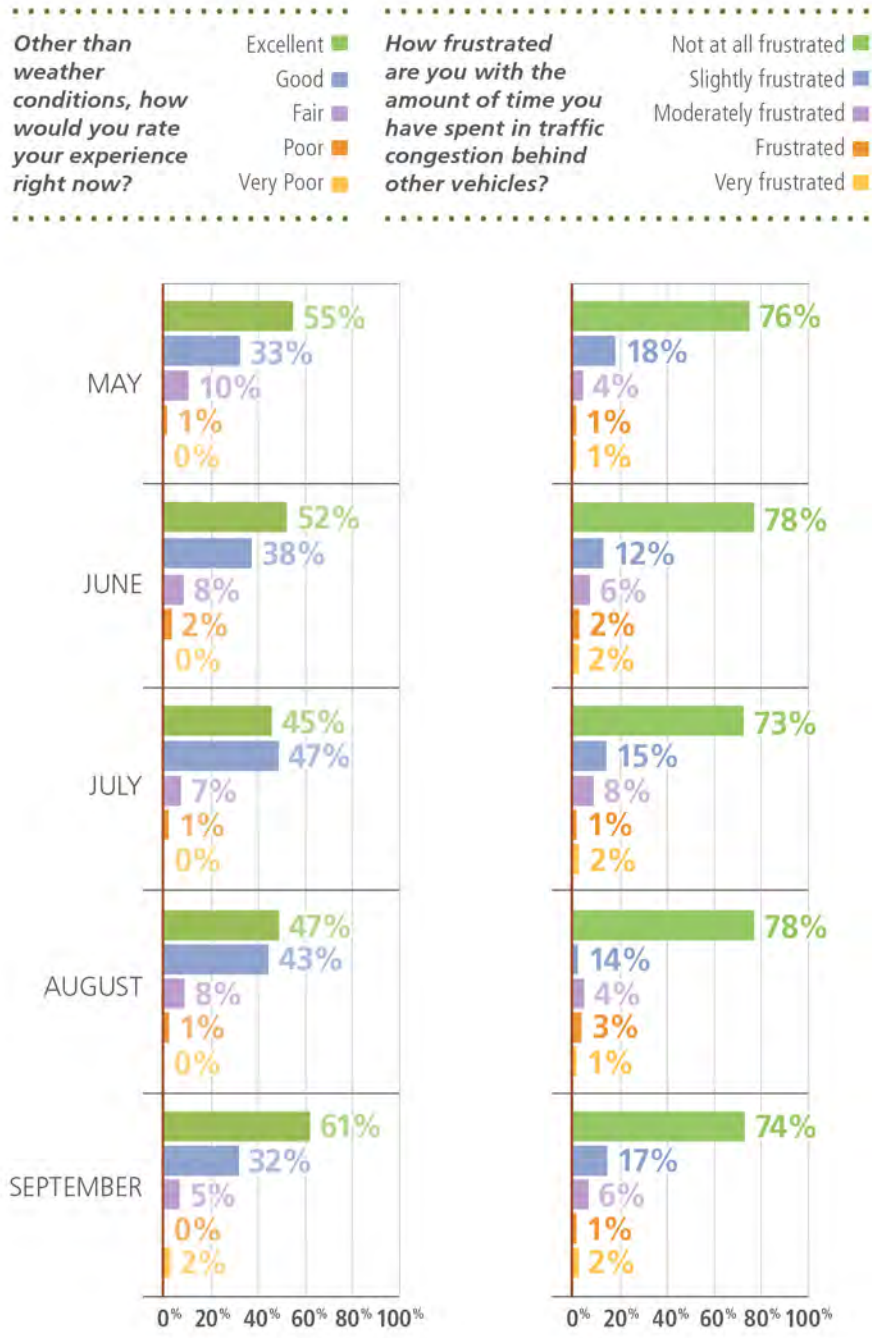
Each month, visitors responded to traffic congestion and in-the-moment experience questions while traveling on Yellowstone's roads. Their overall frustration level was low and the overall experience was high in each of the five months.

TOP: Yellowstone visitors stop to take in the colors of Morning Glory.

BOTTOM: Wildlife holding up traffic in all directions.

FIGURE 08 .

GEOFENCE FRUSTRATION AND EXPERIENCE ON ROADWAY BY MONTH



Traffic and Parking GPS Results

On typical roadways (e.g., those frequently used for commuting and moving goods), as the volume of traffic increases, the average speed decreases and the variability increases, leading to uncertainty in travel time. This often results in driver frustration and wasted time in traffic. In this light, one might expect that as speed declines, frustration would increase and the perceived visitor experience would decline. However, in Yellowstone, if the speed of travel was lower than the speed limit, respondents did not get frustrated to any great degree and their experience was not diminished.

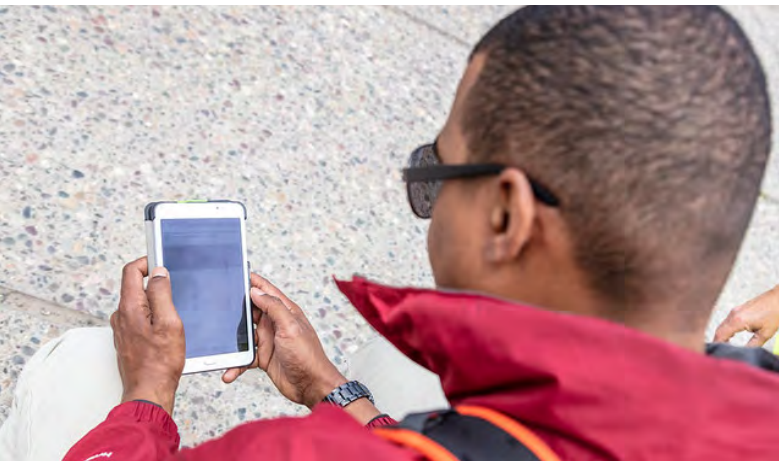
Overall, each roadway segment yielded average frustration levels of less than 2.0 (1=not at all frustrated to 5=very frustrated) and average experience ratings in excess of 4.0 (1= very poor to 5=excellent) (Table 01). The median frustration rating for all segments was 1. The median experience rating for all segments with the exception of the North Gate to Mammoth and Madison to Norris was 5. These two segments had a median of 4.

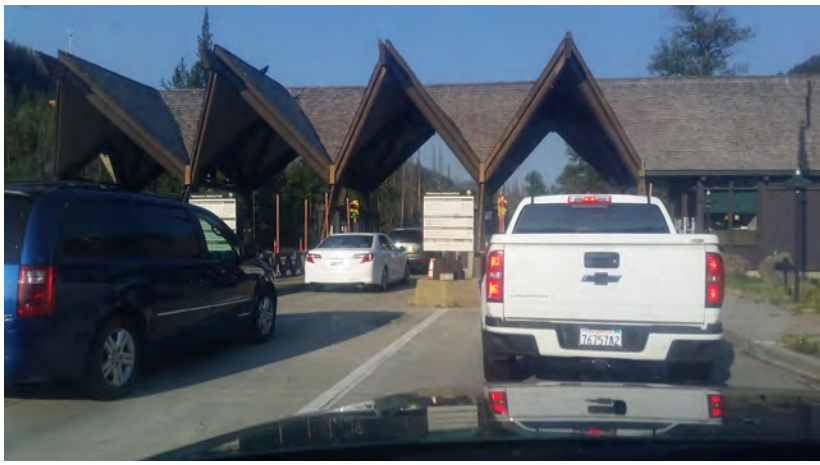
TABLE 01.
AVERAGE SPEED AND FRUSTRATION, EXPERIENCE RATINGS

SEGMENT	SPEED LIMIT (MPH)	AVERAGE SPEED	MEAN FRUSTRATION*	MEAN EXPERIENCE**
West Gate to Madison Junction	45	36.3	1.7	4.4
Madison Junction to Old Faithful	45	34.6	1.5	4.4
Old Faithful to West Thumb	45	43.7	1.3	4.5
West Thumb to Lake Village	45	41.6	1.2	4.5
Lake Village to Canyon Village	35	27.1	1.3	4.5
Canyon Village to Norris Geyser Basin	45	44.9	1.2	4.4
Madison Junction to Norris Geyser Basin	45	36.1	1.4	4.4
Dunraven Pass	35	31	1.4	4.4
Lamar Valley	45	21.7	1.3	4.6
North Gate to Mammoth Hot Springs	35	24.9	1.6	4.3

** **Frustration Scale** (1=Not at all frustrated, 2=Slightly frustrated, 3=Moderately frustrated, 4=Frustrated, 5=Very frustrated)*

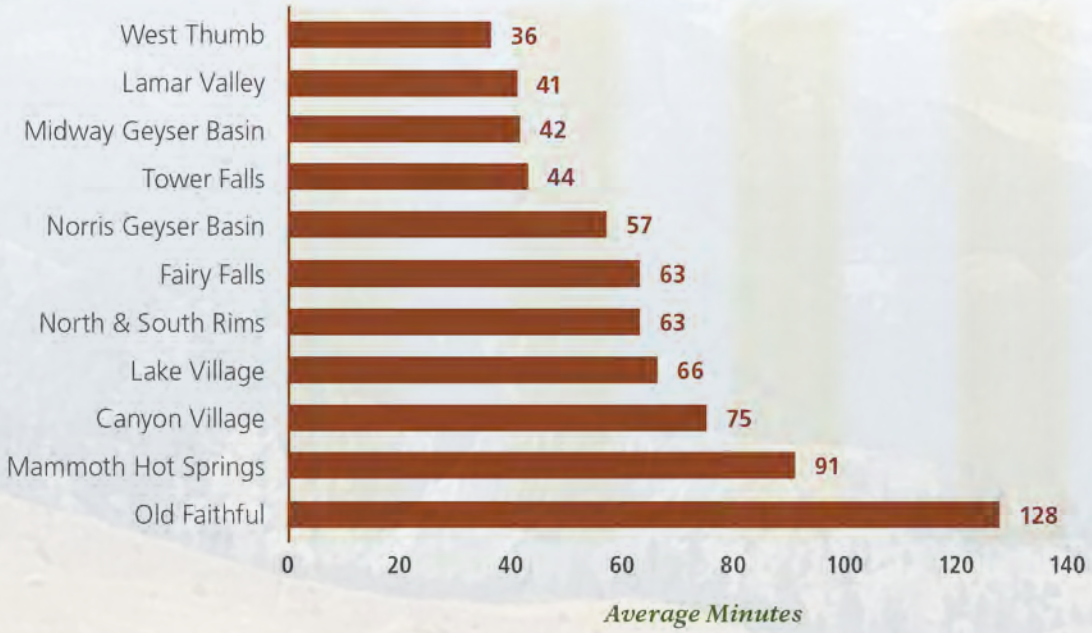
*****Experience Scale** (1=Very poor, 2=Poor, 3=Fair, 4=Good, 5=Excellent)*





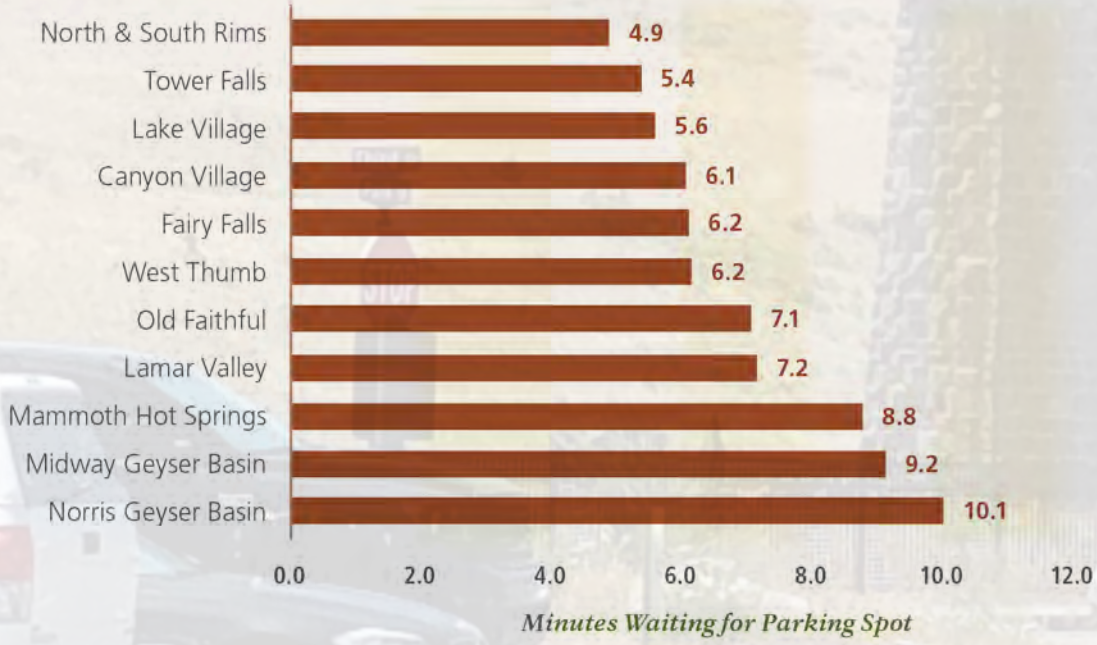
The average length of stay at attractions was calculated for those visitors who stayed 5 minutes or longer at the site. Visitors who stayed less than 5 minutes were considered to be passing through. Old Faithful outpaces all other sites in terms of length of time spent at each attraction, averaging just over two hours (median = 128 minutes). Where lodging and dining exists, longer stays would be expected.

FIGURE 09. AVERAGE LENGTH OF STAY AT ATTRACTIONS



Waiting for parking across all attraction areas ranged from 5 minutes to just over 10 minutes. Norris Geyser Basin (10.1 minutes) experienced the highest waiting time followed by the Midway Geyser Basin and Mammoth area (8.8 minutes).

FIGURE 10. GPS MEASURED AVERAGE WAIT TIME FOR PARKING



Intercept Survey Results: Differences Among Visitor Segments

Statistical Differences Between First-time and Repeat Visitors

The type of respondent based on their frequency of visits to Yellowstone showed significant differences in their perception of problems. Compared to first-time visitors and visitors who have previously visited but have not been to the park in the past three years, recent repeat visitors (people who have visited within the past three years) are significantly more likely to say there are problems with:

- Traffic congestion
- Too many people
- Availability of parking
- Availability of restrooms
- Feeling safe on boardwalks
- People acting unsafe around thermal features
- People acting unsafe around wildlife
- People walking on, across, or along the road

Recent repeat visitors also felt that experiencing a wild place was significantly more important to them than other visitors, while first-time visitors said seeing geysers and thermal features was significantly more important them.

Differences Between Length of Time already Spent in Yellowstone When Intercepted

Visitors were intercepted at various days of their Yellowstone vacation. The longer a respondent had already been in the park during their visit, (5 days or more) the more likely they became similar to frequent visitors perceiving greater problems with other people and preferring to have more natural 'quiet' experiences (graphs below).

STATISTICALLY SIGNIFICANT DIFFERENCES IN PERCEIVED PROBLEMS

SCALE: 1="Not a problem" to 4="Big problem"

STATISTICALLY SIGNIFICANT DIFFERENCE IN IMPORTANCE OF EXPERIENCES

SCALE: 1="Not at all important" to 5="Extremely important"

Differences between US and International Residents

- US residents said viewing wildlife and viewing scenery are significantly more important than Chinese residents said.
- Chinese residents are more likely to say being around considerate people and being where it is safe is significantly more important to them than US residents but not different than other international residents.
- Chinese residents perceived availability and cleanliness of restrooms as a higher problem than US residents and they also felt that feeling safe on boardwalks around other people was a bigger problem.
- US residents and other international visitors were more concerned about other people acting unsafe around wildlife than Chinese residents did.
- Overall, US residents were significantly more satisfied with their Yellowstone experience than all other visitors, although all visitors were satisfied.

Results from this multi-faceted study show a high degree of overall satisfaction throughout the park. While visitors expressed some frustration points in the survey, nearly 95% of all respondents said their experience was good to excellent.

Analysis of the data provided key evidence of visitor experiences by site, by month, by travel variations in speed and parking wait times, and by respondent segments. This data tends to tell the story of satisfied visitors with some concerns in various locations or by type of visitor.

Key Takeaways

First and foremost, the overall trip experience for visitors to Yellowstone National Park was almost always rated from good to excellent. Further analysis showed the following:

- When site specific data were analyzed, Midway Geyser Basin and Fairy Falls were the two locations where respondents were more likely to experience a greater sense of crowding, traffic congestion, and parking availability.
- Old Faithful and Canyon Village were rated by respondents as the least problematic. These sites have infrastructure that supports more vehicles and places for crowds relative to other areas in the park.
- Visitor experience and frustration ratings appear to have little to no significant correlation with GPS based average speeds across road segments in Yellowstone National Park. Respondents are generally not frustrated, have high experience ratings, and do not perceive major problems on the roadways. This is likely explained by the fact that the experience of driving through scenic areas and seeing wildlife was a main part of their visit. Therefore, driving slower was acceptable.
- First-time visitors were less critical of issues at specific sites in comparison to repeat visitors.
- The more days respondents spent in the park on their trip, the more likely they provided less favorable evaluations of visitor behavior, e.g. people walking on the roads, acting unsafe around wildlife and geothermal features.

In summary, the key takeaways from this study show that respondents perceive some problematic areas in the park, but overall were still able to enjoy their visit to Yellowstone. Park managers can use this data to adjust management in areas with greater challenges to help improve the visitor experience.

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