

South Rim - Tusayan Multimodal Transportation Action Plan



MAY 2019

This page intentionally left blank

TABLE OF CONTENTS

Executive Summary		1
South Rim – Tusayan Multimodal Transportation Action Plan		3
Purpose	3	
Planning Foundation	3	
Project Approach	4	
Project Context		5
Park Visitation	5	
Impacts of Visitation	8	
Tusayan Route	12	
Current Operations and Ridership	13	
Bicycling and the Greenway Trail		20
Desert View		21
Tusayan Context		24
Kaibab National Forest, Tusayan Ranger District		25
Current Marketing Efforts		26
Strategic Actions by Theme		30
Infrastructure, Safety, and Operations	30	
Promotion and Visitor Services	34	
Visitor Experience on Two Wheels	36	
A Regional Approach	38	
Measures of Success		41
Project team/List of Preparers	42	
Additional Contributors or Reviewers	42	
List of Workshop Participants	42	
References	44	

LIST OF FIGURES

Figure 1. Grand Canyon National Park annual visitation, 1980 to present	5
Figure 2. Grand Canyon National Park visitation by month, increases from 2013 to 2018	6
Figure 3. Key locations and corresponding wait times at the Grand Canyon National Park south entrance	9
Figure 4. South Rim Tour Operator Delay Severity at the South Entrance Station, Grand Canyon National Park 2016, to 2018.....	10
Figure 5. South Rim Tour Operator Delay Occurrences at the South Entrance, Grand Canyon National Park 2016	10
Figure 6. Tusayan area shuttle stops, 2018	14
Figure 7. Tusayan Route annual ridership.....	15
Figure 8. Tusayan Route – average ridership by month, 2008-2017	15
Figure 9. Percentage of total Grand Canyon National Park South Entrance traffic using the Tusayan Route – April 2018.....	16
Figure 10 Comparison of Desert View and Tusayan Route Visitor Volumes, May to August 2016	22
Figure 12. Visitor experience cycle.....	29

LIST OF TABLES

Table 1. Tusayan Route ridership as a share of overall visitation, South Entrance of Grand Canyon National Park, 2017	15
Table 2. Tusayan shuttle route costs	17
Table 3. Tusayan parking availability	18
Table 4. Timeline of Key Transportation-Related Events	18
Table 5. Kaibab National Forest visitation (includes the Tusayan Ranger District)	25
Table 6. Recommended infrastructure, safety, and operations actions	31
Table 7. Recommended promotion and marketing actions	34

Table 8. Recommended bicycling actions	36
Table 9. Recommended regional actions	38
Table 10. Measures of success – indicators for South Rim/Tusayan transportation	41

EXECUTIVE SUMMARY

The entrance to the South Rim of Grand Canyon National Park is one of the busiest single entrances to a park in the world. Total visitation to the park has increased sharply by 1.8 million over the last 5 years, culminating in a record 6.35 million visitors in 2018.

In recognition of the challenge posed by the resulting congestion in and around Tusayan and the south entrance to the park, a collaborative group made up of Grand Canyon-South Rim Chamber of Commerce, Grand Canyon National Park, Kaibab National Forest, Town of Tusayan, Paul Revere Transportation, and a variety of community partners came together in 2017 to better understand the current situation and its driving factors and explore possible solutions.

The *South Rim – Tusayan Multimodal Transportation Action Plan* is the result of this effort and contains a series of tangible actions that are recommended over the next 5 years.

PURPOSE

The purpose of this action plan is to enhance the quality, extent, and use of multimodal transportation options between Tusayan and the South Rim of Grand Canyon National Park in a manner that benefits visitors, residents, service providers, community members, and park resources.

STRATEGY

The strategy described in this document includes 45 recommended actions presented under four primary themes. Some of these actions represent current efforts that have proven effective and are recommended for continuation. Some have already been launched during the preparation of the plan, while a substantial number of others require concerted action by one or more parties. Nearly all of the recommendations sit on the foundation of existing, approved plans.

The strategies and recommendations contained within this action plan, while beneficial, are unlikely to fully resolve or eliminate the current challenges of acute congestion posed by the recent sustained increase in visitation, especially if the rate of increase remains at or near current levels.

INFRASTRUCTURE, SAFETY AND OPERATIONS

Provide a safe, attractive, and convenient shuttle service from Tusayan to the South Rim that makes a compelling case for visitors to leave their vehicle behind.

High priority actions under this theme include an expanded Tusayan Route shuttle season and improved pedestrian safety.

PROMOTION AND VISITOR SERVICES

Use programs such as the Tusayan Ambassadors to reach visitors at every phase of their journey—from months before their trip to their arrival in Tusayan—to improve their understanding of travel options and help them make the most of their visit.

High priority actions under this theme include coordination and increased targeting of promotional efforts, enhancing on-site visitor services in Tusayan and expanding the use of digital information such as videos and webcams.

VISITOR EXPERIENCE ON TWO WHEELS

Provide services and information that make bicycling a viable and enjoyable way to visit Grand Canyon National Park by further integrating Tusayan with the South Rim’s greenway and bicycle transportation system.

High priority actions under this theme include improving the Greenway Trail, establishing a bicycle rental service in Tusayan and an increased focus on highlighting bicycling as part of the Grand Canyon experience.

A REGIONAL APPROACH

Recognize the South Rim and Tusayan as part of a regional system of attractions by encouraging visitor access through Cameron and Desert View and enjoyment of the Kaibab National Forest’s diverse offerings.

High priority actions under this theme include support for ongoing enhancement of recreation on national forest lands around Tusayan and encouragement of increased travel through Cameron and Desert View.

SOUTH RIM – TUSAYAN MULTIMODAL TRANSPORTATION ACTION PLAN

The *South Rim – Tusayan Multimodal Transportation Action Plan* is the result of a collaborative effort between the Grand Canyon – South Rim Chamber of Commerce, Grand Canyon National Park, Kaibab National Forest, Town of Tusayan, Paul Revere Transportation, and a variety of community partners. In recognition of the challenge posed by rising visitation and congestion in and around Tusayan and the south entrance to the park, these partners worked together over the course of a year to better understand the current situation and its driving factors, to explore possible solutions, and to outline a series of tangible actions that can be implemented over the next 5 years.

PURPOSE

The purpose of this action plan is to enhance the quality, extent, and use of multimodal transportation options between Tusayan and the South Rim of Grand Canyon National Park in a manner that benefits visitors, residents, service providers, community members, and park resources.

PLANNING FOUNDATION

This action plan builds on the foundation of existing visions and approved plans to identify strategic, on-the-ground actions that can be implemented over the next 5 years.

The *South Rim Visitor Transportation Plan*, completed in 2008, serves as the most recent and relevant management direction for this effort. The National Park Service (NPS), in cooperation with the US Forest Service, completed a plan to address the most pressing traffic, parking, and visitor access issues along the South Rim. The plan outlined a variety of actions that have since been implemented, including an overhaul of Mather Point and the Grand Canyon Visitor Center. This plan—referred to throughout this document as the 2008 transportation plan—also established the shuttle service between Tusayan and the South Rim (the Tusayan Route) and the non-motorized connection that would become the Greenway Trailhead/Park and Ride and Greenway Trail (National Park Service 2008).

The *Town of Tusayan General Plan 2024* was adopted by the Town of Tusayan in 2014. This plan lays out a vision for the community of Tusayan and a blueprint for the town’s future development. It discusses the importance of an integrated transportation system, including the shuttle connections and related infrastructure (Town of Tusayan 2014).



PROJECT APPROACH

Collaborative, Facilitated Partnership

The South Rim – Tusayan multimodal transportation project was awarded technical support from the NPS Rivers, Trails, and Conservation Assistance (RTCA) program from October 2017 to May 2019. RTCA staff based in Arizona facilitated meetings, provided project management support, assisted with stakeholder engagement and prepared planning documents. The partners established the following initial goals in their RTCA application, which were refined as the project’s initial step:

- increase understanding of the operations, benefits, and opportunities related to multimodal transportation between Tusayan and Grand Canyon National Park among project partners and stakeholders
- use multimodal transportation to improve the visitor experience and enhance transportation options for residents, employees, and community members
- evaluate opportunities for operational improvements of the Tusayan Shuttle Route including—but not limited to—promotion, parking enhancements, additional stops, seasons of operation, and transit support technology
- evaluate opportunities for improving other multimodal transportation options between Tusayan and Grand Canyon National Park
- contribute to broader visitor use and congestion management solutions for Grand Canyon National Park
- engage additional stakeholders and partners in the provision, operation, evaluation and promotion of the Tusayan Shuttle Route
- implement the Tusayan General Plan 2024 and the South Rim Visitor Transportation Plan
- coordinate multimodal transportation with related community efforts, such as the Tusayan Community Trails Plan

PROJECT CONTEXT

This section describes current conditions and trends affecting transportation in the South Rim – Tusayan area that directly informed the development of recommended strategies. The information was compiled from a variety of data sources, workshops, and meetings during development of the action plan.

PARK VISITATION

Total visitation to Grand Canyon National Park has increased sharply over the last 5 years. The increase comes after a period of robust, but relatively predictable, visitation from 1993 to 2013 when annual numbers fluctuated between 4 and 4.8 million visitors (National Park Service 2018a). Since 2013, visitation to Grand Canyon National Park has increased by approximately 1.8 million visitors, culminating in a record 6.35 million visitors in 2018 (figure 1).

Favorable gas prices, the Find Your Park campaign, booming international visitation, and the continued rise of domestic and international travel throughout the desert southwest have been identified as driving factors, although there are no available surveys or supplemental information specific to Grand Canyon National Park available for confirmation.

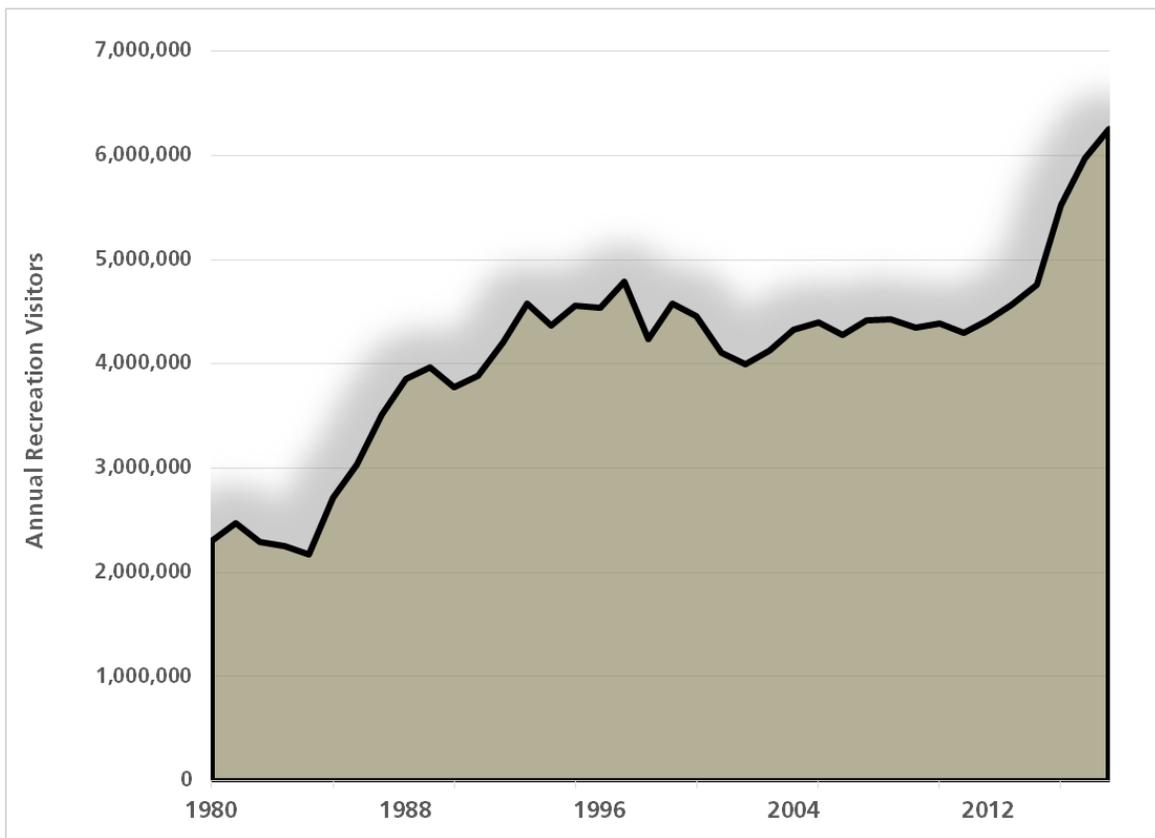


Figure 1. Grand Canyon National Park annual visitation, 1980 to present

The South Rim entrance via Tusayan is the most popular way to access the park. In 2017, it accounted for nearly 80% of total recreational visits. The share of total visitation entering through Desert View via Cameron on the park’s east side remains relatively steady, fluctuating between 10% and 20% of the total Grand Canyon National Park visitation over the past two decades (National Park Service 2018a).

According to the NPS economic impact reports, visitors to Grand Canyon National Park spent an estimated \$667 million in local gateway regions while visiting the park in 2017. These expenditures supported 9,420 jobs, \$329 million in labor income, \$582 million in value added, and \$938 million in economic output (National Park Service 2017).

The nature of visitation has changed over the past 10 years in a variety of ways. Project partners have observed the following notable changes in timing and nature of visitation:

- **Seasonality.** Visitors are traveling to the area in greater numbers outside the traditional high-use summer season. The shoulder months of February, March, and October have all seen increased visitation at a faster pace than the summer months. This trend is even more pronounced during the winter holiday season. For example, November visitation in 2018 increased by nearly 90% compared to November 2013 (figure 2).

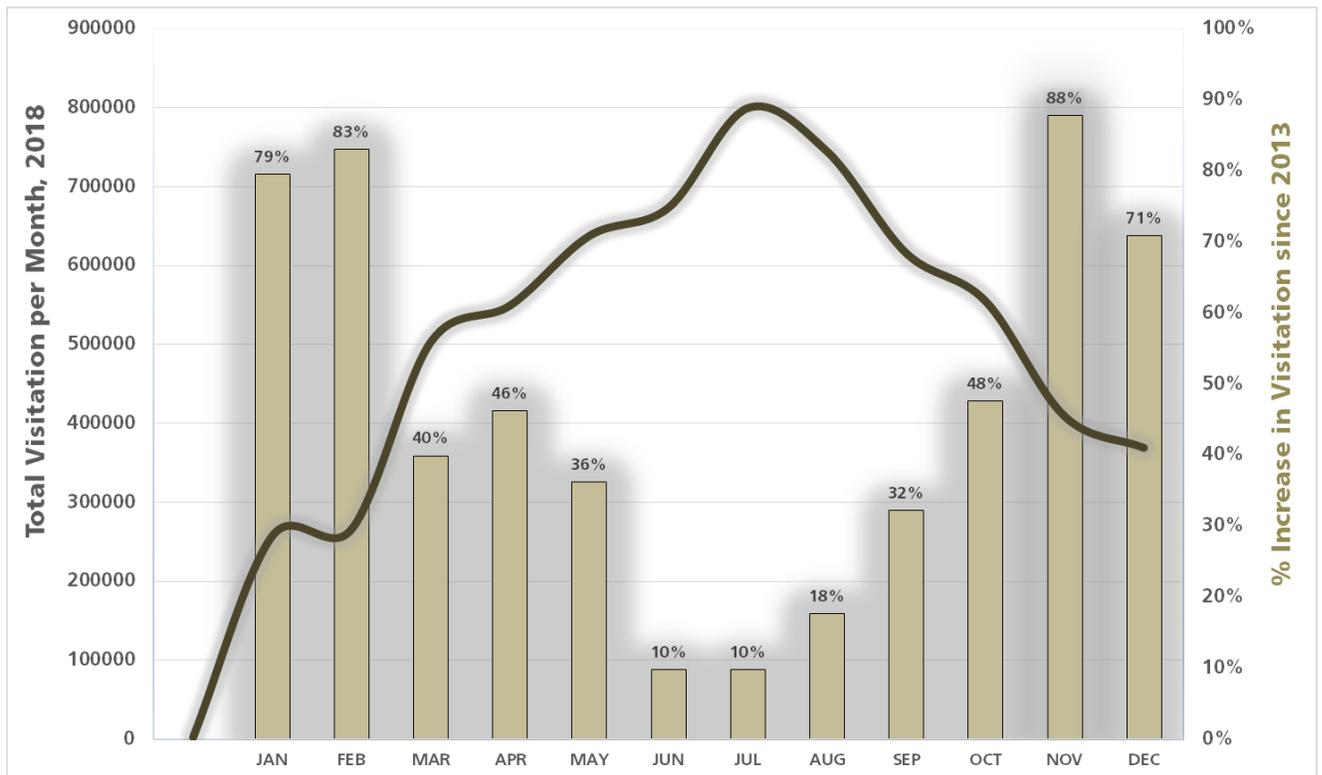


Figure 2. Grand Canyon National Park visitation by month, increases from 2013 to 2018

- **Rising International Visitation.** The Arizona Office of Tourism estimates international visitors to the state totaled 5.56 million in 2017, a 14% jump since 2010 and a 3.5% increase over 2013. While Mexico, Canada, Germany, and the United Kingdom remain the largest share of international visitation, visitors from the east Asian countries of China, Japan, and South Korea are increasing at the fastest rate (Arizona Office of Tourism 2018).

Available information indicates the dynamic of increasing international visitation is more acute at Grand Canyon National Park. Staff observation indicates international visitors now make up 30% to 40% of overall visitation, compared to 9% to 17% in 2005, when the most recent visitor surveys were completed. It should be noted that intercept surveys like those used in the 2005 study may underrepresent international visitors.

These same sources indicate that visitation from Arizona accounts for between 7% and 14% of the total. The remaining share of domestic out-of-state visitation comes from throughout the country, with California and Texas contributing the largest relative share. Available surveys (now 15 years old) indicate that nearly two-thirds of all visitors are making their first trip to the canyon, a proportion that has likely increased alongside the rise of international visitation.

- **Regional Transportation Choices.** The way visitors are reaching the Tusayan/South Rim is evolving. Partners identified a trend of more visitors originating in Las Vegas, rather than Phoenix. In both cities, visitors rent a car or recreational vehicle for the trip to Tusayan and the South Rim. The popularity of extended trips within “The Grand Circle” of northern Arizona, southern Utah, and adjacent states also continues to rise as visitors pursue multi-day itineraries that include a series of national parks and other natural- and cultural-resource destinations.

Future Visitation

Making a formal visitation forecast is outside the scope of this effort. Current visitation has exceeded past projections.

The *Grand Canyon Airport Draft Master Plan*, completed by the Arizona Department of Transportation, evaluated historical visitation at Grand Canyon National Park and projected visitation beyond 2015. The plan predicted 6 million visitors would visit Grand Canyon National Park in 2020, rising to 6.4 million visitors in 2025, and reaching 7.2 million visitors by 2035. (Arizona Department of Transportation 2018). Sharp increases from 2015 to 2018 have already accelerated past these projections.

Similarly, according to the 2008 transportation plan, visitation in the subsequent 12 years would increase at a rate comparable to the preceding 40 years. The plan concluded that visitation to Grand Canyon National Park would reach 5.48 million by 2020 (National Park Service 2008).

Impacts of Visitation

Traffic has been a factor at Grand Canyon National Park and the surrounding area since the 1920s when private vehicles overtook trains as the primary means of arrival (National Park Service 2008). The effect of the substantial increase in visitation since 2015 marks another period of acute transportation challenges; the resulting effects are felt inside and outside park boundaries.

Traffic Delays and Backups. The effect of this abrupt spike in visitation is felt most notably in and around Tusayan. The volume of vehicle traffic during busy periods (approximately 165,000 inbound vehicles per month) places a strain on Highway 64 due to long vehicle queues and backups at the entrance station. These lines can become long enough (more than 1.6 miles) to create gridlock on Highway 64 through the Tusayan business district (figure 3). This gridlock creates notable challenges for local residents due to the lack of an alternative route, such as lack of mobility for emergency vehicles.

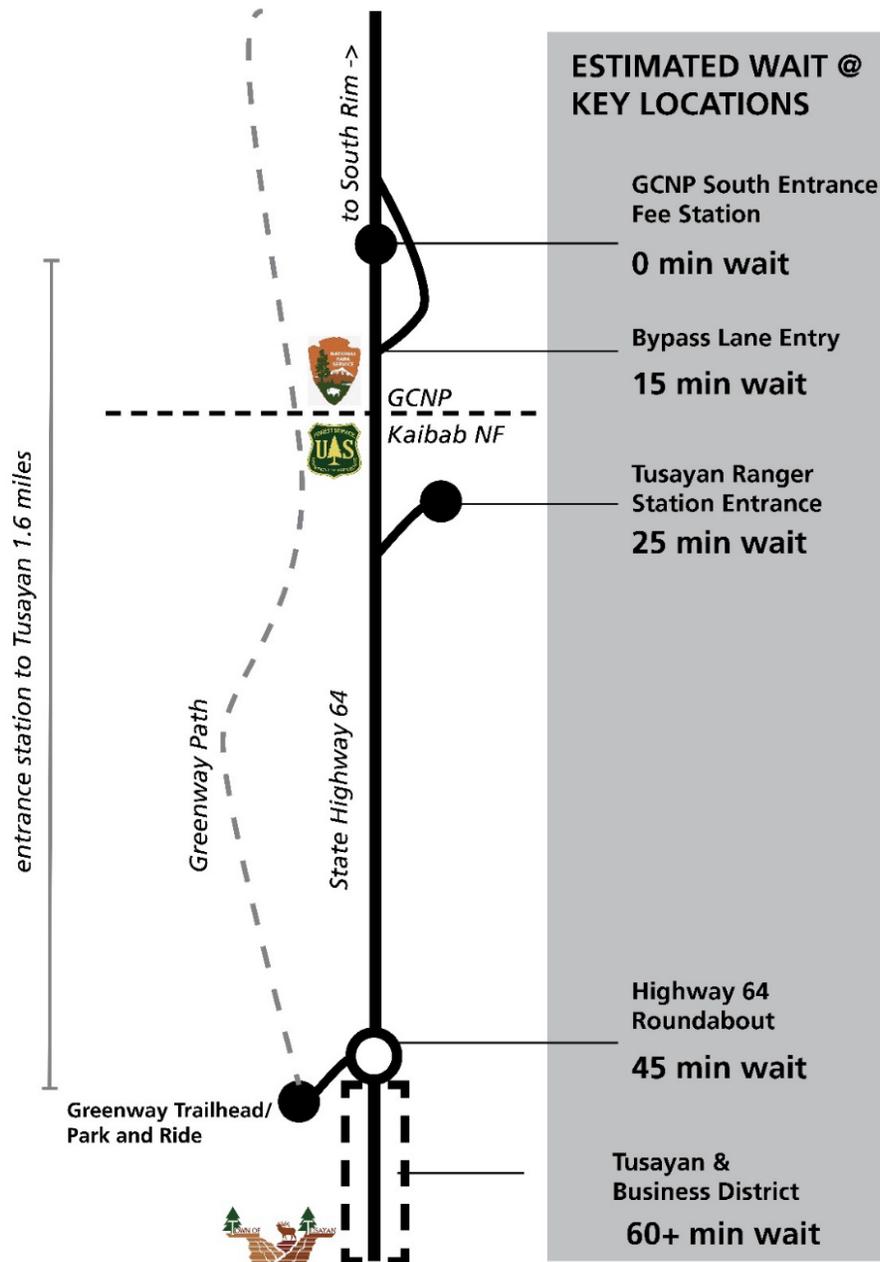


Figure 3. Key locations and corresponding wait times at the Grand Canyon National Park south entrance

Information from a tour operator at the South Rim regarding trip duration from 2015 to 2018 is one of the few sources of available information to characterize the frequency and severity of delays at the entrance station (figure 4). This information indicates a trend towards a greater number of days with delays and slightly longer average delays. Unsurprisingly, these delays coincide with periods of high visitation such as spring break and holiday weekends throughout

the year (figure 5). This data only measures delays originating from Tusayan, where the tours originated. Delays were more severe on several days over the past 3 years, when backups extended south of the Tusayan business district to the vicinity of the Grand Canyon Airport.

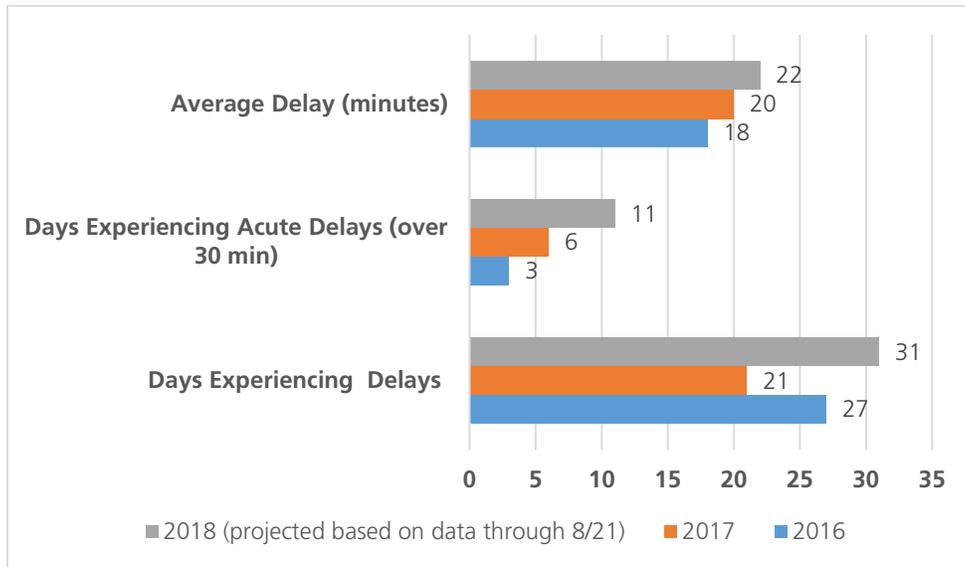


Figure 4. South Rim Tour Operator Delay Severity at the South Entrance Station, Grand Canyon National Park 2016, to 2018

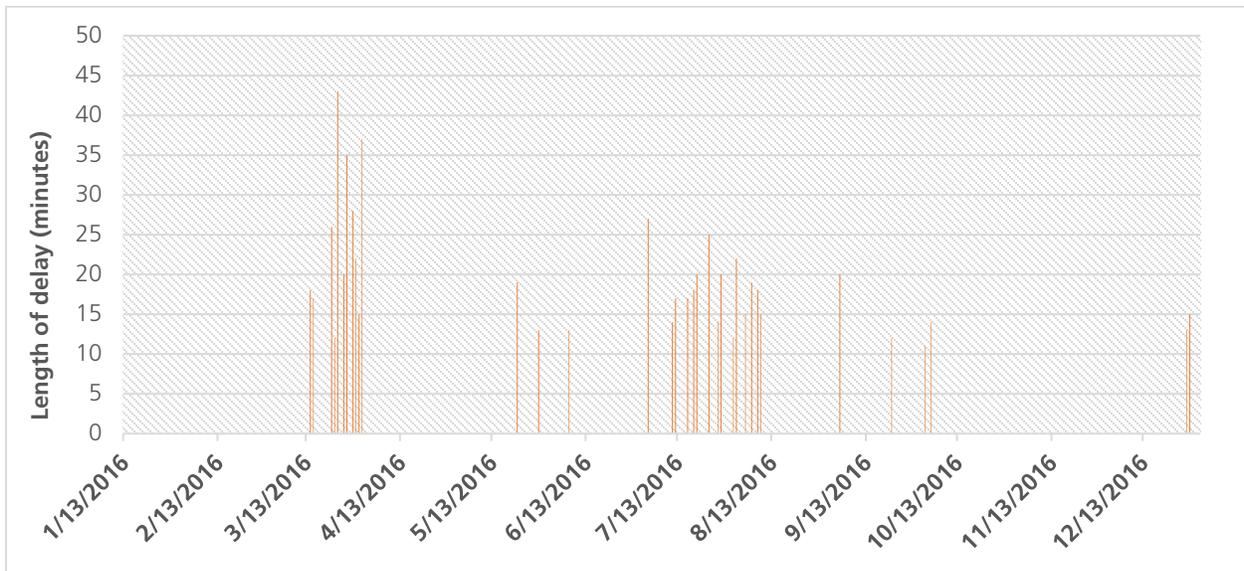


Figure 5. South Rim Tour Operator Delay Occurrences at the South Entrance, Grand Canyon National Park 2016

Parking Availability. Even with the expansion of parking at the Mather Point/Grand Canyon Visitor Center complex, parking demand within Grand Canyon National Park exceeds capacity for private vehicles on a considerable—but unknown—number of days each year, according to park staff. Available parking is routinely full by mid-morning during peak visitation periods. Recreational vehicles, which may need more than one standard parking space, are especially challenged to find suitable parking. Visitors are left with the options of circling the parking areas, going to a different part of the park, or leaving the park. During busy periods, visitors will park on unpaved surfaces, damaging cultural and natural resources.

Shuttle Bus System. The park’s shuttle system is an important part of managing visitor use within the South Rim. The system’s three routes (Hermits Rest, Village and Kaibab Rim) connect major destinations and reduce the need for point-to-point private vehicle travel. The system hosted approximately 7.5 million boardings in 2018. Demand for service on the Hermits Rest and Village shuttle bus routes frequently exceeds capacity during peak visitation. Long lines at popular shuttle bus stops are not uncommon. A successful effort to increase use of the Tusayan Route may trigger downstream effects by increasing demand for the remainder of the shuttle system. Due to its relatively modest use, however, a doubling of ridership on the Tusayan Route would constitute a 13% increase in demand on the Village Route, for example.

South Entrance Station Operation. A traffic engineering study commissioned by Grand Canyon National Park in 2005 concluded that the South Entrance Station’s capacity to process visitors and collect fees was approximately 350 vehicles per hour. The demand exceeded this capacity for about 515 hours each year. When demand exceeded capacity even with four lanes in operation, the result was backups (queueing) extending up to 1.6 miles from the entrance station to Tusayan (National Park Service 2006).

A project to improve the South Entrance Station was completed in 2008. It was intended to increase the capacity to 650 vehicles per hour. The 2008 transportation plan foresaw the potential for limited effectiveness:

“Recent improvements at the South Entrance Station have resulted in improved service and reduced wait times. However, if visitation increases, long waits could again occur at the entrance station, resulting in visitor frustration.”

The intake of visitors at the south entrance is more complex than other national parks in the region due to several factors including the prevalence of business or resident entries and the size and scope of the park, which leads visitors to ask more questions. The frequency of first-time visitors also increases processing time. In 2005, only about 12% of the transactions were annual pass re-entries, compared to about 26% at Arches National Park in Utah (National Park Service 2006).

Highway 64. The increased volume of traffic has implications for motorist safety on Highway 64 beyond Tusayan and the park. The Arizona Department of Transportation has conducted a corridor profile study of Highway 64 from Interstate 40 to the park boundary (Arizona Department of Transportation 2018). The study recommends a series of possible highway improvements to help address increased traffic volumes, although the focus of proposed improvements is not on segment of Highway 64 included in this action plan.

Regional Transit Study. The Northern Arizona Council of governments completed a Passenger Transportation Study in 2018 that serves as a long-term strategy for enhancing passenger transportation services in Coconino County. The study analyzes current transportation needs and recommends a Williams to Tusayan service, with timed connections to Flagstaff, as one of several priority areas. The study concludes:

“...this corridor can support a commuter style service that can transport commuters, residents and visitors to the Tusayan and Grand Canyon area with three round trips per day including weekends. This service may vary with the seasonality of tourism in the area requiring more service in the peak season and less service in the shoulder seasons. For example 200 – 400 one way trips per day could be served during the peak season, while in the off season with fewer commuters and visitors that number can drop significantly.

It should be noted that if buses receive priority treatment at the Grand Canyon, allowing visitors to bypass the long lines at the South Entrance, ridership can increase very significantly as the visitor’s travel time would be reduced.”

TUSAYAN ROUTE

During the summer of 2008, Grand Canyon National Park initiated a pilot shuttle service from Tusayan to the Grand Canyon Visitor Center inside the park. The free, nonmandatory shuttle service—known as the Purple or Tusayan Route—added to the popular network of shuttle routes covering the park’s South Rim. The new route was first formally proposed in the *Report to Congress on Transit Alternatives, Grand Canyon National Park*, prepared by the NPS in 2004. It later became one action under the 2008 transportation plan to improve transportation facilities and services.

According to an evaluation report prepared by Nelson/Nygaard Consulting after the shuttle’s pilot season, the service:

“...succeeded in several important ways. It attracted a large and diverse group of park visitors, who benefited from convenient access to the park and Tusayan without having to contend with constrained parking conditions or the expense of driving. For local residents, the shuttle offered enhanced transportation options and fulfilled a long unmet community need. Reports from park staff and businesses suggest that the shuttle was particularly useful to part-time and low-wage workers, children, youth, and other locals who lacked access to private

vehicles. The shuttle also appeared to serve an unexpectedly large number of passengers who boarded inside the park and traveled to Tusayan.”

During the pilot season, the shuttle serviced four temporary stops in Tusayan. Of these original stops, the stop at Grand Canyon Airport was discontinued due to low ridership. Four permanent stops were installed within Tusayan in 2014 at a cost of approximately \$100,000 each. The stops are located in the Arizona Department of Transportation’s Highway 64 right-of-way. As such, any changes or adjustments to the facilities or related use require a permit from the Arizona Department of Transportation. Two of these stops, Squire Inn and Big E Steakhouse, were constructed without turnouts. The lack of turnouts at these two stops has been identified as a pressing safety concern by the shuttle operator and the Town of Tusayan. However, the integration of turnouts may pose a challenge to on-time performance during high traffic period as busses struggle to re-enter traffic.

Current Operations and Ridership

Operations. The Tusayan Route operates daily on a base schedule that runs from March 1 through September 30. This annual schedule has been modified each year based on predicted demand and available funds. In 2018, this schedule was extended for two additional months to November 30. The service is primarily funded by Grand Canyon National Park, using a share of the visitor entrance fees that are dedicated to transportation. The Town of Tusayan has also provided supplemental funding to extend the shuttle operating season.

During daily operations, shuttles run every 20 minutes between 8:00 a.m. and 9:30 p.m. Shuttles make four stops in Tusayan (figure 7) and at a single stop within the park at Grand Canyon Visitor Center, which provides connections to the rest of the extensive, free Grand Canyon National Park shuttle system.

Shuttle busses use the entrance station bypass lane which begins 0.25 miles south of the entrance station, to avoid short backups. However, when queues extend beyond approximately 15 minutes, the busses are forced to wait in line with private vehicles, thus limiting the time advantage.

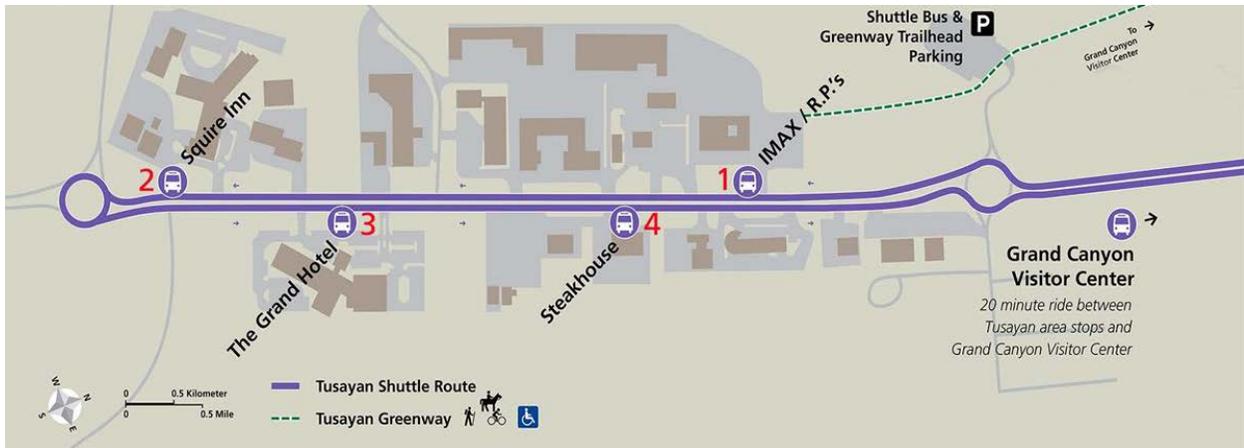


Figure 6. Tusayan area shuttle stops, 2018

Ridership. Ridership on the Tusayan Route has been inconsistent since its pilot season in 2008. Ridership increased from 2008 to 2010, then decreased from 2011 to 2014, before rebounding in 2015 (figure 7). A renewed focus on promotion, combined with increasing visitation overall, are reasonably likely causes of the recent boost. Ridership has risen during the core operating season (June to August), topping 107,000 boardings in 2017; this is a 25% increase over the 10-year average (figure 7). In 2017, Tusayan Route use reached new highs in terms of both total annual ridership (213,000) and boardings per day (988). Mid-morning and mid-to-late afternoon are the busiest times of day, as day visitors enter and return from the South Rim.

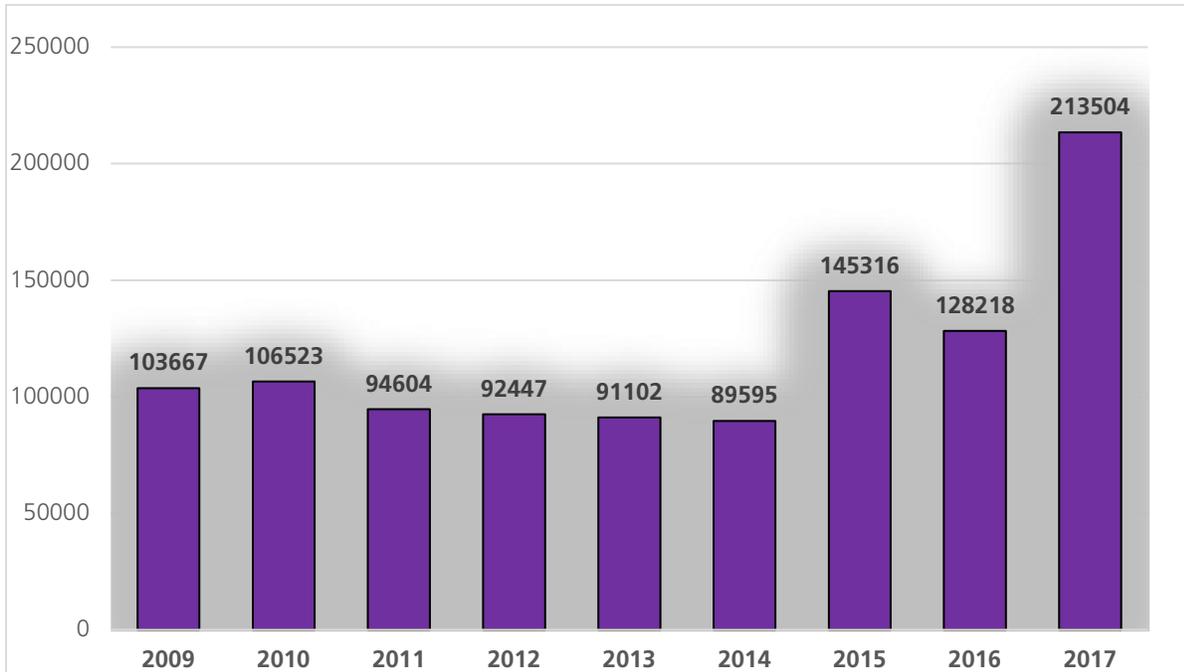


Figure 7. Tusayan Route annual ridership

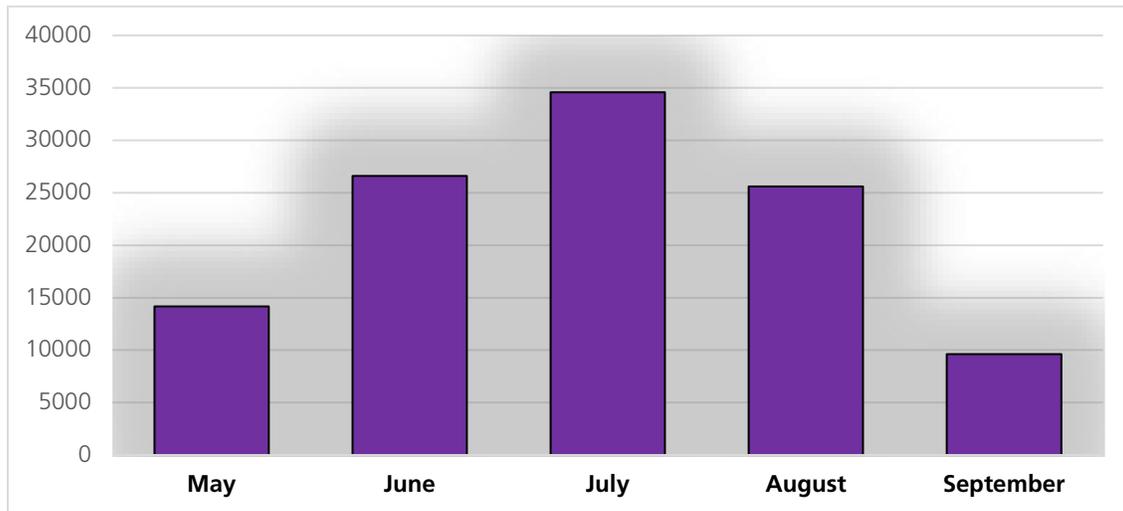


Figure 8. Tusayan Route – average ridership by month, 2008-2017

Despite the improving use of the Tusayan Route, overall ridership remains well below targets identified in the 2008 transportation plan. The plan estimated that if all parking areas were effectively utilized at full build out (e.g., a 400-space parking lot in Tusayan), 19% of day visitors would need to park outside Grand Canyon National Park and use the shuttle bus service to travel to the park. Much of the analysis of traffic alleviation was based on this anticipated or ideal rate of use. Instead, the Tusayan Route is only capturing between 2.7% and 4.4% of overall traffic traveling through the South Entrance (table 2 and figure 9), not inclusive of the Grand Canyon Railway.

Table 1. Tusayan Route ridership as a share of overall visitation, South Entrance of Grand Canyon National Park, 2017

2017	March	April	May	June	July	August	Sept.
South Entrance Total Vehicles	134,239	145,007	151,687	149,467	165,778	151,030	138,310
Tusayan Route In-Bound Ridership*	11,924	15,056	13,975	19,270	21,058	13,525	10,937
Tusayan Route Vehicle Equivalents**	4,259	5,377	4,991	6,882	6,193	3,978	3,906
Percentage (%) of Total Entries Using Shuttle	3.1	3.6	3.2	4.4	3.6	2.6	2.7

*= Tusayan Route In-Bound is the total ridership reduced by half to represent only entrances into the park, consistent with the South Entrance traffic-counting procedures.

**= Vehicle equivalents represents the Tusayan Route In-Bound boardings, divided by the persons-per-vehicle multiplier used by Grand Canyon National Park. It is an estimation of the number of additional vehicles that would enter at the South Entrance if the shuttle bus was not available.

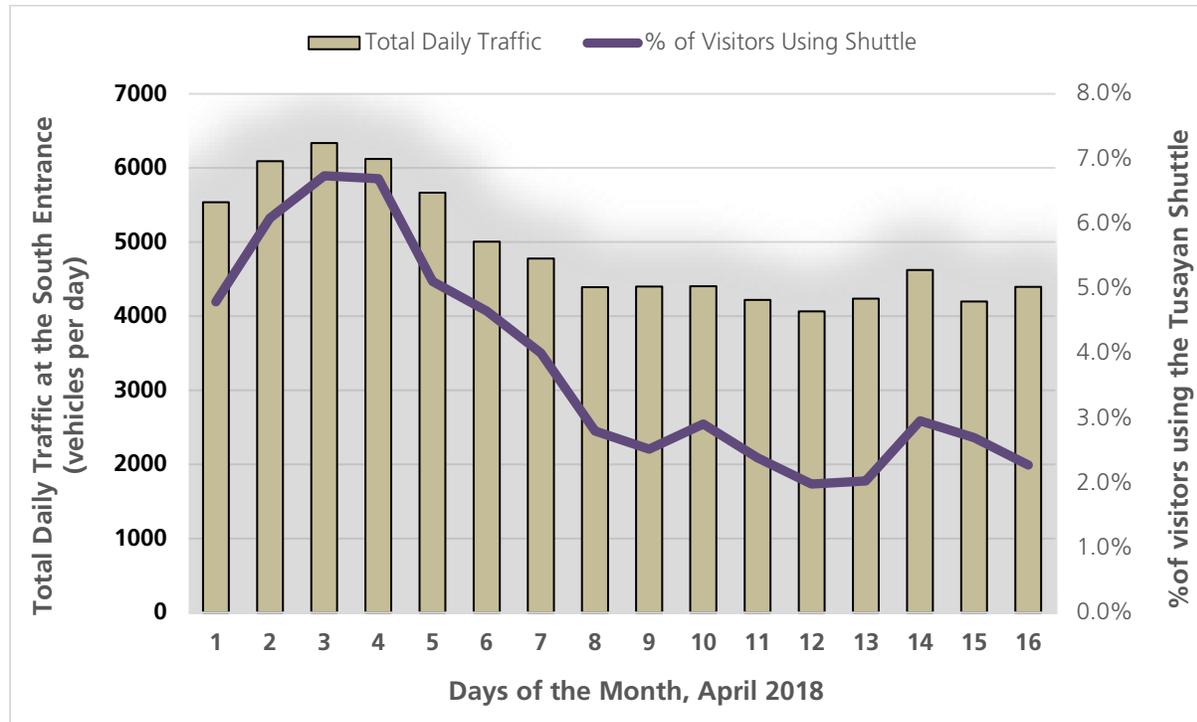


Figure 9. Percentage of total Grand Canyon National Park South Entrance traffic using the Tusayan Route – April 2018

The information does indicate that visitors respond to congestion by turning to the Tusayan Route in larger numbers on heavily congested days. For example, the shuttle captured approximately 7% of all visitors during the busiest days of spring break 2018 (figure 9).

A comparison to other shuttle bus systems that enter national parks is illustrative. It shows that the Tusayan Route ridership, while relatively low, is comparable to other nonmandatory satellite shuttle systems at several western national parks. Rocky Mountain National Park’s Hiker Shuttle is a similar service to the Tusayan Route—it connects the most popular portion of the national park with the center of a gateway community (Estes Park). Similar to Tusayan, the route experiences relatively low ridership, with only 3% of total entries using the shuttle system.

Prior to development of the Tusayan Route, the National Park Service estimated that on average approximately 75% of visitors to the South Rim travel by private vehicle, 19% by tour bus, and 6% by train.

The Tusayan Route is the least utilized route of the Grand Canyon shuttle system by a substantial margin. The Hermits Rest Route (operational 9 months per year), and the Village

and Kaibab Routes (operational year round) are significantly more popular than the Tusayan Route, providing service for between 5,000 and 11,500 boardings per day. The system has proven a critical component of managing visitors within park boundaries.

Commonly identified barriers to ridership of the Tusayan Route include lack of centralized parking, lack of signage, and confusion over how to obtain a park pass. This plan identifies the continuation or initiation of remedies to each of these barriers.

Operational Costs

The average cost per boarding service for the entire shuttle bus system is \$0.89, while the cost per boarding for the Tusayan Route is approximately \$1.65. These costs are reasonable when compared to the average for all US urban transit systems (\$3.60 per rider) and other NPS transit systems which range from \$1.05 to \$4.02 per rider (National Park Service 2006). Costs for related operational items are listed in table 3.

Table 2. Tusayan shuttle route costs

<i>Operational Costs</i> Tusayan Shuttle Route	\$60,000/month
<i>Capital Investment</i> Greenway Trailhead/Park and Ride Construction	\$500,000
<i>Capital Investment</i> Shuttle stop construction	\$100,000/stop

Parking

Visitors using the Tusayan Shuttle are encouraged to park at one of four locations to access nearby adjacent stops: IMAX Theater/R.P.'s Stage Stop; Best Western Grand Canyon Squire Inn; The Grand Hotel; or Big E Steakhouse and Saloon.

The use of parking spaces at local businesses by visitors using the Tusayan Route shuttle is not an acute problem for most of the year. Based on discussions with town leaders and business owners, the use of private parking lots along Highway 64 is viewed as a positive business opportunity. Use of the Greenway Trail/Park and Ride facility is extremely low compared to private parking facilities; this is likely due to the availability of more convenient parking options. Additional factors, including its location at the northern end of town, inadequate signage, and the lack of a shuttle stop directly at the parking lot may also contribute to low visitor use.

Shuttle operations and parking availability in Tusayan are strained for an unknown number of days throughout the year that coincide with the most acute congestion. As demand for the Tusayan shuttle exceeds capacity, visitor que up at the first stop in Tusayan at the IMAX Theater to ensure boarding. Despite a good supply of parking in Tusayan (table 4), availability

becomes strained as hotel and business parking lots fill up in the morning. If these instances become more commonplace, steps to direct shuttle users to dedicated parking locations may need to be taken.

Table 3. Tusayan parking availability

Site	Number of Spaces
Tusayan/Highway 64 businesses	1,670
Grand Canyon National Park Airport	325
Greenway Trailhead/Park and Ride	100
Total:	2,095

Table 4. Timeline of Key Transportation-Related Events

Year	Event
1974	Shuttle bus system implemented on the South Rim
1995	Grand Canyon General Management Plan completed
2000	Shuttle buses become mandatory in certain locations
2008	South Rim Visitor Transportation Plan completed First year for Tusayan Route pilot program Hermit Road rehabilitated Grand Canyon National Park hosts ~4.4 million visitors
2010	Town of Tusayan incorporated
2011	Grand Canyon Visitor Center/Mather Point Improvements completed
2012	Bicycle concession contract awarded to Bright Angel Bikes

Year	Event
2012	Greenway Trailhead/Park-and-Ride constructed
2014	Tusayan General Plan 2024 completed
2016	Greenway Trail paved from Tusayan to Grand Canyon Visitor Center Arizona hosts ~5.7 million overnight international visitors
2017	Tusayan Route operates for the first time over spring break Shuttle bus system hosts ~7.8 million boardings Grand Canyon National Park hosts 6.25 million visitors
2018	Grand Canyon National Park hosts 6.38 million visitors

BICYCLING AND THE GREENWAY TRAIL

The Tusayan Greenway Trail is a 6.5-mile-long paved path between the Greenway Trailhead/Park and Ride facility on the north side of Tusayan and the Grand Canyon Visitor Center. The trail gains approximately 500 feet in elevation. The trail was completed and fully paved in the summer of 2016. Users, park managers, and local stakeholders have indicated that the length and difficulty level of the trail, compounded by its high-elevation location, is a deterrent for many casual riders who would otherwise consider bicycling as a primary form of transportation during their visit. Although user counts are not available, anecdotal evidence suggests use of the path is relatively minimal, receiving less than 5,000 visits per year.

Grand Canyon National Park has a multimodal transportation system with 13 miles of multi-use trails along the South Rim. Riding this system can be combined with use of the park shuttle



system. Bicycle racks are mounted on the front of each shuttle bus with capacity for two or three bicycles. Bicyclists are required to load and unload their own bikes and are responsible for bike security. All park shuttle buses are wheelchair accessible and equipped with two bicycle racks. In-park bicycle rentals have been provided by Bright Angel Bicycles since 2012 under a 10-year concession contract.

The Tusayan Greenway Trail is a part of the Arizona National Scenic Trail which

was designated in 2009 and stretches more than 800 miles across Arizona from Mexico to the Utah border. The Tusayan Greenway Trail is one of the only paved segment of the ANST. Although trail surface is not explicitly addressed in the trail's nature and purposes and the Comprehensive Plan for the trail has not yet been prepared, the Arizona Trail Association has stated that the paved condition is inconsistent with the goals of trail management. A re-reroute onto a natural surface trail alignment is the Association's proposed remedy.

The National Park Service and US Forest Service currently define electric bikes (e-bikes) as a "motorized" use. Therefore, e-bikes are restricted from nonmotorized bicycle facilities like the Greenway trail system. As e-bike use becomes more commonplace, there may be the need for the National Park Service and US Forest Service to evaluate management techniques for this emerging activity. The opportunity to expand bicycle ridership by allowing the use of e-bikes was highlighted by several participants throughout the development of the action plan.



The Greenway Trailhead/Park and Ride facility includes 100 striped parking spaces, a vault restroom, an information kiosk, and a paved connection to the IMAX-National Geographic

Visitor Center. The 2008 transportation plan was approved a 400-space parking lot with shuttle bus terminal, bathrooms and self-service means to obtain a Park pass that has yet to be constructed.

Despite these amenities, full use of the Greenway Trailhead/Park and Ride is challenged by a lack of functionality. The available turnout radius on the entry road from Highway 64 is not sufficient to allow the existing Grand Canyon National Park shuttle fleet to enter the parking lot when a larger vehicle is exiting. Additionally, there is inadequate signage from Highway 64 the parking lot.

There are no bicycle rental or bike share systems currently operating within Tusayan.

DESERT VIEW

Located at the southeast edge of Grand Canyon National Park, Desert View functions as the east entrance to the park and offers a viable alternative to the busy south entrance for flexible visitors. It's likely that a substantial portion of visitors who enter Desert View visit the busy South Rim/Grand Canyon Village area. Redirecting these visitors during peak visitation and acute periods of congestion



In 2018, the National Park Service released a proposal to redevelop Desert View from a traditional scenic overlook and visitor services area into an Inter-Tribal Cultural Heritage Site. The proposal includes several modifications to existing infrastructure and some potential new construction within the existing area footprint. The transformed site would offer opportunities for first-voice cultural interpretation and demonstrations from associated American Indian tribes.

Desert View is located approximately 14 miles west of the Little Colorado River Tribal Park, 25 miles west of Cameron and 25 miles east of Grand Canyon Village. Improvements are proposed in the Cameron area as well, including new lodging, a cultural center, and a nonmotorized recreational trail along the river. Combined with improvements to Desert View, the ongoing enhancement of Cameron will increase its attractiveness as a means to enter Grand Canyon National Park.

Redirecting visitors that originate from Page/Southern Utah or Flagstaff (the most likely points of origin) through the Desert View Entrance is a promising strategy available for reducing incoming personal vehicle traffic at the south entrance. Increasing visitor entrances at Desert View by 10% to 19% during the summer season would be equivalent to doubling Tusayan Route ridership.

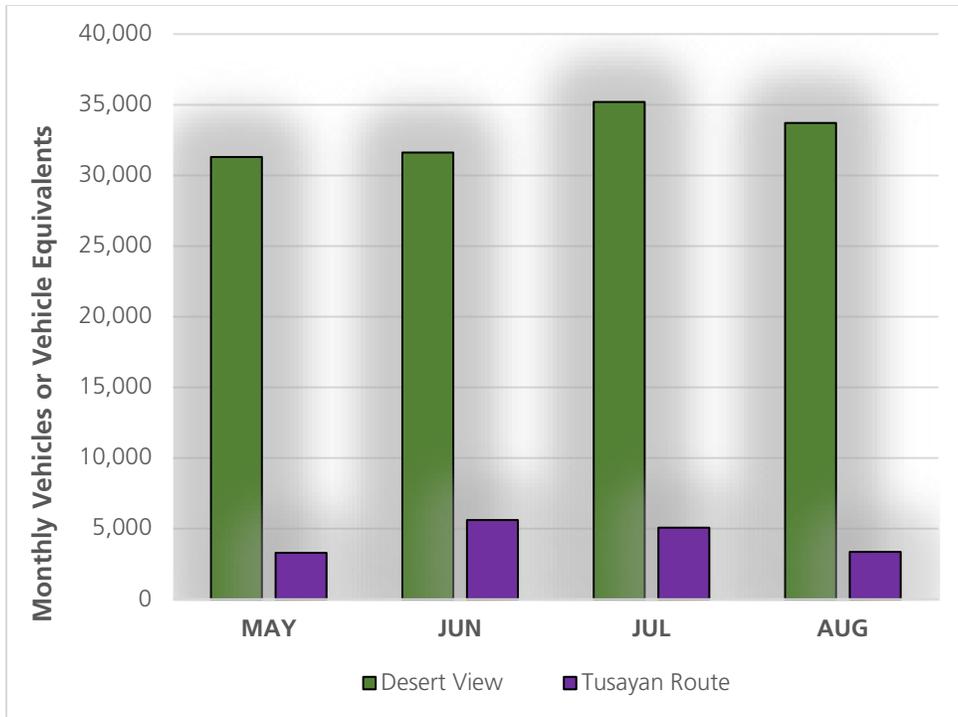


Figure 10 Comparison of Desert View and Tusayan Route Visitor Volumes, May to August 2016

LEARNING FROM PEER COMMUNITIES AND PARKS

Communities and parks across the country are linked by shared transportation systems, schools, public services, and businesses. Their experience is invaluable as a source of advice and context. Core team members asked each of the communities below “What lessons can we learn?”

- **Springdale/Zion, Utah** – a small community linked to an iconic park experiencing rapid increases in visitation that relies on a mandatory shuttle system to battle acute congestion

Lessons for Tusayan/Grand Canyon

- Think about capacity up front—not just the shuttle system, but related infrastructure
- Evaluate regional transit solutions
- Use collaborative partnership groups (e.g., Zion Regional Collaborative) to brainstorm and think critically

- **White Rock/Bandelier National Monument, New Mexico** – a productive partnership between Los Alamos County (population 17,700) and the National Park Service that integrates the monument into the area’s community transit system

Lessons for Tusayan/Grand Canyon

- Find ways for local/federal government to share resources
- Disruptive events can open the door to opportunity

- **Estes Park/Rocky Mountain National Park, Colorado** – an increasingly popular destination for Front Range residents and out-of-state visitors that has had success with a town-to-park shuttle

Lessons for Tusayan/Grand Canyon

- First-time visitors can be difficult to reach, but repeat visitors can be “coached” on the use of non-passenger vehicle options
- Handling high volumes of visitors and parking needs requires infrastructure, like the parking garage constructed in Estes Park

TUSAYAN CONTEXT

The Town of Tusayan incorporated in 2010 and currently has a population of approximately 600. It is located in District 3 of Coconino County and Arizona's First Congressional District. An excerpt from the town's General Plan 2024 articulates the town's vision:

...based upon a strong, self-sufficient community that desires diverse economic and employment opportunities, that is attractive to new employers and businesses, and is faithful to its historic and natural assets.

The Town foresees itself as a major entrance and staging center for visitors wishing to visit the Grand Canyon National Park. To avoid potential traffic congestion, the Town desires to continue improving and expanding a variety of transit modes to transport visitors to and from the Park

The Town not only intends to continue maintaining a sense of community pride through progressive cooperation among its residents, businesses, and government, but also to encourage additional facilities and services to serve the needs of both residents and visitors alike. This vision of Tusayan includes an attractive, well maintained Town that is family oriented and friendly, while at the same time offering a wide range of recreational and cultural activities.

The town, working with local businesses and the Grand Canyon Chamber of Commerce and Visitors Bureau, is working on a variety of initiatives that are relevant for future multimodal transportation demand and operations. The community is seeking to retain a greater proportion of canyon visitors at local lodging establishments through the development of more varied and diverse amenities and attractions. Progress is being made toward providing additional recreational amenities. The Tusayan Trails Master Plan, approved by the town council in 2018, contains a comprehensive approach to improving trail connections in or near Tusayan. It outlines the development of nearly 15 miles of new trail, primarily on the Kaibab National Forest. A key area of intersection with transportation is the potential increase in use and foot traffic at the Greenway Trailhead/Park and Ride, as visitors stop to use yet-to-be-built trails.

This is complimented by an effort to develop additional hotels and increase occupancy during the shoulder seasons. Currently, there are approximately 1,000 hotel beds in Tusayan, a total roughly comparable to the available hotel lodging on the South Rim. Additional overnight guests in Tusayan are likely to have a direct effect on Tusayan Route ridership. According to the 2008 Tusayan Shuttle Route evaluation, half of all riders started their trip at hotels. Overnight visitors in Tusayan make up perhaps the most promising segment of visitors for a redirection to multimodal options.

Constrained by a limited supply of private land suitable for the development, Tusayan is working to address the acute lack of available housing. An increase in local residents will also directly affect shuttle ridership; 10% of all boardings in 2008 started at residences in Tusayan.

KAIBAB NATIONAL FOREST, TUSAYAN RANGER DISTRICT

Tusayan is surrounded by the 360,000 acre Tusayan Ranger District of the Kaibab National Forest. It offers a variety of recreation and visitor opportunities that complement Grand Canyon National Park. These include:

- Ten X Campground, a 70 unit campground located 3 miles south of Tusayan that offers a mix of reservable campsites along with two group sites that can accommodate 125 people in total. It is open from May to September each year. Plans have been developed to expand this campground by 40 sites (36 single family sites and 4 multi occupancy sites).
- Non-motorized trails including a local bike trail system which is in the process of being improved; Red Butte Trail, Vishnu Trail and a 48-mile segment of the Arizona National Scenic Trail;
- Hull Cabin, a historic rental cabin, near the South Rim;
- Driving for pleasure or wildlife viewing;
- Opportunities for big game hunting including elk and mule deer;
- Several popular dispersed camping areas.

Rising use of the Tusayan Ranger District has resulted in a number of issues including long-term occupancy and illegal dumping. With the proximity of the Tusayan Ranger District to the South Rim, and visitation continuing to rise, there is a need for the Town, Forest and the NPS to work together to find resolutions to these issues. Visitors can be directed to options outside the Park to relieve pressure on their infrastructure (e.g., make the Greenway Trailhead/Park and Ride facility more appealing to park in and bicycle into the Park).

Table 5. Kaibab National Forest visitation (includes the Tusayan Ranger District)

Year	Number of Visits
2005	184,000
2010	456,000
2015	372,000

Source: National Visitor Use Monitoring database (US Forest Service 2017).

A national forest visit is defined as the entry of one person upon a national forest to participate in recreation activities for an unspecified period of time.

CURRENT MARKETING EFFORTS

Promotion and marketing of the recreational opportunities at Grand Canyon National Park and the surrounding area is a combination of public, private, and nonprofit efforts. Key outlets include public and private websites, printed materials available locally and at information centers throughout the region, social media platforms, statewide tourism marketing materials, and national and international campaigns coordinated by the Arizona Office of Tourism.

Another set of key communicators are the visitor bureaus and commerce organizations in Williams, Flagstaff, and Grand Canyon, and throughout the Colorado Plateau.

There is a strong precedent of collaboration between Grand Canyon National Park and local partners to communicate consistent, effective messages to potential or expected visitors. Cooperative efforts at the local effort include:

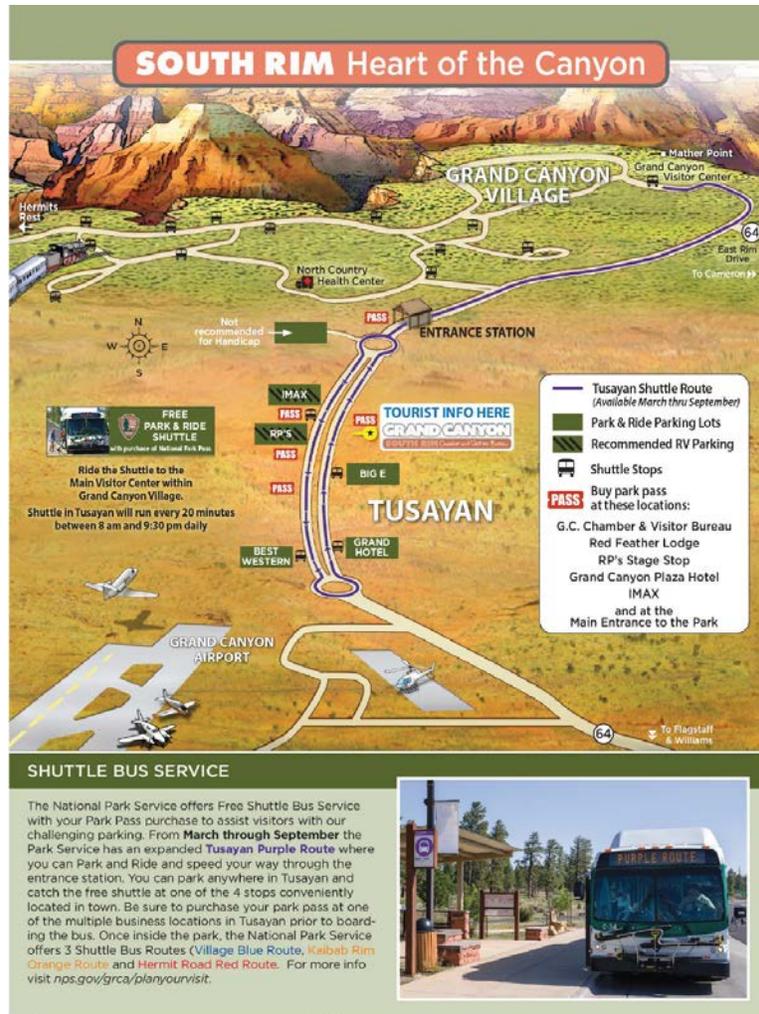
- routine, annual press releases that provide tips and guidance on how to visit effectively which are frequently published by the state’s largest newspaper (The Arizona Republic) in the digital and print versions
- repetition of messages on multiple forums, including the Grand Canyon National Park Facebook and Instagram pages (more than 500,000 followers each), and Twitter account (124,000 followers)
- printed visitor brochures and maps that highlight the shuttle system, available at local and regional information centers and businesses
- consistent messages on the value of using other forms of transportation (“park and ride, we’ll be your guide”)
- accurate information provided through the Chamber of Commerce visitor center in Tusayan
- shared training and knowledge building

Twitter, Facebook and Instagram are effective, far-reaching tools for communication in the South Rim – Tusayan area. They can act as a real-time compliment to roadside variable message systems and other available communication outlets.

While the public and nonprofit partners have been effective in communicating helpful tips and expectations pertaining to congestion, private websites and information sources are less reliable. To assess the current state of available information, 25 of the top websites providing travel information about the South Rim/Tusayan area, such as TripAdvisor.com and grandcanyon.com, were



analyzed manually for relevant content. The analysis found that 12 of the top websites did not mention the Tusayan Route as a recommended way to enter the South Rim. Additionally, several popular websites made little to no mention of visitation patterns or opportunities to avoid crowded or congested conditions.



This Grand Canyon Chamber of Commerce publication contains valuable information on transit options.

7 ways you're doing the Grand Canyon wrong

Scott Craven, Arizona Republic Published 4:00 a.m. MT July 16, 2018 | Updated 10:43 a.m. MT July 16, 2018



The Grand Canyon has many activities for families to take part in. Avoid these 7 things to maximize your vacation to the Grand Canyon. Noah Lau, Arizona Republic

Share your feedback to help improve our site experience!

FROM THE USA TODAY NETWORK

These sites are part of the USA TODAY NETWORK. Their content is produced independently from our newsrooms.

MORE STORIES

7 ways you're doing the Grand Canyon wrong
July 16, 2018, 4 a.m.

As crowding becomes more acute, regional news outlets become an effective amplifier of messages about informed visitation.

The experience of visiting a national park or other destination is recognized as having multiple phases, referred to as the visitor experience cycle (figure 12). Each phase of the cycle provides an opportunity for dissemination of messages to make visitors more informed. Research on visitor perceptions of alternative transportation systems at Yosemite and Rocky Mountain national parks indicates that the concepts of “ease”, “freedom” and “stress” are important factors as visitors make their choice of transportation mode (Taff et al, 2013). The findings suggest that communication materials that emphasize the ease of using the multimodal options, while preserving freedom and reducing stress, are more likely be effective. The most recent visitor survey specific to the Tusayan Route was conducted in 2008 during its pilot season and confirms these elements as key considerations. Respondents to a survey conducted identified “ease of getting around park” as the top reason for using the Tusayan Route.

FINDING AND SHARING INFORMATION ABOUT MULTIMODAL
TRANSPORTATION CHOICES DURING THE
VISITOR EXPERIENCE CYCLE

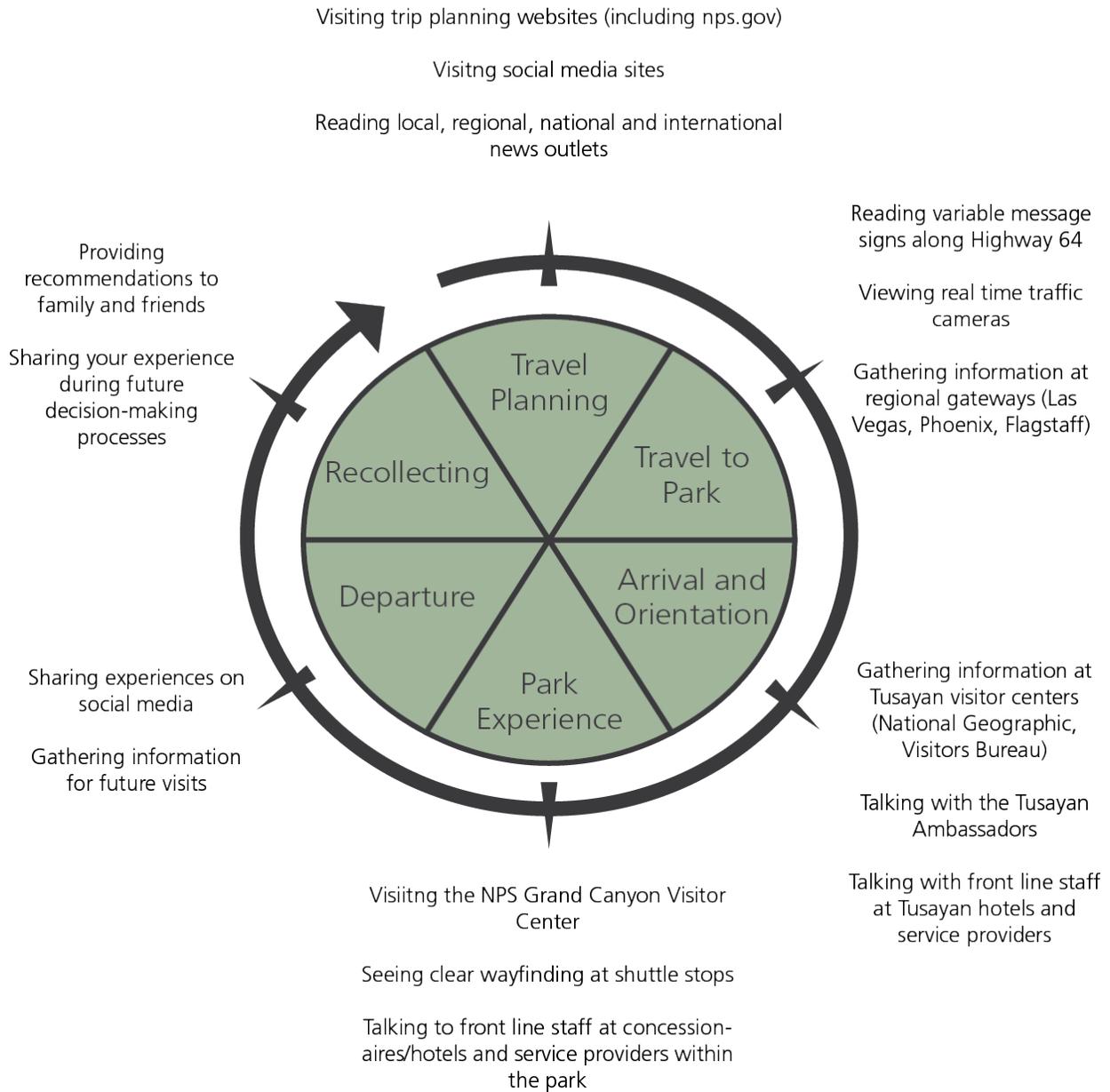


Figure 11. Visitor experience cycle

STRATEGIC ACTIONS BY THEME

This section contains a list of priority actions broken out by four themes. Each theme describes an overarching strategy and series of prioritized actions.

INFRASTRUCTURE, SAFETY, AND OPERATIONS

Strategy: Provide a safe, attractive, and convenient shuttle service from Tusayan to the South Rim that makes a compelling case for visitors to leave their vehicle behind.

What this theme includes: The multimodal system is composed primarily of the Tusayan Route and its related stops, sidewalks, and pedestrian crossings in Tusayan along Highway 64, entrance road and bypass road.

How the actions were developed and ranked: Actions related to this theme were first brainstormed by the core planning team. The list was expanded upon during the spring 2018 partner workshop. In May 2018, a subgroup of interested partners including core team members, local business owners, and regional transportation staff worked together to refine the list and establish a scoring system. The team created a list of criteria to rank the project ideas. Each project was given a score of 1 to 5 based on the following criteria:

- improves public safety
- preserves or improves visitor experience
- has a measurable impact to key metrics
- clearly demonstrated need
- is cost effective
- protects natural resources
- is consistent with community/park/forest vision

After the following 17 potential actions or projects were scored according to these criteria, the core planning team grouped them into high, medium, or low priority levels based on the cumulative rankings (table 6).

Table 6. Recommended infrastructure, safety, and operations actions

Priority Level (H/M/L)	Action Description	Status	Responsible Organizations and Supporting Partners (possible roles, where applicable)
High	<p>Create a strategic communication and incident management plan for days with extreme congestion. The plan would provide a mechanism for shared communication among affected parties (park staff, Tusayan Ambassadors, local businesses, etc.) during long backups. The approach could use techniques similar to incident management, including temporary staff re-assignment. Shared online messaging platforms (e.g., SendWordNow) have also proven to be useful tools.</p>	2021 - 2022	<p>Grand Canyon National Park, including law enforcement and fee divisions (project lead)</p> <p>Paul Revere Transportation (operational support)</p> <p>Town of Tusayan, Tusayan Fire District, Coconino County Sheriff's Office (operational support, communications)</p>
High	<p>Continue Intelligent Transportation Systems (ITS) techniques. ITS is an umbrella term for numerous technologies deployed to manage transportation networks. At Grand Canyon National Park, these include traffic cameras and variable message signs that provide real-time information on traffic conditions. An opportunity may exist to link congestion warnings with suggestions for alternative use.</p>	Ongoing.	<p>Grand Canyon National Park (project lead)</p> <p>Arizona Department of Transportation (permitting within right-of-way, data source)</p>
High	<p>Maintain the 2018 Tusayan Route shuttle season (March 1 to November 30).</p>	Shuttle season extension under consideration for 2019.	<p>Grand Canyon National Park (operation and funding)</p> <p>Town of Tusayan (funding support)</p>
High	<p>Improve pedestrian safety. Several improvements for pedestrian safety have been identified along Highway 64 in the Tusayan business district, such as more-frequent and more-visible pedestrian crossing locations.</p>	Underway.	<p>Town of Tusayan (project lead and funding)</p> <p>Arizona Department of</p>

			Transportation (permitting and technical support)
High	<p>Regularly brief decision makers about local transportation challenges and opportunities. Key decision makers for transportation in the area include leadership at the Arizona Department of Transportation, the State Transportation Board, the Tusayan Town Council, the Coconino County Board of Supervisors, the Grand Canyon National Park Superintendent, and the Kaibab National Forest Supervisor. Transportation and mobility should be a recurring topic of consideration during decision making.</p>	Ongoing.	Town of Tusayan, Grand Canyon National Park, Grand Canyon Chamber of Commerce, Kaibab National Forest
High	<p>Improve Greenway Trailhead/Park and Ride. Needed improvements to this parking facility have been split into two phases based on cost and scope:</p> <ul style="list-style-type: none"> • Phase 1. This phase of improvements to the trailhead facility would include improving the existing visitor information and wayfinding from Highway 64, within the parking area and along the trail itself. • Phase 2. Phase 2 is the more complex of the two and includes modifying the alignment of the entry road to allow shuttles and full-sized vehicles to pass one another. An accurate cost estimate of the needed modifications is not currently available. 	<p>Underway. Phase 1 visitor information improvements under development.</p> <p>Complete a preliminary cost estimate for Phase 2 in 2020</p>	<p>Kaibab National Forest (facility manager)</p> <p>Grand Canyon National Park (project support, funding)</p> <p>Town of Tusayan (coordination with related projects)</p> <p>Arizona Department of Transportation (permitting within right of way)</p>
Medium	<p>Extend entrance bypass lane. The bypass lane extends 450 feet south of the South Entrance Station. The remaining 1.5 miles south to Tusayan has a single northbound lane. This action would extend the bypass lane, or add an additional transit-only lane, to the Highway 64 roundabout on the northern end of the Tusayan business district. A preliminary estimate for a permanent project is \$5 million. Based on the considerable cost, traffic simulation monitoring and analysis is recommended prior before further planning.</p> <p>In the interim, a pilot project that uses temporary barriers to create an additional lane could be considered. Pilot implementation would focus on select high visitation days.</p>	Planned for cost estimation and traffic simulation, no timeframe set	<p>Grand Canyon National Park (refine project scope, funding)</p> <p>Kaibab National Forest (permitting)</p> <p>Arizona Department of Transportation (permitting, technical support)</p>
Medium	<p>Provide shuttle stop safety/turnouts. This item also provides turnouts for two Tusayan Route shuttle stops that are currently lacking (Best Western and Big E Steakhouse).</p>	Planned, no timeframe set.	Town of Tusayan, Grand Canyon National Park, Arizona Department of Transportation

Medium	Use the airport parking lot as overflow for days with extreme congestion. The airport has more than 350 parking spaces and once served as a Tusayan Route shuttle stop. When parking in Tusayan is scarce, these spaces could be used to offer a temporary shuttle stop or parking overflow, with the concurrence and support of the airport.	2019/2020	Town of Tusayan Grand Canyon National Park (coordination with shuttle operation) Grand Canyon Airport
Medium	Expand use of the bypass lane. Use of the bypass lane around the south entrance station is currently limited to the Tusayan Route, GCNP employees, and other authorized traffic. The National Park Service could allow a broader range of uses of this lane, including pre-paid tour buses. The concept of a temporary fee station on the bypass lane to expand processing capacity was also raised.	To be evaluated after high priority actions are completed.	Grand Canyon National Park
Medium	Link with regional transit. Consistent with the Passenger Transportation Study completed by the Northern Arizona Council of Governments, pursue a transit link with other Northern Arizona communities. The strategy recommended a transit service between Tusayan and Williams, with timed connections to Flagstaff. Vanpools operated by NAIPTA are also a viable option.	Ongoing. Continue local participation in regional transit planning.	Town of Tusayan, NAIPTA, NACOG, City of Williams
Medium	Rename the Tusayan Route to more closely reflect its purpose. The Tusayan Route could be renamed to reflect its function as the primary connection to the South Rim (e.g., "Canyon/Tusayan Express," "South Rim Entrance Express").	To be evaluated after high priority actions are completed.	Grand Canyon National Park
Low	Commit to a 5-year shuttle season. The current Tusayan Route shuttle season varies by year, based on available funds. Identifying a consistent schedule for the next 5 years would allow for an investment in providing clear visitor information.	To be evaluated after high priority actions are completed.	Grand Canyon National Park
Low	Extend the Tusayan Route shuttle season throughout the entire year. Ridership trends and success measures would be monitored to determine if this warranted.	To be evaluated after high priority actions are completed.	Grand Canyon National Park (operation, funding) Town of Tusayan (funding support)
Low	Consider increased capacity and service frequency on the Tusayan Route. Any adjustments would be based on ridership numbers and shuttle stop wait times.	To be evaluated after high priority actions are completed.	Grand Canyon National Park.

PROMOTION AND VISITOR SERVICES

Strategy: Use programs such as the Tusayan Ambassadors to reach visitors at every phase of their journey—from months before their trip to their arrival in Tusayan—to improve their understanding of travel options and help them make the most of their visit.

What this theme includes: The tools and techniques used to communicate with visitors throughout the visitor experience cycle.

How the actions were developed and ranked: The actions (table 7) were identified at the spring 2018 partner workshop and subsequently prioritized by the core planning team.

Table 7. Recommended promotion and marketing actions

Priority Level (H/M/L)	Action Description	Status	Responsible Organizations and Supporting Partners (possible roles, where applicable)
High	<p>Launch the Tusayan Ambassador program. This program improves the guest and visitor experience in Tusayan by providing timely and relevant information on the streets of Tusayan. Chamber of Commerce staff stationed at bus stops and other key locations provide information about activities and businesses while encouraging use of multimodal options.</p>	Underway Program launched in 2018 and will continue in 2019.	<p>Chamber of Commerce (operation)</p> <p>Town of Tusayan (funding)</p> <p>Grand Canyon National Park (training support)</p> <p>Kaibab National Forest (content and information)</p>
High	<p>Promote the purchase of annual passes at regional gateway communities. Encourage the purchase of passes (e.g., America the Beautiful Pass) throughout the Grand Circle and related destinations to decrease processing times at the south entrance and facilitate shuttle ridership.</p>	Ongoing.	<p>Chamber of Commerce (coordination with other communities)</p> <p>National Park Service including Grand Canyon National Park (coordinating with national parks)</p>
High	<p>Produce and distribute a series of informational videos. The videos would focus on how to effectively visit the South Rim and highlight attractions, various transportation options including bicycling and the shuttle system and expectation-setting information on busy periods.</p>	Planned. Scheduled for 2022 – 2024.	<p>Grand Canyon Conservancy, Grand Canyon National Park, Chamber of Commerce</p>

Priority Level (H/M/L)	Action Description	Status	Responsible Organizations and Supporting Partners (possible roles, where applicable)
High	<p>Continue to coordinate promotion efforts. Maintain collaborative efforts and joint messaging, including regular press releases, social media content, and shared training. Encourage statewide and regional tourism and visitors bureaus to communicate consistent messages. Targeted ad placement within TripAdvisor and ensuring transportation content on the Grand Canyon Google listing for the park are high impact options.</p>	Ongoing. Press releases sent annually at a minimum. Routine social media posts.	<p>Chamber of Commerce, Grand Canyon National Park (leads)</p> <p>Kaibab National Forest (supporting information, Tusayan RD operation)</p> <p>Arizona Office of Tourism, regional visitor centers (consistent messaging)</p>
High	<p>Target visitors in recreational vehicles and those staying in Tusayan hotels. Provide custom information directly to regional car rental centers and RV parks.</p>	Ongoing.	Chamber of Commerce, Grand Canyon National Park, Kaibab National Forest
High	<p>Provide visitors information about congestion including the entrance station live webcam and traffic forecasts. The webcam allows for real-time information and is currently displayed on nps.gov and in local visitor centers. A traffic forecast reference or a “crowd calendar” would complement this real time view with advanced information about the busiest days and times of the year.</p>	Ongoing. Webcam operational.	<p>Grand Canyon National Park (operation of webcam, updates to nps.gov)</p> <p>Chamber of Commerce</p>
Medium	<p>Integrate transit schedules into Google Maps and other online trip-planning tools.</p>	Ongoing.	Grand Canyon National Park, NACOG
Medium	<p>Produce and distribute printed informational materials in multiple languages. The share of international visitors to the South Rim –Tusayan area is increasing.</p>	Ongoing.	Chamber of Commerce, Grand Canyon National Park
Medium	<p>Increase local education about transportation options for residents and employees. Provide information during new employee orientations and other forums.</p>	Ongoing.	Chamber of Commerce, Grand Canyon National Park, Town of Tusayan
Low	<p>Evaluate possible incentives for use of multimodal transportation options. Consider discounts or price/time incentives.</p>	To be considered during future fee evaluations.	Grand Canyon National Park

VISITOR EXPERIENCE ON TWO WHEELS

Strategy: Provide services and information that make bicycling a viable and enjoyable way to visit Grand Canyon National Park, further integrating Tusayan with the South Rim’s Greenway and bicycle transportation system.

What this theme includes: The physical infrastructure, visitor services and promotional efforts that support bicycling.

How the actions were developed and ranked: Similar to the Infrastructure, Safety and Operations theme, a subgroup of partners met to brainstorm additional actions that would enhance bicycling. The group generated 14 project ideas and ranked them based on the five criteria listed above. Then, the core planning team used the project scores to group projects into high, medium and low priorities.

Table 8. Recommended bicycling actions

Priority Level (H/M/L)	Action Description	Status	Responsible Organizations and Supporting Partners (possible roles, where applicable)
High	Identify needed improvements along the Greenway Trail and Greenway Trailhead/Park and Ride. Identify what infrastructure (such as mile markers, wayfinding signs, water, or emergency phones) is needed to support increase volumes of bicyclists. Phase 1 of the trailhead improvement project would include an improvement to existing visitor information and wayfinding.	Underway. Phase 1 visitor information improvements under development.	Kaibab National Forest, Grand Canyon National Park, Arizona Trail Association
High	Get bicycles in Tusayan. Provide a viable and convenient way for visitors to use bicycles. Identify options for operations that use existing infrastructure.	Awaiting business interest. Permitting requirements documented.	Business community Town of Tusayan (permitting)
High	Promote bicycling as part of the Grand Canyon experience. Use existing platforms and tools to promote cycling as an affordable, family-friendly activity and alternative to a car-bound trip. Leverage events like Bike Your Park Day (held each autumn) to raise awareness of existing bicycling opportunities.	Ongoing.	Chamber of Commerce, Grand Canyon National Park, Kaibab National Forest

Priority Level (H/M/L)	Action Description	Status	Responsible Organizations and Supporting Partners (possible roles, where applicable)
Medium	<p>Enhance and promote bicycling opportunities on the Kaibab National Forest. Promote recreation opportunities on the Kaibab National Forest as an alternative GCNP, particularly during busy periods and for those on a multiday trip. Build on efforts to diversify the area’s recreational amenities, such as the Tusayan Community Trails Master Plan.</p>	<p>Underway. Tusayan Community Trails Plan approved by Tusayan Town Council. Environmental analysis begins summer 2019.</p>	<p>Kaibab National Forest, Town of Tusayan</p>
Medium	<p>Encourage tours that originate outside the park and use bicycling as the primary transportation. Proactively offer commercial use authorizations (via request for proposal or other method) for tours that don't rely on vehicles</p>	<p>Planned. No timeframe set.</p>	<p>Grand Canyon National Park, Kaibab National Forest</p>
Medium	<p>Improve bike storage capacity on shuttle busses where feasible</p>	<p>To be evaluated after high priority actions are completed.</p>	<p>Grand Canyon National Park</p>
Medium	<p>Increase understanding of laws and regulations related to the management of electric bicycles. If regulatory flexibility becomes available, consider a pilot project that allows pedal-assisted e-bikes to be used on certain roads or paths.</p>	<p>To be reviewed pending possible regulatory flexibility.</p>	<p>Grand Canyon National Park (National Park Service regulations) Kaibab National Forest (US Forest Service regulations) Arizona Department of Transportation (state regulations)</p>
Medium	<p>Begin tracking visitor use of the Greenway Trail. Begin a monitoring program of visitor use on the Greenway Trail that will provide credible estimates of monthly and annual use.</p>	<p>Trail counters to be installed 2019/2020.</p>	<p>Kaibab National Forest, Grand Canyon National Park</p>
Medium	<p>Leverage events like Bike Your Park Day. Events help to raise awareness of existing bicycling opportunities.</p>	<p>Unknown.</p>	<p>Grand Canyon National Park, Adventure Cycling Association</p>
Low	<p>U.S. Bicycle Route designation The Grand Canyon could be designated as U.S. Bike Route 79, joining a national bike route network of</p>	<p>To be evaluated after high</p>	<p>Grand Canyon National Park, Adventure Cycling Association</p>

Priority Level (H/M/L)	Action Description	Status	Responsible Organizations and Supporting Partners (possible roles, where applicable)
	officially approved routes. This would be a great way to promote biking into the park beyond just the Tusayan Greenway, and would reach more of a national audience.	priority actions are completed.	
Low	Create a dedicated bus/bike lane through Tusayan	To be considered during any future Highway 64 planning and construction.	Town of Tusayan, Arizona Department of Transportation
Low	Evaluate bike-share opportunities for visitors and staff. Investigate the possibility of providing a transportation-focused bike share for visitors and staff. Consider the technology and maintenance needs to store and maintain bikes, as well as the role of employers in providing options.	To be considered after high priority actions are completed.	Local businesses, Chamber of Commerce, Town of Tusayan
Low	Consider incentives for bicycling - revisit the NPS entrance fee structure (e.g. capping the per person bike entrance fee at \$40 for two or more people in a non-commercial group), business discounts or coupons, etc	To be considered during future fee evaluations.	Grand Canyon National Park

A REGIONAL APPROACH

Strategy: Recognize the South Rim and Tusayan as part of a regional system of attractions by encouraging visitor access through Cameron and Desert View and enjoyment of the Kaibab National Forest’s diverse offerings.

What this theme includes: Improved linkages between South Rim-Tusayan and surrounding areas through transportation and promotion opportunities to beneficially distribute visitors throughout the region and provide more options for residents and employees.

How the actions were developed and ranked: The actions were identified at the spring 2018 partner workshop and subsequently prioritized by the core planning team.

Table 9. Recommended regional actions

Priority Level (H/M/L)	Action Description	Status	Responsible Organizations and Supporting Partners (possible roles, where applicable)
High	<p>Initiate a collaborative study to identify strategies for increasing and accommodating visitor traffic flow through Cameron and the Desert View Entrance. The effort would take advantage of planned improvements at Desert View and in Cameron (new hotels, a cultural center, and recreational trails) by encouraging more visitation to travel through the east entrance. Effective visitor use management methods would be needed to ensure public safety and resource protection.</p>	To be considered after other high priority actions are completed.	<p>Grand Canyon National Park</p> <p>Navajo Nation</p> <p>American Indian and Alaska Native Tourism Association</p> <p>Coconino County</p> <p>Arizona Office of Tourism (data and technical expertise),</p> <p>Regional visitor centers (consistent messaging)</p>
Medium	<p>Partner with tribal organizations, Organizations such as Little Colorado River–Cameron Small Vendors Association and Navajo Youth Empowerment Services can be engaged in visitor use management and transportation planning.</p>	Ongoing.	Grand Canyon National Park
Medium	<p>Evaluate the potential of a commuter shuttle for employees between Tusayan and Cameron, or establish service on the existing vanpool program.</p>	Planned, no timeframe set.	Town of Tusayan, Northern Arizona Intergovernmental Public Transportation Authority, Coconino County, Grand Canyon National Park, Navajo Nation, Navajo Transit
Medium	<p>Evaluate the potential for future visitor transit hub and shuttle service originating in Cameron</p>	Ongoing. Part of regional transit planning.	Town of Tusayan, Northern Arizona Intergovernmental Public Transportation Authority, Coconino County, Grand Canyon National Park, Arizona Department of Transportation, Navajo Nation, Navajo Transit
Medium	<p>Pursue employment opportunities in visitor services and transportation via a commuter van to Page, Flagstaff, and Grand Canyon with an emphasis on hiring locally.</p>	Planned, no timeframe set.	Town of Tusayan, Northern Arizona Intergovernmental Public Transportation

Priority Level (H/M/L)	Action Description	Status	Responsible Organizations and Supporting Partners (possible roles, where applicable)
			Authority, Coconino County
Medium	Improve understanding of legislation and tools that support tourism on tribal lands, including the Native American Tourism and Improving Visitor Experience Act of 2016.	Ongoing.	American Indian and Alaska Native Tourism Association, Town of Tusayan, Coconino County, Grand Canyon National Park, Kaibab National Forest, Navajo Nation

MEASURES OF SUCCESS

Table 10. Measures of success – indicators for South Rim/Tusayan transportation

Category	Indicator	Method	Responsible Entity
Entrance line wait time	Days per year experiencing 15-minute waits (approximate wait that blocks entry of shuttle bypass road)	Undetermined	Grand Canyon National Park
	Days per year experiencing 30-minute waits (widespread visitor experience impact)	Undetermined	Grand Canyon National Park
	Days per year blocking Tusayan Ranger Station (public safety and employee impacts)	Undetermined	Kaibab National Forest
	Days and/or hours per year experiencing 40- to 50-minute waits and beyond (approximate wait time at Tusayan roundabout)	Undetermined	Grand Canyon National Park
	Days and/or hours per year with extreme congestion (backed up through Tusayan)	Undetermined	Grand Canyon National Park
Tusayan parking availability	Number of businesses reporting adequate parking for customers and shuttle users	Annual business survey	Chamber of Commerce
Ridership on the Tusayan Shuttle route	Average riders per day	Manual on-shuttle counts	Grand Canyon National Park, Paul Revere Transportation
	Total riders per year	Manual on-shuttle counts	Grand Canyon National Park, Paul Revere Transportation
	Number of occurrences of wait times over 30 minutes at shuttle stops	TBD	TBD
Visitor use of the Greenway Trail	Number of annual users	Infrared trail counter	Kaibab National Forest

PROJECT TEAM/LIST OF PREPARERS

Jan Balsom, Advisor to the Superintendent,
Grand Canyon National Park

Pamela Edwards, Concessions Program
Analyst, Grand Canyon National Park

Sharon Cann, Project Manager, Paul Revere
Transportation LLC Grand Canyon
Division

Adam Milnor (primary author), Community
Planner, National Park Service, Rivers,
Trails and Conservation Assistance, Arizona
Field Office

Laura Chastain, General Manager, Grand
Canyon South Rim Chamber of Commerce
and Visitor Bureau

Bruce Northern, Town Clerk, Tusayan

Eric Duthie, Town Manager, Tusayan

Liz Schuppert, Public Services Branch
Leader, Kaibab National Forest

ADDITIONAL CONTRIBUTORS OR REVIEWERS

Erica Cole, Transportation Planner, National Park Service Intermountain Region

Rachel Collins, Visitor Use Management Specialist, National Park Service Denver Service
Center

Saara Snow, Travel Initiatives Coordinator and Parks Liaison, Adventure Cycling Association

Collen Floyd and Kari Roberg, Research Division, Arizona Office of Tourism

Tod Morris, Mobility Management Planner, Northern Arizona Council of Governments

Kate Morley, Development Director, Northern Arizona Intergovernmental Public
Transportation Authority

LIST OF WORKSHOP PARTICIPANTS

Steve McClain, Bright Angel Bikes

Clarissa Chee, Cameron Vendor
Association

Wes Neal, Bright Angel Bikes

Alicia Chee, Cameron Vendor Association

Jason James, Northern Arizona Council of
Governments Transportation Manager

Greg Brush, Tusayan Fire Department

Todd Morris, Northern Arizona Council of
Governments, Mobility Planner

Kirby-Lynn Shedlowski, National Park
Service, Public Affairs

Ken Hosen, KFH Group

Vanessa Ceja Cervantes, Grand Canyon
National Park, Interpretation

Kate Morley, Northern Arizona
Intergovernmental Public Transportation
Authority

AJ Lapre, Grand Canyon National Park,
Interpretation

Vicky Stinson, Grand Canyon National
Park, Project Manager

Jennifer O'Neill, Grand Canyon National
Park, Partnerships and Compliance

Bobby Vaughn, Grand Canyon National
Park, Fee Management

Chip Davis, Congressman O'Halleran's
Office

Clarinda Vail, Red Feather Properties,
Grand Canyon Chamber of Commerce

Romy Murphy, Pink Jeeps

Esther Sacco, Papillion

Mike Scott, Grand Canyon Community
Church

REFERENCES

Arizona Department of Transportation

- 2018 “SR 64 Corridor Profile Study, I-40 to Grand Canyon National Park—Final Report.”

Arizona Office of Tourism

- 2018 “2017 Northern Region Year End Data Review”. Accessed March 2019.
2018 “International Travel to Arizona”. Accessed March 2019.

Holly, F.

- 2009 Incentives and disincentives for day visitors to park and ride public transportation at Acadia National Park. Master Thesis. Clemson University.

Manning, R., S. Lawson, P. Newman, J. Hallo, and C. Monz

- 2014 Sustainable transportation in the national parks: From Acadia to Zion. White River Junction, VT: University Press of New England

National Park Service

- 1995 Final General Management Plan and Environmental Impact Statement, Grand Canyon National Park. Denver Service Center
- 2004 “Report to Congress on Transit Alternatives, Grand Canyon National Park.” December. Grand Canyon National Park, AZ.
- 2006 “Service Times and Capacity at National Park Entrance Stations”
- 2008 *South Rim Visitor Transportation Plan Environmental Assessment/Assessment of Effect*
- 2009 Grand Canyon National Park Tusayan Pilot Shuttle Evaluation
- 2017 “Visitor Spending Effects – Economic Contributions of National Park Visitor Spending,” interactive website.
<https://www.nps.gov/subjects/socialscience/vse.htm>
- 2018a National Park Service Visitor Use Statistics interactive website.
<https://irma.nps.gov/Stats/>
- 2018b *National Park Service Alternative Transportation Guidebook*

Taff, D., Newman, P., Pettebone D., White, D., Lawson, S., Monz, C., and W. Vagias

2013 Dimensions of alternative transportation experience in Yosemite and Rocky Mountain National Parks. *Journal of Transport Geography*.

Town of Tusayan

2014 Tusayan General Plan 2024. Tusayan, AZ.

2018 Tusayan Community Trails Master Plan. Tusayan, AZ.

US Census Bureau

2018 “American FactFinder” Accessed April 2018.

US Forest Service

2018 “National Visitor Use Monitoring Program Application” Accessed June 2018.

APPENDIX A: PROJECT SCHEDULE

Component	Participants	Timeframe
<p>DATA GATHERING</p> <ul style="list-style-type: none"> ▪ Initial assessment (site visit, interviews, and research) ▪ Generate initial list of data needs ▪ Identify peer communities 	Rivers, Trails, and Conservation Assistance	September to October 2017
<p>TEAM COLLABORATION AND CONCEPT DEVELOPMENT</p> <p>Project Meetings</p> <ul style="list-style-type: none"> ▪ Establish ground rules for collaboration ▪ Review and refine project goals ▪ Share information and gather data ▪ Action brainstorming ▪ Identify focus initiatives and formation of work teams ▪ Presentation from peer communities (Springdale/Zion National Park and White Rock/Bandelier New Mexico) ▪ Context mapping (identifying trends, factors and related efforts) ▪ Discuss focal initiatives and formation of work teams ▪ Plan and execute the partner workshop 	Core team	November 2017 to March 2018
<p>PARTNER ENGAGEMENT</p> <p>Partner Workshop</p> <p>Purpose:</p> <ul style="list-style-type: none"> ▪ Increase awareness of the transportation challenges and opportunities facing the South Rim – Tusayan area ▪ Create a venue for partners to express their evaluation of the current services ▪ Build a shared understanding of what constitutes success ▪ Present initial ideas and allow for improvement, support, or buy-in ▪ Help identify issues with current service and expectation 	Core team and partners	April 17, 2018

Component	Participants	Timeframe
STRATEGY REFINEMENT <ul style="list-style-type: none"> ▪ Topical meetings (refine project ideas and prioritize contents of action plan) 	Core team and partners	May to September 2018
ACTION PLAN PREPARATION Prepare Draft Action Plan	Rivers, Trails, and Conservation Assistance Core team and interested partners	October 30, 2018
COMPLETE ACTION PLAN Prepare Final Action Plan <ul style="list-style-type: none"> ▪ Review and approval, as necessary (i.e., City Council, Chamber of Commerce Board, Grand Canyon National Park, and Kaibab National Forest Leadership) 	Rivers, Trails, and Conservation Assistance to lead Core team and interested partner contributions	May 30, 2019