24 Managing park roads and scenic driving using indicators and standards-based frameworks

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Introduction

Cars are both a form of transportation and a mechanism for experiencing an area. For example, visitors to parks and protected areas use cars to get to and from attraction sites and recreation activities. However, driving through a park can also be an important part of the recreation experience, and visitors are often seen driving slowly to observe scenery, taking pictures out of car windows, and generally exploring areas by automobile instead of by foot. Some protected areas, such as the US National Park Service's (NPS) Blue Ridge Parkway, were explicitly established and designed to provide recreational driving experiences within scenic natural landscapes of the US (Havlick 2002). The Blue Ridge Parkway is the most visited NPS site, and the George Washington Memorial and Natchez Trace Parkways are among the other ten most visited NPS sites (National Park Service 2009).

The popularity of recreational driving in parks and protected areas corresponds with studies that have consistently suggested that large numbers of people in the US enjoy driving for recreational purposes (Manning 1999). Recently, 'driving for pleasure' was ranked as one of the most popular recreational activities in the US (National Survey on Recreation and the Environment 2000–2002).

Several conceptual frameworks have emerged to guide management of parks and outdoor recreation, and these are now beginning to be applied to park roads and scenic driving. These frameworks include Limits of Acceptable Change (LAC) (Stankey et al. 1985), Visitor Impact Management (VIM) (Graefe et al. 1990), and Visitor Experience and Resource Protection (VERP) (National Park Service 1997; Manning 2003). Few substantive differences exist among these frameworks, and they all share a common set of basic procedures (Manning 2007). VERP is the framework currently used by the NPS to address management of recreation at units of the National Park system (Manning 2001). LAC is used by the US Forest Service to manage recreation on national forests and grasslands. VIM was developed by the National Parks Conservation Association for application to parks and protected areas (Graefe et al. 1990).
Indicators and standards-based management frameworks

VERP, LAC and VIM frameworks begin by directing managers to set objectives for resource conditions and the quality of the visitor experience. A likely objective related to recreational driving might be to provide opportunities for visitors to enjoy natural and scenic features while driving or riding in a vehicle. This objective includes resource and experiential elements, since both the quality of the visitor experience and the features that would be enjoyed need to be protected to fulfill the objective. However, this objective (or any others) must ultimately be expressed in a manner that can be used to manage recreational driving. Indicators and standards provide the constructs within the VERP, LAC and VIM frameworks that quantify management objectives.

Indicators are measurable, manageable variables that act as proxies for desired resource and experience conditions. To be most effective, indicators should meet several criteria (National Park Service 1997; Manning 2007). Two primary criteria are noted in the above definition of indicators: measurable and manageable. Indicators must be measurable to objectively determine their condition. Moreover, if indicators are outside the scope of managers' control, then there may be little reason to focus on them in the context of management planning.

Many variables could be considered for use as indicators for driving experiences, but they all must meet the primary criteria of measurability and manageability. For example, the amount of litter per unit length of road directly impacts the aesthetic resources that many drivers seek. Litter can be measured through periodic monitoring efforts and managed by removing it or through anti-littering campaigns. Also, the number of other vehicles per unit length of road is a potential indicator, since the density of vehicles might reduce enjoyment due to perceptions of crowding or unsafe driving conditions.

Other criteria for good indicators exist (National Park Service 1997; Manning 2007, for a review). For example, indicators should also be significant to visitors and/or managers. Use levels, for example, are both measurable and manageable, but unless participants feel that use levels are important in defining the quality of their experience, then it does little good to focus on use levels as an experiential indicator of quality. Additional criteria for good indicators include being objective, specific, reliable, repeatable, related to visitor use, sensitive, efficient to measure and integrative. All of these characteristics must be considered in combination with the context of application—specifically, policy, political, resource and managerial constraints—when choosing indicators. This suggests that indicators for one driving experience may not be useful as indicators for a driving experience in a different location or context. Ultimately, the weighing of these additional characteristics for the selection of a final list of indicators requires the informed judgement of managers. Examples of indicators identified in various park settings include the number of people or vehicles per viewscape, pieces of litter in an area, extent of graffiti coverage, number of large groups on a trail, time spent finding a parking place and the percentage of time that human-caused noise is present (Manning 2007).

One of the most common ways to inform the development of indicators is through survey research directed at activity participants and others who are most affected. For example, participants may be asked to report what they enjoyed most and least about their time at an area, or they may be asked to rate the importance of a list of potential resource and experiential impacts. Responses to these questions are then categorised and weighted against the criteria for indicators (Beinap 1998). Qualitative interviews have been suggested as another research-based approach for informing the development of indicators (Hallo et al. 2009; Manning 2007). Interviews typically ask a set of open-ended questions that encourage respondents to provide narrative, contemplative answers. Codes and themes derived from a qualitative analysis are then used to generate potential indicators.

Establishing standards for each indicator is the next step necessary in application of the VERP, LAC and VIM planning frameworks. Standards define the minimum acceptable condition of indicator variables. Good standards are expressed in a quantitative manner, are bounded by time and/or space (for example, per day or per mile of road), include some allowances for random or unusual circumstances, focus directly on impacts of concern and are realistically attainable (Manning 2007; National Park Service 1997). For example, a well-expressed standard for crowding on a scenic drive might be that 'there should be no more than fifty vehicles per mile of road over 10 per cent of the time'. This standard is quantitative, bounded, and makes allowances for unusual circumstances 10 per cent of the time. However, the context of application needs to be considered to determine if this standard focuses on relevant impacts and is realistic.

Standards may be developed based on expert opinion, legislative guidance, historical precedent or empirical data. The latter of these provides a defendable and objective approach to developing standards that also involves recreation and tourism participants in planning and decision-making. Research to help formulate standards has focused on normative theory and related empirical methods (Shelby and Heberlein 1986; Manning 1999; Vade and Whittaker 2004). Normative theory suggests that visitors to an area may have standards for appropriate resource and experiential conditions. These standards are termed personal norms. Moreover, there may be agreement about these standards among visitors, and these are termed social
nons. Norms are typically measured by asking survey respondents to rate the acceptability of a range of conditions. The personal norms of individual respondents are aggregated into a social norm curve. This plots the mean acceptability ratings (that is, social norms) for each condition. Standards can then be derived by examining this curve, perhaps by looking at where aggregate responses cross the neutral point of the response scale (that is, where aggregate ratings fall out of the acceptable range and into the unacceptable range).

Normative standards can be measured in a questionnaire using narrative/numerical descriptions of conditions or by visual research methods (Manning and Freimund 2004). Narrative or numerical descriptions are used for variables that would be difficult or inappropriately depicted visually, such as the number of encounters with other vehicles over a period of time, or waiting times. Visual approaches, where possible, are preferred in the measurement of normative standards, since they have been shown to permit respondents to better understand the conditions they are asked to evaluate (Manning and Freimund 2004). In a visual approach, a series of computer-edited photos are typically used to illustrate the range of conditions. Respondents are asked to evaluate the acceptability of the 'treatment' conditions shown in the photos.

Normative research can also use a variety of ‘evaluative dimensions’ (Manning 1999; 2007). As described above, respondents are often asked to rate the ‘acceptability’ of a range of park conditions. However, respondents might also be asked to report the conditions they would ‘prefer’ to experience (‘preference’), the conditions they think managers should maintain (‘management action’) and the conditions that are so bad that they would no longer visit the area (‘displacement’). Social norms based on these alternative evaluative dimensions may be used to develop a range of standards that reflect management objectives (for example, providing greater access versus providing for a higher-quality experience). Respondents may also be asked to report the conditions they typically experience to provide an indication of whether existing conditions violate a specific standard. Only acceptability-based standards are presented in this chapter; however, the process for developing standards based on other evaluative dimensions is the same as that detailed later in this chapter.

Once indicators and standards of quality have been formulated, then indicator variables must be periodically monitored. If monitoring suggests that standards are in danger of being violated, then management action is required. Management actions can include a variety of practices, including use limits, spatial or temporal redistribution of use, protection of the site from further impacts (for example, site hardening or expansion), educating visitors in an attempt to reduce impacts, and direct mitigation (for example, picking up litter and replanting areas of damaged vegetation). The remainder of this chapter focuses on several case studies where indicators and standards have been developed to understand and manage visitor use of park roads and scenic driving more generally. Monitoring of these indicators and standards is an ongoing activity at these sites.

Indicators of quality for Acadia’s Ocean Drive

Acadia National Park (Acadia) is located on the central coast of the state of Maine. The park contains one-quarter of Maine’s publically accessible coastline (National Park Service 1992). Over two million visits to the park occur annually (National Park Service 2009). A majority of visitors go to the Mount Desert Island (MDI) portion of the park, and approximately 86 per cent of visitors use the Park Loop Road to access the park’s major attractions (Littlejohn 1999; Manning 1997). The Ocean Drive section of the Park Loop Road starts immediately after the park entrance station and closely follows the coastline for 1.5 miles (2.4 km). Like many high-use, landmark roads in national parks, Ocean Drive is intended to provide a recreational experience for visitors who drive it. The road was engineered to provide visitors with scenic views of Maine’s rocky, picturesque coastline (National Park Service 1992).

Both the design and experiential intent of Ocean Drive is reflected in the current management and use of the park. Acadia’s 1992 General Management Plan recognises the aesthetic values of this road, and it recommends management of the road to protect and enhance Olusestead’s original design intent (National Park Service 1992). Also, the most popular visitor activities at Acadia are driving and sightseeing, with approximately 86 per cent of visitors participating in this form of recreation (Littlejohn 1999). Much of this recreational use is concentrated along Ocean Drive, with several of the park’s most popular visitor attraction sites – Thunder Hole (a coastline geologic feature), Sand Beach and trailheads for the Beehive and Gorham Mountain trails – located along it. Approximately 75 per cent of visitors to the park travel Ocean Drive and stop at Thunder Hole or Sand Beach (Littlejohn 1999).

Qualitative, semi-structured interviews were conducted with thirty-nine Ocean Drive private vehicle users (both drivers and passengers) to examine indicators of quality for this driving experience. This was done by asking respondents several questions intended to help understand the variables that add to or detract from a quality recreational driving experience on Ocean Drive. A content analysis of the resulting transcripts was then performed. This analytical method involves searching transcribed text for recurring words or themes that make up its primary meaning (Patton 2002). Codes were developed to represent these recurring words or themes, based on procedures described by Patton (2002) and Miles and Huberman (1994). Codes resulting from the content analysis were used to identify potential indicators of quality for the driving experience on Ocean Drive.
Respondents were first asked to describe three things they enjoyed most about their visit on Ocean Drive. Many responses to this question were described by predominantly experiential codes such as ‘serene scenery’, ‘parking and pull-offs to see scenery’, ‘tranquil, relaxing atmosphere’, and ‘not too much traffic’. Other codes mentioned the importance of conventional transportation concepts (for example, parking, travelling and access, one-way nature of the road, and directional signs), but these concepts were often expressed in a manner related to the recreational experience of visiting the park.

Respondents were next asked what three things they enjoyed most about their experience on Ocean Drive. The two most frequently occurring codes to this question were ‘traffic and crowds’ and ‘lack of parking’. Several other codes that were assigned only once or twice emerged in response to this question. These codes included ‘parking to the right lane’ (which is allowed on Ocean Drive), ‘fees or fee structure’, ‘views obscured by vegetation’, ‘the one-way road’, ‘tour buses’, and ‘lack of signs’.

Lastly, respondents were asked what makes for a good day when driving on Ocean Drive. ‘Good weather’ was the most frequent response code. Other response codes to this question were more manageable variables and therefore more useful in informing the development of indicators. ‘Little traffic or crowds’ was the next most frequently occurring code. Other response codes associated with this question included ‘beautiful scenery’, ‘friendly and courteous people’, ‘a well-maintained road’, ‘ease of access or places to park’, and ‘people obeying regulations’.

These interview results suggest several potential indicators to manage scenic driving on Ocean Drive. First, vehicle use levels and related perceptions of vehicle congestion may be a primary indicator. Congestion was the most frequent code to emerge from a question asking visitors what they enjoyed least about Ocean Drive. It also emerged in codes for questions about what visitors enjoyed most (for example, ‘not too much traffic’) and what constitutes an ideal experience. Furthermore, other codes in these questions may be closely related to use levels on the road. For example, the tranquil, relaxing atmosphere cited by respondents as being enjoyable is likely at least partially related to the number of vehicles that use the road at any one time. Also, variables such as parking availability, safety of driving along the road, and the cleanliness and maintenance condition of Ocean Drive may be closely related to vehicle use levels on the road.

A second potential indicator is scenic value; ’serene scenery’ was the most frequent code for what people enjoyed along Ocean Drive. But how can scenic value be measured and managed? Other codes emerging from the interviews provide possible answers to this question. Respondents suggested that maintenance of roadway vistas and litter may be important variables in their experience along Ocean Drive. These variables might be used as proxies to measure and manage scenic values along the road. For example, litter detracts from Ocean Drive’s scenic value. Litter amounts could be monitored along the road and managed to ensure that levels do not reach a point where they are considered unacceptable by park visitors (Badru and Manning 2006). Moreover, key viewing points along the road could be kept clear of vegetation or other visible obstructions.

Third, codes assigned to interview responses related to parking availability, speed of travel, the one-way nature of the road, wayfinding and signage, and driving conditions suggest that freedom, convenience and safety of travel represent other possible indicators. These codes also provide potential ways in which freedom, convenience and safety of travel might be measured and managed. For example, the amount of time that parking lots are at their capacity or opportunities for drivers to slow down or stop along the road might be measured directly, or through a survey of visitors. Similarly, safety of travel might be measured through a count of safety incidents (for example, speeding violations and accidents), or by measuring perceptions of safety among visitors.

**Indicators of quality for off-road vehicle use at Cape Cod National Seashore**

Cape Cod National Seashore is located on the eastern coast of the US in the state of Massachusetts. It was designated in 1961 as a unit of the National Park system. Prior to 1961, the area was used by people who drove off-road vehicles over its sand beaches. This area’s originating legislation and its subsequent interpretation through judicial review recognised the recreational activity of beach driving as an appropriate and accepted use of the national seashore.

In the first few decades after establishment, beach driving was not formally managed, resulting in an extensive system of routes and trails on both beaches and sand dunes. The limited popularity of four-wheel-drive vehicles, which are necessary for beach driving, restricted the number of vehicles participating in the activity. However, as vehicles with four-wheel-drive became commonplace in the 1990s – even attaining status as a cultural fad – demand for beach driving on the seashore and elsewhere has increased (Mona et al. 2004).

Qualitative interviews were used to explore indicators of quality for the beach driving experience at Cape Cod. Semi-structured interviews were conducted with users of the Cape Cod beach driving route. Both vehicle drivers and passengers were interviewed. A content analysis (similar to that described above for the study at Acadia National Park) was performed on the interview transcripts, and indicators were identified based on codes assigned to interview responses.

A total of sixty-one interviews were conducted with beach drivers and passengers at Cape Cod. When these recreationists were asked to describe ‘their ideal experience’, respondents provided answers that were grouped into eleven codes. The most frequently occurring response codes that met
the primary criteria for an indicator – measurable and manageable – were those of ‘peacefulness’ and ‘solitude’. Solitude and peacefulness both might be managed by limiting the number of vehicles allowed on the beach, dispersing use, or through noise regulations. Other potential indicator variables that emerged from this question, though with less frequency, included ‘naturer or wildlife to watch’, ‘positive interactions with NPS staff’, ‘open access to beach/no closures’, and ‘trash on the beach’.

Other codes that were assigned to interview responses, such as ‘good weather’, ‘social experiences with friends and family’, and ‘meeting friendly people on the beach’ are codes that are not easily manageable, and in some cases difficult to measure. ‘Good fishing’ – mentioned by a few respondents – was also excluded from consideration as a potential indicator because, while being measurable, management of the migratory, ocean-based fishery in the area is outside the authority of the NPS.

A second question used to probe respondents for potential indicators asked what could be done to improve the quality of their beach driving experience at Cape Cod. The most frequently assigned response code to this question suggested adding facilities such as additional stations to re-inflate tires after reducing their pressure for driving on the sand (a requirement for beach driving both policy and practicality), or portable toilets on the beach driving route. Another response code with a higher frequency of occurrence was that of reducing the impacts of beach driving route closures associated with an endangered shorebird. Several respondents answered this question by suggesting improvements to the permitting process or reducing the amount of litter.

Codes that consistently appeared in the results from other interview questions – ‘crowding’ and ‘user conflicts’ – also emerged in the response to this question. New codes were developed to reflect opinions that included ‘better information is needed on route closures’, ‘permit numbers or types should be changed’, or ‘there is a need for better or more consistent regulations and enforcement’. By identifying the codes that consistently emerged in the responses to these two questions (and others asked during the interview), and the relative frequencies of those codes, several potential indicators of quality may be identified for the beach driving experience at Cape Cod. These indicators include vehicle congestion, the portion of the beach-driving route open, ease of obtaining a permit, amount of litter, availability of support facilities, and the behaviour and actions of other ORV users. Congestion, the perception of use densities as being too high, is derived from the frequent emergence of codes related to solitude, peacefulness, and ORV use levels.

Standards of quality on the Blue Ridge Parkway

The Blue Ridge Parkway stretches for nearly 500 miles along the eastern half of the US. It passes through some of the nation’s oldest preserved settlements and working landscapes. Moreover, the parkway is managed to provide a leisurely driving experience; it passes through the scenic, pastoral and forested landscape of the Blue Ridge Mountains. Its accessibility, due to its length and many entrance points, and its beauty draws 17 million visitors annually, the most of any NPS site in the US (National Park Service 2009).

A quantitative survey was conducted to help develop standards of quality for the parkway’s scenic driving experience. Previous empirical work suggested that vehicle congestion on the roadway and visitor crowding at scenic overlooks were indicators for the Blue Ridge Parkway driving experience (Park Studies Laboratory 2002). Surveys were conducted at eleven locations on the parkway to examine the acceptable conditions of these indicators. A total of 591 questionnaires were completed by Blue Ridge Parkway visitors.

One of the questions in this survey presented respondents with a set of seventeen computer-edited photos depicting different amounts of traffic along a generic section of the parkway. These photos contained varying numbers of vehicles (zero, five, ten, fifteen and twenty vehicles per photo) and combinations of cars with other vehicle types (recreational vehicles, motorcycles and bicycles). (It should be noted that, when recreational vehicles, motorcycles or bicycles were digitally added to these photographs, the proportion of cars to these other vehicle types was always held constant at four to one. This was done to examine the influence of these three vehicle types, not their proportions, on social norms and potential standards.) Similarly, in another question, respondents were asked to evaluate a series of five computer-edited photos that depicted zero, twenty-two, forty-four, sixty-six and eighty-eight visitors at a scenic overlook. A sample of study photos presented to respondents for both number of vehicles on the road and number of visitors at scenic overlooks is shown in Figure 24.1.

Respondents were asked to evaluate the ‘acceptability’ of each photo using a response scale that ranged from +4 (very acceptable) to −4 (very unacceptable).

Responses to these survey questions were aggregated, and the mean responses were plotted in the form of social norm curves. The social norm curve in Figure 24.2 indicates that smaller amounts of traffic are more acceptable than larger amounts, and that aggregate evaluations of the study photos fall out of the acceptability range and into the unacceptable range at approximately seven vehicles per viewscope. This value represents a possible standard for vehicle congestion on the Blue Ridge Parkway. Also, this norm curve suggests that, if a portion of the vehicles within a visitor’s viewscope consists of either bicycles or motorcycles, then a standard of ten vehicles per viewscope could be used. Apparently, bikes (in either form) do not contribute to perceptions of traffic congestion as much as cars or recreational vehicles. However, cars and the larger recreational vehicles seem to contribute equally to perceptions of traffic congestion.
Figure 24.1 A sample of the photos evaluated by Blue Ridge Parkway visitors to obtain standards for the number of vehicles per viewcape on the road (top) and the number of people at scenic overlooks (bottom).

Figure 24.2 Social norm curve for the number of vehicles per viewcape on the Blue Ridge Parkway (social norms based on photos showing different combinations of cars with other vehicle types are shown).

Figure 24.3 Social norm curve for the number of people at a scenic overlook along the Blue Ridge Parkway.
Similarly, Figure 24.3 shows the social norm curve for crowding at scenic overlooks. This figure indicates that smaller numbers of visitors at overlooks are more acceptable than larger numbers of visitors, and that aggregate evaluations of the study photos fall out of the acceptable range and into the unacceptable range at approximately thirty-five people at one time. This value represents a possible standard for crowding at scenic overlooks along the Blue Ridge Parkway.

Standards of quality on the Denali National Park Road

Over 400,000 visitors annually come to see Denali National Park and the approximately 2.1 million acres of designated wilderness it contains. An overwhelming majority of these visitors see Denali and its wilderness from inside a bus on the Denali Park Road (Trindel 2001). The 90-mile road is the sole road open to visitor use. However, since 1972, most of the road has been closed to private vehicles (Miller and Wright 1999). Visitors typically travel the road on either a park-sponsored Visitor Transportation System (VTS) bus, or on a tour or commercial bus.

A study was conducted (using qualitative methods as described earlier) to help inform the development of indicators. This study found that vehicle congestion at rest areas and along the road were two of several potential experiential indicators for Denali Park Road users. A subsequent study was conducted to formulate standards for these indicators. In this study, rest area congestion was defined (based on additional findings from the qualitative study and the informed judgement of park staff) as the number of vehicles at one time at the Polychrome Rest Area—a highly used and scenic rest stop, and congestion on the road was represented as the number of buses within view at Stony Overlook—one of the park's most iconic viewpoints.

A quantitative survey was administered to 707 Denali Park Road users to gather data on standards for these indicators. Respondents were asked to rate the acceptability of computer-edited photos showing zero, one, two, four, six, eight, ten and twelve buses stopped at the Polychrome Rest Area. (Visitors were also displayed in these photos. For each additional bus in the photo, an additional eighteen visitors were digitally added to the photos. This was based on average bus ridership data.) Respondents rated these photos on a scale of +4 (very acceptable) to -4 (very unacceptable). Similarly, respondents were asked to rate (using the same acceptability scale) photos depicting zero, one, two, four, six, eight, ten and twelve buses in the viewscapes as seen from Stony Overlook. A sample of study photos evaluated by Denali Park Road users is shown in Figure 24.4.

Responses to these survey questions were aggregated and the mean responses were plotted in the form of social norm curves. Figure 24.5 shows the social norm curve for the number of buses at the Polychrome Rest Area. This curve indicates that (on average) respondents felt that there should be no more than five buses (and a corresponding ninety people) at the Polychrome Rest Area. A similar social norm curve for the number of buses in the Stony Overlook viewscapes suggests that seeing more than five buses in the Stony Overlook viewscapes would (on average) be considered unacceptable by Denali Park Road users. These values may represent possible standards by which to measure and manage quality recreational experiences on the Denali National Park Road.

Discussion and conclusion

Indicators and standards-based frameworks represent a tested approach for defining and managing quality recreational experiences. Several case studies were presented in this chapter to explore the application of the critical elements of these frameworks to management of park roads and scenic driving. These frameworks have been successfully applied in these case study areas, to many other forms of motorised and non-motorised recreation, and in many parks and outdoor recreation-related contexts (Manning 2007, for a review).

It should be noted that the indicators and standards identified in the above case studies should not be applied to other park roads or forms of drive tourism without substantial thought and research. Variables such as litter, environmental impacts, driving behaviours, speed of travel, signage, safety and cost (and many others) may be more salient indicators for managing quality recreation in other contexts. However, vehicle congestion and the number of visitors at both scenic and rest stops are likely to have some impact on experiential quality on park and related roads, regardless of context. Likewise, standards for vehicle congestion, people at stops, or other indicators may be very different for a remote, wilderness-type road (such as the Denali Park Road) as compared to a highly accessible road (such as the Blue Ridge Parkway).

Indicators and standards help take the subjectivity and potential for confusion out of terms like 'enjoyment' and 'quality'. Indicators define the essential qualities of a road or driving experience in a manner that can be addressed by managers or tourism providers who seek to enhance driving-related recreation. Standards define the range of acceptable conditions for these essential qualities, and provide thresholds to determine when and where recreational experiences need to be improved. For example, if a standard for a park road or scenic driving experience is being violated (or will soon be), actions might be taken to limit or redistribute vehicle use. However, other actions, including redesigning roads, altering scenic driving routes, or enacting or changing policies that affect driving behaviours could also be considered.

Indicators and standards-based frameworks overcome many of the limitations of commonly utilised measures of service quality. In recreation (and many other settings), 'satisfaction' has been used for decades to judge...
Figure 24.4 A sample of the photos evaluated by Denali Park Road users to obtain standards for the number of buses in the Stony Overlook viewscapes (above) and the number of buses at the Polychrome Rest Area (right).
experiential quality. 'Satisfaction' is an intuitive and widely applied measure of quality. However, in a recreation or tourism context, 'satisfaction' is almost uniformly reported as being high (Manning 1999). Experiential quality, therefore, cannot be adequately measured and managed if 'satisfaction' or similar concepts do not truly distinguish between differing degrees of service. Consistently high satisfaction may, in part, be due to recreationists 'averaging' all aspects of their experience, including elements that are not readily measurable or manageable (for example, social interactions, natural aesthetics, serendipitous happenings and individual emotional reactions), and elements that can be quantified and managed (for example, number of vehicles or people). Also, people may cognitively minimize negative aspects of their experience and focus instead on positive components that align with their desires and expectations for an enjoyable recreational trip. Indicators and standards-based frameworks overcome these limitations by examining specific variables (indicators) that are most important to an experience and the appropriate condition of these variables (standards), rather than focusing on broad, vague and inherently subjective concepts such as 'satisfaction'.

Likewise, the Highway Capacity Manual is a widely used reference in the US for road design and planning that defines six levels of service (LOS) (rated A through F), characterising service quality of transportation systems (Transportation Research Board 2000). For example, LOS A on many scenic roads is defined as less than 40 per cent of time spent following another vehicle. An empirical examination of the LOS concept on a National Park road suggests a substantial difference between service quality recommended by the HCM's LOS concept and that reported by users of the scenic road (Hallo and Manning, in press). This finding indicates that traditional service quality measures for transportation such as LOS, which focus exclusively on travel efficiency and safety, may need to be augmented with experiential considerations when applied to the management of park roads or scenic driving more broadly. Again, indicators and standards-based frameworks provide an approach for determining the experiential variables that should be included in this analysis, and the appropriate condition of these variables. Indicators and standards provide a more accurate and holistic indication of service quality on experiential roads.

Thoughtful, informed and defensible management plans are perhaps the greatest benefit of utilizing indicators and standards-based frameworks. These frameworks take planners and managers through a rational set of steps to formulate objectives for park roads and scenic driving, and to determine how these objectives will be measured and managed. Research to support application of these management frameworks allows management plans to incorporate the needs, attitudes and opinions of the population that is being served. Also, the research process to develop indicators and standards provides for representative inclusion of stakeholders, particularly as compared to other forms of public involvement where only the most vocal or extreme opinions are often heard (for example, focus groups and public meetings). Lastly, management plans developed using indicators and standards-based frameworks create a more objective decision that is readily documented and communicated to stakeholders. When these decisions are contentious, use of an indicators and standards-based approach makes it more likely that these management plans will hold up to critical scrutiny.

The four case studies presented in this chapter demonstrate empirical methods used to formulate indicators and standards of quality, which are two critical steps in the application of frameworks such as VERP, LAC and VIM. Also, these case studies demonstrate the usefulness and successful application of these indicators and standards-based frameworks to the management of park roads and scenic driving. While this chapter has focused on park roads and scenic driving, these frameworks hold great promise for enhancing experiences on all roads and in all forms of drive tourism.

References

