

teaching note

Hatteras Island and Highway 12: A chain of complexity

Summary of the Case

This case study focuses on the interconnectedness between Highway 12 and Hatteras Island which is a portion of the barrier island chain known as the Outer Banks off the coast of North Carolina in the United States, as well as the efforts implemented and proposed to preserve the highway. It discusses eight alternatives presented in a North Carolina Department of Transportation (NCDOT) feasibility study conducted to explore potential efforts to preserve the stretch of Highway 12 between Frisco and the north end of Hatteras Village. This stretch of highway is representative of other areas that are also vulnerable to ocean over wash, beach erosion, and breaches, and as a result, have been labeled as island "hot spots." Through the course of the feasibility study, possible short- and long- term solutions were identified that included combinations of road relocation, dune replenishment, beach nourishment, and/or the construction of a concrete bridge. The alternative solutions were developed after considering historical shoreline position data over a 45-year time span, as well as the future projected shoreline position. However, the real dilemma lies in what should be done to preserve the highway, keep the highway on land and continue beach nourishment and dune replenishment efforts, or raise the highway onto a series of bridges that remove the highway from land altogether in its most vulnerable locations, or abandon efforts completely and allow the natural process of island migration take over. Questions arise regarding which of the proposed solutions and what other possible solutions might work and why. In addition, the case assesses the implications of the suggested solutions across the triple bottom line of sustainability. The case study concludes by discussing the dilemma that preservation efforts present. Furthermore, the need for alternative preservation efforts for Highway 12 is discussed, as these could possibly provide more effective means of addressing the sustainability of the highway and preserving Hatteras Island now and into the future for residents and tourists, alike. Still, more questions arise regarding the future of the highway, Hatteras Island, and the other islands of North Carolina's Outer Banks.

Teaching and Learning Objectives

Below are the teaching and learning objectives for this case.

1. Teaching Objective: Provide students with the opportunity to learn and think about the critical, symbiotic relationship that exists between NC Highway 12 and Hatteras Island and how natural coastal forces such as ocean over wash, beach erosion, and breaches potentially threaten this complex relationship. Learning Objective: Students will understand, explain, and assess the impact that Highway 12 has on sustainable tourism for Hatteras Island, as well as how natural coastal forces potentially impact the sustainability of Highway 12 and consequently, Hatteras Island.

The case accomplishes this objective by:

- Providing a discussion of the importance Highway 12 holds for sustainable tourism on Hatteras Island
- Providing an overview of how current preservation efforts are actually counterproductive to the sustainability of Highway 12 because they are counterintuitive to the process of natural island migration

2. Teaching Objective: Provide students the opportunity to learn and think about the potential solutions offered to preserve Highway 12 and assess the dilemma that such preservation efforts present.

Learning Objective: Students will be able to learn and assess proposed short- and long-term solutions offered to preserve Highway 12, as well as the dilemma that such preservation efforts present.

The case accomplishes this objective by:

- Providing an overview of the proposed short- and long-term solutions offered in the NCDOT Feasibility Report
- Providing background on previous preservation efforts and the dilemma their continued use presents

3. Teaching Objective: Provide students the opportunity to understand how Hatteras Island is potentially affected across the three strands of sustainable hospitality and tourism, specifically socio-cultural, environmental, and financial aspects.

Learning Objective: Students will be able to learn and think about how Highway 12 impacts the triple bottom line of sustainability.

The case accomplishes this objective by:

- Providing recent information from NCDOT's Hatteras Village Feasibility report

- Providing information from Dare County Tourism that conveys the financial significance of tourism on Hatteras Island

Suitability for Use

This case study is appropriate for use by instructors and students in undergraduate and graduate courses related to tourism in courses where the instructors want to offer students opportunities to further develop their knowledge of tourism planning, sustainability, and complex issues. Classes focused on sustainable tourism or destination planning and management would be most appropriate for this case. In addition, students studying coastal management and natural resource issues may also find this case to be a worthwhile learning tool.

Sources and Methods of Collecting Information for the Case

The information for this case was collected via observations, and reading website materials, books, and articles related to the topics presented in the case study.

Teaching Approach and Suggested Sequence of Timeframe

Instructors may use this case study in a variety of ways. For example, it could be assigned as an individual assignment, a group assignment, a combination of an individual and group assignment, and as the basis of a class discussion and/or project. If it is assigned as an individual assignment, students could read the case study as homework and answer the discussion questions in writing. Then, as a suggestion, during a face-to-face class session or in an online discussion forum, students could discuss and compare their answers. If the case is applied as a group assignment, students could also read the case study individually or in class and then answer the discussion questions in groups. Additionally, groups could be assigned to find another example of a complex tourism issue and then write their own case studies. This case could also be used as the source of a large class discussion session that occurs over one or more face-to-face class sessions or online discussion forums. Furthermore, this case study could be applied as the foundation of a semester long project to address complicated issues related to sustainable tourism.

A Possible Lesson Plan

For a possible lesson regarding the case study, before class, students could be asked to read the case and summarize it in their own words to demonstrate their understanding of its facts and complex issues. Then, during several class sessions of perhaps approximately 60 -75 minutes, students could divide into small groups of two, three, or four students to attempt to reach an agreement with regard to how they would answer the questions about the case, and each group

could be asked to provide their summary of the case's issues and their ideas regarding the case to the class (approximately 25 minutes). Or, instead of that activity, each group could be given a single discussion question (or a couple of questions) to answer, be offered time outside of class to prepare the answer(s), and then present the answer(s) to the class (approximately 25 minutes). Or, instead of that activity, each group could be assigned to select one of the 8 proposed solutions and argue for or against that particular solution (approximately 25 minutes). Or, instead of that activity, each group could be asked to argue for or against one of the proposed alternative solutions (approximately 25 minutes). At some point during the presentation session, the instructor should permit questions and further discussion. For the rest of the class session (10 minutes), the instructor could ask the students to respond to the case questions and presentations given and provide the instructor with their original summary of the case and whether their thoughts and ideas regarding the topics were altered as a result of the group discussions.

Discussion Points and Questions

1. Define sustainable tourism in your own words.
2. Define the following terms: stakeholder, stakeholder theory and explain why stakeholders are important.
3. Briefly summarize the issues facing Hatteras Island in connection with Hwy 12.
4. Discuss the Hwy 12 situation with regard to its connection to the triple bottom line of sustainability that includes the environmental, economic, and socio-cultural aspects of sustainability.
5. Discuss the pros and cons of each short- and long-term solution.
6. Briefly describe the sustainable development concept of an ethical paradox and discuss how this situation presents a paradoxical perspective.
7. Provide your thoughts on the future of this situation regarding Hwy 12 and Hatteras Island. Use evidence from the case and other reliable sources to support your thoughts.

General questions about topics raised in the case include the following:

1. Define sustainable tourism in your own words.
- Answers may differ, particularly if an instructor does ask students to write the definition in his or her own words. According to the United Nations Environment Programme and the World Tourism Organization (UNEP, UNTWO, 2005, p.12), sustainable tourism can be defined as, "Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities."

2. Define the following terms: stakeholder, stakeholder theory and explain why stakeholders are important.

- Stakeholders are those constituents with an interest in an issue. The stakeholder approach and theory centers on the principle that the management of resources needs to consider the concerns of all parties involved. Attending to stakeholders is important because the attainment of an organization's goals and, in this case an effective solution to a complex issue, depends on "satisfying key stakeholders according to their definition of what is valuable" (Bryson, 2004, p. 25).

3. Briefly summarize the issues facing Hatteras Island in connection with Hwy 12.

- Answers will vary. However, the basic issues, taken from the case, include the following: Hwy 12 runs through the North Carolina's Outer Banks (N.C.), a string of barrier islands. The completion of N.C. Hwy 12 brought challenges connected to finances and governance, and additional ones as well. The residents of the OBX fought the state government to get the highway built, and in the decades following the completion of Hwy 12, the road and the island still face challenges. Current challenges stem from natural coastal processes, beach erosion, rising sea levels, and breaches from high energy storm damage; the very existence of the highway threatens the physical landscape of the island. The highway is a fixed structure that blocks the natural transport of sand. Rather than allowing the natural process of island migration to occur, which in effect adds width to the island, the island is actually shrinking (Tennant, 2013). A shrinking island means greater vulnerability to ocean over wash and breaches that lead to road closures which result in losses in tourism spending, environmental disruptions, and hardships for the island's residents. With Hatteras Island's heavy reliance on tourism, which is made possible by Hwy 12, preserving accessibility means preserving the livelihood of the island's approximate 4000 year-round residents, most of whom reside in the villages of Buxton and Frisco (Hatteras, NC, n.d.b). Essentially, without the highway, there is no island, but without the island, there is no highway. Consequently, this symbiotic relationship dictates that N.C. and Hatteras Island must continue to be forward thinking in regard to preserving N.C. Hwy 12 and the island's accessibility.

4. Discuss the Hwy 12 situation with regard to its connection to the triple bottom line of sustainability that includes the environmental, economic, and socio-cultural aspects of sustainability.

Answers will vary. A possible answer includes the following:

Triple Bottom Line Considerations

In the implementation of any solution, there are multiple considerations to make regarding economic, environmental, and social impacts. Whether implemented in the area defined by the study or in any other "hot spot" on Hatteras Island, solutions cost money. During a period of ten fiscal years, the costs associated with maintaining and repairing Hwy 12 between Oregon Inlet and Ocracoke exceeded \$104 million (Tennant, 2013). Exorbitant costs give way to consideration of the cost effectiveness of preservation efforts across the TBL.

Economic Considerations

Tourism. Economically speaking, protecting the highway is crucial to maintaining tourism on the island and preserving economic development and viability now and in the future. Without convenient vehicular access, the number of visitors to Hatteras Island would be greatly impacted, which in turn would impact the revenue generated through tourism. Across Dare County, revenue generated from tourism continues to grow. Dare county ranked fifth out of North Carolina's 100 counties in terms of visitor spending (Dare County Tourism Board, 2019). During the 2017-18 fiscal year, the 6% occupancy tax alone generated \$29,667,450 which in turn was split between Dare County; the six municipalities of Kill Devil Hills, Kitty Hawk, Manteo, Nags Head, Southern Shores, and Duck; the Dare County Tourism Board; and the Beach Nourishment Fund. Of the revenue generated by the occupancy tax, the Beach Nourishment Fund received the largest portion at \$9,890,970 (Dare County Tourism Board, 2019). In 2011, Hatteras Island alone contributed \$204 million in tourism spending and \$106 million in occupancy receipts. Twenty-five percent of the island's businesses and 2,618 of its jobs are directly generated by the tourism industry (URS Corporation, 2016). Tourism spending has only continued to grow, which creates a paramount need to protect the stability of Hwy 12 along Hatteras Island. Tourism spending in Dare County has surpassed previous spending every year since 2009. A report commissioned by *Visit North Carolina* reported that tourism spending in Dare County in 2018 hit \$1.9 billion (Hampton, 2019). If nearly half of Dare County is

water and comprises about 100 miles of shoreline (Hampton, 2019), and Hatteras Island has about 50 miles of that shoreline, then one can reason that much of Dare County's tourism spending can be attributed to that which is spent on Hatteras Island. The Cape Hatteras National Seashore is a significant economic driver for Hatteras Island. In a news release in May of 2019, Cape Hatteras National Seashore reported that approximately 2.6 million visitors spent \$166 million and were responsible for sustaining 2400 jobs and having a \$255 million cumulative benefit on the local economy (National Park Service, 2019).

Increased Property Values

While the preservation of Hwy 12 is important to tourism, it is also important to resident property owners and non-resident property owners. Wider beaches created through beach nourishment projects also create storm protection and reduced flood hazards which in turn increase the value of property. Homes located on nourished beaches experience an increased price premium between 11.7% and 16.5%. All in all, analyses have determined that there is a connection between increases in property values and access to wider beaches, better views, reduced flood hazards, and the proximity to the shoreline. This creates a tightly interlocked connection between property values and decisions made about beach nourishment (Qui & Gopalakrishnan, 2016). Furthermore, if beach nourishment becomes tied to property value, then a direct connection is potentially created between these projects and the funding made available for them. The cost of beach nourishment, which has been historically paid for with federal funds, has increased dramatically. In 1950, the cost per cubic yard was \$1. In 2013, the cost was \$12 per cubic yard. The concern is that if costs in beach nourishment continue to rise, federal funding will be cut or will leave a shortfall that local sources of funding will have to make up (Qui & Gopalakrishnan, 2016). As a result, this tightly interlocking connection between property value and beach nourishment decisions is crucial. Nourishing the beach increases property value which potentially increases revenue which is then needed to help offset rising costs of beach nourishment. Maintaining Hwy 12 becomes a key factor in this interlocked system as well because revenue generated from the occupancy tax helps fund the Beach Nourishment Fund. Hotels, condos, and single-family homes benefit from wider beaches in the added value of recreational amenities such as better beach views and increased beach access (Qui & Gopalakrishnan, 2016). Visitors will rent accommodations that provide them with better views and

increased access to the beach, thus generating more occupancy tax revenue. Likewise, wider beaches will allow for future tourism development that will provide sustainable revenue. To accomplish this, tourists need easy access to the island, which Highway 12 provides.

Environmental Considerations

Halting of Natural Processes

Efforts to preserve the barrier islands, as well as Hwy 12, do not come without environmental costs to consider. Hindering the barrier islands' natural system of erosion and replenishment according to some, most notably Stanley Riggs, Geological Sciences professor at East Carolina University, through man-made efforts to stabilize the barrier islands and thus Highway 12 have been counterproductive. In a National Geographic article titled, *Rising Seas: Will the Outer Banks Survive?* Riggs explains that barrier islands naturally migrate west through a process in which storms cut inlets and seawater floods through moving sand (Peach, 2014). Waves and wind further move sand across the tops of the barrier islands and deposit it on the sound side which results in erosion on the ocean side while the sound side experiences growth. The development and infrastructure that have grown up in the decades following the paving of Hwy 12 have interrupted this natural process. When the paving of Hwy 12 began in the 1950s, the need to protect the highway by stabilizing a non-stable land mass became necessary. To this end, as early as the 1930s, measures that most notably included erecting artificial dunes were begun. Additional efforts, such as inlet-filling, dredging, jetties, and groins, have exacerbated erosion, and the result is that the ocean shoreline is shrinking, and the sound side shoreline's growth is stagnant. Furthermore, Michael Orbach, professor emeritus of marine policy at Duke University asserts that beach nourishment is not a sustainable solution because there is not enough appropriate nourishment sand needed for the next 50 years (Peach, 2014).

Ecosystem Impacts

Aside from the interruption to the natural processes upon which the barrier islands rely for their own sustainability, there are other environmental impacts to consider in any efforts undertaken to stabilize the barrier islands and protect Hwy 12. The N.C. Hwy 12 Feasibility Study conducted in 2016 considered some of those environmental issues and identified areas that would need further environmental study before proceeding with any short-term and/or long-term solution. First, in any beach nourishment project, appropriate sand must be located and transported to the nourishment

site. As an integral part of the wildlife habitat, sand sediment must be compatible with sand native to the beach to be nourished. Additionally, impacts on adjacent beaches need to be considered due to alongshore sand losses (URS Corporation, 2016). Whether the alternative is dune replenishment, bridge construction, beach nourishment, or relocation of the existing highway, each action has the potential to encroach on wetland areas. Wetland areas are important because they are key areas of nesting, spawning, and hatching habitats. In the project study area alone, there are 163.5 acres of wetlands. Furthermore, 156 acres is comprised of Submerged Aquatic Vegetation (SAV) in sound side areas. This is of concern because SAV is used as a factor in determining environmental health. SAVs are also important as Essential Fish Habitats (EFH). In altering the shoreline with any measure, there are other environmental considerations such as the impact to water sources that serve as Primary Nursery Areas (PNA), which include all sound side areas. PNAs are prime locations for young fish and shellfish. Additionally, Dare County is home to 16 different federally protected animal species (URS Corporation, 2016).

Social Considerations

Quality of Life. Lastly, there is a social factor to consider in any decision made regarding efforts to stabilize the barrier islands and protect Hwy 12. Quality of life for residents and the vacation experiences of visitors will be impacted regardless of any efforts made. The economic advantages of tourism are given back to the area's residents which directly impact their quality of life. Annually, Dare County residents receive \$2869.94 in tax relief. The Dare County Tourism Board received \$4,945,603 in the 2017-2018 fiscal year, 25% of which was spent on programs to help offset the impacts of tourism (Dare Country Tourism Board, 2019).

Local Resident Perspectives

Despite Dr. Riggs's assertion that beach nourishment projects only hold on average for two to three years, they are still widely supported by local residents (Peach, 2014). The owner of the Cape Hatteras Motel in Buxton is one such supporter. According to the motel owner, closures on Hwy 12 are detrimental to business (Peach, 2014). Likewise, a member of the long-range planning committee for the Hatteras Village Civic Association spoke out in support of dune replenishment on the southern end of Hatteras Island following Hurricane Isabel and stated in a letter drafted to the National Park Service that residents believe dune replenishment is essential to protecting their livelihood (Sand, 2013). He noted that, "We as residents, businessmen and commercial fishermen

alike, need our beaches and sand dunes to continue our livelihoods and the future of our children and grandchildren without the fear of every hurricane or nor'easter cutting us off from the rest of the world" (Sand, 2013). It stands to reason from these two opinions that Hwy 12 represents more than an economic lifeline, it represents a legacy to be preserved for future generations and provides a sense of security and control in a situation where people seem to possess none. It is that resilience and determination which defines the residents of Hatteras Island.

Recreational and Cultural Impacts

Furthermore, Hwy 12 has helped shape the social and cultural environment of Hatteras Island, and any efforts undertaken to preserve the highway will also shape this environment. This area is also characterized by natural, historical, and recreational resources that could potentially be impacted. For example, there are three to six feet wide bicycle paths along Hwy 12 that would be temporarily closed due to efforts to realign the highway and/or construct a bridge. As indicated in a study conducted through the Department of Parks, Recreation and Management at NC State University, 53% of the 463 respondents that participated in the study stated that they intended to visit the Cape Hatteras National Seashore where they planned to take part in outdoor, beach related activities such as shelling and swimming (Seekamp, Jurjones, & Bitsura-Meszaros, 2016). Cape Hatteras National Seashore is home to a variety of water sports such as kite surfing, kayaking, recreational fishing, hiking, and bird watching; all of which would potentially be disrupted temporarily (URS Corporation, 2016). Furthermore, the Cape Hatteras National Seashore is home to various lighthouses and historical sites that are an integral part of the historical and cultural heritage of the island. Preserving Hwy 12 and therefore, access to the island also means preserving that heritage. Additionally, issues related to construction noise, the presence of large work equipment, and traffic issues would also need to be considered with regards to any measures implemented because they potentially create negative impacts on the experiences for both tourists and residents alike (URS Corporation, 2016).

5. Discuss the pros and cons of each short- and long-term solution.

Answers will vary. A possible response could be something like the following:

Short Term Solutions.

Both short term alternatives 1 and 2 (see Table 2 in the case study) call for relocating a section of the highway anywhere

from 100 to 200 feet north of the existing highway. Alternative 1 also recommends the construction of a new dune line 25 feet from the pavement's edge for a distance of 7500 feet. Additionally, alternative 2 allows for the construction of a 2900 feet long bridge. At 161,000 cubic yards of sand and a price of \$35.1 million, alternative 2 is the costliest. Unlike alternatives 1 and 2, alternatives 3 and 4 rely heavily on beach nourishment. Alternatives 3 and 4 differ in that with alternative 3, the highway remains in its present location while in alternative 4, a section of the highway is relocated, and a new dune line is constructed. The majority of right-of-way for all four alternatives remains on land owned by the National Park Service (URS Corporation, 2016).

Long Term Solutions

Alternative 1 (see Table 3 in the case study for long-term solutions) uses average shoreline erosion projections rather than the high erosion rate in order to minimize the impact on private property. Additionally, it requires relocating a section of the highway, constructing a ¾-mile long bridge, and 5000 feet of new dune construction. Unlike alternative 1, alternative 2 is based on high erosion shoreline projections and calls for relocating a section of the highway, constructing a one-mile-long bridge, and 4,000 feet of new dune construction. Furthermore, alternative 3 involves maintaining the highway in its current location and using five-year cycles of beach nourishment unless more frequent cycles are needed as indicated by storm events. Additionally, this alternative requires 8,500 feet of dune maintenance. Alternative 3 is the costliest in terms of the amount of sand needed, which is 158,000 cubic yards. Lastly, alternative 4, requiring only 41,000 cubic yards, is the least costly in the amount of sand needed, but is the most expensive option at \$138 million. Alternative 4 also calls for the construction of a 1.5-mile-long bridge, realignment of 1,800 feet of highway, beach nourishment, and 2,200 feet of dune maintenance. This option, however, presents the least impact on property owners as it requires less new right of way. With alternative 4, nourishment is suggested as a means of protecting the western approach to the bridge. High erosion shoreline projections place Hwy 12 in the marsh on the estuarine side, which is landward of its current location. It is believed that under such conditions the opening of a future inlet is likely (URS Corporation, 2016).

6. Briefly describe the sustainable development concept of an ethical paradox and discuss how this situation presents a paradoxical perspective.

Answers will vary. An ethical paradox can be described as

a concept that points out the paradoxical nature of sustainable development. Sustainability suggests a resource is maintained infinitely whereas development results in environmental modification, which can result in depletion. Sustainable development shifts focus from the environment to society because meeting the needs of humans takes center stage. Furthermore, it leads to a discussion centered around what is the best course of action (Jabareen, 2008).

It may be that no one answer suffices for this complex situation. As noted in the case, currently, without the highway there is no island, but without the island, there is no highway. Preserving Hwy 12, a stable infrastructure, on a dynamic land mass that is dependent on natural coastal processes for its sustenance creates a paradox because to preserve the highway means to, in essence, halt those natural coastal processes in order to prevent the barrier islands' natural westward migration. The question is then raised as to whether or not this is the right thing to do. Subsequently, this interdependent relationship dictates that N.C. and Hatteras Island must continue to be forward thinking with regard to preserving N.C. Hwy 12 and the island's accessibility in order to determine the best course of action that meets the needs of humans and also continues to do what is best for the barrier islands themselves. Determining the "right thing to do" becomes a difficult, complex decision where meeting the needs of humans appears to deemphasize the environmental sustainability of Hatteras Island. One could decide to accept one solution and ignore the paradox, or one could decide to try to live with the paradox and work constructively toward meeting goals established through stakeholder input to address the issues surrounding the highway, which would represent the intended aim of sustainable development, striking a balance between economic, environmental, and social factors. One could also decide to accept new ideas, such as the proposed ecotourism path, yet that approach needs further synthesis and reflection. Perhaps several of the solutions provided in the case could be incorporated fully or in part simultaneously to help resolve the ethical paradox that preserving the highway presents.

7. Provide your thoughts on the future of this situation regarding Hwy 12 and Hatteras Island. Use evidence from the case and other reliable sources to support your thoughts.

Answers will vary. The answers could start with the current situation and look toward the future. For example, a response might focus on something such as the following: The shoreline of Hatteras Island is approximately 50 miles long and at most 3.5 miles wide in Buxton (Hatteras-nc.com). The majority of the island is less than that, and the areas of Hatteras

Island most susceptible to over wash and breaches include the Tri-villages of Rodanthe, Waves, and Salvo; northern Buxton; Pea Island Refuge; and northern Hatteras Village and as a result have been dubbed the island's "hot spots" because of their vulnerability (Crist, 2018b). These areas are extremely vulnerable because of their narrow width, and in some cases, the dune line stands less than 25 feet from the edge of highway which means the dune line, and subsequently the shoreline sit closer to NC Hwy 12 than NCDOT's recommendation. Additionally, these narrow areas are vulnerable because normal tidal patterns are causing erosion on both ocean and sound sides of Hwy 12 (URS Corporation, 2016). These facts make the future of Hwy 12 and the OBX complex, and the situation is dynamic, requiring serious thoughts and efforts to address the issues in meaningful ways.

Additional question:

1. How do you think that the corona virus (COVID-19) situation will impact the issues presented in this case study?

Answers will vary. Students could be directed to investigate issues related to the corona virus (COVID-19) situation. For example, Dare County, where Hwy 12 is located, restricted travel on March 17, 2020 and only allowed resident property owners and non-resident property owners to enter (OBX Today, 2020). When restrictions are lifted and reentry is allowed for visitors, this potentially creates a large influx of visitors that serves as a reminder of the importance that Hwy 12 holds as the island's only vehicular point of access and the need for efforts to preserve the highway to ensure consistent and continued access. Not only is this important for visitors and local residents year-round, but maintaining that access by way of Hwy 12 following a potentially lengthy closure becomes even more crucial for island business owners eagerly looking to recoup lost tourism revenue. Preservation issues, such as erosion or over wash, that might prevent access following such a devastating blow to tourism would be like a one, two punch to the island's tourism industry. In that, a rare, unprecedented pandemic event such as COVID-19 interrupts tourism for an indefinite amount of time in an area that almost solely depends on tourism, it creates an added layer of complexity to the issues surrounding the preservation of Hwy 12. The COVID-19 situation is/was ongoing at the time of this case study and could provide meaningful discussion and assignment opportunities for students.

Possible Class Activities and Assignments

1. SWOT Analysis

Students could complete a SWOT analysis of the highway 12 issues as they relate to tourism.

A possible SWOT analysis list for this case could consist of analyzing the possible solutions to the problem carefully to determine the strengths, weaknesses, opportunities, and threats (SWOT). This assignment could be completed individually or in small groups. A useful reference for completing this assignment is the following: United State Department of Agriculture (2011). SWOT analysis; A tool for making better business decisions. Risk Management Agency. Washington, D. C. Retrieved from https://www.rma.usda.gov/pubs/2011/swot_brochure.pdf For this assignment, students could complete an overall SWOT analysis of the issues presented in the case, or they could select one of the alternatives and focus on that particular item for their paper. To address the SWOT analysis, the students could be asked to organize their thoughts into what they believe are strengths, weaknesses, opportunities, and threats regarding each proposed solution, and others that they might develop and consider themselves, based on research that they conduct outside of class. They could contemplate the positive short-term consequences, negative short-term consequences, positive long-term consequences, and long-term negative consequences of each proposed solution. These papers could be presented to the class.

2. Research project

Students could complete a research project individually or in groups that investigates the Hwy 12 issues further or choose other complex tourism and/or hospitality issues to study. The topics could be based on actual issues or hypothetical ones. Examples of topics include focusing on other preservation versus development issues, including resort development, residential versus tourism issues, ecotourism topics, and other issues focused on the triple bottom line of sustainable tourism—that of the constant work to balance economic, environmental, and socio-cultural aspects of an issue related to hospitality and tourism. These completed projects could be presented in class.

Suggestions for Additional Reading Material

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