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Toward Car-Free Key West

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Abstract

This paper explores the transportation problems created by the large volume of tourist arrivals to the island of Key West, Florida. A survey of visitors to the island was conducted to uncover their perspectives related to the barriers and benefits of various transportation modes in hopes to inform City staff on the development of transportation options that will meet the needs and desires of tourists. The results from 398 respondents revealed a variety of trends, including varying travel choices depending on the number of visits, where visitors were from, and arrival types. From these trends, priority groups for behavior change were identified and strategies were proposed to meet the needs of the identified groups. This study's findings may benefit similar island communities faced with protecting the ecological and anthropogenic features that attract tourists, and inform state and federal transportation and environmental policy. The survey results informed actual local policy now implemented in Key West.

Keywords: *transportation modes, alternative transit, sustainable behavior*

Introduction

The densely populated island of Key West, with a municipal land area of 7.4 square miles, is located at the end of a 120-mile chain of islands off Florida's southern tip. The compact nature of the island makes the city very bikeable and walkable. Despite this, cars remain the most common mode for tourist arrivals to Key West, with 82% of visitors arriving by vehicle (Insights, Inc. 2013). While the percentages of visitors arriving by vehicle remains high, the problem compounds with the overall volume of visitors also increasing. In 1996, the estimated number of annual visitors to the island totaled 1,418,100 people (Leeworthy and Wiley 1996) and the numbers have skyrocketed, with the most recent count at 2,662,500 annual visitors (Key West Chamber of Commerce 2015). Clearly, a near 90% increase in the number of island visitors during a 17-year period increases traffic and parking problems, as well as associated environmental impacts. Traffic congestion concerns are well documented. In a 2004 citizen survey, 58% of residents named *erosion of quality of life* as the top concern regarding changes in Key West, and traffic congestion ranked number one among residents' quality of life concerns (Harris and Harris 2004). In a City-sponsored survey in 2015, traffic was ranked the number three "biggest issue" on the island, behind affordable housing and cost of living (The National Citizen Survey 2015).

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The purpose of this study is to apprise the City of Key West staff on tourist demographics as they relate to transportation choices, motivations, and preferences in order to inform policy and practice, target marketing, develop partnerships, and otherwise improve car congestion through available means. A survey of tourists who had visited the island provides data concerning their perspectives and transportation choices. These, in turn, assist private and public transportation stakeholders in re-envisioning a system that will satisfy consumer needs and effectively discourage vehicle arrivals.

This study also makes significant contributions to existing transportation demand management research, which has focused on issues such as city congestion and commuter behavior. This study fills a literature gap by specifically focusing on tourist transportation behavior to lead to recommendations for alleviating congestion. Survey results were presented to private and public transportation stakeholders and contributed to local policy implementation, grossing the City of Key West $900,000 annually (Higgins 2018).

Literature Review

The scope of the literature covered here includes the inertia of cultural norms, the psychology of behavior change, and methods for "fostering sustainable behavior." While much of the literature focuses on community-led solutions and efforts, it is included here because in Key West, as in many popular tourist destinations, it is the residents who are burdened with solving the problems created by tourism.

US residents tend to overestimate the benefits of car travel and underestimate the benefits of alternative transportation, and those factors remain key barriers to changing driving behavior (Gardner and Abraham 2007). Perhaps the largest obstacle is the perceived control or autonomy offered by driving. Personal vehicles provide drivers the opportunity to be "self-sufficient, able to spontaneously initiate journeys with minimal preparation, and choose new or alternative routes without consultation" (Gardner and Abraham 2007). Drivers holding such views in favor of driving will likely overestimate their auto freedom and fail to consider aspects beyond their control, such as traffic delays, the possibility of a negative journey, and parking difficulties or costs (Gardner and Abraham 2007).

To change behavior stemming from these biases an engagement framework needs to contain at least three components: a cognitive understanding of the problem, an affective (or emotional) interest in the problem, and a behavior that may be adopted for positive change (Ockwell, Whitmarsh, and O'Neill 2009). Simply hearing about a problem is not enough. One must be concerned about the problem on an emotional level *and* be able to take a specific action producing change.

Many researchers argue that policy change (top-down action) works best when combined with grassroots efforts (bottom-up action) from within communities (Frey and Stutzer 2006; Ockwell, Whitmarsh, and O'Neill 2009; Seyfang and Smith 2006). Seyfang and Smith (2006) suggest the smoothest implementation for change combines large governmental agendas with community-based initiatives. Strong-armed policies are likely to be met with resistance, whereas involvement in community decision making will more likely lead residents to adopt desired behaviors (Frey and Stutzer 2006). Ockwell, Whitmarsh, and O'Neill (2009) emphasize that in order for information to be communicated in a way that effectively creates a demand for change, it must be both politically viable and psychologically compelling.

While economic arguments focus on financial incentives and disincentives, and policy makers tend to focus on command and control policies for behavior modification, psychologists insist that the most effective strategies involve shifts in thinking. Frey and Stutzer (2006) argue that the economic issues of *free-ridership* and *public goods* will never be accounted for fully; therefore, facilitation of personal "environmental values"

is the only way to bridge such gaps. Environmental morale must reach a certain threshold in order to be fully adopted. Individuals must see that the costs involved in controlling and enforcing certain behaviors would be prohibitively high before they can see that voluntary action is needed. Frey and Stutzer (2006) use the example of not littering cigarette butts, where enforcement costs would be high, but voluntary compliance has essentially zero cost. They also cite the fact that people tend to follow laws that they view as fair, or as having legitimacy that makes them worthy of compliance. McKenzie-Mohr (2011) outlines a Community Based Social Marketing (CBSM) model, beginning with the selection of the behaviors that need changing and subsequently identifying the barriers and benefits to that change. Effective strategies typically include the following: simultaneously reducing barriers of one behavior and increasing benefits for the other, matching appropriate incentives with identified barriers, gaining public commitment, and developing visible social norms that encourage compliance. The CBSM model concludes with a pilot campaign, which is evaluated, refined, and scaled up for wider implementation. This study follows the CBSM model for the identification of barriers and benefits, using a survey of visitors that describes their transportation perspectives and choices to inform future implementation of pilot programs for Key West.

Methodology

A survey consisting of closed- and open-ended questions was designed to offer insight into the perspectives on the travel and transportation choices of both current and former tourists visiting Key West. The survey questions were validated through qualitative interviews with tourists to create an exhaustive list of possible choices. The survey was then tested with tourists to determine clarity. With the number of annual visitors per year to the island of Key West estimated at 2,662,500, 385 participants were required to achieve a statistical significance of p=0.05 (95% CI, 5% margin of error) (Key West Chamber of Commerce 2015).

The survey was administered in June 2016, with 470 surveys started and 398 completed (attrition rate of 15%). The surveys were completed online via Qualtrics, with a mix of those collected online or on electronic tablets and in-person at either the Southernmost Point Buoy or the Key West Express ferry terminal, known locales for non-locals. Although the parking and traffic issues experienced by tourists surveyed in June may be less severe than during the busier months of the year, and surveying at the ferry terminal introduces some biases into the sample, the data provide a snapshot of the opinions or behaviors of visitors arriving by car. Online distribution does not guarantee that participants meet visitor criteria; however, with no financial incentive for participation it is unlikely that any non-visitors would complete the entire survey.

Findings

Survey respondents were asked questions both about their transportation choices to get *to* the island as well as their transportation choices while *on* the island (Appendix: Quantitative Survey). Options for getting to the island include rental vehicle, personally owned vehicle, Key West Airport, airport shuttle from the mainland, public bus, private bus, cruise ship, carpool, ferry, taxi, and bicycle. On-island transportation options are abundant, including bicycle, taxi, rental car, privately owned vehicle, public bus, trolley, scooter, and bike taxi.

After agreeing to participate, respondents were given a list of available transportation options and asked to indicate which mode they *actually arrived by, considered arriving by, would consider next trip, would never consider*, and *were not aware of*. Most visitors surveyed in this study arrived by personally owned vehicle (37%) or rental vehicle (29%), for a combined 66% of visitors arriving by a vehicle of some sort. While only 13% of visitors surveyed arrived via the Key West Airport, 26% considered the option. Similarly, while 13% of those surveyed arrived by the Key West Express ferry, 20% considered a ferry arrival.

When respondents were asked what transportation modes they would consider using for their next trip, 57% of those arriving by rental vehicle and 48% of those arriving by personal vehicle said that they would consider arriving the same way next trip. As for alternatives to driving, 37% of rental vehicle drivers and 31% of personal vehicle drivers said they would consider arriving via the Key West Airport next trip. Further, 27% of personal vehicle drivers indicated that they would consider arriving via ferry for their next trip. All other arrival types had low consideration; for example, only 6% of personal vehicle drivers would consider arrival by public bus.

Participants were then asked to rate the challenges of using on-island public transportation on a 1 to 4 Likert-type scale, with 1 indicating *not at all challenging* and 4 indicating *extremely challenging*. According to this research, the most challenging aspects of using public transportation included *having to wait around* (*M*=2.91, *SD*=0.95), *coordinating different schedules* (*M*=2.89, *SD*=0.96), and *lack of freedom to do as one pleases* (*M*=2.73, *SD*=1.05). *Monetary cost* was rated as not at all challenging by 41% of participants and received the lowest mean score of *M*=1.87 (*SD*=0.94).

Next, participants were asked to rate how beneficial certain features of car-free travel were. This question also utilized a Likert-type 1 to 4 scale, with 1 indicating *not at all beneficial* and 4 indicating *extremely beneficial*. All aspects of car-free travel listed were most frequently rated as extremely beneficial. The most highly rated benefits included *avoid having to find parking* (*M*=3.58, *SD*=0.79), *avoid parking fees* (*M*=3.49, *SD*=0.85), and *avoid drinking and driving* (*M*=3.38, *SD*=1.01). All beneficial aspects of car-free travel that were listed received a mean score higher than 3.13.

To examine the behavior change of not arriving by and using a car, participants were asked how effective a variety of possible incentives would be at discouraging their arrival by car. For the results of this question, the responses of personal vehicle drivers (*n*=147) and rental vehicle drivers (*n*=115) were combined (*n*=262). This question also utilized a Likert-type 1 to 4 scale, with 1 indicating *not at all effective* and 4 indicating *extremely effective*. The highest rated mean scores among drivers included *free public transportation* (*M*=3.00, *SD*=1.07), *convenient public transportation* (*M*=2.95, *SD*=0.97), and *hotel shuttle to and from Old Town* (*M*=2.95, *SD*=1.03).

To address the disincentives aspect of this research, survey participants were asked how effective a variety of possible disincentives would be at discouraging their arrival by car. For these results, personal and rental vehicle drivers were also combined (*n*=262). The mean scores for all disincentives fell between *M*=2.33 and *M*=2.52, with *parking fees elsewhere on the island* receiving the highest mean score (*M*=2.52, *SD*=0.99). Eight out of the twelve possible incentives received mean scores higher than the highest disincentives mean score. While the disincentives listed may be somewhat effective, a strong case cannot be made for any of them based on this data.

When compared to both rental car drivers and non-driver groups, personal vehicle drivers were significantly more likely to rate disincentives as not effective at all and less likely to rate disincentives as extremely effective. Table 1 illustrates this relationship. In comparison to other groups, personal vehicle drivers rated all disincentives as relatively ineffective. There were no other statistically significant relationships between mode of arrival and the effect of disincentives.

TABLE 1.

Disincentives Effect on Personal Vehicle Drivers (n=147)

Parking Fees Hotel	0.01	Not Effective at All	t=3.20, p=0.00, n=135
Parking Fees Elsewhere	0.01	Not Effective at All	t=2.90, p=0.00, n=132
Bridge Toll	0.02	Not Effective at All	t=2.60, p=0.01, n=133

Next, the data were sifted to determine if there were any distinguishing characteristics of those arriving with personal or rental vehicles. A significant difference between visitors traveling from different regions was discovered. Perhaps unsurprisingly, those visiting from southern Florida accounted for 56% of all personal vehicle arrivals (n=147), though they represented only 33% of total visitors. Those who rented vehicles for their visit were disproportionally from the Midwest; while only 19% of total visitors were from the Midwest, they accounted for 35% of vehicle rentals (n=115). Figure 1 illustrates these transportation trends.

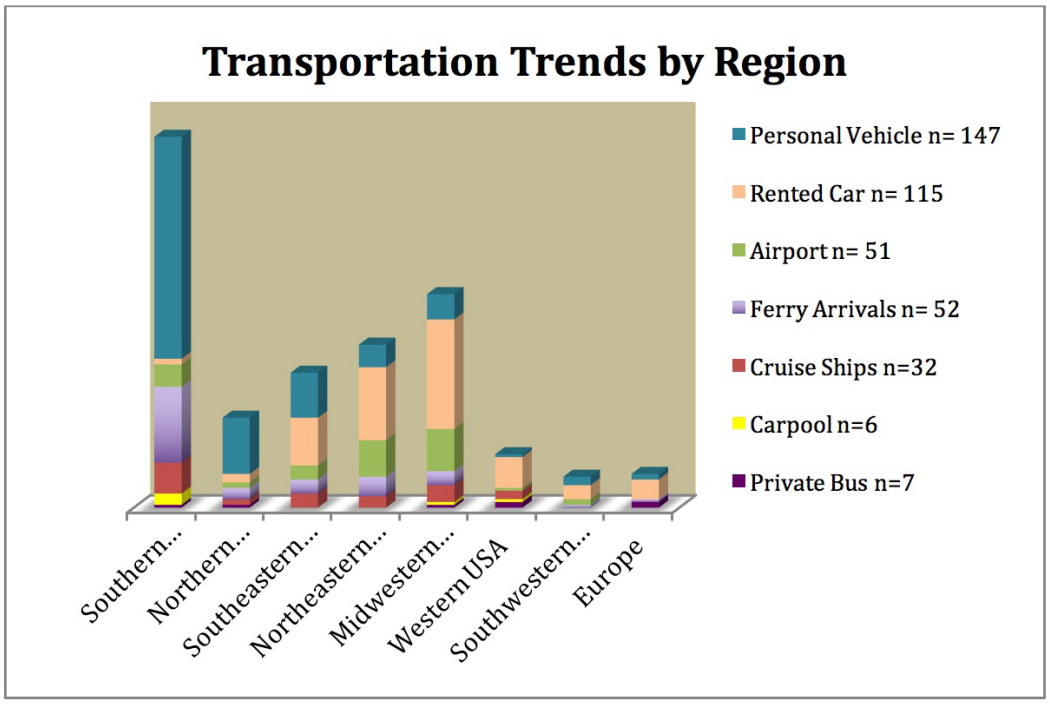

FIGURE 1.

Transportation trends by region (n=387)

Rental vehicle choices were also found to vary over the number of visits, as shown in Figure 2. First-time visitors were significantly more likely to arrive via rental car than other transportation options (t-test=6.71, p>0.01, n=168) and repeat visitors were significantly less likely to arrive via rental car than first-time visitors (t-test=3.50, p=0.00, n=110).

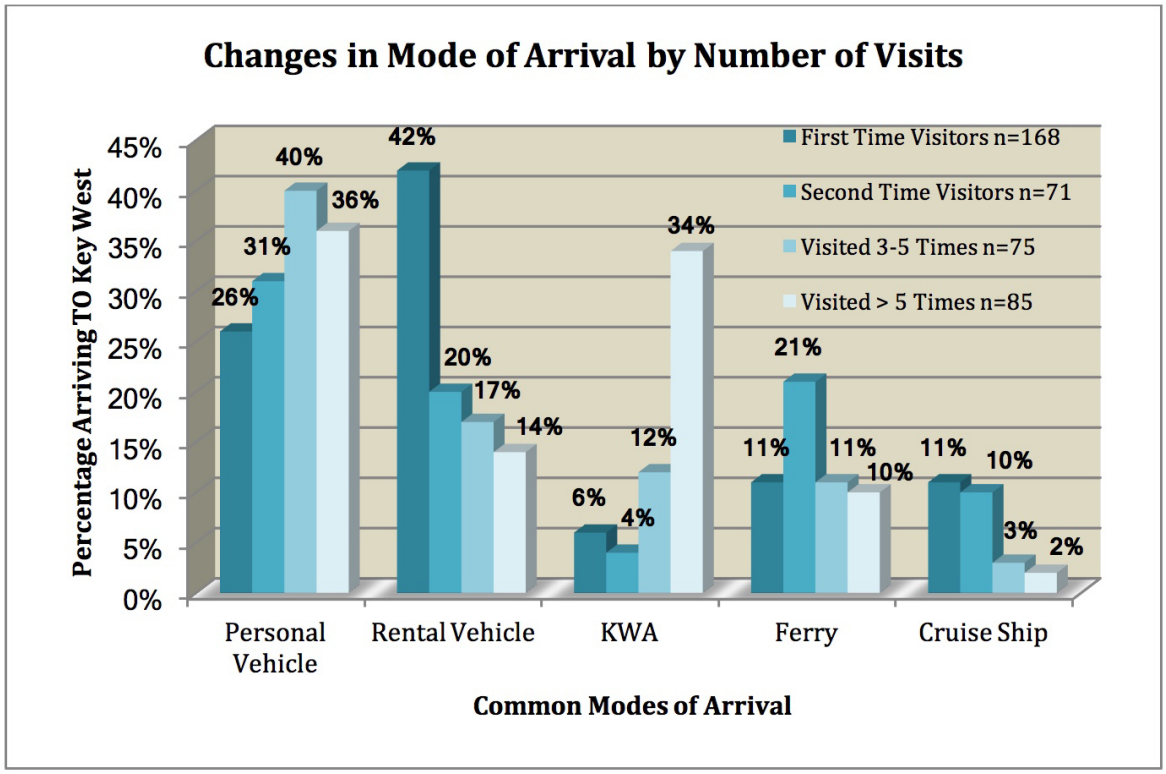

FIGURE 2.

Repeat visits impact on transportation choices (n=399)

Meanwhile, those who visited Key West more than five times were significantly more likely to arrive via the Key West Airport than those who visited fewer than five times (*t*-test=3.44, *p*=0.00, *n*=51).

After uncovering who was responsible for car traffic, the survey explored the characteristics of who was not responsible. Across all participants (*n*=398), visiting any number of days from 1 to greater than 10 days, 32% reported not having used a personal or rental vehicle at all during their visit. Over half of these non-vehicle users arrived by either the Key West Express ferry (31%) or the Key West Airport (24%).

While 66% of visitors in this study arrived with a vehicle, only 27% reported using that vehicle as their primary form of transportation during their visit. Changes in primary form of transportation appear to have a relationship with the location of visitor accommodations, as illustrated in Figure 3.

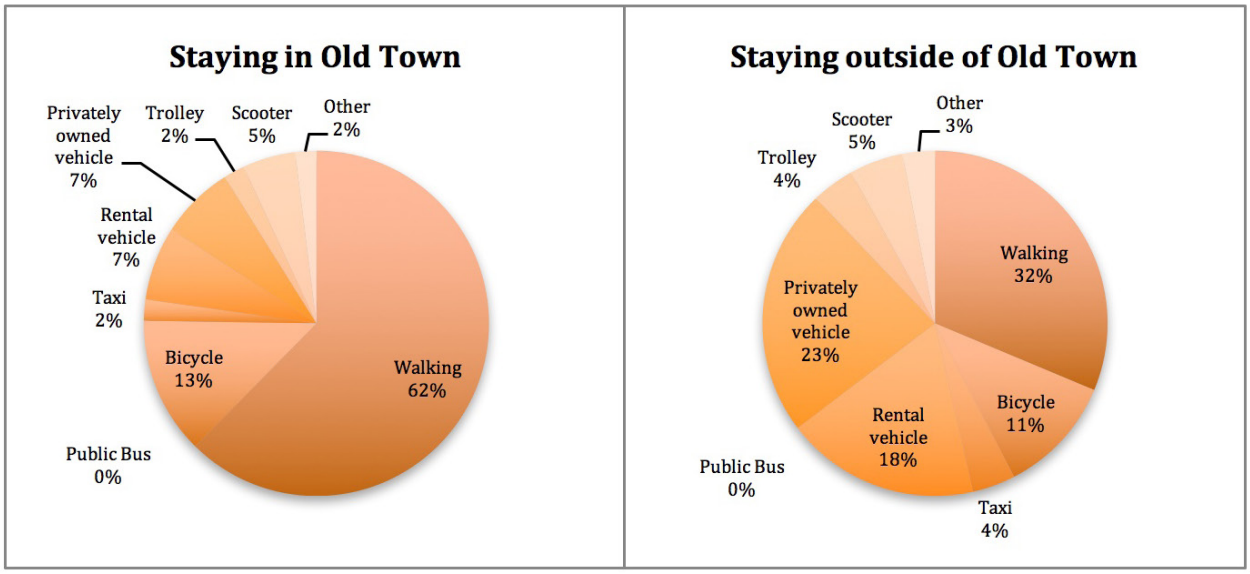

FIGURE 3.

Location of accommodations impact on transportation behavior (n=284)

It is important to note that only the survey participants staying somewhere on Key West are included in Figure 3 (*n*=284). "Old Town" or "downtown" generally refers to the westernmost portion of the island, with Mallory Square at its northern point, the Southernmost Point Buoy at its southern point, and Duval Street at its central axis.

As illustrated in Figure 3, 62% of visitors staying in Old Town reported walking as their primary form of transportation, while only 32% of visitors outside of Old Town did. Perhaps more important for the purposes of this study, only 7% of those staying in Old Town reported their personal vehicle as their primary form of transportation, compared to 23% of those outside of Old Town, placing those staying outside of Old Town as greater contributors to car traffic, and therefore a priority group for reducing car traffic.

As mentioned earlier, a disproportionate number of personal vehicle drivers (56%) are from southern Florida, making those visitors another priority group to consider. Of the participants who drove a personal vehicle from southern Florida (*n*=79), 39% said they would consider arriving by ferry for their next trip, and 29% said they would consider arriving via the Key West Airport. Again, all other arrival types had low consideration. Participants did not always consider repeating the same transportation choices. Although questions about considerations were not specifically meant to imply satisfaction, some satisfaction implications may exist when a visitor arrives using a certain form of transportation but would not consider using that same form for a return visit.

Discussion

Barriers and Benefits

According to McKenzie-Mohr (2011), in order to foster sustainable behavior, one has to study the barriers, benefits, and social norms of the audience before finding the right set of incentives and disincentives. In order for future planning to be effective, appropriate incentives must be paired with the barriers identified. In this survey, the most highly rated barriers to using public transportation on the island were the challenges of *having to wait around* (*M*=2.91, *SD*=0.95) and *coordinating different schedules* (*M*=2.89, *SD*=0.96). These responses were

similar to the highly rated incentives of *convenient public transportation (M*=2.95, *SD*=0.97*)* and *hotel shuttle to and from Old Town (M*=2.95, *SD*=1.03*)*. Visitors to Key West do not want to wait or have to think too hard about how to get around; they want transportation options to be convenient and frequent.

As anticipated by the research of Gardner and Abraham (2007), driving provides people the perception of control and public transit is viewed as restrictive to personal freedom. Both of these barriers were found to factor into tourist perceptions in this research. *Lack of freedom to do as one pleases (M*=2.73, *SD*=1.05*)* rated third among the challenges of using public transportation. For drivers of personal vehicles, *freedom to do as you please* was rated the number one reason for driving to Key West, receiving the highest mean score of *M*=3.40 *(SD*=0.93*)*. For rental vehicle drivers, *freedom to do as you please* tied with *the drive is scenic* as the number one reason for driving to Key West *(M*=3.20, *SD=0.98).*

Overall, tourist beliefs about car-free travel were overwhelmingly positive. All aspects of car-free travel listed were most frequently rated as extremely beneficial. The most highly rated among these benefits included *avoid having to find parking (M*=3.58, *SD*=0.79*)*, *avoid parking fees (M*=3.49, *SD*=0.85*)*, and *avoid drinking and driving (M*=3.38, *SD*=1.01*)*.

Priority Groups

Both personal and rental vehicle drivers showed strong consideration for using the airport next trip, as respectively 37% and 31% would consider it. Similarly, 27% of personal vehicle drivers would consider the ferry next trip. Of those arriving to the Key West Airport, 67% answered that they did not use a car at all during their visit. For the Key West Express ferry terminal arrivals, 78% answered that they did not use a car at all during their visit. According to this research, those who actually chose to arrive via the airport or ferry were less likely to use a vehicle during their visit when compared to other arrival types. This poses two questions: *How can more tourists be encouraged to arrive via these modes? Are there priority groups that may be more easily persuaded to choose these options?*

Visitors from southern Florida comprise one priority group to consider, as they are responsible for 56% of personal vehicles brought to the island (see Figure 1). Of those who drove personal vehicles from southern Florida, 39% indicated that they would consider arriving by ferry for their next trip and 29% said they would consider the Key West Airport. Additionally, of those visiting from the Midwest, 22% would consider arriving via the Key West Airport; midwestern visitors are responsible for 35% of all rental cars on the island. Priority groups for driving reduction would therefore include the 56% of personal vehicle drivers visiting from southern Florida and the 35% of rental vehicle drivers visiting from the Midwest. This research suggests that those two groups are responsible for an inordinate number of cars on the island. Fortunately, both groups indicated they would consider arriving via the airport for their next trip.

Knowledge of Repeat Visitors

There is substantial evidence from this survey data to indicate that a vehicle is not needed once visitors arrive on the island. In total, 49% of visitors reported walking as their primary form of transportation while visiting and 32% reported not using a vehicle at all during their stay. The lack of need for a vehicle can also be indicated by the changing trends with repeated visits. While 42% of first-time visitors rented a vehicle for their stay, the percentage dropped to 20% by only the second visit. Meanwhile, arriving via the Key West Airport (67% of airport arrivals did not use a car at all during their stay) became more popular over the number of visits, rising

from only 6% for first-time visitors to 34% for visitors who had visited more than five times. These findings suggest the importance of determining what is needed to convey the knowledge of repeat visitors to first-time visitors.

Recommendations

The following recommendations are based on the CBSM strategies outlined by Dr. McKenzie-Mohr (2011). Throughout this research, the behavior selected to change was arriving by vehicle to Key West. This section seeks to develop strategies based on the barriers to public transportation, the benefits of car-free travel, the potential effectiveness of various incentives and disincentives, and other results provided by the survey. The recommendations combine the results uncovered in this paper with creative problem solving and include the following: a coordinated effort for effective car-free marketing to priority groups, promotions and discounts for alternative transportation modes (Key West Airport and Key West Express ferry), and the development of public transportation systems that meet the desires of tourists. These recommendations are designed to reduce the barriers and increase the benefits perceived by tourists. A monitored pilot program would be needed to evaluate their effectiveness.

Marketing

Proper marketing and promotion could persuade visitors accustomed to driving to the island to consider other modes. The survey results clearly illustrate that Key West visitors see the value of car-free travel. While all aspects of car-free travel were most frequently rated as extremely beneficial, the most highly rated among these benefits included *avoid having to find parking* (*M*=3.58, *SD*=0.79), *avoid parking fees* (*M*=3.49, *SD*=0.85), and *avoid drinking and driving* (*M*=3.38, *SD*=1.01). Perhaps these benefits could be emphasized with a marketing angle along the lines of "Car-free Is Carefree," an idea posed by former Key West Transportation Coordinator Christopher Hamilton. Working under the assumption that visitors seeking an island vacation desire few hassles and headaches, offering the idea that their visit will be more enjoyable, even more affordable, without a vehicle could be a successful marketing angle. The behavior of repeat visitors shows that having experience on the island changes future transportation behavior. Ideally, this knowledge could be marketed to first-time visitors before they contribute to the traffic problem.

Increase Ridership of Key West Express Ferry

While the data clearly show that people did and would consider both the Key West Airport and the Key West Express (KWE) ferry, there is only anecdotal evidence as to why those options were ultimately not chosen. A handful of visitors expressed cost as an issue. For those traveling in groups, the cost of the ferry far surpassed the cost of driving, even after accounting for gasoline, taxes, insurance, and depreciation. The ferry does an excellent job of promoting itself as "an experience unto itself"' with the slogan *Where getting there is half the fun!* Perhaps they could incorporate another marketing angle that emphasizes the benefits of car-free travel and the barrier of the added costs of driving a vehicle once on the island. If we assume that cost is the largest obstacle for those who ultimately did not choose the ferry (but were in a geographic position to consider it), we should examine how to reduce the barrier of cost. Possible ideas include low-season rates, last-minute rates, and reduced parking fees at the ferry terminal.

Another frequent, yet still anecdotal, explanation given for ferry ridership was the difficulty in coordinating schedules between the Fort Myers airport and the Fort Myers ferry terminal. While 54% of ferry riders were from southern Florida and another 8% were from northern Florida, 38% were traveling from elsewhere. Several ferry users expressed that they had to stay with a friend or relative in the Fort Myers area because of the Key

West Express schedule. Similarly, some visitors did not take the ferry because it left too early to coordinate with airport arrivals. As it stands, the KWE schedule does not accommodate airport arrivals or departures because it leaves too early and returns too late. As the ferry business grows, perhaps it will run multiple daily routes instead of its current single daily trip. Also, coordinating schedules between the Fort Myers airport and KWE would be beneficial, possibly in the form of vacation packages.

Increase Arrivals via Key West International Airport

Through similar efforts outlined for ferry use, increasing the percentage of airport arrivals would contribute to the overall goal of reducing cars on Key West. The airport received the highest satisfaction rating of all the current transportation choices surveyed (82%). When considering priority groups, southern Florida (33%) and the Midwest (19%) combined account for over half of visitors to Key West. Fortunately, 26% of southern Florida visitors and 22% of midwesterners said they would consider the Key West International Airport next trip. It is worth noting again that 67% of visitors who arrive via the airport reported not using a vehicle at all during their visit.

Cost is also a prohibitive factor for potential airport arrivals. As outlined above, there is simply no cheaper way to arrive than by personal vehicle, particularly for visitors from southern Florida. This is where CBSM strategies need to be considered: *How could the benefits of car-free travel surpass the barrier of the additional cost of airline travel*? To increase the number of airport arrivals, perhaps the airport could employ effective marketing that illustrates the lack of need for a car on the island. Last-minute promotions to fill planes or Florida resident discounts could be offered. Any strategy that increases airport arrivals would serve to decrease car arrivals to the island.

Give Tourists the Public Transportation They Want on the Island

After marketing and promotion of a car-free arrival, it is important to consider what tourists are hoping for in a public transportation system once on-island. According to this study, the most important considerations include easy-to-understand schedules and not having to wait. Future transportation systems should have simple schedules and arrive with high frequency. *Freedom to do as one pleases* is limited by slow and difficult public transportation schedules. A downtown circulator would prevent tourists from having to wait more than 15 minutes. As illustrated in Figure 3, visitors staying in Old Town more commonly rate walking as their primary form of transportation when compared to those staying outside of Old Town. This factor should be considered in future multimodal plans. A downtown circulator may be more effective at reducing car traffic if it actually reaches the outskirts of what is considered "downtown."

Lastly, a strong case cannot be made for the effectiveness of the disincentives included in this survey (parking fees and tolls). The City of Key West might consider raising parking rates in order to provide funding for alternative transportation. The overall effect of a parking rate increase was reported as moderate, with an even lesser effect on personal vehicle drivers. There may be significant leeway for increasing parking rates before the increase would actually cut down on parking use. Meanwhile, the increase in revenue could help provide the City with the affordable and convenient public transit systems that tourists desire.

Based in part on the results shown in Table 1, illustrating that personal vehicle drivers would not allow the disincentives of increased parking fees or tolls to impact their decision to arrive by vehicle to the island, the City of Key West raised parking rates island-wide in 2016 by $1 per hour. This increase grossed the City's newly created Transportation Alternatives Fund $900,000 annually, which will be used to reduce traffic congestion (Higgins 2018).

Conclusion

At this point, recommendations are not meant to eliminate cars altogether, as that is a feat far too large for the scope of this research and beyond the timeline available to this researcher. The recommendations described here are for immediate changes (one to five years). Following these recommendations, perhaps 1% to 5% of car arrivals, at most, would be discouraged. At certain times of the year, the island functions beyond its carrying capacity (Insights, Inc. 2013). A small reduction in traffic may simply move the city to *at capacity*, but greater changes will be needed to plan for the future. Lastly, it will take a concerted effort of partners and stakeholders for any of these recommendations to be successful. Policy, education, and enforcement all have a role, as do vocal community members interested in improving the quality of life on the island. Hundreds of other islands are facing similar challenges and opportunities, and any successful implementation by the City of Key West has the potential to inform future planning in geographically similar areas.

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Appendix: Quantitative Survey

Car-Free

Thank you for your willingness to participate in this survey. Through graduate student research, The Patel College of Global Sustainability at USF and the City of Key West are coordinating to help Key West promote "Car-Free" initiatives. Your responses are extremely valuable to this research. We truly could not do it without you :)

Please read each question carefully, as some questions are asking about transportation TO the island and others are asking about transportation once ON the island. Many first-time visitors to Key West are hesitant to arrive without a rental or personal vehicle, although the island is relatively small and offers many affordable and convenient options. We are interested in learning how to convey this information to first-time visitors before they arrive on the island. We estimate that these 14 questions will take you around 5 minutes to complete.

NOTE: This survey is meant only for current and former visitors to Key West, not residents. Thank you.

Q1 What is or was your primary form of transportation while visiting Key West?

- ❍ Walking (1)
- ❍ Bicycle (2)
- ❍ Taxi (3)
- ❍ Rental vehicle (4)
- ❍ Privately owned vehicle (5)
- ❍ Public Bus (6)
- ❍ Trolley (7)
- ❍ Scooter (8)
- ❍ Other (9) _____

Q2 Did you rent a car for your visit?
- ❍ Yes (1)
- ❍ No (2)

Q2B From which location did you rent your car?
- ❍ Miami Airport (1)
- ❍ Key West Airport (2)
- ❍ Ft. Lauderdale Airport (3)
- ❍ Other (4) _____

Q3 Select any of the following sources you used to get information about Key West transportation options:

	Before arriving (1)	During visit (2)
City of Key West website (cityofkeywest-fl.com) (1)	❑	❑
Key West Chamber website (keywestchamber.org) (2)	❑	❑
Keys Tourism Council (fla-keys.com) (3)	❑	❑
TripAdvisor (4)	❑	❑
Booking website (travelocity, orbitz, booking, etc.) (5)	❑	❑
Airport website (6)	❑	❑
My Hotel (7)	❑	❑
Friends/Family (8)	❑	❑
Travel agent (9)	❑	❑
Did not explore transportation options (10)	❑	❑
Other (11)	❑	❑

Q4 Which do you think would be the best way of getting information to first-time visitors to Key West BEFORE ARRIVING?
- ❍ City of Key West website (cityofkeywest-fl.com) (1)
- ❍ Key West Chamber website (keywestchamber.org) (2)
- ❍ Keys Tourism Council (fla-keys.com) (3)
- ❍ TripAdvisor (9)
- ❍ Booking website (travelocity, orbitz, booking, etc.) (4)
- ❍ Airport website (5)
- ❍ Guest Hotels (6)
- ❍ Travel agencies (7)
- ❍ Other (8) _____

Q5 Regarding your arrival TO Key West for your current or most recent visit:

	I actually arrived TO Key West using this mode of transportation: (1)	I considered arriving TO Key West using these options: (2)	I would consider arriving TO Key West using this option for my next trip: (3)	I would never consider using this option to travel TO Key West: (4)	I was not aware that this option was available to travel TO Key West: (5)
Rental vehicle (1)	❑	❑	❑	❑	❑
Personally owned vehicle (2)	❑	❑	❑	❑	❑
Key West Airport (3)	❑	❑	❑	❑	❑
Airport shuttle (from mainland) (4)	❑	❑	❑	❑	❑
Public bus (5)	❑	❑	❑	❑	❑
Private bus (6)	❑	❑	❑	❑	❑
Cruise ship (7)	❑	❑	❑	❑	❑
Carpool (8)	❑	❑	❑	❑	❑
Ferry (9)	❑	❑	❑	❑	❑
Taxi (10)	❑	❑	❑	❑	❑

Bicycle (11)	❑	❑	❑	❑	❑
Other (12)	❑	❑	❑	❑	❑

Q6 Regarding your current or most recent stay ON Key West:

	I actually used these options DURING my visit (1)	I considered using these options to get around BEFORE I arrived to the island (2)	I considered using these option to get around DURING my visit (3)	I would consider using these option during my next visit (4)	I would never consider using these option (5)	I am not aware of these option (6)
Walking (1)	❑	❑	❑	❑	❑	❑
Bicycle (2)	❑	❑	❑	❑	❑	❑
Taxi (3)	❑	❑	❑	❑	❑	❑
Rental vehicle (4)	❑	❑	❑	❑	❑	❑
Privately owned vehicle (5)	❑	❑	❑	❑	❑	❑
Public Bus (6)	❑	❑	❑	❑	❑	❑
Trolley (7)	❑	❑	❑	❑	❑	❑
Scooter (8)	❑	❑	❑	❑	❑	❑
Bike-taxi (10)	❑	❑	❑	❑	❑	❑
Other (9)	❑	❑	❑	❑	❑	❑

Q7A For how many days are you visiting (or did you visit) Key West?

- ❍ 1 (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ 5 (5)
- ❍ 6 (6)
- ❍ 7 (7)
- ❍ 8 (8)
- ❍ 9 (9)
- ❍ 10 (10)
- ❍ 10+ (11)

Q7B Out of the total number of days indicated in the previous question, how many of those days do you plan to (or did you) use a personal or rental vehicle?

- ❍ 0 (1)
- ❍ 1 (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ 5 (5)
- ❍ 6 (6)
- ❍ 7 (7)
- ❍ 8 (8)
- ❍ 9 (9)
- ❍ 10 (10)
- ❍ 10+ (11)

Q8 Where are you staying tonight (or where did you stay for the majority of your trip)?

- ❍ Old Town/Downtown Key West (1)
- ❍ Outside of Old Town/Downtown but still on Key West (2)
- ❍ One of the other Keys (3)
- ❍ Miami (4)
- ❍ Another part of Florida (5)
- ❍ Cruise Ship (6)
- ❍ Other (7) _____

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Q9 Including your current visit, how many times have you visited Key West?

- ❍ Once (1)
- ❍ Twice (2)
- ❍ Three to five times (3)
- ❍ Who's counting?! (Five and up) (4)

Q10A During your current or most recent visit, how many other people did you travel with?
_____ Number of people I traveled with (excluding self) (1)

Q10B How many of your fellow travelers are (or were) under 18?
_____ Number of people I traveled with under 18 (1)

Q11 Do you use public transportation (i.e. bus, rail, train, subway, etc.) at home?
- ❍ Yes (1)
- ❍ No (2)

Q11B Which types of public transportation do you use?
- ❑ Bus (1)
- ❑ Ferry (2)
- ❑ Passenger Train (3)
- ❑ Light Rail or Tram (4)
- ❑ Streetcar or Trolley (5)
- ❑ Rapid Transit (i.e. subway, underground, metro, etc.) (6)
- ❑ Other (7) _____

Q12A How accurately do the following describe your reasons for DRIVING TO Key West: (if you did not drive this trip, feel free to answer hypothetically, answer for a previous trip, or skip)

	Slightly describes my feelings (1)	Moderately describes my feelings (2)	Mostly describes my feelings (3)	Strongly describes my feelings (4)
The drive is scenic (1)	❍	❍	❍	❍
Driving reduces total travel time (2)	❍	❍	❍	❍
Driving is convenient, requiring no extra effort (3)	❍	❍	❍	❍
Driving is safer than other options (4)	❍	❍	❍	❍
Driving offers the freedom to do as one pleases (5)	❍	❍	❍	❍
Driving can be cheaper than public transportation (6)	❍	❍	❍	❍
If you drive, you will avoid being stranded (7)	❍	❍	❍	❍
Other (8)	❍	❍	❍	❍

Q12B How challenging are the following potential challenges to using PUBLIC TRANSPORTATION?

	1 - Not at all Challenging (1)	2 (2)	3 (3)	4 - Extremely Challenging (4)
Lack of freedom to do as one pleases when compared to personal vehicle (1)	❍	❍	❍	❍
Having to wait around (2)	❍	❍	❍	❍
Coordinating different schedules (3)	❍	❍	❍	❍
Monetary cost (4)	❍	❍	❍	❍
Lack of reliability (5)	❍	❍	❍	❍
Learning a new and unfamiliar system (6)	❍	❍	❍	❍

Increased total travel time (7)	❍	❍	❍	❍
Lack of personal space (8)	❍	❍	❍	❍
Other (9)	❍	❍	❍	❍

Q12C How beneficial are the following features of CAR-FREE traveling:

	1 (1)	2 (2)	3 (3)	4 (4)
Avoid having to find parking (1)	❍	❍	❍	❍
Avoid parking fees (2)	❍	❍	❍	❍
Avoid traffic (3)	❍	❍	❍	❍
Avoid drinking and driving (4)	❍	❍	❍	❍
Help the environment (5)	❍	❍	❍	❍
Get closer to attractions and dining than in a car (6)	❍	❍	❍	❍
Let someone else worry about driving (7)	❍	❍	❍	❍
Other (8)	❍	❍	❍	❍

Q12D How challenging are the following features of DRIVING A CAR on Key West:

	1 - Not at all challenging (1)	2 (2)	3 (3)	4 - Extremely Challenging (4)
Finding a place to park (1)	❍	❍	❍	❍
Parking fees (2)	❍	❍	❍	❍
Traffic congestion (3)	❍	❍	❍	❍
Potential for drinking and driving (4)	❍	❍	❍	❍
Rental cars are an added expense (5)	❍	❍	❍	❍
Having to have a designated driver (6)	❍	❍	❍	❍
Not being able to park close enough to attractions and dining (7)	❍	❍	❍	❍
Remembering where car is parked on unfamiliar streets (8)	❍	❍	❍	❍

Q13 If the following INCENTIVES or options existed, how effective would they be at discouraging you from bringing a car TO Key West?

	Not effective at all (1)	Somewhat effective (2)	Moderately effective (3)	Extremely effective (4)
Hotel discounts for arriving without a vehicle (1)	❍	❍	❍	❍
Scooter or Bike rentals available at hotel (2)	❍	❍	❍	❍
Free public transportation (3)	❍	❍	❍	❍
Restaurant discounts for arriving without a vehicle (4)	❍	❍	❍	❍
Fun public transportation (ex. party bus) (5)	❍	❍	❍	❍
Attractions discounts for arriving without a vehicle (6)	❍	❍	❍	❍
Hotel Shuttle to and from Old Town/Downtown (7)	❍	❍	❍	❍
Convenient public transportation (8)	❍	❍	❍	❍
Bike-share (9)	❍	❍	❍	❍
Car-share (10)	❍	❍	❍	❍
Uber/Lyft (11)	❍	❍	❍	❍

More Taxis in general (12)	❍	❍	❍	❍
Other (13)	❍	❍	❍	❍

Q27 If the following PENALTIES existed, how affective would they be at discouraging you from bringing a car TO Key West?

	Not effective at all (1)	Somewhat effective (2)	Moderately effective (3)	Extremely effective (4)
Parking fees at hotel (1)	❍	❍	❍	❍
Parking fees elsewhere on the island (2)	❍	❍	❍	❍
Bridge toll upon arrival to Key West (3)	❍	❍	❍	❍
Other (4)	❍	❍	❍	❍

Q14A What is your age in years?
_____ Your Age: (1)

Q14B What is your gender?
- ❍ Male (1)
- ❍ Female (2)
- ❍ Prefer not to answer (3)

Q14C Where are you visiting from?
- ❍ Southern Florida (1)
- ❍ Northern Florida (2)
- ❍ Southeastern USA (3)
- ❍ Northeastern USA (4)
- ❍ Midwestern USA (5)
- ❍ Western USA (6)
- ❍ Southwestern USA (7)
- ❍ Europe (8) _____
- ❍ South America (9) _____
- ❍ Middle East (10) _____
- ❍ Asia (11) _____
- ❍ Other (12) _____

Q14D Which of the following most closely represents your annual household income (USD)?
- ❍ Less than $ 39,999 (1)
- ❍ $40,000 - 79,999 (2)
- ❍ $80,000 - 119,999 (3)
- ❍ $120,000 - 159,999 (4)
- ❍ More than $160,000 (5)
- ❍ Prefer not to disclose (6)

Thank you for taking the time to complete this survey. Is there anything else that you would like to share?