

Michigan Outdoor Parks and Recreation

WHITE PAPER PREPARED FOR THE NATURE CONSERVANCY
AND
THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Chantelle Barretto, Kevin Bosma, Olawunmi Oduyebo, Guy Packard, Harrison Rogers
UNIVERSITY OF MICHIGAN DOW SUSTAINABILITY FELLOWS



At the request of The Nature Conservancy, a University of Michigan Dow Sustainability Fellows team formed to provide technical input to ways the changing mobility and demographic trends may affect the Michigan State Park system's revenue stream. In December 2019, the team submitted their report to The Nature Conservancy. This white paper focuses on the history and current revenue streams of the Michigan State Park system, expected trends in the industry, key drivers (demographic and transportation trends, behavior change) expected to impact the future of the state park system in the next five to ten years and recommendations on ways to improve and optimize revenue in the future.

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Executive Summary

In this paper our Dow Fellowship project team examines the Michigan state parks system's business model in order to make recommendations on how it can generate more revenue streams to make the parks more sustainable.

Michigan faces over a decade of increasing capital outlay costs for the maintenance and improvement of its state parks system - a problem that will be exacerbated in the next 10 years by changing state demographics and park usage trends. The parks system's main sources of funding are currently adequate to cover operational costs but are falling short of addressing the steadily mounting backlog of capital maintenance projects.

In this paper we examine short term solutions that can be rapidly implemented to increase park revenue generation, such as pushing the parks system to adopt a zero-waste approach and implementing a fee-for-use model for a range of park amenities and services. We built out a model that the Department of Natural Resources can utilize to rapidly project the costs, revenues, and payback period for different fee-for-use ideas. We also explored longer term solutions that aim to leverage and strengthen current revenue-generating methods, as well as solutions that address the megatrends we have identified that will affect park usage in the decade to come.

Based on our analysis, we recommend the parks system adopt a mixture of the most cost effective short- and long-term solutions proposed in this paper to create a more sustainable revenue base moving forward.

Introduction

The Michigan state parks system is an expansive network of forests, lakes, and outdoor spaces that offers Michiganders vast recreational opportunities around the state. This system requires significant monetary resources to both operate and maintain, the bulk of which is garnered by the Motor Vehicle Recreation Passport, endowment funds, and camping fees.

This current revenue model, though, may be threatened due to impending advances in technology - such as the popularization of autonomous transportation, as well as evolving state demographics, and changing ways that Michiganders are using parks. In addition to the uncertain future of funding for the state parks system, there already exists a capital maintenance backlog of \$574 million, which underscores the need for a more sustainable revenue model.

This team of Dow Sustainability Fellows worked with The Nature Conservancy to assist the Michigan state parks system in reassessing its revenue model. To do this, our team examined the current funding mechanisms used by the state parks system, identified long term user changes (long-term being defined as within the next 10 years), assessed how those changes may impact system revenue, and identified creative transactional methods to obtain revenues from non-traditional users. The aim of our research is to identify solutions that enable the state parks system to capture more revenue from a larger array of sources without pricing out lower-income Michiganders.

Chapter One: History of the Michigan State Parks System

Recreation Types

According to the Michigan Statewide Comprehensive Outdoor Recreation Plan, “Michigan offers a wide range of outdoor recreation activities, from the traditional (e.g., camping, hunting, hiking, cycling, fishing, photography, birdwatching, snowmobiling, and off-road vehicle [ORV] riding) to activities that are seeing significant gains in national participation (e.g., adventure racing, kayak fishing, cross country skiing, fat-tire biking, standup paddling, and other silent sports and backcountry activities) (Outdoor Foundation 2017). Recreation opportunities can be found in the hundreds of state-owned parks, recreation areas, forests, campgrounds, and trails. Some of these facilities are highly developed with modern infrastructure, and others are more natural, remote places. They are located all over the state, in rural communities as well as in the heart of some of our urban centers. Every community in Michigan is within 50 miles of a state park or recreation area, and even closer to numerous local and regional parks or recreation spaces.”¹

Revenue Streams

To understand the status quo of funding in the state parks system, we will briefly outline the system’s three main sources of revenue: two large endowment funds, the Motor Vehicle Recreation Passport program, and camping/usage fees.

Endowment Funds

The Michigan Natural Resources Trust Fund (MNRTF) and the Michigan State Parks Endowment Fund (MSPEF) are endowment funds that collectively comprise approximately two-thirds of the state parks system’s annual revenue. Because the MNTRF has reached its maximum allowable balance, further revenues are and will continue to be deposited into the MSPEF until that fund reaches its maximum balance of \$800 million. Once both funds reach their maximum allowable balances, all interest and revenue exceeding that cap can be distributed at a rate of approximately \$40 million per year. As the MSPEF grows, it is likely to increase in its revenue-generating potential.

Motor Vehicle Recreation Passport

The Motor Vehicle Recreation Passport was created in 2010, when the state legislature used it to replace daily and annual state park and boating access permits. Michigan residents can purchase the Recreation Passport for \$11 per year, which is typically done when renewing vehicle registration. In fiscal year 2016-17 the Recreation Passport Program generated an estimated \$29 million; since its implementation, participation rates have continued to climb. However, around 20% of park-goers visit parks and utilize park amenities without having purchased the Recreation Passport, meaning that the State is losing out on a significant source

¹ https://www.michigan.gov/documents/dnr/SCORP2018-2022_Final2_609032_7.pdf

of revenue.² House Bill 4486, introduced in 2019, proposes a switch from the current opt-in method to requiring residents to opt-out.³ However, because the opting out process is projected to be relatively easy, the state expects a 50-60% opt-out rate. Thus, the resulting increase in revenue is unlikely to cover the capital maintenance backlog and annual O&M costs.

Camping Revenues

Another large source of revenue for the state parks system is camping fees, which account for roughly 48% of the total revenue generated by state parks. Fees range from \$12 - \$33, depending on the amenities provided at the park, and other factors like seasonal demand.⁴ In 2015, camping fees generated \$26.7 million in revenue.

Conclusion

Around 2010, Michigan's tax revenue and economy entered into a period of decline. Consequently, the state government made the decision to stop funding state parks with funds from the General Fund, thus requiring the state parks system to rely on money primarily from the three aforementioned sources.⁵ While the funds are enough to cover the parks systems' annual operational costs, the backlog of capital projects required for upkeep and improvement is mounting - and these projects tend to increase in price over time. The backlog of capital outlay projects has risen from \$330 million in 2014 to \$574 million in 2018 mainly due to the acquirement of Belle Isle. Thus, in order for the state parks system to be able to continue operations as well as maintain and improve park facilities, new, consistent revenue streams will be required.

² <https://mail.google.com/mail/u/0/#inbox?projector=1&messagePartId=0.1>

³ <https://www.mlive.com/news/2019/07/effort-to-make-state-parks-fee-the-default-on-vehicle-registration-revived-in-michigan-house.html>

⁴ <http://www.senate.michigan.gov/sfa/Publications/Issues/StateParksFunding/StateParksFunding.pdf>

⁵ <http://www.senate.michigan.gov/sfa/Publications/Issues/StateParksFunding/StateParksFunding.pdf>

Chapter Two: Future Projections

This section explores projected trends in Michigan's park user demographics and in transportation to assess how they may affect the evolving future of park usage and revenue streams in the state.

Demographic Trends

Millennials & Minorities

One of the limitations of our research in this space is the lack of data on demographic trends within overall park usage in Michigan. Therefore, in this section of the paper, we focus on the demographic changes projected within the camping space, where the most robust data is available. The data show that, throughout the Midwest, the number of residents who camp at least once a year rose from 56% in 2014 to 60% of residents in 2017, and that percentage is predicted to continue increasing.⁶ Within the state of Michigan, camping and lodging fees provide 48% of the revenue that helps to operate and maintain Michigan's state parks, making camping an indispensable source of capital.⁷ Thus, due to the growing popularity of camping within the region, and the importance of this type of recreational activity in Michigan, we believe that using camping data for this analysis will serve as a proxy to predict the demographic changes facing state park usage overall.

According to Kampgrounds of America's 2018 North America Camping report, the key change facing camping demographics is that new campers will be more diverse than the US population overall.⁸ Currently, individuals who identify as white or caucasian account for roughly 92% of park-goers in the state of Michigan.⁹ In the future, while caucasian campers still hold a narrow majority (at 51% of total campers), there will be a large increase in the percentage of Black, Hispanic/Latino, and Asian/Pacific Islander campers.

Another key trend in future camping demographics is an increase in the rate of Gen X (a demographic cohort roughly defined as being born in the mid-60s to mid-80s) and Millennials (the cohort following Gen X, with ending birth years in the late 90s or early 2000's). While these demographic cohorts comprise (as of 2017) 31% and 27% of the general populace respectively, they constitute 40% and 36% of all campers. The increase in new campers (both younger and more ethnically diverse) seems to be due to a number of factors, including general accessibility to camping and various forms of unique camping accommodations, along with increased access to Wifi and cell service.¹⁰

⁶ <http://koa.uberflip.com/i/960378-2018-koa-north-american-camping-report/5?m4=>

⁷ https://www.mlive.com/news/2017/08/michigan_campground_fees_to_in.html

⁸ <http://koa.uberflip.com/i/960378-2018-koa-north-american-camping-report/5?m4=>

⁹ <https://mail.google.com/mail/u/0/#inbox?projector=1&messagePartId=0.1>

¹⁰ <https://www.forbes.com/sites/monicahoughton/2018/04/16/why-camping-is-rising-in-popularity-especially-among-millennials/#6b48ba7716c0>

This change in the demographics of camp-goers brings a change in demand for types of campgrounds, accommodations, and amenities such as:

Demand for Alternative Accommodations

Millennial campers, and black and hispanic campers in particular, are keen on trying alternative lodgings when camping, which could include “glamping,” RVs, truck bed travel, travel trailers, motor homes, cabins, yurts, etc.

Camping closer to home

Newer campers are not willing to travel as far as they once were, with most of this new demographic seeking campgrounds within 50 miles of their homes.¹¹

Larger Group Accommodations

In line with their strong enthusiasm for camping with family and friends, millennials tend to camp in the largest groups. The average group size for Millennials is 10.7, compared to 8.5 for Gen Xers and 7.9 for baby boomers.¹² This interest in travelling in a larger group requires accommodations that are equipped to handle such groups, as well as intuitive and functional reservation systems.

Michigan Parks Layout & Demographic Mismatch

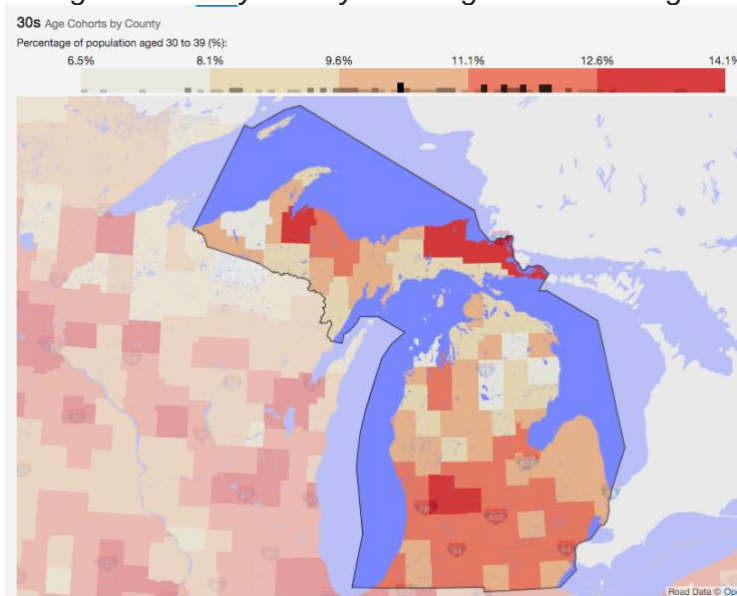
Giving the importance of two key demographic segments - Millennials and minorities - to the future of camping and park-going, the state of Michigan should position itself to target and address the needs of these groups so as to maximize revenue generation.

However, the location of the bulk of Michigan’s best and most popular state parks does not correlate with the areas in which the future millennial and minority demographic segments are concentrated. As is evidenced in the graphics below, the bulk of Michiganders between the ages of 20-40 years (this age bracket being used to represent the millennial demographic) live in the southern part of the state. Further, the parts of the state that contain the largest numbers of non-white populations are also concentrated in the south and the east.

¹¹ <http://koa.uberflip.com/i/960378-2018-koa-north-american-camping-report/5?m4=>

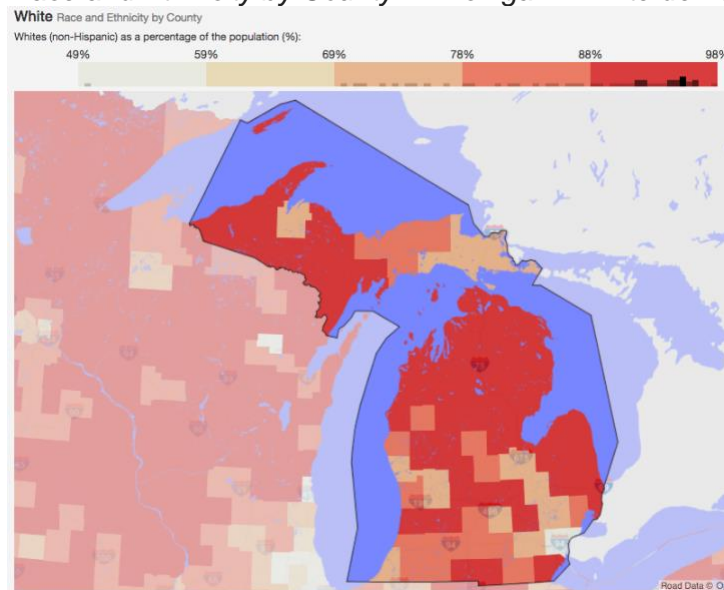
¹² <https://www.businesswire.com/news/home/20170315005391/en/Camping-U.S.-Trend-Expected-Continue-Millennials-Seek>

Map of Age Cohorts by County in Michigan - 20s-40s age cohort



Source: <https://statisticalatlas.com/state/Michigan/Age-and-Sex#data-map/county>

Map of Race and Ethnicity by County in Michigan - White demographic

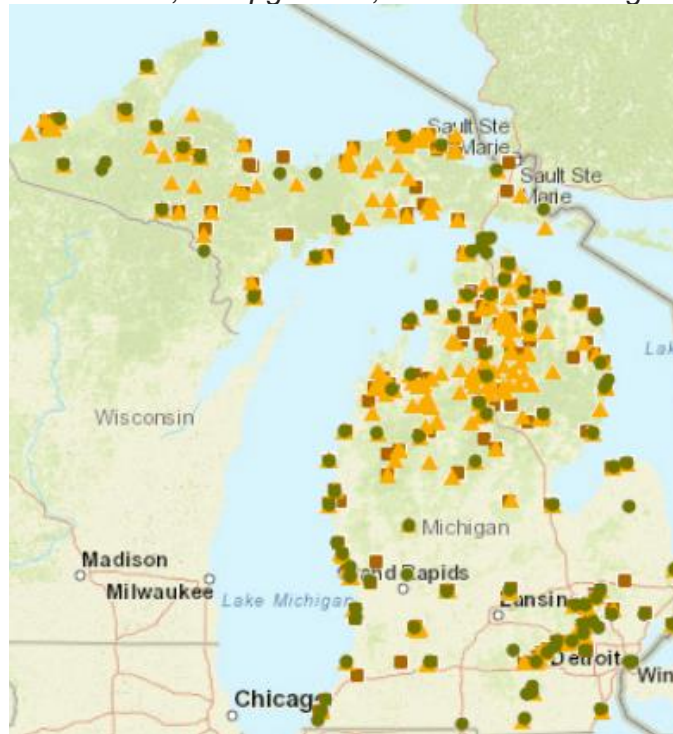


Source: <https://statisticalatlas.com/state/Michigan/Race-and-Ethnicity#data-map/county>

As is evidenced in the map below, state parks (marked by green circles) and campgrounds (marked by orange triangles) in Michigan - and the most popular parks with high revenue-generating campgrounds in particular - are largely clustered in the northern, western, and Upper-peninsular regions. Consequently, there is a mismatch between where parks are located and where the growing number of new users reside. As was demonstrated in the graphics above, millennial and minority Michiganders - the demographics projected to comprise a larger share of new campers - are situated in the southern and eastern parts of the state. This poses a threat to the state park system's revenue streams from camping and park attendance fees

because these new user demographics prefer not having to travel more than 50 miles from their homes to reach a park.

State Parks, Campgrounds, and Trails In Michigan



Source: <http://www.michigandnr.com/parksandtrails/#map-tab>

Transportation Trends

The Michigan state park system receives the majority of its customer-sourced revenue from the Motor Vehicle Recreation Passport and park entrance fees at vehicle entry points. Michigan state parks have traditionally operated under a model predicated on the idea that to visit a state park necessitated driving to the park and entering at a point that is manned by park employees, allowing for easy, constant monitoring of payment processes. Increasingly, though, parks receive more visitors via alternative means of transportation - like arrival via a rideshare, bike, or on foot. The parks system must understand and adapt to these trends to ensure that their revenue-capturing methods remain effective. There are three main trends in the realm of transportation that this paper has taken into consideration: decreasing driving rates among Millennials, autonomous vehicles, and ridesharing.

Millennial Driving Rates

The Millennial demographic is not purchasing vehicles at the same rate as previous generations. Decreased vehicle ownership will lead to an eventual drop in park visitation via

private car.¹³ While Millennials who are able to purchase cars are prepared to drive more than previous generations were, a number of individuals in this demographic cohort are unable to afford purchasing a personal vehicle¹⁴.

While car ownership rates among Millennials has only dropped around 0.4% (as compared to Baby Boomers)¹⁵, interest among this demographic in camping and attending parks is projected to increase in coming years.¹⁶ Despite the prediction that Millennials who can afford personal vehicles are willing to drive farther distances than before, this demographic of increasing park users will prefer to camp within 50 miles of their home. This could be due to several factors, such as the need to carpool to their campsite (due to decreased car ownership).

Autonomous Vehicles

Another consideration of the park system should be the rising trend of autonomous vehicles. In a future with widespread autonomous vehicle usage, park goers could theoretically be dropped off and picked up at the beginning and end of their park experience. These drop off and pick up points might not correspond to traditional payment points, introducing an impediment to revenue collection. For example, one electric, off road vehicle company has introduced its vision of vehicles constantly picking up and dropping of users at different trail points, eliminating the need to ever physically leave a vehicle in a designated parking area where payment might be collected¹⁷. While the advent and proliferation of autonomous vehicles will eventually revolutionize driving and transportation habits, our research shows that autonomous vehicles will not be employed at any significant scale in the coming decade, rendering an analysis of its impact on the Michigan state parks system out of scope.¹⁸

Ridesharing

The final technological trend we have considered is the increasing popularity of ridesharing services such as Uber, Lyft, Via, Juno, and many others. Much like autonomous vehicles, ridesharing offers an opportunity for park goers to enter and leave parks away from traditional revenue collection points. Without a personal vehicle within the park boundary, it would be difficult for park rangers to properly understand how many people are visiting the park on any given day, much less to identify whether they have paid an entrance fee or not. However, despite the rising popularity of ridesharing, these services generally fit a very specific ride profile that does not lend itself to the park-going experience. In an interview members of our team conducted with a major ridesharing company that operates in Michigan, we learned that most ridesharing destinations are both a relatively short distance from the pickup point, and

¹³ Recent Changes in the Age Composition of U.S. Drivers: Implications for the Extent, Safety, and Environmental Consequences of Personal Transportation (2011)

¹⁴ Millennials and car ownership: Less money, fewer cars (2015)

¹⁵ <https://www.bloomberg.com/opinion/articles/2019-03-27/millennials-aren-t-making-car-ownership-obsolete>

¹⁶ <http://koa.uberflip.com/i/960378-2018-koa-north-american-camping-report/5?m4=>

¹⁷ <https://www.rivian.com>

¹⁸ Forecasting Americans' long-term adoption of connected and autonomous vehicle technologies (2016)

inexpensive. State parks in Michigan, particularly the most popular parks, are typically located well outside of the population centers where the majority of rides would originate. Thus, our interviewee felt confident that state parks would not see a significant increase in the number of visitors arriving via rideshare in the next 10 years.¹⁹

Furthermore, the most popular destinations for rides are those where parking is expensive, limited, or inconvenient. This category does not include state parks, because they often have ample parking at no or little cost. Additionally, ridesharing is often sought out after customers engage in activities like drinking, after which driving a personal vehicle would become unsafe. Given that the consumption of alcohol is limited in most, and prohibited in some, state parks, this is a further argument against their becoming a more popular dropoff or pick up site for ridesharing. Based on the aforementioned trends in ridesharing, we do not consider the technology a threat to the current Michigan state park revenue model.

¹⁹ Cite interview (September)

Chapter Three: Solutions

In this section we detail possible solutions to address the funding gap faced by the Michigan state parks system. We have broken this section into short term solutions - low hanging fruit that can be rapidly implemented at scale - and long term solutions - ideas that deal with the demographic and technological megatrends heretofore discussed in this paper.

Short Term Solutions

The Michigan DNR can quickly increase its revenue by implementing a fee-for-service business model for select services across the park system. This business model encompasses charging park-goers for in-demand products and services that complement their state park experience such as sunscreen, dog waste bags, or camp showers. To monetize these goods and services, the Michigan DNR can operate the fee-for-service business in-house or contract with third-party service-providers. A potential third option for revenue generation would be the implementation of a voluntary fee, based off addressing the environmental impacts of the park-provided activities. Each option is briefly described below with some chosen examples using a financial model developed by the research team. For a more exhaustive list of fee-for-service ideas, please refer to Appendix D.

Park-Owned & Serviced

A park-owned and operated fee-for-service would utilize existing park resources and/or necessitate the investment of the park into the required capital in order to provide the proposed service. As noted, it is ideal that these services would be free of burden for the park system to provide and provide ample opportunity to create revenue. Two examples of such activities and ones that were modeled include the installation of bike air pump stations at trailheads and dog poop bag dispenser in dog friendly park property. Using the developed model and some assumptions based on the number of applicable parks, both activities were shown to have a potential annual return of several hundred thousand dollars. Furthermore, these investments would entail minimal infrastructure and capital investments and require few, if any, employee man hours to manage.

Project Example & Financial Analysis: Charging for Dog WasteBags

- **Project Overview:** This project encompasses the Michigan DNR selling rolls of dog waste bags to visitors that haven't forgotten to bring their own when recreating with their dogs. The park service could sell these rolls through three different channels: (1) guest

services centers and camp stores, (2) existing vending machines, (3) dog waste roll dispensers.

- **Market Opportunity:** We estimate that roughly 83,000 rolls of dog waste bags could be sold at \$5.00 a roll, creating a total annual revenue opportunity of \$417,000. This opportunity assumes that 10% of all visitors would purchase a roll across 165 parks
- **Initial Capital Investment:** We estimate that on average each park will require a \$500 capital investment to procure and install a dog waste bag dispenser that can receive a cash payment. The total capital costs equate to \$83,000.
- **Ongoing Costs:** These costs include purchasing dog waste rolls at \$1.00/roll and the labor to refill the dispenser and collect cash. Total ongoing costs equate to \$145,000/year.
- **Project Return:** Net operating income generated encompasses \$271,000/year
- **Break-even Analysis:** The initial capital investment is paid-off in .3 years and only requires 30,000 rolls/year to be sold to break-even.

3rd Party Contracted

Another method of providing fee-for-service activities would be to contract the service through a third party provider. In this case, the park would experience few costs other than the activities related to the contracting and management of the proposed relationship with the third party provider. This method of service provision would be ideal for more expensive services to offer, or those that require a significant amount of capital expenditures. Two examples of such services were also considered using the developed financial model. The first service considered was a firewood dispenser that could be utilized in most of the camping parks across the state. This service would be completely managed by the third party provider and would likely contract a portion of all sales back to the park service. There might also be an annual contract fee that would account for a fixed annual income as well. The other modeled service considered was rental beach equipment. Beachgoers that would like to use sun umbrellas, lawn chairs, or beach games could rent such items from the third party provider on site. Similarly, this proposed service would likely be set up under some sort of revenue sharing that would be negotiated up front. Both of the modeled services have a potential annual return of several million dollars if they are widely implemented across applicable parks.

Voluntary Fee

The final method of generating revenue that will be evaluated using the financial model would be a voluntary fee that parkgoers would elect to pay based on their activity. Airlines and other services that have significant environmental impacts already use these fees and would allow for the park service to dedicate a portion of their revenue to addressing such impacts, albeit the impacts of most park activities would be much more benign compared to airlines. Voluntary fees could address anything from water use to waste generation, or even ecological impact. In the management of such fees, the biggest cost to the park system would be the marketing and

actual collection of the fees, but these costs would be relatively minimal compared to the potential revenue. As an example, the financial model evaluated a voluntary fee that trail users could opt into to address the ecological impact and any needed remediation due to heavy trail use. Making assumptions on variables such as the marketing costs and the proportion of park goers that would opt into the fee, a voluntary fee addressing the ecological impact of trail use could generate several thousand dollars a year with virtually no expense to the park service.

Long Term Solutions

In addition to the shorter term solutions proposed above, our team suggests that the Michigan state parks system invest in both optimizing their current revenue streams that are independent of vehicle use, as well as implementing new revenue generating and cost saving opportunities. Below, we have summarized each solution - more details on each can be found in the Appendix.

Optimization of Current Revenue Streams

Parks go Trash-Free

- Parks eliminate trash receptacles and require visitors to pack-in and pack-out all waste.
- Cost-savings are generated in reduced waste that needs to be collected and disposed of via landfill

Self-pay stations: placement and messaging

- Ensure self pay stations include clear messaging about the fee, including an articulation of where the proceeds are utilized, e.g. proceeds contribute to park conservation or infrastructure improvement
- Vary fee by park based on quality of amenities and facilities offered
- Strive to return at least a majority portion of the fee to the park in which it is being collected

Staffing Solutions

- Prioritize staffers at park entry points for parks with high visitation rates, few entry or exit points, or in close proximity to large urban centers
- Utilize staff to check that park-goers have paid their admission fees. Incorporate payment checks into the standard routines of park staff to avoid disruption to their regular work schedules

Signature Urban Parks

- Highlight and invest in several parks in and around the metro Detroit area to ensure that funds are being utilized to improve parks that will be most used by the target park-going demographic of the future

- Create several flagship campsites in the metro Detroit area offering amenities like unique accommodations (i.e. RV spaces, yurts, cabins)²⁰, enhanced amenities (such as wi-fi, cell service)²¹, and ability to camp in larger group sizes to ensure parks are catering to the evolving needs of new future users

New Revenue Generating Opportunities

License Plate Billing

- Install automatic digital license plate readers at entry and exit points of parks. Bill park-goers based on license plate number

Voluntary Payment Stations

- Offer opportunities to pay for park/trail/or other amenity usage via internet on a smartphone
 - E.g. Display a QR code at trailheads, park entry points, campsites, etc. with instructions on how to submit a voluntary payment for the use of that amenity via an app like Venmo

Sporting Goods Tax

- Implement a miniscule tax on all sporting goods purchased in the state of Michigan; utilize those tax revenues for park upkeep

Rideshare Drop-off Fee

- Collaborate with major ridesharing companies to charge a fee to the ride when users are dropped off at a point near to a park entrance

²⁰ <http://koa.uberflip.com/i/960378-2018-koa-north-american-camping-report/5?m4=>

²¹ <https://www.forbes.com/sites/monicahoughton/2018/04/16/why-camping-is-rising-in-popularity-especially-among-millennials/#6b48ba7716c0>

Conclusion

Through our research, we determined that the most important factors affecting the Michigan state parks system over the next decade will be the demographic mismatch.

Camping - which currently generates around 48% of the state parks system's revenue - has historically been dominated by Caucasians in the Gen X and Baby Boomer demographics. However, the campers of the future will be primarily non-white, and will fall into the Gen X and, increasingly, Millennial demographic cohorts. This new camping profile is attracted to campsites that are within 50 miles of where they live, and that offer amenities (like WiFi and online reservation systems) and alternative lodging options.

The problem this demographic evolution poses for the state parks system is that the majority of Michigan's campsites and trails - and the most attractive ones in particular - are situated in the northern, western, and Peninsular parts of the state. The younger, non-white population of the state tends to be located in the southern, eastern parts of Michigan.

In an effort to address this mismatch, we suggested a variety of long-term solutions - such as creating signature urban parks, introducing a ridesharing drop-off fee, and license-plate billing - to ensure that the parks system is catering to both the geographic location and the needs of this growing demographic of park users.

We also devised a range of other suggestions - both short- and long-term - that can be implemented across all parks to improve their revenue-generating potential. We intend for our financial model to be used by the Department of Natural Resources to project the costs, revenues, and payback periods associated with the implementation of fee-for-use ideas that can be relatively swiftly installed in a multitude of parks.

We hope that this model, as well as the analyses provided above, can be leveraged to assist the parks system in selecting the most cost-effective methods for increasing their revenue streams in order to decrease the backlog of maintenance projects that hinder the improvement of parks throughout the state. In doing so, we hope that the parks system can continue to thrive as a source of valuable outdoor recreation for Michiganders to come.

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<https://www.rivian.com>

Appendix

Appendix A: Michigan Demographics

According to the World Population Review, the population of Michigan as of 2019 is approximately 10.02 million.²² Despite being one of the largest states in the US by geography, Michigan has one of the lowest growth rates in the nation, with an estimated 1% growth rate from 2010 to 2015.

Michigan's largest city is Detroit, whose population has been declining in recent decades due to the city's bankruptcy filing and urban decay. The city's population is estimated to be around 677 thousand people. All of Michigan's largest cities and counties (by population) are in the southern half of the state, with most of the population concentrated in the southeastern part of the state. This is significant, because the majority of Michigan State parks - and the most popular parks in particular - are located in the northern and northwestern parts of the state, hours away by car from Michigan's main population centers.

Race:

According to the most recent ACS, the racial composition of Michigan is:

- White: 78.72%
- Black or African American: 13.85%
- Asian: 2.91%
- Two or more races: 2.81%
- Other race: 1.16%
- Native American: 0.52%
- Native Hawaiian or Pacific Islander: 0.03%

The majority of the minorities living in Michigan are concentrated in population centers in the south and southeastern parts of the state.

Age:

The median age in Michigan is 39.6, reflecting a relatively older populace, compared to the US population. Citizens aged 50+ tend to be clustered in the northern part of the state and in the Upper Peninsula.²³ Younger demographics (from college-age to 40s) are clustered in the southern half of the state, where the states population centers are primarily located.

Income:

Average household income in the state is approximately \$72,000, with the majority of the higher income-earning counties clustering in the south and southeast of the state.²⁴

²² <http://worldpopulationreview.com/states/michigan-population/>

²³ <https://statisticalatlas.com/state/Michigan/Age-and-Sex#data-map/county>

²⁴ <https://statisticalatlas.com/state/Michigan/Age-and-Sex#data-map/county>

Appendix B: The Health and Social Benefits of Recreation

The World Health Organization (WHO) defines Health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. There is mounting evidence that closeness to the natural environment and outdoor recreation yields measurable mental and physical health benefits. Outlined below are a list of physical and mental health benefits of parks and outdoor recreation:

Mental Health Benefits:

Mental illness in the United States poses a significant public health burden. The National Institute of Mental Health (NIMH) states that “approximately 46.6 million individuals in 2017, which represents nearly one in five U.S. adults live in mental illness. Mental illnesses include many different conditions that vary in degree of severity, ranging from mild to moderate to severe.”²⁵ Research shows that regular activity and time spent in parks and outdoor recreation can reduce the severity of mental health disorders, which enables individuals to better cope with their daily lives.

- There is a study, published in Proceedings of the National Academy of Science, found that individuals who went on a 90 minute walk through a natural environment reported lower levels of rumination and showed reduced neural activity in an area of the brain linked to risk for mental illness compared with those who walked through an urban environment. These results suggest that accessible natural areas may be vital for mental health in our rapidly urbanizing world.²⁶
- According to authors Beyer, Szabo, the presence of green space, such as forests and parks, is now widely viewed as a health promoting characteristics of residential environments, and has been linked to benefits such as recovery from mental health, stress reduction, reductions in crime, violence and aggression and so much more.²⁷
- Participants in a study felt significantly calmer and less anxious at the park, and the longer they stayed at the park, the less stressed they became. This is according to interviews with 186 nature recreationists (Ho et al., 2003, April).

Physical Health Benefits

Obesity is one of the leading causes of preventable life-years lost among Americans. According to the Milken Institute report, titled “America’s Obesity Crisis: The Health and Economic Impact

²⁵ "NIMH » Mental Illness - National Institute of Mental Health - NIH." 1 Feb. 2019, <https://www.nimh.nih.gov/health/statistics/mental-illness.shtml>. Accessed 14 Jul. 2019.

²⁶ "Nature experience reduces rumination and subgenual ... - PNAS." <https://www.pnas.org/content/early/2015/06/23/1510459112>. Accessed 14 Jul. 2019.

²⁷ "Exposure to Neighborhood Green Space and Mental ... - NCBI - NIH." 21 Mar. 2014, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3987044/>. Accessed 14 Jul. 2019.

of Excess Weight”, “The prevalence of obesity in the U.S. population has increased steadily since the 1960s—from 3.4 percent of adults in 1962 to 39.8 percent in 2016, the year of the most recent Centers for Disease Control and Prevention data.

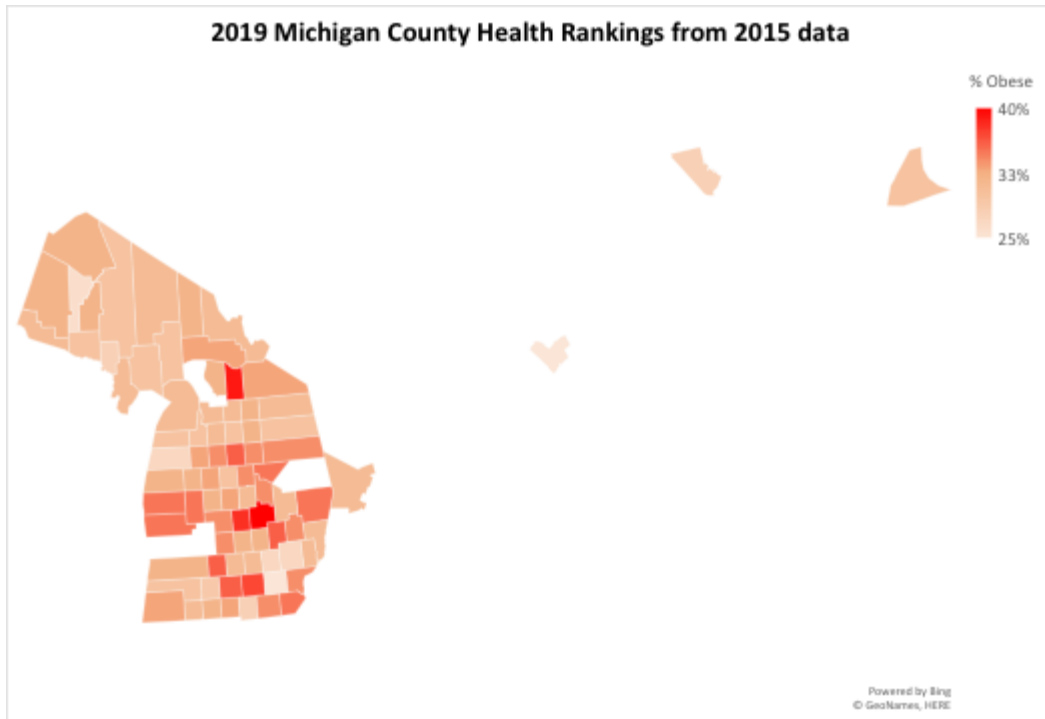
Individuals who have obesity compared with those at a healthy weight are more likely to have a decreased quality of life and are at an increased risk of developing chronic diseases because this is one of the risk factors. According to the Milken Report, “ In 2016, chronic diseases driven by the risk factor of obesity and overweight accounted for \$480.7 billion in direct health care costs in the U.S., with an additional \$1.24 trillion in indirect costs due to lost economic productivity.”²⁸

Citizens Research Council of Michigan states that, “Michigan has a weight problem. Just fifteen years ago, one in every five adults were classified as obese; today one in every three adults are classified as obese.”²⁹ Michigan has the 19th highest adult obesity rate of 32.3% as of 2017 in the nation. Michigan’s obesity rate is up from 22.1% in 2000 and from 13.2% in 1990. ³⁰ The obesity rates by county vary widely with Saginaw having the highest adult obesity rate of 40%, while Washtenaw county has the lowest rate representing 25% of its adult population. The trend towards a sedentary lifestyle is a major contributor towards these health and social issues.

²⁸ "Americas Obesity Crisis: The Health and Economic ... - Milken Institute." 26 Oct. 2018, <http://www.milkeninstitute.org/reports/americas-obesity-crisis-health-and-economic-costs-excess-weight>. Accessed 10 Jul. 2019.

²⁹ "Addressing Michigan's Obesity Problem - Citizens Research Council" https://crcmich.org/PUBLICAT/2010s/2014/addressing_michigans_obesity_problem-2014.pdf. Accessed 10 Jul. 2019.

³⁰ "Michigan State Obesity Data, Rates and Trends – The State of Obesity." <https://www.stateofobesity.org/states/mi/>. Accessed 2 Jul. 2019.



Outlined below are some of the physical health benefits of parks and outdoor recreation.

- According to the Centers for Disease Control and Prevention (CDC), parks are appealing venues for physical activities. Access to outdoor space is associated with initiating and maintaining physical activity and reducing obesity, especially when that space is well maintained, safe and accessible and offers attractive facilities and programs.³¹
- Research shows that walking plays a critical role in the primary and secondary prevention of cardiovascular diseases.

Appendix C: Long-Term Solutions (Expanded)

Parks Go Trash Free

A trash-free program encompasses removing trash receptacles from the park and requiring visitors to pack-in and pack-out all of their waste. Cost-savings are generated through reduced park labor in servicing trash cans and reduced landfilling expenses associated with trash pick-ups. The success of this program, however, is predicated upon changing the trash disposal habits of visitors. To that end, the park system must not only remove trash cans from the parks but also create infrastructure to assist visitors in practicing leave no trace principles. This infrastructure includes signage across the park notifying visitors of the policy change, personal

³¹ "Preventing Chronic Disease | Parks and Health: Aligning ... - CDC." 17 Apr. 2014, https://www.cdc.gov/pcd/issues/2014/13_0407.htm. Accessed 14 Jul. 2019.

trash take-out bag dispensers to assist visitors in packing out waste, and a broader marketing campaign to promote these new practices.

Several national and state parks have engaged in trash-free programs with great success, including the Maryland and Delaware state park system and the George Washington Memorial Parkway national park system. A notable example is the Delaware state park system, which established their trash-free program in 1994. According to their website, the park system reports that they save \$55,000 a year in waste disposal costs and have reduced litter in the process. Likewise, the George Washington Memorial Parkway implemented their program in 2013 and reports it has reduced waste by 80 – 95% of its pre-project baseline in any given year. These parks do note that it takes several years to see the benefits as visitors must be aware, educated, and empowered to change their waste management practices.

The Michigan Park system seems well positioned to institute this program. According to the DNR's Green Initiatives Field Guide for Environmental Sustainability, park system unit supervisors are required to reduce operational waste by 5% in 2010, another 5% by 2011, and an additional 5% by 2012. Updated waste reduction goals could not be found publicly. Given this context, a trash-free program could help unit supervisors reach these goals. Next steps in implementing this program include working with Michigan DNR leadership to understand lessons learned from their 2001 pilot Pack-In, Pack-Out program instituted at select day-use only parks. The Michigan DNR has reported mixed results in terms of waste reduction, but more information is needed to better understand project challenges and best practices. From there, buy-in needs to be created amongst unit supervisors as they are responsible for determining the size and amount of receptacles needed as well as the amount of pick-ups needed for their parks each year. Once buy-in is created, the project can be rolled-out target parks and metrics can be established for waste disposal and cost savings.

Self Pay Stations

Self pay stations are a useful tool for collecting entrance fees without having to staff park employees full time at park entrances. However, these systems often rely on user honesty: If the self pay station fee messaging is poorly communicated, too high, or in the wrong spot, then the park-goer may choose not to pay. When the state of Utah's parks system performed an audit on the payment rate of their self pay stations, they discovered that roughly 30% of users did not pay the entrance fee. This amounted to more than \$1.2 million of lost revenue for the Utah state parks system in 2017³². When setting a park entrance fee that requires self pay stations, it is crucial that messaging about the fee properly articulates where the proceeds go, and that it is deemed a fair price for the attractions within the park.

Research on tourist attractions in Iceland found that the willingness to pay for people visiting attractions substantially increases when consumers knew about and had confidence in where

³²<https://thenevadaindependent.com/article/state-parks-lost-out-on-1-2-million-in-uncollected-entrance-fees-audit-finds>

their entrance fee was being used³³. Simple messaging about how the fee may be put towards park conservation, infrastructure improvement, or other recognizable uses connects the user to the park experience. Another important part of this messaging will be to make it clear that the fee the user is paying is being put towards, at least in some part, the park where the fee is being received so that park users can rest assured that their money is being returned to the park they are attending.

An additional consideration when setting an entrance fee for a self pay station is to make sure the fee is representative of the recognized benefits of the park. Setting a universal entrance fee is frustrating to users because one park may offer many forms of entertainment, but another may be relatively small and have a limited array of offerings. A fee that is deemed “fair,” given the quality of entertainment and facilities offered by the park in question, will improve payment rates.

Staffing Solutions

Staffed employees of the park system simultaneously represent one of the largest costs borne by the park system, as well as the most effective means of revenue collection. As such, how these resources are utilized is critical to the overall park budget. The unique characteristics of each park should be examined when determining if and how many employees should be staffed.

The most obvious use of park employees is to man entrance fee collection booths, which enables the park to recover virtually 100% of the park-goer fee revenue in a trusted, straightforward process. However, in parks with lower visitation rates, manning full-time employees at entrances is not economical. Thus, parks with high attendance rates, few entrances or exits, or that are located in proximity to large urban centers should be the first priority for staffing. Conversely, parks that do not have large attendance rates, have a large number of entrances and exits, or that are remotely located, should rely on other forms of revenue collection.

Another use of park employees is to perform admission fee payment checks within the park itself. Efficiently utilizing the park employees to perform these checks as part of their standard routines would increase park-goer payment collection and avoid a large disruption to the park employees' normal work schedule. It would also allow for better enforcement of entry fee payment year-round, given that many parks do not have rangers stationed at entry points in the winter, but may have rangers performing other tasks within the park.

License Plate Billing

Automatic license plate billing presents an opportunity to bill park-goers as they enter or leave the park, without any staffing needs at the park. It also erases the possibility of the user avoiding

³³ Maria Reynisdottir, Haiyan Song, Jerome Agrusa, Willingness to pay entrance fees to natural attractions: An Icelandic case study, *Tourism Management*, Volume 29, Issue 6, 2008, Pages 1076-1083, ISSN 0261-5177, <https://doi.org/10.1016/j.tourman.2008.02.016>.

payment at self pay stations. This technology requires motion sensing cameras and access to the database of Michigan drivers. Once a car enters or leaves a specified park area, the camera will focus on the vehicle's license plate and take a picture. That picture is automatically run through a software that pulls out the specific letter/number combination of the license plate and runs it against the Michigan database of drivers. Once the driver is identified, the address listed on the license will be sent a bill in the mail.

Other variations of the technology could be employed, such as sending the invoice electronically instead of through traditional mail or by billing the number of axles on the vehicle. Regardless, the technology is widely available and would help considerably in staffing difficulties. The solution could be of benefit in highly trafficked areas to help speed up the park entrance process and increase overall attendance, or in low traffic areas to alleviate the need to have employees staffed there. Currently this process is often used in highway toll collection, such as on the Golden Gate Bridge.

Voluntary Payment Stations

When accessing trails or utilizing the smaller or more remote campgrounds in the state, users are asked to voluntarily pay the daily usage fee that would otherwise be enforced by a staff member. As these recreation opportunities can only provide small amounts of revenue, it does not make financial sense to actively enforce with staff placement. For example, at these campgrounds a user must fill out an envelope with personal information and place cash inside, before depositing into a locked box. On some of the trail networks like the VASA trail, there are only locked boxes asking for a recommended daily usage fee. This leaves it up to the user whether or not it is worth them paying. This decision can be influenced by how convenient (easy) one perceives the transaction to be. The current transaction method does not incorporate three major transaction trends in society which are the increasing use of both digital and mobile payments, and individuals going cashless. These factors could cause an individual to perceive the current transaction method as inconvenient.

In the United States as of Feb 7, 2019, 81% of adults own a smartphone. As would be expected, ownership rates are highest amongst the youngest adults at 96%, while those 65 and older have an ownership rate of just 53%. However, smartphone ownership rates in the age range of 50-64 are still very high at 79%.³⁴ This would indicate that chances of an individual accessing a trail or park with a smartphone are quite high. This vast presence of smartphones has accelerated the use of mobile payments and increased the ability of an individual to not carry cash. According to the FDIC in 2017, just 30% of all payments were carried out using cash. Furthermore 68.7% of U.S. Households had a credit card in 2017 up approximately 5% from just two years prior.³⁵ While society is not even close to going completely cashless, one survey suggests that one in four Americans rarely carries cash. Millennials (Age 18-35) are driving the trend where they indicated 34% "rarely or never" carry cash versus 25% of those

³⁴ <https://www.pewinternet.org/fact-sheet/mobile/>

³⁵ <https://hbr.org/2019/07/is-the-u-s-on-its-way-to-becoming-a-cashless-society>

over the age of 55. Millennials were also 41% more likely than any other generation to deem paying for something by cash as “inconvenient”.³⁶

This presents an opportunity for the Parks and Recreation Division to increase the chances of a user deciding to pay by deploying payment methods more convenient to an increasingly large portion of park users. This could include either Venmo and/or a QR Code payment system. Venmo’s best use would be for quick donations. Instead of dropping \$5 dollars into a lock box, a user could Venmo that amount to a specified account on the box. However, a QR code system could potentially be more effective in gathering user information and integrating into the camping reservation system. Many of the smaller and interior campgrounds are non-reservable meaning that campsites are on a first-come/first-serve basis. If each individual campsite had an associated QR Code on their numbered marker post, a user could scan that and pay. This information could be transmitted to an online camping map to show the site is taken for the evening. While this may not necessarily provide a true reflection of campsite occupancy as people paying cash for their campsite would not show up as occupied it could still give other users an indicator of general campground demand at that time. It is frustrating as a consumer to arrive somewhere and find all the campsites taken, therefore this system could help increase customer satisfaction and drive individuals to utilize the first-come/first-serve campsites more frequently as they have greater certainty they can find a campsite.

Sporting Goods Tax

One way to capture non-traditional recreational users is to implement a sporting goods tax. While that tax comprehensively captures users who may not be paying to use the currently offered recreational opportunities, it can be a hard political sell when it comes to implementation.

In the state of Michigan, both the House and Senate are currently controlled by Republicans who historically have been averse to additional taxes. This would make passing such a proposal challenging. The sporting goods tax may also feel like double dipping to both legislatures and citizens alike especially to those who buy the Recreation Passport. Another issue that has arisen from sales taxes is the diversion of funds. The State of Texas passed their sporting goods sales tax in 1993 that was meant to help make their park and wildlife division self-sustainable. However, past legislatures have appropriated only about 40% of that to state parks funding, channeling the rest of the revenue to other sources.

If such a tax is deemed politically feasible it would make sense to pursue this as a means of increasing revenue to make the Michigan Park and Recreation division fully self-sufficient. It would be critically important that such a tax is implemented with the stipulation that its revenues may not be diverted for any other purpose.

Uber/Lyft drop off fee

³⁶ <https://nypost.com/2018/03/22/americans-barely-carry-around-cash-anymore/>

While our current research suggests that the widespread availability of ride-sharing services is still a number of years away, it is important to consider their usage in more urban environments. Especially parks that do not have dedicated entrance and exit points. Here individuals could be dropped off via Uber or Lyft and not incur any transactional fee for accessing and using the park. An individual could also choose to get dropped off outside of a park entrance and walk-in if the ride-sharing vehicle did not have a Motor Vehicle Recreation Passport associated with it. It is unclear to what extent both of these situations are currently occurring and efforts to obtain data from the ride-sharing companies was unsuccessful. As autonomous vehicles become more prevalent we expect these types of situations to increase.

One method to combat this problem is to assess a fee on Uber and Lyft rides who's end destination is a State Park. This fee assessment model has been used by Airports around the world. Historically the additional charges were assessed to taxi drivers as a condition of allowing them to pick-up passengers, but as ride-sharing in cities went up this revenue decreased and airports worked with Uber and Lyft to assess a small fee for each ride that picked up or dropped off passengers. This has been extremely successful in generating more revenue for airports around the country that they otherwise feared could have been lost.³⁷ Since Uber and Lyft use sophisticated tracking to allow the precise pickup and dropoff of riders, the model could be modified to be used for park access. This would be extremely beneficial for urban parks where there can be multiple entrances and exits and it is not realistic to enforce the requirement to have Motor Vehicle Recreation Passport.

However, one challenge to this model could come from the introduction of House Bill 4463 on July 11, that would allow ride-sharing companies to access state parks without a Motor Vehicle Recreation Passport. While it does not explicitly exclude a separate ride transaction fee, such a fee would go against the current language of the bill.³⁸

Signature Urban Parks

The new park-going demographics have a preference for visiting parks within 50 miles of where they live.³⁹ Since most millennials and minorities in the state are relatively concentrated within southeastern Michigan, highlighting several "Signature Parks" around the metro Detroit area is one way to ensure that funds are being utilized for the parks that will be most used by the target demographics of the future.

To cater better to the needs of the park-going demographics of the future, the state parks system should focus on creating several flagship campsites in the metro Detroit area. These

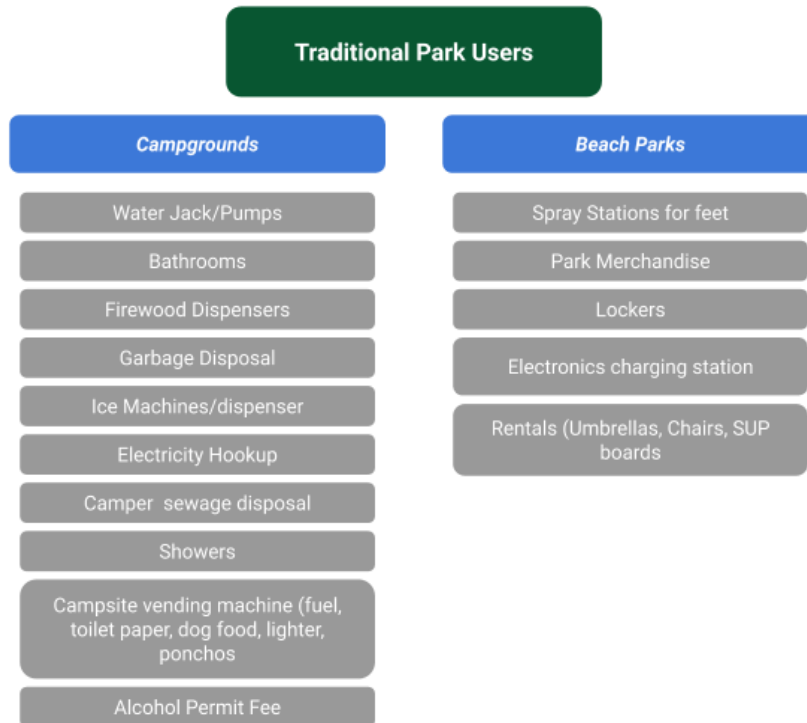
³⁷ <https://www.latimes.com/business/la-fi-airport-uber-parking-revenue-20190301-story.html>

³⁸ <https://www.mlive.com/news/2019/07/uber-lyft-drivers-could-drop-off-passengers-in-state-parks-without-recreation-passport-under-house-bill.html>

³⁹ <http://koa.uberflip.com/i/960378-2018-koa-north-american-camping-report/5?m4=>

campsites should offer amenities like unique accommodations (i.e. RV spaces, yurts, cabins)⁴⁰, enhanced amenities (such as wi-fi, cell service)⁴¹, and ability to camp in larger group sizes.⁴²

Appendix D: Fee for Use Ideas



⁴⁰ <http://koa.uberflip.com/i/960378-2018-koa-north-american-camping-report/5?m4=>

⁴¹ <https://www.forbes.com/sites/monicahoughton/2018/04/16/why-camping-is-rising-in-popularity-especially-among-millennials/#6b48ba7716c0>

⁴² <https://www.businesswire.com/news/home/20170315005391/en/Camping-U.S.-Trend-Expected-Continue-Millennials-Seek>

Non-Traditional Park Users

Bike Trail

Bike air pump station

Bike tool station

Mountain bike washing station

Vending Machine dispenser of reusable water bottles

Other

Dog poop bags

Wash station

Sunblock dispensers

Binocular rental

Barbecue grills

Life jacket rental

Berry picking bags/info

Amphitheater Rental

Fishing bait

WiFi Fee

Guided Hikes/trail walks

Hand Warmers for winter park and x-country trails

Monetize Ethical Positions

Campfire carbon offset - integrate with firewood purchase

Carbon Tax at vehicle entry points

Water Use

Waste Removal

Electricity Use

Remediation fee for RV use (electricity & carbon)

Remediation fee for RV use (carbon & ecological)

Remediation fee for trail use (ecological impact)