THE VALUE OF OUTDOOR RECREATION IN THE LITTLE MIAMI RIVER CORRIDOR

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An incredible group of volunteer scientists devoted numerous hours of their time, as well as the direct costs of visiting each site on many occasions, to collect the data used in this report. These amazing volunteers are Laurel Finch, Tina Kampman, Joe Gerstle, Michelle Comer, Wayne Cook, Drew Diehl, Ben Guthrie, Laura Vanlehn, Nancy Hess, Ruth Lapp, Allyson and Rylan Carper, Anne Kreider, Thomas Weller, Wendy Dyer, Eric Frick, Rebecca Parry, Avery Reeder, Bill Schieman, and Hope Taft.

The Value of Outdoor Recreation in the Little Miami River Corridor
Executive Summary

This report presents the results of a study to determine the value of outdoor recreation in the Little Miami River corridor north of Oregonia, Ohio. The study took place from April through October 2021 and focused on recreation that occurred near a set of 45 parking lots used by visitors. Over the course of the 7-month period, volunteer enumerators visited the sites at randomly determined times 3 days per week to count the number of cars and to leave a contact card on each car. The contact card requested an individual older than 18 to respond to an online survey providing additional information about their home zip code and their recreational activities. The resulting data allowed us to estimate the number of visitors to different sites, their activities, and the value of their recreation. Based on the data we collected:

- There were 806,446 trips to the 45 sites we surveyed.
- These trips were worth $12.04 per trip on average.
- Total recreational value for visitors was $9.7 million per year. When trips to the canoe liveries using the same stretch of river are included, recreational value is estimated to be $10.1 million per year.
- Across 43 river miles studied, recreation generates $233,256 per mile per year in benefits. These benefits are $2,325 per acre per year, suggesting that public land is worth $46,501 per acre in asset, or purchase, value.
- In addition to recreational value, this stretch of river, and its associated parks, generates $4.8 million in commercial activity for local businesses, or $111,628 per river mile per year or $1,116 per acre of public land per year.
- The largest number of trips and highest aggregate value lies in hiking and walking, with bike riding on paved trails a close second, followed by fishing and paddling, and birding.
- The largest number of trips occurred in May and June. The northern part of the river, which includes the Village of Yellow Springs, Glen Helen Nature Preserve, John Bryan State Park, and Clifton Gorge State Nature Preserve had the largest number of visitors throughout the season
- Xenia Station and the Corwin bike parking lot had the highest recreational value for biking, with Yellow Springs having the third highest value.
- Yellow Springs had the highest value for hiking, followed by John Bryan and Narrows Reserve.
- Mill Bridge had the highest value for water sports, followed by Narrows Reserve, Beatty Station and Constitution Park.

Introduction

The northern stretch of the Little Miami River was designated a state scenic river in 1969 after Ohio passed its Scenic River Act in 1968. Following passage of the federal Wild and Scenic River Act, the entire length of the river was designated as a scenic river both by the state and by the federal government. Since then, considerable effort has gone into developing recreational opportunities along the river corridor and protecting natural spaces that are part of the watershed. The Little Miami State Park bike path, for example, now runs parallel to the river, and connects with other bike paths throughout the state. Many parks and public access sites have been developed and natural areas have been preserved. While the river system is known throughout the state as a high-quality natural resource, however, there is no information on how valuable this resource is for Ohioans.

Developing a better understanding of visitation and the value of recreation can help park planners, policy makers, and the public allocate resources to develop infrastructure and natural amenities including access points to the river, parking, restrooms, wetlands, grasslands, and forests. Given the large nearby population centers in the Cincinnati to Dayton metropolitan corridor to the west of the river, it may be more crucial now than ever before to protect the corridor to maintain water quality and the natural resource base. It may also be important to develop additional publicly accessible recreational areas in the corridor so that residents have future opportunities for outdoor recreation within the region.

This study was designed to determine how many people visit public parks along the northern stretches of the Little Miami River watershed and how valuable this outdoor recreation is. The study was conducted through a partnership of volunteers, the Little Miami River Watershed Network (LMWN), and the Department of Agricultural, Environmental and Development Economics (AEDE) at The Ohio State University. Over the course of 7 months, 20 volunteers who live in and around the Little Miami River Watershed systematically visited parks and parking areas along the river and the adjacent bike path. They counted cars and
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left flyers that invited citizens to respond to a survey (see Appendix I). Partners from LMWN and OSU designed the sampling procedure and have conducted the analysis that follows.

Our study encompasses the stretch of river and bike path from Beatty Station near Springfield to Mathers Mill near Oregonia. With the analysis, we estimate that over the course of the 7-month period, there were 806,446 visitors to the parks in this stretch of river. These numbers do not include the estimated 30,000 visitors per year who float down the river with the canoe liveries north of Oregonia. The visitors we sampled engaged in a wide range of activities, with biking and hiking being the most prominent. We estimate the visits were worth $9.7 million in value without the canoe trips from the liveries, and $10.1 million with the recreational value of commercial canoe trips from liveries included. Excluding gasoline purchases, expenditures in the region due to these trips was $3.1 million per year, and with the livery-based trips, $4.8 million.

Methods

This study developed an approach to estimate visitor numbers and visitor value for recreational trips in the northern Little Miami River corridor. Because the recreational sites are dispersed across a large area, and there are no existing data available to determine who visits and how often they visit, we developed a sampling procedure that allowed us to estimate the number of trips taken to each site and the dollar value of those trips. Our sampling procedure involved a randomized approach where a member of our team arrived at each site during morning, afternoon, and evening time windows, counted the number of cars observed at the location, and left a flyer on each windshield requesting that visitors respond to a brief online survey.

We initially identified 47 lots along the river corridor where individuals who recreate in the corridor were likely to park. These lots were all publicly accessible and could be used for free, with the exception of the Glen Helen Nature Preserve lot in the Village of Yellow Springs. Some lots, such as those in the Village of Yellow Springs or John Bryan State Park, were so close together that we decided to aggregate them as single sites in our analysis. The results are presented for a final set of 32 sites along the Little Miami River (Table 1). The symbol “*” denotes a site that includes data from more than one parking area where we collected data.

The data were collected using a stratified random sampling procedure. Specific site arrival times were randomly chosen to occur during a morning or evening period in April and May, or during a morning, afternoon, or evening period in June through October. Each site was visited twice per weekday and once each weekend from April through October 2021. The volunteer enumerators recorded the time they arrived at each site, the number of cars observed at each site, and any other observations of interest that could impact final visitation estimates. They also left a flyer on each car with a request for individuals to fill out a brief online survey.

The survey for park visitors was developed in Qualtrics and could be accessed by scanning a QR code and completed online using a mobile device. Over 2400 individuals responded to this survey, but some of these responses were excluded from our estimates because they were incomplete. The remaining 2064 observations formed the sample we used to estimate site values and visitation in this analysis. Survey respondents recorded the following information (see Appendix I for a copy of the survey):

- Their home zip code
- The site they were currently visiting/where they obtained the survey
- The approximate distance the site is from their home (in miles)
- The number of people who came to the site with them in the same vehicle
- The times they arrived and left the site
- Their approximate age
- The primary form of recreation they participated in at the site
- The number of times they visited the site in the past 12 months
- The relative impact of COVID-19 on the frequency of their recreational trips to Little Miami River sites (on a spectrum of greatly reduced to greatly increased)
- The approximate amount of money they spent on their trip to the site (excluding gas)
Responses to the Qualtrics survey provided insights into the activities that visitors engaged in as well as some information on demographic characteristics. The data were used to construct a zonal travel cost model following English et al. (2018). The zonal travel cost model predicts the probability that individuals in each zip code in our sample take a trip to one of the 42 parking areas during the 7-month period. The probability of taking a trip in turn is a function of the price of accessing the site, and other demographic characteristics of the zip codes, which are obtained from US Census data. The price of accessing a site is the travel cost for the individual to get to the site from their home, including their direct transportation costs and their opportunity costs of time (a function of their wage rate).

The methods used to estimate the number of visits as well as the travel cost or price of accessing each site are provided in Appendix II. Additional insights were drawn from survey response data including the most common activities occurring at each site and the average distances visitors traveled to visit each site. Because visitors’ recreational activity was directly reported in the Qualtrics survey, determining the most common activities involved simply aggregating the responses and identifying the most frequently recorded activity. Distances from visitors’ home zip codes to LMR sites were determined using Google Maps. The average distances traveled to each site were calculated as the distance from visitors’ home zip codes to the site they reported visiting.

Table 1. Recreational sites along LMR by zone. There were 45 parking lots, but we combined several of them together, such as the parking lots in John Bryan State Park. Sites with *** represent multiple parking lots.

<table>
<thead>
<tr>
<th>Zone 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beatty Station</td>
</tr>
<tr>
<td>Clifton River Road Reserve</td>
</tr>
<tr>
<td>Grinnell Mill*</td>
</tr>
<tr>
<td>John Bryan*</td>
</tr>
<tr>
<td>John Bryan mountain bike trail parking lot</td>
</tr>
<tr>
<td>John Bryan/Clifton Gorge*</td>
</tr>
<tr>
<td>Yellow Springs*</td>
</tr>
<tr>
<td>Yellow Springs Glen Helen parking lot</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zone 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaver creek Community Park (Angels Pass)</td>
</tr>
<tr>
<td>Fairgrounds Road river crossing (parking on berm)</td>
</tr>
<tr>
<td>Glenn Thompson Reserve (Trebein Road and Route 35)</td>
</tr>
<tr>
<td>Jacoby Road canoe launch</td>
</tr>
<tr>
<td>Narrows Reserve*</td>
</tr>
<tr>
<td>Old Town Reserve parking lot on Route 68</td>
</tr>
<tr>
<td>Route 68 crossing of LMR (parking on berm)</td>
</tr>
<tr>
<td>Xenia Station</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zone 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glady Run Treatment Plant parking lot</td>
</tr>
<tr>
<td>Mill Bridge Launch</td>
</tr>
<tr>
<td>Morris Reserve parking lot off Lower Bellbrook Road</td>
</tr>
<tr>
<td>Travertine Fen</td>
</tr>
<tr>
<td>Walton Park off old Route 42</td>
</tr>
<tr>
<td>Constitution Park off Route 725</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Zone 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowman Park off Corwin Avenue</td>
</tr>
<tr>
<td>Caesar Creek access/Corwin Nixon bridge launch off Middletown Rd.</td>
</tr>
<tr>
<td>Caesar Creek State Nature Preserve</td>
</tr>
<tr>
<td>Clint Fultz river park*</td>
</tr>
<tr>
<td>Corwin bike parking lot (Red Barn)</td>
</tr>
<tr>
<td>County Highway 12</td>
</tr>
<tr>
<td>Hisey Park</td>
</tr>
<tr>
<td>Mathers Mill ODNR Public Access of Wilmington Road</td>
</tr>
<tr>
<td>Roxanna-New Burlington Road parking area near bike path</td>
</tr>
<tr>
<td>Spring Valley Wildlife Area</td>
</tr>
</tbody>
</table>
Results

Our volunteer enumerators completed more than 1000 trips to count visitors at each site, spending approximately 1 hour per trip on average (or around 1000 hours in total). They counted nearly 20,000 automobiles (Table 2). The largest number of cars was observed in May (3547) and the smallest in April (2162). There was a noticeable decrease in automobile count in July (2780) compared to the previous and subsequent months (both >3000). The number of cars per count was also lower in July. Across the day, the largest number of cars observed at all sites occurred during the afternoon counts, and on Saturdays (Table 2b). Evenings had more observed cars than mornings, but the difference was modest across the sample.

A total of 2441 park visitors used the flyer to respond to the survey. Because there was a possibility that some individuals could receive the flyer on two or more separate trips, we asked the respondents to note if they had received the flyer at the same location at another time during the year. We found that 6.8% of respondents had already received a flyer at the same location. We asked individuals who had previously received our survey but at a different location to fill out the survey again and those responses were included in our analysis. Across all responses, 2064 of the completed surveys provided sufficient data for us to conduct our analysis.

Table 2: Enumerator Data. Table 2a provides information recorded by enumerators, and Table 2b provides averages for different times of day and days of the week.

Table 2a: Aggregate data on car counts

<table>
<thead>
<tr>
<th>Total cars counted (number of cars)</th>
<th>19943</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total enumerator trips to count cars (number of trips)</td>
<td>1024</td>
</tr>
<tr>
<td>Total time spent surveying (total hours)</td>
<td>987</td>
</tr>
<tr>
<td>Average length of survey trip (minutes)</td>
<td>58</td>
</tr>
</tbody>
</table>

Table 2b: Aggregate car counts by time of day and day of week

<table>
<thead>
<tr>
<th>Time</th>
<th>Average Cars Observed (number)</th>
<th>Avg. Observation Time</th>
<th>Approximate Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>4.1</td>
<td>9:40 am</td>
<td>(9:30 – 10:00 am)</td>
</tr>
<tr>
<td>Afternoon</td>
<td>5.8</td>
<td>1:15 pm</td>
<td>(1:00 – 1:30 pm)</td>
</tr>
<tr>
<td>Evening</td>
<td>4.3</td>
<td>6:50 pm</td>
<td>(6:30 – 7:00 pm)</td>
</tr>
<tr>
<td>Weekday</td>
<td>4.2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Saturday</td>
<td>5.8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sunday</td>
<td>5.2</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
The largest share of recreational trips was hiking, followed by biking, running/jogging, and fishing/paddling (Table 3). Runners and joggers were a relatively small proportion of the total trips, but they do take the most trips per year on an individual basis. Joggers and runners who drive to the recreational sites are an avid user group but appear to represent a relatively modest proportion of the population. The overall average number of trips per year for any visitor is 4.8 across the entire sample, suggesting an avid group in general (Table 4). Anglers, paddlers, and bikers spend the most amount of time on site during each trip. Bikers and birders are the oldest on average.

**Table 3: Proportion of trips by general activities** (does not include trips taken through the liveries).

<table>
<thead>
<tr>
<th>Activity</th>
<th>Proportion of trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hiking/walking</td>
<td>38%</td>
</tr>
<tr>
<td>Biking on paved trail</td>
<td>31%</td>
</tr>
<tr>
<td>Running/jogging</td>
<td>7%</td>
</tr>
<tr>
<td>Paddling/Fishing</td>
<td>5%</td>
</tr>
<tr>
<td>Birding/wildlife viewing</td>
<td>2%</td>
</tr>
<tr>
<td>Other (picknicking, walking my dog, etc.)</td>
<td>17%</td>
</tr>
</tbody>
</table>

**Table 4: Survey responses for visitors by category** (does not include trips taken through the liveries).

<table>
<thead>
<tr>
<th>Activity</th>
<th>Trips per year</th>
<th>People per car</th>
<th>Time on site (hours)</th>
<th>Mean age (years)</th>
<th>Non gasoline expenditure ($/trip)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall average</td>
<td>4.8</td>
<td>2.6</td>
<td>1.7</td>
<td>51.9</td>
<td>$7.15</td>
</tr>
<tr>
<td>Biking on paved trail</td>
<td>5.5</td>
<td>2.4</td>
<td>1.9</td>
<td>58.9</td>
<td>$9.01</td>
</tr>
<tr>
<td>Hiking/walking</td>
<td>3.8</td>
<td>2.8</td>
<td>1.6</td>
<td>47.9</td>
<td>$8.56</td>
</tr>
<tr>
<td>Running/jogging</td>
<td>14.7</td>
<td>1.9</td>
<td>1.3</td>
<td>46.6</td>
<td>$2.16</td>
</tr>
<tr>
<td>Paddling/fishing</td>
<td>3.5</td>
<td>3.1</td>
<td>2.9</td>
<td>46.5</td>
<td>$8.18</td>
</tr>
<tr>
<td>Birding/wildlife viewing</td>
<td>4.1</td>
<td>2.5</td>
<td>1.2</td>
<td>54.7</td>
<td>$8.36</td>
</tr>
<tr>
<td>Other (picknicking, walking my dog, etc.)</td>
<td>5.8</td>
<td>2.8</td>
<td>1.6</td>
<td>49.1</td>
<td>$8.95</td>
</tr>
</tbody>
</table>

We estimate 806,474 total visitors to the sites in our analysis between April and October of 2021 (Table 5). For the purposes of discussion, we have broken the sites into four regions. Region 1 includes the sites in Yellow Springs and John Bryan/Clifton Gorge, which are the most heavily visited parks in the region. Regions 2 and 3 are in the middle stretch of river which includes parks in and around the city of Xenia. Region 4 is the southern part of our study region and includes sites near Caesar Creek and Oregonia. A reduction in automobile counts and total visitation numbers can be observed in our estimates for July. We suspect this arose from the relatively warm weather and precipitation, but may also have to do with an increase in vacation activity by the general population.

We conducted additional analysis (Appendix III) to assess how weather affected the number of observed cars each time we visited a site. The results indicate that the daily high temperature, daily low temperature and precipitation (Figure 1) all affect the number of cars observed at each site. Higher high temperatures increase the number of cars, while higher low temperatures reduce the number of cars. The low temperature of the day is indicative of the temperature that occurs in early morning. Higher precipitation, as expected, reduces the number of cars. Given these results, the relative decline in visitation in July is explained by the relatively high levels of precipitation that occurred in July, combined with relatively high morning temperatures.
The data are used to estimate a zonal travel cost model which provides estimates of the recreational value of the sites. The value of recreation is called consumer surplus, which is the value individuals receive from visiting a site above and beyond the costs of visiting the site. In other words, consumer surplus is the difference between what the consumer pays to visit a site, and what we estimate to be their willingness to pay to visit the site. The total value of recreation generated by the sites we studied over the 7-month period is $9.7 million per year (Table 6). Nearly half of the value is derived from visitation in Zone 1, where Yellow Springs and John Bryan State Park are located. It is not surprising that Yellow Springs and John Bryan State Park have the highest visitation and the greatest consumer surplus given that they are important regional attractions, and both have large parking areas. Yellow Springs has the largest value per trip across all our observed sites, reflecting the longer distances that visitors travel to recreate there.

### Table 5: Total estimated visitation to parks by region and month (does not include trips taken through the liveries).

<table>
<thead>
<tr>
<th>Region</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>24,071</td>
<td>80,574</td>
<td>67,308</td>
<td>58,977</td>
<td>72,683</td>
<td>51,637</td>
<td>29,364</td>
<td>384,615</td>
</tr>
<tr>
<td>Zone 2</td>
<td>29,822</td>
<td>43,497</td>
<td>51,423</td>
<td>23,199</td>
<td>47,848</td>
<td>22,790</td>
<td>24,768</td>
<td>243,347</td>
</tr>
<tr>
<td>Zone 3</td>
<td>6,799</td>
<td>13,307</td>
<td>9,022</td>
<td>9,169</td>
<td>8,691</td>
<td>5,928</td>
<td>5,132</td>
<td>58,050</td>
</tr>
<tr>
<td>Zone 4</td>
<td>15,876</td>
<td>21,571</td>
<td>24,224</td>
<td>26,000</td>
<td>14,521</td>
<td>9,170</td>
<td>9,101</td>
<td>120,462</td>
</tr>
<tr>
<td>Total</td>
<td>76,568</td>
<td>158,949</td>
<td>151,978</td>
<td>117,345</td>
<td>143,743</td>
<td>89,525</td>
<td>68,365</td>
<td>806,474</td>
</tr>
</tbody>
</table>

### Figure 1: Average daily high and low temperature (F) and average daily precipitation in inches at Dayton International Airport.

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The data are used to estimate a zonal travel cost model which provides estimates of the recreational value of the sites. The value of recreation is called consumer surplus, which is the value individuals receive from visiting a site above and beyond the costs of visiting the site. In other words, consumer surplus is the difference between what the consumer pays to visit a site, and what we estimate to be their willingness to pay to visit the site. The total value of recreation generated by the sites we studied over the 7-month period is $9.7 million per year (Table 6). Nearly half of the value is derived from visitation in Zone 1, where Yellow Springs and John Bryan State Park are located. It is not surprising that Yellow Springs and John Bryan State Park have the highest visitation and the greatest consumer surplus given that they are important regional attractions, and both have large parking areas. Yellow Springs has the largest value per trip across all our observed sites, reflecting the longer distances that visitors travel to recreate there.
Sites that have the highest value tend to have considerable parking, access to the multi-use trail, and additional amenities such as restrooms. Beatty Station, Xenia Station, and the Corwin Avenue bike parking lot (at Red Barn) have high visitation levels and visitors are primarily there for biking on the paved trail. Yellow Springs, Beavercreek Community Park, and Caesar Creek State Nature Preserve attract individuals interested in biking and hiking, as well as other activities, while John Bryan State Park, Narrows Reserve, and Morris Reserve attract individuals mostly interested in hiking.

Hiking and walking attract the most visitors and generate the highest value, with biking on paved trails second (Table 7). Other, walking the dog, and jogging are the next highest categories. Paddling and fishing are the highest categories of direct river use, with an estimated 33,267 annual trips. Note that individuals engaged in paddling in this case had to bring their own canoe or kayak. We discuss trips through the various liveries below.

In Zone 1, hiking/walking is the highest valued activity (Table 7), owing to the presence of John Bryan State Park and recreational preferences in and around the Village of Yellow Springs. In Zone 2, biking is the highest valued activity. Zone 3 has several sites with smaller parking areas, but it contributes substantially to the water-based values. Water-based values are greatest in Zone 4, where there are many boating access points. The increase in value associated with water-based recreation further south in the watershed suggests that increases in water flow, water access, or both, play an important role in generating recreational opportunity and value for paddling and fishing.
Table 6. Consumer surplus per trip, annual visits, and total consumer surplus provided by LMR sites, April-October 2021 (does not include trips taken through the liveries).

<table>
<thead>
<tr>
<th>Zone</th>
<th>Visitors (number)</th>
<th>Value ($/visitor)</th>
<th>Total Value ($/trip)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beatty Station</td>
<td>25,402</td>
<td>$11.77</td>
<td>$298,941</td>
</tr>
<tr>
<td>Clifton River Road Reserve</td>
<td>7,961</td>
<td>$11.51</td>
<td>$91,592</td>
</tr>
<tr>
<td>Grinnell Mill</td>
<td>1,502</td>
<td>$11.44</td>
<td>$17,187</td>
</tr>
<tr>
<td>John Bryan</td>
<td>84,111</td>
<td>$12.05</td>
<td>$1,013,385</td>
</tr>
<tr>
<td>John Bryan mountain bike trail parking lot</td>
<td>15,478</td>
<td>$11.54</td>
<td>$178,630</td>
</tr>
<tr>
<td>Clifton Gorge</td>
<td>51,969</td>
<td>$11.89</td>
<td>$617,820</td>
</tr>
<tr>
<td>Yellow Springs</td>
<td>153,252</td>
<td>$12.70</td>
<td>$1,946,159</td>
</tr>
<tr>
<td>Glen Helen parking lot</td>
<td>44,940</td>
<td>$11.74</td>
<td>$527,789</td>
</tr>
<tr>
<td>Zone 1 Total</td>
<td>384,615</td>
<td>$12.20</td>
<td>$4,691,503</td>
</tr>
<tr>
<td>Zone 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beavercreek Community Park (Angels Pass)</td>
<td>72,856</td>
<td>$11.97</td>
<td>$871,932</td>
</tr>
<tr>
<td>Glenn Thompson Reserve (Trebein Rd. and Rt 35)</td>
<td>1,618</td>
<td>$11.44</td>
<td>$18,516</td>
</tr>
<tr>
<td>Jacoby Road canoe launch</td>
<td>1,615</td>
<td>$11.45</td>
<td>$18,485</td>
</tr>
<tr>
<td>Narrows Reserve</td>
<td>51,313</td>
<td>$11.82</td>
<td>$606,428</td>
</tr>
<tr>
<td>Old Town Reserve parking lot on Route 68</td>
<td>20,016</td>
<td>$11.54</td>
<td>$231,042</td>
</tr>
<tr>
<td>Route 68 crossing of LMR (parking on berm)</td>
<td>7,514</td>
<td>$11.47</td>
<td>$86,224</td>
</tr>
<tr>
<td>Xenia Station</td>
<td>88,415</td>
<td>$11.95</td>
<td>$1,056,924</td>
</tr>
<tr>
<td>Fairgrounds Road river crossing (parking on berm)</td>
<td>41</td>
<td>$11.49</td>
<td>$470</td>
</tr>
<tr>
<td>Zone 2 Total</td>
<td>243,388</td>
<td>$11.87</td>
<td>$2,890,021</td>
</tr>
<tr>
<td>Zone 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glady Run Treatment Plant parking lot</td>
<td>3,331</td>
<td>$11.45</td>
<td>$38,148</td>
</tr>
<tr>
<td>Mill Bridge Launch</td>
<td>10,366</td>
<td>$11.51</td>
<td>$119,347</td>
</tr>
<tr>
<td>Morris Reserve parking lot/Lower Bellbrook Rd</td>
<td>22,553</td>
<td>$11.63</td>
<td>$262,252</td>
</tr>
<tr>
<td>Travertine Fen</td>
<td>90</td>
<td>$11.46</td>
<td>$1,036</td>
</tr>
<tr>
<td>Walton Park off old Route 42</td>
<td>21,709</td>
<td>$11.62</td>
<td>$252,305</td>
</tr>
<tr>
<td>Constitution Park off Route 725</td>
<td>7,521</td>
<td>$11.50</td>
<td>$86,506</td>
</tr>
<tr>
<td>Zone 3 Total</td>
<td>65,570</td>
<td>$11.58</td>
<td>$759,594</td>
</tr>
<tr>
<td>Zone 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bowman Park off Corwin Avenue</td>
<td>2,356</td>
<td>$11.47</td>
<td>$27,024</td>
</tr>
<tr>
<td>Caesar Creek access / Corwin Nixon bridge launch</td>
<td>2,167</td>
<td>$11.47</td>
<td>$24,867</td>
</tr>
<tr>
<td>Caesar Creek State Nature Preserve</td>
<td>10,731</td>
<td>$11.64</td>
<td>$124,890</td>
</tr>
<tr>
<td>Clint Fultz river park</td>
<td>2,277</td>
<td>$11.47</td>
<td>$26,116</td>
</tr>
<tr>
<td>Corwin bike parking lot (Red Barn)</td>
<td>61,687</td>
<td>$12.56</td>
<td>$774,955</td>
</tr>
<tr>
<td>County Highway 12</td>
<td>577</td>
<td>$11.44</td>
<td>$6,599</td>
</tr>
<tr>
<td>Hisey Park</td>
<td>4,304</td>
<td>$11.51</td>
<td>$49,546</td>
</tr>
<tr>
<td>Mathers Mill/DNR Public Access of Wilmington Rd</td>
<td>12,097</td>
<td>$11.81</td>
<td>$142,834</td>
</tr>
<tr>
<td>Roxanna-New Burlington Rd parking near bike path</td>
<td>800</td>
<td>$11.44</td>
<td>$9,150</td>
</tr>
<tr>
<td>Spring Valley Wildlife Area</td>
<td>15,878</td>
<td>$11.59</td>
<td>$184,095</td>
</tr>
<tr>
<td>Zone 4 Total</td>
<td>112,873</td>
<td>$12.14</td>
<td>$1,370,075</td>
</tr>
<tr>
<td>TOTAL (All Zones)</td>
<td>806,446</td>
<td>$12.04</td>
<td>$9,711,194</td>
</tr>
</tbody>
</table>
We also asked individuals about how Covid-19 affected their outdoor recreation. The most common response across all respondents was that Covid-19 had no effect on how they spent time engaging in various recreational activities (Table 8). While these types of recall questions are subject to recall bias, they do suggest that the trip outcomes observed in this dataset are not likely to be substantially biased by the effects of the Covid-19 pandemic.

### Table 7: Comparison of aggregate recreational value by zone.

<table>
<thead>
<tr>
<th></th>
<th>Biking on paved trails</th>
<th>Hiking/Walking</th>
<th>Fishing/Paddling</th>
<th>Birding</th>
<th>Other</th>
<th>Total Recreational Value ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>$475,747</td>
<td>$2,529,152</td>
<td>$63,510</td>
<td>$76,309</td>
<td>$1,546,786</td>
<td>$4,691,503</td>
</tr>
<tr>
<td>Zone 2</td>
<td>$1,413,649</td>
<td>$793,785</td>
<td>$94,413</td>
<td>$17,209</td>
<td>$570,967</td>
<td>$2,890,021</td>
</tr>
<tr>
<td>Zone 3</td>
<td>$242,281</td>
<td>$190,865</td>
<td>$178,711</td>
<td>$21,376</td>
<td>$126,361</td>
<td>$759,594</td>
</tr>
<tr>
<td>Zone 4</td>
<td>$807,153</td>
<td>$104,350</td>
<td>$140,955</td>
<td>$70,073</td>
<td>$247,544</td>
<td>$1,370,075</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$2,937,815</strong></td>
<td><strong>$3,617,988</strong></td>
<td><strong>$479,434</strong></td>
<td><strong>$184,756</strong></td>
<td><strong>$2,491,201</strong></td>
<td><strong>$9,711,194</strong></td>
</tr>
</tbody>
</table>

### Table 8: Responses to questions about COVID-19 on recreational choices.

<table>
<thead>
<tr>
<th>Recreation Type</th>
<th>Most Common Survey Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor recreational trips within the LMR corridor</td>
<td>Zone 1</td>
</tr>
<tr>
<td>Outdoor recreational trips outside LMR corridor</td>
<td>N</td>
</tr>
<tr>
<td>Walks in my neighborhood</td>
<td>N</td>
</tr>
<tr>
<td>Time spent in my own yard or garden</td>
<td>N</td>
</tr>
<tr>
<td>Time watching television</td>
<td>N</td>
</tr>
<tr>
<td>Time on the computer</td>
<td>N</td>
</tr>
<tr>
<td>Time in my car</td>
<td>N</td>
</tr>
<tr>
<td>Time on a bike</td>
<td>N</td>
</tr>
<tr>
<td>Time on a boat</td>
<td>N</td>
</tr>
</tbody>
</table>

N = no change; I = Increased; D= Decreased

Several canoe liveries operate along the Little Miami River corridor. In the area we examined, there are two liveries, while the other liveries operate mostly below the southern point boundary of our analysis region. Because the data are proprietary in nature, it is not possible to obtain information on individual livery annual canoe trips, however, industry sources indicate that the liveries manage trips for around 30,000 visitors per year. If we attribute the average recreational value from our sample of $12.05 per trip value to each, the value of commercial livery-based recreation is $361,500.

When estimates from the liveries are added to the estimates from our survey, the aggregate recreational value across our sites is $10.1 million per year. One way to think about this is to estimate the value of recreation per stream mile. The river segment we surveyed is approximately 43 miles in length, implying a recreational value of $233,256 per mile. Alternatively, the parks we studied contain 4332 acres of land. Across the $10.1 million per year in recreational value, they produce $2,325 per acre per year in recreational value.

This estimate represents the annual value of recreation per acre of land in the region. Perhaps a more meaningful estimate would be the asset value, which is the value of land in a transaction, or simply the land value. To calculate this value, we must use an interest rate, which we assume to be 5%. With this interest rate, the asset value of these parks is $46,501 per acre in...
recreational value. In other words, if a park district were evaluating whether to add acres to their park, and the cost of the acres is less than $46,501 per acre, then the net value of adding the acres in terms of recreational value is positive.

In addition to recreational value, we can estimate the contribution of recreation in the corridor to local economic activity in the region. The average non-gasoline expenditure is $7.15 per trip (Table 4). We focus on non-gasoline expenditures because in many cases gasoline may have been purchased well outside of the immediate zone of the corridor. To be conservative, we apply this expenditure to each car rather than to each individual because we did not distinguish between the two when we asked respondents how much they spent. Given that we estimated 2.6 persons per car, there were 310,182 estimated cars visiting from April to October. The expenditures are calculated as $2.2 million per year. These are direct expenditures. Using the multiplier of 1.39 from Gioglio et al. (2019), who estimated the contribution of recreation to Ohio’s economy, the contribution of recreation in the Little Miami River corridor to the local economy is $3.1 million per year. If one adds in the estimated 30,000 visitors who take canoe trips via the liveries each year and assumes the cost per trip is $40, the contribution of the liveries would be $1.7 million per year (including the 1.39 multiplier), for a total economic contribution of $4.8 million per year.

**Conclusion**

This report examines the recreational value of natural spaces and parks along the Little Miami River corridor from Beatty Station near Springfield, Ohio to Mathers Mill south of Oregonia, Ohio. The Little Miami River has been designated as a state and national scenic river since the early 1970s and, given its proximity to the large urban and suburban populations in Cincinnati and Dayton, Ohio, remains an important natural resource asset for the local population. Although the importance of this natural asset is widely accepted, no studies have estimated its value to the population that uses the recreational resources in the corridor.

This study develops an approach to determine the recreational value of the corridor to its users. From April through October of 2021, a group of 20 volunteers counted cars at parking lots and left contact sheets requesting that those individuals fill out a survey. The volunteers spent nearly 1000 hours conducting this research and made nearly 20,000 primary contacts with visitors. Of those contacts, we received 2064 usable responses (2400 in total), which allowed us to estimate the value of recreational activities in the region.

We found that at the sites we examined there were 806,446 total estimated visitors. The average value of each recreational visit was $12.04 which resulted in a total value of $9.7 million per year for all recreation. Nearly 50% of the visits and value are derived from sites in the Yellow Springs and John Bryan State Park area of the river corridor ($4.7 million per year). Sites in and around the city of Xenia also attract significant visitation and value ($2.9 million per year), followed by the southernmost zone we examined, around Caesar Creek. Hiking and walking were the highest value activities, followed by biking on paved trails. Water related activities provided about $480,000 in recreational value per year, with the value being the greatest further south. When recreation through the liveries is considered, recreational value was estimated to be $10.1 million per year.

Using these estimates, we calculate that in terms of recreational value, the Little Miami River corridor is worth at least $233,000 per mile of river in this stretch. Parkland along the river is worth at least $46,000 per acre in asset value. Typical agricultural land sales may range from $5000 to $20,000 per acre, with values being higher near developed locations. These results suggest that many park districts in the region would provide positive net value to their users if they sought to increase their park area through market purchases of land. Park lands also provide benefits in terms of contribution to the economy, with parkland acres providing a contribution to the local economy of around $1100 per acre per year.
References:


Little Miami River survey conducted by Ohio State University and the Little Miami Watershed Network

Start of Block: Block 1

Q3 Thank you for taking this survey. We are conducting this survey to learn about visitors and their contribution to the economy along the Little Miami River corridor. The results of this survey will provide important information to help state and local government agencies, as well as businesses, create a better visitor experience.

Q4 We know it may have been a while ago, but have you already filled out a survey for us at this location this year? If you have filled out the survey at a different location this year, please consider responding “no” and filling out again for this location. Thanks!
   o Yes (1)
   o No (2)

Q6 This survey is completely voluntary, and should take no more than 10 minutes of your time. If at any time during this survey you need to quit the survey for any reason, you are absolutely free to quit the survey and your responses will be discarded. Your answers on this survey are completely confidential. The research team will not provide individual responses from this survey to people outside of the research team at Ohio State University. The research team will only report aggregate data to project partners and the public. Only people 18 years and older are allowed to participate in this survey. By continuing onto the next page, you voluntarily agree to participate in this survey and you agree that you are above the age of 18.

End of Block: Block 1

Start of Block: Block 3

Q7 Thank you for agreeing to participate in this survey

What is your home zip code? ______________________________

Q9 From the following list, please select the site where you were parked when you received the flyer for this survey. These names are common names used by many for some of the sites, but they may or may not include the name of the site where you were contacted. We apologize for any confusion and if you don’t see your site, please use the last option (“my site is not listed”). To see the list of site names, click on the box below.

▼ Beatty Station (1) ... My site is not listed (47)

Q21 How many miles is this site from your home? ____________________

Q10 How many people came to the site in the same car with you on the day you received our flyer? Please consider only the people who came in the same car as you, even if your group is bigger.
Q11 What time did you get to the site?
Hour (1)
Minute (2)
AM/PM (3)

▼ 1 (1) ... 12 ~ 55 ~ pm (444)

Q12 What time did you leave the site?
Hour (1)
Minute (2)
AM/PM (3)

▼ 1 (1) ... 12 ~ 55 ~ pm (444)

Q14 What is your age?
- 18-25 (1)
- 36-45 (3)
- 46-55 (4)
- 56-65 (5)
- 66-75 (6)
- 76-85 (7)
- 86+ (8)

Q15 What is the primary reason for your visit today? In some cases you may have engaged in multiple activities while at the site, please check the activity that represents the main reason you came to this location today (click only one activity - your main one)?

- Walking my dog (14)
- Hiking/walking, other than walking my dog (1)
- Birding and/or wildlife viewing (2)
- Paddling (3)
- Fishing (4)
- Swimming (5)
- Biking on paved trail (6)
- Mountain biking on unpaved trail (7)
- Running/jogging (8)
- Playground/Splash park (9)
- Picnicking (10)
- Sports (frisbee, soccer, baseball, etc.) (11)
- Nature photography (12)
- Other (13)

Display This Question:
If What is the primary reason for your visit today? In some cases you may have engaged in multiple a... = Paddling

Skip To: Q16 If What is the primary reason for your visit today? In some cases you may have engaged in multiple a... = Paddling

Skip To: End of Block If What is the primary reason for your visit today? In some cases you may have engaged in multiple a... != Paddling

The Value of Outdoor Recreation in the Little Miami River Corridor
Q16 What kind of paddling?
- Canoe (1)
- Kayak (2)
- Paddleboard (3)
- Rowing (4)

Q20 In the last 12 months, how many times have you visited this site?

(Please move the slider to right to increase the number of trips you took).

Trips to this site per year ()

Q19 Since the Covid pandemic began in March 2020, how has it affected your recreational activities?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Greatly Reduced (2)</th>
<th>Reduced (3)</th>
<th>No Change (6)</th>
<th>Increased (7)</th>
<th>Greatly Increased (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor recreational trips within the Little Miami River corridor (1)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Outdoor recreational trips outside of the Little Miami River corridor (2)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Walks in my neighborhood (3)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Time spent in my own yard or garden (4)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Time watching television (5)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Time on the computer (6)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Time in my car (7)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Time on a bike (8)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Time on a boat (9)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

Q18 Approximately how much money did you spend on this trip. Do not include any gas purchases you made on the way too or from the park, but do include any other purchases you made at any gas station convenience stores.
- $0 (6)
- $0.01 - $10 (1)
- $10 - $20 (2)
- $20 - $30 (3)
- $30 - $40 (4)
- > $40 (5)
Q1 Our research team is also conducting a more in-depth analysis based on a longer, on-line survey. We would like to ask you to participate in this on-line survey. To participate, we ask you to provide your email address below and we will send you a link to a longer survey, which you can take now or later. That longer survey will take about 20 minutes and will ask you additional questions related to your experiences at recreational areas in the Little Miami River corridor. If you have already participated in this longer survey over the last month (since ${date://OtherDate/DM/-1%20month}), please do not take the longer survey again. If you participated in the longer survey more than a month ago, and are willing to take it again, please provide your email again and we will send you a link to take it.
Would you be willing to consider participating in this longer survey?

- Yes (1)
- No (2)

Q2 Thanks for your willingness. We will work to make sure that your name and email address are secure, and that no one will access that information. We will never knowingly provide your personal information to anyone outside of our small research team. But, because we are using the Internet, there is a chance that someone could access this information without permission. In some cases, this information could be used to identify you. This is a very small risk, but we want you to be aware of it. By typing your email in the box below, you acknowledge this small risk.

End of Block: Block 2
Appendix II – Travel Cost Model

With a zonal travel cost model, we model the number of trips from each zip code to the sites that we sampled. The number of trips from each zip code to each site is determined using the data provided by the respondents. For each respondent, we calculate a weight that is an estimate of the number of trips that particular respondent represents. The weight, \( w_{hkj} \), where \( k \) = respondent, \( j \) = site, \( i \) = period (day) and \( h \) = stratum is calculated as:

\[
w_{hkj} = \frac{N_h M_i c_{hij}}{d} K_{hij}
\]

and 
\[d = \left( \frac{\sum_{i=1}^{14} \left( \frac{1}{d_i} \right)}{K} \right)^{-1}\]

\( d \) is the harmonic mean of trip durations \( d_i \) in period \( i \). The harmonic mean used because the likelihood of sampling people on longer trips is greater than the likelihood of sampling people on shorter trips, suggesting that a straight average of trip duration could be inflated by this selection process. \( N_h \) are the number of days in the stratum; \( n_{jh} \) are the number of days in the stratum that site \( j \) was visited; \( K_{hij} \) is the number of respondents observed at site \( j \) in stratum \( h \) and on date \( i \); \( c_{hij} \) is count of cars on site \( j \) and period \( i \); and \( M_i \) is the length of day/period \( i \).

When the weights are summed across the individuals who responded to the survey, they sum to an estimate of the total visitation. The weights can be summed over any stratum and for each zip code or for each site. In our case, strata are weekdays or weekend days in each month (so 14 total strata). The travel cost from zip code \( i \) to site \( j \) is estimated with the following function:

\[
TC_{ij} = \left( \frac{\text{Income}}{2000} \right) \times (0.32) \times (\text{round trip hours}_{ij}) + (0.40) \times (\text{round trip miles}_{ij})
\]

Income is assumed to be the median income from the individuals home zip code. It is divided by 2000 to determine an hourly wage, and then multiplied by 0.4 and the number of hours of travel time from the center of zip code \( i \) to the center of site \( j \), as estimated by Google Maps. The assumption that leisure time is valued at 40% of an individual’s labor rate is a standard assumption in travel cost studies (Lupi et al., 2020). Round trip miles were also measured with Google Maps and a mileage rate of $0.32 per mile, using gasoline prices of $3.10 per gallon, assumed efficiency of 22 miles per gallon, and maintenance and depreciation costs of $0.18 per mile.
Appendix III – Weather Analysis

Weather conditions on a given day have important impacts on whether or not an individual will choose to take a trip. We used data from weather reports on daily precipitation, and high, low, and average daily temperatures gathered at the Dayton Airport station to assess weather conditions during our observation period. The Dayton Airport data are used because they contain a full set of temperature and precipitation information. Table 9 displays the average of daily temperature for the month, average of the high temperature, and average of the low temperature for the month. Table 10 displays the monthly average of daily precipitation in inches.

Table 9: Monthly Averages of Daily Temperatures (Degrees Fahrenheit)

<table>
<thead>
<tr>
<th>Month</th>
<th>Avg. Daily Temperature</th>
<th>Avg. High Temperature</th>
<th>Avg. Low Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>53.67</td>
<td>64.88</td>
<td>43.59</td>
</tr>
<tr>
<td>May</td>
<td>61.57</td>
<td>70.12</td>
<td>51.20</td>
</tr>
<tr>
<td>June</td>
<td>75.03</td>
<td>84.41</td>
<td>65.69</td>
</tr>
<tr>
<td>July</td>
<td>75.22</td>
<td>84.37</td>
<td>66.37</td>
</tr>
<tr>
<td>August</td>
<td>76.88</td>
<td>87.20</td>
<td>68.00</td>
</tr>
<tr>
<td>September</td>
<td>68.93</td>
<td>80.10</td>
<td>58.19</td>
</tr>
<tr>
<td>October</td>
<td>61.84</td>
<td>70.44</td>
<td>53.69</td>
</tr>
</tbody>
</table>

Table 10: Monthly Averages of Daily Precipitation

<table>
<thead>
<tr>
<th>Month</th>
<th>Avg. Daily Precipitation (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>0.076</td>
</tr>
<tr>
<td>May</td>
<td>0.178</td>
</tr>
<tr>
<td>June</td>
<td>0.139</td>
</tr>
<tr>
<td>July</td>
<td>0.146</td>
</tr>
<tr>
<td>August</td>
<td>0.080</td>
</tr>
<tr>
<td>September</td>
<td>0.117</td>
</tr>
<tr>
<td>October</td>
<td>0.169</td>
</tr>
</tbody>
</table>

Using the daily temperature and precipitation data gathered by the Dayton Airport station, we conducted a linear regression analysis to assess the correlation between the number of cars observed on a given day at a given site, and that day’s weather conditions. Table 11 displays the regression results for observed number of cars regressed on the high temperature, low temperature, precipitation, and site. Sites were included in this analysis as dummy variables and account for differences in the number of cars observed at each site. Some of these dummy variables were excluded from this analysis to eliminate multicollinearity among the dummy variables.

The results in Table 11 suggest that higher temperatures increase the number of cars observed, while a higher low temperature reduces the number of cars. The effect of higher low temperatures is interesting, suggesting that periods with the warmest nights will tend to have lower visitation. More precipitation reduces the number of cars at each site. We ran an additional regression with additional terms to assess whether there are threshold effects with temperature and precipitation. The results do indicate that the preference for higher temperatures is limited and that as temperatures continue to increase, there is a drop off in visitation to parks.
Table 11: Regression of observed cars in each lot as a function of daily high temperature, daily low temperature, and average daily precipitation. Site dummy variables are included to adjust the intercept term for differences in average site size.

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Estimates</th>
<th>95% confidence interval</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>-3.90</td>
<td>-5.60 – -2.20</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>High temperature (°F)</td>
<td>0.19</td>
<td>0.15 – 0.23</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Low temperature (°F)</td>
<td>-0.14</td>
<td>-0.18 – -0.10</td>
<td>&lt;0.001</td>
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<tr>
<td>Precipitation (inches per day)</td>
<td>-2.23</td>
<td>-3.04 – -1.42</td>
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</tr>
<tr>
<td>Angels Pass</td>
<td>13.22</td>
<td>11.66 – 14.77</td>
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<tr>
<td>Beatty Station</td>
<td>3.20</td>
<td>1.64 – 4.77</td>
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<tr>
<td>Bowman Park</td>
<td>-1.14</td>
<td>-2.68 – 0.40</td>
<td>0.146</td>
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<tr>
<td>CaesarCreekStateNaturePreserve</td>
<td>0.65</td>
<td>-0.88 – 2.18</td>
<td>0.407</td>
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<tr>
<td>CaesarCreekAccessCorwinNixonbridge</td>
<td>-0.41</td>
<td>-1.93 – 1.12</td>
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<tr>
<td>CliftonRiverRoadReserve</td>
<td>0.05</td>
<td>-1.46 – 1.56</td>
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<tr>
<td>ConstitutionParkoffRoute725</td>
<td>-0.15</td>
<td>-1.72 – 1.43</td>
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<tr>
<td>Corwinbikeparkinglot</td>
<td>10.63</td>
<td>9.11 – 12.16</td>
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<tr>
<td>DNRboatlaunchesofRoxannaNewBurlingtonRd</td>
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<td>-3.24 – 0.20</td>
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<td>GladysRunTreatmentPlant</td>
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<td>Jacobyroadcanoelaunch</td>
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<td>-3.52 – 0.88</td>
<td>0.240</td>
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<td>JohnBryan</td>
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<td>1.22 – 2.61</td>
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<td>CliftonGorge</td>
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<td>2.62 – 4.82</td>
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<td>MathersMillODNRPublicAccessofWilmingtonRoad</td>
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<td>-0.83 – 2.24</td>
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<td>MillBridgelaunch</td>
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<td>MorrisReserveparkinglotofflowerBellbrookRd</td>
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<td>NarrowsReserve</td>
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<td>Route68crossingoFLMR</td>
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<td>-4.17 – -0.01</td>
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<td>SpringValleyWildlifeArea</td>
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<td>WaltonParkoffOldRoute42</td>
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<td>YellowSprings</td>
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<td>Observations</td>
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<td>R² / R² adjusted</td>
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