The Economic Value of a Walkable & Bikeable Ohio

Technical Appendix: Methodology



Prepared by EBP

Ohio Department of Transportation

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INTRODUCTION

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BACKGROUND

The benefits of a walkable and bikeable Ohio are clear: investments in bicycle and pedestrian infrastructure benefit Ohio's economy and its residents. Active transportation (AT) opportunities provide mobility, health, safety, and quality of life benefits to residents. These investments impact tourism, local business spending, and business activity in the state while uplifting nearby property values and local tax revenue.

TECHNICAL APPENDIX: METHODOLOGY

This technical appendix serves as a companion to the 2025 report, "The Economic Value of a Walkable & Bikeable Ohio" published by the Ohio Department of Transportation (ODOT). It is comprised of the following chapters, each of which provides methodology details not included in the summary report:

- **Chapter 1. Cost Savings**: Households save money when they replace vehicular trips with biking or walking, and society benefits from other savings in the form of reduced vehicle congestion, fewer crashes, and avoided noise and pollution. Walking and biking also improve health outcomes. This chapter quantifies these effects based on a statewide analysis of walking and biking trips
- **Chapter 2. Property Value Impacts, Tax Revenues, and Business Access**: AT infrastructure can influence surrounding property values, which in turn affect local tax bases and revenues. This chapter estimates property value uplift and tax revenues for homes in Ohio located near major trails. The chapter also presents data on businesses and employment located near major trails in the state.
- **Chapter 3. Construction Impacts**: Spending by ODOT on building AT infrastructure infuses dollars into the economy, supporting jobs and businesses. This chapter details an analysis of projects completed by ODOT between 2014 and 2019 including an evaluation of the direct, indirect, and induced economic activity (i.e., jobs, wages) generated through capital expenditures in the state.
- **Chapter 4. Visitor Spending**: By enabling cycling events and tours, Ohio's active transportation network supports Ohio's tourism economy and related jobs and businesses. Visitor activity can contribute significantly to local economies through expenditures on day and overnight trips. This chapter details an analysis of visitor spending impacts from cycling events in Ohio.

Chapter 1: *Cost Savings*

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AVOIDED COSTS FROM WALKING AND BIKING

Households save money when they replace vehicular trips with biking or walking, and society benefits from other savings in the form of reduced vehicle congestion, fewer crashes, and avoided noise and pollution. We find that walking and biking trips in Ohio provide $1.3 billion in annual cost savings to travelers and residents of Ohio. This includes $90 million that people save from not having to pay fares and $854 million in saved vehicle operating costs across people who operate their own vehicles, rideshare/taxi operators, and transit operators. It also includes $211 million in avoided external highway use costs (congestion, noise, safety, and emissions).

Walking and biking also improve health outcomes for the individuals that walk and bike. As a result of reduced mortality risk, we find a total annual benefit of $368 million each year from people in Ohio walking and biking to work.



$90 million

Fare cost savings for rideshares, taxis, and transit

$854 million

Vehicle operating costs savings

$211 million

External highway use costs (congestion, noise, safety, emissions)

$368 million

Health benefits from walking and biking to work

This chapter documents analysis of these benefits for the state of Ohio.

WALKING AND BIKING ACTIVITY IN OHIO

According to 2022 5-year data from the American Community Survey (ACS), approximately 111,600 people walk, and another 16,700 people bike to work in Ohio (Table 1).

TABLE 1—WALKING AND BIKING TO WORK IN OHIO

Variable	Value
Number of Workers in OH	5,579,288
Bike Share of Commutes	0.30%
Walk Share of Commutes	2.00%
Number of Bike Commuters	16,738
Number of Walk Commuters	111,586

Source: EBP Analysis, ACS 2022 5-year estimates.

While there is no state-level data on walking and biking for other trip purposes, we can use data from the 2022 National Household Travel Survey (NHTS) at the national level to estimate a ratio between commuting trips and trips for other purposes. NHTS data also provides estimates of how many trips people generally make per week. Together this information can be combined to estimate the total number of walking and biking trips for different purposes in the state.

TABLE 2—DAILY WALKING AND BIKING TRIPS BY TRIP PURPOSE IN OHIO

Daily Trips by Trip Purpose	Bike	Walk
Commute	30,353	205,937
Medical or Dental	6,427	13,885
Other	2,217	111,734
Other Family or Personal Business	10,319	362,878
Other Social or Recreational	111,314	1,309,353
School or Church	45,594	487,198
Shopping	15,571	420,653
Visit Friends or Relatives	17,037	78,804
Work Business	1,477	45,955
Total - All Trip Purposes	**240,307**	**3,036,397**

Source: EBP Analysis. Daily commute trips estimated based on ACS 2022 5-year estimates for Ohio and average commute trips per day from NHTS 2022 data (1.81 for biking and 1.85 for walking, respectively). Trips by other purposes are estimated using ratios from commute trips calculated using NHTS 2022 data using 7-day national trip weights.

NHTS also provides data on average trip length by purpose and mode. According to this national data, bike trips average about 2.5 miles per trip and walking trips are generally just shy of one mile in length. We combine trip length data and estimated trip counts to calculate the total miles of walking and biking in the state (Table 3).

TABLE 3—DAILY WALKING AND BIKING MILES BY TRIP PURPOSE IN OHIO

Daily Miles by Trip Purpose	Bike	Walk
Commute	82,109	263,159
Medical or Dental	13,375	16,208
Other	3,206	70,979
Other Family or Personal Business	12,623	313,926
Other Social or Recreational	292,301	1,424,241
School or Church	111,881	437,423
Shopping	18,560	225,279
Visit Friends or Relatives	49,557	40,114
Work Business	7,538	144,209
Total - All Trip Purposes	**591,151**	**2,935,539**

Source: EBP Analysis. Calculated using average trip length by trip purpose from 2022 NHTS and trip estimates from Table 2.

ALTERNATIVE MODES IF WALKING OR BIKING WERE NOT FEASIBLE

To understand how active transportation infrastructure supports cost savings in Ohio, we consider a theoretical situation in which current walking and biking trips are not feasible, and the alternative modes people might use if they did not feel comfortable walking or biking. We develop a profile of alternative modal options by trip purpose based on the current mode split distribution for short trips. We consider distance thresholds representing the 95th percentile of walking and bike trips. NHTS data show that 95 percent of walking trips are less than or equal to 2.11 miles in length and 95 percent of bike trips are less than or equal to 7.25 miles.

TABLE 4—ALTERNATIVE MODAL OPTIONS FOR BIKING, BASED ON MODE SPLIT FOR TRIPS ≤7.25 MILES

Trip purpose	Personal Vehicle Replacement	Rideshare/Taxi Replacement	Transit Replacement
Commute	95%	1%	4%
Medical or Dental	89%	2%	10%
Other	87%	2%	12%
Other Family or Personal Business	97%	1%	2%
Other Social or Recreational	99%	0%	1%
School or Church	74%	0%	26%
Shopping	99%	0%	1%
Visit Friends or Relatives	97%	1%	2%
Work Business	96%	0%	4%

Source: EBP analysis of 2022 NHTS data for trips less than or equal to 7.25 miles. Mode shares represent the distribution of trips with walking, biking, and e-scooter options removed along with long-distance modes such as commuter rail, Amtrak, recreational vehicle, and airplane removed. Personal vehicle includes car, pickup truck, SUV/crossover, van, and motorcycle. Transit includes public or commuter bus, paratransit/dial-a-ride, and school bus.

TABLE 5—ALTERNATIVE MODAL OPTIONS FOR WALKING, BASED ON MODE SPLIT FOR TRIPS ≤2.11 MILES

Trip purpose	Personal Vehicle Replacement	Rideshare/Taxi Replacement	Transit Replacement
Commute	96%	1%	3%
Medical or Dental	86%	4%	10%
Other	94%	1%	5%
Other Family or Personal Business	98%	0%	2%
Other Social or Recreational	99%	0%	1%
School or Church	81%	0%	19%
Shopping	99%	0%	0%
Visit Friends or Relatives	97%	1%	3%
Work Business	99%	0%	1%

Source: EBP analysis of 2022 NHTS data for trips less than or equal to 2.11miles. Mode shares represent the distribution of trips with walking, biking, and e-scooter options removed along with long-distance modes such as commuter rail, Amtrak, recreational vehicle, and airplane removed. Personal vehicle includes car, pickup truck, SUV/crossover, van, and motorcycle. Transit includes public or commuter bus, paratransit/dial-a-ride, and school bus.

The above profile of modal alternatives can be used to estimate daily avoided trips and miles of travel by these alternative modes. To estimate avoided transit vehicle miles, we apply an average transit vehicle occupancy based on operating data from the Federal Transit Administration's National Transit Database (NTD) for operators in Ohio.[1] We assume that personal vehicle replacement trips are single occupancy and that rideshare/taxi trips only carry one passenger.

We estimate that walking and biking in the state serves to avoid 3.12 million personal vehicle trips, 145,000 transit trips, and nearly 11,000 rideshare/taxi trips. These avoided trips correspond to 3.36 million in personal vehicle miles traveled, 39,000 in transit vehicle miles, and 12,000 in rideshare/taxi miles (Table 6).

TABLE 6—AVOIDED TRIPS AND VEHICLE-MILES OF TRAVEL

Avoided Modal Travel	Trips	Vehicle Miles Traveled
Personal Vehicle	3,120,699	3,356,624
Rideshare/Taxi	10,792	11,921
Transit	145,213	39,146

Source: EBP analysis using data from ACS and NHTS as described in this chapter.

[1] NTD 2023 Metrics, passenger miles per vehicle revenue mile, for all Ohio reporters with valid fare revenue, passenger mile, and vehicle mile data. The calculated average occupancy is 4.04. https://www.transit.dot.gov/ntd/data-product/2023-metrics

AVOIDED COSTS

By avoiding trips on other modes, travelers benefit from reduced out-of-pocket costs including money spent on fuel and vehicle maintenance as well as fares for rideshares, taxis, and transit. Avoided miles traveled also provides benefits in the form of reduced congestion, fewer crashes, and avoided noise and pollution. Table 7 and Table 8 present the cost factors used in this analysis, which are sourced from USDOT Benefit-Cost Analysis guidance, NTD data, and published taxi and rideshare rates.

TABLE 7—PER MILE COST FACTORS

Cost Category	Per mile cost (2023 dollars)	
	Personal vehicle, shared ride, and taxi	Transit
Vehicle Operating Costs	$0.5600	$11.5467
Congestion Cost	$0.1200	$0.2450
Noise Cost	$0.0011	$0.0228
Safety Cost	$0.0420	$0.0220
Non-CO2 Emissions	$0.0130	$0.0370
CO2 Emissions	$0.1110	$0.3120

Sources: USDOT. Benefit-Cost Analysis Guidance for Discretionary Grant Programs. November 2024.[2] Vehicle operating costs for personal vehicle, shared ride, and taxi are from Table A-4 for light duty vehicles. Congestion, noise, safety, and emissions costs are from Table A-14 External Highway User Costs for Light-Duty Vehicles and Buses and Trucks – All Locations. Vehicle operating costs for transit are derived from NTD 2023 Metrics,[3] calculated as total operating cost per vehicle revenue mile, for all Ohio reporters with valid fare revenue, passenger mile, and vehicle mile data.

[2] https://www.transportation.gov/sites/dot.gov/files/2024-11/Benefit%20Cost%20Analysis%20Guidance%202025%20Update%20%28Final%29.pdf

[3] https://www.transit.dot.gov/ntd/data-product/2023-metrics

TABLE 8—AVERAGE FARES

Mode	Fixed	Per Mile
Rideshare/Taxi	$4.15	$1.55
Transit	$1.26	-

Source: Rideshare/Taxi fares reflect average prices for the cities of Akron, Cincinnati, Cleveland, Columbus, and Toledo from TaxiFareFinder[4] and Lyft.[5] Transit fares are derived from NTD 2023 Metrics, calculated as fare revenue earned per unlinked trips, for all Ohio reporters with valid fare revenue, passenger mile, and vehicle mile data.[6]

We find that walking and biking trips in Ohio provide $1.3 billion in annual cost savings to travelers and residents of Ohio. This includes $90 million that people save from not having to pay fares and $854 million in saved vehicle operating costs across people who operate their own vehicles, rideshare/taxi operators, and transit operators. It also includes $362 million in avoided external highway use costs (congestion, noise, safety, and emissions).

TABLE 9—ANNUAL COST SAVINGS IN OHIO FROM WALKING AND BIKING

Avoided Costs by Category	Annual ($M)
Fares	$90
Vehicle Operating Costs	$854
Congestion Cost	$151
Noise Cost	$2
Safety Cost	$52
Non-CO2 Emissions	$17
CO2 Emissions	$141
Total	**$1,306**

Source: EBP analysis as described in this Chapter.

HEALTH BENEFITS

The shift to walking or cycling from a vehicular mode of travel provides health benefits to users by increasing their level of physical activity. In its benefit-cost analysis guidance, the US Department of Transportation

[4] https://www.taxifarefinder.com/rates.php

[5] lyft.com/pricing/CVG; lyft.com/pricing/CLE; lyft.com/pricing/CMH; lyft.com/pricing/TOL

[6] https://www.transit.dot.gov/ntd/data-product/2023-metrics

uses the World Health Organization's *Health Economic Assessment Tool (HEAT)*[7] to estimate the monetary value of these health benefits, using inputs derived from national data. Here, we conduct a similar analysis using Ohio-specific data, where available, to estimate the benefits of reduced mortality associated with active transportation trips in the state.

We apply the following analysis to commuting trips only, in order to remain within the upper limit of weekly walking and biking time indicated by the HEAT tool to provide benefit. There is not enough information available from NHTS on overlapping trip-making patterns to ascertain the average duration of walking and biking across all trip purposes for a given individual.

We estimate that people who walk to work spend about 168 minutes per week doing so, and those who bike to work spend about 116 minutes per week (Table 10).

TABLE 10—ACTIVE TIME PER WEEK FOR PEOPLE WHO WALK AND BIKE TO WORK

Mode	Trips per Day per Person	Trip length (miles)	Speed (mph)	Time (minutes)	Time Per Week Per Person (minutes)
Walk	1.85	1.28	3.2	23.96	167.7
Bike	1.81	2.71	9.8	16.56	115.9
Source	NHTS 2022	NHTS 2022	USDOT BCA Guidance	calculated	calculated

The HEAT tool estimates a 30 percent reduction in mortality risk from 460 minutes per week of walking and a 45 percent reduction in mortality risk from 447 minutes per week biking.[8] In line with the approach used by the WHO's tool, we proportionally apply this risk reduction rate to the estimated weekly commute times using the following equation:

$$Risk\ Reduction = Maximum\ Risk\ Reduction \times \frac{Minutes\ Exercised\ per\ Week}{Max\ Num.\ of\ Minutes\ of\ Exercise}$$

[7] World Health Organization. N.d. Health Economic Assessment Tool (HEAT) for walking and cycling. https://www.who.int/tools/heat-for-walking-and-cycling

[8] World Health Organization Regional Office for Europe. 2013. Development of the health economic assessment tools (HEAT) for walking and cycling: Meeting report of the consensus workshop in Bonn, Germany, 1-2 October 2013. https://iris.who.int/bitstream/handle/10665/350598/WHO-EURO-2014-4526-44289-62558-eng.pdf?sequence=1&isAllowed=y

As a result, we estimate that people who walk to work reduce their mortality risk by 11 percent and people who bike to work reduce their risk by 12 percent.

Combining these risk reductions with data on average mortality rates in Ohio and the number of commuters in the state, we can estimate the number of annual fatalities avoided because of this healthy commuting option and the total associated monetized societal benefits. We find a total annual benefit of $368 million each year associated with reduced mortality from people in Ohio walking and biking to work.

TABLE 11—AVOIDED DEATHS AND HEALTH BENEFITS FROM WALK AND BIKE COMMUTING IN OHIO

Mode	Mortality Rate per 100,000	Ohio Commuters	Baseline Deaths	Scenario Deaths	Avoided Deaths	Benefit ($M)
Walk	205.34	111,586	229	204	25	$331
Bike	144.01	16,738	24	21	3	$37
Source	CDC WONDER[9]	ACS 2022 5-year estimates.	Mortality rate applied to commuter estimates	11% and 12% reductions	Baseline minus scenario	Monetized based on the value of statistical life[10]

[9] United States Centers for Disease Control and Prevention. 2024. CDC Wide-ranging ONline Data for Epidemiological Research (WONDER). https://wonder.cdc.gov/ Baseline mortality rates were calculated as the average of the mortality rates from 2018 and 2019 to avoid capturing any impacts of the COVID-19 pandemic on mortality. Rates for walking reflect the age bracket of 20-74 for which the health benefit applies per HEAT. Similarly, the rate for biking corresponds to the 20-64 age range. Both of these brackets correspond generally to working-age people and are thus applied to commuter estimates in Ohio.

[10] $13,200,000 per USDOT BCA Guidance. https://www.transportation.gov/sites/dot.gov/files/2024-11/Benefit%20Cost%20Analysis%20Guidance%202025%20Update%20%28Final%29.pdf

Chapter 2:
Property Value Impacts, Tax Revenues, and Business Access

Department of Transportation

PROPERTY TAX VALUATION DUE TO BIKE PATHS

This chapter describes the approach for analyzing the impacts of shared use paths and separated bike lanes on property values and property tax revenues in the state of Ohio. People want to live near active transportation infrastructure and will pay higher prices to do so. This results in higher home values near paths, which in turn increase property tax revenues. This analysis estimates how much property tax revenues increase due to proximity to shared use paths and separated bike lanes.

This chapter outlines the existing research that we draw upon to estimate property value premiums, the methodology used to select and evaluate parcels, and the calculated property tax revenues associated with shared use paths and separated bike lanes statewide and by county.

In addition, this chapter presents an analysis of businesses and employment located in proximity to major trails in the state.

EXISTING RESEARCH – HOME PRICE PREMIUMS

The impact of greenways and trails on single-family home values has been studied extensively. Researchers have found that home prices are generally higher near greenways and trails, and this price premium is explained as the capitalization of the various benefits individuals receive by living close to these facilities. These benefits include health benefits of exercising on the trail, the ability to walk or cycle to destinations, and the visual appeal of green space, among others.

Research has found home price premiums for homes within ¼ mile of greenways and trails that range from 3.75 percent to 13.7 percent and have found modest price premiums of approximately 1.1 percent up to one mile away from greenways and trails. Table 12 presents an overview of research literature that has studied the impacts of trails and greenways on home prices, the size of the area around the trail or greenway studied, the type of model or approach used, and the price premium researchers found.

We leverage this existing research to estimate the increase in property values that homes experience because of their proximity to active transportation infrastructure and associated property tax revenues.

TABLE 12—OVERVIEW OF PREVIOUS RESEARCH ON TRAIL/GREENWAY PROXIMITY AND HOME PRICE PREMIUMS

Study	Location	Size of Area Studied	Approach	Home Price Premium
Econsult Solutions, Inc. (2022)[11]	Montgomery County, PA	0-¼ mile from protected open space	Hedonic regression	3.75%
Econsult Solutions, Inc. (2022)	Montgomery County, PA	0-½ mile from protected open space	Hedonic regression	2.95%
Resource Dimensions (2005)[12]	Methow Valley, WA	0-¼ mile from trails	Hedonic regression	9.86%
Resource Dimensions (2005)	Methow Valley, WA	¼-½ mile from trails	Hedonic regression	8.98%
Resource Dimensions (2005)	Methow Valley, WA	½-1 mile from trails	Hedonic regression	1.05%
Asabere & Huffman (2007)[13]	San Antonio, TX	Homes adjacent to trails	Hedonic Regression	1.71%
Asabere & Huffman (2007)	San Antonio, TX	Homes adjacent to greenbelts	Hedonic Regression	3.98%
Asabere & Huffman (2007)	San Antonio, TX	Homes adjacent to greenways	Hedonic Regression	4.92%
Karadeniz (2008)[14]	Hamilton and Clermont County, OH	¼ mile from trails	Hedonic regression	13.7%
Karadeniz (2008)	Hamilton and Clermont County, OH	½ mile from trails	Hedonic regression	9.14%

[11] Econsult Solutions, Inc. (2022). The Economic Impact of Protected Open Space in Montgomery County, Pennsylvania. Montgomery County Planning Commission. https://www.montgomerycountypa.gov/DocumentCenter/View/34757/ESI-ROE_MontgomeryCo_April2022-02WEB

[12] Resource Dimensions. (2005). Economic Impacts of MVSTA Trails and Land Resources in the Methow Valley. Methow Valley Sport Trails Association. https://headwaterseconomics.org/wp-content/uploads/Trail_Study_65-methow-valley-trails.pdf

[13] Asabere, P. K., & Huffman, F. E. (2007). The Relative Impacts of Trails and Greenbelts on Home Price. Journal of Real Estate Finance and Economics, 38, 408-419.https://doi.org/10.1007/s11146-007-9089-8

[14] Karadeniz, D. (2008). The Impact of the Little Miami Scenic Trail on Single Family Residential Property Values. University of Cincinatti. https://etd.ohiolink.edu/acprod/odb_etd/ws/send_file/send?accession=ucin1211479716&disposition=inline

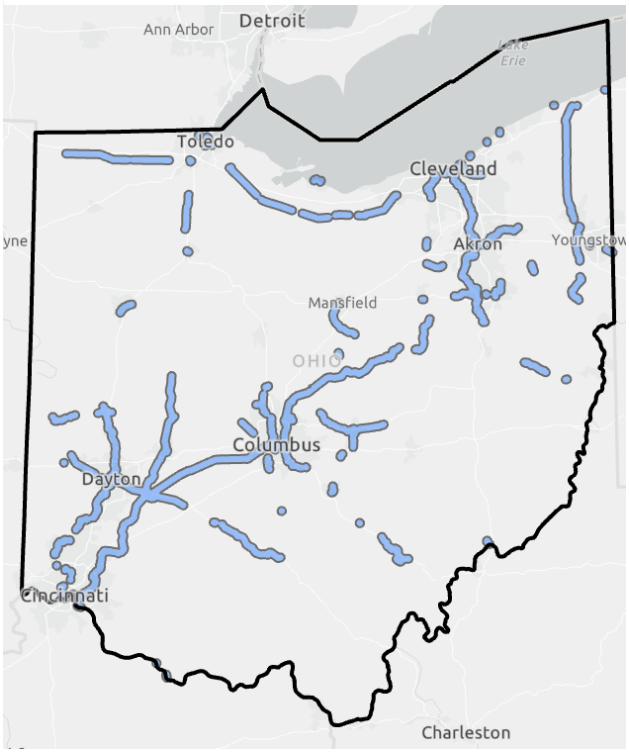
METHODOLOGY & DATA SOURCES

This analysis uses the Ohio Statewide Parcels layer[15] available from the State of Ohio's data portal. It also uses data on State and US bike routes within the state of Ohio[16], limiting the data set to look specifically at shared-use paths and separated bike lanes.

The analysis examines all residential parcels that fell within one mile of a shared-use path or separated bike lane. One mile is the common cutoff distance in published research after which active transportation infrastructure is not expected to have a significant impact. Figure 1 shows the location of these paths.

Assessed values of each residential parcel are derived from the Ohio Statewide Parcels layer. Cuyahoga County[17] and Summit County[18] data were missing from the statewide data. Data for these counties from their respective open data portals were joined to the dataset. Data from Franklin County,[19] Washington County,[20] Lucas County,[21] and Hancock

FIGURE 1—SHARED USE PATHS AND SEPARATED BIKE LANES ON STATE AND US BIKE ROUTES IN OHIO



[15] State of Ohio. (November 25, 2023). Ohio Statewide Parcels Full. Accessed November 2024. https://www.arcgis.com/apps/mapviewer/index.html?url=https://services2.arcgis.com/MlJ0G8iWUyC7jAmu/ArcGIS/rest/services/OhioStatewidePacels_full_view/FeatureServer/0&source=sd

[16] Ohio Department of Transportation. (N.d.) Transportation Information Mapping System Data Download. Accessed February 2023. https://gis.dot.state.oh.us/tims_classic/Data/Download

[17] Combined Parcels – Non-Cleveland Only, Cuyahoga County Open Data Portal: https://data-cuyahoga.opendata.arcgis.com/datasets/078968700cac45d2829d496ea97efcad_1/explore?location=41.452662%2C-81.671450%2C11.00

Combined Parcels – Cleveland Only, Cuyahoga County Open Data Portal: https://data-cuyahoga.opendata.arcgis.com/datasets/a84be47945564300a2119f6b9a411d59_0/explore

[18] Summit County Tax Parcels, County of Summit GIS: Open Data. https://data-summitgis.opendata.arcgis.com/datasets/fa9d55ede94a46f0944d371a9d8f96b4_0/explore?location=41.128260%2C-81.538985%2C10.78

[19] Geospatial Technologies, Franklin County Auditor. https://franklincountyauditor.com/auditor-office/geospatial-technologies-(gis)

[20] Data Downloads, Washington County Auditor. https://auditorwashingtoncountyohio.gov/Posts?category=Data%20Downloads

[21] File Downloads, Lucas County Ohio. https://co.lucas.oh.us/2730/File-Downloads

County[22] was incomplete or incorrect in the statewide layers, so these datasets derive from each county's website.

The analysis excludes properties with an assessed value of greater than $2 million, which represent 0.01 percent of the dataset. Non-residential parcels, high-value homes, and large multi-family properties are not well represented in the research that guides this analysis. The exclusion of these parcels ensures that the analysis is guided by available research and does not overstate the expected impact of active transportation infrastructure.

To estimate the portion of a property's value that is associated with proximity to a path (the property value premium), the analysis averaged values from the research and applied this percentage to the assessed value of each parcel according to its distance from the nearest path:

- Within ¼ mile of a path: 7 percent
- Between ¼ mile - ½ mile of a path: 5 percent
- Between ½ mile and 1 mile of a path: 1 percent

Finally, county-specific tax rates[23] were applied to the property value premium to determine the additional property tax revenue collected that is due to path proximity. The county-specific tax rate data used from the Ohio Department of Taxation is the 2022 average tax rate across all jurisdictions in each county.

RESULTS – PROPERTY VALUE AND TAX IMPACTS

Analysis results show that residential properties within one mile of a shared-use path or separated bike lane have an assessed value of $52.7 billion statewide. The property value premium is $1.6 billion, which is the portion of the overall assessed value that is estimated to stem from path proximity. Applying county-specific tax rates results in $181.6 million additional property tax revenues statewide.

[22] GIS Data Downloads, Hancock County, OH. https://beacon.schneidercorp.com/Application.aspx?AppID=1128&LayerID=28484&PageTypeID=16&PageID=11923

[23] Ohio Department of Taxation. (2022). Tax Data Series | Department of Taxation Table PR-6: Tax Rates on Real, Public Utility Personal and Tangible Personal Property, by County. https://tax.ohio.gov/researcher/tax-analysis/tax-data-series/tds1. We used Gross Rate for Residential & Agriculture.



$52.7 billion

Total assessed value of residential properties within one mile of a shared use path



$1.6 billion

Total property value premium associated with being within one mile of a shared use path



$181.6 million

Total property tax revenue collected because of paths

Table 13 shows the results by county. Cuyahoga ($55.8 million) and Franklin ($48.0 million) counties collect the largest property tax revenues due to paths, together accounting for nearly 60 percent of the statewide property tax revenue collected due to paths.

TABLE 13—PROPERTY TAX REVENUES DUE TO PATHS BY COUNTY

County	Miles of Lanes and Paths	Assessed Value ($M)	Property Value Premium ($ thousands)	Property Tax Revenue due to Paths ($ thousands)	Assessed Value per Mile ($M)	Property Value per Mile ($ thousands)	Property Tax per Mile
Cuyahoga	47.8	$13,474.3	$416,879	$55,836.3	$281.9	$8,721	$1,168,123
Franklin	70.9	$12,565.8	$395,302	$47,990.2	$177.2	$5,575	$676,872
Hamilton	25.8	$3,186.9	$98,380	$11,072.2	$123.5	$3,813	$429,154
Delaware	23.7	$2,739.3	$92,231	$9,336.2	$115.6	$3,892	$393,933
Lucas	7.9	$2,112.6	$55,583	$6,576.5	$267.4	$7,036	$832,463
Montgomery	54.9	$1,869.3	$54,124	$6,510.2	$34.0	$986	$118,584
Summit	46.3	$1,856.2	$52,405	$5,209.9	$40.1	$1,132	$112,526
Stark	42.9	$1,683.6	$54,753	$4,854.4	$39.2	$1,276	$113,157
Greene	58.8	$1,122.6	$37,799	$3,554.8	$19.1	$643	$60,456
Licking	32.6	$1,137.9	$41,579	$3,054.4	$34.9	$1,275	$93,693
Warren	35.8	$944.2	$30,172	$2,598.2	$26.4	$843	$72,575
Miami	28.4	$899.2	$27,868	$2,011.5	$31.7	$981	$70,828
Butler	19.4	$794.2	$19,697	$1,636.6	$40.9	$1,015	$84,363
Mahoning	14.9	$527.0	$17,254	$1,514.3	$35.4	$1,158	$101,631
Portage	10.3	$421.7	$15,054	$1,504.0	$40.9	$1,462	$146,018
Clark	25.2	$536.0	$18,043	$1,430.3	$21.3	$716	$56,757
Lake	1.0	$412.6	$11,185	$1,157.9	$412.6	$11,185	$1,157,924
Fairfield	4.9	$384.9	$12,150	$1,136.9	$78.6	$2,480	$232,020
Wood	13.3	$394.4	$11,973	$1,121.6	$29.7	$900	$84,330
Clermont	6.1	$330.7	$10,212	$994.6	$54.2	$1,674	$163,054
Knox	36.5	$351.0	$13,021	$908.6	$9.6	$357	$24,894
Athens	19.8	$281.5	$10,545	$851.4	$14.2	$533	$43,002
Richland	18.2	$305.2	$9,142	$787.2	$16.8	$502	$43,251

County	Miles of Lanes and Paths	Assessed Value ($M)	Property Value Premium ($ thousands)	Property Tax Revenue due to Paths ($ thousands)	Assessed Value per Mile ($M)	Property Value per Mile ($ thousands)	Property Tax per Mile
Lorain	14.2	$278.5	$8,556	$758.2	$19.6	$603	$53,397
Ross	23.0	$362.2	$12,010	$749.9	$15.7	$522	$32,604
Erie	2.0	$251.3	$8,005	$719.2	$125.6	$4,002	$359,593
Sandusky	21.4	$302.4	$9,999	$670.4	$14.1	$467	$31,325
Trumbull	23.6	$307.4	$8,121	$660.2	$13.0	$344	$27,974
Medina	2.4	$216.0	$6,405	$632.3	$90.0	$2,669	$263,468
Ashtabula	25.6	$235.3	$6,738	$543.4	$9.2	$263	$21,226
Wayne	9.4	$194.0	$6,381	$509.0	$20.6	$679	$54,149
Huron	18.4	$225.3	$7,750	$488.7	$12.2	$421	$26,562
Champaign	17.4	$169.9	$6,962	$484.5	$9.8	$400	$27,843
Fulton	23.9	$164.8	$5,917	$467.8	$6.9	$248	$19,575
Madison	19.3	$184.3	$5,959	$387.0	$9.6	$309	$20,051
Allen	6.7	$235.2	$5,550	$352.7	$35.1	$828	$52,649
Darke	6.0	$199.3	$6,007	$341.6	$33.2	$1,001	$56,940
Ottawa	5.5	$79.0	$3,837	$283.5	$14.4	$698	$51,541
Fayette	6.7	$163.8	$4,797	$273.7	$24.4	$716	$40,846
Logan	7.5	$142.5	$3,920	$263.1	$19.0	$523	$35,073
Holmes	22.3	$103.2	$4,069	$226.1	$4.6	$182	$10,140
Hancock	0.8	$154.3	$3,507	$224.5	$192.9	4,384	$280,609
Columbiana	10.7	$87.3	$3,314	$194.3	$8.2	$310	$18,155
Washington	1.9	$84.0	$3,134	$187.4	$44.2	$1,650	$98,655
Williams	10.0	$37.8	$1,657	$126.6	$3.8	$166	$12,660
Preble	0.1	$44.1	$1,511	$88.9	$441.3	$15,111	$889,278
Harrison	10.3	$29.0	$1,145	$72.2	$2.8	$111	$7,005

County	Miles of Lanes and Paths	Assessed Value ($M)	Property Value Premium ($ thousands)	Property Tax Revenue due to Paths ($ thousands)	Assessed Value per Mile ($M)	Property Value per Mile ($ thousands)	Property Tax per Mile
Brown	1.3	$31.9	$1,427	$70.8	$24.5	$1,097	$54,455
Pickaway	0.1	$59.1	$1,034	$61.3	$591.4	$10,339	$612,894
Hocking	0.2	$43.8	$873	$52.8	$219.1	$4,363	$264,025
Tuscarawas	0.2	$23.6	$355	$24.5	$117.8	$1,774	$122,579
Jefferson	0.0*	$3.9	$108	$7.2	-	-	-
Morrow	0.0*	$1.4	$14	$0.9	-	-	-
Coshocton	0.0*	$0.3	$8	$0.5	-	-	-
Carroll	0.0*	$0.5	$7	$0.4	-	-	-
Total	**936.3**	**$52,746**	**$1,644,427**	**$181,572**	**$56.3**	**$1,756**	**$193,925**

Source: EBP Analysis. *Note: Jefferson, Morrow, Coshocton, and Carroll counties do not have bike lanes or paths within the county, but there are bike lanes/paths located close to the county line, so there are properties within those counties that are within one mile of a bike lane/path.

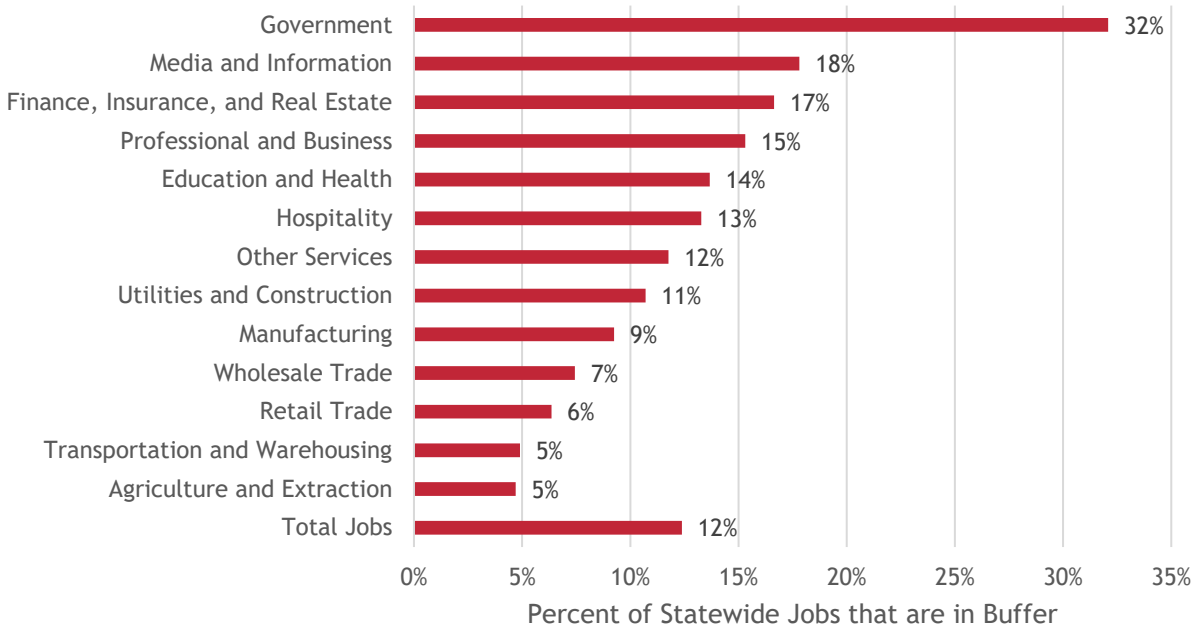
JOBS ANALYSIS

Beyond improving housing values and their associated tax revenues, bike paths also provide access to jobs and amenities. Additional analysis was performed to understand how many jobs statewide can be accessed on bike paths. Using the same dataset described above, the analysis draws a ½ mile buffer around shared-use paths and separated bike lanes and summarizes statewide LEHD LODES data[14] including total jobs and jobs by sector.

It was visually confirmed that blocks in urban areas are small relative to the size of the buffer and fit within the bounds of the buffer. Although blocks in rural areas are larger relative to the size of the buffer, there are fewer jobs to distribute. Block and buffer geographies were intersected in order to perform an interpolation based on area to distribute jobs to the buffer. For example, if 50 percent of a block's area was within the buffer, then 50 percent of the block's jobs were assigned to the buffer. Jobs by type were then summed within the buffer and statewide.

Figure 2 shows the percentage of statewide jobs that fall within the buffer. Government has the highest percentage of jobs in the buffer at 32 percent, followed by media & information and then finance, insurance, and real estate. Table 14 shows the total number of jobs in the buffer and statewide for each sector.

FIGURE 2—PERCENT OF STATEWIDE JOBS IN BUFFER



Source: EBP Analysis with LEHD LODES data and location of Shared Use Paths and Separated Bike Lanes on State and US Bike Routes in Ohio.

TABLE 14—PERCENTAGE OF STATEWIDE JOBS IN BUFFER

Sector	Jobs in Buffer	Jobs in State	Buffer Jobs as Percent of Total Jobs Statewide
Education and Health	177,336	1,296,928	14%
Professional and Business	115,434	753,975	15%
Hospitality	70,175	528,516	13%
Manufacturing	63,048	681,612	9%
Government	52,552	163,814	32%
Finance, Insurance, and Real Estate	49,252	295,887	17%
Retail Trade	34,068	535,924	6%
Utilities and Construction	28,138	262,869	11%
Other Services	18,067	153,550	12%
Wholesale Trade	17,478	234,921	7%
Media and Information	14,693	82,480	18%
Transportation and Warehousing	13,234	270,251	5%
Agriculture and Extraction	1,220	25,937	5%
Total Jobs	**654,714**	**5,286,664**	**12%**

Source: EBP Analysis with LEHD LODES data and location of Shared Use Paths and Separated Bike Lanes on State and US Bike Routes in Ohio.

Chapter 3: *Construction Impacts*

Department of Transportation

ECONOMIC IMPACTS OF CAPITAL SPENDING

Spending on active transportation infrastructure infuses dollars into the economy, supporting jobs and businesses. The economic impacts associated with capital spending include activity directly supported by the Ohio Department of Transportation (ODOT), along with multiplier effects on suppliers and businesses.

These impacts are summarized in Figure 3 below.

FIGURE 3—DIRECT AND MULTIPLIER IMPACTS



Direct Impacts

Spending supports employment, wages, and investments in supplies.

Supplier Activity (Indirect Impacts)

This spending then supports purchases of goods and services from companies who then employ and pay workers.

Income Re-Spending (Induced Impacts)

These workers then spend their incomes, generating additional activity in the economy.

PROJECT ANALYSIS

This analysis reflects ODOT's AT infrastructure improvements between 2014 and 2023 for which data was available. The data include 538 projects with 2,116 phases of work. Note that there are other AT improvements completed by ODOT not addressed in the analysis as they are completed as part of other larger roadway improvements or safety projects.

These improvements span across the entire state and can be further categorized by facility type (Table 15). Most AT infrastructure improvements are related to pedestrian facilities.

TABLE 15—IMPROVEMENT DISTRIBUTION BY FACILITY

Facility	Number of Project Phases	Share of Project Phases
Bike Facility	757	36 %
Enhanced Crossing	82	4 %
Pedestrian Facilities	1,067	50 %
Shared Use Path	210	10 %

Source: Ohio Department of Transportation. EBP Analysis.

These projects also span across spending categories by project phase, as noted in Table 16 below. The three largest categories of improvements are Contractor Construction (25%); Contractor Engineering, including inspection and administration (25%); and Design (18%), which include a range of engineering design, public involvement, and project management activities.

To better understand the impacts of these spending categories, this analysis assigns spending to two IMPLAN Industry Codes – 54 (Construction of New Highways and Streets) and 457 (Architectural, Engineering, and Related Services). In doing so, we can calculate the average annual spending across the two relevant industries.

TABLE 16—IMPROVEMENT DISTRIBUTION BY SPENDING CATEGORY

Spending Category	Industry Code	Number of Project Phases	Share of Project Phases
Contractor Construction	54	537	25 %
Contractor Engineering	457	523	25 %
Contractor Materials	54	2	< 1 %
Planning	457	2	< 1 %
Design	457	376	18 %
Environmental Engineering	457	436	21 %
Environmental ROW Services	457	9	< 1 %
ROW Services	457	128	6 %
Internal Labor	457	5	< 1 %
Internal Project Management	457	6	< 1 %
Railroad Reimbursement	54	6	< 1 %
Utility Work	54	8	< 1 %
Other	54	10	< 1 %
Property Acquisition	N/A	68	3 %

Source: Ohio Department of Transportation. EBP Analysis.

Over the past ten years, ODOT has spent more than $659 million in capital expenditures, averaging $65.9 million annually. When considering the annual average, roughly $57.1 million of these expenditures can be attributed to the Construction of New Highways and Streets Industry and roughly $8.9 million can be attributed to the Architectural, Engineering, and Related Services Industry. It should also be noted that spending related to Property Acquisition is separate from the two industries, as this spending does not generate economic activity that would be considered in subsequent analyses. Nonetheless, ODOT has spent roughly $865,485 on property acquisition annually. These figures are detailed in Table 17.

TABLE 17—AVERAGE ANNUAL SPENDING

Average Annual Spending	$ 65,912,529
Construction of New Highways and Streets	$ 57,056,985
Architectural, Engineering, and Related Services	$ 8,855,544
Property Acquisition	$ 865,486

Source: Ohio Department of Transportation. EBP Analysis. Rounded to the nearest dollar.

DIRECT IMPACTS

This analysis uses IMPLAN to calculate the impacts of these average annual capital expenditures in the two relevant industries. IMPLAN is an economic modeling application that can be customized for analysis at the state, county, and municipality levels. IMPLAN utilizes economic data specific to the area or region being analyzed. For this analysis, IMPLAN data was customized for Ohio.

These expenditures have directly supported 400 jobs across the state, 350 of which are in the Construction of New Highways and Streets Industry and 50 of which are in the Architectural, Engineering, and Related Services Industry. These expenditures also supported over $28.7 million in labor income.

In addition to employment and labor income, this spending has also supported value added – the contributions to GDP made by the two industries – and output – the value of production by the two industries. In terms of direct contributions, these annual expenditures supported roughly $33.6 million in value added contributions and $64.6 million in output.

TABLE 18—AVERAGE ANNUAL SPENDING IMPACTS

Impact	Employment	Labor Income	Value Added	Output
Direct	400	$28,700,500	$33,594,700	$64,587,800
Indirect	108	$7,958,900	$15,837,300	$31,611,200
Induced	193	$10,661,900	$20,139,300	$34,913,800
Total	700	$47,321,300	$69,571,300	$131,112,800

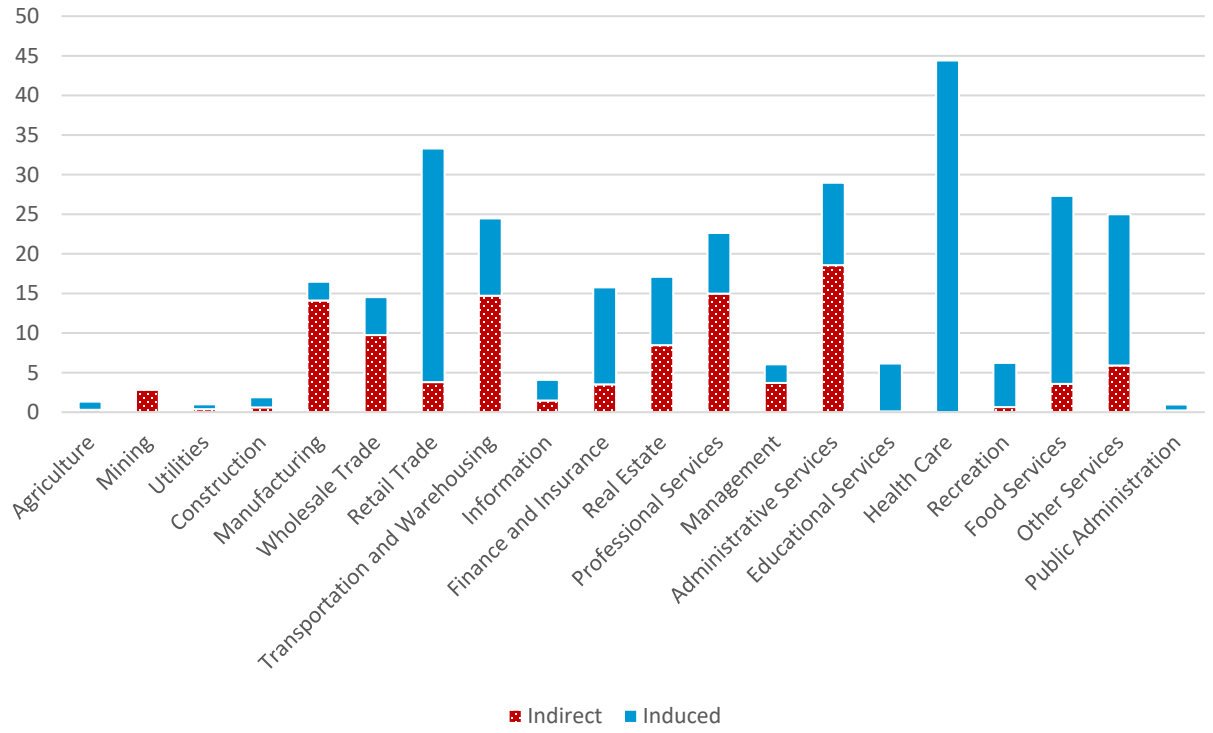
Source: IMPLAN. EBP Analysis.

Note: Labor Income, Value Added, and Output in 2022 $. Dollars rounded to the nearest hundred dollars.

STIMULUS IMPACTS

In addition to these direct impacts, these expenditures also create multiplier impacts of supplier purchases and employee spending that extend to other industries in the economy. As referenced in Table 18, an additional 108 jobs are supported by indirect effects – supplier purchases – and an additional 193 jobs are supported by induced effects – employee spending. These jobs can be found across various industries, as noted by industry in Figure 4.

FIGURE 4—MULTIPLIER EMPLOYMENT EFFECTS



Source: IMPLAN. EBP Analysis

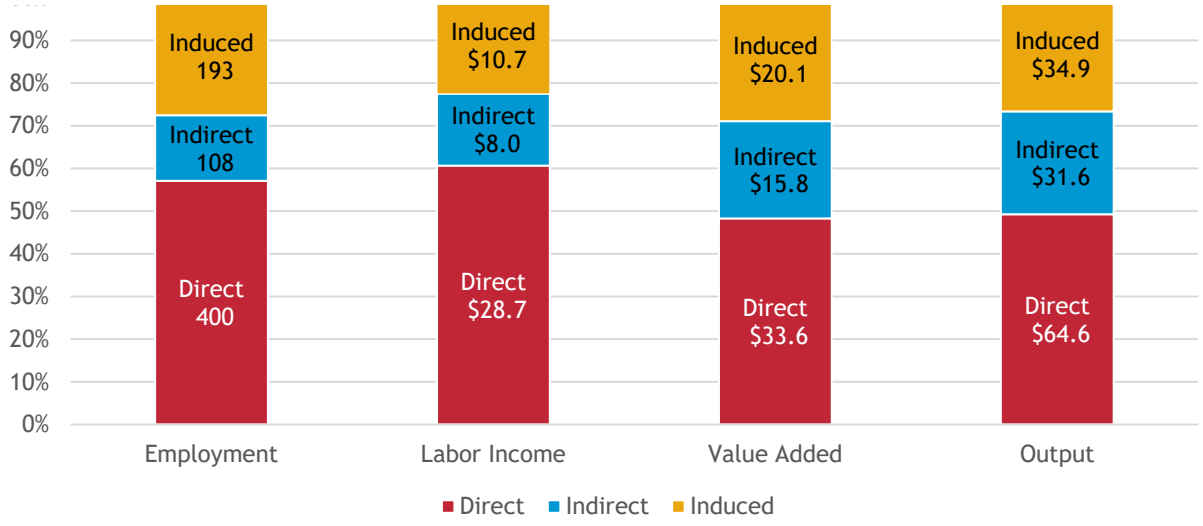
Major sectors supported by supplier spending (indirect impacts) include Administrative and Support and Waste Management and Remediation Services (NAICS 56) and Professional, Scientific, and Technical Services (NAICS 54). This reflects the additional services that need to be outsourced by contractors or ODOT to support AT infrastructure construction. Other affected supplier industries include Transportation and Warehousing, Manufacturing, and Wholesale Trade.

Induced impacts are concentrated in sectors associated with employee spending. Job impacts are concentrated in Health Care and Social Assistance (Industry 62) and Retail Trade (Industry 44-45). People also spend their earned income on Food and Other Services.

Overall, active transportation expenditures have significant economic impacts on employment and business activity in the Ohio economy, totaling over $69.6 million in value added and $131.1 million in output. The complete distribution of the economic impacts across the three economic effects are detailed in Figure 5.

> *Every $1 directly invested in AT infrastructure in Ohio generates approximately $2 in output.*

FIGURE 5—TOTAL ECONOMIC IMPACTS



Source: IMPLAN. EBP Analysis.

Note: Labor Income, Value Added, and Output in 2022 $ Million.

Chapter 4: *Visitor Spending*

Department of Transportation

ECONOMIC IMPACTS OF CYCLING-RELATED VISITOR SPENDING

Visitor spending in Ohio infuses dollars into the economy, supporting jobs and businesses. The economic impacts associated with visitor spending include activity from cycling events and tours throughout Ohio, particularly those along the Ohio to Erie Trail (OTET), along with multiplier effects on suppliers and businesses.

When people travel to participate in these events and tours, they spend money at local businesses on food, lodging, recreational activities, and shopping. The money they spend generates direct economic impacts. Other Ohio businesses in turn provide supplies to the directly affected industries, such as grocery wholesalers. These are the indirect impacts. Finally, people who are employed to run tours and events, as well as those working at supplier businesses spend their income in Ohio. This spending comprises additional induced impacts.

These impacts are summarized in Figure 3.

METHODOLOGY

This analysis examined 110 cycling events that occurred in the past year. Representative of event offerings across Ohio, these cycling events were selected for their usage of active transportation infrastructure in Ohio, rather than simply the "active" element of such events. For instance, a running marathon can be considered an "active" event but usually uses streets and roads instead of dedicated active transportation infrastructure. These cycling events include rides, races, and trail tours that use transportation infrastructure across Ohio.

These cycling events vary widely in terms of length, cost, and number of participants. This report draws on desk research as well as outreach to event operators to better understand the key characteristics of each of these events. Where possible, the analysis relies on participant counts obtained directly from event operators or published materials. Where data on participation was not available, ODOT staff estimated the number of participants based on local knowledge and experience. The events considered in this analysis are outlined in Appendix A. Events Included in Visitor Spending Analysis

Visitor Spending (per visit)

Day Event Participant: $121

Overnight Event Participant: $897

Scope of Analysis

110 Events Analyzed

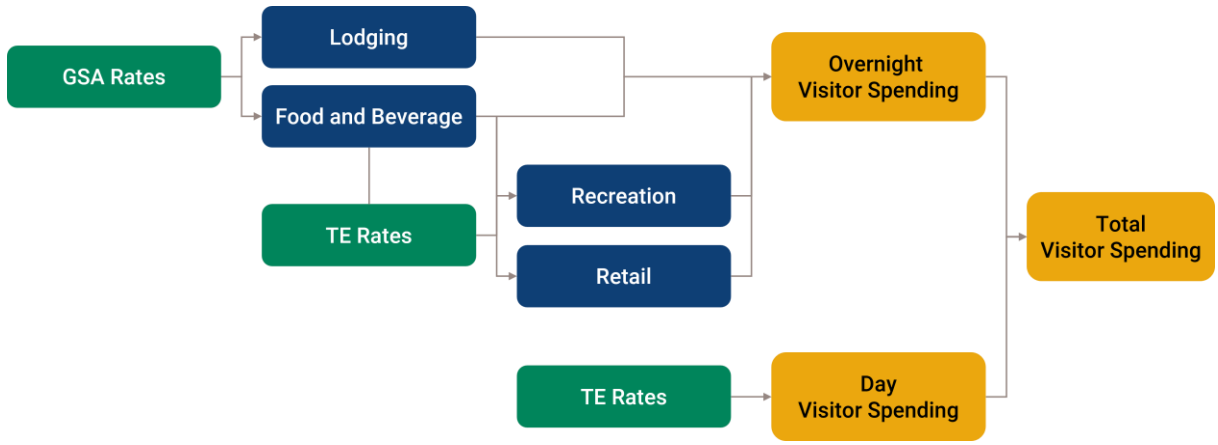
93 Day Events

17 Overnight Events

This analysis calculated spending using two different methodologies for day visitors and overnight visitors, as they have different spending behaviors. For day events, the analysis uses a day visitor spending rate ($121) published by Tourism Economics (TE) in the 2023 Ohio Economic Impact Report. This spending rate was then applied across the number of participants for the 93 day-long events featured in the analysis.

For overnight events, the analysis calculated the average overnight visitor lodging and food and beverage spending using the per diem rates for Ohio provided by the General Services Administration (GSA).[24] Since it is not possible to calculate recreation and retail spending from these rates, the analysis calculated such spending by applying their shares identified in the TE Ohio Economic Impact Report to the calculated food and beverage spending. In doing so, the analysis estimates that the average overnight visitor spends about 16 percent and 15 percent of their budget on recreation and retail, respectively. We then applied these calculations across the number of participants and the number of days for each event for the 17 overnight events featured in the analysis. Both methodologies are outlined in Figure 6. Overnight events ranged in length from two to nine days, and expenditures per visitor average to $897 for each visit.

FIGURE 6—DATA MODEL



To evaluate the multiplier impacts of visitor spending within the Ohio economy, the analysis assigned spending to specific industries within the IMPLAN model, as shown in Table 16.

[24] "FY 2023 Per Diem Rates for Ohio," General Services Administration.

TABLE 19—VISITOR SPENDING CATEGORIES

Code	Industry	Spending Category	Overnight Visitor Share	Day Visitor Share
507	Hotels and Motels, Including Casino Hotels	Lodging	45 %	0 %
509	Full-Service Restaurants	Food & Beverage	25 %	40 %
501	Museums, Historical Sites, Zoos, and Parks	Recreation	16 %	31 %
406	Food and Beverage Stores	Retail *	15 %	30 %
409	Clothing and Clothing Accessories Stores			
410	Sporting Goods, Hobby, Musical Instrument, and Book Stores			

Source: EBP Analysis with Data from Tourism Economics.

Notes: Retail was allocated evenly across the listed IMPLAN sectors. Percentages do not add to 100% due to rounding.

VISITOR SPENDING

Over the past year, we estimate that at least 27,668 visitors – 2,328 overnight visitors and 25,340 day visitors – spent $5.2 million during 110 cycling events in Ohio. This can be further broken down by day and overnight visitors, with day visitors spending $3.1 million and overnight visitors spending $2.1 million, as seen in Table 20 below.

TABLE 20—VISITOR SPENDING BY CATEGORY

Spending Category	Overnight Visitor Spending	Day Visitor Spending	Total Spending
Lodging	$941,100	$0	$941,100
Food & Beverage	$519,700	$1,223,100	$1,742,800
Recreation	$323,900	$935,800	$1,259,600
Retail	$304,500	$907,300	$1,211,700
Total Spending	**$2,089,100**	**$3,066,100**	**$5,155,200**

Source: EBP Analysis with data from Tourism Economics, Ohio cycling event/tour organizers, and the GSA. Values are rounded to the nearest hundred dollars.

When considering the participants and their spending behaviors, the average overnight visitor spends about $897 during their entire visit and the average day visitor spends about $121 during their visit. The average overnight visitor spends about 5.2 days in their visit to Ohio and thus spends about $174 a day.

Note that the cycling event and tour participants include both Ohio residents and people traveling from outside the state. While we requested information on the share of Ohio versus external participants from cycling organizations, only a subset of respondents provided this information, meaning that no overall share could be calculated. Local events tend to draw from within Ohio while some of the larger events or tours can draw considerable numbers of travelers from outside the state.

ECONOMIC IMPACTS

This analysis used IMPLAN to calculate the economic impacts of the estimated visitor spending across the six identified industries. IMPLAN is an economic modeling application, which can be customized for analysis at the state, county, and municipality levels. IMPLAN utilizes economic data specific to the area or region being analyzed. For this analysis, IMPLAN data was customized for Ohio.

Across the 110 cycling events and tours analyzed, each of the 27,600+ participants supported over $300 dollars in local business sales in Ohio, for a total of $8.8 million in revenue.

The $5.2 million in visitor spending directly supported over 45 jobs and $1.5 million in labor income, $2.50 million in value added, and $4.5 million in output (business sales) in Ohio in one year. In addition to direct impacts, this spending also supported indirect impacts – from supplier purchases – and induced impacts – from employee spending – as noted in Table 21. Events that occur annually will continue to support the Ohio economy year after year.

TABLE 21—TOTAL SPENDING IMPACTS

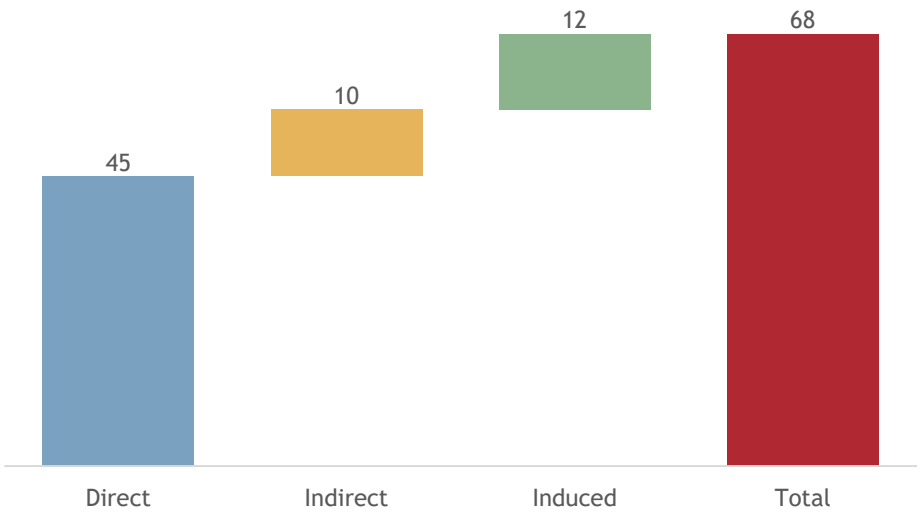
Impact	Employment	Labor Income	Value Added	Output
Direct	45	$1,506,200	$2,501,900	$4,509,700
Indirect	10	$563,400	$1,095,000	$2,160,700
Induced	12	$589,400	$1,233,800	$2,139,400
Total	**68**	**$2,659,000**	**$4,830,700**	**$8,809,900**

Source: EBP Analysis using IMPLAN.

Note: Labor Income, Value Added, and Output in 2024 $. Total direct output is slightly less than total visitor spending in Table 18. This is because some retail spending does not remain in the state but rather is directed to suppliers outside the state. Values are rounded to the nearest hundred dollars.

With multiplier effects, these 110 events support $8.8 million in output (business sales), $2.7 million in labor income, 68 jobs, and add $4.83 million to the Ohio gross state product. Figure 7 and Figure 8 illustrate the composition of total impacts in terms of jobs and output.

FIGURE 7—DIRECT, INDIRECT, AND INDUCED EMPLOYMENT IMPACTS



Source: EBP Analysis using IMPLAN.

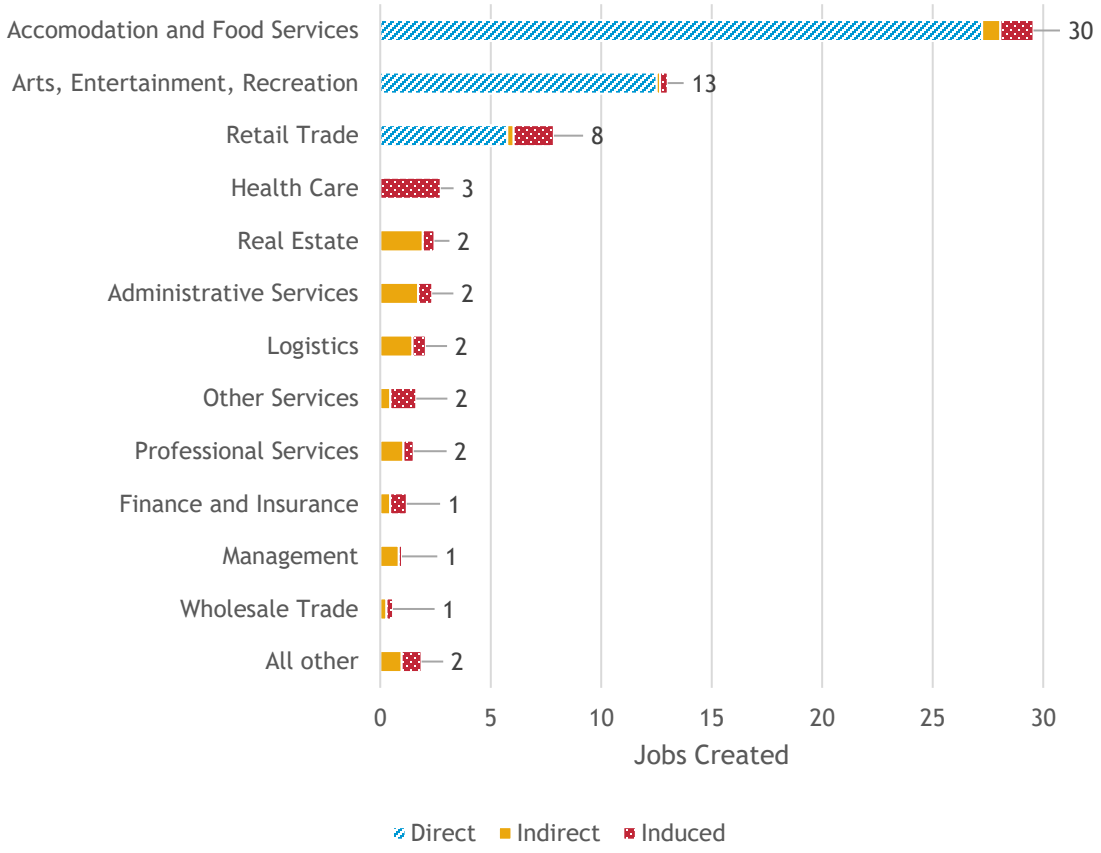
FIGURE 8—DIRECT, INDIRECT, AND INDUCED ECONOMIC OUTPUT IMPACTS (IN $MILLIONS)



Source: EBP Analysis using IMPLAN.

Jobs directly supported by visitor spending are primarily in tourism-serving sectors including Accommodation and Food Services, Arts, Entertainment, and Recreation, and Retail Trade. Additional jobs from indirect supplier effects are concentrated in Real Estate, Administrative Services, and Logistics. These jobs reflect the additional services that may need to be sourced to support visitors. Jobs from induced effects are concentrated in sectors where people spend their income, such as Health Care and Retail. These distributions are noted in Figure 9 below.

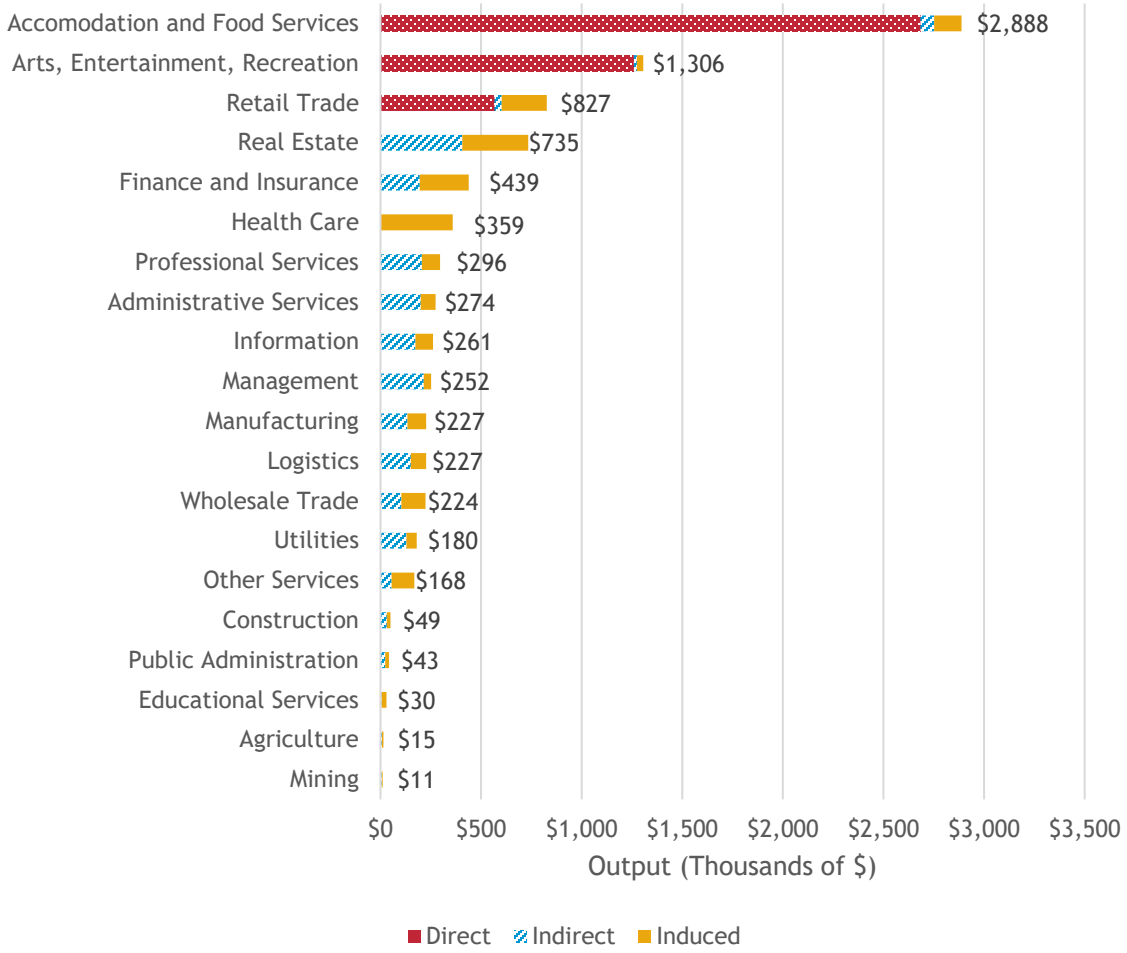
FIGURE 9—EMPLOYMENT IMPACTS



Source: EBP Analysis using IMPLAN.

Similarly, about 60 percent of total impact expressed in terms of output accrues to businesses in Accommodation and Food Services, Arts, Entertainment, and Recreation and Retail Trade. In terms of indirect output effects – supplier purchases – the most impacted industries include Real Estate and Rental and Leasing and Professional, Scientific, and Technical Services. This again reflects the additional services that may need to be sourced to support visitors to Ohio. Induced output impacts are concentrated in sectors associated with employee spending. including Health Care and Social Assistance and Real Estate and Rental and Leasing. Employees also spend their earned income on Retail Trade and Accommodation and Food Services. These patterns can be noted in Figure 10 below.

FIGURE 10—OUTPUT IMPACTS



Source: EBP Analysis using IMPLAN.

Appendix A. Events Included in Visitor Spending Analysis

APPENDIX A: Events Included in Visitor Spending Analysis

The table below lists events included in the visitor spending analysis by type (day or overnight). Events that happen multiple times under the same name (e.g., Night Rides on the Towpath) are shown multiple times.

EVENT	EVENT TYPE
10TH CHILI SPRING METRIC IN MEMORY OF JOHN CLAY	DAY
10TH GEOLOGY RIDE	DAY
11TH BIKE THE BORO	DAY
11TH BOB STOMEL MEMORIAL RIDE	DAY
11TH TWISTED PRETZEL TOUR	DAY
12TH LINDY FLYER	DAY
13TH DUNCAN'S RUN BICYCLE PATCH RIDE	DAY
16TH RIVER RIDE	DAY
19TH PRAIRIE APPRECIATION RIDE	DAY
20TH FREDERICKSBURG LIBRARY ROLL	DAY
21ST LONDON STRAWBERRY BICYCLE TOUR	DAY
21ST GARRETT WONDERS BIRTHDAY BIKE RIDE	DAY
21ST ROXIE MEMORIAL RIDE FOR JDRF	DAY
23RD PEDAL WITH PETE – CENTRAL OHIO EVENT	DAY
24TH BETSY BOHL MEMORIAL BIKE TOUR	DAY
24TH BIKE & BREW	DAY
25TH BIKE TO THE BRIDGE	DAY
28TH SICCO: SPRING IN COLUMBIANA COUNTY OHIO	DAY
29TH VANDALIA FREEDOM BIKE TOUR	DAY
2ND FALL FLOWER RIDE	DAY
2ND SPRING FLOWER RIDE	DAY
30TH MARR: MAD ANTHONY RIVER RALLY	DAY
31ST THINK SPRING	DAY
32ND ROAST YOUR BUNS	DAY
33RD OX ROAST BICYCLE TOUR	DAY
35TH JJJ: JERRY'S JEROMESVILLE JOURNEY	DAY
35TH METROPARKS TOUR	DAY
39TH HOT TAMALE BICYCLE TOUR	DAY
3RD TOUR DE DARKE	DAY
44TH BEST "WURST" BIKE RIDE	DAY
47TH PORTAGE RIVER TOUR	DAY
47TH SUNDAY IN JUNE	DAY
49TH ABCDEFGHIJ: A BI-CYCLING DANDY EXCUSE FOR GETTING HIBERNATED IN JANUARY	DAY
49TH HUFFMAN SPRING CLASSIC	DAY
4TH PORTSMOUTH CONNEX WILD RIDE	DAY
50TH ABC: ABSOLUTELY BEAUTIFUL COUNTRY RIDE	DAY
50TH RED FLANNEL METRIC CENTURY	DAY
51ST IRISH HILLS TOUR	DAY
51ST NEOC: NORTH-EAST OHIO CENTURY	DAY
53RD WRIGHT WRIDE	DAY
5TH FRESH AIR RIDE	DAY
5TH HERITAGE RIDE	DAY
5TH LAKE TO LAKE HARVEST BIKE TOUR	DAY
9TH LEGACY BIKE RIDE	DAY
BIKE THE C-BUS	DAY
BLUFFTON RIDE TO REMEMBER	DAY
BREAK THE CYCLE	DAY
BUCKEYE BRIDGE RIDE	DAY
CAESER CREEK – JAMESTOWN POPULAIRE 100K	DAY
CANALWAY BICYCLE POKER RIDE	DAY
CCC HONOR RIDE	DAY
CLEVELAND CLINIC AKRON GENERAL TOWPATH 50	DAY
CLEVELAND FUNDO	DAY
COLUMBUS RUSA ROULEUR SERIES 100K	DAY
COLUMBUS RUSA ROULEUR SERIES 125K	DAY
COLUMBUS RUSA ROULEUR SERIES 150K	DAY
COLUMBUS RUSA ROULEUR SERIES 200K	DAY
CONGRESSMAN RALPH REGULA MEMORIAL RIDE	DAY
CYCLING SERIES: COVERED BRIDGE TOUR	DAY
CYCLING SERIES: KNOX COUNTY BICYCLE CHALLENGE	DAY

EVENT	EVENT TYPE
CYCLING SERIES: MID-OHIO CENTURY	DAY
CYCLING SERIES: RIDE THE DARBY	DAY
CYCLING SERIES: SPOT	DAY
CYCLING SERIES: STEVE BARBOUR MEMORIAL RIDE	DAY
CYCLING SERIES: TOP OF THE OHIO HUNDRED	DAY
CYCLING SERIES: WOODSTOCK	DAY
DOG DAYS WINE TOUR	DAY
JOY RIDE	DAY
MACEDONIA-MEADVILLE-SALEM 600K	DAY
MACEDONIA-MEADVILLE-SANDY LAKE 400K	DAY
NIGHT RIDES ON THE TOWPATH	DAY
NIGHT RIDES ON THE TOWPATH	DAY
NIGHT RIDES ON THE TOWPATH	DAY
NIGHT RIDES ON THE TOWPATH	DAY
NIGHT RIDES ON THE TOWPATH	DAY
NIGHT RIDES ON THE TOWPATH – CANAL FULTON FIREWORKS RIDE	DAY
NIGHT RIDES ON THE TOWPATH – SEASON FINALE	DAY
NORTHEAST OHIO RUSA ROULEUR SERIES 100K	DAY
NORTHEAST OHIO RUSA ROULEUR SERIES 125K	DAY
NORTHEAST OHIO RUSA ROULEUR SERIES 150K	DAY
NORTHEAST OHIO RUSA ROULEUR SERIES 200K	DAY
OHIO HONOR RIDE	DAY
RED EAGLE GRAVEL GRINDER	DAY
RIDE TO REMEMBER ALZ	DAY
PELOTONIA RIDE WEEKEND	DAY
SPRINGFIELD – TROY 200K	DAY
SPRINGFIELD – TROY 300K	DAY
THE BOLT TOUR	DAY
TOUR DE BUCKEYE LAKE	DAY
TOUR DE DONUT	DAY
UNION COUNTY COVERED BRIDGES CYCLING TOUR	DAY
XENIA-RUSSELL'S POINT 200K ACP BREVET	DAY
YOUNG'S ICE CREAM CHARITY BIKE TOUR	DAY
11TH VELOSANO BIKE TO CURE	OVERNIGHT
15TH HUNTINGTON TOWPATH CENTURY RIDE	OVERNIGHT
18TH PAN OHIO HOPE RIDE	OVERNIGHT
50TH ROSCOE RAMBLE	OVERNIGHT
ACROSS OHIO BICYCLE ADVENTURE	OVERNIGHT
GREAT OHIO BICYCLE ADVENTURE	OVERNIGHT
OHIO ERIE TRAIL ADVENTURE	OVERNIGHT
OHIO ERIE TRAIL ADVENTURE	OVERNIGHT
OTET 4-DAY TOUR	OVERNIGHT
OTET 5-DAY TOUR	OVERNIGHT
OTET 5-DAY TOUR	OVERNIGHT
OTET 6-DAY TOUR	OVERNIGHT
OTET 7-DAY TOUR	OVERNIGHT
OTET 8-DAY TOUR	OVERNIGHT
OTET 9-DAY TOUR	OVERNIGHT
OTET 9-DAY TOUR	OVERNIGHT
TOUR OF THE SCIOTO RIVER VALLEY	OVERNIGHT

Source: Ohio Bicycle Events Calendar, Ohio Bicycle Federation. Supplementary EBP Research.