

# The East Side Bike Club: Its Programs and Impacts

## Bike Libraries from Around the World and What We Can Learn From Them

Author: Emile Bensedrine



Image Source: Pat Cray



**Shared  
Mobility**Inc.

**ILR Buffalo Co-Lab**

Cornell in Buffalo High Road Fellow Placed at  
Shared Mobility, Inc.

Supervisor: Mitch LaRosa  
Urban and Regional Studies '23  
August, 2022

This Page Intentionally Left  
Blank

---

## Note from the Author

Funding for this paper comes from Cornell University's Industrial and Labor Relations School's High Road Fellowship. The High Road Fellowship is a two-month opportunity for Cornell University students to be immersed in different organizations in the Western New York Region working to better the public good. The fellowship also entails cohort learning involving a one-month spring pre-course, guest speaker panels, skills-building activities, and field trips. The summer of 2022, I was placed in Buffalo at Shared Mobility, Inc. (SMI), a national organization based in Buffalo that coordinates shared mobility programs such as bike-sharing, car-sharing, and bike libraries. This paper was written as part of my placement at SMI, and aims to construct a narrative of their collaboration with the East Side Bike Club and its impacts using direct observation, data, and interviews gathered over the 8-week long High Road Fellowship.

---

# Table of Contents

<b>Acknowledgements</b>	<b>5</b>
Abstract	6
Background	7
Conceptual Framework	8
Methodology	9
Bikeshare and Bike Libraries in Buffalo, New York	10
Impacts of the East Side Bike Club	11
Precedents	12
Best Practices	13
<b>Conclusion</b>	<b>30</b>
<b>About the Author</b>	<b>30</b>

## Acknowledgements

This work would not have been possible without the support and guidance of peers and mentors at Shared Mobility, Inc., The East Side Bike Club, Cornell ILR's High Road Fellowship Program, and Cornell ILR's Buffalo Co-Lab. I would like to give a huge thanks to my supervisor, Mitch LaRosa of SMI, who helped guide and steer my work, encouraging me to step out of my comfort zone and make new connections. I would also like to thank Pat Cray and Matt Rebmann for showing me new perspectives and all the cool spots around Buffalo, as well as to the whole SMI team for being great mentors and teachers throughout the summer.

Some of my most immense gratitude goes to the fantastic people at the East Side Bike Club, who welcomed me on their rides and at volunteer hours, introduced me to their programming, and worked to create anonymous feedback options. I owe great thanks to Micaela Lipman, Kricky Ksiazek, and Cathy Creighton for facilitating the High Road Fellowship and providing me support and mentorship throughout the program and beyond. I would also like to thank Damon Kimbrough, Lori Lozano, George Johnson, and Rebecca Reilly, immensely for introducing me to the ESBC, starting the feedback-gathering process, and showing me their visions for the future.

## Abstract

The increase in bike libraries over the past decade marks a heightened interest in using place-based mobility solutions to close mobility gaps and promote modal shift. This paper aims to provide a conceptual framework for understanding and comparing differing bike library and bike-sharing models. This conceptual model is then applied to a case study of Buffalo's East Side Bike Club, which, since 2017, has run a bike repair shop out of a garage and, in 2021, founded an e-bike library in cooperation with Shared Mobility, Inc. Ultimately, this paper aims to evaluate the best practices gleaned through precedent studies relevant to the East Side Bike Club and further evaluate the effects of the East Side Bike Club based on community feedback. Bike libraries are a nascent concept, however, as they continue to evolve, researchers must continue to study their effects on marginalized communities to inform future program development.

## Background

The City of Buffalo is one of the most segregated cities in the United States, ranking among the top 10 or 20 depending on the metric, hosting a diverse yet unequally served population. Up to the present, underserved populations bear the brunt of environmental injustices, neglect, and racially motivated violence—notably the recent 5/14 Jefferson Tops Massacre, which killed 10 Black Buffalonians and traumatized many more. Buffalo’s Black community resides primarily in over a dozen neighborhoods collectively known as “The East Side,” a historically redlined area that suffers from varying degrees of disinvestment.

Mobility on the East Side is a critical issue deeply intertwined with Buffalo’s—and the United States’—legacy of racist urban planning and policy. The East Side has a notable lack of well-maintained infrastructure, with uneven road surfaces, overgrown sidewalks, and non-existent curb cuts. The East Side is also vast and is sparsely serviced by the local transit authority. Many vacant lots in some areas create low population density—resulting in near insurmountable walking distances. These mobility issues only exacerbate difficulties in accessing employment and educational opportunities, social and medical services, food, and recreation.<sup>1</sup>

## The East Side Bike Club

The East Side Bike Club (ESBC) is a local bike club working to foster a bicycling community on the East Side by holding group rides, providing free bikes and bike loans, and teaching essential skills. The ESBC is the primary focus of this study, and serves as an anchor point through which I examine precedents as well as mobility on the East Side.

Since April 2016, the East Side Bike Club (ESBC) meets at MLK Park for weekly rides every Saturday. George Johnson, the leader of Buffalo United Front, founded the East Side Bike Club as a Black-led organization that would get more Black Buffalonians involved in Slow Roll, a weekly 10-mile bike ride that travels around Buffalo throughout the summer. Since then, the ESBC has expanded to become one of the biggest centers of bicycling in the City of Buffalo.

*"The ESBC's mission is to expand access and awareness of biking in communities of color through weekly bike rides, open workshop hours and pop-up events throughout the city to engage with residents and stakeholders. ESBC is a program of Buffalo United Front, a coalition of frontline organizations and individuals working to improve the quality of life for Buffalo residents."*<sup>2</sup>

In 2021 the ESBC relocated to 1057 Kensington Avenue, its first storefront location. The ESBC's programs include an Earn-a-Bike, Fix-Ya-Bike, and E-Bike Library Program, among other community events. The shop at Kensington marks a critical stepping-off point for the ESBC to expand its programming, make bicycling accessible, and build a community on the East Side around bicycling<sup>3</sup>

## Shared Mobility Inc.

Shared Mobility Inc. (SMI) of Buffalo, New York, is a transportation solutions nonprofit focusing on cutting-edge technology and best practices to build mobility systems that serve disadvantaged communities in small and mid-sized markets. These communities are not traditional markets for shared mobility operators, and SMI's work often requires tailoring mobility solutions to fit the needs of each area.

Founded in 2009 as Buffalo CarShare, SMI transitioned to work across the mobility spectrum. Throughout its ten years of experience, SMI has worked across the shared mobility spectrum in the fundraising, deployment, growth, and evaluation of bike-sharing, carsharing, volunteer transportation, vanpooling, and transportation demand management programs. It seeks to apply the same social-equity-focused mindset to its nationwide portfolio of projects.<sup>4</sup>



## What is a library anyway?

The traditional definition of a library is a place storing materials for study for users to take out on loan or refer to, or the entity in charge of maintaining it.<sup>5</sup> However, different communities have reworked the term “library” as they address common problems by sharing and managing collective resources. “Libraries-of-things,” as they are often called, expand the horizon of what can be shared and loaned to the public far beyond traditional library offerings. Groups often establish “libraries-of-things” to address common problems such as the lack of access to tools or limited mobility.<sup>6</sup>

One of the main benefits and goals of libraries-of-things is to address systematic overconsumption by promoting the “sharing economy,” an economic model that prioritizes sharing goods rather than private ownership.<sup>7</sup> The goal of a library-of-things is to reduce the inefficiencies created by the individual ownership of items that:

- Users may wish to try before making an informed purchase.
- Users only need to use for a limited amount of time.
- Users may not have access to on their own.

Libraries-of-things are often run by community-group-led nonprofits or as expansions of local public libraries.<sup>8</sup> Not all libraries-of-things have the same lending model and models can vary in character depending on their missions, inventories, and community contexts. For example, some libraries-of-things charge membership fees or late fines to keep users accountable and

to cover costs. In contrast, other libraries-of-things rely on trust, often requesting that users contribute their time at the most. Nonetheless, the overall affordability of libraries-of-things is a testament to how they can make essential, life-bettering items more accessible.

### Keywords:

#### Library-of-things:

A type of lending library where non-traditional objects such as gadgets, tools, toys, and more are lent just as books are in a regular library.

#### Sharing Economy:

An economy where participants share commonly managed goods rather than owning them individually.

# Conceptual Framework

## What differentiates bikeshare from bike libraries?

In many instances, the sharing economy has become mainstream and profitable, as with some car-sharing and bike-sharing systems. These profitable systems, however, do not constitute libraries-of-things. While at times visually similar to bikeshare, bike libraries have fundamentally different lending models from bikeshare. To distinguish between bikeshare and bike library lending models, consider two factors:

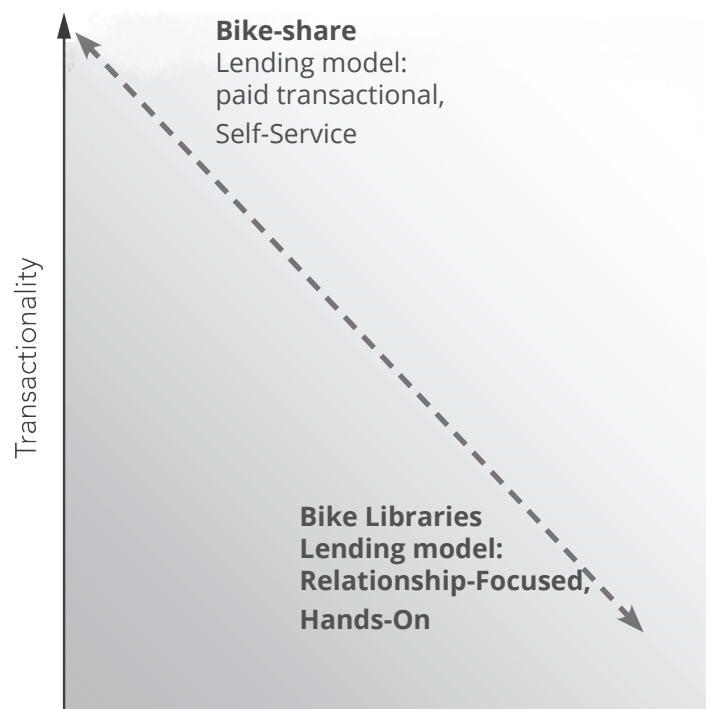
- 1) Level of personal interaction
- 2) Level of transactionality

Overall, app-based bike-sharing falls on the self-service, transactional end of this spectrum. Usually, in this traditional bike-share model, there is little emphasis on building a relationship between clients and providers; thus, usage and accountability are contingent on a business transaction. On the other end of this spectrum, the bike library model relies on face-to-face interaction between “bike librarians” and users. There is usually no fee for bike libraries, so their operators must get creative with ways to keep users accountable, often employing a mix of technological and social tools.

Moreover, bike libraries—like public libraries—can form important pieces of social infrastructure; often, they are place-based programs linked to existing community workshops that are spaces for skills-building and community events.

These linked metrics of transactionality and level of personal interaction can also help to compare different bike library models. Different bike libraries and their constituent programs fall on different levels of this spectrum, with some including various monetary transactions and self-service aspects like cellphone apps.

Figure 1: Shared Mobility Gradient



Source: Emile Bensedrine

Image description: A chart delineating the theoretical framework with which one can differentiate between a “library-of-things” and traditional bikeshare. There is no hard line separating the two, and they must be thought of, rather, on a shared mobility spectrum.

# Bikeshare

In the past ten years, urban centers have seen an explosion in bike-sharing.<sup>9</sup> Most traditional bikeshares have bike fleets docked at stations for users to check out. Other large-scale bike and e-scooter-sharing systems such as LimeBike are dockless, meaning users can park anywhere in a specific area.<sup>10</sup> These systems, docked and dockless, are often accessible via a smartphone app, allowing users to scan a QR code on a bike or scooter to unlock it and begin riding. While fares vary depending on the city, bikeshare applications usually charge an unlocking fee to a user's bank account and a per-minute cost if a user exceeds a time limit. Bikesharing is a popular alternative to taking a car, taxi, or public transit.<sup>11</sup> Moreover, it eliminates many of the barriers to biking that many people face, such as finding parking and potential theft.

While gaining visibility only in the last decade, bike-sharing is not a new idea. Bike sharing traces its origins to Amsterdam's "white bikes" of the 1960s. There, the youth anarchist group Provo painted 50 donated bikes white and spread them across the city for anyone to use for free; the pilot only lasted about a week before the bikes were stolen or the police impounded them.<sup>12</sup> While the group didn't end the "asphalt terror of the motorized bourgeoisie," as they put it, their ideas were spread to other countries, notably Denmark, France, then China, spawning the bike-share boom of the 21st century.<sup>13</sup>

## Critiques of Bike-Sharing

Bikeshare programs help fill gaps in urban mobility systems and decongest streets but often fall short of providing equitable service to diverse populations. Studies show that bikeshare users are often wealthier than the general population.<sup>14</sup> One study on bike-sharing in the City of Baltimore shows that:

*"Bike-share users are predominately white, non-Hispanic, male, highly educated, employed, and high-income earners."*<sup>15</sup>

Factors such as complicated membership and payment methods, concerns about safety, and prohibitions on carrying children create barriers for women, people of color, and the elderly using bike share. The Baltimore study shows that Black, indigenous, and people of color (BIPOC) residents of Baltimore expressed additional concern that using the city's bike-share increased their visibility to law enforcement—raising fear of profiling and harassment.<sup>16</sup> Other factors, such as lack of smartphone access and low population density, can make some communities difficult to service, even for the most equity-minded bikeshare operators.

Because of operational limitations, many bikeshare docking stations are left empty in cities because all the bikes have already been checked out. Working people are, thus, more likely to perceive bike-sharing as unreliable, preferring more reliable private transportation or public transit where available.

## The Story of Bike Libraries

Bike libraries are libraries of things that specialize in loaning bicycles over extended periods, from a few days to several months. Gaining steam in the 2010s with a sharp uptick in 2020, bike library programs are becoming an increasingly popular mobility intervention in communities worldwide.

Pandemic lockdowns in the early 2020s spurred a "pandemic bike boom" as people sought to get exercise in a socially distanced way.<sup>17</sup> With new technologies such as electric-assist bikes becoming more popular, many bicycle advocacy organizations sought to capitalize on this momentum. In addition to getting more people interested in bikes, the COVID-19 pandemic and the resurgence of the Movement for Black Lives revealing to many the interconnectedness of health and racial inequality.<sup>18</sup> As the supply of bikes dwindled and prices rose, bike libraries proved to be a good solution to connect e-bikes with a low-income population. Another goal of these new bike libraries was to get more people who may have been non-committal about purchasing a personal e-bike, to try one out for themselves before making such a large purchase.

The pandemic spurred other policy and economic events that made the development of bike libraries possible. Governments such as the State of Colorado launched programs that would give e-bikes to essential workers.<sup>19</sup>

Around the beginning of the pandemic, Uber's unprofitable e-bike-sharing venture, JUMP, was abandoned, and thousands of bikes were slated to be thrown out. Advocates from around the country decried the move as wasteful and pressured Uber to try to

find alternate solutions. Though many of the e-bikes had proprietary technology, Uber donated thousands of JUMP bikes to various nonprofit organizations, SMI being one of them.<sup>20</sup> It is with these bikes that SMI has worked with community-based organizations around the United States, such as the East Side Bike Club, to start e-bike libraries.

# Methodology

The methodology chosen for this paper combines on-the-ground testimonial-gathering, observation, and online literature review and interviews.

The primary aim of this paper is to understand the impacts the ESBC has on its community, specifically its e-bike library and e-bike pilot programs. As an intern at SMI, I was introduced to ESBC volunteers with whom I coordinated to join in for four weekly rides at the ESBC and to join one volunteering session at the ESBC community workshop. During these rides, I interviewed seven riders, I was able to record five of these in real-time by riding one-handed, holding my phone up to record the conversation using a cellphone conversation. In the other cases, specific quotes were transcribed afterward and are paraphrased in this paper. I also got to speak and work with four ESBC volunteers, one of which was recorded afterward. The ESBC volunteering session I attended helped reveal the on-the-ground workings of the ESBC Community Workshop's programming, which was especially helpful in understanding the program's impact on the community. Together, these testimonials and observations paint a limited mobility narrative of the ESBC and the community that participates in its programming and illustrate members' experiences and hopes around cycling.

Conceptual research was conducted using online libraries, media, and academic journals. This conceptual framework provides a lens through which one can compare bike libraries with other shared mobility systems. Information on the East Side Bike Club and Shared Mobility, Inc. was gathered from

primary sources (employees, volunteers, riders, etc.).

This paper aims to grasp a more holistic understanding of bike libraries as they are, including their histories, community contexts, and, importantly, their lending models. As compared to other mobility programs, established bike libraries are generally few and far between, with networks being small but growing. Online web search was, thus, the best option for finding precedent bike libraries. Criteria for choosing precedent bike libraries were that they must at least have been active for one year, have an online presence, and have notable media and academic coverage. Most of the precedents researched came from the Anglophone world, with one being Slovak with significant English-language coverage and another being French, one of the author's first languages. More holistic multilingual research is needed to find other bike libraries that may exist beyond those which are included in this study.

Through the search process, I was able to find over a dozen bike library programs, many of which had a limited online presence and little contact information provided. This, I believe, is a testimony to the overall face-to-face nature and informality of bike library programs. For three of the eight precedents gathered, I was able to reach out to contacts to get a better understanding of their programs' history and operations. From each precedent, one or more best practices were gleaned per their potential relevance to the ESBC's E-bike Library's lending model, capacity, and mission. The precedents that fit my criteria come from diverse community contexts, often highly dissimilar to that on the East Side of Buffalo. These bike libraries, while showing how bike libraries work across a variety of community contexts, they do not have many similarities that serve as a control point for comparison.

Bike libraries, as mentioned above, are a nascent concept. The longer-term effects of the precedents chosen are thus difficult to accurately evaluate as none of them have been around for much longer than a decade. Further research is needed to evaluate the effects of bike libraries in underserved communities across linguistic and cultural thresholds.

Figure 2: George Johnson



Source: Damon Kimbrough

Image description: ESBC founder George Johnson (center) makes some pre-ride announcements at a weekly Saturday ride.

## Bikeshare and Bike Libraries in Buffalo, New York

Buffalo, New York is home to both the nascent East Side Bike Club E-bike Library and Reddy Bikeshare. Shared Mobility Inc., a national transportation non-profit based in Buffalo, operates the Reddy Bikeshare system and supports the East Side Bike Club library program. SMI's programs demonstrate differences between the two shared-bike lending models. Additionally, they show that these two models can be complementary in addressing mobility gaps—forming a complete system of micromobility options that serve the transportation needs of underserved communities.

Figure 3: E-Bikes



Source: Patrick Cray

Image description: ESBC riders pose for a photo in front of an e-bike at an event.

Figure 4: Reddy Bikes



Source: Patrick Cray

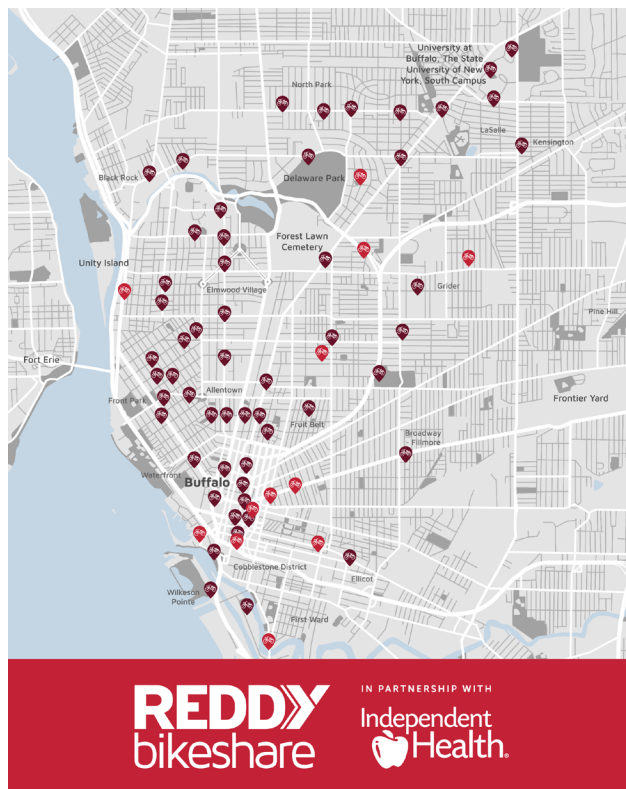
Image description: Reddy Bikeshare bikes at an event

## Reddy Bikeshare

Reddy bikeshare began with just 40 pilot bikes on the University at Buffalo’s campus in 2012. In 2016, SMI, with funding from Independent Health, rolled out 200 bikes across the city, marking the birth of the nation’s first GPS-based bikeshare system.<sup>21</sup> Reddy Bikeshare has seen rapid growth and today has 400 bikes in operation spread over 90 stations in Buffalo and Niagara Falls and the University of Buffalo’s three campuses, Reddy Bikeshare is one of the few not-for-profit bike-sharing programs in the United States. Users can sign up through an application or, if they don’t have a smartphone, they can use an RFID card to unlock the bikes. The price of an annual pass is only \$55 per year and an additional one cent per minute while riding, though discounts are routinely offered to partners and the public at special events.<sup>22</sup> This payment system makes Reddy Bikeshare one of the most accessible and affordable in the United States.

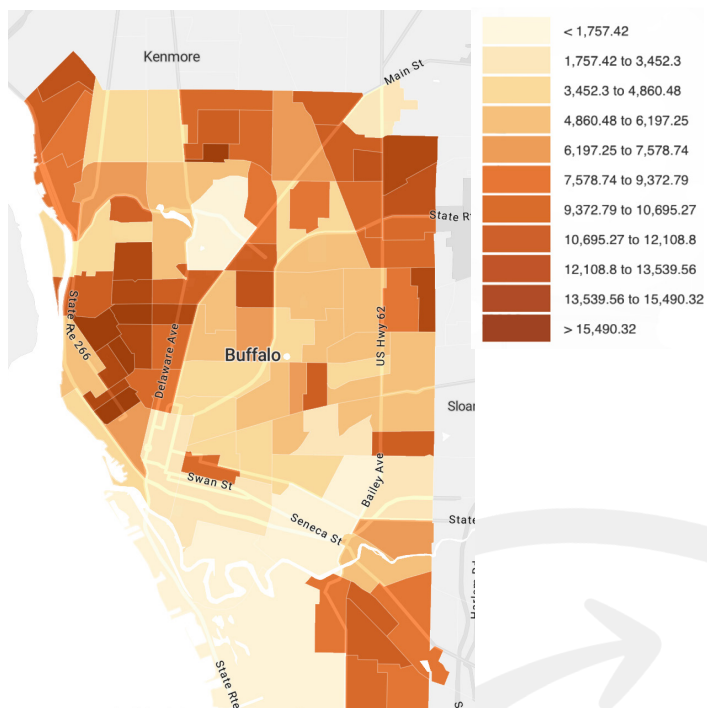
Despite steady expansion since its launch in 2016, the Reddy network still has a higher concentration of stations Downtown and on Buffalo’s West Side, which leaves the East Side out. The West Side has a generally higher population density and more safe-streets infrastructure than the city’s East Side. In comparison, the East Side is home to 85% of the city’s Black population, is lower-density, and contains far less cycling infrastructure on critical corridors.<sup>23</sup>

Figure 5: Reddy Bikeshare Stations in Buffalo



Source: Simon Husted and Makenzie Fintak  
Image description: Map of Reddy Bikeshare stations in Buffalo showing 13 newly-added stations in 2022.

Figure 6: Population Density (People/mile<sup>2</sup>)



Source: Social Explorer  
Image description: Census 2020 adjusted population density.



## The East Side Bike Club E-bike Library

In 2021, Shared Mobility Inc. began partnering with organizations across the country to distribute its 3,000 donated JUMP bikes to residents of historically underserved communities that often face environmental racism. The East Side Bike Club is one of the multiple organizations SMI works with to distribute e-bikes to residents across Buffalo's East Side, a majority-Black collection of over a dozen neighborhoods with a history of high traffic violence, environmental racism, and disinvestment. The East Side Bike Club, in partnership with SMI, is working to bring community-controlled mobility to the city's Black residents.

The East Side Bike Club E-bike Library program began with the E-bike Library Pilot program. As part of the pilot program, 50 e-bikes were lent to pilot riders for the summer months. The E-Bike library is housed at the East Side Bike Club E-bike Library and Community Workshop at 1057 Kensington Avenue and is the only bike shop on Buffalo's East Side. Before loaning their first bike, participants must attend a 30-minute orientation session by appointment, where they are briefed on program guidelines and learn how to operate the bike safely. The benefit of this program is that users can take the bikes home without bringing them to scattered stations around the city. In its first year of operation, the East Side Bike Club's E-bike program positively impacted its participants' access to employment, social activities, shopping, exercise, and recreation.

Figure 7: ESBC E-bike Library launch ceremony



Source: Patrick Cray

Image description: ESBC members set up for the E-Bike Library launch ceremony in front of 1057 Kensington.

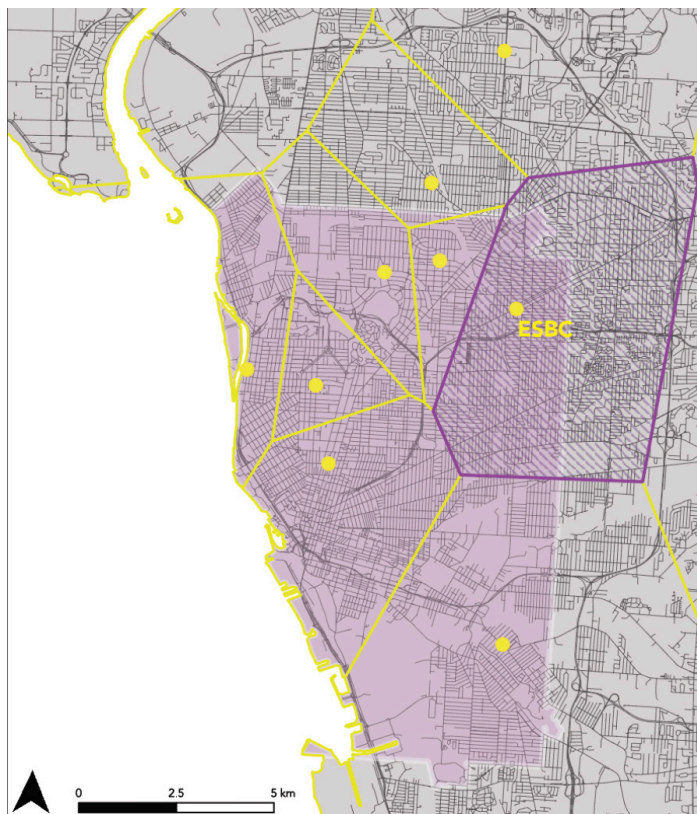
# Impacts of the East Side Bike Club

While a nascent program, the East Side Bike Club has already had a transformative effect on the lives of many residents of the East Side and Buffalo more broadly. In its first year, the E-bike Library and Community Workshop at 1057 Kensington Avenue have proven to be an invaluable piece of social infrastructure on the East Side. Despite limited volunteer hours and funding, the ESBC has had a large impact on the City of Buffalo. The ESBC provides bike access for the East Side, makes mobility accessible for the elderly and people with disabilities, builds a safe and confident cycling community, teaches essential safety and bike repair skills, and promotes community cohesion.

## Regional Impact

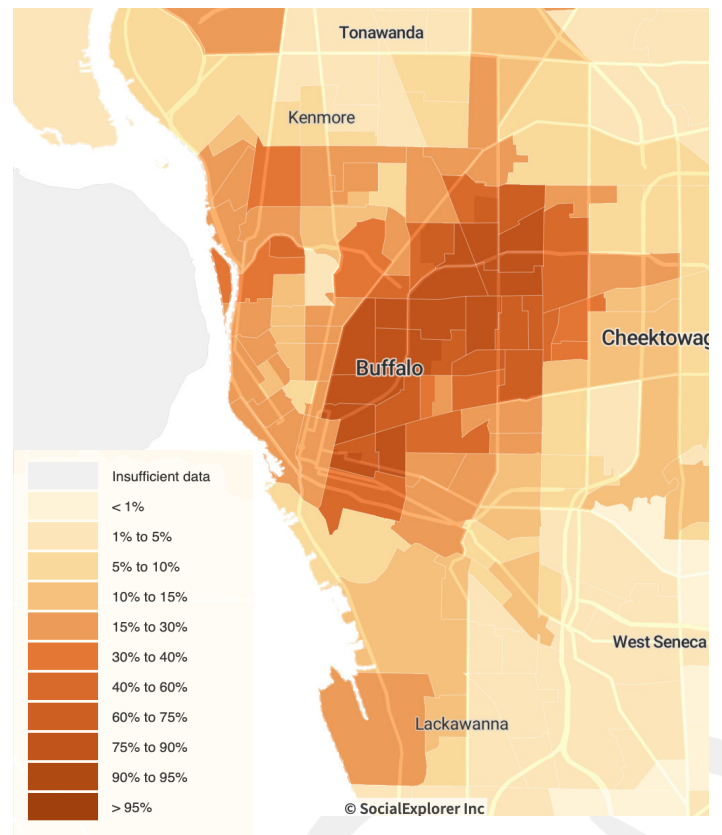
The East Side Bike Club E-bike Library and Community Workshop at 1057 Kensington is the only bike shop on the East Side of Buffalo. Figure # shows that the ESBC shop is the closest bike shop for much of the East Side of Buffalo, let alone the only one that provides free services and skill building.

Figure 8: Buffalo based on where the closest bike shop is.



Data Sources: New York State GIS Clearinghouse, Google Maps  
 Image Description: A map of the City of Buffalo and its surrounding suburbs with area geometry showing the nearest bike shop (yellow dots). Note that the ESBC E-bike Library and Community Workshop is the closest bike shop for much of the Northern part of the East Side

Figure 9: Census tracts based on percent who identify as Black or African American



Data Source: 2020 Decennial Census, accessed via Social Explorer  
 Image Description: A map showing the Buffalo region census tracts by the percentage of their populations who identify as Black or African American.<sup>24</sup>

## Earn-a-Bike Program

The E-bike Library is transformative for its users by providing access to e-bikes that residents use for commuting, shopping, and recreational purposes. However, users of the program do not walk away with bikes of their own. A level of autonomy is important for users looking for permanent solutions. The ESBC's "Earn-a-Bike" program provides a dignified way for people to walk away with a bike of their own after contributing four hours of their time toward the ESBC space, such as providing cleaning and bike repair. Rather than simply giving people bikes, the ESBC hopes to forge a relationship with the community by doing face-to-face bike safety and repair training, inviting users to events, and connecting with them personally.

This face-to-face model allows program participants and volunteers to authentically connect and adapt to each others' needs. One such case of this happened on Wednesday, July 20, 2022, when while making small talk, an Earn-a-Bike program participant mentioned that he had an interview later in the day and if it goes well, he could start work the next day. Upon further inquiry, the participant revealed that he planned to take a (notably infrequent) bus to a different part of town for the interview and was worried about punctuality. While the participant had not completed all his hours in the Earn-a-Bike program, the shop volunteer wanted the participant to get to the interview quickly and on time. The volunteer decided that having already completed the bike safety session, the participant was ready to take out the bike so that they can reach their interview with the condition that they fulfill the rest of their hours later on.<sup>25</sup>

This level of understanding and accommodation doesn't come often with many nonprofit programs, which may be means-tested and have a vetting process for participants.

## Fix-a-Bike Program

The volunteers at Kensington also brings a broad range of expertise, which they share with users at no cost through the ESBC fix-a-bike program. Like the Earn-a-Bike program, the Fix-a-Bike program aims to have users walk out of the door at 1057 Kensington with a sense of dignity and accomplishment. For this reason, volunteers usually do not do bike fixes for users but rather give them the space, tools, and guidance so that they can fix their bikes for themselves. By doing this, participants have to become a part of a bike-repair community, knowing that they and other people who frequent the ESBC can rely on themselves and each other to do their own bike repair for free. Suppose the ESBC can get enough funding for full-time staff. In that case, fix-a-bike participants who prove to be especially talented should be encouraged and empowered to apply for employment at the E-bike Library and Community Workshop. By getting bikes and the tools to build and repair them into the hands and minds of residents, the ESBC is slowly but surely building a community that has control and autonomy over its mobility.

## Benefits for Accessibility

Bicycles, especially electric-assist bicycles, can serve as mobility aids for people with specific light physical disabilities hoping to get exercise, partake in social events, and run errands. Electric bicycles help to reduce physical stress on the rider and increase the distance and frequency of trips they are willing and able to travel.<sup>26</sup> These benefits also apply to older adults, who are more likely to develop mobility challenges as they age.<sup>27</sup>

Figure 10: Fix-a-bike program



Source: Personal photography

Image description: An ESBC volunteer and a community member work together to fix disc brakes on a bike.

The following testimonials show how the East Side Bike Club’s e-bike pilot program and e-bike library help get people with disabilities more active, mobile, and social. On weekly rides, riders expressed how using the e-bikes helps them overcome barriers to participating and getting active. Below are some examples.

*“I do it because of my friend. She can’t walk cause of her MS, so she can bike, so I motivate her for movement and keep her company.”*

*“I have arthritis in both of my knees, and the e-bike has helped me immensely”*

Figure 11: ESBC riders during a Saturday Ride



Source: Damon Kimbrough, via Facebook  
Image Description: ESBC Riders on a Saturday ride, an e-bike pilot rider center.

Figure 12: Michael from the ESBC



Source: Emile Bensedrine  
Image Description: Michael Moore, a weekly ESBC rider poses after a ride with his e-bike, accompanied by his companion Sergeant.

*“That bike can power itself. When I get tired, I let the bike take me home.”*

**- Michael M. Moore, ESBC rider**

The continued availability of electric bicycles both at the weekly ESBC bike rides at the Science Museum, and as part of the E-bike Library are key to the ESBC making their programs more accessible.

## Benefits for public health

The State of New York characterizes all East Side neighborhoods as a “Potential Environmental Justice Area” (PEJA), meaning that these communities bear an outside impact from pollution.<sup>28</sup> This disproportionate impact is not the result of happenstance but rather stems from a history of racist urban planning and disinvestment, leading to heightened levels of household and outdoor contaminants.<sup>29</sup>

Transportation ties into issues of environmental, economic, as well as food justice. The white supremacist 5/14 Tops Massacre targeted Black people at the only full-service grocery store for much of the East Side. For many weeks, this left people with the choice of attending pop-up distribution tents for food or traveling long distances for groceries. The Massacre took the lives of 10 people and traumatized many more. The impacts of the event turned people’s attention toward food apartheid on the East Side, residents relying on local corner stores or traveling long distances to even reach the Tops.<sup>30</sup>

While not a solution for food insecurity, poor air quality, and lack of green spaces, better mobility for residents can help alleviate many of the negative impacts of these systemic injustices. In an initial survey of E-bike Library users, eight out of 20 (40%) respondents have expressed that a primary use for the e-bike is to go shopping and run errands. Nine riders (45%) expressed that they planned on using the e-bike to replace another mode of transportation.<sup>31</sup>

One ESBC rider put it this way (paraphrased):

I remember when they did that [Built Rt. 33]. When I was a kid, my brother and I would walk all the way up the Humboldt Parkway through Delaware park to go fishing on the river. Now they cut the neighborhood in half!<sup>32</sup>

## Building Rider Confidence

Residents of Buffalo and especially the East Side are no stranger to traffic violence. Traffic violence is of primary concern for many ESBC riders, who avoid riding on their own and prefer group settings.

Traffic violence encompasses the disproportionate impact of reduced air quality on households living near highways and other heavily traveled urban arterials, as well as the violent impact of crashes themselves, which extends from property damage to injury or death.<sup>33</sup>

Road hazards are a serious detriment to vulnerable road users, forcing people who walk and bike to avoid them in a manner that may be unpredictable and cause dangerous encounters with vehicles. Hazards include reckless motorists, potholes, poor lighting, unplowed streets, and poor road design. Moreover, safe street infrastructure on the East Side is few and far between, with standard infrastructure such as sidewalks and roads being poorly maintained.

*“I like more of the bike trails since now that I am older I am not as brave to street ride”<sup>34</sup>*

Beyond environmental health costs, traffic violence has a direct and devastating impact on the East Side. Bailey Avenue, just a block away from the Community Workshop at 1057 Kensington, is one of the most notoriously dangerous streets for pedestrians and bicyclists in the city. According to GObike Buffalo, an organization that advocates for safer bicycle and pedestrian infrastructure throughout the city, on Bailey Avenue alone, there have been 41 crashes between cars and bicyclists since 2014, three of which have been fatal.<sup>35</sup> Bailey is only one road among dozens in the city with a high crash and injury rate, which are located in neighborhoods with low levels of car ownership as well as high densities of people of color.<sup>36</sup>

*“There are so many people getting killed on bikes, I am not as brave as I used to be.”<sup>37</sup>*

The ESBC’s group rides provide a safe venue for people to get exercise on city streets where they may otherwise not be comfortable riding.

Just in June and July of 2022, two high-profile cyclist deaths resulted from car crashes in Buffalo, not to mention many more injuries and collisions.

*“I am really seeing that people are getting hit by cars I am still a little afraid to street ride, so the bike path is more of my preference.”<sup>38</sup>*

*“Riding with [the ESBC] helps a lot. Riding in the street helps with the traffic, and the camaraderie helps a lot.”<sup>39</sup>*

Having a community of bike riders helps to increase the visibility of biking in the city as a whole. Having a community also helps boost rider confidence, thus promoting safe riding. It has even been found that active transportation such as biking increases social capital and community participation.<sup>40</sup> By providing multiple place-based programs, the ESBC has the potential to be a uniting voice against systemic traffic violence on the East Side and Buffalo as a whole.

Fig 13: Vigil for Ted Dionne



Source: Damon Kimbrough

Image Description: East Side Bike Club and GoBike members attend a vigil for Ted Dionne (27), a bicyclist struck and killed by a drunk driver on July 16, 2022.

## Community Cohesion

*"Everyone calls the East Side like it's one thing. There's all these different communities that don't even relate to each other so the East Side Bike Club is where people can go from different communities in the vicinity. And just because they all live near each other doesn't mean they know all each other, so it gives them a chance to have a community gathering place where they can share ideas and help each other, and that's what people do!"<sup>41</sup>*

Members of the East Side Bike Club have a strong pride in place. They proudly wear club shirts and shout "East Side Bike Club!" as they pass smiling residents waving from their porches. Despite the vast diversity and disunity of East Side neighborhoods, the ESBC brings people together through a common love for cycling. Each year, the ESBC increases in visibility, hosting weekly rides and the Juneteenth Slow Roll event. The shop space on Kensington can be especially transformative as a piece of social infrastructure, serving as a multi-generational community space to host events and gatherings and be a venue for community cohesion. Moreover, the space can be a catalyst for community action around street safety, especially at the notoriously dangerous intersection of Kensington and Bailey just a block away.

*"When I found out more about the East Side Bike Club, you know, and how they are trying to connect with the community and I thought it was so awesome so I might not participate in all their activities, but I just wanted to be a part of it."<sup>42</sup>*

*"I live on the East Side and I grew up on the East Side and [the East Side Bike Club is] something that is really positive."<sup>43</sup>*

In creating an accessible Black-led hub for cycling culture on the East Side, the ESBC is shifting the center of gravity of bicycle advocacy in Buffalo further the East Side. Ultimately, the ESBC strengthens the biking community on the East Side while also making biking and biking advocacy more accessible and inclusive for the whole of Buffalo.

Additionally, the lack of public funding for bikeshare programs limits service expansion, a challenge that is especially difficult to overcome for nonprofit operators. Not unique to Buffalo, these challenges compel communities and organizations to develop community-specific shared mobility solutions such as the East Side Bike Club's E-bike Library and community workshop. Bike libraries worldwide work with communities to create programs more in character with their needs. While bike libraries are still relatively new, numerous precedents exist from which the ESBC E-bike Library can draw best practices. One of the goals of the following precedent report is to highlight and compare different bike libraries to glean takeaways applicable to the ESBC E-bike Library and Community Workshop.



Figure 14: A Saturday ESBC ride

"EAST SIDE! Every Saturday!"

"East Side Bike Club at MLK Park!"



Source: Damon Kimbrough  
Image description: ESBC riders riding on Saturday, July 16, 2022.

## Precedents

While bike libraries often share characteristics, they also vary greatly depending on their contexts and organizational makeup. Researchers must focus on bike libraries and their impacts as they grow to further hone lending models to serve diverse target populations across many community contexts. The following precedents illustrate the variety of bike library models that exist to synthesize best practices that can guide the future growth and development of bike libraries such as the ESBC E-Bike Library and Community Workshop.



# Precedents

Library	Véligo	Local Motion	Camden County Bike Share	Allen County	Bike Kitchen	Bike for Good	NETC E-Bike Library	East Side Bike Club E-Bike Library
Location	Île-de-France, France	Vermont, USA	Camden County, New Jersey, USA	Allen County, Kansas, USA	Bratislava, Slovakia	Glasgow, Scotland, UK	Denver, Colorado, USA	Buffalo, New York, USA
Fleet	Identical e-bikes, adaptable to hold baby seating and saddle bags.	Variety in e-bikes provided, including child seating and cargo space	Bike types vary depending on what types are donated	Identical pedal bikes	Identical pedal bikes	Identical pedal and e-bikes, Cargo bikes are of many different makes and designs	Identical electric-assist bikes	Identical electric-assist donated JUMP bikes
Size	20,000 bikes and over 50,000 users since 2019	Average of 10 bikes per library	<i>Availability varies depending on the pace of bike repair</i>	20 bikes over 5 stations	50 bikes	30 pedal bikes, 4 e-bikes, and 6 e-cargo bikes	30 bikes spread across three locations in three neighborhoods	50 bikes
Funder	Regional Transit Agency (Public)	Local, County, and State Government	County Government	Nonprofit Insurance Company	Public, Rotary Club, International Partners	Local Council (Public), Private Grants	Nonprofit TDM, State Program	Nonprofit, Private, Public Grants

Library	Véligo	Local Motion	Camden County Bike Share	Allen County	Bike Kitchen	Bike for Good	NETC E-Bike Library	East Side Bike Club E-Bike Library
Location	Île-de-France, France	Vermont, USA	Camden County, New Jersey, USA	Allen County, Kansas, USA	Bratislava, Slovakia	Glasgow, Scotland, UK	Denver, Colorado, USA	Buffalo, New York, USA
Lending Model	App-Based, bikes are delivered	In-person at a shop or online bikes can also be delivered	In-person at a bike library	In-person at local businesses where keys to bikes are held	In-person at the Bike Kitchen, codes retrieved on App or SMS	In-person at local shop	In-person drop-in or by appointment depending on the location	In-person, by appointment
Lending Period	6-9 months	5 days (Thu-Mon)	Indefinite	24 hours	1 hour	1 month	48 hours	3 months
Maximum usage limit?	After lending period	After lending period	One bike per user	No limit	No limit	After Lending Period	After lending period before renewal	After lending period, batteries must be exchanged every week
Cost to User	€20-40/month	\$0	\$0	\$0	Non-monetary contribution	£0 for pedal bikes, £250 deposit for e-cargo bikes	\$20/year	Non-monetary contribution

## Véligo

### Île-de-France, France

Launched in 2019, the Véligo program includes a fleet of 20,000 adaptable e-bikes available for long-term loans. Over 50,000 users have loaned Veligo bikes since its launch. Veligo was founded by Île-de-France Mobilités and is run by Fluow, a coalition of organizations that combine their complementary technical and logistical infrastructures to execute the bike library on a large scale.<sup>44</sup> With a publicly-funded budget of 111 million euros over six years, Véligo's primary objective is to promote e-bikes as a viable mobility alternative to cars and motorbikes.

Véligo is a paid service to which residents of Île-de-France, France, which includes Paris, can subscribe online or via mobile app. Véligo costs €40 per month, with subscriptions lasting for 6-9 months depending on overall demand. Subscription costs can be reduced by 50% if a user qualifies for government assistance or if their employer provides a

cost-share as part of their contract.

Véligo's self-service system allows users to sign up online to have the French Postal Service deliver a bike directly to their homes or businesses. Users can also indicate whether they want helmets, saddle bags, or a baby seat included in their order for an extra charge. Véligo offers four varieties of bikes, including a classic e-bike, three- and two-wheeled e-cargo bikes, and an e-bike with an elongated child seat over the back wheel.<sup>45</sup> Véligo's three e-cargo bike models are in shorter supply than the classic model and are only rentable for one-to-three months. Sign-ups significantly increased in 2020 due to the COVID-19 lockdown, posing a logistical challenge for operators and causing long wait times. While the system is mostly self-service, users must bring the bike into a collaborating shop for a preventative maintenance check every three months.

Figure 15: Véligo



Source: LesEchos

Image description: A family tests out the classic (left) and elongated (left) models of e-bike that Véligo offers.

Véligo's implicit mission is to incentivize modal shift in Île-de-France to e-biking by providing a cheap and easy-to-use alternative to driving or riding a motorcycle. The monthly price of €40, while cheaper than the cheapest transit pass (€65.20), still poses an economic barrier for prior transit users, who may be more inclined toward multi-modal trips.<sup>46</sup>

Psychological and technological barriers are also important, given that Véligo is an online self-service program. Users, especially the elderly or people without smartphone access may have difficulty using a completely app-based service. Additionally, its formality and strict requirements make Véligo inaccessible to residents without legal documentation, who comprise an estimated 1% of the French population. Véligo likely falls closer to a bike share than a bike library in its lending model as it is largely self-service

and contingent on a commercial transaction. Even so, bike libraries can draw several best practices from Véligo in deploying a large bike library fleet.

Figure 16: A Véligo e-bike



Source: Wikimedia

## Local Motion Bike Lending Libraries Vermont, USA

Local Motion, founded in 1999, is "Vermont's statewide advocate for active transportation, vibrant communities, and safe streets." Since 2017, Local Motion has run e-bike lending libraries across the state in Burlington, Montpelier, and Brattleboro, as well as a traveling lending library.<sup>47</sup> One of the organization's goals is to advance e-bikes as a viable alternative to driving. Based on evaluation metrics, 25-30% of users who loaned e-bikes purchased their e-bikes after trialing them, noting the success of the model.<sup>48</sup>

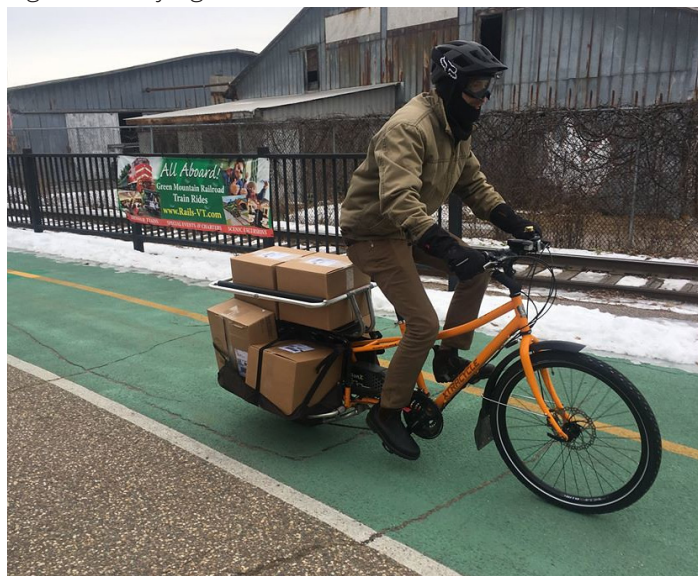
Program participants must be Vermont residents, with registration conducted over the internet. While registering, users can see the available e-bikes and indicate their preferred model, including the need to have a child seat attached. Users must provide their helmets; however,

locks come with each bike. Loan periods begin Thursdays and end the following Monday. The size of a library's fleet depends on its location, with the one in Burlington having seven e-bikes available, including one e-cargo bike. In contrast, the Brattleboro and Montpelier branches have two e-bikes each, the Upper Valley has four, and the traveling library has two. Local Motion sees e-bikes as making biking more accessible by making hills and distances easier to cover. They also have bikes that they consider adaptive, which include a cargo trike and step-through frames.<sup>49</sup>

With its short lending periods, the program aims to encourage residents to test out an e-bike as an option to purchase later. Local Motion also connects lenders with rebate and low-interest loan programs such as a \$200 rebate from the Burlington Electric Department and low-interest loan programs through the Vermont State Employees Credit Union and the Opportunities Credit Union.<sup>50</sup> The e-bike lending program, thus, provides a gateway for residents to buy e-bikes of their

own by taking advantage of these progressive government programs.

Figure 17: Trying out an e-bike



Source: Local Motion website  
Image description: Someone tests out an e-cargo bike loaded with boxes on a snowy day.

## Camden County BikeShare

### Camden County, New Jersey

The Camden County BikeShare program in Camden County, New Jersey, aims to provide residents access to green transportation at no cost by recycling unwanted and abandoned bicycles and distributing them to residents.

Starting in 2012 as a joint effort between Sustainable Camden County, Cross County Connection TMA, and the Camden County Division of Environmental Affairs, the program created a

framework through which municipalities and organizations can find and/or host local bike libraries using the county's bikes. A challenge to this mission is that there has not been much buy-in from potential bike share hosts because of space, time, and monetary constraints, and as a result, the county became the primary administrator of the program. Whereas the original mission of Camden County BikeShare was to grow branch locations in different municipalities, the program has been almost entirely administered and operated by the County operating out of a central location.

***"It is very difficult to find a champion for these programs" —Patrick Farley<sup>51</sup>***

The informal space in Camden County's Campus for Sustainability used to store bikes became the official headquarters of Camden

County BikeShare and is known as the GTWheels Sustainable Bike Library. The headquarters is located in Gloucester Township, which already hosted a tool library. The program provides residents with free bicycles that they can keep for however long as they want.

GTWheels has successfully recycled over 300 bicycles and distributed them to community members who are the most in need.

## Allen County Bike Share

### Allen County, Kansas

The Allen County Bike Share was founded by an organization called Thrive Allen County as part of its decade-long effort to improve the health outcomes of residents in Allen County, Kansas. Allen County has a population of 12,503 residents and some of the lowest health, educational, and economic outcomes in Kansas.<sup>52</sup> Since 2007, Thrive Allen County has played a large part

Fig 18: Patrick disassembling and cleaning a drivetrain with caked-on grease



Source: Facebook, Camden County Bike Share  
Image description: Patrick Farley sits at a worktable cleaning rusted gears to recycle them.

in developing a regional bike trail network and encouraging a bike shop from Kansas City to open a branch in the City of Iola,<sup>53</sup> the county's most populous city (population: 5,343).<sup>54</sup> In 2017, Thrive Allen County launched its new bike-sharing program with a grant from the Blue Cross Blue Shield of Kansas to allow residents and tourists to take advantage of the regional trail system. Simply copying the traditional bike-sharing approach common in large cities would have been prohibitively expensive for small, low-resource communities like Allen County. Many docked bikeshares carry an upfront cost of \$3000 to \$5000 per bicycle, including the price of installing docks and software.<sup>55</sup> Thrive Allen County decided to build a program better catered to Allen County's specific context: a rural area characterized by low credit card and smartphone ownership. These limitations prompted Thrive Allen County to take a more personal, low-tech approach.

Allen County Bike Share's first two stations, including 20 bikes, locks, and keys, cost \$5,000 total. Thrive Allen County kept costs low by using standard bike racks, locks, and bikes and partnering with the community to help with operations. They settled on a docked bike library model, where bikes are locked at specific stations and can be lent for free to tourists and community members. For a user to lend the bikes, riders just need to provide a photo ID and sign a waiver; children can also take out a bike with written parent/guardian permission. The storefronts the stations are in front of hold the keys for each bicycle. To get the keys to a bike lock, registered users just need to go into the store during open hours

and ask an employee. The Allen County Bike Share uses collaborative Google documents for their check-in and check-out systems to make it easier for businesses to partake in the program. An added benefit of this system is that it encourages foot traffic to local businesses. Users can take out the bikes for up to 24 hours and can use provided locks to park them anywhere in the county.<sup>56</sup>

Overall, Allen County Bike Share is a dispersed bike library with ordinary workers in various businesses and institutions acting as its "librarians." Thrive Allen County only does the upper-level management of the bikes. Thrive capitalized on its existing social infrastructure to foster a sense of shared stewardship over its bikeshare program.

Figure 19: Allen County Bike Share Bikes



Source: Thrive Allen County

Image description: Allen County Bike Share bikes at a station outside of a local bike shop in Humboldt, KS.



## Bike Kitchen-Cyklo kuchyňa Bratislava, Slovakia

Cyklo Kuchyňa, or “Bike Kitchen,” was founded in 2011 by four people in Bratislava, Slovakia. The group began by repairing and re-selling bikes at flea markets. They also held events featuring film screenings and concerts to build community. The Bike Kitchen benefits from Bratislava’s participatory budget, through which the Bike Kitchen received formal space from the city government.

The Bike Kitchen began lending bikes when students, many of them from foreign countries where cycling was more developed, would approach the small collective and ask for bikes to lend. A program developed where in return for a loaned bicycle, the student had to cook dinner at an event—hence the name “Bike Kitchen.” This reciprocal relationship between Bike Kitchen and the students served as a model for a bike-sharing system Bike Kitchen would later develop.

In 2014, in the absence of a government-run bike share, the Bike Kitchen began “White Bikes,” a cooperative bike-sharing program. The program received funding from the local Rotary Club and used bikes donated by the Dutch National Park Agency. The White

Figure 20: A White Bike



Source: Biely Bicykel, Facebook  
Image description: A White Bike at night

Bikes began with a group of just 150 riders sharing 50 bikes around the city, but has since expanded to 800 users.<sup>57</sup>

Membership to the Bike Kitchen is open to any long-term Bratislava resident who would like to join. Prospective members must attend a 20-minute training session and demonstrate a concrete non-monetary way of supporting the Bike Kitchen, such as through cooking, graphic design, bike repair, and maintenance.

*“If someone doesn’t know what kind of support he or she can offer us, it’s also fine. We always need people who can carry stuff or who have a driver’s license or who can bring food for the breakfast on cycling days.”<sup>58</sup>*  
-Tomas Peciar, original member of Bike Kitchen

In addition to social responsibility, the White Bike software assigns each user a virtual score that is determined by the good usage of the bicycles. Users can lower their scores if they improperly use the bikes in violation of Bike Kitchen’s guidelines. They can restore their high score by contributing to the Bike Kitchen, such as cleaning bikes or riding them to stations where they are needed.

*“This makes the system almost self-sustainable, which is very rare.”*

The GitHub open-source software provides access for users with or without smartphones by allowing the codes for the White Bikes’ u-locks to be sent to users over the smartphone app, via QR code, and over a text message.<sup>59</sup>

Bike Kitchen has social and digital ways to keep system users accountable. Bike Kitchen’s hybrid lending model, combining one-on-one training and relationship-building with software-based usage, builds peer-to-peer accountability between users. Most importantly, the Bike Kitchen works as an Urban Commons—a model for decision-making over a commonly managed resource between its members.

Per the Urban Commons Cookbook, urban commons are resources in the city that are managed by the users in a non-profit-oriented and prosocial way.”<sup>60</sup> Bike Kitchen attempts this by holding mediated monthly meetings where all users can participate, deliberate, and vote on issues. This emphasis on long-term sustained membership helps to create a community where users feel a sense of ownership over the Bike Kitchen and the White Bike program. This commons model makes clear that Bratislava residents are the target group for the program, rather than tourists. The high time commitment can also be a potential drawback in attracting residents as those most in need may have the least available time.<sup>61</sup>

*“We don’t have problems with free riding. It is not possible to take a bike and just ride it*

*without being part of the system. You have to be part of the system; it’s community bike-sharing! We call it the bike-sharing scheme 3.5: it’s not dockless bike-sharing, that’s the fourth generation, and it doesn’t have GPS, but it’s a closed community and you have to be registered.”<sup>62</sup>*

Figure 21: QR code



Source: Biely Bicykel, Facebook

Image description: The QR code and serial number at the back of a White Bike which a user can use to unlock it.

## **Bike for Good Glasgow, Scotland, UK**

Bike for Good started in 2011 as a small group of four people who would build pop-up stations around the City of Glasgow where they would fix old bikes, recycle their parts, and resell them to the community. As the group grew, it introduced cycling lessons to people of different skill levels to build the community’s confidence in biking on the road. Bike for Good’s mission is to change and improve people’s lives through cycling, rather than just having a charitable bike shop.

An independent organization with 50 employees, 30 active volunteers, and 70 less-active volunteers, Bike for Good has multiple departments spread across three locations in Glasgow. These include the bike shop, outreach, skills and development, and health and well-being departments. These departments have sub-departments, such as active travel and the e-cargo bike lending library.

Bike for Good is funded in the largest part by the local council (city government), with donations from individuals and organizations providing a smaller share of its funds.

Bike for Good has a library of 30 pedal bikes, four e-bikes used mainly for special events, and six e-cargo bikes. The organization launched its e-cargo bike library in January of 2020, hoping to reduce the number of trucks and vans on Glasgow's already congested city streets. Depending on the level of demand, individuals can take out E-cargo bikes for between one and two weeks. Bike for Good offers various e-cargo bikes with different carrying capacities, travel ranges, levels of balance, etc. This allows Bike for Good's lending program to cater to the needs of diverse users, from parents looking to bring their children to school to welders needing to transport heavy equipment. Before checking out, users must pay a deposit of £250, which they can retrieve upon returning the bike at the end of the lending period, granted there are no damages.<sup>63</sup>

Active Travel Coordinator Karolis Toleikis claims that Glasgow's streets are "not very

friendly to things that are on the street," which causes users to worry about where to store the e-cargo bikes as they run errands. Because of this, Bike for Good hopes to "release a little cargo bike library solely for subscriptions where a business or organization will be able to pay a little bit of money to subscribe to a bike that we'll fully service, deliver and pick up if needed et cetera."<sup>64</sup>

The Bike for Good e-cargo bike library has shown to be a good way for families and businesses to explore the option of having a cargo bike of their own. In this case, the e-cargo bike library has shown many businesses that having an e-cargo bike is not the ideal solution. Even if users do not choose to go with the product the e-bike library offers, participation helps people and organizations explore other electric micromobility options, such as hiring an e-bike courier service.

Figure 22: E-Cargo bike



Source: Bike for Good  
Karolis expertly modelling the Urban Arrow E-Cargo bike

## NETC E-bike Libraries

### Denver, Colorado, USA

The Northeastern Transportation Connections (NETC) E-bike Libraries is a bike library system that provides affordable transportation to three historically underserved Denver neighborhoods.

The City of Denver, like many cities, needed a way to de-densify its transportation system and reduce the spread of COVID-19 among essential workers. In 2020, the Colorado Energy Office (CEO) partnered with Bicycle Colorado, Northeast Transportation Connections (NETC), and the National Renewable Energy Laboratory (NREL) to start the Can Do Colorado eBike Fall 2020 Mini-Pilot Program. The Can Do Colorado program provided 13 essential workers with an e-bike on long-term loan.<sup>65</sup> The NETC e-bike library was the first beneficiary of Colorado's Climate Protection Fund, receiving \$500,000 to pilot and then further enact e-bike libraries in Denver's historically underserved, Globeville, Elyria, and Swansea neighborhoods.<sup>66</sup>

In launching this pilot program, NETC worked with community members to guide them through program development. With high levels of community engagement at the program's founding. This way, NETC hopes to maintain strong community networks and reach diverse audiences in collaboration with different groups. NETC hopes to "provide the community access to biking with no strings attached," according to Angie Rivera-Malpiede, NETC's Executive Director. Taking a community-based approach to these e-bike libraries helped NETC create a library system that is more in tune with residents' needs. The pilot program provided NETC with valuable feedback and community connections that informed the launch of the current e-bike library system in 2021.

NETC now operates an e-bike library network of 30 e-bikes in three partner locations in three neighborhoods. NETC sources its bike fleet from FattE-Bikes, a local e-bike manufacturer that facilitates bike maintenance. Bikes come with helmets and locks, and for a \$20 donation, residents can get an annual membership that allows them to take out a bike for up 48 hours before renewing their loan. Users must also contribute time towards bike safety and program expectations training. NETC also provides its services in Spanish, widening the accessibility of its program.

Figure 23: Some NETC E-bike Library Bikes



Source: NETC website

Image description: Seven e-bikes lined up in a line with NETC branding.

# Best Practices

## Overview

No two bike libraries are the same, just as no two communities are the same. The precedents discussed in the preceding section are a testament to the bike library model's variety and flexibility. Out of these precedents, this section aims to highlight seven best practices and explore their relevance to the ESBC E-Bike Library and Community Workshop.

- On-call bike repair and maintenance
- Diversify micromobility fleets
- Know the community and capitalize on its social infrastructure
- Integrate with public sector resources
- Use cycling as a way to evaluate health improvements
- Connect riders to subsidies
- Democratic Management

## 1) On-Call Bike Repair and Maintenance

**Create an on-demand bike repair service for your community where mechanics come to residents in need at specific times.**

The Véligo program takes a delivery-based approach and provides users an on-call e-bike repair and maintenance service that allows them to get help wherever and whenever they may need it. Véligo partners with bike shops across the Île-de-France region for regular maintenance checks, but in situations where a user can't make it to a designated shop, a bike mechanic in a van can come and promptly troubleshoot the problem.

*"If something goes wrong with your bike and you couldn't ride it that far to go to the nearest bike shop? You have to take the bus? The East Side is the worst part of Buffalo for people with transportation." – Rebecca Reilly*

On-the-go bike malfunctions are nearly inevitable even with the most sturdily built models. Providing this reassurance can be crucial in recruiting and retaining e-bike library users. While the East Side Bike Club doesn't have the same capacities as the Véligo program, having a way for a mechanic to come to participants quickly in times of need could be invaluable for many mobility-limited users. On-call reliability requires mechanics with flexible schedules who can travel across town quickly. Therefore, a full-time staff member or volunteer with no time constraints would likely have to fill this role to provide a reliable service.

## 2) Providing a Diverse Micromobility Fleet

**Diversify your micromobility fleet by incorporating models that include features adaptive to different users' needs for bikes with different levels of electric pedal assists, cargo-carrying capacities, and riding positions.**

Participants in the Local Motion and Bike for Good e-bike library programs can choose from a range of e-bike models. By testing out multiple bikes, users can see which type of bike best conforms to their daily needs, helping them make informed decisions when purchasing e-bikes after the loaning period. Moreover, having a diversified fleet can show users how cycling can be accessible to people with disabilities and the elderly. Bike for Good's E-cargo Bike Library caters to various needs, whether carrying children to school or

bags of flour to a local bakery. Local Motion takes a similar approach, including e-cargo bikes with different balance and cargo-carrying capacities.<sup>67</sup>

The East Side Bike Club draws from two pools of bikes to give to the community, the electric bikes provided by SMI and privately donated conventional bikes. All electric bikes are

currently identical, thus limiting who can use them based on height, ability, cargo capacity, et cetera. The donated bikes' models and ergonomics are outside the ESBC's control. As more funding sources become available, the

ESBC could expand its e-bike library to include other micromobility options that conform to the needs of different community members—which the ESBC can gauge through further community outreach.

### 3.) Know the Community and Capitalize on its Social Infrastructure

**Take advantage of existing credibility, social and physical infrastructure, and networks of connections to usher in a program that follows the grain of a community, its values, and its needs.**

One of the significant drawbacks to many bikeshare programs is that they are often ushered into communities without the forethought necessary to adequately address issues of mobility injustice. This dissonance is especially prevalent with systems operated by for-profit companies based elsewhere. Additionally, they can be prohibitively expensive to operate. Traditional docked bike shares can have an upfront cost of \$5,000 per bike.<sup>68</sup> They also have prohibitive per-user costs for low-income residents who often lack access to the credit cards and smartphones needed to pay for the service.

Knowing the community's cost and technological limitations, Thrive Allen County created a Bike Library that is more in tune with its community's needs and capitalizes on existing social infrastructure. In using already existing relationships, Thrive is able to garner community buy-in for its bikeshare, making it a community-supported program.

Like Thrive Allen County, NETC partnered with local institutions and businesses in Denver to create three different venues for its e-bike libraries. These partnerships can be a

win-win situation as it brings in foot traffic and strengthens rapport with the community.

The East Side Bike Club, while relatively new, already has deep connections with various East Side communities. Members who attend the ESBC's weekly rides include community organizers, preachers, union members, and veterans. Additionally, the ESBC is under Buffalo United Front (BUF), an organization founded in 2007 in response to violence in communities across Buffalo.<sup>69</sup> Since then, it has focused on using a collaborative approach to uplift communities and advocate for positive change. George Johnson leads Buffalo United Front and the East Side Bike Club, providing a bridge for the ESBC to work alongside partner organizations such as the Friends of Broderick Park, Slow Roll, the Buffalo Peacemakers, and many more. This robust network of connections can help the e-bike library reach more users and build relationships that can be crucial to expanding the program in a responsive way to different community needs.

## 4) Integrate with Public Sector Resources

### **Integrate resources with the public sector, and include government in your coalition of community partners and supporters.**

Several of the precedent studies involve significant public-sector backing. Véligo and the Camden County Bike Share are both spearheaded by government organizations, however, in two very different contexts. Véligo's bike library was a conscious effort by the government to partner with the nonprofit and private sectors to promote modal shift, thus requiring millions in upfront costs. In the case of Camden County, what began as a volunteer bike recycling program found a home, and funding, in a county government sustainability campus.

Other bike libraries, such as Bike Kitchen and Bike for Good, receive significant funding from forward-thinking local governments. This is especially the case for Bike for Good, as they are a large organization receiving annual allocations and grants from local government. Bike Kitchen's relationship has been more variable depending on the local administration, sometimes receiving active support from an administration for the next one, simply tolerating the Bike Kitchen and their activities.

No successful bike library relies solely on public-sector resources and expertise and draws from a mix of private, volunteer, and nonprofit organizations. These programs, together, highlight the need for champions across sectors to support bike libraries in various ways. Integration of resources with the public sector can be an important step in increasing the long-term support a program needs.

The East Side Bike Club could integrate funding, spaces, and programming with the public sector. The ESBC provides vital services to the community it serves. Besides providing a space for community cohesion, the ESBC helps members reach employment opportunities, gain road safety and mechanical skills, and stay active. Government agencies such as the Erie County and New York State Departments of Health, as well as other local, county, and state social service agencies, should look to partner with community-based organizations like the East Side Bike Club. For example, the Erie County Department of Health's stated mission is "to promote and protect the health, safety, and well-being of Erie County residents through active prevention, education, enforcement, advocacy, and partnerships." The Department of Health, thus, can and should seek to uplift community-controlled organizations that promote health, such as the ESBC. Moreover, by giving funding, space, and decision-making power to community-based organizations such as the ESBC, government programs will likely have more effective outreach and better cater to community needs. The ESBC is a valuable piece of social infrastructure, which is crucial to building healthy and resilient communities. Thus, government funding for the ESBC can be a way to democratize preventative health and promote a more robust civil society in Buffalo.



## 5) Cycling to Evaluate Health

**Partner with care providers on group rides and workshops to provide a venue for them to monitor their patients' health improvement.**

In an interview, Karolis Toleikis of Bike for Good explains how bicycling is not only an agent for promoting health but also a way for professionals to track client recovery. Groups within Bike for Good form relationships with care providers, who in turn, steer clients/patients to Bike for Good's services such as group rides.

*"[The health and well-being] team works with community groups that are potentially in poverty or [who] have a lack of health or mental health. So we teach them cycling as a tool to monitor their improvement in their health and well-being."<sup>70</sup>*

Cycling can be a tool to build confidence in oneself and one's skills; physical exercise has also been shown to positively impact one's mental health.<sup>71</sup> In working with care providers

that help people with mental and physical health issues, Bike for Good can help provide a looking glass through which they can gauge improvement in socialization, motivation, and other physical indicators.

As the East Side Bike Club expands its scope and connections, it can work to become a major proponent of both physical and mental health in the community. Through tactful programming that encourages the inclusion of participants focused on mental health, recovery, and re-entry, professionals could use their clients' performance in the ESBC to monitor their recovery and socialization.

## 6) Connect Riders to Subsidies

**Keep up-to-date with bills and grants available pertaining to micromobility, such as subsidies, microloans, etc. Publicize these opportunities to your community and assist members with accessing them.**

There currently is no state legislation for e-bike rebates, even though there are generous rebates for electric cars. The Build Back Better Act recently passed in the Senate omitted a previously included rebate for electric bicycle purchases, despite expanding rebates for electric cars.<sup>72</sup>

- There would be a 50% rebate for e-bikes up to \$1,100 if the State of New York passed Assembly Bill A516A, proposed in January of 2021.<sup>73</sup>

By contrast, electric cars can receive a rebate of \$2,000 from New York State<sup>74</sup> and up to \$7,500 in tax deductions from the Federal Government.<sup>75</sup> Electric vehicle buyers in New York State can thus get \$9,500 subsidized from the public sector, if they buy an electric car which is enough to buy ten electric bicycles. Low-end electric bicycles range in price from \$600 to \$1,000.

The lack of policy aimed at subsidizing e-bikes is a clear indicator that the government currently incentivizes cars over other modalities. This prioritization of cars stresses

the need to expand awareness of the potential benefits of e-bikes. It is crucial that:

- The authorities in Washington and Albany swiftly expand current subsidies to include e-bikes.
- Local authorities such as the energy commission step in and provide their incentives for community members to buy e-bikes.
- The East Side Bike Club uses its platform and networks to continue to advocate for these program subsidies.

The ESBC has the potential to target outreach to communities on the East Side in a way that the government is incapable and unqualified. In addition to integrating resources with the public sector, the ESBC can also integrate its outreach with the public sector by connecting people with rebate programs as they are launched.

## 7) Democratic Management to achieve “Community-Controlled Mobility”

**Hold regular assemblies open to all library users where people can socialize and also call attention to issues that can be deliberated and voted upon.**

Holding resources in common for everyone to use is often difficult but necessary. Without proper management, common resources are often abused, prompting the phenomenon known as the “tragedy of the commons,” where all members of society overuse a common and finite good.<sup>76</sup> Strict bureaucracy is often needed to manage common pool resources to avoid the “tragedy of the commons.” This phenomenon ultimately makes it harder for people to access these resources efficiently and with dignity. In the absence of formal and dignified ways of accessing common pool resources, communities develop effective and dignified ways to steward their common resources through participatory and democratic management. Such resources are known as “urban commons,” as they frequently occur in cities where resources are congested. However, the term “commons” is ancient and refers to the open land that shepherds and herders all had a right to use. In the past centuries, governments have often worked to either nationalize or privatize the commons, subdividing land and resources.

The main difference between urban commons and public and consumer goods is in their management. Urban commons can include any resource type, from housing and Wi-Fi to bikes, as is the case with Bike Kitchen. Urban commons often include shared spaces as a venue for events and deliberation. In the case of urban commons, communities manage, access, and develop resources through a collective, participatory process.<sup>77</sup>

Encouraging community participation is universally difficult, with many “participatory” programs partaking in tokenism by giving community members symbolic power. If a community wants to start an urban commons, it must therefore provide the resources and agency to its community to fully participate, openly speak their opinions, and vote on all issues.<sup>78</sup> Democratic procedures may include having flexible meeting times, choosing an accessible venue, having anonymous feedback options, providing childcare at in-person events, and having virtual meeting options.

Bike Kitchen’s model emphasizes a commitment to regularity, where users can all come together to deliberate and vote over issues at a facilitated meeting. But, creating a community space where people feel a sense of common ownership goes beyond voting. One of the Founders of Bike Kitchen, Tomas Peicar, suggests new urban commons projects to “cook together. And another piece of advice: after you get settled, regular meetings are really helpful. And, of course, try to have people around who share the same values. There are initiatives that spend hours talking about differences in their values, but that’s not important for the cause, that’s for the beer meetings after the regular ones.” Regular community events and common spaces create a sense of belonging, friendship, and common responsibilities that can make democratic management feel less like a chore.

Figure 24: 716 ride group photo



Source: Damon Kimbrough

Image description: ESBC riders pose after their Saturday, July 16, 716 day ride.

In many ways, the ESBC has the structure of an urban commons. It is mainly volunteer-run and includes weekly rides where people of all backgrounds can come together. The ESBC E-bike Library and Community Workshop already serves as a venue for community cohesion and knowledge-sharing, and is a flexible venue that can host the assemblies and events necessary for democratic management.

Moreover, people using the e-bike library need to return to the community workshop to switch out their batteries once per week,

creating consistent community feedback and outreach opportunities. This existing community infrastructure allows the ESBC to be flexible and adapt to its users' needs, providing the foundations to build a model for democratic management progressively. Moreover, democratic management can help further catalyze community action around cycling by creating a cohort of community members united to promote bicycling on the East Side.

## Conclusion

Bike libraries transform communities by providing affordable, personalized transportation over longer periods of time compared to traditional bikeshares. Bike libraries' relationship-driven and non-transactional lending model builds a relationship between the program and community members, which makes programs more flexible and in character with diverse and mutable community needs.

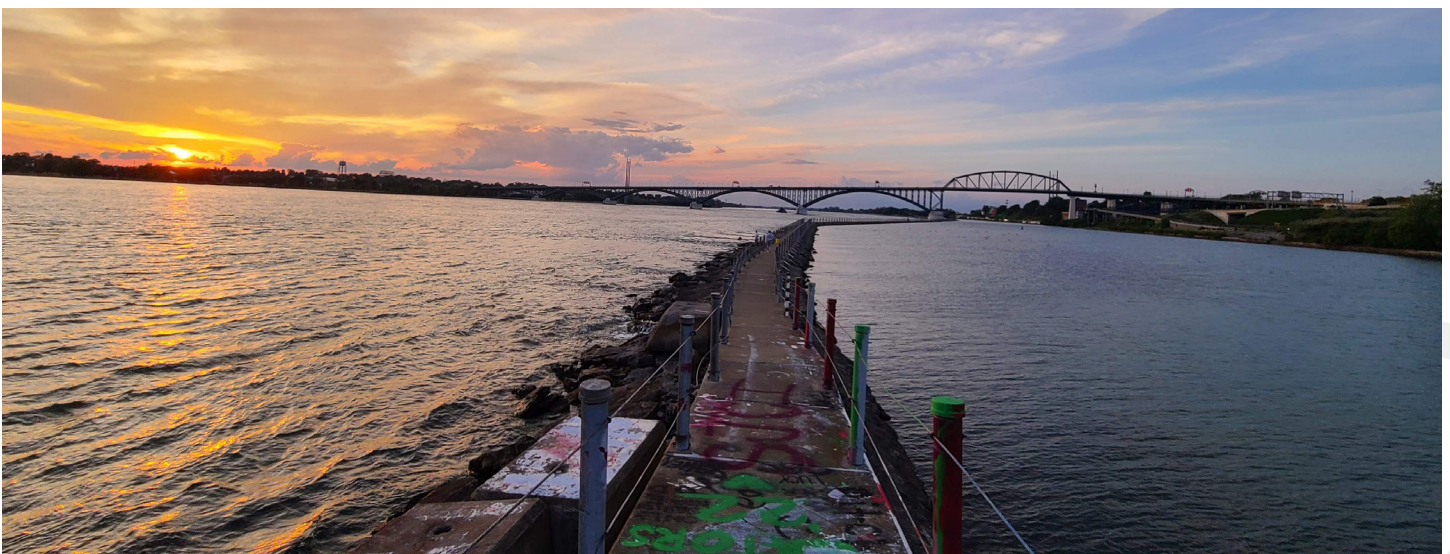
While bike libraries come in many contexts, sizes, and lending models, they show great promise in helping promote modal shift and fill mobility gaps in underserved communities. Precedent e-bike libraries provide numerous best practices that reduce barriers to participation, improve public health, target underserved populations, and build social infrastructure.

The East Side Bike Club E-bike Library and Community Workshop has already brought immense benefits to its community through its programs and group rides. As the ESBC expands, paying attention to the best practices of 1) On-call bike repair and maintenance; 2) having diverse micromobility fleets; 3) knowing its community and capitalizing on its social infrastructure; 4) integrating with public sector resources; 5) using cycling as a way to evaluate health improvements; 6) and connecting riders to subsidies; and 7) Democratic Management; can help ensure success. The ESBC has the potential to become a keystone social institution, going far beyond a lending program and community bike shop, and becoming a catalyst for bicycle advocacy, community cohesion, and empowerment through community-controlled mobility.

## About the Author

Emile Bensedrine hails from a practical cycling background and is passionate about how cycling can transform cities and uplift people. He is interested in how urban design, the environment, and social dynamics come together to shape the physical and social fabric of cities. He mostly grew up in Western Massachusetts and is a rising senior in Cornell University's College of Architecture, Art, and Planning's Urban and Regional Studies program. He came to Buffalo through the New York State School of Industrial and Labor relations' High Road Fellowship, which placed him at Shared Mobility, Inc. for the summer. Emile's experience working with SMI and the ESBC showed him how partnerships between driven community members can make big ideas come to fruition. His favorite spot for food in Buffalo is definitely the West Side Bazaar, especially when paired with ice cream from The Custard Corner afterward. His favorite spot for a walk is the breakwall between the Black Rock Canal and the Niagara River.

Figure 24: 716 ride group photo



Source: Emile Bensedrine Image description: The Sunset looking north on the breakwall on 2022-06-29

Figure 25: Emile Bensedrine



Source: Trevor Kearns

Image description: Emile Bensedrine at Slow Roll on July 25, 2022.

Being in Buffalo for the summer of 2022 was extremely reflective for Emile, creating experiences and meeting people that he will certainly never forget. Most of all, this summer opened his eyes to Buffalonians' extraordinary resilience and drive to build a better city; he hopes to take this optimism with him in years to come.

## Works cited

- 1 Edwin Rios, "It's How We Grew up: Buffalo's Struggle to Escape the Shadow of Segregation," *The Guardian*, May 21, 2022, sec. US news, <https://www.theguardian.com/us-news/2022/may/20/buffalo-shooting-segregation-history>.
- 2 "Definition of LIBRARY," accessed August 4, 2022, <https://www.merriam-webster.com/dictionary/library>.
- 3 "Home," East Side Bike Club, accessed August 4, 2022, <https://www.esbcbuffalo.com>.
- 4 "Shared Mobility Inc.," Shared Mobility Inc., accessed August 2, 2022, <https://www.sharedmobility.org>.
- 5 "Definition of LIBRARY," accessed August 4, 2022, <https://www.merriam-webster.com/dictionary/library>.
- 6 Najine Ameli, "Libraries of Things as a New Form of Sharing. Pushing the Sharing Economy," *The Design Journal* 20, no. sup1 (July 28, 2017): S3294–3304, <https://doi.org/10.1080/14606925.2017.1352833>, 6.
- 7 *Ibid.*, 1.
- 8 "Public Libraries Are Expanding the Sharing Economy by Adding Libraries of Things to Their Catalogs," *Shareable* (blog), February 18, 2020, <https://www.shareable.net/public-libraries-are-by-adding-libraries-of-things-to-their-catalogs/>.
- 9 Chumin Yu et al., "The Meddin Bike-Sharing World Map Mid-2021 Report," October 2021, [https://bikesharingworldmap.com/reports/bswm\\_mid2021report.pdf](https://bikesharingworldmap.com/reports/bswm_mid2021report.pdf).
- 10 "E-Scooter & E-Bike Sharing," Lime Micromobility, accessed August 2, 2022, <https://www.li.me/>.
- 11 Elliot Fishman, Simon Washington, and Narelle Haworth, "Bike Share's Impact on Car Use: Evidence from the United States, Great Britain, and Australia," *Transportation Research Part D: Transport and Environment* 31 (August 2014): 13–20, <https://doi.org/10.1016/j.trd.2014.05.013>.
- 12 Feargus O'Sullivan, "The Dutch Anarchists Who Launched a Bikesharing Revolution - Bloomberg," February 26, 2022, <https://www.bloomberg.com/news/features/2022-02-26/the-dutch-anarchists-who-launched-a-bikesharing-revolution>.
- 13 Feargus O'Sullivan, "The Dutch Anarchists Who Launched a Bikesharing Revolution - Bloomberg," February 26, 2022, <https://www.bloomberg.com/news/features/2022-02-26/the-dutch-anarchists-who-launched-a-bikesharing-revolution>.
- 14 Joseph Stromberg, "Bike Share Users Are Mostly Rich and White. Here's Why That's Hard to Change.," *Vox*, May 15, 2015, <https://www.vox.com/2015/5/15/8608567/bike-share-wealth-race>.
- 15 Susan Hull Grasso, Philip Barnes, and Celeste Chavis, "Bike Share Equity for Underrepresented Groups: Analyzing Barriers to System Usage in Baltimore, Maryland," *Sustainability* 12, no. 18 (September 15, 2020): 7600, <https://doi.org/10.3390/su12187600>, 1.
- 16 *Ibid.*, 2.
- 17 "The Great Bicycle Boom of 2020," accessed August 2, 2022, <https://www.bbc.com/future/feature/made-on-earth/the-great-bicycle-boom-of-2020.html>.
- 18 Marlene F. Watson et al., "COVID-19 Interconnectedness: Health Inequity, the Climate Crisis, and Collective Trauma," *Family Process* 59, no. 3 (2020): 832–46, <https://doi.org/10.1111/famp.12572>.
- 19 "Climate Protection Fund to Support E-Bikes for Essential Workers," accessed August 4, 2022, <https://www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-Sustainability-Resiliency/News-Events/News/2021/Climate-Protection-Fund-to-Support-Electric-Bikes-for-Essential-Workers>.
- 20 Galligano, 2022.
- 21 "Reddy Bikeshare Will Launch 200 Bike Fleet This Summer," *Buffalo Rising*, March 21, 2016, <https://www.buffalorising.com/2016/03/reddy-bikeshare-will-launch-200-bike-fleet-this-summer/>.
- 22 "Reddy Bikeshare," accessed August 5, 2022, [https://reddybikeshare.socialbicycles.com/og\\_url](https://reddybikeshare.socialbicycles.com/og_url).
- 23 Henry-Louis Taylor, Jin-Kyu Jung, and Evan Dash, "The Harder We Run The State of Black Buffalo in 1990 and the Present" (Buffalo, NY: U.B. Center for Urban Studies School of Architecture and Planning & U.B. Community Health Equity Institute, September 2021), <https://www.investigativepost.org/wp-content/uploads/2021/10/TaylorHL-The-Harder-We-Run.pdf>, 18.
- 24 Census tracts based on percent who identify as Black or African American, August, 2022. *Social Explorer*, (based on data from the 2020 Decennial Census; Accessed July 10, 2022).
- 25 Personal communication, July 20, 2022
- 26 Jay Walljasper, "E-Bikes Can Energize Bicycling, Especially Among Older Adults," *AARP*, accessed August 11, 2022, <https://www.aarp.org/livable-communities/getting-around/info-2018/e-bikes-energize-bicycling.html>.
- 27 Mitch LaRosa and Stephanie Bucalo, "Inclusive Shared Mobility: Enabling Service for Older Adults and People with Disabilities" (Shared Mobility, inc., March 2020), [http://mobilitydevelopment.org/wp-content/uploads/2020/07/SMI\\_NADTC\\_research\\_report.pdf](http://mobilitydevelopment.org/wp-content/uploads/2020/07/SMI_NADTC_research_report.pdf).
- 28 "Maps & Geospatial Information System (GIS) Tools for Environmental Justice - NYS Dept. of Environmental Conservation," accessed August 5, 2022, <https://www.dec.ny.gov/public/911.html>.
- 29 Taylor Henry-Louis et al., 2021.
- 30 Jesse McKinley, Alex Traub, and Troy Closson, "Gunman Kills 10 at Buffalo Supermarket in Racist Attack," *The New York Times*, May 14, 2022, sec. New York, <https://www.nytimes.com/live/2022/05/>
- 31 "Pre-Ride E-Bike Library Survey Form," Shared Mobility, Inc., July 2022.
- 32 Ralph, (regular rider at the ESBC), personal communication with the author, July 9, 2022.
- 33 Ashley Smith and Cindy Wood, "ERIE-NIAGARA HIGH-INJURY NETWORK" (Buffalo, NY: GObike Buffalo, March 2022), <https://gobikebuffalo.org/wp-content/uploads/2022/03/Crash-Report-2022.pdf>.
- 34 Regina, (regular e-bike rider at the ESBC), personal communication with the author, July 16, 2022.

- 35 “[UPDATE: It Happened Again] It’s No Accident: Pedestrians and Cyclists Are Killed on Bailey Avenue at Alarming Rates,” GObike (blog), February 9, 2022, <https://gobikebuffalo.org/update-its-no-accident-man-killed-while-cycling-on-bailey-avenue-is-one-of-160-struck-in-the-last-five-years/>.
- 36 Ashley Smith and Cindy Wood, “ERIE-NIAGARA HIGH-INJURY NETWORK” (Buffalo, NY: GObike Buffalo, March 2022), <https://gobikebuffalo.org/wp-content/uploads/2022/03/Crash-Report-2022.pdf>.
- 37 Ralph, (regular rider at the ESBC), personal communication with the author, July 16, 2022.
- 38 Regina, (regular e-bike rider at the ESBC), personal communication with the author, July 16, 2022.
- 39 Michael M. Moore, (regular rider at the ESBC), personal communication with the author, July 9, 2022.
- 40 Jessica Stroope, “Active Transportation and Social Capital: The Association between Walking or Biking for Transportation and Community Participation,” *Preventive Medicine* 150 (September 2021): 106666, <https://doi.org/10.1016/j.ypmed.2021.106666>.
- 41 Reilly, Rebecca (Volunteer at the ESBC), personal communication with the author, July 25, 2022.
- 42 Regina, (e-bike rider at the ESBC), personal communication with the author, July 16, 2022.
- 43 Ibid.
- 44 “Accueil,” Fluow, accessed August 4, 2022, <https://www.fluow.fr/>.
- 45 “Location de VAE En Île-de-France Avec Véligo : Bipporteur, Triporteur, Vélo Rallongé,” accessed August 4, 2022, <https://www.veligo-location.fr/les-velos/>.
- 46 The implicit mission of Véligo is to incentivize modal shift in Île-de-France to e-biking by providing a cheap and easy-to-use alternative to driving or riding a motorcycle. The monthly price of €40, while cheaper than the cheapest transit pass (€65.20), still poses an economic barrier for prior transit users, who may be more inclined toward multi-modal trips.
- 47 “E-Bike Lending Libraries,” Local Motion, accessed August 4, 2022, <https://www.localmotion.org/ebikes>.
- 48 Press Release, “Local Motion to Provide E-Bike Loans,” VTDigger, June 19, 2019, <https://vtdigger.org/2019/06/19/local-motion-to-provide-e-bike-loans/>.
- 49 Poulin, August 4, 2022.
- 50 Local Motion. “E-Bike Promotions and Resources.” Accessed August 17, 2022. [https://www.localmotion.org/e\\_bike\\_promotions\\_and\\_resources](https://www.localmotion.org/e_bike_promotions_and_resources).
- 51 Patrick Farley (Land Use & Transportation Specialist at Cross County Connection TMA), personal communication, July 14, 2022.
- 52 Regehr, Lisse, “Small Places, Smart Mobility,” (Webinar from Smart Growth America, Virtual, November 1, 2018), <https://smartgrowthamerica.org/webinar-recap-small-places-smart-mobility/>.
- 53 “Bikes and Trails,” Thrive Allen County (blog), accessed August 4, 2022, <http://thriveallencounty.org/bikes-trails/>.
- 54 “U.S. Census Bureau QuickFacts: Iola City, Kansas,” accessed August 4, 2022, <https://www.census.gov/quickfacts/iolacitykansas>.
- 55 Rebecca Beitsch, “Despite Popularity, Bike Share Programs Often Need Subsidies,” March 24, 2016, <http://pew.org/1RzUSQE>.
- 56 Thrive Allen County, “Thrive’s Innovative Approach to Rural Bike Share,” Thrive Allen County (blog), September 11, 2017, <http://thriveallencounty.org/news/thrive-innovative-rural-bike-share/>.
- 57 Mary Dellenbaugh-Losse, Nils-Eyk Zimmermann, and Nicole de Vries, *The Urban Commons Cookbook: Strategies and Insights for Creating and Maintaining Urban Commons* (Berlin: Mary Dellenbaugh-Losse, 2020), 64.
- 58 Ibid., 67.
- 59 Galimatias Nekromoff, “Slovnaft Bajk Scraper and Public Stats (Bratislava Bikesharing),” PHP, July 26, 2021, <https://github.com/nekromoff/slovnaft-bajk>.
- 60 Dellenbaugh-Losse et al., 7.
- 61 Ibid., 67.
- 62 Ibid., 72.
- 63 Toleikis, Karolis. (Active Travel Coordinator, Bike for Good), in discussion with the author. July 2022.
- 64 Ibid.
- 65 “Climate Protection Fund to Support E-Bikes for Essential Workers,” accessed August 4, 2022,
- 66 “The NETC Bike Libraries,” NETC website, accessed August 4, 2022, <https://www.nettransportation.org/bike-libraries>.
- 67 “E-Bike Lending Libraries,” Local Motion, accessed August 4, 2022, <https://www.localmotion.org/ebikes>.
- 68 Rebecca Beitsch, “Despite Popularity, Bike Share Programs Often Need Subsidies,” March 24, 2016, <http://pew.org/1RzUSQE>.
- 69 “(1) Buffalo United Front, Inc. | Facebook,” accessed August 5, 2022, <https://www.facebook.com/Buffalo-United-Front-Inc-188800781143424/>.
- 70 Toleikis, Karolis. (Active Travel Coordinator, Bike for Good), in discussion with the author. July 2022.
- 71 “Physical Activity Is Good for the Mind and the Body - News & Events | Health.Gov,” accessed August 10, 2022, <https://health.gov/news/202112/physical-activity-good-mind-and-body>.
- 72 David Zipper, “The Manchin-Schumer Climate Bill Has a Maddening Omission: E-Bike Tax Credits!,” June 29, 2022, <https://slate.com/business/2022/07/climate-bill-manchin-schumer-senate-ebikes-evs-cars.html>.
- 73 There would be a 50% rebate for e-bikes up to \$1,100 if the State of New York passed Assembly Bill A516A, proposed in January of 2021.
- 74 “Ride Clean Rebate,” NYC-DSA Wiki, accessed August 5, 2022, <https://wiki.nycdsa.org/en/working-groups/ecosocialist/committees/transit/e-bike-rebates>.
- 75 “Federal Tax Credits for Electric and Plug-in Hybrid Cars,” accessed August 5, 2022, <https://www.fueleconomy.gov/feg/taxevb.shtml>.
- 76 Ostrom, Elinor. *Governing the commons: The evolution of institutions for collective action*. Cambridge university press, 1990.
- 77 Mary Dellenbaugh-Losse, Nils-Eyk Zimmermann, and Nicole de Vries, *The Urban Commons Cookbook: Strategies and Insights for Creating and Maintaining Urban Commons* (Berlin: Mary Dellenbaugh-Losse, 2020), 7.



78 Sherry R. Arnstein, "A Ladder Of Citizen Participation," *Journal of the American Institute of Planners* 35, no. 4 (July 1969): 216–24, <https://doi.org/10.1080/01944366908977225>.

### Figure Sources

- 1 Bensedrine, Emile, "Shared Mobility Gradient," Shared Mobility, Inc., June 2022.
- 2 Kimbrough, Damon. "What a great turnout we had for Saturday's 716 ride!" Facebook, July 17, 2022. <https://www.facebook.com/esbcbuffalo/photos/pcb.1477536399348105/1477533192681759>.
- 3 Cray, Patrick. 2022
- 4 Ibid.
- 5 Fintak, Mackenzie. Reddy Bikeshare in Partnership with Independent Health. 2022.
- 6 Population Density (Per Sq. Mile), 2020. Social Explorer, (based on data from U.S. Census Bureau; accessed 18 August 2022 at 24:33:26 GMT-4).
- 7 Cray, Patrick. 2022.
- 8 Bensedrine, Emile. August, 2022.
- 9 Black or African American Alone, 2020. Social Explorer, (based on data from U.S. Census Bureau; accessed 18 August 2022 at 24:35:41 GMT-4).
- 10 Bensedrine, Emile. July 20, 2022.
- 11 "What a great turnout we had for Saturday's 716 ride!" Facebook, July 17, 2022. <https://www.facebook.com/esbcbuffalo/photos/pcb.1477536399348105/1477533129348432>.
- 12 Bensedrine, Emile. July 23, 2022.
- 13 Kimbrough, Damon. "What a great turnout we had for Saturday's 716 ride!" Facebook, July 16, 2022. <https://www.facebook.com/esbcbuffalo/photos/pcb.1476964949405250/1476963196072092/>.
- 14 Kimbrough, Damon. "What a great turnout we had for Saturday's 716 ride!" Facebook, July 17, 2022. <https://www.facebook.com/esbcbuffalo/photos/pcb.1477536399348105/1477533522681726>.
- 15 "Les pépites de la « vélotech » derrière le succès de Véligo," *Les Echos*, December 15, 2020, <https://www.lesechos.fr/industrie-services/tourisme-transport/les-pepites-de-la-velotech-derriere-le-succes-de-veligo-1274152>.
- 16 Chabe01, Français : Vélo Véligo Sur La Promenade Coccinelle, Paris., June 13, 2020, June 13, 2020, Own work, [https://commons.wikimedia.org/wiki/File:V%C3%A9lo\\_V%C3%A9ligo\\_Promenade\\_Coccinelle\\_Paris\\_1.jpg](https://commons.wikimedia.org/wiki/File:V%C3%A9lo_V%C3%A9ligo_Promenade_Coccinelle_Paris_1.jpg).
- 17 Local Motion. "E-Bike Promotions and Resources." Accessed August 17, 2022. [https://www.localmotion.org/e\\_bike\\_promotions\\_and\\_resources](https://www.localmotion.org/e_bike_promotions_and_resources).
- 18 Camden County BikeShare. 2015. "Patrick disassembling and cleaning a drivetrain with caked-on grease." Facebook, April 1, 2015. <https://www.facebook.com/CCBikeShare/photos/pcb.684294048364065/684292891697514>.
- 19 Thrive Allen County, "Thrive's Innovative Approach to Rural Bike Share," Thrive Allen County (blog), September 11, 2017, <http://thriveallencounty.org/news/thrive-innovative-rural-bike-share/>.
- 20 Výsadbár, Správný. 2016. "Biely Bicykel." July 12, 2016. <https://www.facebook.com/photo/?fbid=317378551751865&set=a.317378568418530>
- 21 Biely Bicyckel. 2016. "nový piercing." June 19, 2015. <https://www.facebook.com/photo/?fbid=505826212907097&set=a.402766796546373>
- 22 "Pilot Launch of Glasgow's E-Cargo Bike Library," *Bike for Good* (blog), accessed August 17, 2022, <https://www.bikeforgood.org.uk/blog/pilot-launch-of-glasgows-e-cargo-bike-library/>.
- 23 "The NETC Bike Libraries," NETC website, accessed August 4, 2022, <https://www.nettransportation.org/bike-libraries>.
- 24 Kimbrough, Damon. "What a great turnout we had for Saturday's 716 ride!" Facebook, July 17, 2022. <https://www.facebook.com/esbcbuffalo/photos/pcb.1477536399348105/1477533346015077/>.
- 25 Kearns, Trevor. July 25, 2022.
- 26 Bensedrine, Emile. June 19, 2022.