





INTRODUCTION

Milwaukee Mobile Bike Repair (MBR) was launched in 2014 through a partnership with Layton Boulevard West Neighbors (now VIA) and Wisconsin Bike Fed. It has trained and employed more than 15 high school aged students to repair bikes for free in communities across the city. Several of these students have returned multiple summers in a row, building skills while helping make a real difference.

Over the years, the program has fixed thousands of bikes in what we term "bike shop deserts" where residents lack access to convenient and affordable mechanic services. It offers support to those most in need of a working bike to use for fun or transportation, and it has been a key program to the Bike Fed's mission to get people of all types on bikes. And we do it all via cargo bike!

This laid the foundation for a distinct but similar program in Madison, where services are similarly delivered by cargo bike to under-resourced communities, as well as an expansion within Milwaukee to a hub location at a community center.

Both this second Milwaukee location and Madison Mobile Bike Repair are more deeply intertwined with community partners in their respective neighborhoods, and they support permanently installed repair stations where tools and a pump are available 24/7. Classes and workshops are held with the intention of knowledge sharing, and youth are encouraged to participate more directly.

The experience and knowledge we have gained over the years operating MBR are shared in this guide, with the hopes of furthering equitable transportation, jobs and skill training, and connections within our communities. We recognize that we have arrived at particular solutions which may not be transferable to all other communities, but we believe the method at which we arrived at those solutions will help others build a framework for a successful program that best suits their own capacities and needs.

ACKNOWLEDGEMENTS

Fleckenstein Foundation VIA (formerly Layton Boulevard West Neighbors) Madison Community Foundation Escuela Verde Boys and Girls Club of Milwaukee Milwaukee Public Schools Milwaukee Recreation Dreambikes Bublr PEAK Initiative Down With Bikes-Madison JUST Bikes Coalition Madison All Current and Former Mobile Bike Repair Staff

BIKE REPAIR

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INITIAL SCOPING

You will want to ask your own questions to determine your community's needs, and your ability to deliver accordingly:

Who?

Who is in greatest need of bike repair in our area? Who will receive our service? Who will perform the work?

What?

What sorts of repairs are we expecting will be requested? What specific fixes will we be providing? What materials are needed?

When?

When is best for the community members to access these services? When will we be able to feasibly begin? When will the programming run?

Where?

Where will we be storing equipment?

Where will we be providing services?

How?

How will we get the services and materials to the sites? How will we get the necessary materials and staff?

The remainder of the guide will assist in answering these and similar questions.



NEEDS & GOALS

Many cities have similar "bike shop deserts", but is a mobile pop-up shop the best solution? The answer will depend on the geographic spread and the density of potential ridership, among other factors. Alternatives might be better found in the installation of permanent infrastructure, from public tools and pumps all the way to seeding additional bike shops that are equipped to serve the communities in question. Even in cases where permanent infrastructure is the ideal long term solution, mobile shops can help bridge gaps in access and perform needed work in a targeted and efficient manner while exploring what locations and communities might be best suited for such projects.

MBR took the following approach: Bike Fed's office at the time was in the 53215 area code of Milwaukee. This community had 32% of its population under the age of 18, access to a paved state trail in the Menomonee Valley, several schools and parks, and vibrant ethnically diverse shops and restaurants. For many families, however, the cost of maintaining a bike or buying a quality bike wasn't feasible. During our work with some of the local schools through the Safe Routes to School Program, we talked with families and realized that after completing our two week program, many kids did not have working bikes with which to continue learning and exploring their community. Many of these riders were still in primary school, and we intended the program to supplement already ongoing efforts to encourage activity and health within this age demographic.

As such, Milwaukee Mobile Bike Repair was born! Through community partnerships with Jezamil Vega-Skeels from Layton Boulevard West Neighbors, initial funding from a State Farm grant, and generous private donors, Bike Fed purchased a workhorse tricycle with a large wood and metal custom built box on the back. The first few years, we worked at several parks that already attracted young people with amenities and programming. As the program grew, we expanded our scope to include additional neighborhoods with similar needs and used the location where we stored our fleet bikes as a second base of operations. Additionally, through the support of many partners, we upgraded our cargo bike and even bought a second one!

It is very likely that you already have some understanding of the needs of the populations in your own area, as you are already exploring the possibility of starting or expanding community repair programs. Awesome! If you have yet to ponder this more deeply, no worries!

Regardless of where you are at in your process, your organization might benefit from additional connections with other local entities: community centers, Parks & Rec departments, schools, neighborhood/community associations, health centers, other non-profits and mutual aid orgs, libraries, government agencies, businesses, and so on. These partners can help you better identify whether there are repair needs and the areas that would most benefit from such services. They also should already have relationships within communities that need services, and they might be able to provide some measure of material support, whether money, space, or supplies.

Consider both your short-term and long-term goals to address residents' needs. Short term goals would include providing immediate repairs to their existing bikes for transportation or recreation. Milwaukee Mobile Bike Repair was designed to address these needs specifically. However, by connecting residents with your project and other available resources in the community, you can work toward longer term goals. Perhaps the residents will eventually have access to better quality used bikes to replace the poorly-adjusted department store bikes that are so prevalent. This might be through your own mobile program, extensions of related programming you run, or collaborations with organizations that share similar goals.

For example, our local parks department is promoting bike clubs at sites where we offer repairs, in the hopes of bringing together like-minded people to ride their bikes that we have fixed up. We also work with partners to conduct large giveaways of higher-quality used bikes in many of the same areas. In time, our services would be needed less, as knowledge has been transferred to those interested parties, who are now further equipped with material resources to help each other out after our repair team departs for the year.

Once your own needs and goals have been identified, you can then start to scope your program accordingly.



EQUIPMENT

Many of our supplies are secondhand or stripped from scrap bikes, shifting the need from monetary resources to need for labor and transportation. You may want to consider places for salvaging parts to supplement existing stock: colleges and universities, large apartment complexes, law enforcement, local bike shops (LBS), bike share or rental companies, donation or recycling drives, and rec and community centers might be good places to start. A nearby LBS, makerspace, or other workshop may even be able or willing to lend tools to a good cause! Your LBS can also help point you toward a distributor or wholesaler that services your needs, or they may even be able to purchase on your behalf.

The overwhelming majority of repairs we see are fairly simple, and focusing on the necessary items for these will help streamline and reduce your needs. As such, you can scope up or down what you provide to match both your abilities and the desires of those seeking repairs.

We have worked our way up to a more full-service model, with the understanding that 90% of our repairs could be achieved with 50% of our parts and tools. The remaining 10% can then be handled off-site in one way or another, with the hopes that customers will be able to access those resources. There is something powerful in the capacity to address needs immediately!

We like to focus our priorities on ensuring that a bike is safe to ride. The standard of service is not quite the same as a full service shop, but we pride ourselves on the work we do. Due to material and time constraints at the exact time of the repair, what might be a replacement at a shop might just be an adjustment at a mobile site. Doing what you can in the moment in order to make the bike safer to ride will generally do more good than refusing a repair request. We will cover more of this in the Operations section.

As we consider what materials will be needed, we must consider what repairs we are willing and able to do. Based on the ease of repair, frequency of request, and need for hauling the parts and equipment to the site, we can scale up repairs from basic necessities to advanced luxuries in a mobile setting:

BASIC:

- •Flat Repair
- Tube Replacement
- Pedal Replacement
- •Stem & Handlebar Adjustment
- •Brake Pad Replacement
- Brake Adjustment
- Derailleur Adjustment
- Chain Replacement
- Bottom Bracket Adjustment
- Headset Adjustment
- Hub Adjustment
- Saddle Adjustment
- Seatpost Adjustment
- •On-Frame Wheel Truing
- •Drivetrain Cleaning & Lubrication

INTERMEDIATE:

- Tire Replacement
- •Cable & Housing Replacement
- •Shift & Brake Lever Replacement
- Bottom Bracket Overhaul
- Saddle Replacement
- Spoke replacement
- •Grip/Tape Replacement

ADVANCED:

- Hub Overhaul
- Derailleur Hanger Adjustment
- Derailleur Replacement
- Brake Replacement
- Freewheel/Cassette Replacement
- Stem Replacement
- Crank Replacement
- Handlebar Replacement
- Headset Replacement
- Wheel Replacement
- Fork Replacement
- Seatpost Replacement





VEHICLE

We have two "Long John" style Larry Vs Harry Bullitt cargo bikes that transport our materials, and we advocate for others also to opt for human-powered transportation when possible! The experience of packing and riding the bikes themselves can be transformative and empowering, and they can spark lots of excitement and conversation at service sites when we roll to and unpack at the site. A motor vehicle is usually less necessary than immediate reactions suggest, and finding the right human-powered option just takes some consideration! More often than not, a full repair service can be operated via bike in even smaller urban areas. Distance and hauling concerns can be mitigated by electric assist, and a relative lack of storage space will not impact the vast majority of needed repairs.

Consider these variables: the distance of your service sites from your base, amount of material desired to provide service, and the ability of staff to operate different vehicles and pack gear. What is available in your area? What can you afford?

STYLES:



"Long John" Larry vs Harry



Longtail Cargo Bike



Bike Trailer



Trike

CUSTOMIZATION:

All of these styles of cargo bikes can be outfitted with different accessories, such as boxes, rails, bags and racks, that can help suit your specific needs. There's even the option of buying either a pre-made e-bike or an e-bike kit to convert your traditional cargo bike into an e-bike. Often, the particular model of cargo bike will have manufacturer recommendations or build kits. If you have the expertise to install aftermarket kits, go ahead, and if not, consult your local LBS.

TOOLS

NEED:

•Wrenches (standard, cone, headset, adjustable, pedal, spoke)

- •Hex Keys
- •Screwdrivers (small & large phillips and flat)
- •Wire Cutter/Side Cutter
- •Rags
- •Pumps
- Chain Pin Tool
- Mallet
- •Pliers (channel lock, needle nose, slip joint)
- •Tire Levers
- Bead Jack

SHOULD HAVE:

- •Workstand
- •Aprons
- •Dental Picks
- •File
- Scissors
- •BB tools
- •Third Hand
- •Crank Bolt Wrench
- •Disc Rotor Fork
- •Breaker Bar
- •Bottom Bracket (BB) Tools

WOULD HELP:

- •Caliper Brake Adjuster
- •Crank Puller
- •Freewheel Keys
- •Chain Whip
- •Chain Measure
- •Tape Measure
- Quick Link Pliers
- •Derailleur Hanger Adjustment Tool
- Torx Keys
- •Table
- •Less Common Wrench Sizes
- Torque Driver
- •Spoke Nipple Driver

BRING MULTIPLES:

- •Bike Pumps
- TriTools (hex & socket)
- •15mm Wrenches
- •Tire Levers



PARTS

NEED:

- •Cables (brake [mtn & road] and shift)
- •Rim Strips (sizes from 12"-27")
- •Housing w/ Tips & Ferrules (brake and shift)
- •Brake Pads & Shoes (V, Caliper, Canti) •Noodles
- •Tubes (sizes from 12"-27" with different widths and valves)
- •Patches, Glue, Sandpaper
- •Tires (12"-27" in various widths)
- Assorted Nuts & Bolts
- •Chains (1spd and 5-8spd)
- •Pedals (1/2" and 9/16")
- Spray Bottles
- Degreaser
- Chain Lube
- Penetrating Lube
- •Bearing Grease
- Paintbrush

SHOULD HAVE:

- •Derailleurs (front [top and bottom pull,
- 2-3spd] and rear [direct and hook mount])
- •Brakes (cantilever, linear pull, caliper)
- •Brake Yokes
- •Barrel Adjusters (for brake levers,
- derailleurs, and brakes)
- Seats
- •Brake Levers (long and short pull for drop and flat bars)
- •Shifters (Left [2-3spd] and Right [5-
- 8spd])
- •Ball Bearings

WOULD HELP:

- •Rubbing Alcohol
- Axles
- •Hub Cones
- Cranksets
- Stems
- Bars
- •Spokes and Nipples
- •Grips
- Seatposts
- Seat Clamps
- Seatpost Clamps
- •Freewheels and Cassettes (5-8spd)
- •Headsets (Threaded and Threadless)













PACKING THE BIKE

1.

Layout of all of the tools that should be packed in the cargo bike to bring to service sites; double check that you have everything you need.

2.

Layer One: Toolbox of Essential Tools Work Table Cabling & Housing Brake Pads & Shoes Housing Tips Barrel Adjusters Brake Yokes Ball Bearings Shop Towels Degreaser Lube Grease Other Necessary Tools and Parts

3.

Layer Two: Rim Strips* Tubes* Pedals* Shifters* Derailleurs* Stems* Grips* Seatposts & Clamps* Cranksets Bars Seats Other Should Haves/Would Helps *put into bins/baskets for organization and ease of transportation

4.

Layer Three (on top of cargo box): Workstands* Bike Bumps* Tires* *tie down to the cargo box using spare tubes/rope/etc



STAFFING

Even more important than the necessary supplies are the people executing the repair program.

CREW STRUCTURE:

Each crew will scale based on expected need. Ideally, the program will be able to run solo with a single experienced mechanic, and you can estimate one bike fixed per mechanic per hour, with up to an hour before and after set aside for setup and cleanup.

A ratio of one experienced mechanic to two or three less experienced mechanics is ideal. This allows a good balance of workload, mentorship and education, and customer service.

Make sure to consider what language skills may be necessary or helpful in the communities you are serving, and structure your team to reflect this if possible. At the very least, enlist community help. Many of our sites attract people who are willing to help out in kind and can broker communication as ad hoc volunteers.

HIRING:

As with assessment of community needs, a similar assortment of partners would also be of assistance to reach and potentially hire candidates that meet your needs and mission. We attempt to hire youth from the same communities we serve with the intention of further strengthening connections. We reach out directly to organizations and partners across our city that can direct interested youth to apply. In the past, we have also engaged with government programs that take care of the hiring process as well as provide salary for the employees.

Also consider job or community resource fairs for further outreach, with visuals showing the job itself. A mobile repair program is quite unique, and effectively telling your story will help with fundraising as well as hiring.

Sometimes we will opt to supplement paid staff with volunteers from our own members or partner organizations. Your own organizational structure and scale, existing connections, and desired services rendered may tilt you toward one solution or a hybrid of each.

TRAINING:

Ideally, one person coordinating or leading the program will already have significant skill and experience in bike repair, and they will be able to execute much of the service by themselves. Supplementing the core of your staff with additional capable hands may take some training.

Many resources from earn-a-bike or similar programs are readily available and are referenced in the Appendix. Curricula will go through a typical bicycle, system by system, and learners will have a baseline understanding of how to strip and reassemble a bike by the program's completion.

Our youth training functions in a very similar way: at the completion of the course, a bike is given to help with transportation to the job. We have also partnered with youth from like-minded organizations who have already garnered some experience or undergone training, after which we provide additional support as necessary to be ready to work within our repair team's structure. Your program may also have existing training protocols that would only need to be adapted slightly. Consider that you may want to focus additional time on the logistics of consolidating tools and parts at the start and end of each service day, nonviolent communication to navigate more difficult conversations in a public setting, or dividing up labor on larger tasks within the mobile repair team. Any training will also want to focus most on the most core aspects of your repair offerings; flat changes and cable/housing installation have benefitted from additional focus in our past training.



LOCATIONS

IDENTIFYING:

In the Needs and Goals section, we covered how you might identify populations in your community that would benefit from your repair program. The next step would be to select physical locations from which to offer repairs.

Many times, this can again be solved by the capacity of partner organizations to host/help. We have set up shop at community centers, parks, and public schools which are already gathering points for the people they serve. Parallel programming through these and other organizations will also attract folks: free meal distribution, recreational activities, daycare, and summer camps.

For staff comfort, access to tables or seats, shade or shelter, restrooms, and water are key. Whether outdoor or indoor, the safety, cleanliness, and ease of access to the repair space will also merit consideration.

SCHEDULING:

Your schedule will also want to be set with any parallel programming in mind. We like to be present during meal distribution, as both adults and children attend and can note our location and hours.

Being present for less than 6 hours on site gives ample time for our travel, setup, repairs, and teardown within an 8 hour day. If your location and setup require more than 2 hours combined for non-repair tasks, consider scaling down your service hours or days.

Furthermore, setting several consecutive days of repairs to be held in the same location enables word of mouth to travel in the area. The first few days on site may attract fewer residents, but hopefully this will not be the case several days in! If you can't arrange several consecutive days, this word of mouth may not have time to engage, and you will want to invest more time and energy doing outreach in the weeks preceding arrival on site.



OUTREACH/PROMOTION:

It only does so much good to be present in a place if no one in the neighborhood knows to expect you or what you are doing there.

Create an ad that details your locations, hours, and services, and in more than one language if necessary or helpful. (See the Appendix for some examples.)

Put flyers, posters, or signs at locations that are frequented nearby: schools, groceries, libraries, community centers, bus stops, gas stations, parks, daycares, or churches. This can be done prior to visiting, but on slower days, having a crew member get the word out at a corner store or busy intersection, or even going door to door, can have significant impacts.

Put up a temporary flag or sandwich board nearby to attract people. Your bike and the setup of your popup themselves may also stoke interest and conversations.

Again, your community partners may prove fundamental in reaching your target populations. They will have existing lines of communication and can often promote your service in a very direct manner.

Social media grows increasingly more important each year. Having a place online where your organization can communicate information directly, and where it can be easily accessed, shared, and forwarded by interested parties, will make sure you get the word out effectively.

BUDGETING & FUNDING

With parts, staff, and scheduling set, we now have the building blocks of a budget. See the Appendix for some scalable examples as well as a template from which to build your own.

If you are an existing organization that has paid staff or formal volunteers, make sure to leave a budget line open for insurance in the case your program might require additional or different coverage to your existing policies. Contact your broker to consider your needs.

If a gap exists between your budget and your means, seek out additional sources of funding or equipment, or scale back your operational schedule. Funding may be available from community partners, grants targeted at specific neighborhoods or populations or projects, or direct fundraising campaigns. Much outside literature can be found on the subject, some of which is listed in the Appendix.

OPERATIONS

Intake and workflow can be significantly different at a mobile site than a traditional fixed shop. Furthermore, various grants may require specific data tracking for your program. Even if no current grants are subsidizing operations, collecting such data may benefit future fundraising prospects.

INTAKE:

We have historically operated with a first come first served, take-a-number style approach to intake. Scheduling service appointments may be possible, but it undercuts a program's ability to service immediate needs and creates logistical hurdles and complexities not otherwise present for a pop-up.

Operating under this assumption, greet each customer in the order in which they arrive, and follow intake procedures for the bikes as they are brought to the site. As they check in, keep an ordered list of customers handy, along with their contact information and identifiable features of their bike.

Good communication skills and customer service are important regardless of setting! Listen to their immediate concerns and set expectations for your service. What kinds of repairs do you perform? How long will said repairs take both generally and with current wait times? Will they need to wait around for you to finish the repair, or can they leave and come back? How will you contact them if they leave? What happens if they do not return to reclaim their bike before you pack up for the day?

If you have a flier or paper to hand out, it can explain some of the service offerings and limitations, provide information on your schedule and partners, and collect demographic information while the customer waits for diagnostics and repairs. Our demographic survey and other intake forms can be found in the Appendix.

Encourage the customer to stick around for your initial diagnostics if possible. Show and demonstrate on the bike where the issues might be and explain your intended solutions. Once expectations are set and agreed upon, and you have the necessary data and contact information, repairs can be completed.

WORKFLOW:

First things first: focus on diagnostics until you are sure that you are at capacity for the day. Glance at your intake list as another bike comes to your site, estimating how long each remaining bike will take for your staff to repair.

If an additional bike comes, and you might have time, diagnostics can usually be completed relatively quickly, and the time can be estimated for repairs. If there is ample time, it can be moved into the queue for the day. If not, alternatives can be discussed, whether this is returning another day, leaving the bike in a secure location and putting it in tomorrow's queue, or referring to another service provider.

Delegate the work in a manner that is conducive to the strengths and skills of your team, balanced against the day's time constraints. If repairs can only be carried out by the more experienced mechanic, that will limit your flexibility. Still, attempt to leave room for guided repairs and learning within the crew when possible. This sort of on-the-job growth and training is invaluable, and depending on the goals of your program, it might be more worthwhile than shoving one additional bike into the day's schedule. Regardless, knowing your team's capabilities is paramount.

For something like punctured tubes, a triage model might work, where more complicated repairs are paused for the relatively quick flat fix. An alternative could be to teach the teacher, if many flats are in queue. We like to carry extra patch kits and levers for this very purpose, and as tube replacement/patching is by far our most requested service, it clears up space in our workday to focus on other repairs. On occasion, they will even pass along this newfound knowledge to others in queue without being prompted!

What can you do if a bike is not able to be fixed on site? Options may be to refer customers to a LBS, ask them to return tomorrow if you can bring the necessary parts or tools, or even offer to strip and scrap the bike on the spot if it is not salvageable. They might want some of the parts, and whatever they do not want, you might be able to reuse.

For those repairs that are completed, check back in with the customer to ensure that their needs have been met. Encourage them to spread the word either via social media or word of mouth. If you have extra schedules or informational packets, this would also be a useful time to distribute them

Congrats on the successful repair!



ADDITIONAL RESOURCES



Scan or click the QR code above to access the Mobile Bike Repair Guidebook Appendix!





