

Having piloted Mobility Hubs over the last two years, these frameworks outline key strategies for producing mobility hubs that are optimally useful to the user and impactful toward the mobility hub project goals.

Key Themes

Transit-Centric

The core service of a Minneapolis mobility hub is to connect people to the transit system, so proximity and visual relationship to that stop is critical to success. We have found that transit-centric mobility hubs are more successful than focusing on locations with less transit along bike infrastructure or other central features.

Why?

- Transit stops generate mobility hub users This pilot has tested out a range of sites, including several that had the adjacent bus stop down the block. Examples of sites like this include Farview Park (North) and Franklin Ave & 11th St from 2019, two sites that were not extended to the 2020 season. At the center of this determination was a combination of trip data and feedback that many residents didn't see the value in locating mobility hub improvements so far from bus stops.
- » Mobility hubs need eyes on the space Even when people are not using transit at the mobility hub, transit riders help keep the space active throughout the day and help the space feel more safe. This positive activity and eyes on the space also helps diminish negative activity that can crop up in empty, isolated locations.
- » First/Last-Mile solutions break down as the tie to transit weakens For mobility hubs to be effective tools to connect people with transit stops, the transition between micro-mobility and transit needs to be as seamless as possible. Breaks in the user experience can cause confusion or frustration that leads people to default to what they're used to instead of taking advantage of new modes. Put simply, wouldn't you hate to be docking your bikeshare bike and watch your bus pull away less than a block from where you are?



Successful transit-centric mobility hub configurations can come in many forms, but one of the most commonly deployed for our sites was placing mobility hub features on the same corner of the intersection as the bus stop but on the alternative leg. This is especially useful in spaces where the bus boarding area is already built out or especially tight on a commercial corridor. In this arrangement it's important to still make sure seating is still available in the line of sight to see the bus coming and signage denotes the mobility hub features available around the corner.



Co-location

Locate all mobility options in a compact area, within view of the bus stop.

Location factors during a pilot are often dependent on the availability of right of way, whether sidewalk or in-street space.

Why?

- » **Visibility** Multiple things in one place means the user understands all the options they have, without having to open multiple apps to check for available vehicles. It is also easier to clearly brand the space as a mobility hub if all elements are in a defined area.
- » Legibility If the public is to understand what a "mobility hub" is, it helps if it's a clear space with defined components and edges, instead of a conceptual idea that covers a whole city block or more. Co-location contributes to a cohesive "brand" or set of expectations about what you will find at any mobility hub, even when a user may not have been to that hub before.
- » Maintainability Maintenance is more efficient if workers don't have to cross the street multiple times to touch all the components. In the winter, tighter co-location means less space needs to be cleared of snow before a mobility hub is fully operational.



Common Cause

When possible use placement and form of mobility options to support other policy objectives on the street, like pedestrian safety, commercial and social activity generation, green infrastructure and traffic calming.

Why?

- » **More project champions** Mobility hubs can support multiple objectives toward making a people-friendly street, therefore expanding potential champions and funding opportunities for their implementation.
- » It's cost-effective and space-efficient The street is a landscape where both space and funding have limitations. These synergies may increase coordination needed and complexity with syncing up project schedules, but ensure optimal utilization of limited space and funding.



For example, the bump out at Central & 26th St Mobility hub was extended to include space for a bike rack and the slip lane closure at 3rd & 12th St held space for mobility hub furniture and social spaces.

Boarding Bonus

Mobility hub features intended to support comfort and socializing should be located on the boarding-heavy (often the "inbound") direction.

Why?

- » When making the decision to concentrate mobility hub features on the inbound or outbound direction of transit travel, selecting the side with the most boardings will ensure that maximum benefit is derived from the elements as people spend time waiting for the bus.
- » People accessing mobility hubs for their "first mile" have different needs than those using it for their "last mile trip." People using mobility hubs who travel to a mobility hub to access transit (first mile) benefit most from comfort, convenience and social features because they are spending more time at the hub while they wait. However people accessing last mile options at the mobility hub primarily need access to convenient mobility options, getting oriented and simply transferring to the last mile mode.



Future Vision of Minneapolis Mobility Hubs

This illustration, created by artist Sarah Nelson, represents a future vision of what a fully built-out Minneapolis mobility hub could look like.



2020 Pilot New Features

Infrastructure Safety Improvements

Why | Infrastructure Safety was identified as a priority improvement for 2020 during mobility hub pilot engagement in 2019 and is part of the implementation of the City of Minneapolis Vision Zero.

What | Three mobility hubs received quick-build safety improvements

Through coordination with the City's Vision Zero 20 in 2020 Initiative, three mobility hub pilot sites received intersection improvements to enhance bike and pedestrian safety. The 20 in 2020 Initiative included implementation of quick-build infrastructure safety improvements at more than 20 intersections as part of the City's Vision Zero initiative to eliminate all traffic deaths and severe injuries on City streets.

Locations

Penn and Lowry

» The infrastructure improvements installed included hardened centerlines* and signal timing changes to improve pedestrian safety while crossing the street

Central and 26th

» At this site, hardened centerlines and bollard bulb-outs were implemented, shortening the crossing distance and making pedestrians more visible.

Chicago and Lake Street

» Improvements included hardened centerlines and bollard bump outs. The mobility hub at Chicago and Lake Street is still in long term planning, however it was not an active pilot site in 2020, in part because of the more urgent conversations occurring with regard to rebuilding Lake Street.



*What are hardened centerlines? The centerline is the marking (yellow in the image) that divides two lanes of opposing traffic. Bollards create a raised centerline near the crosswalk at an intersection to prevent drivers from "cutting" the corner at higher speeds while turning. This reduces the likelihood of crashes at intersections, including for pedestrians (as was found in a recent study).

Slip Lane Transformation at 3rd Ave & 12th St in Downtown Minneapolis

Why | A recommendation from 2019 was to pursue reallocation of street space for mobility hub improvements and slip lane closures in order to open up significant space while also improving pedestrian and bicyclist safety.

What | A mobility hub site at the gateway to downtown Minneapolis was selected to test reallocating slip lane space for mobility hub improvements. One slip lane was closed at 3rd Ave and 12th St for a pilot period of four months and furnished with pavement paint, movable seating and planters.

Impact | This site received the most positive email and social media feedback from users of any of the mobility hubs. Adjacent property owners were primarily neutral with a concern raised around limiting the free-right turning movement. Pedestrian counts were not taken due to the disruption of travel patterns during COVID. The simple circle design for the pavement art was chosen to reinforce the connection between the pavement paint and the blue furniture boxes. Additionally, circles and bright colors are effective visual cues to communicate a sense of invitation and energy in a space. This kind of space demarcation could be used anywhere that mobility hubs are placed in-street, whether in bump outs, parking spaces, closed turn lanes or other right of way. The mobility hub project team maintained and cleared snow from the site and consolidated furniture into several snow-cleared patios along the main pathway. The closure signage was rented and the paint is being monitored to determine its condition after the winter.

Lessons Learned | This installation demonstrated successful use of paint as a way of denoting mobility hub spaces. This is another opportunity to integrate artists into the mobility hub program and express community identity while incorporating features that clearly tie together the network of mobility hubs.



*What is a slip lane? A slip lane, commonly also referred to as a free-right turn lane or "pork-chop" is a feature of roadway design intended to maximize vehicle speed at intersections. However, as a byproduct, they produce unnecessary conflicts and dangerous conditions for bicyclists and pedestrians when drivers fail to reduce their speed enough to look for these vulnerable users and yield to them.

Parklets at Mobility Hubs

Why |The City of Minneapolis received the decommissioned parklet from a MnDOT program, and the 2019 engagement showed strong support for more seating at the Penn and Lowry mobility hub site. Penn and Lowry was also anticipated to continue being a central place for programming, which a parklet would support.

What | In cooperation with Hennepin County, the landowner of a vacant lot at Penn and Lowry, the parklet was placed as part of the 2020 mobility hub pilot and incorporated into the maintenance and programming run by the Mobility Hub Ambassadors. In the late fall and winter the Ambassadors held a painting event, turning the parklet black with words inscribed in many colors. **Impact** | As a result of the parklet component of the mobility hub at Penn and Lowry, the space had more structure that allowed people to gather and connect. The parklet became a strong visual beacon identifying the improvements being made there. Thanks to the consistent, creative contributions of the Mobility Hub Ambassadors, the parklet was an active platform for small-scale, sociallydistant community connections to occur.

Lessons Learned | As this parklet demonstrated the potential of having programmable space an anchor for the Northside network of mobility hubs, there would be significant benefits for each neighborhood network to include a similar anchor space under the care of Ambassadors to serve as a platform for community building around the hubs.



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Wayfinding that Speaks with Icons

Why | The wayfinding signage designed for the 2019 Mobility Hub pilot effectively directed people to several nearby destinations, but lacked more contextual information for planning trips and using new transportation options.

What | As a part of the pilot's iterative design approach, this year we tested two new wayfinding signage options: an orientation sign installed on the pavement and a neighborhood-level wayfinding map.

Impact | These signage options were easier to maintain and more cost effective than the 2019 wayfinding sign

options and offered further opportunity to create a signage system based on icons and visual communication over text. However, they did have less space for multiple languages to be displayed.

Lessons Learned | As the system of wayfinding signage continues to evolve, there may be good applications of each signage type that has been tested. Additionally, more engagement can be incorporated to document residents' ideas for wayfinding destinations to call out on the sign.



Bike Fix Station

Why | The bike fix station idea was suggested by a leader of the Las Bici Chicas group as a feature that would make mobility hubs more useful to people who use their own bikes and rarely can afford to pay per ride on shared modes. The location was selected as it was in the West Bank Mobility Hub Ambassador area and those team members reported the Cedar Ave plaza hub as one of the most active hubs in their network.

What | One bike fix station was installed in October at the Cedar Ave plaza mobility hub. This included a bike tire pump, a bike stand and a set of tools.

Impact | The bike fix station was out for a short enough period of time that awareness of it wasn't yet high enough to assess its impact for users.

Lessons Learned | Next season, further work can go toward analyzing utilization and maintainability of the bike fix station.



Lockers

Why | During engagement in South Minneapolis, some residents expressed interest in a personal storage locker system at mobility hubs, and several institutional partners saw usefulness in having places for people experiencing homelessness to temporarily store possessions. Bike lockers in other parts of the transportation system are geared toward regular commuters but are underutilized in many locations.

What | The Mobility Hub Pilot worked with a smart locker provider to explore implementation of a small-scale smart locker system operated through mobility hubs. The project team established connections with the Lowry Hill East Neighborhood Association and the Hennepin County Libraries to test and promote the installation of lockers, but ultimately ran out of time in the season to use smart lockers. To test a simpler system, the staff at Webber Library tested running a low-tech locker at the Humboldt & 44th Hub that operated as an extension of the library as a resource and community information hub at a mobility hub.



Impact | The Library Locker, as the project team called it, distributed 26 transit comfort kits (from December 11 to January 19) that contained

- Crossword puzzle
- » Blank Journal and pen
- » Pencil
- » Library contact info page
- » Thinking putty
- » Poem
- » Self care on commute card
- One cold weather item, which could be handwarmers, stocking caps, or gloves

The initial one month pilot was extended to run three months due to the success of the initial run, and the librarians programming it reported steady usage. They also appreciated having an additional way to serve the community.

"Thank you for helping to keep this going for a while beyond the pilot, it really has been a wonderful little addition for our library to be able to reach people during Covid and winter."

- Elizabeth, Hennepin County Webber Library

Recommendation | This short term pilot and the other positive reception of the locker prospect shows excellent potential for further work to occur - both around the low-tech locker point as a platform for other entities like libraries to connect with mobility hub users, and implementation of a smart locker system that was explored. **Iterations on Mobility Hub Modular Furniture**



Why | The 2019 mobility hub furniture was made completely from plywood, which was cost-effective and paintable for a pilot of limited duration. The 2020 pilot looked toward expansion and enhanced durability and comfort for furnishings. Furthermore, planters were successful at the Penn and Lowry site in 2019 and were called out by mobility hub users during engagement as a big draw to the space, so the project team wanted to expand their use. As a pilot, it was still important that the furniture remained multi-purpose and modular to adapt to many environments.

What | The 2020 mobility hub pilot utilized some 2019 furniture, but for the most part was built out using a new set of furnishings. These utilized HDPE, a recycled plastic material, for enhanced durability. Other features of the second iteration of pilot furniture included:

- » Smaller dimensions to increase seating comfort
- » Solid sheets of material on two sides of each piece, to make a "top" and "bottom" easier to sit on and harder to put liter inside, while maintaining the ability to place them vertically or horizontally
- » Larger cut-out holes on the sides to make removing litter easier and faster
- » 1"x1" HDPE planters that could be connected directly into the furnishing system
- » Attachment system to be able to add more specialized features as site needs are identified
- » Lighter, less cumbersome furniture sizes making moving pieces easier

Impact | These improvements vastly improved the maintenance system for the 2020 furniture - saving an estimated 50% of onsite management time throughout the system. The maintainer running hubs with both 2019 and 2020 hubs reported significantly easier maintenance of newer pieces - whether to remove litter, graffiti or move the boxes. Less litter over the whole season was reported by Ambassadors at the Northside hubs.

Recommendations | As mobility hubs look to advance beyond a pilot program and into capital improvements, we recommend selecting new more permanent seating options. While piloting, having furniture that is modular and flexible to respond to feedback from users on site is important. However for sites that have tested configurations, the furnishings selected no longer need to be as all-purpose. This opens up the opportunity to select furnishings that are even better at their main purpose - like selecting a seating option that has a back rest and limits the potential for debris to collect. User feedback supports continuing the colorfulness of current furniture, and carrying the City of Minneapolis blue theme through to new furnishings can help maintain continuity with the pilot improvements even as specific fixtures shift.



Lessons Learned

Connecting with People and Caring for the Public Realm

Anyone who has operated spaces in the public realm knows: people use spaces and sometimes the evidence is all too clear - litter, markings, stolen furniture, removed plants and the like. The key is to be responsive in caring for spaces and ultimately to build social connections that diminish the occurrence of them in the first place. In the words of Ambassador Team Leader Marc Woods, "connect before you correct." The project team frequently anchors our mobility hub approach in our shared goal: for people to use these spaces. The result of use is wear and tear. The goal is not to eliminate wear and tear, as that would entail discouraging use. If we are successful, wear and tear will occur and proper care and maintenance will be required.

Strong social connections between ambassadors and frequent users were an effective tool this season that made an impact on the frequency of these site issues. The Northside ambassador team reported strong social connections forming as their regular routine of maintenance and on-site activations unfolded. It was sites that were under their care that seemed to result in less litter at Northside hubs and fewer instances of plants being removed from their planters, according to feedback from the team. It's a small sample size, but this points to a well-documented point that people take better care of places that they feel connected to and ownership of.

Design can be part of the solution to address these common behavior-driven site issues - like how the furniture design for this year helped mitigate litter and make writing/markings easier to remove. But at the core of a mobility hub approach has to be an understanding that people who see sites being consistently cared for and who feel their own experience be valued will over time be more impactful than design can be in diminishing these outcomes.

Challenges

Overall, of 300+ units of furniture with none of it locked or bolted to the ground, a total of 15 units or about 5% went missing. One strategy exercised this year for a site that was losing pieces of folding chair furniture was clearly marking all the units as part of a City program. Whereas the standard had been to place "contact us" stickers on at least one furniture piece per site, having markings on all units might have diminished incidents where property managers who were not aware of the pilot removed furniture and diminished the removal of furniture that may have been seen as untended by members of the public. Given that public spaces were as in-active as they've ever been, one would expect fewer "eyes on the street" to have led to a spike in missing furniture. On the contrary, the situation remained consistent with 2019 results.



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Safe Public Spaces for Everyone

The project team also wants to acknowledge the ways that community members utilized mobility hub features to meet their own most pressing needs. Ostensibly, our furniture became part of someone's emergency housing solution (encampment). It became part of several people's emergency income strategy (signing/panhandling). Both cases represent the kind of adaptation that, if playing out in other ways, would be celebrated as an insightful pilot design iteration, which is why the team took no actions to discourage users from participating in the pilot feedback process just like any other community member. We see it as a poignant reminder that in the lives of many community members, there isn't a line between infrastructure for housing, for transportation, or for work - your whole life unfolds in the public realm. It's our responsibility to ensure that as we shape a more humancentered public space, we emphasize that dignity for all can and should include the housing insecure and people experiencing homelessness.



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This pilot was implemented by City of Minneapolis Public Works with the support of The Musicant Group.

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