

A report prepared for the City of Portland and
Multnomah County Joint Office of Homeless Services

Hygiene, Storage, and Waste Management for the Unsheltered Community: Gaps & Opportunities Analysis

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Executive Summary

Housing remains the best solution for addressing homelessness, its related impacts, and the needs of people experiencing homelessness including hygiene, waste, and storage services. Until sufficient numbers of safe, quality housing units are provided to address existing homelessness, interim services are necessary for those experiencing homelessness in Portland and Multnomah County. At the start of the COVID-19 pandemic, hygiene services for people experiencing unsheltered homelessness¹ were broadly expanded, but services remain inadequate to address the total need. Likewise, current storage and waste services do not meet the full need, but innovative and effective models in Portland and elsewhere demonstrate possible options for implementation or expansion.

In December 2021, the City of Portland and Multnomah County Joint Office of Homeless Services contracted with Portland State University's Homelessness Research & Action Collaborative (PSU-HRAC) to study hygiene, waste, and storage needs and options for people experiencing unsheltered homelessness in the city. The 2019 Point in Time count listed 2,037 people experiencing unsheltered homelessness across Multnomah County that year, including nearly 80% with one or more disabling conditions (Joint Office of Homeless Services, 2019). This study, completed in early February 2022, included focus groups and interviews with 18 government employees and service providers, interviews with 19 people experiencing unsheltered homelessness, a review of research literature and news articles on the topic, and previous surveys and research from Portland State University.

Although the compressed timeline of the project precluded the more extensive data collection effort that would be necessary to provide a conclusive set of recommendations, several key themes and possible options were often repeated across interviews with people experiencing unsheltered homelessness, focus groups and interviews with government employees and service providers, and research literature on related topics. These themes are described below. Following the themes, recommended options are listed in tables that include the evidence base, strengths and weaknesses, key considerations, and placement criteria for each. The options and themes are not mutually exclusive, are not ordered by importance, and represent a range of

¹ A note on terminology: we use the term "people experiencing unsheltered homelessness" throughout to provide clarity on the specific group the report was focused on and to center person-first language. "The homeless" is often considered pejorative, and although "unhoused" or "houseless" have entered into common parlance, they can also seem to focus on someone's identity rather than (a hopefully temporary) experience. "People experiencing houselessness" is probably a more accurate descriptor, since "home" can be defined in many ways, but this term may not yet be widespread enough to avoid confusion.

complementary options that may each be suitable for specific types of needs and geographic areas. A detailed discussion of each option is provided in the body of the report.

Key Themes

Improve government coordination: A common theme across interviews and focus groups was the fragmentation and challenges coordinating with and between the numerous government agencies working on hygiene, waste, and storage. Both government employees and community members suggested a single agency be tasked with oversight and/or delivery of specific types of services, such as trash collection, and funded appropriately to ensure ongoing service reliability. Absent that, clearer roles and improved coordination regarding service areas and types were requested.

Support vendors that prioritize equity and hire people with lived experience: Suggested across interviews with government employees, service providers, and people with lived experience, and supported by research and projects in other cities, working with vendors who lift up people with lived experience benefits project outcomes. People with lived experience of homelessness often have better access to encampments, are more able to build trust, have a better sense of what is a useful belonging instead of trash, and were reported to perform a more thorough job than traditional waste management firms. Ensuring a living wage, appropriate benefits, opportunity for advancement, adequate training, and flexibility in employment type and hours worked were also suggested as best practices.

Provide consistency: Service providers, government employees, and people with lived experience of unsheltered homelessness repeatedly emphasized the need for consistent delivery of services. Consistency leads to better usage of facilities. Providing consistency requires long-term planning and guaranteed funding to ensure predictability and reliability. Frequent changes to service schedules, relocating facilities, or ending programs are disruptive and harmful in meeting the needs of people experiencing unsheltered homelessness.

Consider solutions that serve the entire community: Public hygiene facilities are shown in research to support tourism, expand access to sustainable transportation options such as biking and walking, and provide more recreation opportunities. Developing options that can meet the needs of people experiencing homelessness, tourists, and residents commuting or recreating, such as the Portland Loo, or that can

be flexibly reconfigured to meet changing or emerging needs, such as hygiene stations that could serve as disaster relief hubs, should be considered.

Use One Point of Contact reports to site services, but with caution: Using the One Point of Contact map of reported encampments to site services was recommended by several focus group and interview participants, including both government employees and service providers. While this approach can be used to identify concentrated areas of need, it may miss areas that are less visible to the public or over-emphasize areas where there is a higher awareness of the form or a coordinated campaign to submit complaints. These are typically higher-income neighborhoods (Hayden, 2021), which could lead to a lack of equitable investment in services for unsheltered individuals in lower-income neighborhoods.

Reduce sweeps: The clearance and closure, or “sweep,” of unsanctioned camps was brought up in multiple conversations as a practice that had an extremely negative impact on the ability of people experiencing unsheltered homelessness to access hygiene and sanitation services. This observation was echoed in conversation with government employees, service providers, and people with lived experience of homelessness, and is also supported by research literature (Herring et al., 2019). Sweeps may result in the disposal of belongings that are essential for personal hygiene, move individuals farther away from hygiene and health services, create a fear of leaving their belongings to access services, and generate trauma that worsens mental health and substance use issues, which affect an individual’s ability to utilize hygiene services. Sweeping encampments will almost certainly reduce the effectiveness of any other strategy to provide hygiene, sanitation, storage, and waste management services to people living unsheltered.

There is no “one-size-fits-all” solution: Everyone living unsheltered has hygiene, waste, and storage needs, but the best ways in which to meet those needs may differ based on gender identity, race, and other aspects of individual identity; life experiences; geographic locations; and other factors. What works in one area may not be as successful in another. To the greatest extent possible, people with lived experience of homelessness and their broader community should be involved in determining locally effective solutions. In line with this approach, prioritizing the most vulnerable populations, such as people with disabilities, those with chronic health conditions, and those most at risk of racism and discrimination will most likely serve both them and less vulnerable groups.

Community engagement: Funding and processes for engagement with housed neighbors and local businesses when siting new facilities or launching programs was suggested by government employees and service providers. On one hand, early education may lead to more support for activities. On the other, PSU-HRAC cautions that housed neighbors and businesses may try to stop facility siting, and extensive engagement may perpetuate the idea that people can say no to essential services and housing for people experiencing unsheltered homelessness.







Recommended Options

This table lists the sources for evidence supporting each option: interviews with people experiencing homelessness; research by PSU-HRAC for this project or other projects, as well as outside research identified in the literature review; and interviews and focus groups with government employees and service providers conducted for this project.

Table 1: Evidence Basis for Recommended Options

Option	People Experiencing Homelessness	Research	Government and Service Providers
 Urban rest stops (shower, toilet, first aid, laundry, storage)	yes	yes	yes
 Portland Loos	yes	yes	yes
 Mobile trucks (shower or shower & toilet)	yes	yes	
 Trash collection (government or contractor)	yes	yes	yes
 Storage centers (attended lockers / units)	yes	yes	
 Small container distribution	yes		yes

Table 2: Key Considerations for Recommended Options

Option	Strengths	Weaknesses	Placement Locations	Key Considerations & Opportunities
 Urban rest stops (shower, toilet, first aid, laundry, storage)	Combined services	Requires larger footprint, siting process, expensive	Transit accessible, existing high need	Pair with outreach, consider flexible use (disaster relief), open 7 days/week and evenings
 Portland Loos	Serves multiple users (tourism, recreation), permanent investment	Frequent cleaning, siting process, expensive	Mix of locations	Ensure 24/7 access, ensure regular cleaning
 Mobile trucks (shower or shower & toilet)	Wide geographic coverage, flexibility	Water & sewer management, maintenance, expensive	Mix of locations	Ensure reliable service, pair with outreach
 Trash collection (government or contractor)	Wide geographic coverage, flexibility	Providing coverage, scaling programs, expensive	Mix of locations	Clarify roles/areas among providers, improve government coordination, ensure reliable service, pair with outreach
 Storage centers (attended lockers / units)	Secure, combined services	Siting process, distance to users, expensive	Transit accessible, existing high need	Pair with outreach, pair with other services
 Small container distribution	Wide geographic coverage, inexpensive	Limited impact	Mix of locations	Pair with outreach

Introduction

Overview, Methodology, and Limitations

Hygiene services, waste management, and storage facilities are core needs to support people experiencing homelessness while they wait for housing to become available. At the beginning of the COVID-19 pandemic, the City of Portland placed a large number of port-a-potties and handwashing stations to improve hygiene and reduce disease transmission among people experiencing unsheltered homelessness. These “emergency hygiene stations” helped address the large gap in hygiene and sanitation needs among people living unsheltered, but did not offer a long-term solution. Recognizing the opportunity to build on these efforts, during the fall 2021 supplemental budget process the City of Portland and Multnomah County allocated one-time funding to expand hygiene, waste, and storage options for people experiencing unsheltered homelessness. As part of that allocation, the jurisdictions sought to identify the gaps in hygiene, storage, and waste services and options for ways to address those gaps. The jurisdictions contracted Portland State University’s Homelessness Research & Action Collaborative (PSU-HRAC) to conduct the analysis.

For this report, PSU-HRAC performed a literature review, conducted two focus groups, interviewed service providers, and interviewed people experiencing unsheltered homelessness to identify gaps and opportunities to meet the hygiene, storage, and waste service needs for people experiencing homelessness. The literature review included academic research, including previous PSU-HRAC research and community stakeholder convenings; government reports and white papers; websites; and news articles. Two focus group meetings totaling 14 participants were held. One included City of Portland employees and the other one included a mix of service providers and employees from other governmental entities. An additional four people with relevant professional expertise about homelessness service provision were interviewed separately, and 19 people experiencing unsheltered homelessness were interviewed for their insights, experiences, and preferences. In total, 37 people participated in these conversations.² Government employees and nonprofit service providers were not compensated for their time. People experiencing unsheltered homelessness received a \$20 Safeway gift card and a small package of snacks as an interview incentive.

² Portland State University’s Institutional Review Board determined that project protocols were adequate for protecting the rights and welfare of participants, and that the project was exempt from a full review process due to the minimal risk involved for participants. All members of the research team held a certification in human subjects research at the time of the project.

Because of the budget timeline, the research for this project took place in only a couple of months. Primary data collection ran from January to early February 2022. Because of these time limits, only a small number of people experiencing unsheltered homelessness were able to be interviewed. Some information on specific hygiene, storage, and waste programs could not be collected before the project deadline. Costs and information without a specific citation are from interviews, focus groups, or non-public documents from this project. The list of options presented are not meant to be comprehensive, and provide a representative range of possible approaches. Some financial information was estimated or may be outdated.

Literature Review

Hygiene and Sanitation

Public toilets and hygiene facilities are a core piece of infrastructure required for inclusive, equitable, and sustainable cities (Bichard et al., 2003; Hanson et al., 2007). In many cities there is an ongoing decline in public toilet development due to the public's perception of public toilets acting as catalysts for crime, which directly impacts the public's use, development, and acceptance of public toilets (Braverman, 2010; Leibler, 2017; Capone et al., 2018; Stanwell-Smith, 2010; Washington, 2014). The availability of public hygiene services and their perceived safety impacts the hygiene behaviors of people experiencing unsheltered homelessness by causing them to seek alternatives such as open toileting (Leibler et al., 2017; Capone et al., 2018). These hygiene behaviors are further shaped and impacted by additional compounding burdens like mobility issues, disabilities, mental illness, or substance dependence challenges (Leibler et al., 2017).

People experiencing unsheltered homelessness often suffer from physical health issues that are worsened from lack of toilet and hygiene access, which in turn contributes to higher healthcare costs (Braverman, 2010; Leibler et al., 2017; Capone et al., 2018). People who live outside without access to proper hygiene facilities are at risk of skin infections, Methicillin-Resistant Staphylococcus Aureus (MRSA), strep, staph, and fungal infections (Hawash et al., 2016). Due to a lack of access to regular and affordable healthcare, people experiencing unsheltered homelessness often rely on the emergency room as their primary care facility, overburdening the healthcare system (Braverman, 2010; Leibler et al., 2017; Capone et al., 2018). Provision of additional public hygiene facilities can help serve not only people experiencing unsheltered homelessness, but also support more pedestrian, transit, and cycling trips for commuting and recreation that were previously interrupted by a person's "bladder leash" (Kitchen and Law, 2001). This need for accessible toilets is consistent with Oregon

Parks and Recreation survey findings listing a strong public desire for more and cleaner bathrooms in both urban and rural recreation facilities (Bergerson, 2018a; Bergerson, 2018b).

Access to adequate hygiene services is an essential and internationally recognized human right (UN, 1948). The United Nations provides sanitation and hygiene guidebooks for refugee and displaced groups, including in urban areas (UNHCR, 2020). A recent U.C. Berkeley report (Auerswald et al., 2020) explicitly links UN guidance on refugee camps to addressing the needs of people experiencing unsheltered homelessness in the United States, with key recommendations in the report including:

- At least one restroom per 20 people served, no more than 50 meters away;
- At least one shower per 50 people served;
- 24-hour access and attendees, or cleaning and stocking at least three times per day for unstaffed facilities.

Waste Collection

One major material impact of the ongoing homelessness crisis is the management of trash. Without accessible and routine waste services of the type provided for their housed neighbors, Portlanders experiencing unsheltered homelessness are often forced to dispose of rubbish in public areas. Encampments will often concentrate the amount of waste produced (HUD, 2020). A number of cities provide waste removal services for encampments that stop short of a complete clearance (“sweep”) of the camp, and deep cleans with human services providers present can produce positive impacts and improve encampment hygiene (ibid). The cost of cleaning and clearing encampments in 2019 across a set of cities ranged from \$1,080 per unsheltered person in San Jose to \$6,208 in Tacoma (ibid), with Portland falling towards the low end at an estimated \$1,060.³ Some government agencies, such as transit authorities, will often have procedures and programs in place to clean encampments and provide services to people who are on their property (BART, n.d.).

Storage

One of the most difficult barriers for people experiencing homelessness is storing their personal belongings in a safe, secure, and weatherproof location. The few material possessions they possess are oftentimes at risk of theft, sweeps, or inclement weather. Lacking storage leads to wet clothing that must be abandoned, lost personal documents, and inhibited access to social resources that can improve a person's situation. Having access to a safe location to secure personal medicine is also one of

³ Calculation by authors based on City of Portland reports.

the key difficulties for those managing a physical or mental health condition (Balasuriya et al., 2021; Paudyal et al., 2017) An experience like this is compounded by the already poor outcomes and negative effects homelessness and poverty have on public and individual health (Hwang, 2001; Hwang et al., 2014). Safely storing medicine, legal documents, clothing, food, and personally important items can potentially lead to better outcomes for people experiencing unsheltered homelessness.

“If someone would come out and collect the trash, we would happily work with them. We just need the basics. The basic things that housed people take for granted are so hard for us.”
— Portland Street Response evaluation survey respondent

Hygiene and Sanitation Options

Previous research by Portland State University has shown that a lack of access to hygiene in Portland causes significant negative impacts:

- In a 2016 report on a survey of 550 people experiencing unsheltered homelessness in Portland, 40% of respondents reported experiencing medical issues related to a lack of hygiene resources (Hawash et al., 2016).
- In the same survey, 22% of respondents reported having been denied access to meals, food, or services due to lacking hygiene, and 20% reported having been denied access to shelter for the same reason (ibid).
- In a 2020 survey of 383 people experiencing unsheltered homelessness in Portland, access to bathrooms was the second most common response to the question “What would make you feel more supported in community in the next week?” behind only stable housing (Zapata and Singleton, 2020).
- A 2021 survey of more than 300 people experiencing unsheltered homelessness in Portland found that the largest category of responses to an open-ended question on needs was related to hygiene and waste (Townley and Leickly, 2021).

In the 2016 study, frequently listed barriers to meeting hygiene needs included limited hours of facilities (51% of respondents), facilities are too far away (30%), and other issues (29%) such as long lines, cleanliness, and personal health barriers (Hawash et al., 2016). In interviews conducted for this report, people who identify as women listed safety as a key need in using port-a-potties and other services. Portland and other cities have only partially addressed these barriers through the provision of a range of options, with specific approaches, strengths and weaknesses, and costs listed below (see Appendix A for a complete table of options and costs).

Port-a-Potties

The City of Portland’s placement of port-a-potties throughout the city at the start of the COVID-19 pandemic alleviated some barriers to hygiene access related to distance and open hours. They also can be sited relatively quickly and widely compared to more permanent or comprehensive options. However, the port-a-potties were described as especially vulnerable to damage by two different focus group/interview participants with knowledge of the program. High replacement costs (\$700/unit) and high maintenance contract costs relative to the benefits provided (currently about \$35,000/month for all units) were also listed as downsides to the program. People experiencing homelessness noted the availability of port-a-potties, and some requested more port-a-potties as a top priority, but several said they used nearby businesses instead or

went to the bathroom outside because the port-a-potties were seldom clean enough to use. In one area people had been sleeping in the port-a-potties during winter to keep warm.

Placement locations for regular units were selected using bathroom audits and a map of reports to the city's One Point of Contact system, which aligned with recommendations from several interview and focus group participants. ADA units were placed based on reported need. Ongoing surveys helped assess use and accessibility. People experiencing homelessness interviewed for this project mentioned the importance of privacy, cleanliness, and nearness of port-a-potties.

Handwashing Stations

In addition to emergency handwashing stations placed by the City of Portland at the start of the COVID-19 pandemic, the Western Regional Advocacy Project and Bonneville Environmental Foundation (BEF) have partnered on a low-cost, DIY approach that uses gallon jugs of water. These stations cost roughly \$60 each in materials, and require about two hours to set up and two hours/week of maintenance. These stations have the benefit of unlimited placement. A less flexible, but more long-lasting option explored in another partnership between BEF and Friends of the Trees is to build a semi-permanent outdoor sink that taps into an existing water main, regulates the amount of water used, and drains into a bioswale. This model has also been explored in Seattle (BEF, 2021.)

Portland Loo

The Portland Loo is a standalone public bathroom designed for “crime prevention through environmental design;” for example, durable surfaces and some limited visibility near the bottom to ascertain the status of someone occupying the Loo. When compared to emergency hygiene stations using port-a-potties, the Portland Loo is a comparatively expensive option at roughly \$100,000/unit and up to \$100,000 more in installation costs, with utilities and maintenance running to \$15,000/year. It also has fewer options for placement. However, the design of the Portland Loo minimizes the risk of damage or destruction and provides a long-term hygiene option wherever sited. It also more effectively addresses the needs of both unhoused and housed residents along with tourists. Several design options offer flexibility: sharps containers can be added to the Loo, a double-toilet model can serve a larger population while ensuring ongoing availability if one side is out of service, and seat warmers can prevent pipes from freezing in the winter. Intentionally budgeting for community engagement during the site selection and permitting/installation process, and for relocation if community needs change, was suggested by an interview participant to enable greater neighborhood

support and long-term utility. An interview participant with expertise in government delivery of services also suggested that any new Portland Loos should be placed to ensure 24/7 access, rather than in parks that close overnight.

Mobile Services

Mobile shower trucks, sometimes paired with toilets, offer a high degree of flexibility in delivering services if a regular and well-communicated route is established. This model also provides an attendant and can be paired with outreach workers, which were both highlighted in research literature and by some focus groups and interview participants. In Portland mobile shower services have been provided by Harbor of Hope at a reported cost of \$400,000 per shower truck, with yearly maintenance at \$300,000. This service does not currently appear to be operating, which shows the challenges involved in local government funding a nonprofit to deliver such services rather than owning and operating a shower truck directly, as was suggested by one interviewee. This model was also more expensive than similar approaches in other cities: the nonprofit Lava Mae estimates roughly \$70,000 in build costs for a towed trailer or \$150,000 for a modified bus or truck to provide mobile shower and toilet services based on their experience providing similar services in several cities (Lava Mae, 2021). Cleanliness and privacy were key desired features of shower trucks in interviews with people experiencing homelessness.

RV Services

The Bureau of Environmental Services has piloted a mobile RV waste pumpout service coupled with an outreach worker and bagged trash collection. The pumpout contract costs \$283,000/year. A total of 204 pumpouts were performed in December 2021. One government employee interviewed for the project specifically identified expanded sanitation services for RVs as an important way to reduce human waste cleanups and associated biohazard costs.

Shared Use of Existing Facilities

Informal shared use of bathrooms at local businesses and nonprofits is a common pattern. For example, most people experiencing unsheltered homelessness who were interviewed for this project related that they used facilities at local businesses to go to the bathroom and wash their body in the sink. One Portland Loo is sited at the St. Francis church, the Sunnyside Neighborhood Association provides showers at The Groves church, and the Social Justice Action Center provided a staffed bathroom and hygiene supplies at a cost of roughly \$45,000/year (BEF, 2021). This model of paying a local partner to provide staffed access to their facilities and hygiene supplies could

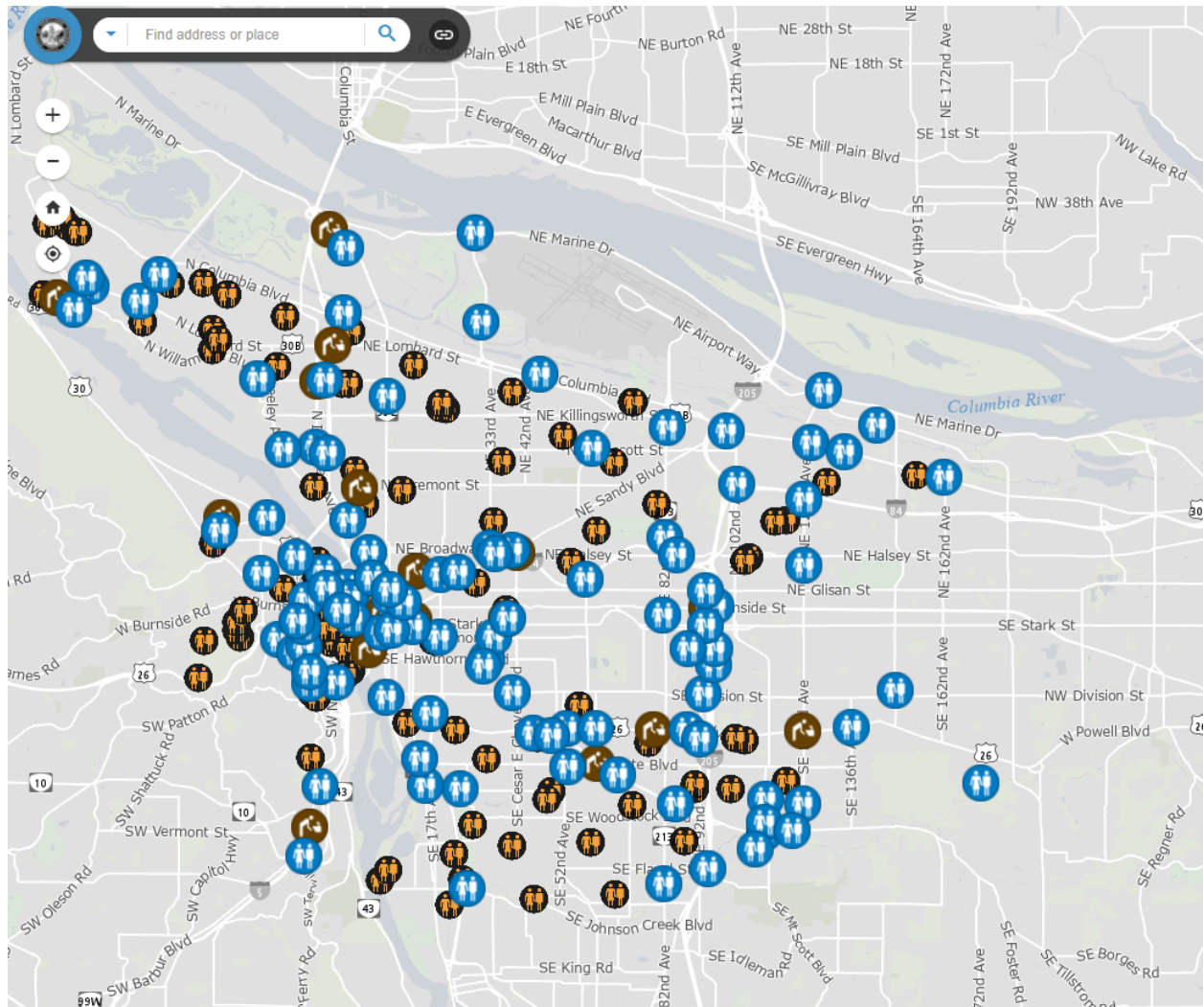
potentially be replicated in other locations, if consistent funding is provided and reliable partners can be found.

The use of community recreation centers could be an approach which utilizes existing infrastructure owned by the City. There are nine community centers throughout the metro area located on or near transit stops. The locations span SE, NE, North, and SW Portland. Most of the community centers have bathrooms, showers, and are ADA accessible for people with mobility challenges. However, day use fees to access local community centers can be cost prohibitive for people experiencing homelessness.

In Seattle, a formal program called “The Pledge” uses a system of window stickers to designate which businesses are welcoming of noncustomers to use their facilities and what additional services they might offer (such as charging stations, water bottle refills, free food, etc.). In Portland, The Pledge was ready to launch with about 10 locations in March 2021 just as a stay-at-home order went into effect. The effort was canceled as a result and has not been relaunched.

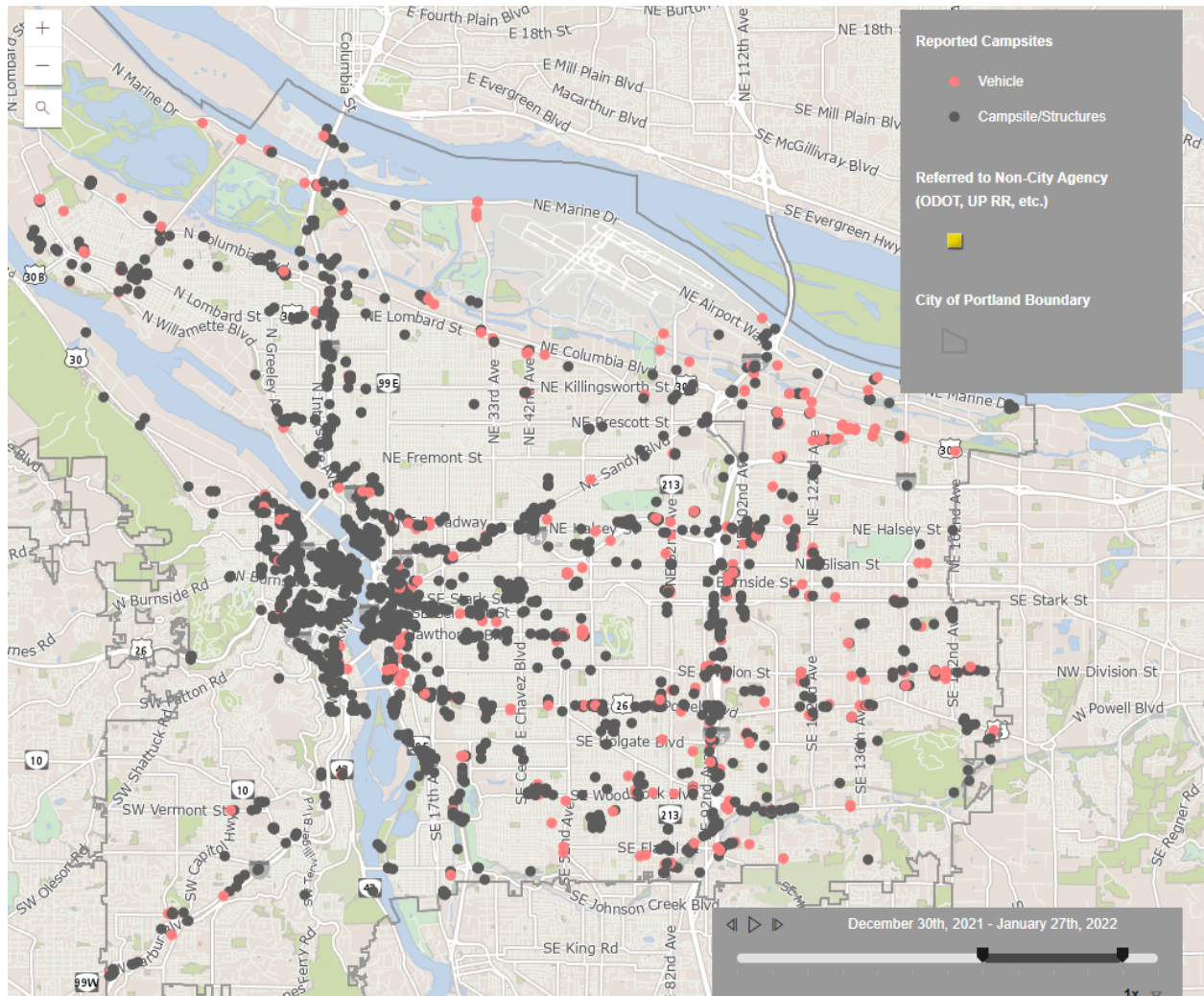
One recent shared use proposal suggested adding shower stations (each with two showers) to ten different park bathrooms across Portland, at an estimated cost of \$275,000 for construction and \$1.63 million/year for ongoing operations, maintenance, hygiene supplies, and staffing (Reichard and Tucker, 2019).

Figure 1: Emergency Hygiene Station Locations



City of Portland. <https://pdx.maps.arcgis.com/apps/webappviewer/index.html?id=3abca53221c64d6a9e35c5c8572a9696>. Accessed February 3, 2022.

Figure 2: One Point of Contact Reports for January, 2022



City of Portland. <https://pdx.maps.arcgis.com/apps/TimeAware/index.html?appid=ac6a6abf1092482190984a5df9dfac30>. Accessed February 3, 2022.

Waste Options

Trash collection programs that hired individuals with lived experience, were peer-led, offered equitable pay and benefits, and supported flexible hiring were considered highly successful by focus group and interview participants across government, service providers, and people with lived experience. A common concern in conversations with government employees and service providers was the fragmented nature of the Portland region's governmental trash collection / waste management services – one news article identified ten different agencies responsible in some way (Kavanaugh, 2021). Related challenges included difficulty coordinating between government agencies, a lack of dedicated waste management funding for government agencies dealing with large amounts of trash without a formal waste management role, and confusion by outside partners around which governmental agency to contact about different locations or issues. However, improved coordination between the City of Portland and Multnomah County in trash collection, due in part to a new hire at the county, was highlighted as a bright spot. Improved coordination, or ideally a single agency in charge of trash collection, would streamline processes and communication. See Appendix B for a complete table of options and costs for waste collection.

Trash Collection

Trash collection at encampments and illegal dumpsites across the region is performed by a range of governmental and nongovernmental groups. Metro's RID Patrol distributes and collects trash bags for people experiencing unsheltered homelessness, recently launched a paid "camp steward program" to support cleaning efforts at encampments, and also cleans illegal dumpsites (a majority of which are left by housed residents) (Metro, 2022). Several government agencies and Enhanced Service Districts (ESDs) contract with local organizations that provide trash pickup services and hire individuals with lived experience of homelessness. Metro, the Multnomah County Joint Office of Homelessness Services (JOHS), the City of Portland Office of Management and Finance (OMF), and Central Eastside Together all contract with Ground Score GLITTER. JOHS and OMF also contract with Cultivate Initiatives. The Central Eastside Together and Downtown Portland Clean & Safe ESDs contract with Central City Concern Clean Start.

A government employee interviewed for this project estimated that these contracts currently cover roughly 25-30% of the downtown core and nearby multi-use paths. Mutual aid groups—people working cooperatively to address community needs—and volunteer organizations also perform trash cleanups across the region.

Peer-led and grassroots service provider models that employed people with lived experience were highly praised by government employees, service providers, and people with lived experience in interviews and focus groups. For example, specific elements that were identified as more effective than contracting with traditional waste management companies included:

- Ground Score's engagement with part-time workers from encampments (more than 73 Ground Score workers were recruited in this way);
- More positive interactions with people experiencing unsheltered homelessness;
- Improved discernment between trash and personal belongings;
- A more thorough approach to picking up micro trash;
- Lower cost for the quality of service provided (one team at Cultivate Initiates costs about \$400,000, including some capital expenditures, and one Ground Score team costs about \$181,000).

Focus groups and interviews with government employees and service providers also surfaced concerns about the need to fund capacity building and capital expenses at grassroots organizations, and to modify current government procurement processes to provide more equitable access to contract opportunities for small organizations.

Laundry Services

The need for better access to laundry services was identified by people with lived experience of homelessness, government employees, and service providers as a critical health and waste management issue. Wet/soiled clothing makes up a significant proportion of trash collected from encampments, and laundry access would reduce the amount of clothing and bedding items that need to be discarded. Hygiene4All offers a bedding and clothing exchange to help address this need. Some people experiencing unsheltered homelessness noted in interviews that they had access to a nearby laundromat, but experienced difficulty transporting clothes and affording the service. JOIN's day center offers laundry vouchers, but has experienced some challenges retaining laundromats as partners.

Additional Receptacles

Small dumpsters have been utilized as a temporary service for some cleanups, but were noted by one interviewee as attracting waste from housed neighbors. Frequent dumping of items by housed residents near encampments was also mentioned by two interviewees. Interviewees who were currently experiencing homelessness said they worked hard to take out their waste, and suggested placement of regularly-serviced trash cans in current encampments.

Storage Options

Temporary storage locations and lockers allow people who are experiencing unsheltered homelessness the opportunity to secure important personal belongings that are often vulnerable to loss, theft, or destruction. This temporary security can in turn allow them to access human services to improve their situation without fear of losing important items like medication, identification, health records, cash, etc. Currently, there are few options of this type in Portland to temporarily and safely store personal belongings, although this was cited as an area of high need by both service providers and people experiencing unsheltered homelessness. See Appendix C for a full table of storage options and costs.

Storage Centers

In Portland, Central City Concern manages a shipping container near the Steel Bridge which can store items for 60 people, at a cost of \$120,000/year for the two attendants. A more common model is storage spaces offered at human service centers and NGOs. Like a coat check service, bins, cabinets, lockers, or designated areas are set aside and managed by staff. Time limits are often monthly or weekly. Some sites offer mail services as well. On-site storage is often very low cost or free of charge for users, and typically costs the provider about \$1/locker/day at larger scales. These centers can meet essential storage needs and offer a space to connect with services when staffed, but may be impractical for regular use of those living too far away for easy access.

Self-Service Lockers

These stand-alone, outdoor, self-service lockers are similar to lockers found at airports and railway stations for temporary luggage storage, or can be larger akin to bicycle storage lockers. Access is first-come, first-serve, with time limits that range from 12 hours to one month, enforced by staff or automatic timers that open doors. These types of storage lockers are often built with a shelter overhead and monitored with CCTV. Lockers can be managed through municipal services or NGOs. Alternatively, Sydney facilitated a DIY approach by chaining bins to a fixed location for people to self-manage. In Denver, a site with 10 lockers built at a cost of \$30,000 was discontinued due to misuse, which points to the need for attendants at storage sites.

Small Containers

Service providers and people experiencing homelessness both suggested distributing small, lockable, waterproof storage containers to encampments. These would help protect personal documents and important items, keep belongings dry, and reduce clutter.

Combined Services

Several participants interviewed for this project, including both service providers and government employees, suggested creating more centers that offer showers, toilets, storage, and laundry at the same location. This aligns with preferences of people experiencing unsheltered homelessness from interviews conducted for this project, previous PSU surveys (Hawash et al., 2016), findings from other PSU research projects (Mercurio and Petteni, 2019), and best practices from other research (Auerswald et al., 2020). Additional suggestions from focus groups, interviews, and research are to hire people with lived experience of homelessness and host outreach workers and connections to other services. One operator of a hygiene center said that people typically come from no more than a 20-block radius, and people experiencing unsheltered homelessness said they could travel ½ mile at the shortest (about 10 blocks) or up to over a mile (roughly 20 blocks). If a number of additional centers were sited, they should be placed as close as possible, but ideally no more than two miles apart. Centers offering these types of combined services can take a number of forms.

Day Centers

Day centers are typically characterized as providing safe places to be and rest during the day, with services like mail delivery and secure storage space. While they typically contain hygiene facilities like showers, bathrooms, and sinks, this takes up a smaller portion of the facility's overall square footage than centers dedicated to meeting hygiene needs. Some day centers include laundry machines or provide laundromat tokens, serving an important component of overall personal health and hygiene. Examples in Portland include The Resource Center managed by Transition Projects at Bud Clark Commons and "The House" managed by JOIN.

Urban Rest Stops

While day centers aim to provide a safe place to spend time, urban rest stops/areas dedicate their space and services to amenities for self-care, including bathrooms, showers, laundry, and first aid. Seattle's three urban rest stops spread across the city's downtown provide these services in addition to distributing toiletry kits and clothes. These rest stops occupy the first floors of mixed-use buildings and are fully integrated into the urban fabric. As a building typology, they resemble laundromats from the street, while providing private bathroom and shower spaces deeper within the building. Portland's Hygiene4All provides an outdoor model with similar services.

Village Facilities

The common buildings at Portland's POD villages offer a localized example of how combined services within a freestanding facility might be developed for use among people experiencing unsheltered homelessness. These buildings are prefabricated, which offers several key advantages including a shortened construction period, less significant foundations than traditional buildings, state permits that allow them to be moved and re-sited as needed, and the ability to be reproduced quickly. The common building at the Kenton Women's Village is made from two or more 40' shipping containers and hosts two full bathrooms, one half bath, a laundry room, kitchen, and gathering area. Shipping containers were utilized to reduce the size of foundation pads and to allow the building to sit closer to the ground than wood frame construction, reducing challenges to accessibility. The common building at the St. Johns Village uses wood-framed modular construction and a strategy of distributing its three toilets and three showers into discrete rooms, while placing a bank of sinks in the hallway in the interest of reducing wait time for any given amenity. While the village building typology would need to be adapted to serve people experiencing unsheltered homelessness and would benefit from the inclusion of additional elements like outdoor sinks, storage, and covered outdoor space, it could provide an informed starting point for a free-standing facility of combined services in Portland.

“Most of our work is the interpersonal work. Running the hub is the easy part.” – Hygiene center manager

Conclusion

Until people experiencing unsheltered homelessness are offered safe, quality, permanent housing, interim hygiene, waste, and storage services are required to meet their needs. During the COVID-19 pandemic, hygiene services in particular were greatly expanded across the Portland area, but are still insufficient to fulfill current needs. Hygiene, waste, and storage are related issues, and both existing research and project interviews highlighted the importance of addressing them in concert. More hygiene stations or day centers are needed that offer bathrooms, showers, laundry, first aid, service connections, and storage. For outlying areas, or locations with a lower concentration of need, mobile and ad hoc solutions such as shower/bathroom trucks, partnerships with local nonprofits and businesses, or emergency hygiene stations may be most effective. Regular trash pickup services like those provided for housed residents are needed throughout the region for people experiencing unsheltered homelessness.

Successful models already exist for most of these approaches, including many in Portland. Services that hire people with lived experience, center equity in their approaches, and offer living wages and benefits were emphasized across research and interviews as especially effective. Outdoor hygiene stations, such as Hygiene4All or common facilities created for POD villages, offer a possible model for replication, while day centers such as those in Seattle or operated by JOIN and Transition Projects demonstrate the potential for indoor facilities. Solutions should be designed to center racial equity, address the needs of highly vulnerable groups first, provide flexibility in future usage types or locations, and potentially satisfy the needs of housed neighbors and visitors, as with ADA-accessible Portland Loos or hygiene stations that can be moved or reconfigured. Cleanliness, reliability, and accessibility of solutions are key.

Government approaches to service provision may have to change to implement these options at scale. Service fragmentation between different government entities creates challenges in coordination, delivery, and funding. Smaller and peer-led groups deliver some of the most successful programs, but face difficulty in navigating complex procurement and contracting systems and may need capacity building support. Ultimately, better service provision and coordination in these areas holds the potential to reduce health system burdens, alleviate environmental impacts, benefit local businesses, and – most importantly – ensure the health and dignity of people experiencing unsheltered homelessness.

Appendices

Appendix A: Hygiene and Sanitation Options

Service Type	Information from:			Provided in Portland?			Example Providers	Build Cost	Maintenance Cost	Cost Notes
	Report / News / Website	External Research Article	HRAC Paper / Interview	Yes, by gov.	Yes, by NGO	No				
Handwashing station - WRAP model	x			x	x		Bonneville Environmental Foundation, Western Regional Advocacy Project	\$60		Cost not including 2 hours of installation labor, 2 hours of maintenance labor/week.
Handwashing station - Seattle model	x			x	x		Bonneville Environmental Foundation, Friends of the Trees	\$300	N/A	Materials only, not including 3 hours of installation. Low maintenance.
Shared use of existing setting - bathroom & handwashing	x		x	x	x		Bonneville Environmental Foundation, Social Justice Action Center	N/A	\$45,000 / year	Labor and supplies.
Shared use of existing setting - park bathroom & shower stations	x		x			x	N/A	\$275,000	\$1.63 million / year	Operations, maintenance, and labor for 10 hygiene stations.
Urban rest stop			x			x	N/A		\$200,000 - \$300,000 / year for operations	
Urban rest stop - ReFresh Spot LA	x					x	Homeless Health Care Los Angeles		\$2 million/year	Rough annual estimate from operating budget request.
Urban rest stop - Hygiene4All	x		x		x		Hygiene4All		\$300,000/year	Not including ED salary.

Hygiene, Storage, and Waste Management for the Unsheltered Community

Day center - The Resource Center at Bud Clark Commons			x		x		Transition Projects			
Day center - JOIN			x		x		JOIN			
Day center - vehicular homelessness	x					x	Candlestick Point Vehicle Triage Center (City of San Francisco)	Temporary facility	\$2 Million first year, \$4 million second year	
Shower truck - Harbor of Hope	x					x	Harbor of Hope	\$400,000	\$300,000/year	
Shower and toilet truck - LavaMae			x			x	LavaMae	\$75,000 for trailer; \$150,000 for bus		Trailer purchase cost, bus refurbishment cost
Mobile RV pumpout			x	x			Bureau of Environmental Services		\$283,000/year	Mobile RV pumpout contract
Emergency Hygiene Stations	x		x	x	x		City of Portland		\$420,000/year	Port-a-potties and handwashing stations.
Portland Loo	x				x	x	City of Portland	\$200,000	\$15,000/year	Construction costs include build and placement
Hygiene supplies - volunteers / mutual aid	x		x			x	Portland People's Outreach Project, People's Housing Project, Period			

Appendix B: Waste Management Options

Service Type	Information from:			Provided in Portland?			Example Providers	Build Cost	Maintenance Cost	Cost Notes
	Report / News / Website	External Research Article	HRAC Paper / Interview	Yes, by gov.	Yes, by NGO	No				
Illegal dumpsite cleaning, public property	x		x	x			Metro Regional Illegal Dumping (RID) Patrol		\$3.6 million / year	Expanded FY21-22 budget for expanded RID Workforce Transition Program
Illegal dumpsite cleaning, private property	x			x			City of Portland - Bureau of Development Services			
Street / encampment cleaning - GLITTER			x	x	x		Ground Score Leading Inclusively Together Through Environmental Recovery		\$181,000/year	One team.
Street / encampment cleaning - Cultivate Initiatives			x	x	x		Cultivate Initiatives		\$400,000/year	One team, includes capital expenditures.
Street / encampment cleaning - CCC Clean Start	x		x	x	x		Central City Concern Clean Start			
Street / encampment cleaning - volunteers / mutual aid	x		x		x		Neighbors Helping Neighbors PDX (Peninsula Odd Fellows), People's Housing Project, SOLVE		N/A	Neighbors volunteering time and materials to help local camps clean.

Appendix C: Storage Options

Service Type	Information from:			Provided in Portland?			Example Providers	Build Cost	Maintenance Cost	Cost Notes
	Report / News / Website	External Research Article	HRAC Paper / Interview	Yes, by gov.	Yes, by NGO	No				
Storage center - Think Dignity, San Diego			x			x	Think Dignity Transitional Storage Center, San Diego		\$157,000 / year	Operational costs for 400 bins and lockers. Maintenance costs ~\$1 per locker per day.
Day storage - Central City Concern	x			x			Central City Concern	\$50,000	\$120,000 / year	Two attendants from Central City Concern. Space for 60 people to store goods.
Day storage, unmonitored - City of Denver	x					x	City of Denver	\$30,000		10 lockers. Ended in 2018 due to misuse of lockers.
Mobile storage - Legacy Initiative, Salt Lake City	x					x	Legacy Initiative - Helping Other People Evolve (HOPE), Salt Lake City	\$9,000		Materials only.
Storage network - Chicago Youth Storage Initiative	x					x	Chicago Youth Storage Initiative (multi-agency program)		Phase 1 (\$71,000), Phase 2 (\$124,000)	Phase 1: locker stations partnership; Phase 2: project manager, expansion, cloud storage.
Storage center - Salvos 614, Australia	x					x	Salvos 614	\$46,000		Converted to USD. 150 plastic storage tubs, 171 mailboxes located in secured room.
24/7 outdoor lockers, self-service - Bunbury, Australia	x					x	City of Bunbury	\$14,000		Converted to USD. Cost of CCTV and cleaning are separate part of city budget.
24/7 outdoor lockers, self-service - Headspace, Australia	x					x	Headspace		\$2,500	Converted to USD. Three lockers. Ongoing staffing and cleaning costs.

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PSU-HRAC addresses the challenges of homelessness through research that uncovers conditions that lead to and perpetuate homelessness. Our goal is to help reduce homelessness and its negative impacts on individuals, families and communities, with an emphasis on communities of color.

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