



TAKING OUT THE

TRASH

Reimagining Pittsburgh's Alleyways

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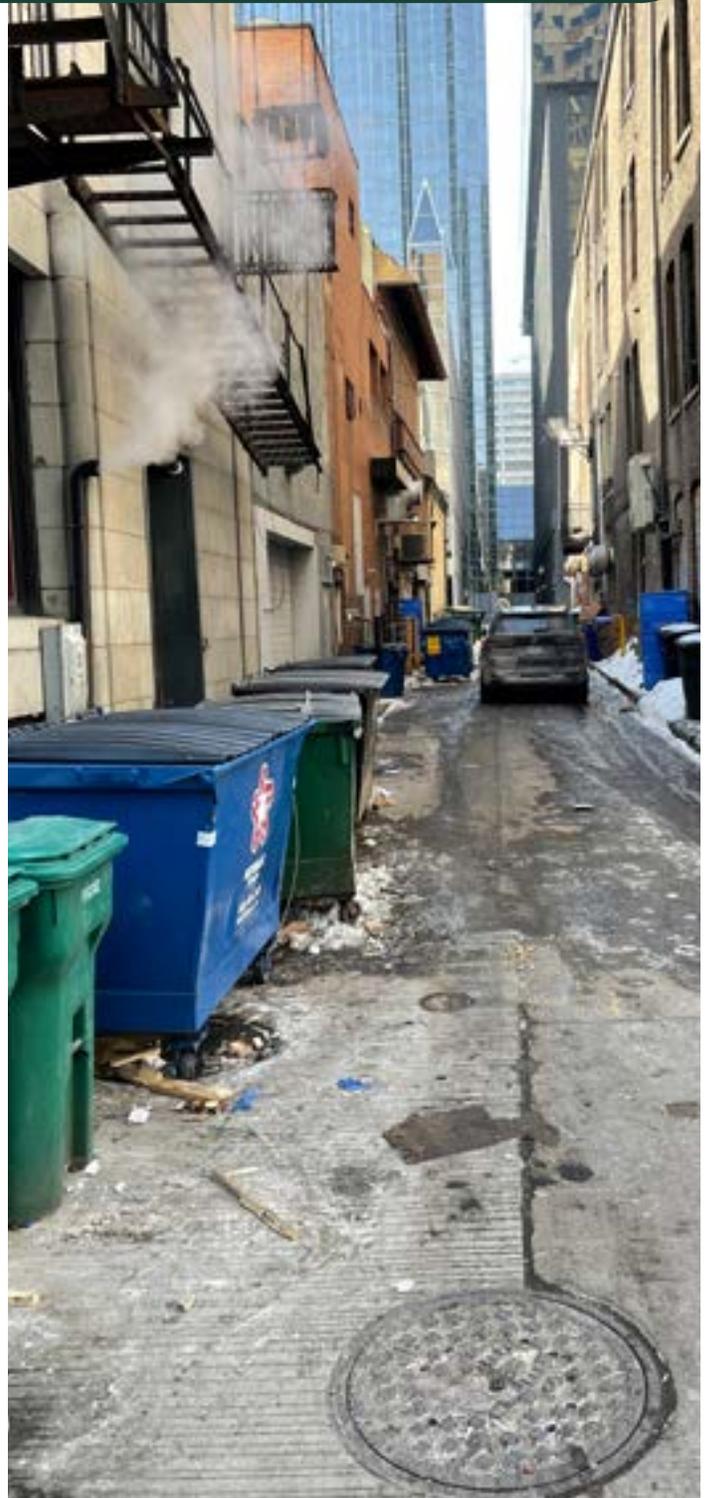
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ABOUT THE PROJECT



This research was initiated by the Pittsburgh Downtown Neighbors Alliance (DNA) to study the opportunities for reimagining alleyways in Downtown Pittsburgh, Pennsylvania. The Downtown Neighbors Alliance is a 501 (c)(3) nonprofit, community-based organization that serves Downtown Pittsburgh. The organization partners with Councilman R. Daniel Lavelle, Mayor Ed Gainey, and supportive community leaders through innovative programs and events that encourage residential development, assists small businesses, and promotes the arts and entertainment. They strive to make the Golden Triangle a better place to live, work, and play.

Point Park University Community Engagement faculty and students have prepared this report including primary and secondary research, best practice identification, and recommendations for waste management in alleyways in Downtown Pittsburgh to support economic development, public safety, and public health.

The report is primarily focused on alleyway waste management issues and recommendations.

The Pittsburgh Downtown Partnership (PDP) is already engaged in a comprehensive alley plan including the cleaning of five identified alleyways. The PDP asked for additional resources and recommendations on creative approaches to trash management and long-term sustainability of alley renovations.

This effort is led by Dr. Heather Starr Fiedler and doctoral candidate Kelly J. Wilding. Funding was provided by Stephen A. Zappala Jr., District Attorney of Allegheny County. Report design by Bri Farrand, Graphic Designer + Creative Strategist, Point Park '20.

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EXECUTIVE SUMMARY

Point Park University, with its urban campus in Pittsburgh, PA, strives to contribute to the well-being of the community, especially its neighborhood, Downtown Pittsburgh's Central Business District. Together with support from the Pittsburgh Downtown Neighborhood Alliance (DNA), the Pittsburgh Downtown Partnership (PDP), and the City of Pittsburgh, researchers from the Department of Community Engagement & Leadership at Point Park have engaged in this study of public alleyways in Downtown Pittsburgh.

The purpose of this study is to understand the need, demand, costs, barriers, and feasibility of reimagining alleyways in Pittsburgh's Central Business District. Key factors, such as the root causes of alleyway misuse, waste management options, and art and greenspace installations were considered by interviewing primary stakeholders at the Department of Public Works, the PDP, the DNA, the Building Owners and Managers Association (BOMA) and community members. Additionally, the researchers reviewed existing research and best practices from other U.S. cities.

Downtown Pittsburgh is home to many events, festivals, biking trails, art exhibits, and more, but not everyone is comfortable in Downtown Pittsburgh, especially in and around alleyways. Some alleyways smell of stale urine and excrement, while others are overflowing with garbage. Alleys can become home to art projects, outdoor seating, and other creative concepts if kept clean and safe. Cities around the world are proving that redesigned alleyways can turn them from unsafe and unwelcoming spaces into areas that support a more positive space to live, work, and play.

The PDP has recently engaged in the renovation of several alleyways in Downtown Pittsburgh. While the PDP's team has a comprehensive plan for cleaning and beautifying the alleys, the need for long-term waste management solutions was identified as a barrier. Therefore, this study will primarily focus on the problem of alleyway waste.

Reimagining Pittsburgh's alleyways with sustainable solutions will add value to the community and its stakeholders in a number of ways. The City of Pittsburgh should consider reimagining its alleys as vibrant, inviting, and functional spaces. Historically overlooked and underutilized, alleys have the potential to significantly enhance urban landscapes, improve livability, and promote sustainable urban development. In many cities, and Pittsburgh is no exception, alleyways have reputations as dirty, smelly, and unsafe places. By transforming alleys into multifunctional spaces, Pittsburgh can create new opportunities for community engagement, economic growth, and environmental sustainability.

This study concludes with 18 recommendations across four categories:

- Safety & Preventing Alleyway Misuse
- Waste Management Solutions
- Beautification Efforts
- Sustainable Maintenance



INTRODUCTION

PURPOSE OF STUDY

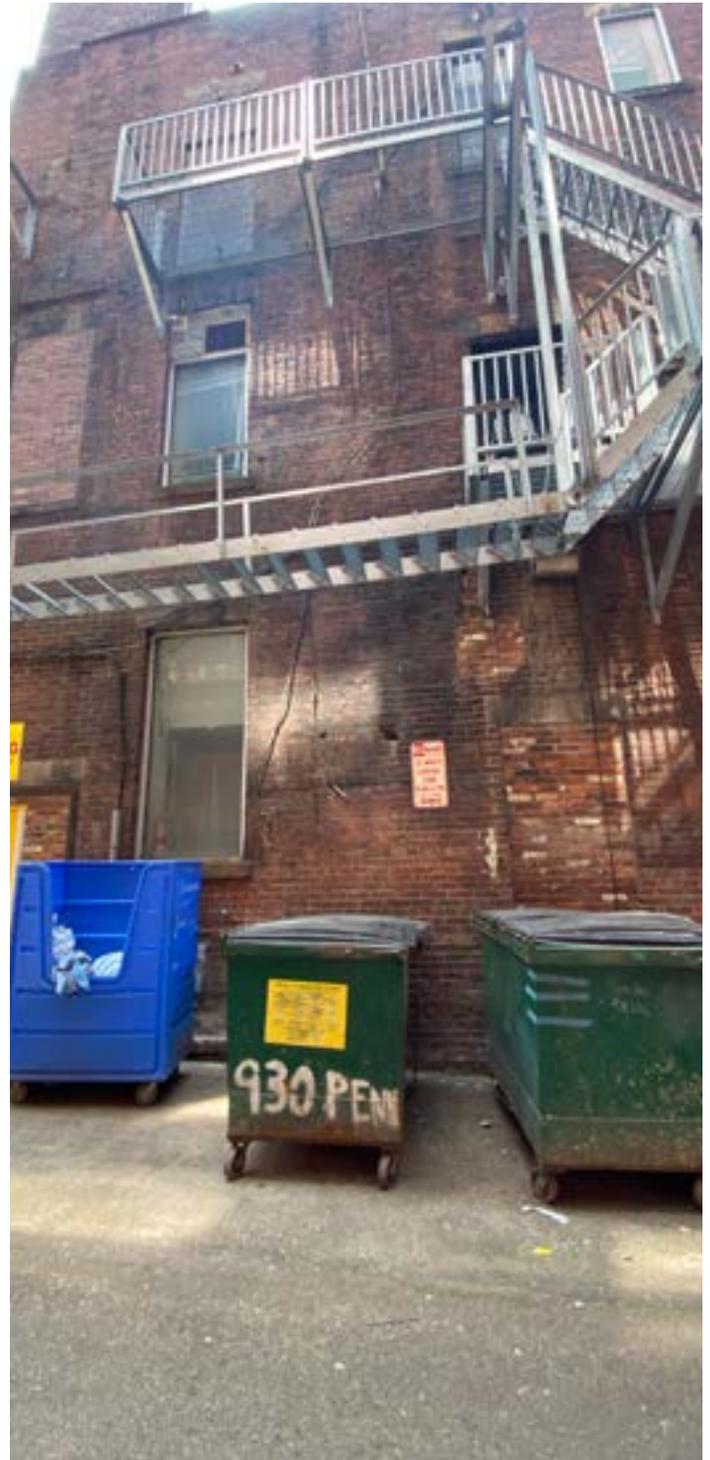
The purpose of this study is to understand the need, demand, options, and feasibility of renovating alleyways in Downtown Pittsburgh. In cities around the country including San Diego, Chicago, and Baltimore, civic and government organizations are focusing on the opportunity that clean and safe alleyways can provide places of art and community conversation. For this report, an alley or alleyway is a narrow lane for pedestrians or service that runs between or behind buildings.

Alleys used to be planned with the intent primarily for trash access, deliveries, electrical, plumbing, and mechanical services, fire engines, and for parking. These roadways are often public amenities developed for a purely functional approach and many have turned into dark, dangerous areas replete with trash, human feces, and rodents. Many have untapped potential to provide an opportunity to influence their community to be dynamic, vibrant, and inspiring.

This study aims to identify alleys in Downtown Pittsburgh in need of improvement, provide best practices nationally, provide feedback from stakeholders, and make recommendations for alley improvements, especially concerning trash collection and maintenance.

Alleys can become home to art projects, outdoor seating, and other creative concepts. Cities around the world are proving that redesigned alleyways can turn them from unsafe and unwelcoming spaces into areas that support a more positive space to live, work, and play.

A result of this report will be recommendations for alleyway improvements, specifically waste maintenance.



BACKGROUND

IMPORTANCE OF ALLEYWAYS

Alleyways are often neglected spaces filled with trash, rodents, and unpleasant smells. They can signal danger for many people, especially women, particularly at night. Reimagined and renovated alleyways can bring numerous benefits to a city and its inhabitants. They can enhance the city's aesthetic appeal and make it more attractive to visitors, residents, business owners, and the many people who work there. This transformation can lead to increased tourism, which in turn can boost the local economy. By reimagining alleyways into safe, vibrant, and inviting spaces, a city can create a unique identity and build a sense of pride among its residents.

Cleaner and safer alleyways can also foster a sense of community and social connection. By transforming neglected alleyways, cities can encourage residents and businesses to come together and interact with one another. This can create a sense of belonging and help build stronger, more resilient communities. Additionally, by involving residents and business owners in the process of reimagining, cities can encourage civic engagement and give residents and business owners a sense of ownership over their neighborhoods.

These rehabilitated alleyways can create more usable space in the city. Cities are often dense and space is at a premium, so it makes sense to utilize every inch of available land. By transforming alleyways into public spaces, such as parks or community gardens, cities can create more green space and provide residents with additional areas to relax and enjoy the outdoors. This can have positive effects on both physical and mental health, as access to green space has been shown to reduce stress and improve overall well-being.

Alleyways can bring a wide range of benefits to cities and their residents, making it an important consideration for urban planners and policymakers.

DOWNTOWN PITTSBURGH SAFETY

There is a link between cleanliness or aesthetics and crime in an urban setting. Clean alleyways that appear to be well-maintained and visually pleasing are less inviting to criminals.

First proposed by social scientists James Q. Wilson and George Kelling in 1982, the Broken Windows Theory suggests that visible signs of disorder, such as broken windows, graffiti, litter, and abandoned buildings, can lead to increased crime and antisocial behavior in a neighborhood. This criminological theory proposes that when small signs of disorder and neglect are left unaddressed in a neighborhood, it creates an environment that is conducive to criminal behavior. For example, if a building has broken windows and is left abandoned, it sends a message that the area is uncared for and that criminal activity may go unnoticed. This can lead to an increase in more serious crimes like burglary, theft, and vandalism.

The Broken Windows Theory (Wilson & Kelling, 1982) proposes that by addressing small signs of disorder and neglect, such as repairing broken windows and removing litter and graffiti, it is possible to prevent more serious crimes from occurring. This is because when a neighborhood is clean, well-maintained, and free of visible signs of disorder, it sends a message that the community is cared for and that criminal activity will not be tolerated.

Clean alleyways reduce the risk of accidents, crime, and other safety hazards. When alleys are clean and well-lit, people feel safer walking through them. This can discourage criminal activity and make the area less attractive to would-be criminals.

The City of Pittsburgh [website](#) tracking violence reports that only two of the city's 61 homicides in 2022 occurred in the Golden Triangle neighborhood, the downtown and central business districts. That's less than 2%.

35% of the overall violent crimes in the Golden Triangle neighborhood (downtown Pittsburgh) documented between 2010 and December 2022 occur in the evening between 5 and 11 p.m.; 28% between 11 a.m. and 5 p.m.; 25% between 11 p.m. and 5 a.m.; and 12% between 5 and 11 a.m. Violent crimes are considered to be robbery (63%), assault (31%), rape (5%), and criminal homicide (1%).

BACKGROUND

As recently as May of 2023 shots were fired in [Delray Street](#), an alley abutting Market Square. The gunshots were reported in the afternoon, which is typically a high pedestrian traffic time for Market Square. Several businesses and a school were put on lockdown. No arrests were made.

In December of 2022, 50-year-old Christopher Gaylor died after being found in Coffee Way, an alley near Sixth Avenue. Originally thought to be an overdose, medical tests showed metal shrapnel from a BB gun in his body. Police said they also received video evidence of an assault with a BB gun on the victim. The investigation is still ongoing.

Many types of crime in Downtown Pittsburgh (the Golden Triangle) have been increasing since the 2020 Coronavirus pandemic. During the pandemic, employees working downtown began working from home, and many have not returned. The pandemic also increased Downtown's unhoused population due to the concentration of resources, aid organizations, and institutions in the central business district. And while most abide by the law, some crime rates in the Golden Triangle have been rising, leading to an increase in police presence and a new Zone 2 police substation on Liberty Avenue. Pittsburgh Police say offenders generally fall into three categories: the homeless, the addicted, and the mentally ill. Alleys are often a gathering spot for these individuals.



GOLDEN TRIANGLE REPORTED [CRIMES 2019- 2022](#)

Type of Crime	Golden Triangle Neighborhood 2019	Golden Triangle Neighborhood 2020	Golden Triangle Neighborhood 2021	Golden Triangle Neighborhood 2022
Assault	47	40	47	67
Burglary (property)	40	72	27	47
Criminal Homicide	3	0	1	2
Disorderly Conduct	80	69	57	64
Drug Abuse Violations	80	56	16	16
Larceny (property)	609	383	370	502
Public Drunkenness	140	121	78	68
Rape	9	6	5	7
Robbery	78	58	52	67
Vagrancy	0	0	0	0
Vandalism	97	115	74	108
Weapons (carrying and possession)	11	14	9	10

ALLEYWAYS AND HEALTH IMPACTS

Clean alleyways improve public health by reducing the risk of disease transmission. When alleys are clean and free of debris and litter, there are fewer places for pests and vermin to hide and breed. This can help prevent the spread of disease and reduce the risk of infestations.

In a 2010 study of alleyways in Los Angeles, the researchers found that “redesigning alleys could deliver ecosystem services, improve watershed health, improve local quality of life and health status for residents, and help the city transition to a more sustainable urban design and pattern of use” (Wolch, Newell, Seymour, Huang, Reynolds & Mapes, 2010).

ENVIRONMENTAL IMPACTS OF ALLEYWAYS

Clean alleyways reduce the amount of pollution in a city. When alleys are clean, there is less litter and debris that can end up in the air or waterways. This can have a positive impact on the environment and contribute to a more sustainable city.

“Alleys represent unrealized community assets that could be transformed by urban planners and managers into ‘green infrastructure’ to simultaneously offer multiple ecological, economic, and social benefits including urban walkability and mobility, play space and green cover, biodiversity conservation, and urban runoff infiltration and thereby to contribute to a more sustainable urbanism,” (Wolch, Newell, Seymour, Huang, Reynolds & Mapes, 2010).

CURRENT STATE OF GOLDEN TRIANGLE ALLEYWAYS

As part of this study, researchers met with the Pittsburgh Downtown Partnership (PDP) to discuss their current alleyway renovation plans and what barriers exist in the work. The PDP is currently engaged with an alleyway renewal project aimed at five local alleyways:

- Coffee Way
- Delray Street
- Exchange Way
- McCrea Way
- Mentor Way

The PDP’s alley renovation plans include a multi-step approach beginning with cleaning the identified alleyways, and eventually including artwork projects. The barriers identified by the PDP focused on trash maintenance. This study, and eventual recommendations, will focus on this aspect of alley renovations.



(Pittsburgh Downtown Partnership) identified alley projects 2023

PRIMARY RESEARCH

Research for this study consisted of both primary and secondary research. Primary research included several walking tours of Pittsburgh's Downtown alleyways, interviews with key stakeholders, and intercept (person-on-the-street) interviews with 50 individuals (residents, downtown employees, visitors, or tourists). They were asked about the condition of Pittsburgh alleys, if they would walk through alleys (why or why not), and what they would do to improve alleyways. The results of these observations and interviews follow.

ALLEY OBSERVATIONS

In February 2022, researchers first walked several of the identified alleys and took notes/photographs. While some alleys in the city were clean and free of debris, others (including those identified) were dark, dirty, and full of trash, urine and feces, and likely rodents. Another walking tour in April 2023 noted the same observations.

In May of 2023, researchers walked the Golden Triangle once again, mapping each major alley. The Point Park University researchers rated the cleanliness of the alleys and took notes on conditions and activities.

The May 2023 walking tour yielded a much different result than the tours of April 2023 and February 2022 (see before/after image of Delray Street). Many of the alleys were much cleaner than previously found. This is a direct result of the PDP alley improvement plan.



Delray Street during a Renewal, Inc. cleaning. The yellow bags are full of trash collected by Renewal workers.



Coffee Way after a Renewal, Inc., cleaning.

Beginning in April 2023, the PDP hired [Renewal, Inc.](#) to clean alleyways and sidewalks in Downtown Pittsburgh. There are four full-time employees and one supervisor dedicated to cleanup five days each week.

During the May 2023 walking tour, researchers had conversations with four employees from different businesses abutting alleys. Two of these employees noted the alleys were "way worse" before Renewal came through cleaning up the garbage and power washing the alleys.

PRIMARY RESEARCH—SURVEY RESULTS

People who live, work, and play downtown are some of its major stakeholders. Researchers interviewed 50 people about how they viewed Pittsburgh alleyways and what improvements they thought were needed.

During intercept interviews, 50 people were asked about the condition of alleys, whether they felt safe, and what they would recommend to improve alleys. The biggest issue raised by respondents was safety (76%), followed closely by cleanliness (72%).

Delray Street, which lies near Market Square, was the site of many interviews. Respondents, most walking through Market Square past the entrance of Delray Street, said they would not go through that alley based on the amount of trash, the number of dumpsters, people hanging out in the alley, and the smell. The results of the survey fell into two broad themes: **Safety and Cleanliness**.

Safety was the biggest issue for 76% of people interviewed.

12% said the lighting is bad at night and that even in the daytime many of the alleys appear “dark,” “dingy,” and “sketchy.” Another safety concern is people hanging out in alleyways. 24% referenced the homeless population living or hanging out; 14% said groups of teenagers hung out in the alleys; another 14% said “other people” hanging out; and 12% thought drug dealers were a problem.



Sign posted in Coffee Way

Of the 50 people interviewed, **72% said cleanliness was an issue** in Pittsburgh alleyways; 56% cited trash, 24% said the smell was an issue, and 16% said that people urinating and defecating in the alleyways contributed to uncleanliness.

Several people said part of the problem with people using alleys as a bathroom is because there are no public restrooms in the Golden Triangle.

Only 6% of people interviewed said they had no issue with Pittsburgh alleyways.

The cleanliness of the alleys was a major issue for people surveyed. “The whole city needs to be cleaned up not just alleys. I feel safe in most places but was pepper sprayed by teenagers near an alleyway,” said one downtown employee.

“Garbage is the biggest problem. The city needs to hire a team to clean up alleys on a regular basis. Animals get into it and spread the garbage everywhere. It overflows from dumpsters onto the ground. They also need restrooms downtown so people aren’t going to the bathroom in the alleys. Pay stalls would be ok,” said one downtown resident.

Looking into Delray Street, an alleyway in Market Square, one respondent who works and lives downtown said, “I won’t go through alleys. The alleys are filthy, have homeless people, and criminals. Best to avoid. The City needs to make an effort to get rid of the trash, clean up spray paint, and definitely work on the homeless situation.”

Another employee said they never go down alleys because they are “filled with dumpsters and trash. They are dark and dingy. Could use some murals, lights, and a good cleaning.” This was also at the entrance to Delray Street, which had recently been cleaned by Renewal, Inc.

People who work downtown and access the alleys and dumpsters regularly noticed a difference since Renewal began its work. “The alleys are getting better. They used to be much worse but Renewal has been cleaning up and power washing. People are using the alleys as a bathroom and it is a real problem. Some guy whipped it out in front of people and even kids to pee by Chipotle. Cleaning up the trash and installing lights and public bathrooms downtown is what needs to happen,” said a respondent who works for the City of Pittsburgh.

"People pee and poop in the alley. People dump their garbage here. There are needles. High school kids hang out after school in the alleys," said one employee who takes out the garbage and smokes while on break in the alleyway. "The cleaning hasn't come through this alley yet as you can see, but that business put a gate around the back over there and it has kept people from going to the bathroom back there." Safety was also an issue for people. "They (alleys) are so dirty. I'd never walk through them at night," said one woman who works downtown. Another downtown worker said he would never go through an alleyway because "I am not from this country and they don't look safe."

"I would never go through alleys because you don't know what is down there," said one employee. "I have my daughter with me to take to daycare and I wouldn't risk it."

A tourist said he had no problem with the alleys he had seen and that compared to the streets in New York City, they looked okay.

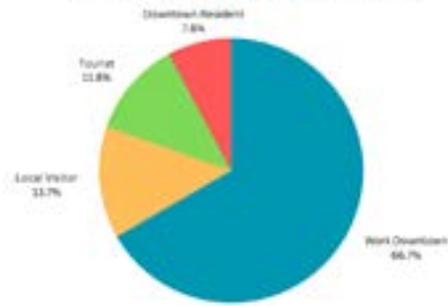
PRIMARY RESEARCH—INTERVIEWS

In addition to on-the-street surveys given to residents, employees, and visitors, researchers interviewed several stakeholders including executives from the Downtown Neighbors Alliance (DNA), [Pittsburgh Downtown Partnership](#) (PDP), Building Owners & Managers Association (BOMA), and the City of Pittsburgh. Several themes emerged from these interviews including cleanliness, effectively working with the unhoused population, sustainability, the need for public restrooms downtown, and beautification.

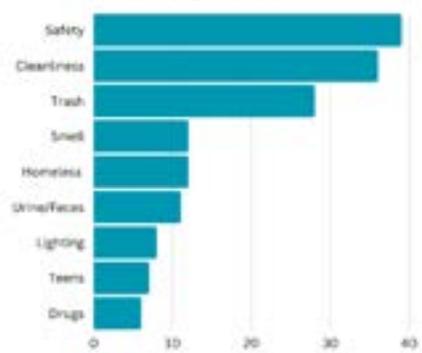
Bruce Chan, Senior Director of Urban Design of the Pittsburgh Downtown Partnership (PDP) often rides his bike to work giving him a transportation perspective of the city's alleys. Garbage is an issue but so is the condition of the alleys, some of which are very old. When reimagining alleys, Chan said some of the other issues to consider are

- hydraulics (For example, Mentor Way has drainage issues.)
- emergency vehicle access
- street crossings
- accessibility
- road composition
- underground utilities

SURVEY RESPONDENTS



ALLEY CONCERNS



"Pittsburgh alleys are a mess," said Lynette Stevens Smyth, Executive Director of the Building Owners & Managers Association ([BOMA](#)). "They are not well-lit and because there are no public restrooms downtown people are using the alleys as their bathroom." Smyth said that while BOMA members understand the challenging topography of some of the alleys (brick roadways, narrow, no pedestrian walkways, etc) is because they were built a long time ago, they also know that alleys can be a building or business' lifeline and they need to be updated to reflect modern needs. BOMA members have noted that emergency vehicles, vendors, and waste management vehicles sometimes have trouble getting into and through alleyways.

John Valentine, Executive Director of Downtown Neighbors Alliance ([DNA](#)) believes that the City needs to consider permanent solutions to alleyways rather than quick fixes or temporary solutions, such as art installations. "We can't fix an alley with something that temporarily looks good and then goes back to the way it was as soon as the funding runs out."

Tourism is important to many downtown stakeholders and Valentine feels strongly that everyone needs to come to the table with ideas and work out a long-term plan to make alleys clean, safe, and inviting places.

Chris Hornstein, Director of Public Works in the City of Pittsburgh agrees that the alleys need work. The challenge to keeping them clean isn't just about one issue. Pittsburgh alleys are old, narrow, and often obstructed. Even the City's street-sweeping machines can't get through. The unhoused population in Downtown is also a contributing factor to the condition and care of the alleys. Some property owners, residents, and business owners also need to better manage their space, including trash.

Hornstein said the City and its downtown partners are working together to make these historically service spaces (alleys) more friendly to the public. They are addressing the need for public restrooms. Public Works crews are supporting the cleanup efforts by Renewal and the PDP. Public Works also partners with the police and Allegheny County to look for solutions for the increase in unhoused persons downtown.

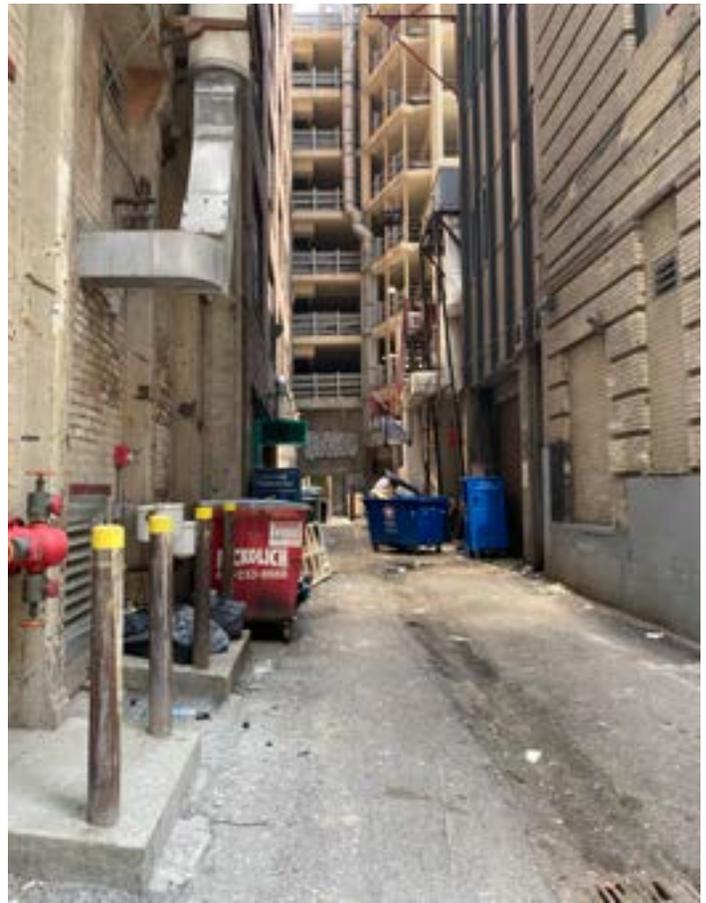
Currently, the City is looking to add new codes around dumpster management and augmenting a team within its [Bureau of Environmental Services](#) to enforce any new and existing ordinances related to trash. This includes a new code that could require businesses to lock their dumpsters.

TRASH MANAGEMENT

The researchers observed dumpsters from six different trash collection companies. Dumpsters from each company were in varying states of clean with lids closed, overcapacity, or overflowing with trash on the ground around it. Interviewees stated different days, times, and frequencies for trash pickup depending on the company. These companies include

- Vogel
- Big's
- Fayette Waste
- Republic
- Waste Management
- Brunner

Despite clearly marked signs, dumpsters were placed underneath fire escapes and cars were parked illegally.



While conducting interviews around 9 a.m. at the intersection of Delray Street and Forbes Avenue, researchers observed a man walk into the alley and urinate between two dumpsters. At lunchtime, researchers saw another man urinate in Tito Way.

A public dumping problem was a common theme among participants. Several interviewees commented on people throwing items in private company dumpsters illegally. During one interview, a restaurant employee discovered a bag of trash from an unknown person in a recycling dumpster that he had just emptied shortly before. He moved it to the correct dumpster and stated that it happens "all the time." Dumpsters that had locks on them were often cleaner than those that were unlocked and open to the public.

CITY OF PITTSBURGH WASTE MANAGEMENT CODES

When asking multiple stakeholders about ordinances around waste and, in particular, dumpster management, no one knew exactly what those codes were. The Chapter 619 code which addresses waste and recycling can be found on the Environmental Services home page on the City's website.

For example, "All persons not serviced by the City shall store municipal waste and recyclables separately in durable, watertight containers with close-fitting lids," is language seemingly addressing dumpsters. It is not clear if dumpster lids that are open are in violation of Chapter 619 and could be subject to fines. "Such containers are subject to Pittsburgh Zoning Code 916.04 (B). Dumpsters and Containers shall be located a minimum of thirty (30') feet from any property zoned R1D, R1A, R2, R3, RM, or H."

For commercial, institutional, or publicly-managed establishments not adhering to the City of Pittsburgh Municipal Waste and Recycling Codes, the City will fine the establishment \$1,000 on the first violation and \$1,000 each they are in violation with a maximum fine of \$5,000.

These fines are higher than San Francisco, CA where the penalties are a maximum of \$1,000.

PREVIOUS ALLEY RENOVATIONS

Two alleyway reimaginings were well-documented in the media and touted as a big win for the City. In 2016, the PDP worked with other organizations and a local artist to produce a temporary mural on [Strawberry Way](#), a major pedestrian thoroughfare to highlight its use and enhance its aesthetics. There are no dumpsters in this section of Strawberry Way and it is a clean alley. The mural project, which was refreshed in 2022, included closing off the alley to vehicular traffic, which continues to today.

From 2018-2019, the lights that adorned the Rachel Carson Bridge as a public art installation were repurposed by the artist in the [Garrison Place](#) alley. The piece turned Garrison Place into Garrison Canal, an imaginary underwater future world of big data that creates a visual for visitors to seemingly "swim" below waves of thousands of shimmering lights. The lights transformed color and are animated in response to real-time changes in local weather conditions.

Many other alley renovations such as those currently in the Cultural District of Pittsburgh were/are temporary art exhibits, but not permanent installations. These lights brought a renewed focus on keeping this alleyway clean and safe and serving as a community space.



Alley Renovations on Cherry Way.

BENCHMARKING

OTHER CITIES

Cities around the country are approaching urban alley renovations, including hiding trash in many different, creative ways. From installing industrial trash compactors to hiding existing dumpsters, there are a variety of solutions that have been proven in other cities to minimize trash and make alleys more attractive. Once trash is minimized, lighting and art can be added to make alleys more functional. Additionally, enforcing existing codes is an important part of any alley reimagination plan. This section will discuss several different options for urban alley management that other U.S. Cities are piloting or have found successful.

Below: Alley Murals in Washington, DC
Right: Alley Renovations in Witchita, Photo courtesy of [Visit Witchita](#)



TRASH COMPACTORS

Many cities have begun switching out dumpsters for commercial trash compactors, which are powerful machines that compress and crush waste material, reducing its size and volume. Compactors also prevent the disposal of illegal dumping and improve efficiency, safety, and sustainability.

There are cities of all sizes that utilize trash compactors as part of their waste management strategy. One recent example is Washington, DC implementing its FY19 DC Commercial Compactor Demonstration Grant Program, which provided DC businesses grants to help purchase/lease and install commercial trash compactors. The goal of this program was to combat sanitation issues such as rodents and to adhere to sustainability goals by reducing carbon emissions. Some cities are providing incentives for businesses by providing grants for trash compactors.

Many cities have begun switching out dumpsters for commercial trash compactors, which are powerful machines that compress and crush waste material, reducing its size and volume. Compactors also prevent the disposal of illegal dumping and improve efficiency, safety, and sustainability.

In Mount Dora, Florida, the city's waste management company brought in two [trash compactors](#) and two recycling compactors that each hold 12 cubic yards of trash at no extra charge. They trained city officials and business owners to use the compactors properly and they will empty the compactors six days a week. Not only do the compactors encourage recycling in the city but they keep out birds and rodents. The city's [Public Arts Commission](#) sought artists to paint murals on the concrete enclosures. (NOTE: Could not find any pictures of painted enclosures.) There are many options for outdoor trash compactors including through-the-wall compactors, portable compactor bins, and self-contained compactors, which are ideal for wet waste like that from restaurants. Small compact outdoor trash compactors are also available, which are ideal for small spaces like alleys. The main features of these Small Outdoor Trash Compactors include:

- 1 Just like the traditional Self-Contained Compactors, these miniature Self-Contained Compactors are best utilized for wet waste situations such as restaurants.
- 2 With the mini-packs they are tipped onsite by the Front Load Hauler trucks versus the container being hauled to the disposal site.
- 3 Since the footprint is so small versus traditional Self-Contained Compactors these are excellent choices where space is very confined.



Self contained compactor

ENCLOSURES & ART WALLS

The City of Colton, Colorado requires businesses to [enclose dumpsters](#) with a six-foot high wall with gates, not be in prominent public view, and a solid roof covering might be required based on use and/or occupancy. The enclosures and their locations must first be approved by the Planning Department Design Review.

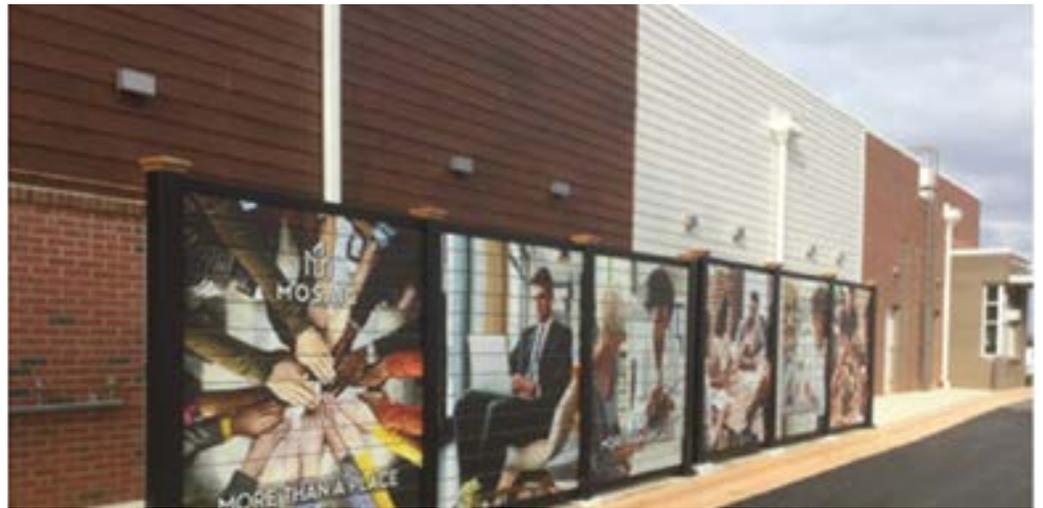


A dumpster enclosure can be built to any size/specification to hide existing trash

As of 2021, businesses in [Frankenmuth, Michigan](#) are required to keep their dumpsters in an enclosure that requires approved fencing and an access gate.

The city of [Bakersfield, California](#) is working on a dumpster enclosure and lock policy and program. They are looking to supply [steel magnetic locks](#) (\$500 each) to 100 of the 2,000 local businesses as well as five dumpster enclosures. The city has an ordinance to address waste oil and grease, which is an issue in Pittsburgh alleys as well. Businesses must have a separate, walled enclosure to prevent spilled liquids from creating a slipping hazard. This enclosure also keeps animals away.

Art Walls can hide dumpsters while offering a pleasing public art experience

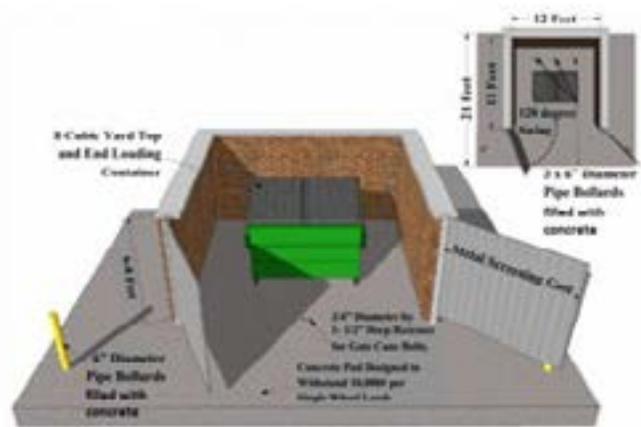


New York City has a long history of trash problems as it piles up on trash collection days. In 2022, the city instituted a [Clean Curbs Pilot Program](#) allowing private entities, like commercial property owners and Business Improvement Districts (BIDs), the opportunity to install sealed and locked, [rodent-proof containers](#) on City property. These containers store waste awaiting collection and reduces the piles of bags taking up sidewalk space. The city has also purchased [Better Bins](#) to replace waste receptacles that are constructed to make it difficult for residents to misuse, and rats to access, and also prevents garbage overflow.

Cities are also encouraging art walls, which can combine both coverage of dumpsters and engaging public art. The City of Pittsburgh does have a Public Art & Civic Design Commission which empowers the development of art and culture in public spaces and promotes the design of public spaces and civic structures that has a positive impact on the City's Public Realm. The Commission is tasked with reviewing and approving the aesthetics of the designed environment on or over City-owned property. The Commission conducts reviews through two Committees:

- The Public Art Review Committee reviews and approves the addition, modification, relocation, and removal of items of Public Art in the Public Realm.
- The Civic Design Review Committee reviews and approves the design of new structures and designed sites in the Public Realm, or the modification of existing structures and designed sites in the Public Realm.

While murals on walls are popular, no evidence of art wall hiding dumpsters was evident in the research. This could be an area to consider.



Example of dumpster enclosure requirements in Frankenmuth, Michigan

SHARED DUMPSTER PROGRAMS

In Port Huron, MI business owners wanted to address the exciting number of new businesses opening and a critical issue that came with the city's growth: more trash. They started a [dumpster-sharing](#) program for businesses that helped address the increase in trash as well as save business owners money. Port Huron officials started by purchasing two large dumpsters with locks and gave keys to targeted businesses to bring their overflow trash. They would then determine how often those dumpsters needed to be emptied.

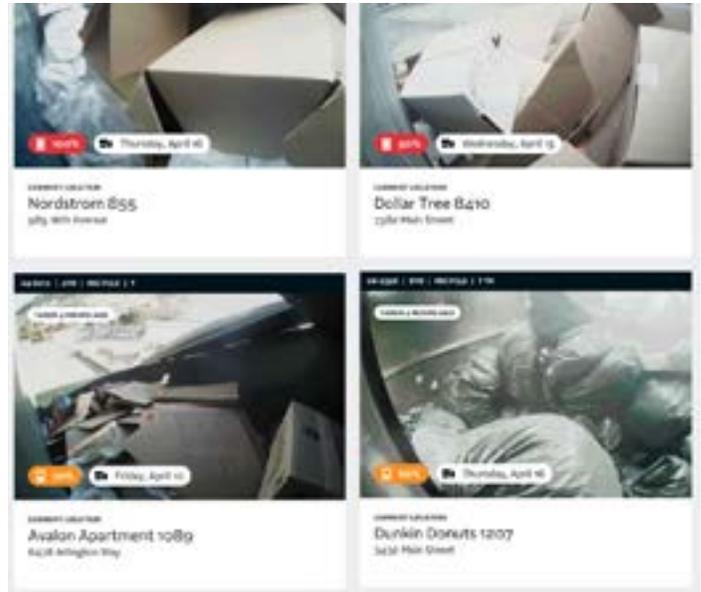
When new businesses open and lease a dumpster, it adds more unattractive dumpsters to the landscape and often results in less parking for customers.

DUMPSTER CAMERAS

Dumpster camera technology is another approach to overflowing and misused dumpsters. Companies like Compology have created in-dumpster cameras that allow users to monitor usage. This allows companies to right-size their dumpsters, and schedule more frequent pick up if necessary. Companies would also be able to monitor recycling bins to see if there were bags of regular trash or other contaminants thrown in with the recycling. Poorly sorted recycling can result in thousands of dollars in fines. The volume of uncollapsed cardboard being thrown into dumpsters causes wasteful dumpster usage.

These cameras can recognize different material types. For example, when it's programmed into a recycling dumpster it takes pictures and registers trash that shouldn't be there. It can then kick out a work order to the facilities system and the maintenance team can proactively resolve the issue before the hauler either issues a fine or refuses to pick up the dumpster."

Compology, a leader in the dumpster camera industry, uses both high-tech cameras and AI to streamline their approach to trash. A sanitation company in California's Alameda County that partnered with Compology was able to reduce waste management costs by 20% and recycling contamination by 80%. Washington, D.C., and Las Vegas have launched pilot projects with Compology, and the company is looking to scale its technology down to work with smaller waste customers, including residences.



Camera system company Compology can be used centrally to monitor all city-wide dumpsters

DUMPSTER LOCKS

During observation, it was evident that dumpsters with locks were not being abused or overflowing like those left open to the public. Dumpster locks can be as simple as a commercial "Master Lock" that attaches to the corner of a unit, to locks specifically designed for dumpsters. Several companies make dumpster locks including lock bars and gravity locks. Several cities including Evanston, IL, Haverhill, MA, and Malibu, CA have codes that require all dumpsters to be locked.



Camera system company Compology can be used centrally to monitor all city-wide dumpsters

SUSTAINABILITY & GREEN SPACES

In Los Angeles, more than half the population lacks access to [green space](#). Sustainable developers initiated the [Avalon Project](#) to examine how alleyways can be reimagined to provide benefits to the community. They used this definition to lead their work "Green alleys expand upon single-purpose infrastructure of alleys and convert underutilized alleyways into community assets and resources for environmental, economic, and social benefits."

The project was a joint partnership between LA Sanitation and Environment and Trust for Public Land. Developers used some of these sustainable methods when rehabilitating the alleyways:

- Light-colored paving to reduce the heat island effect
- Crosswalk striping, lights, and signage to increase walkability
- Native and drought tolerant planting to help green and beautify the neighborhood
- A host of innovative techniques to capture and infiltrate stormwater from nearby alleys and streets

The project's water quality and community benefits include:

- Improves water quality in the Los Angeles River watershed
- Safe walking and biking routes for the community
- Interlocking permeable pavers
- Underground infiltration trench with filter media to remove pollutants
- Dry well systems to remove pollutants like trash, bacteria, metals, sediments, oil and grease
- Equipment to monitor water quality and water supply

In Washington State, a [Dumpster Outreach Program](#) was started to address how dumpster lids that were left open contributed to contaminated stormwater runoff into the Puget Sound. Researchers found that roughly 39% of dumpster lids were not closed or secured after every use.

Uncovered and leaking dumpsters can cause pollutants like chemicals, bacteria, and organic matter to end up in stormwater runoff. Rainwater mixed with trash can leak out and spill onto impervious surfaces that drain to the stormwater system when dumpsters are serviced.

Benefits of a closed dumpster lid are

- Reducing pests
- Reducing smell
- Reducing illegal use
- Cleaner look
- Keeping rain out



Since 2001, Chicago has installed more than 300 green alleys that include such sustainability improvements as

- permeable pavements that address water issues
- catch basins
- high-albedo pavements that address the urban heat island effect
- recycled materials



Before and after green alley rehabilitation in Chicago. Image Credit: The City of Chicago Green Alley Handbook.



Mentor Way standing water problem in May 2023.

WASTE MANAGEMENT CODES AND ENFORCEMENT

As cities reimagine alleys and recognize their potential as functional spaces, the development of new waste management codes specifically tailored for alleys becomes essential. These codes aim to address the unique challenges associated with waste collection and disposal in alley environments. They provide guidelines and regulations for waste container placement, collection schedules, and proper storage practices to ensure efficient and safe waste management. Cities, like Los Angeles and Chicago, are also moving towards policies that require all future street and alley projects to incorporate green infrastructure.

New Construction Ordinances for Waste Management

Some cities require dumpsters to be hidden from public view. For example, the City of Southfield, MI has enforced the following [ordinance](#) since 1980:

"Sections 2.1, 2.12, & 2.13,
Chapter 17 Rubbish & Garbage
1. All dumpsters located in the city must be enclosed or screened from public view. Such screening shall consist of a completely obscuring wall or fence not less than six (6) feet (1.8288 meters) in height on three (3) sides. Posts or bumpers shall be provided within the enclosure to protect it from damage from the dumpster. The inside clearance of the enclosure shall be not less than ten (10) feet (3.0480 meters) in depth and ten (10) feet (3.0480 meters) in width."

Seattle [Land Use Code SMC 23.54.040](#) requires solid waste container storage and access in all new and remodeled buildings in Seattle.

Fines

In [Brevard County](#), Florida, businesses are fined up to \$200 a month for [overflowing dumpsters](#) – even if other people or other businesses are illegally dumping in their dumpsters. Illegal dumping is considered a third-degree felony but offenders must be caught. More and more businesses are installing cameras and going through trash illegally dumped to find the offenders. The Brevard County contract language with its waste management has parameters of trash being "12 inches or more over the top of the container" or "solid waste placed on the ground" as triggering the overage charge.

It is part of the CLEAN (an acronym for community litter environmental-protection awareness notice) program that holds businesses accountable for keeping their property clean. Waste Management employees take photos of the overflowing trash and the fines are then issued. Customers have several solutions if their bins are overflowing, including getting a larger dumpster; adding recycling containers; scheduling more pickups per week; or having a special "lock bar" installed on the dumpster that provides access only to tenants and the trash hauler.

In Sacramento County, CA, illegal dumping results in a \$1,000 fine for the first offense and up to \$3,000 for additional offenses. There is also a \$250 fine for scavenging in dumpsters. For commercial properties, fines of \$1,000 per day are set for violating city codes.



Dumpsters under the fire escape, directly under the "no dumpsters under the fire escape" sign

Once alleys are clean and free of trash, ongoing maintenance can include safety measures including lighting and cameras in addition to artwork to beautify the alleys.

Lighting

Research is divided on whether providing good lighting in alleys correlates to reductions in crime. A [2019 study](#) in New York's public housing developments showed a 39% decrease in crime after lights were installed, while a [2000 study](#) in Chicago where streetlight bulbs were changed from 90 watts to 250 watts showed a 21% increase in crime as opposed to the areas where wattage remained the same.

A 2019 New York City study on urban lighting found that lighting can have a strong influence on safety. Among other findings, the study concluded that increased levels of lighting led to a 36% reduction in "index crimes" — a subset of serious felony crimes that includes murder, robbery and aggravated assault, as well as certain property crimes — that took place outdoors at night in developments that received new lighting (Chalfin, 2019).

What can be confirmed is that people feel safer with better lighting and that they are more likely to walk through an alleyway if it is well-lit and aesthetically pleasing. When installing new fixtures, be sure they are specified for outdoor use. Dark sky compliant fixtures work to avoid light pollution and LEDs are also a low-energy lighting option. Adding softer lights can bring new life and an inviting atmosphere to an alley.

Alley lighting can fall into one of two categories: decorative, such as string lights, or functional, including street lights, solar and LED lighting. Occasionally (in the case of the previous Garrison Way renovation), lighting can serve as both decorative and functional.

An [alleyway lighting report](#) developed by a public realm working group that inspected alleyways to address lighting issues and safety concerns in the Pioneer Square neighborhood in Seattle found determinants reflecting observations by the Downtown Pittsburgh researchers.

The group determined what constituted alleys feeling safe and unsafe, created guidelines for business owners around lighting, showed different styles of lighting and their benefits, and partnered with an organization who provided a grant to install lighting.

The lighting report listed factors that contributed to an alley feeling safe and unsafe.

Factors that contributed to an alley feeling safe:

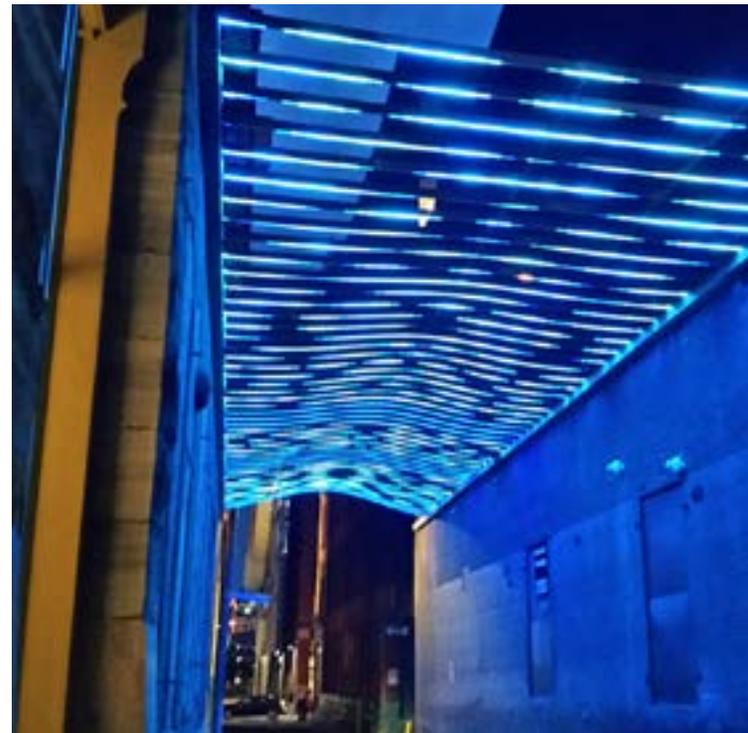
- Good lighting for pedestrians
- Clear site lines
- Clean and sanitary
- Planters and public art
- Business operating off the alley (bike store; cafe)

Factors that contributed to an alley feeling unsafe:

- Poor lighting for pedestrians
- Blocked site lines
- Litter and unsanitary
- Lack of amenities
- No business activity

The report looked at lighting in alleys rating alleys from 0-5. The average alley score was 2.72. Sample questions to guide observers were:

- How safe and inviting does this alley feel?
- Is the existing light working?
- Did the existing light create glare making it disorienting to



*:Public art installation previously in Garrison Place (alley).
Photo Credit: KDKA Photojournalist Bryce Lutz*

Cameras

In addition to dumpster cameras that can monitor trash levels and allow for more accurate pick-up of trash, surveillance cameras can be installed in alleyways to provide additional security.

While camera proponents argue that cameras can deter crime and help police investigate crimes, organizations like the ACLU often argue against that cameras pose a threat to consumer privacy. In the mid-2000s, San Francisco embarked on a pilot program to install bulletproof cameras in eight high-crime areas. The city showed a decrease in crime in the areas after the cameras were installed.

In a report from the Municipal Technical Advisory Service at the University of Tennessee, which reviewed existing research, the authors found that CCTV is most effective when combined with other crime reducing/detering methods such as improved lighting, security guards and defensible space. On its own, cameras have been shown to reduce vehicle crimes especially in parking garages. However, some studies showed an increase in crime after the installation of CCTV. And CCTV has not been shown to reduce violent crime.

Surveillance CAMS/Illegal Dumping

The main purpose of dumpster cameras is to ensure they are full before they're emptied and to stop recyclable materials like cardboard from being contaminated. Another benefit is to capture people illegally placing trash in dumpsters. After installing hundreds of alleyway surveillance cameras, the City of St. Louis has been cleaning up its illegal dumping hot spots. Police in the city's Environmental Investigation Unit identify offenders with the help of citizen reports and 255 cameras installed in alleys and vacant lots throughout St. Louis. One officer is assigned to the unit and other officers work off hours earning overtime pay. In 2020, the St. Louis City Counselor's Office issued 439 illegal dumping charges, 650 illegal dumping charges in 2021, and 818 illegal dumping charges in 2022; an 87% increase in two years. According to the city, the Municipal Courts assessed more than \$192,000 in fines in 2022 for illegal dumpers, a 137% increase over 2020.

The City of Fremont, California recommends that business owners do the following to prevent illegal dumping on their property:

- Keep your property clean to not attract dumping
- Install cameras and motion-activated lighting
- Get lock service for your dumpsters
- Post "No Dumping" and "Cameras in Use" signs
- Report any illegal dumping in progress to Fremont Police

Taking it one step further, the City of Orlando, Florida allows residents and business owners to connect their surveillance cameras to the city's network. The Orlando Connect camera-sharing program is a collaboration between the City of Orlando and residents and business owners that builds on community policing efforts and aims to integrate city-owned cameras and privately-owned cameras. By networking with the City's camera system, residents and business owners can help transform the way police officers respond to, solve and deter crime.

In 2023, Seattle kicked off a video surveillance camera pilot program to discourage illegal dumping and littering in some of the city's dumping "hot spots." The City acknowledges that illegal dumping and laws are not enforced, and it has become a common practice. They've also found that illegal dumping signs are being ignored and have become the perfect place for individuals to continuously illicit debris dump next to the illegal dumping signs. The pilot hopes to reduce illegal dumping in the city, improve the community's quality of life, and decrease associated costs to the city.

The City of Miami installed artificial intelligence (AI) video cameras in some city dumpsters. Smart cameras are installed inside dumpsters and take pictures several times a day. Using AI, the cameras measure how much waste and what kind of waste is in there. The initiative could cut waste collection costs by a projected 30-40 percent and boost recycling rates.



A surveillance camera notice on Coffee Way

RECOMMENDATIONS

A variety of approaches can be considered for Downtown Pittsburgh waste management and alley beautification. Once alleys are clean and empty of trash, a maintenance plan should be in place to provide continual monitoring and cleaning of the alleys. Additionally, public restrooms in the Central Business District would help alleviate some of the root causes of alley smells and waste. Based on the research in this report, the following recommendations are offered to help clean and maintain Pittsburgh's alleyways:

Safety & Preventing Alleyway Misuse

1 Install public restrooms in Downtown Pittsburgh

The availability of public restrooms will help solve the root cause of public urination and defecation in the alleys. Our research team encountered several instances of public urination by visitors (not homeless individuals), which is contributing to the smell and waste found in the alleys. Having clean, accessible public restrooms could help solve this problem.

2 Install more public waste and recycling receptacles

Installing more public trash and recycling cans around the Downtown Business District will lessen the amount of public trash that is thrown into the alleys, or business dumpsters being used for personal trash. Observations of Downtown streets revealed some streets with 1-3 trash cans per block, while others like parts of The Boulevard of the Allies, Fourth Avenue, and Oliver Street, had none. Making sure that each block has 1-2 trash cans can help keep the city clean and prevent people from using alley dumpsters. Additionally, very few recycling options were visible.

3 Install alley lighting

While research has proven inconclusive on whether lighting deters crime, it is possible that lighting may prevent other unwanted behaviors including urination, drug use and loitering. Additionally, alley lighting would allow for trash to be more easily seen and ideally encourage the alleys to be kept cleaner. At a minimum, alley lighting will provide beautification, especially if it is decorative lighting. A pilot study could be conducted in Pittsburgh to add to the literature on whether alley lighting is effective in keeping alleys clean and safe.

4 Install alley cameras

While detractors argue against alley cameras for public privacy concerns, research has proven that surveillance cameras can have an impact on crime rates and illegal dumping. Installing cameras in areas of concern, Pittsburgh Police might have positive outcomes.

Waste Management Solutions

1 Install [trash compactors](#) in specified alleys to reduce dumpster usage, misuse of dumpsters, environmental impact, etc.

While trash compactors are the most expensive option in these recommendations, they can also have a large impact both aesthetically and environmentally. Trash compactors can have numerous benefits including reducing the number of dumpsters, reduction in the amount of outside trash, reduction in the frequency of needed pickup, positive environmental impacts, etc.

2 Require businesses to secure their dumpsters with locks or consider a lid-closing program or ordinance

Locking dumpsters helps deter outside trash and overflowing trash. It also keeps animals and people from getting into the dumpster. Upon observation, dumpsters with locks were much cleaner and had less nearby trash than unlocked dumpsters.

When dumpster lids are not closed water gets into the receptacle and when it empties into the storm drains it pollutes the water, including Pittsburgh's three rivers. The City of Pittsburgh could consider passing a new ordinance requiring dumpster lids to be closed after every use and enforce through fines.

3 Encourage a dumpster-sharing program for smaller businesses.

Businesses that may not need a full-size dumpster may consider sharing a dumpster and costs with other nearby business(es). This will reduce dumpster footprints, improve the aesthetics of the alleys, and save costs.

Beautification & Safety Efforts

- 1 **Create a dumpster artwork initiative or install art walls**
Creative approaches to dumpster attractiveness and visibility can help improve alley cleanliness and experience. Creating a city-wide dumpster mural program could be a great public relations campaign. Dumpsters can be a great canvas for local artists. Art walls can also be considered for both dumpster hiding and beautification.
- 2 **Turn more alleys into green spaces and community gathering spaces**
Converting more alleyways such as pedestrian-only Strawberry Way into green spaces with planters, walkways, tables, and chairs helps build community. These kinds of alleys provide space for public walkways, cultural events, and more reasons for people to come downtown and visitors to have a positive experience in the city.
- 3 **Install dumpster enclosures**
[Dumpster enclosures](#) could allow the dumpsters to remain where they are but be hidden from public view, making the alleys more welcoming. Enclosures or dumpster pods also help contain the waste smell. This solution would work well in Delray Street where there are many dumpsters and an eyesore to passersby. Some dumpster enclosures can be secured and others can be a wall, [fence](#), or gate. This new secure area prevents outsiders from illegally dumping their garbage in the dumpsters and hanging out between the dumpsters.
- 3 **Continue partnership with Renewal, Inc. for consistent alley clean-ups.**
There has been a noticeable difference in the alley's appearance since Renewal started regular cleaning. It is recommended that this partnership continue to be funded and Renewal continue to clean alleys on a regular schedule (weekly or bi-weekly).
- 4 **Continue a regular schedule of power washing alleys.**
Power washing by Renewal and the PDP Clean Team has shown a noticeable difference in alley trash, urine, feces, and rodent issues. It is recommended that power washing take place in all alleys on a regular schedule.
- 5 **Consider installing dumpster cameras.**
Dumpster cameras can allow the city to centrally monitor dumpsters and respond quickly to overflowing trash. This will allow businesses to adapt their pickup schedule as needed.
- 6 **Create an Adopt an Alley program.**
Working with local businesses, residents, nonprofits, universities, and other stakeholders to adopt an alley by volunteering to clean the alleys and report any issues to the City. A program in [San Francisco](#) led to a youth group providing tours of city alleyways and participating in additional service projects.
- 7 **Plan for sustainable and green infrastructure.**
Many alleyways need more than a paving fix, like Mentor Way. This alley was resurfaced within the last year yet the water issue was not resolved. Using permeable pavement in alleyways with hydraulic issues is one solution.

Sustainable Maintenance

- 1 **Enforce City codes including where dumpsters can be placed, illegal parking, regular trash pickup, etc.**
There are many code violations occurring in Downtown Pittsburgh but little enforcement seems present. Enforcing codes for proper dumpster placement and maintenance will help encourage cleanliness. Upon observation, there were a number of businesses with dumpsters violating current codes. For example, they are blocking fire escapes.
- 2 **Change City code to require all new construction to make space to place dumpsters inside buildings.**
Having all new dumpsters placed inside buildings will help reduce the number of alleyways with dumpsters/trash, reduce the burden on alley cleaning teams, and willow for more exciting, green, and healthy public spaces into our existing downtown landscape.
- 8 **Install [clear signage](#) with the alley name, which can signal that the alley is cared for, safe, and inviting.**
By naming alleys, we give them identity and they move from forgotten spaces to a community place.

By working as a team, stakeholders of the Central Business District of Pittsburgh can keep our alleys clean, free of litter, and safe for all and allow them the potential to serve as gathering spaces for community engagement, which will enhance the mission of the DNA (we strive to make the Golden Triangle a better place to live, work and play), the PDP (to advance initiatives that foster economic vitality and improve Downtown life), BOMA (helping owners and managers of commercial real estate maintain safe, efficient properties), Point Park University (to educate students in a dynamic urban environment), and the City of Pittsburgh (to provide a better quality of living to the residents of the City of Pittsburgh by increasing safety in the built environment). We all have the same vision for our city, and by working together we can realize it.

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REFERENCES

References

Fialko, M. & Hampton, J. (2011). Seattle Integrated Alley Handbook: Activating Alleys for a Lively City. UW Green Futures Lab, Scan Design Foundation, & Gehl Architects. University of Washington, Seattle, WA.

Wilson, J. Q., & Kelling, G. L. (1982). Broken Windows. *The Atlantic Monthly*, 249, 29-38.

Wolch, Newell, Seymour, Huang, Reynolds & Mapes. (2010). *Environment and Planning*, volume 42, 2874-2896.

Alleyway Research Links

https://docs.wixstatic.com/ugd/76a631_c39ab6c084db476cbb151a00ab7ee04c.pdf

https://nacto.org/docs/usdg/activating_alleys_for_a_lively_city_fialko.pdf

<https://godowntownbaltimore.com/advocacy/alley-improvement/>

<https://www.bloomberg.com/news/articles/2016-07-14/the-push-to-revitalize-urban-alleys-across-the-united-states-is-fostering-community-and-sustainability>

<https://www.romi.gov/DocumentCenter/View/23437/5-Alleyway-Improvements-Master-Plan>

<https://www.sandiegouniontribune.com/business/growth-development/sd-me-alley-art-20180215-story.html>

<https://www.sandiegouniontribune.com/news/politics/sd-me-public-art-20170821-story.html>

<https://popcenter.asu.edu/sites/default/files/244-Wilkie.pdf>

[Fivepoints Alley – Walnut Hills Redevelopment Foundation \(walnuthillsrf.org\)](#)

[Alleys of Seattle](#)

[Sustainability – Green Garage Detroit](#)

[Between Us: The Downtown Denver Alleyways Project – Downtown Denver Partnership](#)

https://nacto.org/docs/usdg/activating_alleys_for_a_lively_city_fialko.pdf

<https://thewash.org/2021/11/16/alleyway-development-project-comes-to-columbia-heights/>

<https://pittsburghorbit.com/2022/06/12/bin-there-done-that-art-down-in-the-dumpster/>

https://www.sandiego.gov/sites/default/files/dsdtraf_dumpsterplacementcriteria.pdf

<https://city.milwaukee.gov/ImageLibrary/Groups/cityTraining/Titan-101/Nastacia/dumpsters.pdf>

https://library.municode.com/pa/pittsburgh/codes/code_of_ordinances?nodeId=COOR_TITSIXCO_CH619MUWARE

https://apps.pittsburghpa.gov/dpw/05_Waste_Regs_August_2005_CLEAN.pdf

REFERENCES

Alleyway Research Links cont.

<https://gothamist.com/news/as-giant-trash-bins-come-to-nyc-will-the-citys-garbage-heaps-become-a-thing-of-the-past>

<https://www.ecubelabs.com/overflowing-garbage-bins-5-impacts-on-health-and-environment-and-how-to-prevent/>

<https://iowacityfencecompany.com/2020/03/26/how-to-hide-your-dumpster-from-the-public-eye/>

<https://ashevillefence.com/blog/how-do-i-hide-my-business-s-dumpster>

<https://cityscapesinc.com/products/covrit/dumpster-enclosures>

<https://cms6.revize.com/revize/frankenmuthmi/Dumpster%20Enclosure%20Guidelines.pdf>

<https://www.kget.com/news/local-news/city-plans-to-spend-thousands-on-dumpster-enclosures/>

<https://content.civicplus.com/api/assets/ad59b55f-89d0-43f5-b7cd-ee073995f7f2>

https://www.ci.colton.ca.us/DocumentCenter/View/6782/City-of-Colton-trash-enclosure-standards_05-02-2020

https://www.cityofsouthfield.com/sites/default/files/inline-files/dumpster_ordinance_new.pdf

<https://www.oxfordeagle.com/2022/08/18/city-to-remove-dumpster-enclosures-add-three-downtown-parking-spaces/>

<https://compactorentalsofamerica.com/uncategorized/growing-cities-face-growing-issues-with-trash/>

<https://www.dailycommercial.com/story/news/local/mount-dora/2018/09/20/trash-compactors-will-appear-in-downtown-mount-dora/10250644007/>

<https://www.fgcompactorsolutions.com/a-guide-to-commercial-trash-compactors-what-they-are-how-they-work-benefits-types/>

https://www.nyc.gov/assets/doh/downloads/pdf/rats/trash_compactor.pdf