Green Alley Network Plan

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## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>1</td>
</tr>
<tr>
<td>Client</td>
<td>5</td>
</tr>
<tr>
<td>Outline</td>
<td>7</td>
</tr>
<tr>
<td>Context</td>
<td>9</td>
</tr>
<tr>
<td>Transportation</td>
<td>9</td>
</tr>
<tr>
<td>Community Assets</td>
<td>10</td>
</tr>
<tr>
<td>Environment</td>
<td>10</td>
</tr>
<tr>
<td>Housing, Infrastructure, and Equity</td>
<td>12</td>
</tr>
<tr>
<td>Existing Policy</td>
<td>13</td>
</tr>
<tr>
<td>Existing Alley Conditions</td>
<td>13</td>
</tr>
<tr>
<td>Existing Knowledge</td>
<td>15</td>
</tr>
<tr>
<td>Perceptions</td>
<td>15</td>
</tr>
<tr>
<td>Common Uses</td>
<td>16</td>
</tr>
<tr>
<td>Stormwater Management</td>
<td>16</td>
</tr>
<tr>
<td>Community Space</td>
<td>17</td>
</tr>
<tr>
<td>Green Alley Evolution in Richmond</td>
<td>17</td>
</tr>
<tr>
<td>Looking Forward</td>
<td>18</td>
</tr>
<tr>
<td>Approach</td>
<td>19</td>
</tr>
<tr>
<td>Resident-Centered</td>
<td>19</td>
</tr>
<tr>
<td>Biophilic City</td>
<td>19</td>
</tr>
<tr>
<td>Walkable City</td>
<td>20</td>
</tr>
<tr>
<td>Soft City</td>
<td>21</td>
</tr>
<tr>
<td>Research Questions</td>
<td>23</td>
</tr>
<tr>
<td>Community Outreach</td>
<td>25</td>
</tr>
<tr>
<td>COVID-19 Precautions</td>
<td>26</td>
</tr>
<tr>
<td>Green Alley Network Website</td>
<td>26</td>
</tr>
<tr>
<td>Green Alley Logo</td>
<td>27</td>
</tr>
<tr>
<td>Summary of Findings</td>
<td>29</td>
</tr>
<tr>
<td>Green Alley Program</td>
<td>31</td>
</tr>
<tr>
<td>Survey Insights</td>
<td>47</td>
</tr>
<tr>
<td>Themes Identified by Residents</td>
<td>49</td>
</tr>
<tr>
<td>Trash</td>
<td>49</td>
</tr>
<tr>
<td>Accessibility</td>
<td>50</td>
</tr>
<tr>
<td>Stormwater</td>
<td>51</td>
</tr>
<tr>
<td>General Improvements</td>
<td>53</td>
</tr>
<tr>
<td>Recommendations</td>
<td>55</td>
</tr>
<tr>
<td>Implementation</td>
<td>65</td>
</tr>
<tr>
<td>Definitions</td>
<td>73</td>
</tr>
<tr>
<td>Additional Maps</td>
<td>75</td>
</tr>
<tr>
<td>Survey Results</td>
<td>79</td>
</tr>
<tr>
<td>References</td>
<td>91</td>
</tr>
</tbody>
</table>
The Green Alley Network Plan seeks to realize the potential of Richmond’s public alleys as opportunities for biodiverse shared streets acting as active transportation corridors, stormwater management systems, and public spaces that support high quality of life and community health. Richmond’s public alleys are utilized to their full potential as biodiverse shared streets acting as active transportation corridors, stormwater management systems, and public spaces that support high quality of life and community health.

Environmental justice populations (communities that bear a disproportionate burden of negative environmental impacts) and one/zero-car households. For this reason, and in an effort to embed the majority of research in a particular space, an urban study area was chosen as a hypothetical demonstration area. The tools and strategies covered in this plan are applicable to many parts of the Richmond Region and including in the most neglected communities that need equitable pedestrian and bikeway investments. Where alleys do not exist, related green stormwater infrastructure can be used in place of treatments discussed in this document. The notion is to utilize natural processes in our stormwater and transportation infrastructure to support a healthy urban ecosystem.

This plan was developed from August 2020—April 2021, in the shadow of the COVID-19 Pandemic and ever-expanding calls for racial justice. This past year has proved the value of resiliency in our communities. And while we are connected at a global level, our immediate environments still have a critical place for our individual well-being and neighborhood health. The context of this plan rests in two general assessments of our immediate needs. The first is that we are living in a climate emergency. The second is that we face a related crisis of automobile supremacy that has spawned entirely unsustainable communities, which in turn exacerbates the existing climate crisis and establishes a vicious cycle of social harm based on the basic design of our built environment. We also know that negative aspects of transportation—including pollution, noise, stress, and associated health effects—are disproportionately felt by children, the elderly, people with disabilities, and people of color. This makes transportation a matter of social, environmental, and racial equity and we must be willing to invest in swift and comprehensive changes.

This plan is specifically about green alleys, but the strategies discussed broadly apply to all transportation networks. Alleys are the focus because this plan was born out of that specific context; throughout the plan one can easily substitute street, road, lane, path, parkway, or any number of terms. This topic was chosen in part because of the unique opportunity alleys provide for urban areas, as neglected public space not thought of as “community” space.

While this plan doesn’t pretend to hold the solutions for climate change or racial inequity, it was developed with the belief that streets are both ecosystems and places for community life. Transportation planning therefore has a unique responsibility to consider how the design of the public right-of-way contributes to environmental and racial justice.

A primary belief behind this plan is that streets are for people, a philosophy summarized in Bernard Rudofsky’s book Streets for People. As our urban space fills in, alleys provide a space for municipalities to integrate sustainability into transportation corridors and provide simple and opportunistic greening.

This project set out to create a Green Alley Network Plan that would be an expansion on Richmond’s Green Alley program, detailing tools, examples, recommendations, and steps to implementation. It is guided by the city’s visions of High-Quality Places, Equitable Transportation, a Diverse Economy, Inclusive Housing, and a Thriving Environment as expressed in the Richmond 300: A Guide for Growth Master Plan. Additionally, the region’s long-range transportation plan being developed by PlanRVA, ConnectRVA 2045, as well as the companion bicycle and pedestrian plan, is taken to account in this project and final document.
WHY ALLEYS?

Why focus on alleys when our streets already need extensive maintenance?

Often a forgotten part of our transportation system, alleys are comprehensive networks of existing low speed, low volume streets that can provide multiple benefits to accessibility, stormwater capture, public health, and placemaking. We can maintain our main streets and invest in alleys as community space concurrently, with both part of an accessible and comfortable transportation network.

“Urban alleys, though often ignored or considered dirty or unsafe, can be designed to play an integral role in street networks, providing service access and recapturing space for the public realm.”

– NACTO Stormwater Guide

Aren’t alleys reserved for trash, utilities, and services?

Where alleys are accessible to refuse collection trucks, service is restricted to certain days, leaving alleys underutilized for the majority of a given week. This plan considers the needs of public utilities and services and a series of recommendations are designed to encourage interventions that are utility-friendly and even optimize refuse collection.

Why would we want more people traveling in alleys?

The common image of a dark and crime-filled alley survives in part because it is a self-fulfilling prophecy. People may be hesitant to walk down a public alley because of their seedy reputation, and visual cues such as loose trash and broken bottles can reinforce this image to someone in search of a shortcut. Inviting more people into these public spaces to walk or bike through on their way to work, while walking their dog, to use to access a restaurant, or to take an afternoon stroll, makes a well-traveled and safer alley.

Will more people in alleys lead to more crime?

On the contrary, more activity on any street serves as a good deterrent to illicit activity. Residents and businesses who have an interest in the health of an alley are more likely to maintain a certain level of upkeep and provide more eyes on the alley.

We have a shared use path/bike lane nearby, so wouldn’t it be redundant for alleys to serve as active transportation routes?

An effective transportation network takes people where they need to go and provides route options, walking and biking being no exception. In certain areas, bicycle route alignments could use alleys where there is insufficient space for fully-protected facilities on the main street. Alleys also have the added benefit of providing alternate residential and commercial access.

Who will be responsible for upkeep?

Because of the unique nature of alleys, maintenance is expected to be shared in a sense. Successful green alley programs in other cities rely on involvement from residents, department of public utilities, and departments of public works/transportation to carry out and sustain improvements. See the implementation section for more details.
Client

PlanRVA, previously known as the Richmond Regional Planning District Commission (RRPDC), is a regional planning organization made up of the City of Richmond, the Town of Ashland, and the Counties of Charles City, Chesterfield, Goochland, Hanover, Henrico, New Kent, and Powhatan (Map 2). PlanRVA focuses on collaboration to solve regional issues such as transportation, environment and air quality, and disaster management. PlanRVA also staffs and oversees the Richmond Regional Transportation Planning Organization (RRTPO), the region's Metropolitan Planning Organization (MPO), a federally mandated regional transportation body. The RRTPO is tasked with urban transportation planning and is involved in allocating federal and state funds toward transportation projects of regional significance. Additionally, PlanRVA is involved in rural transportation planning, along with environmental, resiliency, and emergency management planning. As a regional body, PlanRVA holds a unique position in advancing transportation and environmental priorities for the region while also working with individual member governments on studies and planning pilot projects of significance.

As part of its federal mandate, PlanRVA is currently developing an update to the long-range transportation plan, ConnectRVA 2045, which presents a forward-thinking strategy for regional transportation priorities and serves as a guide for allocating regional transportation funding from various sources. Currently in the visioning and planning phase, the plan has a proposed adoption date of October 2021. A companion plan, the regional Bicycle and Pedestrian Plan, is also undergoing an update on roughly the same timeline.
This plan analyzes a certain network of alleys and presents a list of recommendations based on embedded research and consultation with resident. It provides a more robust custom toolbox for green alleys and lays out the beginning of a city-wide green alley network of shared streets—some more pedestrian-oriented and some more bicycle-oriented. Because green alleys are a relatively new concept and green infrastructure practices are ever-evolving, the plan presents essential definitions and concepts and a review of subsequent benefits as they are introduced, with a comprehensive glossary in the appendix.

A resident-centered method of engagement focused on embedded planning, which stresses street-level engagement and an emphasis on working in the community, drives this plan while the resident survey helped frame research findings and inform recommendations. Research, fieldwork, and analysis were performed by a single planning graduate student and supported by dozens of resident planners using their knowledge and expertise of their own alleys and neighborhoods. The plan outline and framework attempt to reinforce this shared perspective.

A study area in Carver and Jackson Ward (Map 3) serves as a possible demonstration zone for significant green alley investment. It also doubled as the distribution area for the study survey flyer. In order to identify appropriate places for green alley projects, an intensive site assessment of the study area was conducted to identify specific opportunity sites. To better ensure success, the plan concludes with vital considerations and current strategies, including steps to implementation and a look at possible funding sources.

Recommendations and steps to implementations are presented in context of transportation and stormwater networks. The focus is on the more urban neighborhoods centered around Downtown Richmond to tie into the existing Capital Trail and eventual Fall Line Trail, which will run from Ashland to Petersburg, just south of MPO boundaries. While this plan is Richmond-centric, the goal is to also incorporate it within the framework of PlanRVA’s updates to the Richmond Regional Bicycle and Pedestrian Plan and the long-range transportation plan, ConnectRVA 2045.

Map 3. Project Study Area
The primary study area of approximately fifty blocks in Carver and Jackson Ward is located within the bounds of Broad, Lombardy, Leigh, and North 3rd Streets. Study area boundaries also composed the survey flyer distribution area. The study area was selected a result of a preliminary analysis including area characteristics, benefits, and challenges explored in more detail over the next few pages.

An initial screening of existing conditions, an examination of the street network, and input from the public resulted in the corridor highlighted in Map 4 as a hypothetical Green Alley Network pilot project for Richmond. The plan ultimately presents general policy and action recommendations and concludes with a sampling of possible future alley corridors in other areas of the city. An examination of existing conditions in the study area are detailed in the subsequent pages.

Transportation

The proposed study area is located on multiple transit corridors, including GRTC’s Pulse and Routes 1A/B/C, 2A/B/C, 3A/B/C, 14, 50, 78, 87, (Appendix) and is within close proximity to the Temporary Transfer Plaza. This green alley corridor could also tie into existing bike lanes on Lombardy Street and/or future bike lanes on 1st Street into Gilpin. Additionally, nearby active transportation infrastructure includes the Franklin Street cycle track, Cannon Branch Greenway, Brook Road bike lanes, Virginia Capital Trail, and the future Fall Line Trail (Map 5), which will run through this study area. Beyond these regional connections, this area sits within a mixed-use urban space with a strong existing sidewalk and alley network, though conditions vary. While alleyways in the study area are largely in sync with surrounding transportation infrastructure, including the general street grid, they do not seamlessly connect. Connections are often fractured and conditions neglected where alleys meet other streets, leading to a further discouraged use of alley as transportation routes, particularly for people on foot or bike.

Community Assets

Community facilities (Appendix) and amenities within the study area and immediate surroundings include city parks, churches, public schools, hospitals, cemeteries, fire stations, two universities, and a community center. It also includes a variety of businesses, both old and new, and is close to Richmond’s Central Business District. The space is within an Arts & Cultural District Incentive Zone, CARE Zone, Enterprise Zone, and several Redevelopment & Conservation Areas, indicating there may be a number of tax credits or funding sources for improvements within this area. Some economic turbulence including business closures in relation to COVID-19 is also present, which may offer some further revitalization opportunities using existing assets in the community. Parts of the study area also include two Richmond Old and Historic Districts and multiple state/federal historic areas, which would likely only provide peripheral benefits, as tax credits and incentives generally apply to historic building facades. However, the historic nature of the area strongly supports walkable and transit-oriented development.

The Siegel Center is located within the proposed study area and the Greater Richmond Convention Center makes up its eastern boundary, providing major event space and two ends of the study area. There is also a strong VCU and VUU presence in the general area, with the VCU Monroe Campus to the south, the MCV Campus to the east, and VUU campus to the north—all of which would likely be interested in increased bike and pedestrian connections.

Environment

Environmental conditions that make this location particularly suitable for study (other than its close proximity to the Temporary Transfer Plaza). The Siegel Center is located within the proposed study area and the Greater Richmond Convention Center makes up its eastern boundary, providing major event space and two ends of the study area. There is also a strong VCU and VUU presence in the general area, with the VCU Monroe Campus to the south, the MCV Campus to the east, and VUU campus to the north—all of which would likely be interested in increased bike and pedestrian connections.
proximity to the James River) are the existence of a 100 year floodplain, 500 year floodplain, and Resource Management Area on the northern edge of the proposed study area. These environmentally sensitive areas would benefit from increased green stormwater management practices in nearby urban impervious services.

Richmond is also part of a maintenance area for national ambient air quality standards and is still eligible for Congestion Mitigation and Air Quality Improvement (CMAG) Program funds. Due to its urban location and amount of impervious surfaces, the study area is more susceptible to the urban heat island effect. Green stormwater infrastructure can be strategically used to lessen the effects of the urban heat island in neighborhoods with fewer street trees and community parks.

Finally, the entire study area is served by the largest Combined Sewer Overflow (CSO) system in Virginia, which funnels stormwater runoff into a combined sewer system which discharges an untreated mix of stormwater and wastewater into the James River when the system is overloaded (Map 6). During the course of this study, twenty-three separate CSO events occurred in Richmond, which discharged hundreds of millions of gallons of mixed sewage into the James River. The City, through various efforts such as RVAH2O, is working to decrease the amount of stormwater runoff impacting CSOs and related concerns.

While this project is a transportation plan in nature, transportation, by definition, works in concert with land use, housing, and environmental planning, making this topic of examination broad in scope. The proposed study area includes several examples of affordable housing, including dozens of units built with Low-Income Housing Tax Credits (LIHTCs). There are also high concentrations of Environmental Justice (EJ) populations in one Census Tract—taken as the top 20% of all census tracts in the PlanRVA TPO area by EJ population index, according to the Greater RVA Transit Vision Plan: Near-Term Strategic Technical Analysis1.

High transit use (transit mode share of 2.63% or greater) and low vehicle ownership (fewer than 0.63 vehicles per person per household) is also present in both Census Tracts. Additionally, the area boasts transit supportive employment along Broad Street and 2nd Street and high worker populations (2.34 workers per acre or more) in both Census Tracts.

In the specific Richmond context of this project, the plan also considers how green alleys integrate into the city's transportation and green infrastructure, and particularly its existing and planned multimodal systems. Equity is emphasized in order to recognize the historically rampant racism and discrimination in relation to where people live and their resulting quality of life. A key underlying question is identifying how and where green alleys can serve as active transportation infrastructure in areas with low vehicle ownership and high transit use. In an urban environment like Richmond, alleys literally and figuratively connect people and neighborhoods. Identifying where EJ populations and other communities that would benefit from green stormwater management practices in nearby urban impervious services.

Housing, Infrastructure, and Equity
most benefit from these connections is prioritized in order to meet Richmond's goals for equitable transportation.

**Existing Policy**

Finally, the plan examines the question of where Green Alley policies and practices overlap or complement already adopted Richmond policies and practices. A brief look into how city departments operate in relation to one another can help understand where improvements can benefit multiple focus areas. As green alleys provide opportunities for transportation and stormwater management, the Department of Public Works and the Department of Public Utilities can cooperate on this issue to reach their own goals, and also wider goals of the City. Efforts such as RVAH2O are examined as models for inter-governmental cooperation. The fundamental goal is to make implementation of green alleys an ingrained part of the City of Richmond policy.

**Existing Alley Conditions**

Existing conditions measured in this project vary widely by neighborhood and block. Information was gathered regarding land use and urban design, including current land use and zoning, as well as transportation, streets, transit, and bicycle or pedestrian facilities. Guidance on areas of examination is taken from municipal green alley plans and related documents, chiefly Seattle's Integrated Alley Handbook. Data relating to stormwater runoff was considered, including direct observations of pooling, flooding, and other drainage issues. Finally, the general conditions of study area alleys was visually assessed. This includes the conditions of the pavement or pavers, existence of green space, and the general comfort of the space (sights, smells, ease of travel, perception of crime). By using this information to understand the true current conditions, this plan attempts to present design standards, policy recommendations, decision-making tools, and collaboration strategies to best implement Green Alleyway construction in Richmond, with the study area as an example demonstration project.
**Existing Knowledge**

Green alleys are no longer a new concept, but no standard definition has yet been recognized. The National Association of City Transportation Officials (NACTO) identify green alleys as alleyways that “use sustainable materials, pervious pavements, and effective drainage to create an inviting public space for people to walk, play, and interact”\(^1\). Different communities have reimaged alleyways in their own ways, with three general perspectives on green alleys emerging: (1) use as stormwater management, (2) use as community space, and (3) use as transportation networks. In practice, cities often mention co-benefits that cross into all three spheres, but existing green alley programs largely focus on one of the three areas above—with stormwater management the most cited reason\(^2\).

Different communities have reimagined alleyways in their own ways, with three general perspectives on green alleys emerging: (1) use as stormwater management, (2) use as community space, and (3) use as transportation networks. In practice, cities often mention co-benefits that cross into all three spheres, but existing green alley programs largely focus on one of the three areas above—with stormwater management the most cited reason\(^2\).

Research indicates that the success of green alley programs depends on resident participation at the neighborhood level and cross-departmental cooperation in the municipal government.

**Perceptions**

The perceptions of alleys within a community are complex and nuanced. Research shows that while residents recognize the utility of alleyways and even their value as community space, many remain leery of them, with an idea of the creepy alley that is persistent across geographies\(^3\). Regardless of the area’s actual crime rates, the image of an alleyway as a dark and hidden corner of urban life full of untold criminality appears repeatedly, indicating that any project involving public alleyways must adequately address this common concern. Alley greening efforts typically enhance the physical space and this is reflected in the success green alleys enjoy among surrounding residents and businesses, including in Richmond.

Green alley and other green infrastructure programs can help refresh alleys and assuage concerns “by fostering increased visibility and use of previously feared spaces”\(^4\). Generally, the increased use of these “forgotten” spaces has resulted in a reduced fear of crime, as heightened visibility through “eyes on the street” makes active places more inviting to individuals who may otherwise avoid these areas.

**Common Uses**

Reimagining alleyways using green infrastructure fits into the evolution of ‘living streets’ in Germany (wohnstrasse), ‘community streets’ in Japan (community doro), “integrated streets” in Israel (rehov meshulav), and the oft-cited “living gardens” in the Netherlands (woonerfs)\(^9\). These different concepts are all expressions of the same idea that alleyways and other areas within the public right-of-way can be utilized for green community space to connect people to one another. Even in newer communities with reimagined “open-back” common space meant to be the spiritual successor to alleyways, these designs make a nod to the utility and unique social landscapes of alleys that exist in more dense urban settings\(^10\). Proponents of biophilic cities also acknowledge the usefulness of green alleys in enhancing the otherwise “grey space” of these urban corridors\(^11\). Public spaces that were once ignored can be used to help realize wider goals in sustainability, health, and economic vitality. Many cities have adopted green alley policies to realize different goals, with two general goals of stormwater management and generally enhancing public space, often with a focus on economic development.

**Stormwater Management**

Stormwater management is often cited as a primary reason for green alley projects, though the ecological impacts go far beyond this specific benefit\(^12\). Local governments have been quick to adopt green alley policies, as the efficiency and frugality is demonstrably greater than conventional greening methods, in some areas being 3-6 times as effective\(^13\). Potential ecological benefits of a comprehensive green alley system are even larger due to the corridor-nature of most urban alleys. Evidence has shown the importance of continuous green corridors in urban settings in a successor to alleyways, their design makes a nod to the utility and unique social landscapes of alleys that exist in more dense urban settings. Proponents of biophilic cities also acknowledge the usefulness of green alleys in enhancing the otherwise “grey space” of these urban corridors. Public spaces that were once ignored can be used to help realize wider goals in sustainability, health, and economic vitality. Many cities have adopted green alley policies to realize different goals, with two general goals of stormwater management and generally enhancing public space, often with a focus on economic development.

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3. Mitchell, 2005
4. Newell et al., 2013, p. 144
5. Wolch et al., 2010
6. Mitchell, 2020
9. Wolch et al., 2010
10. M. D. Martin, 2002
14. Foster et al., 2004
relation to biodiversity, and green alleyways have the potential to serve as a wide network of green corridors in many cities. Alley corridors have a real potential to be wildlife corridors, and often already serve as places of greater biodiversity where green space is present.

Community Space

Some green alley programs and policies take more of a focus on the alley as community space. Seattle's Integrated Alley Handbook focuses on reimagining alleyways as a vehicle to increase the quality of public space, health, and image of the city, as well as a safer environment for people while providing important secondary pedestrian routes throughout the city. Montreal's green alleyways (ruelles vertes) originally started as an unsanctioned project by a group of architectural students and has become an official city program where the alleys are now used as popular gathering spots for neighbors, "almost like linear pocket parks". Revitalization of laneeways in Melbourne, Australia started three decades ago and involved a comprehensive redesign of the space as pedestrian-oriented living mixed-use corridors utilizing finding and public art, which has been well-received by locals and tourists alike. To date, there is not a green alley program with a focus on transportation, though Seattle and Melbourne's programs come the closest with pedestrian networks recognized as natural byproducts of alley networks. This vacuum presents an opportunity to design a green alley network with a focus on sustainable transportation, stormwater management, and community space.

Green Alley Evolution in Richmond

Locally, two previous professional plans from VCU's Master of Urban and Regional Planning program have looked at alleyway enhancements in Richmond, though specifically limited to the Fan District. These plans, the Alleyway Improvement and Alternate Pathway Plan and Urban alleys as green infrastructure: A green alley plan for the Fan District have introduced the concept of green alleys in Richmond and have contributed to visible and measurable changes in the neighborhood's alleys. Planning interventions such as green alleys have been no small part of the rise in the popularity of the Fan in recent decades. These two Fan plans are valuable examples of documents that built a local framework for green alley improvements that this project aims to build from.

Looking Forward

Success in implementation of green alley programs involves working with residents, including surveys, interviews, focus groups, and participatory action research. As localities look forward to "the other side of COVID-19," we can assume that people will value and support development of authentic community assets that provide an intimate sense of place. On the municipal government side, the complexities of these spaces require a diverse city staff and department coordination to ensure successful program implementation. Planners and policymakers increasingly argue for the need for a nimble, improvisational approach to urban issues with community collaboration, stakeholder representation, and broad transparency and monitoring. Green alley benefits are shown to be wide-ranging and include stormwater management, community placemaking, and improving sustainable transportation networks, though the latter is often cited as a secondary benefit. Even outside of urban and suburban areas with alleyways, green alley elements can be broadly applied to meet challenges where any development is present, like using pervious materials for paved driveways or parking lots. The flexibility of using green alley elements in a wide variety of contexts is too great to be ignored.
Resident-Centered

A progressive and sustainable approach to urban space and civic life guides the plan’s development. Planning is most successful when there is an open and diverse approach to societal problems, with responsive and transparent democratic institutions guiding progress. The individual planner can advance these ideals through compassionate interactions with members of the community, demonstrating that planning is actually a “democratic discourse instead of as the act of an unbiased, rational, and technical analyst”\(^1\). As a result, cooperation, mediation, and citizen power is referenced throughout the plan.

\(^1\) Lyles et al., 2018

This document relies on an egalitarian planning outlook. Effective, accessible transportation and sufficient green space is an essential step in building sustainable, equitable, and livable communities. New approaches to planning practice that emphasize resident knowledge and relationship building such as embedded planning\(^2\) were used throughout the processes to take advantage of existing community assets. Jonathan Pacheco Bell, who coined the term, defines embedded planning as one that situates planners on the ground in the community to (1) understand people’s needs, (2) build trust and authentic relationships, (3) increase participation for marginalized communities, (4) participate in daily community life, and (5) to advance equity\(^3\). By ensuring that methods and data are driven by community input, this plan hopes to identify solutions guided by neighborhoods and people who are tied to these spaces. We live in a time of crisis that requires swift and bold action. This plan can and should exist alongside more traditional, long-range planning processes, but with it comes the implication that our approach to planning should be more responsive, progressive, and sustainable.

Biophilic City

Concepts of livable sustainability and biophilia—humanity’s innate connection with nature—guided analysis and (especially) recommendations\(^4\). The recognition that nature has a transformative impact on human well-being and behavior reinforces the importance of green infrastructure in our communities. There is immense evidence for real benefits of exposure to nature such as increased positive health, lowering crime, encouraging individual generosity, and promoting community engagement and stronger neighborhoods\(^5\). Biophilic Cities are also better equipped to “successfully cope with and adapt to future stressors and shocks”, often referred to as resiliency. These advantages are felt by residents who experience positive effects such as an increase in generally well-being, better health, and the ability to be more adaptable to challenges in their daily life. This, in turn, means a healthier civic environment and planning process. Local and regional agencies can go a long way to ensure environmental sustainability and social equity in their communities and provide a practical vision for the future\(^6\). This includes societal change such as incorporating active transportation education into driver’s education\(^7\) and more generally change the way we discuss sustainability and associated benefits in health, economics, and the environment\(^8\). We must also be more upfront about framing policies around biophilia and reducing car use as issues of equity. The “Green Street Principles” laid out in NACTO’s Urban Street Stormwater Guide are consistent with sustainability and resiliency goals of this plan and are explained in greater detail throughout the document. These principles are to (1) protect and restore natural resources; (2) promote health, equity, and human habitat; (3) design for safety and mobility; (4) design for life cycle; (5) design for resilience; and (6) optimize for performance.

Walkable City

This plan aims to strengthen the idea of walkable cities and walkable communities, regardless of strict density. There is heavy influence from Jeff Speck’s Walkable City and companion Walkable City Rules, which doesn’t describe how cities work, but rather “about what works in cities. And what works in cities is walkability”\(^9\). Both books center themselves around Speck’s “General Theory of Tt. Speck, 2012, 2018
Walkability,” which describes how “to be favored, a walk has to satisfy four main conditions: it must be useful, safe, comfortable, and interesting”.

The principles Speck presents are not meant to be exclusive to cities, even as the subtitle of the book, How Downtown Can Save America, One Step at a Time, is undeniably biased toward cities. However, the idea of cities themselves is a matter of semantics, as the legal definition varies from place to place. We would benefit from disabusing ourselves from the idea that walking and biking for transportation is an urban or city thing, as this is a disservice to non-city residents. All communities can incorporate walkable elements in their built design, regardless of size or urban character. Examples in the Richmond Region include the growing pedestrian network in Powhatan Village and the Virginia Capital Trail in rural Charles City County, with spurs to recreational, historic, civic, and educational destinations.

Soft City

The soft city is a relatively new idea put forth by David Sim in his 2019 book of the same name. Sim describes the soft city as a counterpoint or compliment to a smart city: “rather than looking to complex new technologies to solve the challenges of increasing urbanization, we can instead look to simple, small-scale, low-tech, low-cost, human-centered, gentle solutions to help make urban life easier, more attractive, and more comfortable”.

As with Walkable City, it is primarily, but not exclusively for cities or dense areas. Sim offers the idea of a neighborhood that would instead be more appropriate to use. “More than anything,” Sim writes, “the human environment is about relationships: relationships between people and planet, relationships between people and place, and relationships between people and people”. The benefits of building toward neighborhoods with walkable city and soft city principles (which could include modest increases in density for suburban and rural areas) include greater access to opportunities, greater integration of activity into everyday life, higher independence for seniors and kids, lower infrastructure costs, a healthy environment, and a stronger community identity.

12. Sim, 2019 (4)
13. Sim, 2019 (11)
Research Questions

A series of questions (Figure 1) were examined to understand existing conditions and to best determine which green infrastructure (GI) strategies can be applied to alleyways in the study area. The central question was how to best incorporate green alley networks into the existing community context. To identify what is feasible in the study area, emphasis was put on archival research, physical observation, and correspondence with residents and City representatives. To identify what is appropriate for the community, primary consideration was given to residents and neighborhood groups to help shape the recommendations and plan.

With GI elements in mind, the aim is to find which alleys can better facilitate safe and accessible mobility within the community and connection to the regional network. It was necessary to examine the physical realities of alleyways in relation to other transportation networks to gain a nuanced understanding of how alleyways are used day-to-day.

Gaining a better understanding of how alleyways are used in a particular neighborhood was vital to this project, as alley usage can vary block to block. Opinions of alleyways that residents currently hold were solicited to determine what interest there is in improvement of alleyways as green transportation networks. After working with residents to help understand these questions, a working set of vision, goals, and objectives was developed to guide the project and best pinpoint what assets and resources can be used for implementation and maintenance of green alley networks.

QUESTIONS

How are alleys currently used?

How can green alley networks be incorporated into the existing community context?

Which alleys can better facilitate safe and accessible mobility?

How do residents want to use alleys and how can green infrastructure facilitate that vision?

Figure 1. Project Research Questions
Community Outreach

Sources of information included observation, consultation with the client and other agencies, research into state and federal programs as well as local non-profits, and substantial community outreach. Resident input greatly influenced the direction of the project, though the nature of in-person outreach was restricted due to the COVID-19 Pandemic. A campaign to seek community feedback largely depended on a combination of email, paper survey (Figure 2) distribution, video conferencing, and limited street-level engagement following social distancing guidelines set by the Center for Disease Control and the Virginia Department of Health.

A survey was employed to better understand how local stakeholders (including residents, business owners, and employees) view city alleys and possible improvements using green infrastructure and enhanced bike and pedestrian facilities. Survey flyers were distributed to residences and businesses within the bounds of Lombardy Street, Leigh Street, 3rd Street, and Broad Street in January 2021. The survey flyer directed individuals to a short online survey using a visual preference component. Google Voice was also utilized to set up a phone number for comment collection and a project-branded email was provided to collect input and field questions, concerns, or problems from the community.

To comply with social distancing guidelines in response to the COVID-19 Pandemic, engagement efforts were rarely in-person. Flyers were left at residences and businesses via mail slots, mailboxes, or similar delivery vessel. The survey distribution area was chosen to target likely frequent-users of the subject alleyways.

Interviews with City and regional departments and agencies were used to tie into resident comments and were vital in learning what is possible in the short and long-term when it comes to green alleys. Representatives from the Department of Public Utilities, the Office of Sustainability, the Department of Public Works, the Department of Planning and Development Review, and PlanRVA—among others—were interviewed in the early development stage. Interview protocols are provided in the Appendix.

COVID-19 Precautions

This project was developed from August 2020 – April 2021, taking place entirely during the COVID-19 Pandemic, which was declared on March 11, 2020. As a result, meetings took place entirely by phone or video conferencing such as Zoom and Google Meet. The exceptions being two alley tours lead by residents where participants wore masks and maintained social distance as recommended by the CDC and VDH.

Field research and minimal street level engagement was always conducted wearing a mask and with an attempt to maintain appropriate social distance. Due to the style of approach and proximity of the study area to the author’s home, research was conducted almost entirely on foot or bike. This allowed an informed approach to field research that ensured avoidance of crowds and heavy foot traffic areas.

Green Alley Network Website

A publicly-facing website (Figure 3) was designed at the beginning of this project to serve as a resource for community residents and stakeholders, and to serve as an executive summary upon completion of the plan. The survey flyers that were distributed to the entire study area featured the website name and interested parties were directed there for more information.

For branding purposes and to assist in navigation, the web domain “greenalleysplan.com” was purchased for the duration of a year for a cost of about eight dollars. The page was constructed using an ArcGIS StoryMap, which allowed the use of integrated mapping, surveys, and other multimedia. The website received regular updates at different milestones of the project, keeping interested parties up-to-date. For the duration of the community survey open period, a link was prominently displayed on the project website and results were displayed in full upon closure of the survey. Draft recommendations were posted on the website for a duration of two weeks to solicit final plan input from stakeholders. Visitors to the site during these two weeks were greeted with the following message when entering the Draft
Recommendations' section:
You can provide input on these draft recommendations until April 14, 2021. Input in the form of comments, suggestions, questions, or concerns can be sent to greenalleyrva@gmail.com. You may also call 804-675-7275 to leave your comments in a voicemail message.

The ultimate goals of the website were to keep individuals in the loop about the project, promote detailed engagement, and provide an open source of contact.

A combination of greenalleyplan.com, the project Google Voice number, and the initial survey flyers promoted active dialogues with several community members throughout the process.

Green Alley Logo
A simple logo (Figure 4) was developed to help with branding and to provide a sample design for a hypothetical alley network.

For this project, the logo was used on the website, email avatar, and research update material. In the future, a design chosen or created by residents could be used in marketing and educational material as well as on wayfinding signs.

This design was created through the process described in Figure 5.
Summary of Findings

Surveyed residents indicated a strong interest for investment in alleys as public space as indicated by their open comments and design preferences. An analysis of resident comments indicates opportunities in trash collection, accessibility, stormwater, and general improvements including public art and landscaping. Sometimes the referenced issue overlapped into one or more other categories, but each comment was paired with a primary opportunity. Case in point, general presence of trash and loose refuse is a main concern among surveyed residents, which can in-turn complicate stormwater management and contribute significantly to accessibility issues. The way trash, stormwater, and existing accessibility problems combine in the study area contribute to a cycle of alley degradation that can only be addressed through municipal and community investment.

Despite a strong negative opinion of alleys among surveyed residents, open ended responses indicate a recognition of usefulness of the space and a desire to see improvements that would allow more comfortable multi-modal travel and community use. Research, including interviews with City workers and residents, indicates that knowledge of City agencies roles and responsibilities can be confusing and opportunities exist for public outreach, education, and community involvement around alleys.
Interviews with City officials and concurrent on-the-ground research resulted in a better understanding of Richmond's current green alley program. As of April 2021, 13 alleys in Richmond have been converted to green alleys (Map 7 and Table 1). Time for conversion takes about 6-7 months using contracted labor, with regular maintenance later performed by City crews. Depending on the specific size, terrain, and condition, initial construction can be up to three times the cost of repaving a traditional alley, but the lifetime cost of a green alley is equal or substantially less. Green alleys have proven to be popular with residents and businesses who benefit from these improvements since the design of the permeable pavers reduce stormwater runoff, help make alleys look like more inviting streets, and reduce the perception of these spaces as dirty or dangerous.

Other alleys have been identified for green alley conversion, but there is currently no detailed plan for implementation or a dedicated funding source for the program.

**Table 1. Green Alleys in Richmond**

<table>
<thead>
<tr>
<th>Green Alley</th>
<th>Location</th>
<th>Year Built</th>
</tr>
</thead>
<tbody>
<tr>
<td>12th Street</td>
<td>12th – Main – 13th – Cary</td>
<td>2010</td>
</tr>
<tr>
<td>5th Street</td>
<td>5th – Main – 4th – Cary</td>
<td>2010</td>
</tr>
<tr>
<td>Monument Avenue</td>
<td>Monument – Cleveland – 15th – Franklin</td>
<td>2012</td>
</tr>
<tr>
<td>Grace Street</td>
<td>Grace – Laurel – Frankl – Shaffer</td>
<td>2012</td>
</tr>
<tr>
<td>St Christopher’s Road</td>
<td>St. Christopher’s – Wardsley – Kem – Bay</td>
<td>2012</td>
</tr>
<tr>
<td>Mardian Avenue</td>
<td>Mardian – Bells – Lynhaven</td>
<td>2016</td>
</tr>
<tr>
<td>Fendall Avenue</td>
<td>Fendall – Garland – Culpepper</td>
<td>2016</td>
</tr>
<tr>
<td>Chatham Avenue</td>
<td>Chathamwood – Akron – Mass</td>
<td>2016</td>
</tr>
<tr>
<td>Grove Avenue</td>
<td>Grove – Meadow – Hanover – Granby</td>
<td>2016</td>
</tr>
<tr>
<td>Lorraine Avenue</td>
<td>Lorraine – Cromwell – Meadowbrook – Stratford</td>
<td>2018</td>
</tr>
<tr>
<td>T Street</td>
<td>T – 27th – S – 30th</td>
<td>2018</td>
</tr>
<tr>
<td>Forest View</td>
<td>Forest View – Bassett – Hilt – Clay – Clarence</td>
<td>2021</td>
</tr>
</tbody>
</table>
12th Street

- **Location**: Shockoe Slip
- **Year Built**: 2010
- **Surface Material**: Permeable pavers

5th Street

- **Location**: City Center
- **Year Built**: 2010
- **Surface Material**: Permeable pavers
Monument Avenue

Location
Museum District

Year Built
2012

Surface Material
Permeable pavers

Grove Avenue

Location
The Fan

Year Built
2016

Surface Material
Permeable pavers
St Christopher’s Road

**Location**
Three Chopt

**Year Built**
2012

**Surface Material**
Permeable pavers

N 23rd Street

**Location**
Church Hill

**Year Built**
2013

**Surface Material**
Permeable pavers
Cheatwood Avenue

Location: Washington Park
Year Built: 2016
Surface Material: Permeable concrete

Lorraine Avenue

Location: Bellevue
Year Built: 2018
Surface Material: Permeable concrete

FINDINGS
Grace Street

Location: VCU
Year Built: 2018
Surface Material: Permeable pavers

T Street

Location: Church Hill
Year Built: 2018
Surface Material: Permeable pavers
Forest View Drive

Location
Forest View

Year Built
2021

Surface Material
Permeable pavers
Almost all respondents report seeing poor surface condition in alleys (92%), but only 68% report poor drainage or flooding. This may indicate that many people do not recognize the connection between stormwater and roadway surface condition and necessitate the need for further stormwater education. Green alleys using previous pavers can virtually eliminate runoff that causes severe damage to street surfaces and reduce instances of potholes and other surface damage.

When considering surface conditions, related survey insights tell a more complete story of how respondents currently use and want to use their neighborhood alleys. First, and perhaps surprisingly, a lot of people use their bikes in alleys, with 40% report biking. This includes people using alleys as bicycle routes, shortcuts, and to access garages and rear yards. Whatever the reason, the high number of bike users indicates these are fairly popular avenues for active transportation when conditions allow accessibility. Additionally, cars in alleys are a split issue at 50%, with walking and biking access preferred at 30+ point margins. Taken with the numbers on alley bike activity, that may suggest the need for further investments in walking and biking infrastructure in alleys and the reinforcement of current automobile activity—primarily parking and garage access—while limiting further motor vehicle traffic. Finally, respondents indicate a strong preference for pervious pavers at 74%, choosing the favored design for Richmond’s green alleys. This surface type emphasizes aesthetics while providing subtle speed control

Four more survey insights can be taken together to tell another story. Responses suggest that public art is very popular, with 84% selecting it as a preferred amenity. Open comments greatly supported this number as individuals commonly referenced murals and artistic displays as features they appreciate seeing in their alleys. There are a number of large murals in Jackson Ward and a few in Carver, which further supports this view.

While public art is undeniably popular, seating as an amenity is not as popular, with only 46% showing support. This may suggest that residents have a transitory public gallery-type view of this art—that passersby are welcome to view and enjoy the work for a few moments, but for the most part, alleys are not a place to dwell (with some exceptions like community gardens and designated pocket parks). Over 78% of respondents report using alleys daily and 18% report using them weekly, supporting the view of alleys as central to community life. It is natural that people would like to see more beautification and comfort in a space that is frequently used in the course of daily life. Finally, survey results indicate that crime is an issue, but among the fewest number (22%). This number is the exact inverse of the number to report using alleys daily (22-78), which could suggest a relationship between those who infrequently use alleys and those who perceive alleys as dangerous. However, this plan cannot dismiss even the perception of crime, as the belief that alleys are unsafe may be one of the primary reasons behind infrequent use and neglect of alleys.
Themes Identified by Residents

Trash

“More thought needs to go into city trash storage and collection for residential and businesses to make sure there’s capacity for the increased occupancy. I believe it’s been overlooked and is a disservice to those who are occupying these areas.”

- Resident response

Trash and refuse collection was shown to be the primary topic of concern, dominating open comments with “trash” being the most common word submitted just behind “alley”. Several responses suggested that there is not one common source for the problem in most alleys, but rather the issue is systemic. This presents an opportunity for a revaluation of current refuse practices and how we design areas for garbage collection in the public realm: in alleys, side streets, and main streets. Residents reported “haphazard supercan locations” and “old, abandoned, and broken trash cans that are clogging our alleys,” expressing frustration at a problem that seems to never improve. Beyond the feeling of comfort, trash collection is a public health issue, from direct dangers like broken glass, rusty metal, pet waste, and medical waste to more hidden dangers such as toxins leeching into groundwater, supporting rodent populations, and contributing to the spread of disease. As stated earlier, trash can exacerbate current problems with accessibility and stormwater management, so sustainable trash collection systems will be a vital aspect of the final recommendations.

Accessibility

“I think it’s really important to make EVERY roadway, street, or alley accessible to all people, regardless of physical ability.”

- Resident Response

Since alleys are a kind of omnipresent public space in many parts of Richmond, it is important to make them safe and accessible to the public. Survey responses indicate a strong desire for alleys to be more accessible to those on foot and bike. During field research, conditions were often unfavorable to walking (which was the primary method of travel during the study along with biking) and many times would have been completely impossible for someone in a wheelchair or in a stroller to navigate. There was exasperation conveyed by residents who navigate these spaces daily, with irritation at the condition of alleys summarized in this response:

“I would like to walk down the alleyways in my neighborhood and enjoy them - not having to back track because they are so muddy, smell bad (especially in the summer). I’d like to be able to drive down my alley when I need to without navigating all of the deep potholes.”

Some residents specifically called for alleys as active transportation routes in their input, some thinking “they could be great alternate walking or biking routes if you want to get off the street or sidewalk” with many more stating they would like to have them as options when walking or biking. When taken with the earlier insight that 40% of respondents already use alleys for biking, we can identify a lot of unmet demand for more bike-friendly surface conditions in these spaces. Some respondents also reported tripping and falling due to potholes and uneven cobblestones, highlighting the need for greater non-automotive accessibility in these public rights-of-way.

Field observations were largely consistent with resident reporting, with relatively poor walking and biking conditions in study area alleys despite being located in a fairly flat part of the city with a strong grid network (Figure 4). Poor conditions are largely...
due to surface conditions and resulting stormwater issues.

**Stormwater**

"I would like to see the alleyway cleared of debris as well as drainage issues rectified."
- Resident response

Though not directly identified as much as trash and accessibility, better stormwater management was also an opportunity identified by respondents. The topic was usually combined with another issue, such as potholes or general accessibility problems: "The alleyway between Goshen and Hitchcock... has many potholes that fill with water and pose hazards". Responses often identified the specific alley in question when sharing stormwater and stormwater-related problems, implying that these conditions have long been a source of difficulty in their daily lives: "Drainage issues need to be addressed in Carver, especially the alley between Marshall and Clay in the 800 block". Indeed, some severe accessibility issues were observed to have quick, ad hoc fill-ins of dirt, gravel, crushed brick, and other materials that show some residents felt it necessary to attempt to rectify some of these issues themselves.

These stormwater concerns were evident from Figure 6. The top two pictures depict an alley in Carver, one after a snowfall on February 12, 2021 (top left) and again on February 16, 2021 (top right). The bottom two pictures depict a green alley in the Fan, one after the same snowfall on February 12, 2021 (bottom left) and again on February 16, 2021 (bottom right).
direct field observations during February 2021 (Figure 6), when the Richmond region experienced a heavy amount of rain, snow, and ice. Each of these events alone can be a major concern, but when they happen during the same weather event, alleys can see immediate stormwater runoff combined with a gradual snowmelt that can exacerbate and prolong flooding and hazardous conditions. During the week of February 7—12, which saw a modest inch of snow and 1.76 inches of precipitation, two alleys were observed and recorded on February 12 after the more significant snowfall of the week. One is a green alley in the Fan and the other is a typical alley that can be found in Carver, comprised of pavers, dirt, gravel, and various other patchwork surfaces. Four days later, after snow had melted, the same two alleys were recorded to gather a visual comparison of standing water found in each alley. It should be noted that both are active alleys that experience resident access, utility vehicles, and cut-through traffic.

General Improvements

“I love finding murals and art in alleys. I think that it would be good to take advantage of the privacy of alleys to implement more artistic projects.”

- Resident response

Comments related to general improvements were broad, but generally include remarks on public art, landscaping, gardens, and community space. Many responses are largely in-line with the multi-faceted goals laid out in this plan: “more grass, flowers and shrubbery; more lighting; less trash; like small parks”. Still others were even more spot-on: “I’d like to convert alleyways into green community spaces... like a network of parks - giving dwellers places to explore and express creativity, to play, to sit and meditate, to plant herbs, fruits, and vegetables.” It is unknown which surveys were taken after respondents viewed the project website, which may have influenced responses.
Combining resident input, field research, and consideration of best practices, a set of goals, objectives, and actions are presented in this section as means to realize the overall vision for the Green Alley Network Plan:

**GOALS**

1. **Reduce stormwater runoff from Richmond alleys**
2. **Increase the comfort of alley spaces**
3. **Improve mobility in and between alleys**
4. **Engage in public outreach and awareness of green alleys**

### Recommendations

The plan’s four goals are to (1) reduce stormwater runoff from Richmond alleys, (2) increase the comfort of alley spaces, (3) improve mobility in and between alleys, and (4) engage in public outreach and awareness of green alleys. The first three goals mirror opportunities identified by residents and the fourth goal is presented as a way to bring green alleys and green stormwater infrastructure to more residents of Richmond and the wider region. Following these recommendations, implementation measures will be presented to provide next steps to carry on the momentum gained in this particular green alley study.

**Goal 1: Reduce stormwater runoff from Richmond alleys**

**Objective 1.1** Increase number of green alleys

**Action 1.1.1** Establish a dedicated green alley program in the City of Richmond that focuses on stormwater management, mobility, and quality of life. Keep data and records updated and publicly available to encourage interest and resident-led projects.

**Action 1.1.2** Pursue funding through grants and local, state, and federal sources in transportation, stormwater, climate, equity, and health. Take advantage of the broad area that transportation covers and its relation to land and energy use. Transportation infrastructure is responsible for a large portion of stormwater runoff and turning these grey areas into green areas will make our communities more sustainable and resilient.

**Action 1.1.3** Require green alley-friendly elements or other green stormwater infrastructure in new development. Even if an alley cannot immediately be converted into a green alley, requirements to meet a certain amount of stormwater capture in the form of green roofs, rain barrels, and edge vegetation can be examined as options to reduce stormwater entering alleys from adjacent properties in the first place.

**Objective 1.2** Encourage utility-friendly vegetation along alleys

**Action 1.2.1** Establish a one-page resident’s guide to utility-friendly vegetation. Focus on native plantings using resources such as Plant RVA Natives Campaign’s Native Plants for Virginia’s Capital Region to identify species appropriate for each project. Emphasize that alleys are unique, often harsh, environments with specific needs and considerations.

**Action 1.2.2** Work with residents and local non-profits to establish community gardens and plant trees. Reforest Richmond is one such program that is committed to help realize the goal of increasing the city-wide tree canopy to 60% by 2037, as outlined in Richmond 300, in an effort to dismantle systemic racism and environmental injustice. Planting more trees near alleys in cooperation with adjacent property owners can help capture stormwater runoff and meet urban tree canopy goals while expanding their benefits into lower-income neighborhoods and communities of color.

**Objective 1.3** Utilize stormwater as a resource

**Action 1.3.1** Require new transportation projects to integrate green stormwater infrastructure in its design. Bioretention planters, stormwater trees and permeable pavements are examples of infrastructure that can effectively manage stormwater along transportation corridors while improving the well-being of movement. This decision would be consistent with the Virginia Coastal Zone Management Program’s goals on resource protection and is locally in-line with the 2019 declaration of Richmond as a biophilic city and the Richmond 300 vision of a thriving environment.
Goal 2: Increase the comfort of alley spaces

Objective 2.1: Work toward greater biodiversity in alleys

Action 2.1.1: Create incentive programs for residents to maintain greenspace on alley edges and for planting of trees and thick vegetation near the rear of property lines. While the right-of-way is public space, individual residents have a big part to play in the health of alleys. Giving residents more ownership and decision-making about certain elements can exponentially save municipal maintenance costs. [Callout will detail possible neighborhood programs.]

Action 2.1.2: Establish full-time tree steward positions within the Urban Forestry Division to be responsible for specific geographic areas of the city, including coordinating with the Department of Public Utilities on the City’s green alleys. Additionally, provide funds to volunteer tree stewards to provide a basic stipend fund for volunteers. This reorganization can strengthen the city’s urban canopy and ecological health by providing more comprehensive care for urban forests and opportunities for public education.

Objective 2.2: Explore sustainable waste collection practices

Action 2.2.1: Utilize submerged refuse containers (Figure 7) in alleys with high volumes of trash. Placing shared submerged trash containers in the public right-of-way where space and clearance allows can improve the comfort of alleys by providing a safe and secure method of waste disposal that prevents overflow and issues with lose trash. [Callout will reference submerged trash containers in other cities.]

Action 2.2.2: Provide incentives, designs, and support for construction of trash can enclosures or screenings. Such improvements can improve visible aesthetics and comfort within alleys and streamline trash disposal and collection. Vegetation on alley edges in Action 2.1.1 can help form enclosures or effectively screen sights and smells associated with trash containers.

Action 2.2.3: Require developers and public projects to incorporate sustainable waste guidelines early in the design process. This would reduce the impact of waste on the public realm, often located temporarily or permanently in alleys. Proper waste collection would lessen the negative impact of waste in public health, stormwater runoff, and mobility.

Action 2.2.4: Adopt city-wide Zero Waste policies, building upon the language in Richmond 300 about demonstrating zero-waste behaviors in the design and expansion of City operations.

Action 2.2.5: Initiate a plastic bag ban to protect local environments and eliminate a common litter source.

Action 1.3.2: Set a goal of capturing a minimum of 85% of stormwater runoff with new alley construction. Green alley conversion projects are an excellent time to introduce other GI elements. In areas slated for new development where the grid and alley network can be enhanced, such as Greater Scott’s Addition and Manchester, stormwater can be utilized as a vital resource to create biophilic districts and city-wide eco-corridors.

Action 1.3.3: Introduce minimum green stormwater infrastructure in routine alley repavings of all materials. Where conversions to green alleys cannot yet take place, include edge vegetation or pervious pavement at alley entrances to mitigate runoff around common problem areas.

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Goal 2: Increase the comfort of alley spaces

Objective 2.1: Work toward greater biodiversity in alleys

Action 2.1.1: Create incentive programs for residents to maintain greenspace on alley edges and for planting of trees and thick vegetation near the rear of property lines. While the right-of-way is public space, individual residents have a big part to play in the health of alleys. Giving residents more ownership and decision-making about certain elements can exponentially save municipal maintenance costs. [Callout will detail possible neighborhood programs.]

Action 2.1.2: Establish full-time tree steward positions within the Urban Forestry Division to be responsible for specific geographic areas of the city, including coordinating with the Department of Public Utilities on the City’s green alleys. Additionally, provide funds to volunteer tree stewards to provide a basic stipend fund for volunteers. This reorganization can strengthen the city’s urban canopy and ecological health by providing more comprehensive care for urban forests and opportunities for public education.

Objective 2.2: Explore sustainable waste collection practices

Action 2.2.1: Utilize submerged refuse containers (Figure 7) in alleys with high volumes of trash. Placing shared submerged trash containers in the public right-of-way where space and clearance allows can improve the comfort of alleys by providing a safe and secure method of waste disposal that prevents overflow and issues with lose trash. [Callout will reference submerged trash containers in other cities.]

Action 2.2.2: Provide incentives, designs, and support for construction of trash can enclosures or screenings. Such improvements can improve visible aesthetics and comfort within alleys and streamline trash disposal and collection. Vegetation on alley edges in Action 2.1.1 can help form enclosures or effectively screen sights and smells associated with trash containers.

Action 2.2.3: Require developers and public projects to incorporate sustainable waste guidelines early in the design process. This would reduce the impact of waste on the public realm, often located temporarily or permanently in alleys. Proper waste collection would lessen the negative impact of waste in public health, stormwater runoff, and mobility.

Action 2.2.4: Adopt city-wide Zero Waste policies, building upon the language in Richmond 300 about demonstrating zero-waste behaviors in the design and expansion of City operations.

Action 2.2.5: Initiate a plastic bag ban to protect local environments and eliminate a common litter source.
Action 2.2.2: Survey residents when adding lighting to understand the area’s needs. Municipal lighting could be coordinated with a private lighting installation or surrounding residents may be open to hanging cross-lights or other statement lighting.

Action 2.3.3: Create incentive program for property owners to install pedestrian-level, zero uplighting fixtures in alleys near lot lines. Make sure incentives require lighting that is dark sky compliant and ensure fixtures are properly installed.

Action 2.4.4: Install hanging lights over the alley rights-of-way in certain commercial and mixed-use districts. This is also an opportunity to get creative and incorporate ideas from the community. In Richmond’s Art District, street art installations such as the various examples of “umbrella alleys” can serve as inspiration for permanent infrastructure that could provide a canopied alley with increased nighttime visibility and comfort.

Objective 3.1: Invest in alleys as shared streets

Action 3.1.1: Conduct and maintain a comprehensive alley inventory with periodic walk-throughs and audits. Keeping an accurate record of alleys can help determine best candidates for green alley conversion and possibilities for corridor enhancement or incorporation into adjacent trails.

Action 3.1.2: Work with communities around Richmond to designate local shared streets in alleys that demonstrate the need for green infrastructure or other speed and volume management improvements.

Action 3.1.3: Utilize simple street calming measures in alleys to discourage non-resident automobile use

Objective 3.2: Facilitate accessible travel through alleys

Action 3.2.1: Set target speeds for alleys at 5 mph. This helps ensure a safe environment for these often narrow shared spaces and remains consistent with recommendations from NACTO and AASHTO. Since environment influences behavior and driving is no exception, designing for high speed invariably invites high speeds. Cars traveling in alleys at very low speeds are more likely to avoid people and pets in the shared right of way, cause less noise, and are less likely to cause property damage.

Action 3.2.2: Establish alley corridors with route planning and connections to existing infrastructure in mind. Green alleys serving as active transportation networks are able to serve as alternate routes in a low-stress system, complimenting on-road cycle tracks and bike lanes.

Action 3.2.3: Create a branded alley wayfinding system. This can help improve navigation and orientation while linking alley users to popular sights, neighborhoods, and commercial districts.
Action 3.2.4: Establish a quick-response task force for minor paver/surface repairs with an emphasis on maintaining original accessibility and aesthetic. Fix minor problems as they form in designated shared streets and transportation corridors.

Objective 3.3
Facilitate safe and accessible travel between alleys

Action 3.3.1: Daylight the intersection of alleys with other streets to provide a clearer sight line free of vehicles. These spaces can instead be used to strengthen the adjacent green alley and aid in wayfinding and placemaking. [Will include callout on daylighting.]

Action 3.3.2: Utilize speed management techniques such as raised crosswalks and curb extensions at alley-street intersections. Bio-planters and swales can be placed in curb extensions to provide more safety, comfort, and consistency along green alley corridors. Stormwater trees placed at extension planters at alley entrances can calm motor vehicle traffic and serve as visual gateways to green alleys. Bio-planters and swales can be placed in curb extensions to provide more safety, comfort, and consistency along green alley corridors. Stormwater trees placed at extension planters at alley entrances can calm motor vehicle traffic and serve as visual gateways to green alleys. Bio-planters and swales can be placed in curb extensions to provide more safety, comfort, and consistency along green alley corridors. Stormwater trees placed at extension planters at alley entrances can calm motor vehicle traffic and serve as visual gateways to green alleys.

Action 3.3.3: Place bicycle and pedestrian crossing MUTCD sign W11-15 at intersections of alleys with other streets where cross traffic experiences higher speed or volume than ordinary. Since alleys usually intersect with smaller, low-volume streets, the minor delay to motor traffic should be considered a fair trade for improved safety.

Action 3.3.4: Use contrasting pavements (Figure 8), markings, and other directional means to provide continuation between disjointed and offset alleys. A green alley network doesn’t require a completely uninterrupted straight line to remain a corridor. Alley networks can remain malleable and adapt to slight directional variations while retaining their usefulness as eco-transportation corridors—biodiverse urban passages that are built to efficiently utilize our natural resources while serving mobility needs.

Action 3.3.5: Adopt regulations that prohibit automated vehicle (AV) storage or circulation in and through alleys, providing a residential parking exception. As the use of AVs increase, the constant flow of empty vehicles on streets may increase, especially by rideshare services waiting for the next fare. Such growth in volume would have a negative impact on comfort, safety, and pavement conditions.

Goal 4: Engage in public outreach and awareness of green alleys and green stormwater infrastructure

Objective 4.1
Improve communication channels between residents and municipal departments

Action 4.1.1: Hold a hybrid in-person/virtual community event about green alley solutions to provide education and recruit green alley ambassadors (see Action 4.2.1). This study indicated that many residents are open to green alley improvements and want to see more usable alley space. Build upon interests in open streets and interventions in public space that increased during the past year by starting conversations about expanded uses for alleys.

Action 4.1.2: Create webpage dedicated to green alley information, contacts, tools, and status of projects. The webpage designed for this plan using ArcGIS Online provides an example for how to incorporate mapping, alley indexing, and public engagement.

Action 4.1.3: Optimize mobile applications for residents to report alley problems more easily. Crowdsourcing the location of stormwater and...
transportation challenges can offer insights on patterns and opportunities for comprehensive improvements. The RVA311 app is an example of a tool that can help people feel more invested and connected to their neighborhood. Utilize technology such as augmented reality to increase interest among mobile users and visualize possibilities in real-time.

Objective 4.2

Foster sustainable community involvement in alleys

Action 4.2.1: Create a resident alley ambassador program to put more power in the hands of communities. Activities and responsibilities could include collecting reports to submit, holding cleanups, conducting walk audits, and holding community events. Allow ambassadors to engage in certain community-led improvements and limited use of tactical urbanism.

Action 4.2.2: Develop an "adopt an alley" program to partially fund alley improvement projects. Possible patrons could include neighborhood associations, social clubs, non-profits, businesses, private schools, and individual residents.

Action 4.2.3: Create district-specific accessory dwelling unit (ADU) incentive programs as a further investment in the future of alley space. The benefit of ADUs include increasing property value, providing natural supervision by landlords, and providing an option for individuals to age in place, strengthening ties to the adjacent alley and community.

Objective 4.3

Establish clear roles and responsibilities about maintenance and repair

Action 4.3.1: Incorporate communication and education into signs and murals. Themes and displays of biophilia, neighborhood history, and civics can help inspire a sense of pride in place, especially when residents can make collective decisions about projects and design. Ecological imagery in public art can help educate alley users about issues like stormwater, climate health, and heat islands, and how alleys play a role. On wayfinding signs, contact information and public service announcements can help remind residents of green alleys, their benefits, and how they can help ensure the health of Richmond’s alleys.

Action 4.3.2: Ensure residents have the tools they need to maintain comfortable and accessible alleys. Check in with surveys and direct-on-street alley engagement by a multi-disciplinary team of Richmond employees.

Could this be the future of Richmond’s alleys?
Implementation

This plan is not meant to have a completion date. Instead, it hopes to invoke conversations about these forgotten spaces and stakeholders. Responsibility for implementation is geared toward the City of Richmond in keeping with the study area of Carver and Jackson Ward, but the equivalent party for any respective municipality can be substituted.

This section also includes a list of funding sources (Table 3) intended to support implementation. Many recommendations were developed to be relatively quick actions that are intended to be consistently applied over the long-term. Responsibility for implementation is geared toward the City of Richmond in keeping with the study area of Carver and Jackson Ward, but the equivalent party for any respective municipality can be substituted.

### Goal 1: Reduce Stormwater Runoff from Richmond Alleys

<table>
<thead>
<tr>
<th>Objective 1.1: Increase number of green alleys</th>
<th>S</th>
<th>M</th>
<th>L</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action 1.1.1: Establish a dedicated green alley program</td>
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<td>✔</td>
<td>✔</td>
<td>Public Utilities, Public Works</td>
</tr>
<tr>
<td>Action 1.1.2: Pursue funding through grants and local, state, and federal sources in transportation, stormwater, climate, equity, and health</td>
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<td>✔</td>
<td>✔</td>
<td>Public Utilities, Public Works, PDR</td>
</tr>
<tr>
<td>Action 1.1.3: Require green alley-friendly elements or other green stormwater infrastructure in new development</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>City Council, PDR</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective 1.2: Encourage utility-friendly vegetation along alleys</th>
<th>S</th>
<th>M</th>
<th>L</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action 1.2.1: Establish a one-page resident’s guide to utility-friendly vegetation</td>
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<td>✔</td>
<td>✔</td>
<td>Public Utilities, Public Works</td>
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<tr>
<td>Action 1.2.2: Work with residents and local non-profits to establish community gardens and plant trees</td>
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<td>✔</td>
<td>✔</td>
<td>Residents, Non-Profits, Public Utilities, Public Works</td>
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</table>

<table>
<thead>
<tr>
<th>Objective 1.3: Utilize stormwater as a resource</th>
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<th>M</th>
<th>L</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action 1.3.1: Require new transportation projects to integrate green stormwater infrastructure in its design</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>City Council, Public Utilities, PDR</td>
</tr>
</tbody>
</table>

| Objective 1.3.2: Set a goal of capturing a minimum of 85% of stormwater runoff with new alley construction | ✔ | ✔ | ✔ | City Council, Public Utilities, PDR |
| Objective 1.3.3: Introduce minimum green stormwater infrastructure in routine alley repavings of all materials | ✔ | ✔ | ✔ | Public Utilities, Public Works, PDR |

### Objective 2: Work toward greater biodiversity in alleys

| Objective 2.1: Establish full-time tree steward positions within the Urban Forestry Division | ✔ | ✔ | | Public Works |
| Objective 2.2: Explore sustainable waste collection practices | ✔ | ✔ | | Public Works |

### Objective 2.3: Improve lighting in alleys

| Objective 2.3.1: Require new lighting in alleys to have zero uplighting | ✔ | ✔ | | Public Utilities, Public Works, PDR |
| Objective 2.3.2: Survey residents when adding lighting to understand the area’s needs | ✔ | ✔ | | Public Utilities, PDR |
| Objective 2.3.3: Create incentive program for property owners to install pedestrian-level, zero uplighting fixtures in alleys near lot lines | ✔ | ✔ | | Residents, Public Utilities, PDR |
| Objective 2.3.4: Install hanging lights over the alley rights-of-way in certain commercial and mixed-use districts | ✔ | ✔ | | Public Utilities |

### Goal 2: Increase the comfort of alley spaces

#### Short Range (S): 0-2 years

| Objective 2.2.2: Provide incentives, designs, and support for construction of trash can enclosures or screenings | ✔ | | | Public Works, PDR |

#### Mid Range (M): 2-5 years

| Objective 2.4: Adopt Zero Waste policies | ✔ | | | City Council, PDR |

#### Long Range (L): 5+ years

| Objective 2.5: Initiate a plastic bag ban | ✔ | | | City Council |

### Goal 3: Improve mobility in and between alleys

| Objective 3.1: Conduct and maintain a comprehensive alley inventory with periodic walk-throughs and audits | ✔ | | | Public Works, Public Utilities, PDR |
| Objective 3.2: Work with communities around Richmond to designate local shared streets in alleys | ✔ | | | Residents, Public Works, PDR |

### Table 2. Plan Implementation Steps

<table>
<thead>
<tr>
<th>Short Range (S): 0-2 years</th>
<th>Mid Range (M): 2-5 years</th>
<th>Long Range (L): 5+ years</th>
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</thead>
<tbody>
<tr>
<td>S</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Action 1.3.1: Set a goal of capturing a minimum of 85% of stormwater runoff with new alley construction</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Action 1.3.3: Introduce minimum green stormwater infrastructure in routine alley repavings of all materials</td>
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<td>✔</td>
</tr>
<tr>
<td>Objective 2.1: Work toward greater biodiversity in alleys</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Objective 2.2: Explore sustainable waste collection practices</td>
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</tr>
<tr>
<td>Objective 2.3: Improve lighting in alleys</td>
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<td></td>
</tr>
</tbody>
</table>

| Objective 3.2.2: Provide incentives, designs, and support for construction of trash can enclosures or screenings | ✔ | | | Public Works, PDR |
| Objective 2.3.3: Create incentive program for property owners to install pedestrian-level, zero uplighting fixtures in alleys near lot lines | ✔ | | | Residents, Public Utilities, PDR |
| Objective 2.3.4: Install hanging lights over the alley rights-of-way in certain commercial and mixed-use districts | ✔ | | | Public Utilities |

| Objective 3.1: Conduct and maintain a comprehensive alley inventory with periodic walk-throughs and audits | ✔ | | | Public Works, Public Utilities, PDR |
| Objective 3.2: Work with communities around Richmond to designate local shared streets in alleys | ✔ | | | Residents, Public Works, PDR |
Goal 3: Improve mobility in and between alleys

Action 3.1.3: Utilize simple street calming measures in alleys
Objective 3.2: Facilitate accessible travel through alleys
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Action 3.2.2: Establish alley corridors with route planning and connections to existing infrastructure in mind
Action 3.2.3: Create a branded alley wayfinding system
Action 3.2.4: Establish a quick-response task force for minor paved/surface repairs
Objective 3.3: Facilitate safe and accessible travel between alleys
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Action 3.3.2: Utilize speed management techniques such as raised crosswalks and curb extensions at alley-street intersections
Action 3.3.3: Place bicycle and pedestrian crossing signs
Action 3.3.4: Use contrasting pavements, markings, and other directional means to provide continuation

Objective 4: Engage in public outreach and awareness of green alleys and green stormwater infrastructure

Goal 4: Engage in public outreach and awareness of green alleys and green stormwater infrastructure

Action 4.1.1: Hold a hybrid in-person/virtual community event about green alleys
Action 4.1.2: Create a webpage dedicated to green alley information
Action 4.1.3: Optimize mobile applications for residents to report alley problems more easily
Action 4.2.1: Create a resident alley ambassador program
Action 4.2.2: Develop an “adopt an alley” program
Action 4.2.3: Create district-specific accessory dwelling unit (ADU) incentive programs

Objective 4.3: Establish clear roles and responsibilities about maintenance and repair
Action 4.3.1: Incorporate communication and education into signs and murals
Action 4.3.2: Ensure residents have the tools they need

Table 3. Possible Funding Sources (Table constructed with data compiled by Indya Woodfolk)

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Facilitator</th>
<th>Eligible Projects</th>
<th>Eligible Applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUILD Discretionary Grants</td>
<td>Department of Transportation</td>
<td>Infrastructure Improvement</td>
<td>State, tribal, and local governments</td>
</tr>
<tr>
<td>Chesapeake Bay Restoration Fund</td>
<td>Division of Legislative Services</td>
<td>Water Quality Improvements, Habitat Restoration/Ecology Protection</td>
<td>State agencies, local governments, tax-exempt nonprofit organizations</td>
</tr>
<tr>
<td>Chesapeake Bay Stewardship Fund: Innovative Nutrient and Sediment Reduction Grants</td>
<td>National Fish and Wildlife Foundation</td>
<td>Water Quality Improvements, Habitat Restoration/Enhancement, Climate Resilience</td>
<td>Non-profit organizations, state governments, local governments, native tribes, educational institutions</td>
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<tr>
<td>Chesapeake Bay Stewardship Fund: Small Watershed Grants</td>
<td>National Fish and Wildlife Foundation</td>
<td>Water Quality Improvements, Habitat Restoration/Enhancement</td>
<td>Non-profit organizations, state governments, local governments, tribal governments, educational institutions, for-profit entities</td>
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<tr>
<td>Choice Neighborhood Implementation Grants</td>
<td>Department of Housing and Urban Development</td>
<td>Neighborhood Redevelopment</td>
<td>PHAs, local governments, tribal governments, non-profit organizations</td>
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<tr>
<td>Funding Source</td>
<td>Facilitator</td>
<td>Eligible Projects</td>
<td>Eligible Applicants</td>
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<tr>
<td>Civic Innovation Challenge</td>
<td>National Science Foundation</td>
<td>Community Mobility, Resilience to Natural Disasters</td>
<td>State, municipal or tribal government officials, non-profits representative, community organizers</td>
</tr>
<tr>
<td>Clean Water Act Section 319 Grant</td>
<td>Virginia Department of Environmental Quality</td>
<td>Water Quality Improvements, Stormwater Management</td>
<td>Local governments, higher education institutions, planning district commissions, regional commissions, non-profit environmental organization</td>
</tr>
<tr>
<td>Clean Water Revolving Loan Fund</td>
<td>Virginia Department of Environmental Quality</td>
<td>Green Stormwater Infrastructure, Water Quality Improvements, Land Acquisition, Conservation Easement, Natural and Nature Based Features</td>
<td>Local governments, inter-municipal, interstate, or state agency</td>
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<tr>
<td>Climate Adaptation Fund</td>
<td>Wildlife Conservation Society</td>
<td>Climate Resilience, Habitat Restoration/Enhancement</td>
<td>Non-profit conservation organizations</td>
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<tr>
<td>Climate Change, Health, &amp; Equity Initiative</td>
<td>Kresge Foundation</td>
<td>Climate Resilience, Environmental Justice, Community Engagements</td>
<td>Non-profit organizations with climate, health, and/or equity focused goals</td>
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<tr>
<td>Coastal and Marine Habitat Restoration Grants</td>
<td>National Oceanic and Atmospheric Administration</td>
<td>Habitat Restoration/Enhancement</td>
<td>Institutions of higher education, non-profits, for profit organizations, state, tribal, and local governments</td>
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<tr>
<td>Coastal Resilience Fund</td>
<td>National Fish and Wildlife Foundation</td>
<td>Habitat Restoration/Enhancement, Natural and Nature Based Features, Resilient Infrastructure</td>
<td>Non-profit, state and territorial government agencies, local governments, tribal governments, educational institutions, commercial organizations</td>
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<tr>
<td>Community Development Block Grants (CDBG) - Community Improvements Grants</td>
<td>Virginia Department of Housing and Community Development</td>
<td>Community Improvement Grants are competitive grants, which aid eligible localities in implementing projects that will most directly impact the greatest needs of the community. There are five primary project types under this funding source: comprehensive community development, business district revitalization, housing, community facility (infrastructure) and community service facility.</td>
<td>Local governments, can contract with PDCs or others to undertake project activities</td>
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<tr>
<td>Conservation Innovation Grants</td>
<td>United States Department of Agriculture</td>
<td>Habitat Restoration/Enhancement</td>
<td>State, local, or tribal governments, non-governmental organizations, and individuals</td>
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<td>Coordination and Collaboration in the Resilience Ecosystem</td>
<td>Climate Change Foundation</td>
<td>Climate Resilience, Community Engagement</td>
<td>Local governments, non-profit organizations</td>
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<td>Emergency Coastal Resilience Fund</td>
<td>National Fish and Wildlife Foundation</td>
<td>Emergency Management, Natural and Nature Based Features, Habitat Restoration/Enhancement</td>
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<td>Five Star and Urban Waters Restoration Program</td>
<td>National Fish and Wildlife Foundation</td>
<td>Habitat Restoration/Enhancement, Community Engagement</td>
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<td>Green Streets, Green Towns, Green Jobs</td>
<td>Chesapeake Bay Trust</td>
<td>Green Infrastructure, Stormwater Management</td>
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<td>Funding Source Facilitator</td>
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<td>Eligible Applicants</td>
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<tr>
<td>HMA Pre-Disaster Mitigation Grant</td>
<td>Virginia Department of Emergency Management</td>
<td>Stormwater Management, Flood Mitigation, Resilient Infrastructure, Drainage Improvements, Habitat Restoration/Enhancement, Structural Acquisition, Non-Structural Floodproofing</td>
<td>State and tribal governments</td>
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<td>Virginia Association of Soil and Water Conservation Districts</td>
<td>Property owners installing eligible Best Management Practices (BMPs)</td>
<td>Public, private, non-profits, and commercial landowners</td>
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<td>Water, sewer, and waste related construction and improvement</td>
<td>State and local governments, private non-profit, federally-recognized tribes</td>
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<tr>
<td>Virginia Conservation Assistance Program (VCAP)</td>
<td>United States Department of Agriculture</td>
<td>Water &amp; Waste Disposal Loan &amp; Grant Program</td>
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<td>United States Department of Agriculture</td>
<td>Water Quality Improvements, Habitat Restoration/Enhancement, Natural and Nature Based Features</td>
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<tr>
<td>Virginia Environmental Endowment</td>
<td>Stormwater Management, Habitat Restoration/Enhancement, Climate Resilience</td>
<td>Non-profit, tax-exempt charitable organizations and institutions, and governmental agencies</td>
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<tr>
<td>Virginia Department of Forestry/United States Department of Agriculture Forest Service</td>
<td>Stormwater Management, Habitat Restoration/Enhancement</td>
<td>Local governments</td>
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<tr>
<td>United States Fish and Wildlife Service</td>
<td>Urban and community forestry projects</td>
<td>State agencies, local and regional governments, tribal governments, non-profit organizations, neighborhood groups, civic groups, public education institutions</td>
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<tr>
<td>Virginia Environmental Endowment</td>
<td>Water Quality Improvements, Habitat Restoration/Enhancement, Climate Resilience</td>
<td>Non-profit, tax-exempt charitable organizations and institutions, and governmental agencies</td>
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</tbody>
</table>
Green Alley**
An alley design that uses sustainable materials, pervious pavements, and effective drainage to create an inviting public space for people to walk, play, and interact.

Green stormwater infrastructure*
Techniques used to collect, filter, and manage stormwater runoff from streets, sidewalks, parking lots and other impervious surfaces, and direct the runoff to engineered facilities that use natural processes to treat and manage the water. Examples of green stormwater infrastructure include bioretention facilities, stormwater trees, and permeable pavements.

Impervious surface*
A non-vegetated surface area which prevents the entry of water into the soil, causing water to run off the surface in greater quantities or at an increased rate of flow than would occur under natural conditions prior to development.

Permeable pavement*
Pervious or porous paving material intended to allow passage of water through the pavement section.

Resiliency‡
The ability to identify risks and build the capacity to maintain or rapidly regain functionality and vitality in the face of chronic stressors or severe disturbances.

Stormwater trees*
A tree planted in a tree well or tree pit, designed to maximize stormwater retention.

Biofiltration*
The process of removing particulate matter and other pollutants by filtering stormwater runoff using biological material to detain and degrade pollutants. Biofiltration is a technique used in stormwater management that uses living plant material to process stormwater runoff.

Bioretention*
The process of capturing stormwater runoff, absorbing and retaining pollutants, and then infiltrating, transpiring, or evaporating the water.

Combined sewer overflow*
An event that occurs in combined sewer systems when the volume of stormwater and wastewater exceeds the capacity of the sewer system or treatment plant, often due to a storm event. When this occurs, untreated wastewater and stormwater discharge directly into receiving water bodies, such as rivers and lakes.

Eco-transportation corridor
Walking, biking, and transit routes that emphasize biodiversity and green stormwater infrastructure in an effort to create sustainable transportation systems.

Embedded Planning†
A planning praxis that situates planners on the ground in the community to understand people’s needs, build trust and authentic relationships, increase participation for marginalized communities, participate in daily community life, and to advance equity.

Biofiltration*

Bioretention*

Combined sewer overflow*

Eco-transportation corridor

Embedded Planning†

*Definition sourced from NACTO Urban Street Stormwater Guide
**Definition sourced from NACTO Urban Street Design Guide
†Definition sourced from Bell, 2021
‡Definition sourced from Resilient Virginia
Additional Maps

GRTC Bus Routes (PlanRVA)

Walking and Biking Infrastructure (PlanRVA)
Community Facilities (PlanRVA)

Alley Conditions (data collected during research phase)
Survey Results

Question #1: How often do you use alleyways in your neighborhood or community?

- Daily: 2%
- Nearly daily: 3%
- Weekly: 17%
- Monthly: 50%
- Nearly never: 2%
- Rarely: 2%
- Never: 26%

Question #2: How do you currently use alleyways? Please select all that apply.

- Walking: 57%
- Trash or utilities: 41%
- Gear parking: 21%
- Driving: 70%
- skinny park: 26%
- General: 21%
- Community garden: 11%
- Idon't use alleyways: 7%

Question #3: How would you describe your general opinion of alleyways?

- Very positive: 5%
- Positive: 17%
- Neutral: 11%
- Negative: 21%
- Very negative: 14

Question #4: What issues do you see with alleys in your community? Please select all that apply.

- Poor surface condition: 58%
- High volume of trash: 44%
- Poor drainage or flooding: 36%
- Bullets: 28%
- Access problems: 35%
- Crime: 35%
- Poor lighting: 14%
- Animal waste: 14%
- Utility pole: 14%
- Automobile speed: 14%
- Graffiti: 14%
- Cars bocking alley: 14%
- Improper herbicide use: 14%

* indicates filled in answer
Question #6: Please Share any other thoughts you have about alleyways. For example, how would you like to use them? How would you like them to look?

1. More taken care of and not seeming so neglected. The installation of either plants and/or art would certainly make the space more appealing.

2. They should be bricked or paved...drainage issues need to be addressed in carver/esp the alley between Marshall and clay in the 800 block.

3. Its disgusting and attracts homeless and drug activity.

4. Its totally neglected and full of overgrown weeds and trash.

5. More grass, flowers and shrubbery; more lighting; less trash; like small parks.

6. Would like to see less haphazard supercan location.

7. Potholes have damaged my car here and in other neighborhoods so I no longer drive in them.

8. Please for the love of god institute a compulsory recycling program run and managed by the city. Can we please get some litter PSA's?

9. I would like to walk down the alleyways in my neighborhood and enjoy them - not having to back track because they are so muddy, smell bad (especially in the summer). I'd like to be able to drive down my alley when I need to without navigating all of the deep holes/ruts.

10. They could be great alternate walking or biking routes if you want to get off the street or sidewalk. Is there a way to encourage mini commercial or ADU development in certain alleyways?

11. I would like to be able to walk or ride my bike through them. I so

12. I'll also like to be able to drive through when needed. I would like them to be consistent throughout the city. There are places in the city that the alley is nicer than some of the streets.

13. I do not use a car but the alley is full of them and there are no designated places for them. I'd like to see less cars by putting in signs that designate the maximum parked number of cars that can reasonably fit and where they can park.


15. I would like for the trash company to collect the old/ abandoned/broken trash cans that are clogging our alley. I would like to see the alley way cleared of debris as well as drainage issues rectified.

16. I would like for the alley way to be paved.

17. We live in the 1300 block of Catherine Street. It is in deplorable condition. Not sure if it is considered an alley or a Street as the name implies. There are at least three different surface types. Its riddled with pot holes. Danger to walk or drive on it.

18. Jackson Ward has a serious problem with trash littering alleys, lots of broken glass, I have seen rats on more than a few occasions. Walnut Alley LLC has told residents of our block that they manage our lot and alleys in the area and they do absolutely nothing to keep them clean they just move trash cans to the curb and mow the grass in the summer once every two weeks but that's all.

19. I'd like to convert alleyways into green community spaces... like a network of parks - giving dwellers places to explore and express creativity, to play, to sit and meditate, to plant herbs, fruits, and vegetables.

It could be an open opportunity to add jobs to manage the garden network, and we could provide qr codes on-location for neighbors to invest.

It would be amazing to provide public electric outlets for anyone to have access to plug smartphones.
The alley way between goshen and hitchcock (the first one if you turn off of W Leigh st.) has many potholes that fill with water and pose hazards.

21. Less cluttered
22. I'm a Jackson Ward resident and have recently started parking on the back of my property off the alley as there are more cars for people living in my block than can be parked on Clay Street. The Permitted Parking Program for Jackson Ward which includes most of Clay Street is not beneficial to the residents on the west end of the street. The alleys are supposedly considered streets in the City of Richmond, but their condition is worse than Clay Street running in front of my 1885 house. Clay Street condition is terrible for cars and especially cyclists.

The alley between goshen and hitchcock (the first one if you turn off of W Leigh st.) has many potholes that fill with water and pose hazards. People seem to feel these are OK places to place a trash bag. Our homeless, wild animals and domestic cats and dogs tear open the bags and the contents go all over the alley. On trash days things that fall out of the trash cans as they are be dumped into the truck are not picked up but left to blow around the alley and into yards and under bushes.

The regulation that the trash cans can only be at the alley’s edge from 7PM the day before the schedule pickup until 7PM the day of the pickup is not enforced. Trash cans remain at the edge and sometimes even in the edge of the roadway which make navigation difficult.

23. I love finding murals and art in alleys. I think that it would be good to take advantage of the privacy of alleys to implement more artistic projects. I use alleys for walking my dogs and they are ALWAYS full of trash and a lot of broken glass :/

24. Better designated trash zones, (like in Japan) better lighting, cleaning up of extraneous and broken cables, purposeful planting so that it’s not filled with aggressive weeds.

25. I'm a Jackson Ward resident and have recently started parking on the back of my property off the alley as there are more cars for people living in my block than can be parked on Clay Street. The Permitted Parking Program for Jackson Ward which includes most of Clay Street is not beneficial to the residents on the west end of the street. The alleys are supposedly considered streets in the City of Richmond, but their condition is worse than Clay Street running in front of my 1885 house. Clay Street condition is terrible for cars and especially cyclists.

The lighting in the alleys is very poor which does not help curtail the breaking in to vehicles parked on the back of the property and vandalism where there is not enough light to prevent it.

I know the DPU is stretched thin to cover the existing trash collections scheduled one a week, but they indicated a year ago that the weekly trucks would be talking some of the larger items that had required the boom truck to remove them. The items like chairs small dressers, bookcases, and tables are not being picked up and clutter the alleys. People seem to feel these are OK places to place a trash bag. Our homeless, wild animals and domestic cats and dogs tear open the bags and the contents go all over the alley. On trash days things that fall out of the trash cans as they are be bumped into the truck are not picked up but left to blow around the alley and into yards and under bushes.

The regulation that the trash cans can only be at the alley’s edge from 7PM the day before the schedule pickup until 7PM the day of the pickup is not enforced. Trash cans remain at the edge and sometimes even in the edge of the roadway which make navigation difficult.

26. I would love them to be greener with more plant life.
27. I think it’s really important to make EVERY roadway, street, or alley accessible to all people, regardless of physical ability.

28. it is very difficult to drive over the very large potholes and trash is always overflowing with furniture and bags.

29. Clean, organized, more trash and recycling bins
30. I'd like to switch from inner - city properties having individual trash cans, to each alley having a large group trash compressor... eliminating bad smells, unsightly, overflowing trash cans (which have been stolen in the past), and even provide an opportunity space for community advertising spend. Please contact me at _____________________ to discuss further.

I am happy to lend my mind to strategy for the benefit of the community in re-designing alleyways to become spaces full of light and love.

Thank you for your attention to these spaces. Every space deserves to be taken care of, every space deserves feng shui.

20. The alley between goshen and hitchcock (the first one if you turn off of W Leigh st.) has many potholes that fill with water and pose hazards.

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I am happy to lend my mind to strategy for the benefit of the community in re-designing alleyways to become spaces full of light and love.

Thank you for your attention to these spaces. Every space deserves to be taken care of, every space deserves feng shui.
39. VCU should give every freshman or new student a condition that says the trash goes “into” the trash can, and that they should take their pets with them when they leave. They could also stand to explain what recycling is and why we use it.

40. Owner-occupants and responsible renters should be given acknowledgement for good efforts.

41. I love the idea of green space in alleys, especially as many downtown buildings have been repurposed and are actually getting use. More thought needs to go into city trash storage and collection for residential and businesses to make sure there’s capacity for the increased occupancy. I believe it has been overlooked and is a disservice to those who are occupying these areas. There are many buildings in the city that are not being used and are boarded up. These areas need to be redeveloped prior to any discussion on alleys in order to get interest and money for a project like this.

42. I would like to see potholes filled, cobblestones repaired, and inclines paved a little flatter. I have fallen and sprained my ankle on these uneven alleys AND SIDEWALKS. Feels like we are living in a post-apocalyptic society with a crumbling infrastructure. Thank you!

43. It would be nice to have wider access to our alley for parking in the rear.

44. I love seeing things living in alleys, they can feel so refreshing and peaceful with just a little bit of growth instead of plain everything.

45. I love Richmond’s alleways. I use them ALL THE TIME and I would love if they all started to look more like some of the alleways in the Fan district (I’m in Jackson Ward). I especially love the alleyway that runs from Strawberry Street to North Stafford Avenue. If we could get our alleys looking even remotely similar to that, I would be ecstatic.

46. I would like to be able to move through alleys on foot, bike or in a car. Greener, cleaner alleys would be an improvement.

47. Would really appreciate apartment building companies were held accountable for the trash their tenants throw in the alley. The alley behind my house is always filled with trash from tenants moving out, or people using the dumpster for their own private use. If companies were fined for the amount of trash thrown in there they would perhaps be more diligent about communicating about this issue with their tenants.

48. The alley behind my house (and others I have seen in Richmond) are always riddled with pot holes or massive gaps in cobble stone which cause a lot of car accidents. Furthermore, people will park in the alleyway blocking trash trucks and other emergency/civil service vehicles. We need to post “tow away” warnings in areas that suffer from chronic blocking. Perhaps the trash folks could carry “first notice” paperwork with them and leave whenever necessary.

49. Greenery would be positive, safe use for homeless folks and underprivileged people is the main priority. Some alleways foot use only. Rent caps for properties connected or adjacent to alleways. No police use of alleyways.

50. 1st & foremost the alleyways in Jackson Ward where I live need to be cleared of trash on a regular basis. Trash is strewn everywhere. Constant battle to keep it clean. Most trash is people who eat lunch in cars throw trash out of their car windows. Masks are an issue. Immediate solution- add more trash cans - too few currently. Another issue is that people will drop off their household trash into trash cans, thereby filling the bin & offering fewer options for people until the bins are emptied. Spray painting of walls is also an issue in the Jackson Ward alleys.

51. I would like to feel more comfortable using them for everyday travel I often feel as if i am trespassing when i enter an alley way and i do not like that feeling. I think alleys should aim to be more welcoming and suitable for passers by and not just people that walk the streets frequently.

52. As pedestrian/bike shortcuts and gardening areas. Paved better, especially in Carver and Jackson Ward.
Question #8: Which alleyway amenity options do you prefer? Please select all that apply.

- Public art: 15
- Community gardens: 2
- Parks: 46
- Seating: 30
- Neighborhood resource (libraries, fire stations, etc.): 7

* Indicates field in answer

Question #9: What type of alleyway access do you prefer? Please select all that apply.

- Pedestrian: 54
- Bike: 45
- Autoshare: 33
- Car-free: 5
- Shared: 4

* Indicates field in answer

Question #10: What is your age?

- 18-34: 53
- 25-34: 73
- 35-44: 16
- 45-54: 2
- 55-64: 7
- 65-74: 4
- 75+: 1

Question #11: What is your race? Please select all that apply.

- White or Caucasian: 15%
- Black or African American: 7%
- Hispanic or Latino: 7%
- Asian or Pacific Islander: 7%
- American Indian or Alaska Native: 7%
- Native Hawaiian or Other Pacific Islander: 7%
- Other: 77%
Question #12: What is your gender?

- Male: 52%
- Female: 37%
- Non-binary: 11%
- Prefer not to answer: 2%

Question #13: Do you rent or own your home?

- Rent: 59%
- Own: 41%
- Prefer not to answer: 2%

Question #14: What is your zip code?

- 20222: 43
- 20227: 5
- 20228: 2
- 20226: 1
- 20224: 1

*Includes zip code in study area


UCLA Luskin Center, and Trust for Public Land. ‘‘Avalon Green Alley Network Demonstration Project,’’ 2014


Ward, Christopher. ‘‘Alley Improvement and Alternative Pathway Plan.’’ Virginia Commonwealth University, 2006.


Unless otherwise sourced, all photos in this plan were taken by Dan Motta.