



# Planting Seeds for Regional Roadway Safety, **ONE TRAFFIC GARDEN AT A TIME**



March 2023

A design and installation guide for traffic gardens, brought to you by Arlington County, Virginia, and Prince George's County, Maryland



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# EXECUTIVE SUMMARY

Traffic gardens are scaled-down worlds that replicate the features of a typical street environment. They are designed to be comfortable places for young and new learners to practice roadway safety skills. These spaces have enjoyed a growing national and regional popularity in recent years. All around the Mid-Atlantic, people are learning: a traffic garden is a great way to address pedestrian and bicyclist safety and to provide active and safe recreational opportunities to a community.

## **The major educational and recreational benefits of a traffic garden include:**

1. A safe place for children and other new learners to practice riding bikes and other wheeled devices.
2. A hands-on and intuitive way for children to develop on-street skills and for educators to administer high-quality programs.
3. A way to encourage healthy habits, like walking and biking.
4. A way to build community and place-making. Traffic gardens are community landmarks.



*Figure 1. A volunteer crew celebrates after the successful installation of the Arlington Traditional School temporary traffic garden.*

## Executive Summary



### FIXED TRAFFIC GARDENS

can offer a permanent addition to your community or merely a seasonal one.



### MOBILE TRAFFIC GARDENS

may pop up as part of an event or be assembled into a portable kit to take traffic education around the community.



**Pop-up traffic gardens** can cost as little as a few thousand dollars, while **permanent traffic gardens** can cost upwards of \$50,000 or more. There's a traffic garden for every budget!



Figure 2. Back to School event for the local community at the Perrywood Traffic Garden in Prince George's County



# WELCOME



Welcome to the Arlington County (Virginia)-Prince George's County (Maryland) Traffic Garden Guide. This guide is powered by the belief that instilling safe, healthy, and kind transportation habits in our youngest community members will produce safer, healthier, and kinder communities overall. For a tool that helps children develop these habits, look no further than the traffic garden.

Traffic gardens are appearing as a new form of transportation education all over the region, and for good reason. Along with an uptick in bicycle and pedestrian amenities, these gardens are part of a larger effort to improve safety for people who travel outside of cars and to develop roadway systems that accommodate all users equally. Traffic gardens provide a safe, comfortable, and fun place dedicated to developing bicycle and roadway safety skills in new learners.



*Figure 3. Overhead view of Westside Elementary School Traffic Garden in Roanoke, Virginia*



## What Is a Traffic Garden?

A traffic garden is a set of small-sized streets with scaled-down traffic features—as miniature versions of real-world roadway networks, they're designed to provide our youngest family members with lessons in transportation safety in a gentle, stress-free setting. Learning can take place through active play, social interactions, and adult instruction offered in school programs, local classes, or one-on-one. Children recognize that this is a place made especially for them and have loved learning how to bicycle, roll, and walk in these spaces for generations.

Although traffic gardens did not gain widespread popularity in the United States until the 1970s, they have existed in various forms since the 1930s. A police officer created the first installation, which he called a “safety town,” in Mansfield, Ohio, in 1937. The concept attracted national attention and started appearing with gradually more robust designs throughout the country. At the height of their popularity, many traffic gardens boasted real streets, powered traffic signals, and entire neighborhoods of small buildings. The National Safety Town Center, established in the United States in 1964, once recorded a total of 3,500 facilities worldwide. Dozens of facilities remain in operation around the U.S., and some have operated continuously since the 1970s.

This guide will trade the extravagance of those safety towns for the elegant simplicity of traffic gardens. We will focus on how, by simply adding surface-applied materials and props to a hard surface, a traffic garden can achieve an identical educational effect as a more elaborate safety town while reducing the time and labor required for construction and eliminating the need for outside permits. Because of the flexibility of materials and relative ease of implementation, a community can shape a traffic garden depending on their needs and space.

### A traffic garden has many benefits for new traffic learners, such as:

- The traffic garden can be used by educators to **provide high-quality educational space to teach children** the various traffic signs, signals, and pavement markings, as well as how to follow them while bicycling or walking.
- The traffic garden **creates a safe, comfortable, and controlled practice environment**, offering a limited number of intersections and movements to practice signaling, turning, and stopping.
- By simulating the real world, the traffic garden can **help children to build traffic confidence and knowledge** they can apply in their lives and actual neighborhoods.

# Welcome

## Where Can I Find Examples of Traffic Gardens?

Perhaps you are new to the concept of traffic gardens. Don't worry! You aren't alone: traffic gardens remain a young concept in American transportation education, although this is quickly changing. Numerous traffic gardens have been installed in the last five years around the U.S, with 57 added nationally since 2015.

The Mid-Atlantic region alone is undergoing its own traffic garden renaissance. The District of Columbia public school system installed their first two traffic gardens in 2019 and has since added seven more, with others in the works. The DC-Maryland-Virginia region has seen 20 permanent traffic gardens installed since 2018. This guide will celebrate these traffic gardens while using their local stories to demystify the process of making one. It is our belief that, with savvy and pluck, the DC-Maryland-Virginia region can become a national leader in teaching traffic safety through traffic gardens.

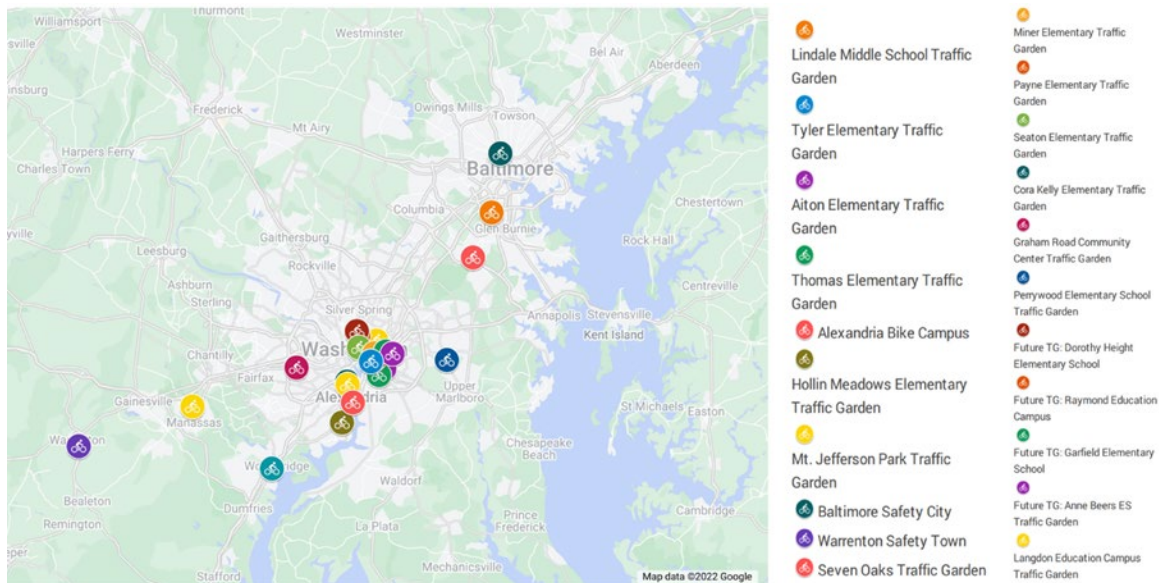


Figure 4. Local area traffic garden map

## How to Use This Guide

Traffic gardens are a great community resource. However, while they're much simpler than an old-school safety town, they still involve quite a bit of planning. As traffic gardens increase in popularity around the region, we wanted to provide a step-by-step guide communities can use to dream, plan, and launch their very own. Several types of traffic gardens exist—we'll define the different types in Chapter 2—and this guide will cover how to pull off a project of any type, from a quick-build pop-up traffic garden for an event to a permanent traffic garden for long-lasting community enjoyment.

### LOCAL STORY

When Duwan Morris first saw the Baltimore Safety City, his first response was that the facility was drab and unexciting to the intended audience.

*"I took the maintenance team there. I said, I need everything in this Safety City to be bright and vibrant. Nothing's black; nothing's white; nothing is gray; instead use red, yellow, green, and sky blue."*

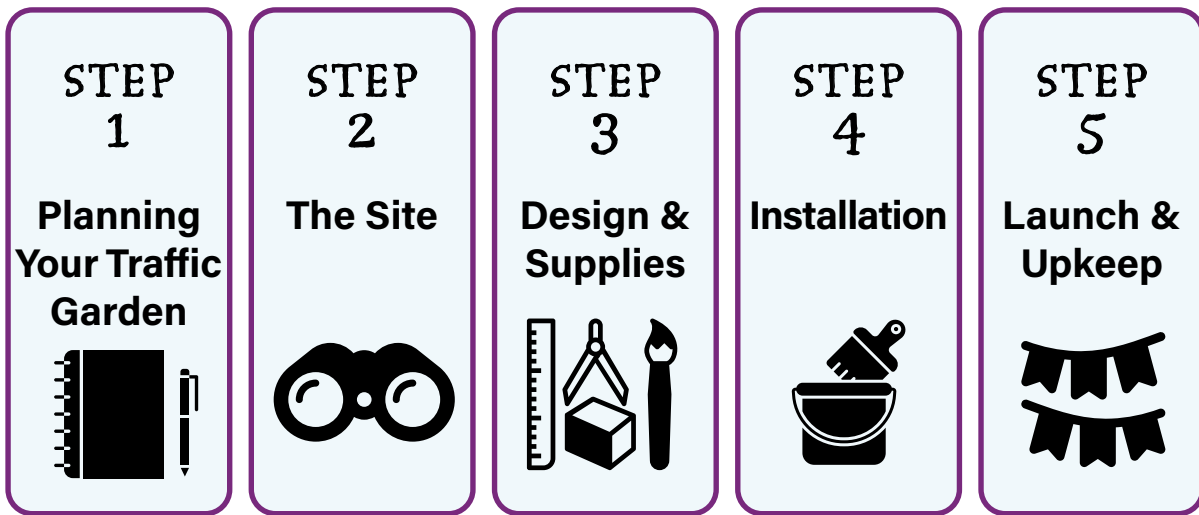
His team added bright colors to the existing structures within the traffic garden. *"Even before they get there, children are literally jumping out of their seats on the bus, ready to see what is there. 'Why is it so colorful? Why is it so beautiful? What is it about?' Their intuition is to respond to those bright, vibrant colors; it gives them energy."*



Figure 5. The colorful buildings of Baltimore Safety City

# Welcome

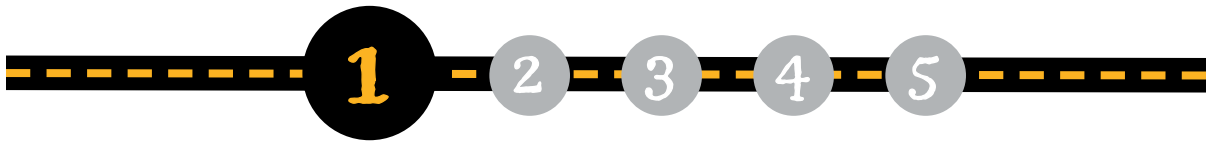
Although the exact process for realizing a traffic garden depends on the traffic garden's type and desired community roles, the process, at its most general, has five steps:



The following chapters in this guide will take a deep dive into each of these steps in sequence: Chapter 2 will cover planning, Chapter 3 will cover the process of finding a suitable site for your traffic garden, and so on. Each chapter begins with advice and insight that applies to traffic garden projects broadly. Special color-coded pages in each chapter will include information that pertains to different types of traffic gardens: sections with a **PURPLE border** will offer guidance on constructing “fixed” traffic gardens, while sections with a **GREEN border** will offer guidance on constructing “mobile” traffic gardens. You can read this guide cover to cover or hop around to sections that relate to your specific project.

**One final note:** We hope you include children as much as possible in the process. Children are the primary users of traffic gardens, and these projects provide a wonderful opportunity for them to learn how we think about street networks and how we get civic projects done.





# STEP 1: PLANNING YOUR TRAFFIC GARDEN



Figure 6. Recent U.S. traffic gardens and their features. Top row: Seven Oaks, Charlotte, White Center; middle row: four-way stop (Warrenton), roundabout (Thomas), and signs; bottom row: Aiton, Open Streets DC, Earth Day.

## Step 1: Planning Your Traffic Garden



### Thinking of the Traffic Garden as a Place

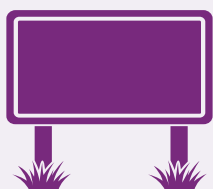
When you close your eyes, what does your dream traffic garden look like? Where is it located? What does it offer to you and your loved ones as a community gathering space and learning resource?

Several types of traffic gardens exist, and while all traffic gardens provide those using them with a small world in which to imagine, play, and learn, the different types of traffic gardens require different resources and offer different opportunities to their host communities. To know which traffic garden is right for your community, your first step will be to determine where and how your future garden will be used.

This chapter will cover the preliminary planning process of a traffic garden. We will begin by exploring the different types of traffic gardens, and then consider the questions that will help you form the vision of how your traffic garden will function in your community.

### Types of Traffic Gardens

In this guide, we will cover two major categories of traffic gardens: **fixed and mobile**.



#### **FIXED TRAFFIC GARDENS**

- Permanent traffic gardens
- Temporary traffic gardens



#### **MOBILE TRAFFIC GARDENS**

- Pop-up traffic gardens
- Mobile traffic garden kits

These traffic gardens vary greatly in scope and scale, play different community roles, and involve various levels of effort and cost. Let's take a moment to examine each type of traffic garden now.

## Step 1: Planning Your Traffic Garden



### Fixed Traffic Gardens

A fixed traffic garden uses surface-applied pavement markings to create a set of street outlines on a hard surface in an outdoor space. They are, as the name suggests, rooted to the location of their installation. Their consistent presence allows them to become local landmarks in their neighborhoods.

The two types of fixed traffic gardens we'll look at in this guide, **permanent traffic gardens** and **temporary traffic gardens**, differ primarily in how long they endure: permanent traffic gardens use materials that can withstand weather and that will last for 7 to 10 years. Temporary traffic gardens, meanwhile, use materials that wear away with weather and typically last between 2 and 6 months.

#### Permanent traffic gardens

A permanent traffic garden may be installed as part of school facilities, park sites, recreation centers, parking lots, or daycare centers, among many other locations. Its street markings are created with products ranging from traffic paint to thermoplastic to proprietary coatings. They allow for active play and long-term educational programs. They have moderate to high installation costs, though the final budget will depend on scale, materials selected, and contractor fees. Installation typically requires a professional.



Figure 8. Perrywood permanent traffic garden

#### Temporary traffic gardens

A temporary traffic garden may be installed as a local amenity for children for a long-term event or period, like summer break. Many sites that would work for a permanent traffic garden—like school facilities, park sites, or parking lots—will also suit a temporary one. The street markings featured in temporary gardens will be made using temporary marking spray paint, long-term spray chalk, or duct tape. Construction of these gardens can be fulfilled by volunteers, meaning these gardens have a lower overall cost. (Material + installation cost: \$300 to \$1,000.)



Figure 7. Arlington County temporary traffic garden



## Step 1: Planning Your Traffic Garden

### LOCAL STORY

Glenn Gunter, an engaged local bike advocate, approached the homeowner's association of his Odenton, MD, community with the idea of a traffic garden for local families. Once Glenn explained the idea and the benefits of a traffic garden, he then identified a 63'-by-94', closed-off parking lot adjacent to a green space with an existing tot lot. The homeowner's association funded the design, and the parking lot was transformed into a colorful traffic garden in record time. The facility is surrounded by numerous families and is readily accessible within the Seven Oaks community.



Figure 9. A ground-level view of Seven Oaks Traffic Garden, Odenton, Maryland

Glenn reported that, on the first Christmas morning after the installation of the traffic garden, local children gathered at the site to test out the bicycles, scooters, and other rolling toys that they'd newly received from Santa Claus.



Figure 10. The overhead view of Seven Oaks Traffic Garden, Odenton, Maryland, previously a little-used parking lot in the community



## Step 1: Planning Your Traffic Garden



### Mobile Traffic Gardens

While mobile traffic gardens have a generally similar appearance to other types of traffic gardens covered in this guide, their ability to be transported means there are fundamental differences that alter how they are assembled. Their portability also means that they can be used for different events; for instance, mobile traffic gardens are great tools for initially exposing a community to traffic gardens. A pop-up traffic garden at a school event can go a long way in convincing your neighborhood of the need for a more permanent traffic garden.

This section will help you with information relevant to planning two different kinds of mobile traffic gardens, the **pop-up traffic garden** and the **mobile traffic garden kit**.



*Figure 11. Pop-up traffic garden at open streets event in Rutland, Vermont*

### Pop-up traffic gardens

These traffic gardens are short-lived, with the materials used lasting on their hard surface for a few hours to a few days. These pop-up gardens are often integrated into larger events, like a bike rodeo or a county fair, or they can serve as a demonstration project for permanent installation. Normally created from a mix of hardware store supplies, including duct tape, spray chalk, and artificial turf, they are designed for volunteers to be able to complete all installation and removal duties quickly

and easily. These projects have a low overall cost, especially with volunteer assistance. (Material cost: \$200 to \$500)

### Mobile traffic garden kits

A mobile traffic garden kit is a portable collection of materials ready to be transported and assembled (indoors or outdoors) into a small-scale traffic garden and then easily repacked after an event or demonstration. Like other traffic gardens, it creates a reduced-size version of public street networks for use with programs or events. However, because of the portability and transport aspects, it is sized and designed based on how it is used (i.e., classroom, school assembly, summer camp, etc.), as well as who will be transporting it and putting it together. In all cases, however, a kit will be created out of lightweight materials and will accompany an educational program or complement safety outreach. The kit may be a tool for the State's SRTS Local Technical Assistance Coordinator (LTAC) or some other local agency working with children on roadway safety education. It may also be part of biking groups encouragement outreach or part of a regular summer camp program.

*(Continued on next page)*

## Step 1: Planning Your Traffic Garden



### Mobile Traffic Garden Kits (continued)

While mobile traffic gardens kits are not currently widely available for purchase in the U.S., several European companies offer them. A Polish company sells two different mobile kits, “Educational Bicycle Parks for Schools” and “Educational Mini Traffic Parks for Kindergartens,” and a Spanish company offers full-scale mobile traffic garden sets that they will install in many configurations depending on the site. These options may be out of reach for many projects: in this case, your mobile traffic garden kit will need to be custom assembled from sourced materials and tailored to the local program or educator’s needs. The kit needs to include the physical elements to install a street network in one or more layout configurations complete with small-scale intersections and pedestrian crossings. As with other traffic gardens, including simplified traffic-style features such as pavement markings or traffic signs enhances the traffic feel of the layout.

Because of the customizable nature of the kit, projects based around this type of garden may want to address several specific questions during the preliminary planning phase.

#### Planning criteria questions include:

- ☐ What are the goals of creating the kit?
- ☐ Will the layout be set up indoors or outdoors? Does it need to work in both settings?
- ☐ How many people will be available to set up and put away the kit?
- ☐ What is the maximum weight for any single element of the kit?
- ☐ Does the kit need to fit inside a personal vehicle? Will it be delivered by a van or truck?
- ☐ Where will the kit be stored when it is not in use?
- ☐ What is the age range of the people who will use the kit layout?
- ☐ What traffic features are required to be included?
- ☐ What additional traffic features are desired in the layout?
- ☐ How many configurations of layout are required?
- ☐ What is the minimum size of the available site for setup?
- ☐ What is the range of possible sites, including approximate sizes and surfaces?

## Step 1: Planning Your Traffic Garden

### LOCAL STORY

After dropping off students at Aiton Elementary School, a group of family members gathered in the school resource room to work on the felt kit set that accompanied the preschool traffic garden curriculum. The school had graciously provided breakfast for the volunteers, and as they munched on muffins and sipped coffee, they chatted about their memories of getting to school when they were young. These stories served as a reminder of the importance of roadway safety education.



Figure 12. Parents assisted cutting out the felt characters to accompany the PK traffic garden story curriculum that accompanies the traffic garden at Aiton Elementary School.

The kit included a group of animal characters who accompany the five traffic garden safety lessons. The parents cut out every one of the kit pieces, surprised by how enjoyable the work was. When the kit was finally complete, the group shared a moment of admiration for their handiwork.

A few months later, the traffic garden was officially opened with a ribbon-cutting ceremony at the school. One of the dads who had participated in the



Figure 13. A father speaks to the crowd gathered at the Aiton Elementary Traffic Garden Ribbon-cutting event.

kit-building session was invited to speak at the event. It was a proud moment for everyone involved, knowing that they had contributed to something that would benefit the students and the community for years to come.

# Step 1: Planning Your Traffic Garden

## Defining the Vision

Once you have decided to proceed, take some time to prepare the project vision. While many people may be on board with the concept right away, they each may have a different picture of what is being discussed. Agreeing on a clear, realistic vision of the project early on can inspire those working on it while keeping the project on track. Holding a visioning exercise can be a great way to introduce traffic gardens to the community as spaces that can produce more equitable, livable, and rewarding neighborhoods for children.

**Addressing a couple of key questions can help you to develop your vision. These questions include:**

### Who will use my traffic garden?

The traffic garden space forms a small world that will be populated by various people in different roles: playing, learning, teaching, supervising, and observing. By thinking about the range of possible people who will spend time in the traffic garden, you can plan for their needs better in terms of access, space, and amenities. Thinking about the numbers that can be accommodated will also help determine the capacity of the traffic garden. For a worksheet to help you keep track of who your intended users will be, see [\*\*Appendix A: Traffic Garden as Place\*\*](#).

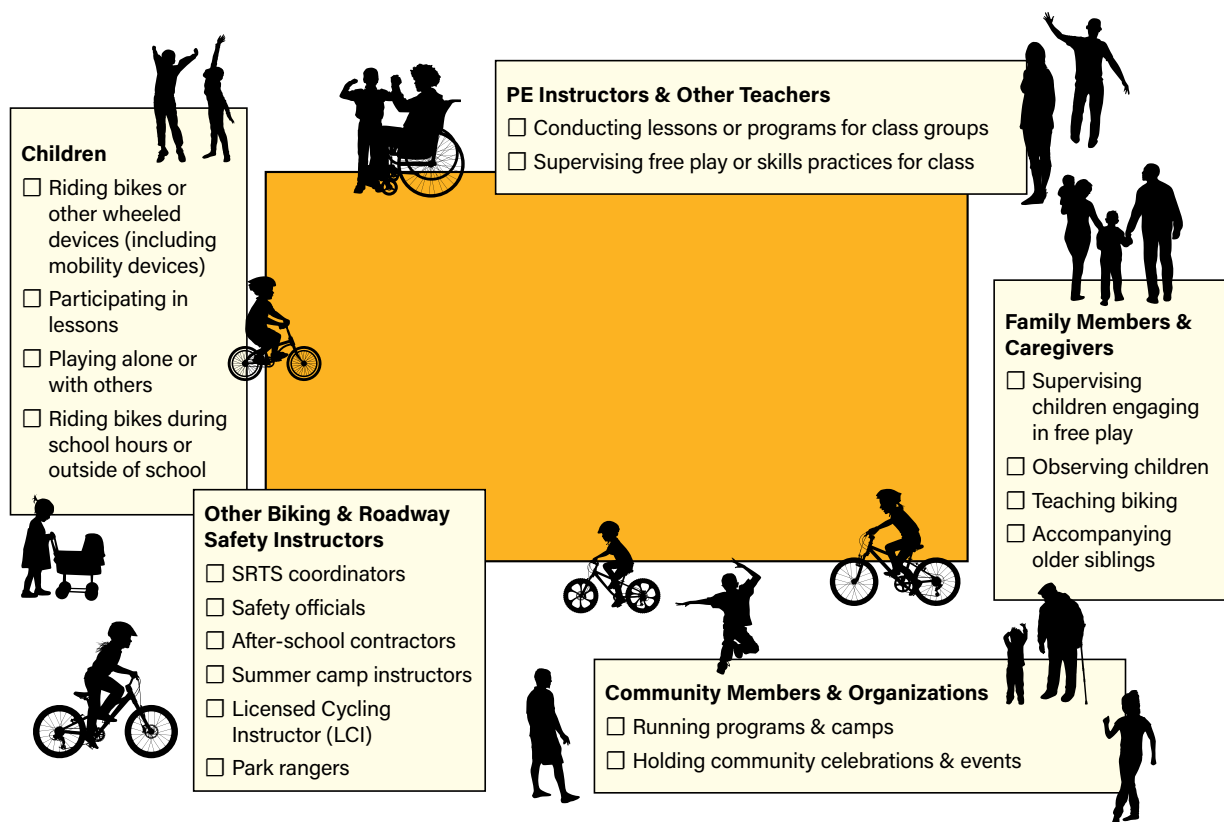


Figure 14. Who will spend time in your traffic garden?



## Step 1: Planning Your Traffic Garden



Figure 15. Local volunteers gather with the banner after the installation of the Loch Lomond Elementary School temporary traffic garden.

### How will visitors use the traffic garden?

Although the world of the traffic garden may be mini, its community uses are many and mighty. Below are some of the many ways the traffic garden can give back to its host community.



A place for **skills and educational learning**, where children can engage in skills practice and educational activities in a safe and comfortable space that will enhance their knowledge, awareness, individual agency, and well-being. Possible activities include bicycle lessons, STEM exercises, large-scale public art projects, or scouting trials.



A place for **fun and healthy play**, where children can attend to their well-being by expending physical and mental energy constructively. Possible activities include recess sessions, personal rehabilitation, or physical education camps.



As a place for **outdoor social gatherings** that celebrate community milestones and increase community belonging. Possible activities include health fairs, bicycle rodeos, or simple get-togethers.

For more prompts to jumpstart the dreaming process, see [\*\*Appendix B: Traffic Garden Vision Worksheet\*\*](#).

## Step 1: Planning Your Traffic Garden

### Funding

We often tell our children that money doesn't grow on trees. But money does grow out of our human relationships. Especially for projects like traffic gardens, which aren't always eligible for traditional funding sources, a shared vision for how the garden can elevate your community can go a long way to creating new funding opportunities. (In fact, the funding for this guide was the product of a grant, a visioning exercise on ways to improve our communities!) After introducing your community to the exciting, low-cost concept of a traffic garden, your dream team might find that community members and organizations are excited to help. Some ways traffic garden dream teams have turned to community partners to discover new funding opportunities include:

- transportation, roadway safety, and healthy activity grants
- school modernization process
- playground rehabilitation process
- sponsorships
- in-kind donations
- foundation sponsorships
- pro bono design services, either from a public works or transportation department or a local design consultant
- contractor services, including site preparation or striping installation services
- access to in-house striping equipment and/or supplies, likely from a public works department
- local businesses or service organizations willing to sponsor elements of the projects, such as buildings, sheds, or signs

Refer to **Appendix C: Traffic Garden Funding Examples** for more on how communities around the U.S. have successfully funded recent traffic garden projects. Then take stock of available resources and put out requests on behalf of your project early on. You never know what donations and assistance you may receive.

These projects may be new to the funders, so **Appendix D: Getting to Know Traffic Gardens** provides information to assist with introducing the concept of traffic gardens and their benefits and value to grantors or local agencies. And make sure to keep track of and recognize all assistance received later when the site is being launched. Refer to **Appendix E: Community Resources Worksheet** to investigate and seek available community resources that could contribute towards the project.

## Step 1: Planning Your Traffic Garden

### Successful Traffic Garden Teams Are Built on “WE,” Not “ME”

Successfully transforming an underutilized space into a valuable space of fun and learning for the community isn't a one-person job. Even with a well-defined vision and ample funding, you will need a dream team comprised of members with a range of skills to make your traffic garden a reality.

Create a group of “champions” with whom you can pool time, talent, and enthusiasm throughout the planning, installation, and launch processes. Champions can include parents, caregivers, teachers, community leaders, and child health advocates.

A dream team is never complete without children; they're the inspiration for you and your champions, of course, but their inclusion on the team adds real value, as well. The unique perspectives of children can infuse your design with whimsy and reveal possibilities the adult minds have forgotten, while their inclusion on the team will also give them exposure to the civic processes that shape communities. Lastly, remember: your dream team should represent the entire community. Include people from a range of backgrounds, perspectives, and ability levels.

#### Questions to ask yourself when putting together a team may include:



- How best can you involve children?
- What communication channels do people in my community use?
- Who has large community communication networks?
- What newsletters have a wide local reach?
- What other languages should be added to communications?
- How can a range of stakeholders be reached?

Many people will be unfamiliar with what a traffic garden looks like and how it is used, so building your team may start with some old-fashioned legwork. Passing out flyers or handouts at community gathering spaces or functions is most useful for jumpstarting the conversation. Photos showing other facilities in use are particularly useful in conveying the concept. Other approaches include conducting slideshow presentations to local groups and community leaders.

Social media platforms can also be used to publicize the project more broadly within the community. They're great tools for building excitement! However, while social media platforms are useful ways to document and broadcast ongoing progress, they don't serve all community sectors, so they should not be the exclusive communication mechanisms.

Refer to **Appendix F: Traffic Garden Project Team Worksheet** for prompts in assembling the team.



## Step 1: Planning Your Traffic Garden

### Engaging stakeholders & organizing the community

Although your dream team—the people actually in charge of championing, creating, and maintaining the traffic garden—cannot possibly include everyone in your community, the dream team will still be responsible to the larger community they serve. Any successful project will require open and ongoing channels of communication between the dream team and community stakeholders.

Involving stakeholders early on will deepen upfront community support for the project. Stakeholder feedback, meanwhile, will prove not only invaluable to understanding the community's wishes for the traffic garden, but the diversity of stakeholder ideas can help find solutions to challenges that may emerge along the planning, installation, and launch processes.

Who is a “stakeholder?” Look for organizations and people who are representative of the community at large. Refer to **Appendix G: Potential Stakeholders List** for assistance in identifying local stakeholders. If you need guidance on how to build a truly local project—one that is of and for its community—refer to **Appendix H: Community Engagement Guides and Online Resources** for suggestions. A broad, inclusive engagement process will pay off down the road and result in a traffic garden that is well loved and often used.

### Project Timeline

The type of traffic garden significantly affects how long they take to plan and install. Each project starts with taking initial steps and making a plan that can take the project to completion. The next couple of pages will break down the project timelines for different traffic gardens in substantially more detail.

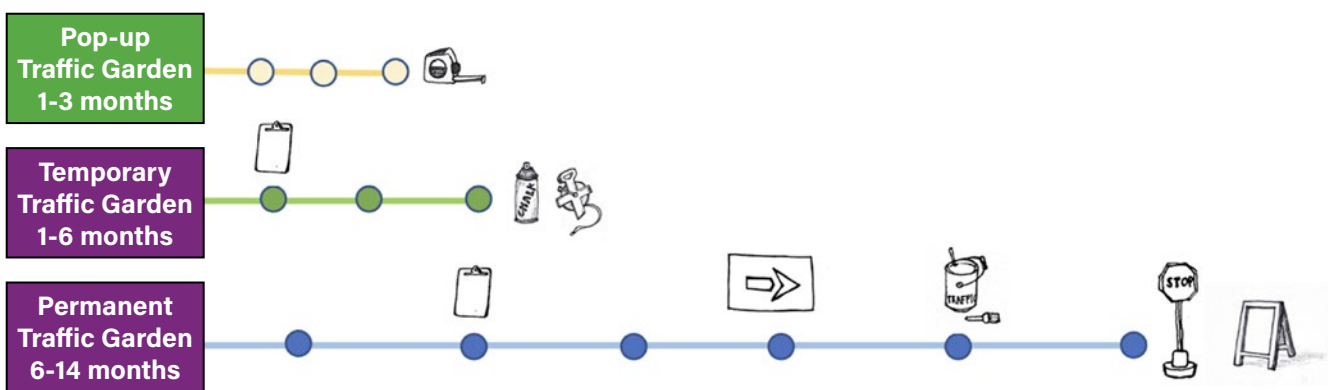


Figure 16. Traffic Garden Project Timelines

## Step 1: Planning Your Traffic Garden

### LOCAL STORY

On August 23, 2022, the Prince George's County Department of Public Works and Transportation, Perrywood Elementary School, Prince George's County Police Department Division II Community Engagement Unit, and Maryland-National Capital Park and Planning Commission hosted a back-to-school safety event at the permanent Vision Zero Traffic Garden. The goal of the event was to teach children and their families how to "Be Seen, Be Alert and Be Safe" when walking and biking. Children recited the Vision Zero Safety Pledge with PGPD officers and received an instructional walk and ride around the traffic garden to learn about roadway features and traffic signs. The M-NCPPC traffic signage board, designed by County youth, educates viewers of all ages on traffic signs in a fun and engaging way. The children and their families took home high-visibility giveaways, activity books, and additional safety information for the new school year. They also promoted the PGC Bee Safe Team, which reminds residents to wear bright and reflective clothing, to eliminate distractions, and to look left, right, and left again before crossing the street.



*Figure 17. The Bee Safe Team mascot was designed by Andersen Longus, a talented young artist and resident of Prince George's County, Maryland.*

## Step 1: Planning Your Traffic Garden



### Permanent Traffic Garden Timeline

Here is an example project timeline for installing a permanent traffic garden on an existing site using a contractor. You can customize this to fit your project's unique needs.

DATE	TASK
MONTH 1	<input type="checkbox"/> Develop project vision <input type="checkbox"/> Identify funding <input type="checkbox"/> Assemble team <input type="checkbox"/> Prepare work plan
MONTH 2	<input type="checkbox"/> Hold planning meetings <input type="checkbox"/> Have open communication <input type="checkbox"/> Identify possible sites
MONTH 3	<input type="checkbox"/> Identify stakeholders <input type="checkbox"/> Identify partners <input type="checkbox"/> Visit & learn about sites <input type="checkbox"/> Evaluate sites
MONTH 4	<input type="checkbox"/> Select site location <input type="checkbox"/> Secure site permissions <input type="checkbox"/> Schedule team field visit <input type="checkbox"/> Plan programming
MONTH 5	<input type="checkbox"/> Capture site information <input type="checkbox"/> Prepare base drawing <input type="checkbox"/> Test layouts <input type="checkbox"/> Hold community engagement meetings <input type="checkbox"/> Comment on plan <input type="checkbox"/> Arrange for site repairs <input type="checkbox"/> Identify possible contractors

DATE	TASK
MONTH 6	<input type="checkbox"/> Finalize layout & additional details <input type="checkbox"/> Prepare supplies & equipment list <input type="checkbox"/> Finalize installation package <input type="checkbox"/> Price custom items
MONTH 7-9	<input type="checkbox"/> Seek quotes & bids <input type="checkbox"/> Select contractor <input type="checkbox"/> Make plans with a contractor
MONTH 10-12	<input type="checkbox"/> Gather other supplies <input type="checkbox"/> Schedule installation <input type="checkbox"/> Notify all parties <input type="checkbox"/> Visit the site prior to installation
MONTH 13	<input type="checkbox"/> Clean site <input type="checkbox"/> Watch weather <input type="checkbox"/> Conduct installation <input type="checkbox"/> Document installation <input type="checkbox"/> Inform site owner <input type="checkbox"/> Send thanks & photos
Month 14	<input type="checkbox"/> Plan celebratory event <input type="checkbox"/> Prepare media information <input type="checkbox"/> Invite speakers & dignitaries <input type="checkbox"/> Hold ribbon-cutting event <input type="checkbox"/> Follow up with media after event



## Step 1: Planning Your Traffic Garden



### Temporary Traffic Garden Timeline

Here is an example project timeline for implementing a temporary traffic garden at an existing site. You can customize this to fit your project's unique needs.

DATE	TASK
MONTH 1	<input type="checkbox"/> Make a plan <input type="checkbox"/> Identify funding <input type="checkbox"/> Assemble team <input type="checkbox"/> Hold team meetings <input type="checkbox"/> Promote ongoing communication
MONTH 2	<input type="checkbox"/> Identify possible sites <input type="checkbox"/> Select site location <input type="checkbox"/> Secure site permissions <input type="checkbox"/> Schedule team field visit
MONTH 3	<input type="checkbox"/> Capture site information <input type="checkbox"/> Prepare base drawing <input type="checkbox"/> Test & finalize the layout <input type="checkbox"/> Identify materials & supplies

DATE	TASK
MONTH 4	<input type="checkbox"/> Arrange for site access & cleanup <input type="checkbox"/> Source the materials & supplies <input type="checkbox"/> Gather or purchase installation tools & other equipment
MONTH 5	<input type="checkbox"/> Schedule installation <input type="checkbox"/> Notify all parties <input type="checkbox"/> Visit the site prior to installation
MONTH 6	<input type="checkbox"/> Watch weather <input type="checkbox"/> Conduct installation <input type="checkbox"/> Document installation <input type="checkbox"/> Inform site owner <input type="checkbox"/> Send thanks & photos

## Step 1: Planning Your Traffic Garden



### Pop-Up Traffic Garden Timeline

Below is an example project timeline for implementing a pop-up traffic garden at an event or site. You can customize this to fit your project's unique needs.

DATE	TASK	DATE	TASK
MONTH 1	<input type="checkbox"/> Make a plan <input type="checkbox"/> Assemble a team & meet <input type="checkbox"/> Confirm date/rain date & event time <input type="checkbox"/> Confirm site location at the event <input type="checkbox"/> Capture site information	EVENT DATE	<input type="checkbox"/> Clean the site before starting <input type="checkbox"/> Measure & mark the site <input type="checkbox"/> Install lines & markings <input type="checkbox"/> Add signs & features <input type="checkbox"/> Run pop-up traffic garden <input type="checkbox"/> Take photos <input type="checkbox"/> Restore site
MONTH 2	<input type="checkbox"/> Prepare a sketch of the site <input type="checkbox"/> Test layouts on the sketch <input type="checkbox"/> Finalize layout & materials details <input type="checkbox"/> Develop supplies & equipment list	IMMEDIATELY AFTER EVENT	<input type="checkbox"/> Clean equipment <input type="checkbox"/> Return borrowed items <input type="checkbox"/> Gather photos & videos <input type="checkbox"/> Send photos to the owner
MONTH 3	<input type="checkbox"/> Gather & message volunteers <input type="checkbox"/> Publicize project locally <input type="checkbox"/> Make a portable sign set <input type="checkbox"/> Source supplies & equipment <input type="checkbox"/> Gather installation tools <input type="checkbox"/> Confirm event details <input type="checkbox"/> Communicate with organizers <input type="checkbox"/> Send invites <input type="checkbox"/> Pack supplies & equipment	DAYS AFTER EVENT	<input type="checkbox"/> Send out thanks <input type="checkbox"/> Contribute to/prepare follow-up articles <input type="checkbox"/> Prepare lessons learned <input type="checkbox"/> Hold team celebration

## Step 1: Planning Your Traffic Garden



### Mobile Traffic Garden Kit Timeline

Below is an example project timeline for implementing a traffic garden from a mobile traffic garden kit. You can customize this to fit your project's unique needs.

DATE	TASK	DATE	TASK
MONTH 1	<ul style="list-style-type: none"> <li><input type="checkbox"/> Develop the vision &amp; brainstorm ideas</li> <li><input type="checkbox"/> Identify funding &amp; hire any people who will be assisting</li> <li><input type="checkbox"/> Assemble the dream team; make a plan for the project</li> <li><input type="checkbox"/> Gather existing program content or make plans for new lesson materials to work with a kit</li> <li><input type="checkbox"/> Figure out the program plan &amp; everything that you will need to include in the kit</li> <li><input type="checkbox"/> Promote ongoing communication</li> </ul>	MONTH 3	<ul style="list-style-type: none"> <li><input type="checkbox"/> Prepare diagrams showing layouts &amp; features</li> <li><input type="checkbox"/> Assess element needs (like traffic signs)</li> <li><input type="checkbox"/> Determine materials &amp; supplies to create a layout(s)</li> <li><input type="checkbox"/> Acquire materials &amp; supplies</li> </ul>
MONTH 2	<ul style="list-style-type: none"> <li><input type="checkbox"/> Develop kit planning criteria based on portability, assembly, &amp; program plans</li> <li><input type="checkbox"/> Assess available materials &amp; products</li> <li><input type="checkbox"/> Determine setup methods for materials</li> <li><input type="checkbox"/> Plan packing &amp; handling methods</li> <li><input type="checkbox"/> Determine storage &amp; transportability</li> </ul>	MONTH 4	<ul style="list-style-type: none"> <li><input type="checkbox"/> Craft &amp; transform materials into the layout</li> <li><input type="checkbox"/> Craft or acquire a portable sign set</li> <li><input type="checkbox"/> Assemble portable kit elements</li> <li><input type="checkbox"/> Test kit layout &amp; traffic elements on surfaces</li> </ul>
		MONTH 5	<ul style="list-style-type: none"> <li><input type="checkbox"/> Photo document each element of the kit</li> <li><input type="checkbox"/> Assemble the kit in storage bags &amp; containers</li> <li><input type="checkbox"/> Clearly label all elements &amp; storage bags &amp; storage</li> <li><input type="checkbox"/> Prepare packing instructions</li> <li><input type="checkbox"/> Prepare assembly &amp; layout instructions</li> <li><input type="checkbox"/> Make arrangements for care, maintenance, &amp; storage</li> </ul>



## Step 1: Planning Your Traffic Garden

### Choose Your Own Traffic Garden Adventure

Now that we've gone through the major considerations to keep in mind when choosing the right type of traffic garden for your community, it's time for your vision to start taking shape. Still not sure which traffic garden is right for you? Not to worry—the following flowchart offers a way to order the decision-making process in your mind. Consider first the assets you have available to you, and then break down the advantages and potential obstacles present to installing a traffic garden in your community. See the chart for a full walkthrough of the variables you'll need to consider, in the order you'll need to consider them in.



## Step 1: Planning Your Traffic Garden

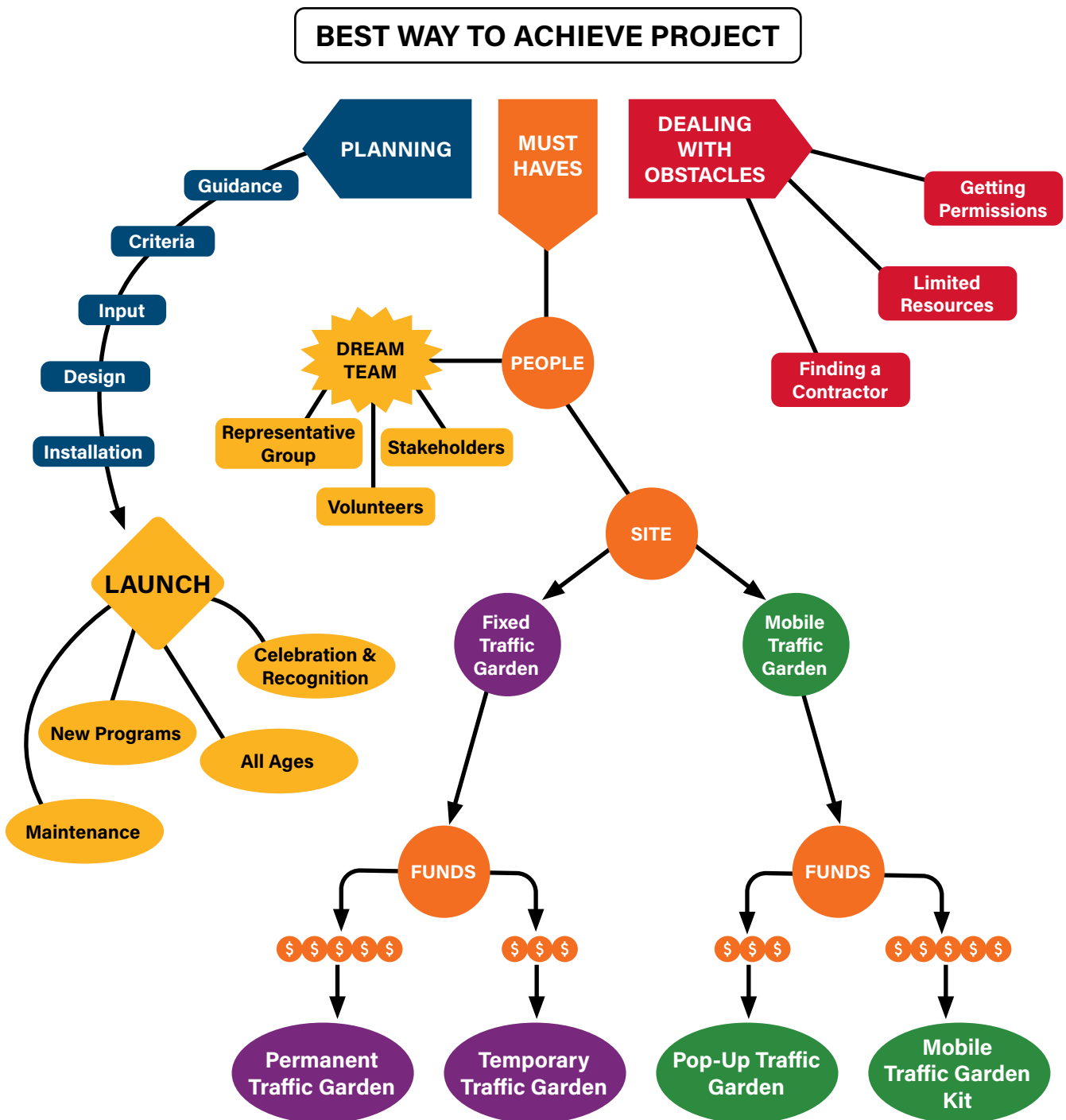


Figure 18. Traffic garden type identification flowchart

1

2

3

4

5

## STEP 2: THE SITE



### Where Will Your Traffic Garden Live?

Just as the different plants in a garden can require different soils in order to grow, different traffic garden projects require different sites in order to flourish. Finding an appropriate site—and obtaining permission to use it—is fundamental to any traffic garden project. Without an approved site, planning cannot proceed.

Maybe you already have a site in mind; maybe seeing a woefully underused asphalt parking lot in your community is what gave you the idea for a traffic garden in the first place, and now all you need is help securing permission to use it. Or perhaps you don't yet have a site and are daunted by the prospect of finding one. In either case, fear not! By the end of this section, you should have a site, have examined it in detail, and have a base drawing that shows an outline of the hard surface where the traffic garden will go. Once you have this in hand, you will be ready to charge ahead with figuring out the details of adding your traffic garden to this site.



### Identifying Suitable Sites

When rustling up a site, look for locations hiding in plain sight, keeping a special eye out for hard surfaces and courts that could be repurposed. Sometimes your perfect site may, at first glance, appear underutilized, neglected, or deteriorating, but don't let cosmetic imperfections scare you away; especially if your project is well funded, repairs are feasible and can restore the site to a suitable condition. Below is a list of community sites that, with permission, might make a great home for your traffic garden.



#### Starter Community Traffic Garden Site Ideas

##### CONSIDER

- Shared uses
- Abandoned sites
- Partnerships
- Seasonal spots
- Weekend/weekday uses
- Restoration/covering up
- Revitalizations
- Leftover segments
- Underused spaces
- Distant ends of sites


##### SEARCH FOR:

- Tennis courts
- Basketball courts
- Parking lots
- Places of worship
- overflow parking
- Recreation center
- asphalt
- Elementary and
- preschool sites
- Day cares
- Fairgrounds
- Colleges and
- universities
- Sports courts
- Next to playgrounds
- Next to regional trails
- Shuttered shopping
- centers
- Under highways

Figure 19. Potential traffic garden sites.

**Remember:** To find your perfect site, think beyond the parking lot! Pop-up traffic gardens make great additions to festivals, street events, or fairs!

## Step 2: The Site



When you have found a likely candidate, dedicate time to observing the site. Is anyone currently using the site? If so, for what? A site that reveals itself to already be a natural hub of neighborhood activity is most desirable. When examining site options, make sure to think through community needs like access and how the site will be used (whether for play, learning, or an event). The layout of the traffic garden itself is flexible, so the shape of the available hard surface does not have to be a rectangle or square so long as it meets the minimum width without any nearby hazards. Schools, parks, recreation centers, and churches may agree to allow the use of sites located on their properties. Such sites may come with the bonus of amenities and services already in place, so ask around! Keep an eye out for vacant spaces that only serve for occasional overflow use or annual events. In communities where new recreational facilities have been built, older courts may no longer be in use, and a traffic garden could make a great replacement amenity.

Organize a field trip with your dream team to the site or event location. Bring clipboards with drawing paper, writing supplies, and measuring tools so you can start thinking through how the traffic garden could work at this location. When you visit, check the following:

- Look for good surface conditions (limited cracking may be okay, depending on the width of the surface area).
- Make sure the surface is mostly flat with no steep slopes or big dips.
- Look for signs that the site drains properly (pools of silt indicates that water sits).
- Check that people can access the site without having to navigate steps or other barriers.
- Take note of any safety concerns and look for potential hazards
- Gather physical information like adjacent building and doorway locations, trees and shrubs, walls and fences.
- Take lots of photos of everything.

### Checking Your Site: Project Site Criteria

Once you've identified and visited a site, or even if you began this process with a site in mind, you'll need to double-check that your location meets certain criteria that ensure a minimum project viability.

Depending on the type of project planned, these are the basic considerations:

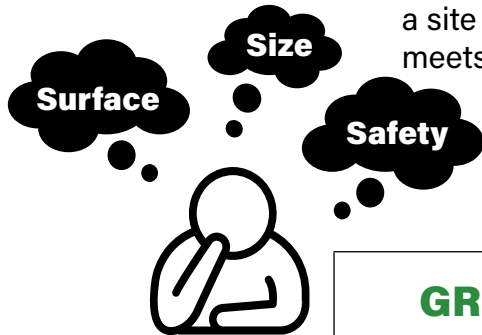


Table 1. Traffic garden site considerations

	<b>GREEN LIGHT!</b>	<b>RED LIGHT!</b>
<b>Site</b>	Mostly flat, hard surface with clear open space free of hard fixtures. (Minimum of 45' wide.)	Overly steep surface, intrusions into space (poles, drainage fixtures), adjacent building corners, steep drop-off at the edge.
<b>Surface</b>	Reasonable to excellent asphalt or concrete surface quality (some cracking is okay).	Severely cracked or potholed asphalt/concrete (unless funds are available to repair/replace).
<b>Safety</b>	No vehicles entering or crossing the site. No visible or close-by hazards.	Vehicles are entering or crossing the site. No easy way to close off the site.
<b>Access</b>	Good walking and bicycling sidewalk and trail connectivity.	Poor pedestrian, bicycle, and wheelchair connectivity.
<b>Ownership</b>	Part of existing community/public facility.	Problematic permission to use or unclear ownership.
<b>Location</b>	The natural center of the neighborhood walking/biking area.	Far-flung corners of the community distant from population centers.
<b>Community</b>	Lower-income neighborhood with many young people.	Already well-served neighborhood.

## Step 2: The Site

### Asphalt Surface Conditions

When seeking a site, the condition of the asphalt surface warrants close attention. Bicycle riders are more sensitive than other users to an irregular and cracked surface. When seeking a place for a pop-up or temporary traffic garden, a site with cracks more than half an inch wide is unlikely to be suitable for safe riding. In the case of sites for permanent traffic gardens, if you have the funds to fix the cracks and any other issues (like crumbling edges), then you can create a space that works. Even better, you might be able to seal coat the surface, which will give the site a beautiful new finish. Note that any cracks will likely continue to worsen over time, reducing the longevity of the traffic garden. It is best to consult an asphalt contractor early in the process to discuss options and costs.

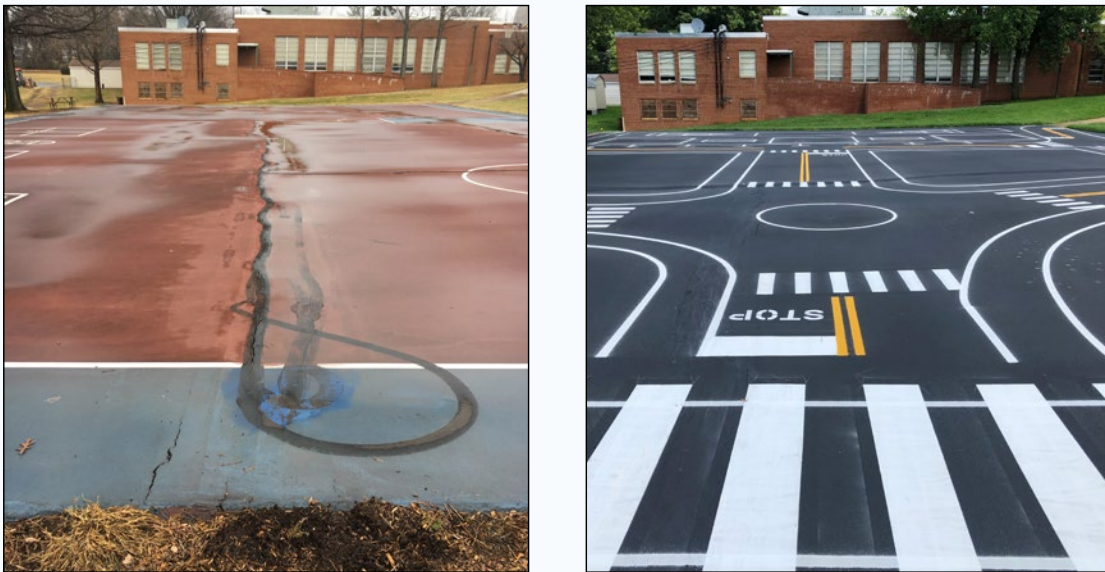


Figure 20. Warrenton Safety Town site (before and after)

Refer to **Appendix I: Traffic Garden Project Criteria** for a more detailed set of criteria for each type of traffic garden project.

Upon closer inspection, a site may not meet the project's minimum criteria. In this case, the project team should begin looking for alternative sites. Surrendering a possible site may come with heartbreak, especially when the project was initially conceived around that site. But remember: another suitable site is waiting just around the corner. Relying on team members or stakeholder input to identify other possible sites may help you get back on the search.



### Support and Permissions

When you have found a likely site, it's time to request permission from the property owner. When making the initial approach, it's good to be ready with information about other successful traffic gardens. **Appendix D: Getting to Know Traffic Gardens** includes useful information for this discussion.

First, however, you'll need to confirm the ownership of potential sites and determine what forms of permission are required. This can be easier said than done. Start by clearly identifying the boundaries of the site, then use this information to investigate the site through online property tax records to find additional basic information identifying who to contact. It may take a few calls or emails to find the right person to speak to.



#### How to Search Online Property Records

You have a couple of options when searching for property records. You can either go to the appropriate government office and search for the records in person, or you can look for records online:

**Arlington County:** <https://propertysearch.arlingtonva.us/>

**Prince George's County:** <http://taxinquiry.princegeorgescountymd.gov/>

### Making contact

When you have selected a likely site, it's time to get permission from the property owner. Many people are unfamiliar with traffic gardens, so you may be introducing them to the concept as well as asking for the use of their site. It's good to be prepared with photos, articles, or videos about other successful traffic gardens. The following steps may also help in the process of securing permission to use the location:

- **Offer to meet at the site.** Invite the owner to meet at the potential traffic garden location and explain the ideas in the field. Bring along chalk and, if possible, sketch something out so they can start envisioning the traffic garden.
- **Make a sketch and add photos of other locations.** Draw the site on paper or, even better, have someone with computer graphic skills put together a color concept on an aerial photo of the site. These both can help the vision come to life.
- **Organize a field trip.** Invite the property owner and a small group of champions to visit existing traffic gardens elsewhere in the region and meet with the people involved in the projects.

## Step 2: The Site

Many officials may be willing to grant permission right away, but others may need additional information to learn more about traffic gardens and their value. The Traffic Garden Fact Sheet may prove useful to help explain the project.

### Securing the site

Once you've received the go-ahead from the property owner, make sure to document the agreement in writing. If the first property owner doesn't work out, don't get discouraged, as many suitable spaces are scattered throughout the community.

Agreements with property owners can take the form of:

- simple agreements
- an easement
- a Memorandum of Understanding

The agreement should clearly state what the site will be used for, the duration of the use, and should clarify who has access to the site. For a resource to help you navigate securing the permissions, see **Appendix J: Securing Site Permission Worksheet**.

## Field Visits and Assessment

Once the site has been decided upon, it is time to take a close look at the site where you will be adding a traffic garden and to collect that information so that it can inform the planning. The best way to gather this information about the existing site is to conduct a field visit.

Inviting several team members increases the perspectives about the site and will be useful for subsequent discussions. It is also an exciting step in the project and may be the first time that the team can see how their project could potentially take shape. Refer to **Appendix K: Field Visit Preparation and Checklist** for detailed tips about preparing for the field visit and worksheets listing the features that should be examined.

Visiting the site should continue throughout the project so that you see it in different conditions and seasons. Make a point of visiting during or soon after a rain to observe whether water pools on the surface. Similarly, stopping by at different points in the year can tell you whether the seasonal conditions alter the site, whether through excessive weed growth, leafed-out trees, wind exposure, or some other variable. Take lots of photos, as these will prove valuable references during the layout process.



### Evaluating Sites for Your Fixed Traffic Garden

Fixed traffic garden sites involve a higher level of examination and evaluation as they are intended to last and need to work well over time. If you are considering multiple locations, this will help to highlight the pros and cons of the various sites. It is unlikely that any one site meets every criterium, but it helps to examine different aspects of the site and consider whether it largely meets the needs of the project. If there are several sites in contention, by comparing them over a range of topics, you can develop a system to select your first-choice site.

Below are some factors you may consider when evaluating the site. For a more extensive list of considerations, as well as a handy worksheet to help you keep track of them, use **Appendix L: Fixed Site Evaluation Worksheet**.

**Access:**

- Is the site accessible by foot, bicycle, or public transportation?
- Are there any physical barriers to access, like steps?

**Availability:**

- Is the site available for long-term use or only short-term use?

**Location:**

- Is the site centrally and conveniently located?

**Community:**

- Is the local community supportive of the concept?
- Are any community members or institutions interested in collaborating?

**Site conditions:**

- Is the site level and free of hazards?
- Does the site have good drainage?
- Is the site large enough to accommodate the street layout and activities?

**Surface conditions:**

- Is the asphalt free of wide cracks and potholes?
- Can existing striping be covered over and painted with traffic features?

## Step 2: The Site



### Evaluating Sites for Your Mobile Traffic Garden

Depending on their size and flexibility, mobile traffic garden kits can be used in a variety of flat indoor or outdoor spaces. This includes school gyms, assembly halls, recreation centers, libraries, or event centers like meeting halls and fair grounds. Visit spaces in person to ensure that they are suitable.

When evaluating spaces for a program or event, it is important to consider the following:

**Size:** The space should be large enough to accommodate the street layout and to allow for adequate movement and group lessons.

**Buffer Zone:** There needs to be enough space to maintain a clear zone all the way round the street layout.

**Safety:** The space should be free from any hazards or obstacles that could pose a risk to participants.

**Accessibility:** There should be a way to easily unload and transport the kit to the setup location.

#### When setting up and operating an indoor program or event using the mobile kit:

- Confirm adequate space around the street layout to create a recovery area for new learners.
- Consider the age and ability level of the participants.
- Mark off the perimeter with cones or tape.
- Keep nonessential items like chairs and tables out of the buffer zone.
- Supervise participants while they are using the kit indoors.



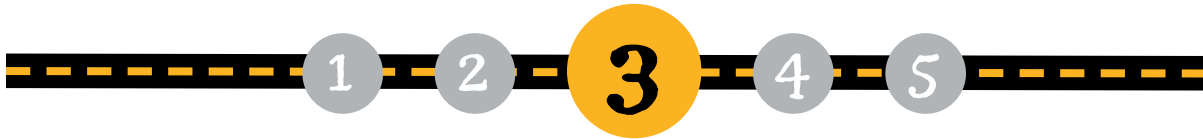
### LOCAL STORY:

In her previously funded position as a Safe Routes to School (SRTS) coordinator for Arlington Public Schools, Lauren Hassel applied for a Virginia Department of Transportation SRTS grant that would allow her to install temporary traffic gardens at two different school sites in Arlington.

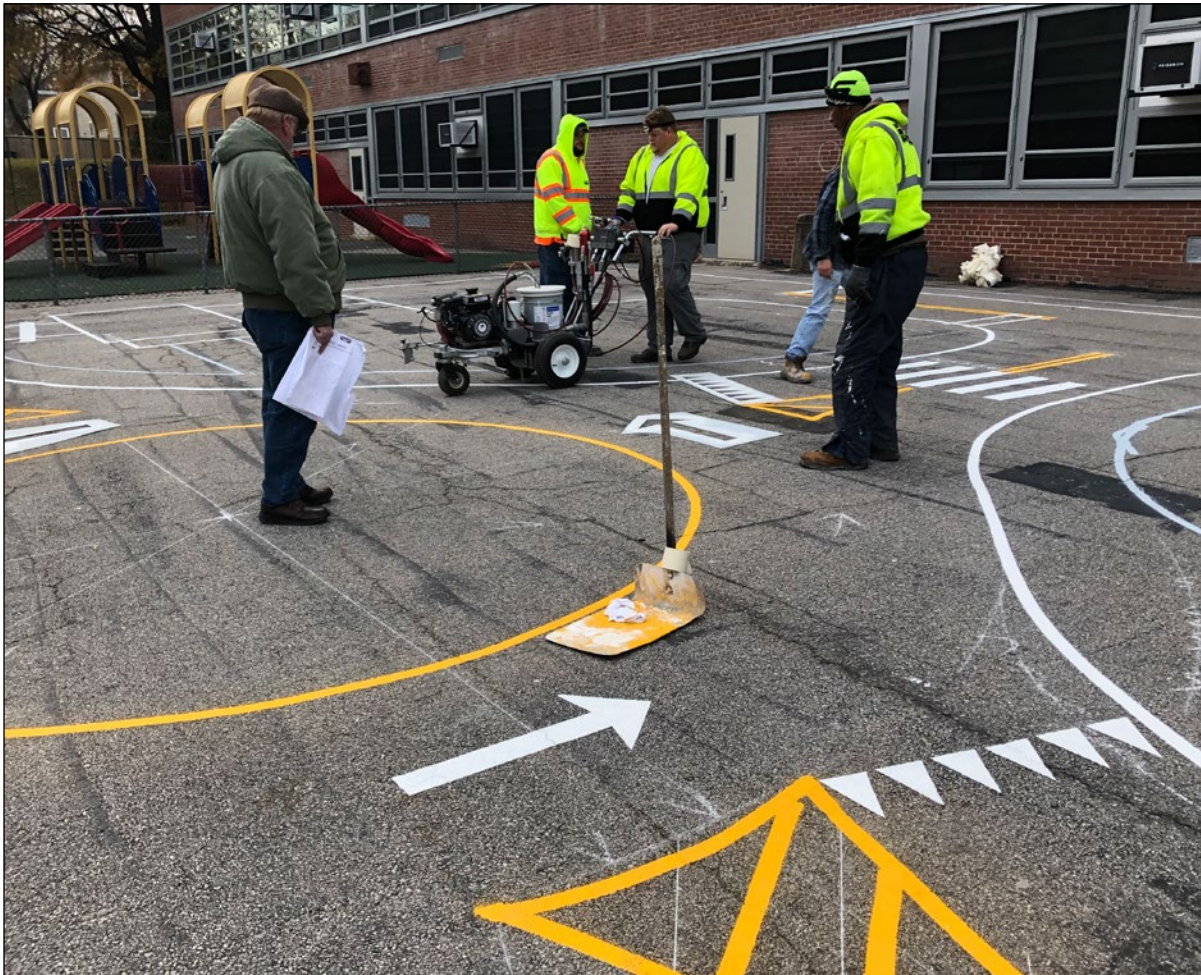
Lauren spent time seeking the best locations for the traffic gardens and settled on Arlington Traditional Elementary and Hoffman-Boston Elementary School. She knew that the facilities staff and school principals would need to give their permission for the traffic gardens to be installed on their school grounds, so she prepared a presentation to make her case.

*"Make the information visual,"* Lauren thought to herself as she prepared. *"Show different places this has happened across the country. Show pictures of the actual marking paint, for example, products they trust."* Lauren also knew that her audience—school staff and principals—would be most concerned with how the traffic would impact the school day and recess, so she geared her presentation around how the presence of a traffic garden could enhance the school's daily operations. Her presentation won her permission to use the sites, and her volunteer teams successfully installed both traffic gardens.





## STEP 3: DESIGN & SUPPLIES



*Figure 21. Design drawings and installation supplies like stencils being employed as part of the Aiton Elementary traffic garden installation*

### Design and Supplies Go Hand in Hand

A great design is what takes your meticulously crafted and much-loved vision to life. Just the draft of a design can keep a project team on track and inspired. And although drafting designs uses the principles of drawing, spatial reasoning, and precise measurement, you do not need to have degrees in fine arts, architecture, or higher mathematics to be a designer.



## Step 3: Design & Supplies

No matter your comfort level with design—whether you're a seasoned designer who wants to draft the layout of your latest traffic garden from scratch, or whether you're a first-time designer who would prefer to follow a tried-and-true template—this chapter is designed to help you. In the first half of this chapter, we will walk through the steps and offer best practices for creating a layout drawing of your traffic garden design.

In the second half of this chapter, we will pivot from discussing design to discussing supplies. These topics are paired together in the chapter because they often inform and influence one another: a design will determine what supplies are needed, and the availability of supplies may, in turn, revise the initial design.

### Design: Imagination Not Required (but Welcome!)

The traffic garden design is more than the lines and colors on the drawing: it is also the learning programs that will be offered, the unique features of the chosen site, and, of course, the people who will use the site, who may come from a range of backgrounds and ability levels that all need to be honored in the traffic garden. Juggling these many demands requires a sturdy design.

Generally, the level of design involved in traffic gardens is not high; it essentially amounts to adding a 2-D drawing to a surface. However, we recognize that not everyone wants to become a designer or has the strong visual sense needed to see exactly how a design would work on the chosen site. Accordingly, this guide provides two different approaches to how to accomplish designing your traffic garden:

- **Approach 1:** You can custom design a layout using specific guidance details included in this section to determine street dimensions, traffic garden features, and more. Refer to **Appendix M: Develop a Traffic Garden Layout Worksheet** to double-check that your initial draft layout and the final layout drawing include the necessary information.
- **Approach 2:** You can layer prepared layout templates provided in **Appendix N: Traffic Garden Layouts** straight onto the base drawing or aerial or sketch of the site. The templates also include dimensions, colors, and other specific information to help wrap up the design.

Decide which approach is your team. Maybe a team member possesses enhanced planning, designing, drafting, or spatial reasoning skills. In this case, Approach 1 might seem both more straightforward and more freeing, allowing your team to come up with a great custom design using the dimensional information provided in this chapter. However, if that does not sound like any of your team members or you want to move your project along rapidly, Approach 2 may be right for you.

## Step 3: Design & Supplies



### Traffic garden design principles

Traffic gardens are designed to foster active transportation mobility skills in children and new learners and build the confidence they need to eventually apply these skills to real-world streets. Five design principles of traffic gardens are listed below with this goal in mind, working to create a place that supports children as they become active travelers while recognizing that they need a forgiving place to learn, practice, and make mistakes.



**Layouts should follow real-world roadway, intersection, and crossing configurations.**

When crossings don't conform to real-world standards, users may make up their own traffic rules, undermining the educational value.



**Paint and marking colors should match standard roadway markings.**

This includes road lane striping, pedestrian crossings, arrows, and more.



**Traffic gardens should be attractive and inviting in appearance; they should feel safe and comfortable to use.**

Color, welcome signs, and messaging can help children feel aware of their agency and empowered in the space.



**Traffic garden streets & traffic signs should be scaled for the children (if they are the primary users).**

Children recognize right away that this is a place specially for them, and they are inspired to start riding.



**Traffic gardens should be free of hazards and unnecessary risks.**

There should be no vehicles or obvious hazards obstructing the traffic garden space.



## Step 3: Design & Supplies

### Is your traffic garden truly accessible?

While traffic gardens, by their nature, are widely accessible, disability needs can be further recognized by representing features from the built environment:

- Painted curb ramps with representations of tactile features at intersections
- Disabled parking symbols in reduced-size parking spaces

While these features will not have functionality, they can be used as instructional tools for lessons and programs.

In addition, the University of North Carolina's principles of universal design should be applied so that the traffic garden is accessible to as many people as possible.

### Accessible traffic gardens are designed to:

- ▶ consider accessibility for children of a wide range of abilities and a range of developmental stages;
- ▶ consider the needs of adaptive riding devices;
- ▶ create safe places where children can explore and be successful; and
- ▶ support family members with disabilities so they can supervise and observe also.

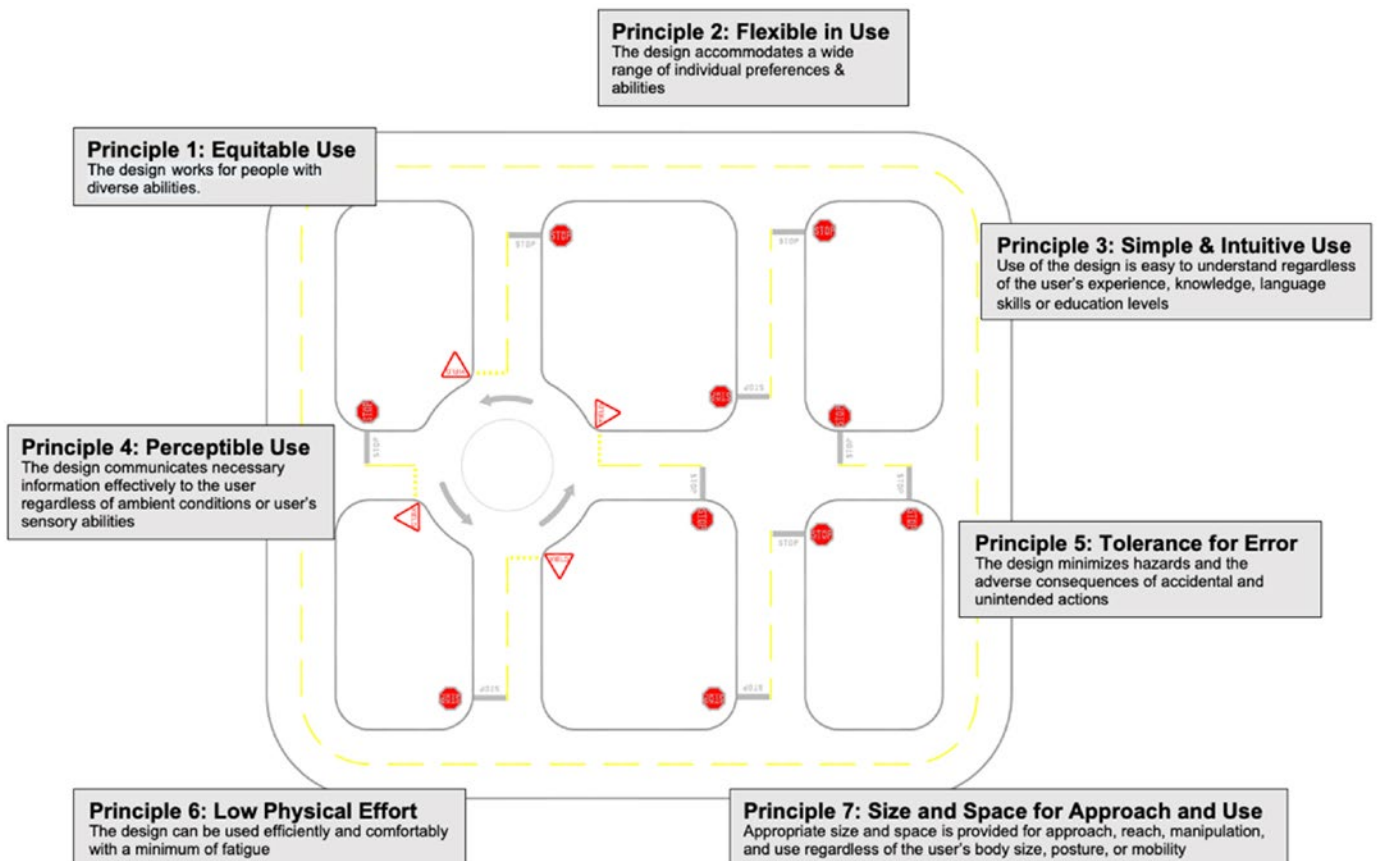


Figure 22. Accessible traffic garden principles

## Step 3: Design & Supplies

### Drawing the Traffic Garden

It is possible to hand-draw the layout and use this drawing for installation, although this is a less desirable method that is more prone to error. Digital drawings are easy to edit, offering a more practical way for the traffic garden layout to be prepared. Many people have access to graphic design programs (like Adobe InDesign, Illustrator, Canva, or Autodesk AutoCAD), and a community volunteer may be willing to provide their skills to create digital drawings.

It's most important for a digital drawing to represent both the existing site and what you would like to add to this site's surface with accuracy and detail. It's only with this level of detail that your team's installers will know the sizing, colors, and traffic features of the garden. They will need instruction on what materials to use, and they will need guidance on how to scale the layout to the real-world site.

To help with this last task, an optional painting grid sheet can accompany the final layout drawings. The grid sheet is comprised of equally spaced horizontal and vertical lines, and is often accompanied by an additional drawing sheet. All of the horizontal and vertical lines are spaced 2' to 5' apart and are labeled with a unique identifier. The smaller the site, or the denser the painting details, the closer together these grid lines are placed. This gridded drawing can then be used during installation to help transfer the information from the drawing to the site.

#### Example of Layout Drawing with Grid Lines Added

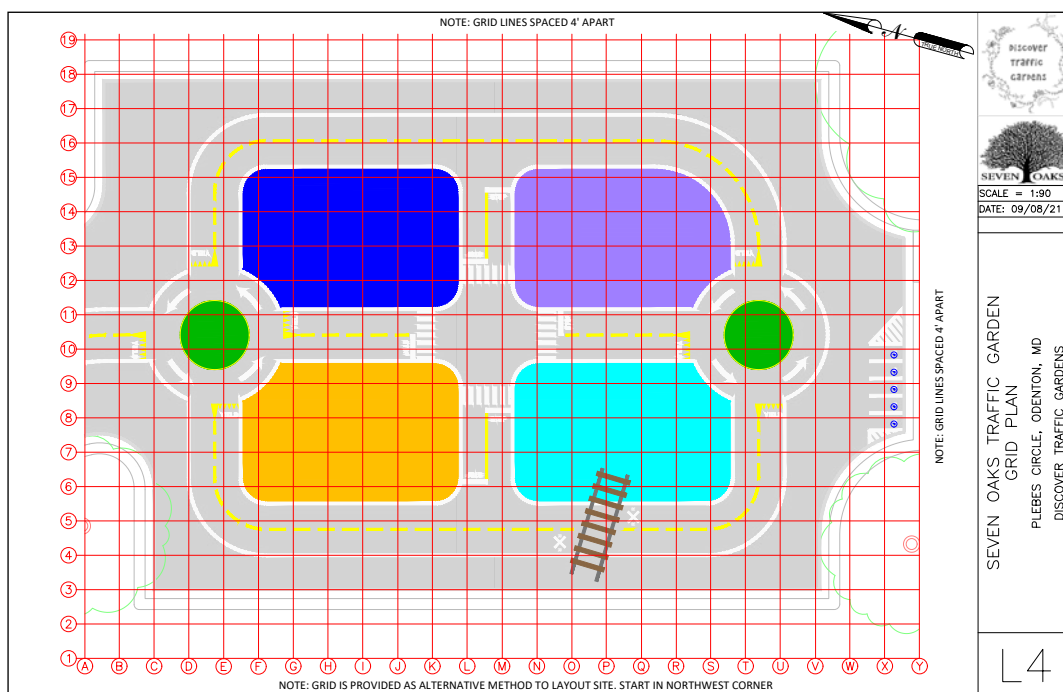


Figure 23. Seven Oaks traffic garden layout, including gridlines



## Step 3: Design & Supplies

Where possible, you can enhance the design to include as broad a range of elements from the Kit of Traffic Features (see page 50) as possible. These features expand the learning opportunities and add to the site's "traffic" environment.

### Drawing Review Tips

Key stages when team member or stakeholder comments are most helpful:

- After preparing the base drawing; double-check accuracy and that nothing has been overlooked.
- Draft layout drawing; comment on the layout ideas and suggest features.
- Final layout drawing; double-check that all layout details are correct and ready for installation.

Things to keep in mind:

- Ask for comments early to allow time for changes; give people time to mull the drawing over.
- Let people know when to expect drawings so they plan time for the project.

To double-check that your drawings meet design requirements, see **Appendix O: Design Checklists**.

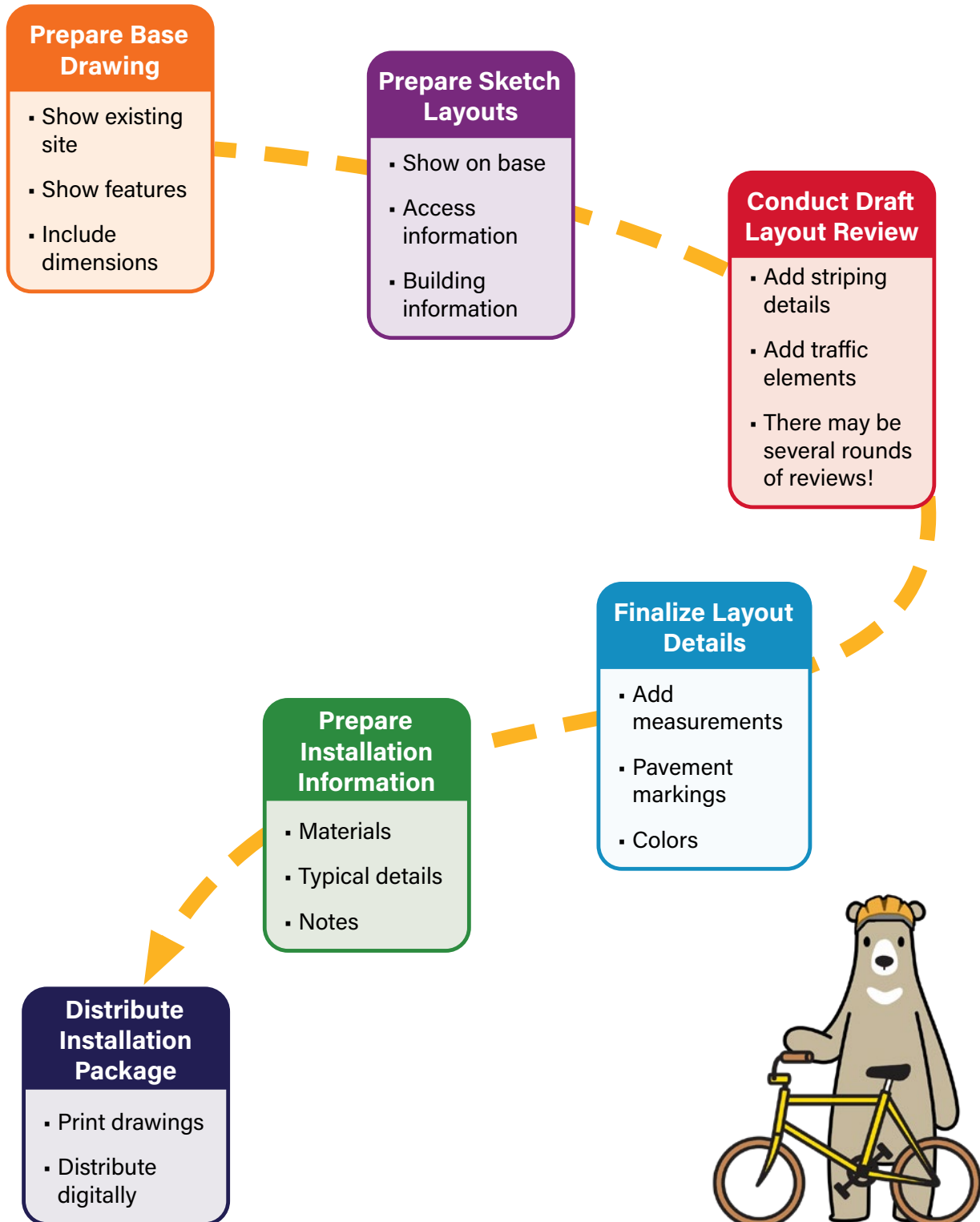
### Testing your drawing

Once the base drawing shows the existing site well, testing traffic garden layouts on the site can begin. Remember: getting the best layout takes time! Dedicating multiple rounds to methodically reviewing your layout will help you determine whether it has adequately captured your vision or, if not, how it can be improved. Involving team members and stakeholders in this review process is also important; fresh eyes can spot practical issues, omissions, or other opportunities in the draft that you may have missed. Visiting the site with the drawing in hand is always a good idea.

Once you have figured out what the final layout will look like, you can finish up the final traffic garden layout by noting additional details like materials, colors, and dimensions. You can also add instructions for the installation team, such as where they could unload their materials or access water for cleaning site. This "installation package" helps to communicate what needs to be done come installation day.

## Step 3: Design & Supplies

### Traffic garden design drawing process





## Step 3: Design & Supplies

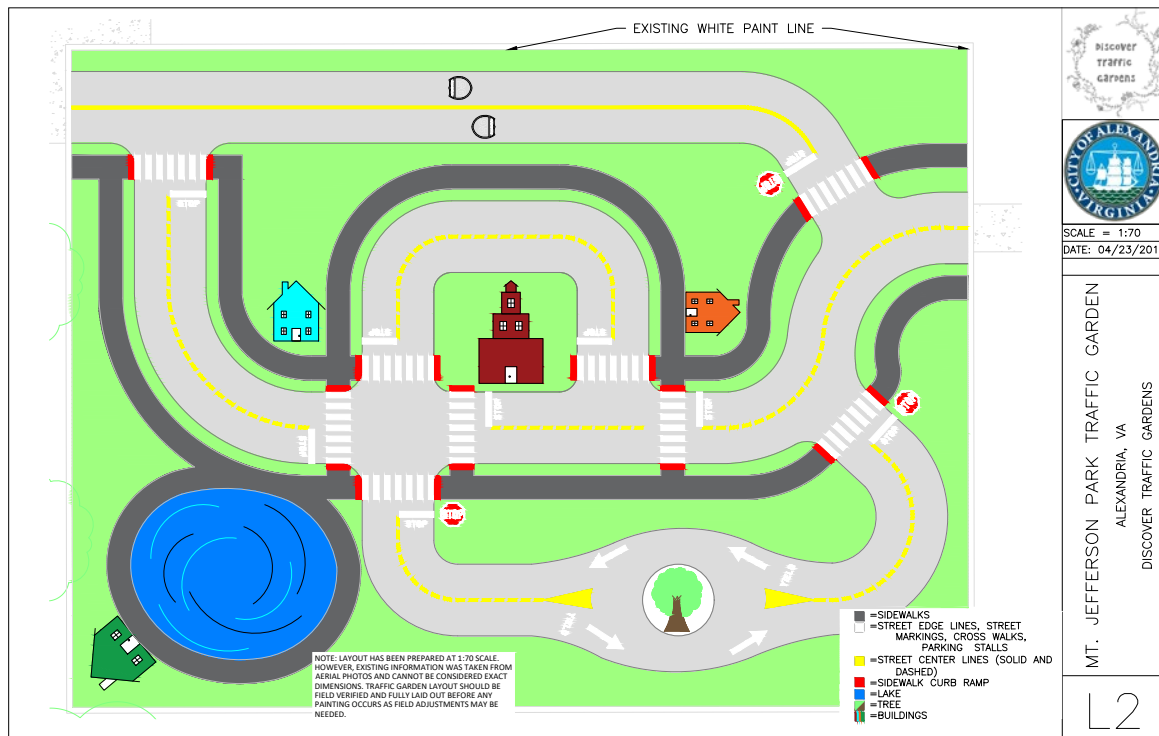
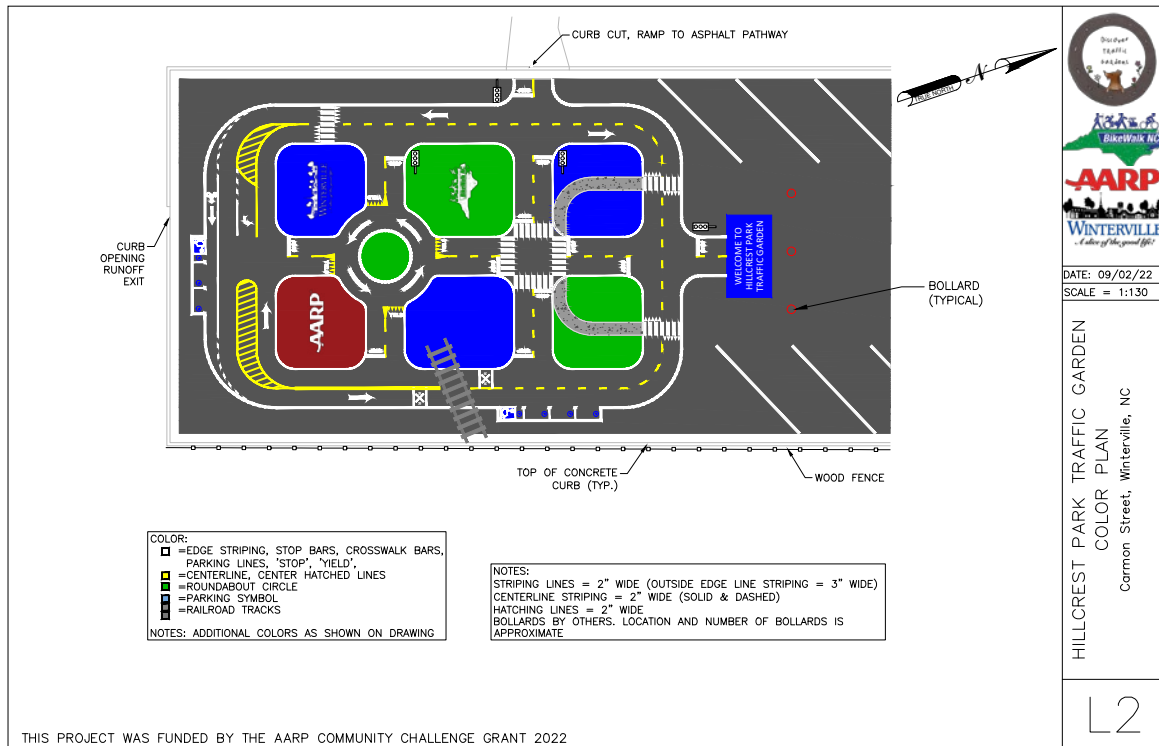


Figure 24. Sample layout drawings, Hillcrest Park traffic garden (top); Jefferson Park traffic garden (bottom)

## Step 3: Design & Supplies



### Design Layout Elements

Now that we've covered the fundamentals of design drawing, we'll turn our attention to the components that will constitute your drawing—and, eventually, your traffic garden. A couple of elements can be mixed and matched into many different layout configurations, all of which will delight and test children. The main elements of any traffic garden layout are:

- streets and intersections
- crossings
- sidewalks
- pavement markings

#### Streets and Intersections

Streets are the fundamental building blocks to any traffic garden, and together form the larger street network. Types of streets you may use include:

- one-way, one-lane streets
- two-way, two-lane streets
- two-way, three-lane streets
- two-way, four-lane streets

The streets of a traffic garden should facilitate the practice of multiple maneuvers while remaining approachable for children. There should be no square corners or hairpin turns, as these are difficult to navigate on any device. Instead, the street network should accommodate easy turns, be maneuverable for several riders at a time, and have well-spaced intersections that work for a range of devices. Although not the primary focus of this guide, it's worth mentioning that any installation designed to accommodate adult riders should feature wider streets, larger corner radii, and taller roadway signs.

### Intersections

Add interactions, learning, and play to the traffic garden. The intersections that are commonly used to connect streets and create a network layout are:

*Table 2. Types of streets and intersections*



Four-way  
intersection



T-intersection



Roundabout

They are usually more straightforward than real-life intersection designs, although they may feature a left-turn lane or bicycle lane, which adds some complexity.

As few sites feature traffic signals, traffic garden intersections typically only have two types of control: "Stop" or "Yield."

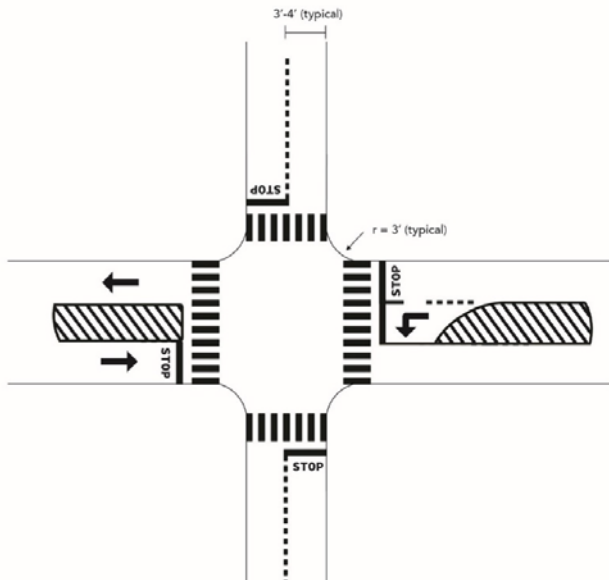
In the traffic garden world, some intersections are installed without any form of control, whether because the signs in use are portable or for some other practical reason. For example, close-together "Stop" intersections make it difficult to ride a bicycle because of the stopping and restarting. Sometimes traffic gardens are set up so that the "Stop" or "Yield" control can be changed around for lessons. In these cases, care has to be taken that surface markings are not in conflict with the switching signs.

### Where Streets and Intersections Meet:

The actual point where two streets meet is called the "corner radius" and is usually rounded to assist with bicycle turns. The size of the corner radius varies widely at traffic garden sites. Although there are locations with radii below 3', a 3'-radius minimum is increasingly considered the standard for comfortable bicycling in a traffic garden. As the corner radii size increases, bicyclists may take the corner slightly faster. However, overall bicycling speeds are usually low in the traffic garden, in part because of the limited space available, so curb radii can generally remain small.

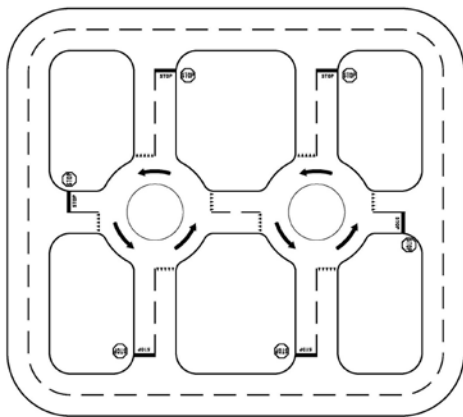
## Step 3: Design & Supplies

Table 3. Intersection details



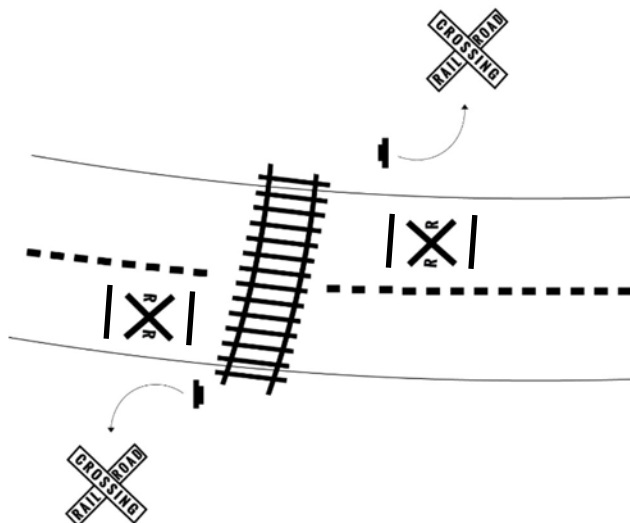
### Stop Intersection:

- two-way street or multi-lane segment: 3'- to 4'-wide travel lanes
- corner radii = 3'
- locate the stop sign next to the stop bar (outside the travel lane)



### Roundabout:

- center circle = 3' to 5' radius (typical)
- the center circle can be increased in size to create a larger roundabout
- roundabout travel lane width = 4' to 5' (as measured from the outside edge of the central circle)



### Railroad Crossing:

- add railroad crossings in between intersections
- railroad tracks can be extended across the entire traffic garden
- a railroad station can be added at each end (painted rectangle with the stenciled word 'STATION')



## Step 3: Design & Supplies

### Crossings

Crossings create points of interaction between children and other roadway users, like bicyclists. The crossing in a traffic garden should use similar markings to their real-world counterparts whenever possible, as this makes it easier for the lesson to carry over into real settings.

Table 4. Crossings

Crossing Elements	Criteria	Markings	How to Apply
<b>Pedestrian Crosswalk</b>	<ul style="list-style-type: none"> <li>▪ crosswalk ladder markings should fit symmetrically and evenly within the street width</li> <li>▪ line up with sidewalks and curb ramps</li> <li>▪ start with a space on both ends of the crosswalk ladder markings</li> <li>▪ an easy rule of thumb is for crosswalk bar width to equal the space between bars</li> </ul>	<ul style="list-style-type: none"> <li>▪ use solid white surface markings to represent crosswalk</li> <li>▪ the most popular crosswalk type is a ladder style</li> </ul>	<ul style="list-style-type: none"> <li>▪ measure and tape off the area for painting; OR</li> <li>▪ stencil</li> </ul>
<b>ADA Curb Ramps</b>	<ul style="list-style-type: none"> <li>▪ size to fit on a corner radius to match the width of any sidewalk</li> <li>▪ line up with sidewalks and crosswalk markings</li> </ul>	<ul style="list-style-type: none"> <li>▪ use a rectangle of contrasting red paint on the corner radius of the street edge striping line to represent the ADA curb ramp</li> </ul>	<ul style="list-style-type: none"> <li>▪ measure and tape off the area for painting</li> </ul>
<b>Railroad Tracks</b>	<ul style="list-style-type: none"> <li>▪ railroad track sizing is a function of the road width and the angle of the railroad crossing</li> <li>▪ the R x R symbol is added to the middle of the lane on the crossing approach in both directions</li> <li>▪ a general rule of thumb is for railroad ties to be narrower and longer than crosswalk stripes</li> </ul>	<ul style="list-style-type: none"> <li>▪ use solid surface markings to represent railroad tracks (various colors work)</li> <li>▪ the railroad crossing is created using a set of parallel wider white bars ("sleepers") crossed by a parallel set of narrower white lines ("tracks")</li> <li>▪ Adding track at an acute angle across the streets enhances the look of the railroad tracks.</li> </ul>	<ul style="list-style-type: none"> <li>▪ measure and tape off the area for painting; OR</li> <li>▪ stencil</li> </ul>

## Step 3: Design & Supplies



### LOCAL STORY

Although he didn't formally study mathematics, Marcellus S. discovered his natural spatial reasoning skills when he started working in the striping business. Now the co-owner and vice-president of operations for a DMV-based striping company, he has gone on to deploy his skills in laying out and laying down traffic garden pavement markings for D.C. Public Schools. The process involves transferring the information from 2-D drawings onto the surface at a larger scale, an exercise in applied geometry. Marcellus takes significant pride in his work and has imparted that love to his business partners. As a lifelong D.C. native, he is committed to being a force for good in his hometown and deploys his traffic garden skills on behalf of local students.



Figure 25. Striping at Anne Beers Elementary School Traffic Garden



Figure 26. Marcellus at work

### Sidewalks

While sidewalks are not always included in traffic gardens due to the expense and the limitations of space, they enhance pedestrian lessons and add another fun element for imaginative play. It can be tricky to figure out the best way to fit in sidewalks, especially if the traffic garden streets are short. The graphic below shows different geometric methods that can be used to add sidewalks to a design.

#### Sidewalk

**Style 1:** created by adding a striping line parallel to the street edge striping line.

#### Sidewalk

**Style 3:** created through the use of wide gray-color contrast paint along the edge of the outside lane striping line. Contrasting green background next to sidewalk interior line.

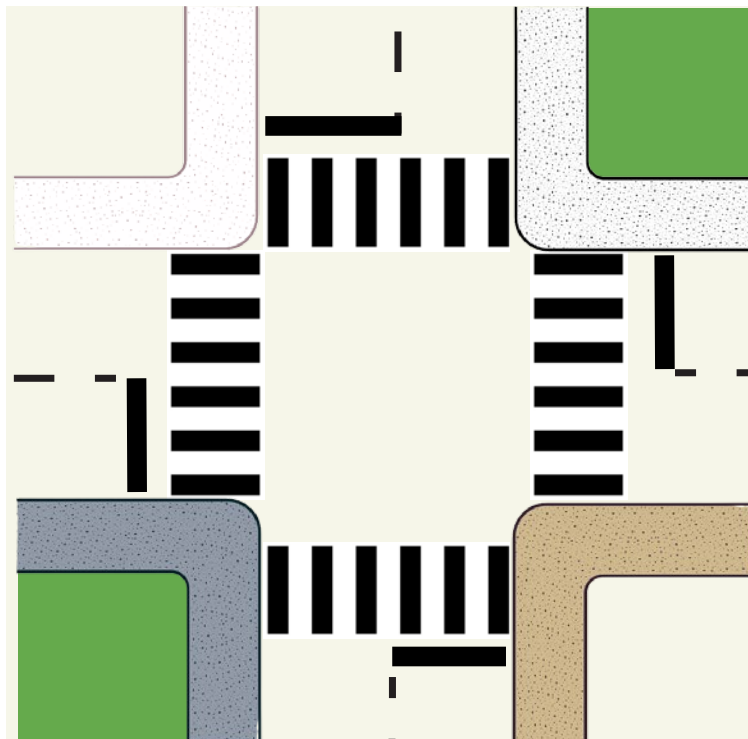


Figure 27. Sidewalk styles

#### Sidewalk

**Style 2:** created through a combination of a white line parallel to the lane edge striping line, plus a contrasting green background next to the sidewalk interior line.

#### Sidewalk

**Style 4:** created through the use of wide color contrast paint along the outside edge of the lane striping line.

When using the pedestrian figure symbol with sidewalks, remember these tips:

- The pedestrian figure symbol is generally white.
- The symbol generally used is from the pedestrian signal head (scaled up).
- Locate the symbol centrally on the sidewalk.

Although not generally used in public street applications, the pedestrian symbol works well in traffic garden applications, as it helps communicate which area is designated as the sidewalk.

## Step 3: Design & Supplies

**Pavement markings** should be highly visible against the traffic garden surface and follow the standard appearance from the Manual on Uniform Traffic Control Devices (MUTCD) - the document that specifies standards for pavement markings and signs so that they're uniform across the United States. Marking colors are specific—get them right to maintain the illusion!

Table 5. Pavement markings

Crossing Elements	Criteria	Markings	How to Apply
<b>On-Road Markings (Words)</b>	<ul style="list-style-type: none"> <li>• "STOP" letter height = 6"</li> <li>• total width of the word "STOP" = 21"</li> <li>• "YIELD" letter height = 6"</li> <li>• total width of the word "YIELD" = 24"</li> <li>• any other words used should be sized to fit within a 3'- to 5'-wide lane</li> </ul>	<ul style="list-style-type: none"> <li>• markings are white</li> <li>• "Stop" or "Yield" are set back from either a stop bar or yield line (see below)</li> </ul>	"Stop" or "Yield" words are generally added to the surface using standard scaled-down roadway stencils
<b>Stop Bar</b>	<ul style="list-style-type: none"> <li>• length of stop bar = width of the travel lane(s) in the direction of travel</li> <li>• width of stop bar (varies) = narrower than crosswalk bar width (6" to 8")</li> <li>• markings are white</li> </ul>	<ul style="list-style-type: none"> <li>• solid white stop bar located in advance of crosswalks or next to stop signs</li> <li>• the bar should cover the full width of the lane in the direction of travel only</li> </ul>	measure and tape off the rectangle area for painting
<b>Straight Arrows</b>	<ul style="list-style-type: none"> <li>• size proportionately to street width (12" tall works for a 3'- to 4'-wide lane)</li> </ul>	<ul style="list-style-type: none"> <li>• solid white markings</li> <li>• locate centrally in the lane</li> </ul>	stencil
<b>Curved Arrows (for Bends)</b>	<ul style="list-style-type: none"> <li>• arrows = white</li> <li>• size proportionately to street width</li> </ul>	<ul style="list-style-type: none"> <li>• solid white markings</li> <li>• locate centrally in the lane</li> </ul>	stencil
<b>Roundabout Arrows</b>	<ul style="list-style-type: none"> <li>• arrows = white</li> <li>• size proportionately to street width and lane radius</li> </ul>	<ul style="list-style-type: none"> <li>• solid white markings</li> <li>• use a simple curved design that follows the arc and direction of the roundabout</li> <li>• locate centrally in the lane</li> </ul>	stencil
<b>Bike Lane Symbol</b>	<ul style="list-style-type: none"> <li>• use the standard bicycle lane symbol</li> <li>• size proportionately to the street or lane width</li> </ul>	<ul style="list-style-type: none"> <li>• solid white marking</li> <li>• the bicycle symbol is marked in the center street or bike lane, or bike box</li> <li>• several standard versions of symbols can be scaled down</li> </ul>	stencil
<b>Parking Spaces</b>	<ul style="list-style-type: none"> <li>• lines = 2" to 4" wide</li> <li>• spaces should be sized to accommodate bicycles</li> </ul>	<ul style="list-style-type: none"> <li>• use white striping lines</li> <li>• parking spaces can be shown in different ways and configurations depending on site and programming</li> </ul>	striping painter



## Step 3: Design & Supplies

Line striping and pavement markings should follow standard colors.

Table 6. Marking striping color standards and usage

Paint Color	Shade	How It's Used in Traffic Garden	Examples
<b>White</b>	<ul style="list-style-type: none"> <li>Traffic White</li> <li>Federal standard 595</li> <li>Color FS 17875</li> </ul>	<ul style="list-style-type: none"> <li>lane striping, between lanes, going the same direction, roadway arrows, crosswalk markings, "STOP" (word), "YIELD" (word), stop bar, yield markings, bike lane symbol, accessible parking symbol</li> </ul>	
<b>Yellow</b>	<ul style="list-style-type: none"> <li>Traffic Yellow</li> <li>Federal Standard 595</li> <li>Color FS 33538</li> </ul>	<ul style="list-style-type: none"> <li>center line, island, median; central hatching to create a left-turn lane</li> </ul>	
<b>Green</b>	<ul style="list-style-type: none"> <li>Bike Lane Green</li> <li>Pantone 349 c</li> </ul>	<ul style="list-style-type: none"> <li>bike box, colored bike lane, grass buffer between street and sidewalk, the central area of roundabout circles</li> </ul>	
<b>Blue</b>	<ul style="list-style-type: none"> <li>Accessible Blue</li> <li>Federal Standard 595</li> <li>Color FS 15180</li> </ul>	<ul style="list-style-type: none"> <li>accessible parking square (symbol is applied on top)</li> </ul>	
<b>Red</b>	<ul style="list-style-type: none"> <li>Adobe Red or Bus Lane Red</li> </ul>	<ul style="list-style-type: none"> <li>may be used to create a "curb ramp" where the sidewalk intersects with the street's lane edge</li> </ul>	
<b>Gray</b>	<ul style="list-style-type: none"> <li>Mix black and white</li> </ul>	<ul style="list-style-type: none"> <li>represent sidewalks</li> <li>railroad tracks and ties</li> <li>cover over markings on asphalt (mix to match surface)</li> </ul>	

## Step 3: Design & Supplies



### Planning for Other Aspects of the Traffic Garden

While the layout drawing is in progress, there are other elements of the traffic garden that need to be planned. Some or all of the following design choices may apply depending on the nature of your project:

- installation stencils: custom-sized stencils for adding pavement markings and features
- equipment: portable traffic sign set, bicycles, ancillary bike supplies (pumps, tools, helmets)
- storage: for signs, bicycles, and ancillary supplies
- amenities: benches, bicycle parking, and more
- surface repairs: crack repair, surface resealing, fixing any hazards
- adjustments to access: ADA fixes, removal of barriers
- new information: welcome/information signs, way-finding signs

Some of these items can be readily purchased, while others are specialty items that require advance preparation and notice to obtain.

Table 7. Traffic features checklist

TRAFFIC FEATURES:		
<b>Intersections</b>	<b>Street Pavement Symbols or Markings</b>	
<input type="checkbox"/> stop intersection (4-way)	<input type="checkbox"/> pedestrian crossing	<input type="checkbox"/> directional arrows (straight)
<input type="checkbox"/> stop intersection (3-way)	<input type="checkbox"/> "Stop" word	<input type="checkbox"/> directional arrows (roundabout)
<input type="checkbox"/> roundabout (yield intersection)	<input type="checkbox"/> stop bar	<input type="checkbox"/> directional arrows (left turn)
<input type="checkbox"/> other yield intersection	<input type="checkbox"/> "Yield" word	<input type="checkbox"/> railroad tracks
<b>Types of Crossings</b>	<input type="checkbox"/> shark's teeth	<input type="checkbox"/> railroad crossing ahead
<input type="checkbox"/> a pedestrian crossing (intersection)	<input type="checkbox"/> disabled parking	
<input type="checkbox"/> a pedestrian crossing (mid-block)	<input type="checkbox"/> parking	
<input type="checkbox"/> railroad crossing	<input type="checkbox"/> bicycle	
<b>Types of Streets &amp; Lanes</b>	<b>Traffic Signs</b>	
<input type="checkbox"/> one-way, single lane	<input type="checkbox"/> Stop	<input type="checkbox"/> one-way
<input type="checkbox"/> two-way, opposing lanes	<input type="checkbox"/> Yield	<input type="checkbox"/> roundabout
<input type="checkbox"/> bicycle lane	<input type="checkbox"/> railroad crossing	<input type="checkbox"/> stop here for pedestrian
<input type="checkbox"/> bike box	<input type="checkbox"/> school crossing (pedestrian)	

### What Devices Will Be Part of Traffic Garden World?

As bicycles are at the core of traffic garden play and learning, it is worth taking a closer look at the full range of bicycle devices that users may bring into their new miniature world. Learning to bicycle often starts young, with small children on balance bikes. As children learn and grow, however, they can begin to diversify their device use based on age, size, and ability. Traffic garden streets, storage, and assembly areas should accommodate this range of devices.

Below is a breakdown of commonly used types of bicycles; for a more complete list, see **Appendix P: Types of Bicycles Used at Traffic Gardens**.

- balance bicycles
- two-wheel pedal bicycles (no gears)
- two-wheel pedal bicycles (with gears)
- recumbent bicycles
- adaptive or specialized bicycles

People using devices other than bicycles will also likely want to access your traffic garden. A closer examination of the other types of devices that will be part of the traffic garden world can inform the design's accessibility choices, short-term storage, long-term storage, and general comfort. Most importantly, family or community members who use mobility devices must have barrier-free access to the traffic garden. Additional supportive infrastructure for these guests, such as places for observation, will also go a long way in making them feel welcome.

For a more exhaustive list of devices that need to be anticipated in design, see **Appendix Q: Devices Found in and Around Traffic Gardens**.

### What Learning Programs Will Be Available?

Traffic gardens provide safe community places for children and other learners to practice safety skills. They are used for instruction by a range of educators to encourage and teach aspects of safe riding and walking on our streets. Below are merely a few examples of types of learning programs that could take place in a traffic garden. See **Appendix R: Traffic Garden Programs** for an exhaustive breakdown of these categories; for additional activities that will encourage educational fun in the traffic garden, see **Appendix S: Traffic Garden Potential Programs and Activities Ideas**.

#### Bicycle skills lessons



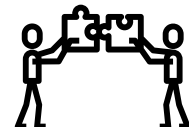
#### Road safety programs



#### Play groups



#### Outdoor STEM clubs



## Step 3: Design & Supplies



### Incorporating Public Art

Traffic gardens provide opportunities to incorporate placemaking and community features. Asphalt art drawings of places students recognize, such as the post office or corner market, could be represented along the edges of the streets or in roundabout circles. Railroad tracks are popular features to add for imaginative play; you might consider capping off one end of the tracks with a drawing of a railroad station. Consider adding drawings of your local community landmarks to give your traffic garden a familiar texture. Streets can be named after real people or local community features.

Traffic gardens can also provide children with the chance to flex their artistic muscles, and their art can, in turn, be used to further elevate the traffic garden's facilities into cherished local spaces that truly reflect their local character. Organize colorful art projects through a school or local art organization. Artwork could reflect local community history or offer information on the traffic garden. Refer to the Asphalt Art Guide by Bloomberg Associates, which is available online for free and contains tips for installing these features.



*Figure 28. STEAM Saturday program participants created their own mini-traffic garden engineering toolkits.*





### Developing a Fixed Traffic Garden Layout

#### Permanent traffic garden layout

The layout for the permanent traffic garden can be developed through either of the two approaches outlined at the beginning of this chapter. You can also hybridize the two approaches, developing the majority of your layout from a template while customizing features as you feel comfortable.

For custom designs, double-check that your design and equipment dimensions cohere throughout. Refer to **Appendix M: Develop a Traffic Garden Layout Worksheet** to double-check that the initial draft layout and the final layout drawing include the necessary information.

If you are instead using a layout template for your permanent traffic garden, choose which of the layouts in **Appendix N: Traffic Garden Layouts** works best for you based on your available site, community needs, and goals for the traffic garden.

#### Steps for Using a Layout Template for a Permanent Traffic Garden:

- Add the selected layout template to the base drawing.
- Adjust and shift, so the layout fits well and has a buffer around it.
- Customize as needed by extending street lengths.
- Finish up by adding details like signs and additional features.
- Check for any edges or impediments (for example, a building corner, poles, the gate, doorway, walls, or storm drain).

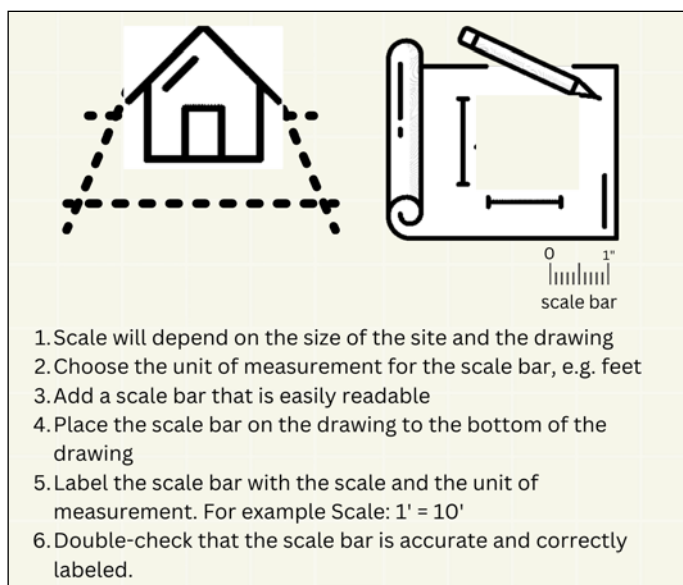
#### Preparing the site base drawing

Once you have gathered information about the site, it is time to prepare the base drawing. Your base drawing will present a bird's-eye view of the existing site. It should show the boundaries of the hard surface where the traffic garden is to be located, plus the details of the area surrounding this surface. The goal of preparing the base drawing is to know where significant existing elements are located, including trees, shrubs, walkways, driveways, and structures, so that you can add the traffic garden in a way that makes sense.

## Step 3: Design & Supplies

### Preparing the site base drawing (continued)

To prepare the base drawing, start with a good-quality aerial or satellite image of the site. These are readily available from Google Maps or Google Earth. If the site does not show up well on the aerial image (perhaps trees overshadow the area you are interested in), ask your local officials whether they have more accurate satellite



images available. Once you have an image that can serve as your base drawing, you'll be able to sketch or draw on additional features.

You will need to add a scale to the drawing also so people can figure out the proportions of the traffic garden elements. The scale is shown as the length in the drawing, then a colon (":"), then the matching length on the real thing. For example, 1": 10' would indicate that 1 inch on the map represents 10 feet in the real world.

Figure 29. Graphic - Tips for adding a scale measurement to the layout drawing.

### Temporary traffic garden layout

The layout for the temporary traffic garden can be developed by using the layout templates provided in this guide. Which of the layouts in **Appendix N: Traffic Garden Layouts** works best for you will be based on your available site, community needs, and your goals for the traffic garden.

#### Steps for Using a Layout Template for a Temporary Traffic Garden:

- Add the selected layout template to the base aerial or sketch.
- Customize as needed by extending street lengths.
- Check for any edges or impediments (a building corner, poles, a gate, doorway, walls, a storm drain, etc.).
- Adjust and shift, so the layout fits well and has a buffer around it.
- Finish up by adding details like signs and additional features.

### LOCAL STORY

While the former Arlington SRTS coordinator was working on grant funding for temporary traffic gardens, Emily Gage, the executive director of youth biking organization Phoenix Bikes, approached The Women's Club of Arlington and asked them whether their parking lot could host a temporary traffic garden. The club agreed, resulting in Arlington's first temporary traffic garden. On one Halloween morning during the pandemic, a large group of volunteers installed the garden using duct tape, spray chalk, and tape. The traffic garden lasted for a couple of months but, through its media coverage, spurred a larger conversation in the area about the need for a permanent traffic garden in the community.



### Mobile Traffic Garden Layouts

Ultimately, mobile traffic gardens—whether a pop-up or from a kit—need to be easy to set up. To ensure this, stick to the essentials when preparing their layouts. This will save you time and space while ensuring the constituent parts of your traffic garden aren't too heavy to tote around.

#### Developing a pop-up traffic garden layout

The layout for the pop-up traffic garden can be developed by using the layout templates provided in this guide. Which of the layouts in **Appendix N: Traffic Garden Layouts** works best for you will be based on your available site, community needs, and your goals for the traffic garden.

#### Steps for Using a Layout Template for a Pop-Up Traffic Garden:

- Add the selected layout template to the base aerial or sketch.
- Adjust and shift, so the layout fits well and has a buffer around it within the area provided.
- Customize as needed by extending street lengths.
- Finish up by adding details like signs and additional features.

## Step 3: Design & Supplies



### Developing a mobile traffic garden kit

The overall size of a mobile kit layout depends on the weight and size limits for the kit as well as the criteria for how it will be set up and transported. There is no standard way to create the street network layout, but the tables below summarize several different methods that have been used in mobile kits throughout various communities and list the other elements typically included in these kits.

Table 8. Portable streets and intersections for mobile kits

#### Traffic Garden Street Network



Avenues in Motion, NJ

**Method 1:** Custom-reinforced vinyl tarps form a complete layout with streets and other features marked on the surface.

**Description:**

- vinyl tarps form a complete layout (a single piece or several pieced together)
- small-scale streets with other features defined by color markings
- intersections, crossings, and other pavement markings are intrinsic to the layout
- available in multiple sizes and weights
- may only be suitable for indoor use
- folds up into a carry-all storage bag



**Method 2:** Streets defined using a set of roll-out striping and markings laid flat by materials and weights.

**Description:**

- pack materials into a carry-all storage bag



**Method 3:** Streets are created around artificial turf or ("grass") blocks. Street centerlines and other pavement markings are added in the space in between the "grass" blocks.

**Description:**

- create streets around artificial turf blocks
- add street centerlines and other pavement markings in the space in between the "grass" blocks
- artificial turf rolled up for transport
- other materials packed into a carry-all storage bag or rolling storage bin

## Step 3: Design & Supplies



York County, VA

**Method 4:** Roll-out streets (created using vinyl or other lay-flat products) are assembled into a street network.

**Description:**

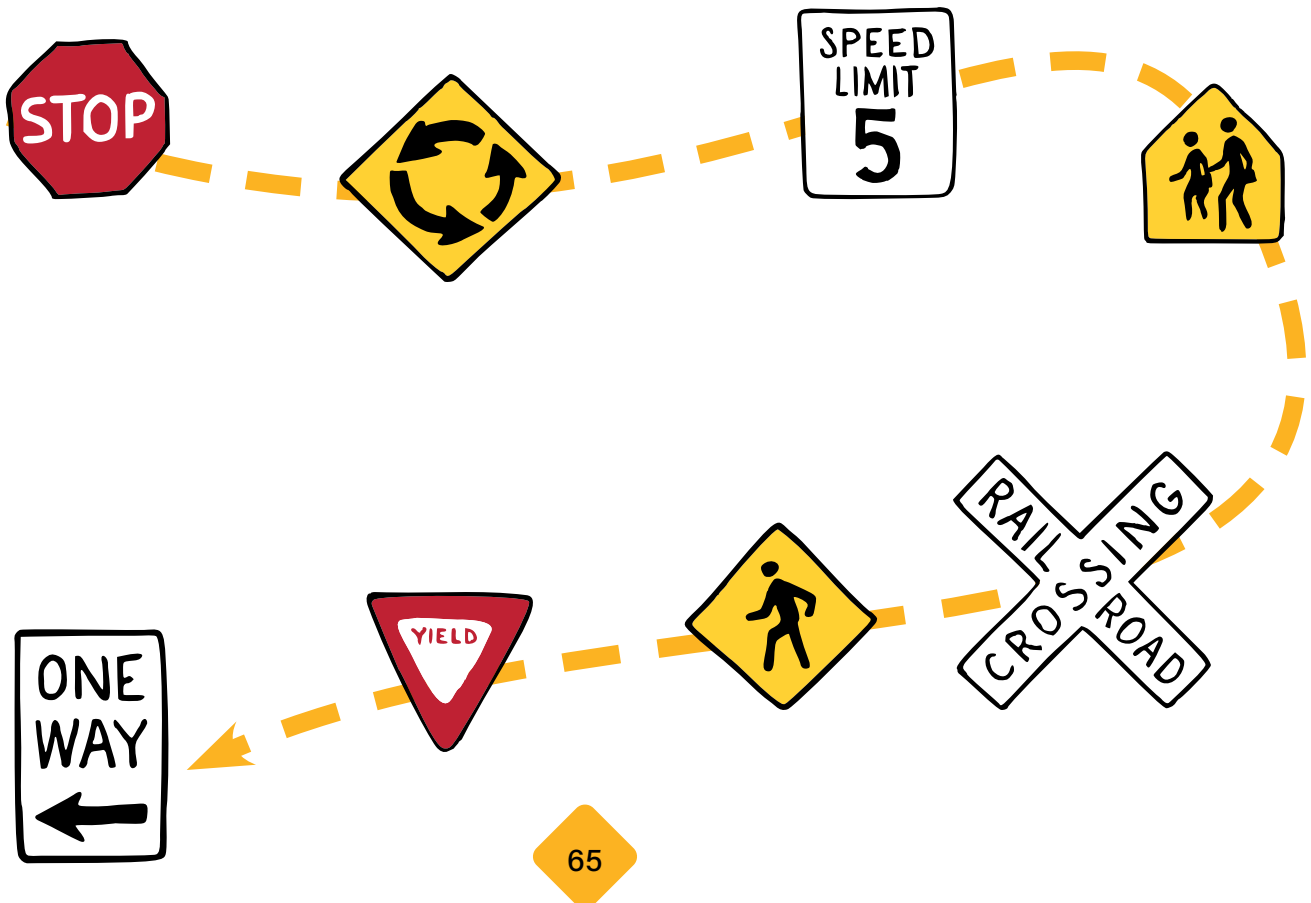
- create streets by rolling out black material (width equals the street widths)
- intersections, crossings, and other pavement markings are intrinsic to the streets
- materials packed into a carry-all storage bag or rolling storage bin



**Method 5:** Vinyl tarp intersections are connected with roll-out striping and markings to create streets

**Description:**










- intersections define the layout, with streets then linking the points of intersection together
- materials packed into a carry-all storage bag





## Step 3: Design & Supplies

Table 9. Portable kit supplies and equipment

Portable Kit Element		Description
 <b>Kit Storage</b>	<ul style="list-style-type: none"> <li>▪ storage bins</li> <li>▪ duffel bags</li> </ul>	<ul style="list-style-type: none"> <li>▪ rolling storage bins</li> </ul>
 <b>Loading/Unloading the Device</b>	<ul style="list-style-type: none"> <li>▪ hand truck</li> <li>▪ folding hand truck</li> </ul>	<ul style="list-style-type: none"> <li>▪ utility cart (folding)</li> </ul>
 <b>Measuring Supplies</b>	<ul style="list-style-type: none"> <li>▪ measuring tape and wheel</li> </ul>	<ul style="list-style-type: none"> <li>▪ other items to assist with easy setup and layout spacing (for instance, spacers or templates)</li> </ul>
 <b>Laminated Layouts &amp; Stand</b>	<ul style="list-style-type: none"> <li>▪ diagrams to show traffic garden layout(s)</li> </ul>	<ul style="list-style-type: none"> <li>▪ stand to hold layout diagrams during the layout process</li> </ul>
 <b>Mobile Kit Binder &amp; Clipboard</b>	<ul style="list-style-type: none"> <li>▪ instructions for the program leader, including instructions for setup, break-down, and packing into storage.</li> <li>▪ list of all elements and sizing</li> </ul>	<ul style="list-style-type: none"> <li>▪ program instructional materials</li> <li>▪ templates for printables</li> <li>▪ clipboard for use during activities</li> </ul>
 <b>Additional Supplies Toolbox</b>	<ul style="list-style-type: none"> <li>▪ scissors</li> <li>▪ packing tape</li> <li>▪ duct tape</li> <li>▪ marking tape</li> </ul>	<ul style="list-style-type: none"> <li>▪ sidewalk chalk</li> <li>▪ markers and pens</li> <li>▪ cleaning wipes or similar for wiping down kit elements</li> </ul>
 <b>Portable Traffic Signs</b>	<b>Option 1:</b> <ul style="list-style-type: none"> <li>▪ reduced-size sign set with base</li> <li>▪ folds or comes apart</li> </ul>	<b>Suggested Signs:</b> <ul style="list-style-type: none"> <li>▪ "Stop" (2 to 4)</li> <li>▪ "Yield" (2 to 3)</li> <li>▪ roundabout (1 to 2)</li> <li>▪ directional (1 to 2)</li> <li>▪ children/ped crossing (2)</li> </ul>
	<b>Option 2:</b> <ul style="list-style-type: none"> <li>▪ handheld signs</li> </ul>	
	<b>Option 3:</b> <ul style="list-style-type: none"> <li>▪ cones plus sign toppers</li> </ul>	
 <b>Welcome/Directional Signs</b>	<ul style="list-style-type: none"> <li>▪ welcome sign (multiple languages)</li> </ul>	<ul style="list-style-type: none"> <li>▪ signs directing people to the traffic garden</li> </ul>
 <b>Labels</b>	<ul style="list-style-type: none"> <li>▪ labels for storage and all kit elements</li> </ul>	<ul style="list-style-type: none"> <li>▪ packing instructions</li> </ul>

### Supplies: Don't Skip This Homework Assignment







Although a design is what first helps bring your vision into focus, the design's ultimate success depends on the materials available and used. It may feel like homework, but researching what materials are available to you and within budget can help to make your final design more feasible and will streamline its eventual installation.



#### Traffic sign guidance

Scaled-down traffic signs complete the feel of the street network and add instructions for how to act at intersections, crossings, and when traveling along streets. The various ways to add these traffic signs to a traffic garden vary considerably in cost and appearance.

For purposes of this guide, we will mostly consider portable and surface-applied signs in favor of fixed traffic signs that are installed permanently in the ground. Although signs that stand vertically provide a better learning experience than surface-applied designs, as they are closer to real-world experience, they are also considerably more expensive and can take weeks to deliver. A project team will have to weigh their options carefully between the two types.

Fixed Signs		Portable Signs		Surface Signs	
These are scaled-down traffic signs with a post that is embedded in the ground or affixed to the surface.		These are scaled-down traffic signs with a post and a weighted base. Base may have wheels to aid with portability.		These are scaled-down traffic signs applied to the surface using paint and stencils or using vinyl stickers.	
					
Permanent traffic sign (embedded)	Permanent traffic sign affixed to surface	Portable traffic sign with weighted base with small wheels	Portable traffic sign with weighted base	Traffic sign stenciled on surface with paint	Vinyl traffic sign affixed to surface

## Step 3: Design & Supplies










<p>Stop</p>  <p>R1-1</p>	<p>Yield</p>  <p>R1-2</p>	<p>Pedestrian crossing</p>  <p>W11-2</p>
<p>Roundabout</p>  <p>R6-5P</p>	<p>One way</p>  <p>R6-2</p>	<p>Railroad crossing</p>  <p>R15-1</p>
<p>Speed limit</p>  <p>R2-1</p>	<p>School Zone Crossing</p>  <p>S1-1</p>	<p>Pedestrian</p>  <p>R1-5b</p>

Figure 30. Traffic signs

The traffic signs typically used in a traffic garden are based on standard U.S. traffic signs. The specifications for these signs come from the MUTCD, which supplies each sign with a code. The code for a conventional stop sign, for example, is R1-1.

Scaled-down versions of these signs can be readily ordered online for a moderate price using the MUTCD sign code. There is no need to add reflective features to your signs.

When placing an order, consider how the signs will attach to the post, how many signs your layout requires, and your budget. To stretch funds, you might replace some vertical signs with surface-applied ones.

For help in sizing, ordering, and installing the traffic signs in your traffic garden, see **Appendix T: Traffic Sign Criteria and Considerations.**



*Working traffic signals are much less commonly found in traffic gardens for practical reasons, including the need to power, operate, and maintain them. Sometimes retired traffic signals are donated by a local department of transportation to a traffic garden. Although a popular and useful donation, such repurposed signals are over-scaled for the small-sized streets.*

## Step 3: Design & Supplies

### Surface-applied materials guidance

Surface-applied materials are used to create the pavement markings of a traffic network. By recreating many of the real-world directions sprayed onto our streets, they help to simulate the experience of using a real street for children. To maintain the illusion, traffic garden striping and pavement marking colors should follow those used on public roads.

The materials that you choose for surface application will directly relate to how temporary or permanent you intend your traffic garden to be. A few other helpful tips to keep in mind:

- Always test products on the surface before committing to them.
- Check the product information for the temperature range for application.
- Whether your traffic garden is temporary or permanent, its surface will always need to be cleaned prior to the application of any surface material.

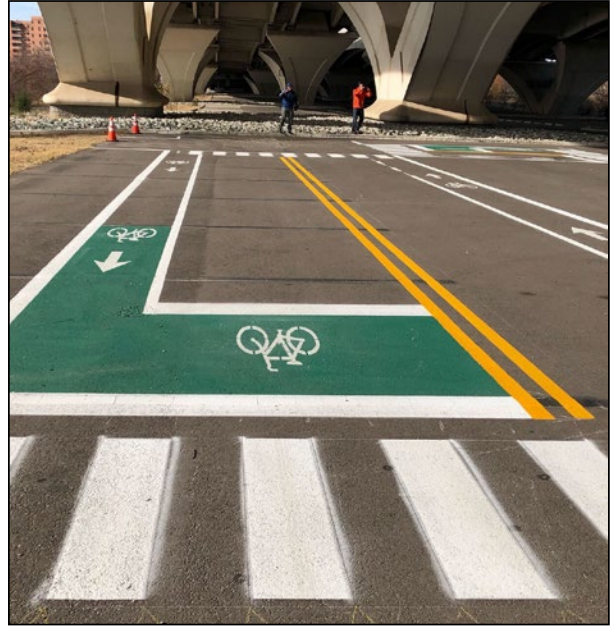


Figure 31. Photo of surface-applied marking

### Other equipment and amenities guidance

When adding the finishing touches to your design's installation plan, include storage features for the traffic garden's associated equipment. (For assistance determining your storage needs, see **Appendix U: Other Traffic Garden Equipment**.) You may also consider other desirable amenities that will elevate your traffic garden into a space where cherished family memories can be made, such as benches and picnic tables, access to water and restrooms, evening lighting, and trash cans.



**Tip for Teachers:** "If helmets were stored in the classroom, students could start putting their helmets on while on their way out to the traffic garden, saving time and possibly providing better protection for the helmet."

– Mrs. Hensley, PK teacher, Aiton Elementary Traffic Garden, Washington, DC



## Step 3: Design & Supplies

Setting up an informational welcome sign will provide guests with skills instruction and other safety information upon arrival. Consider other ways to recognize donors and partners in the garden, as well.

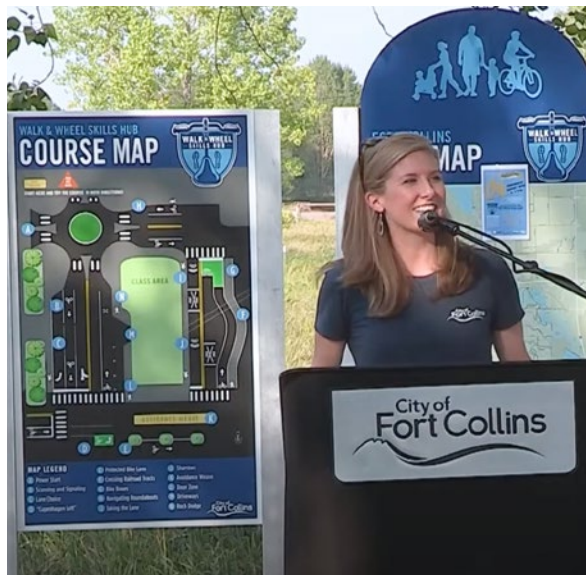


Figure 32. Clockwise from top left: The traffic garden information sign at the Seven Oaks Traffic in Odenton, Maryland includes safety information and labels features for the layout; The traffic garden information sign at the Charlotte Bike Playground includes safety information and labels features of the layout; The traffic garden information sign at the Fort Collins Walk and Wheels Skills Hubs includes extensive information about street network features and bike tips as well as safety information; The Westside Elementary Traffic Garden features information signs at both entrances that include safety information and the rules for the use of the facility.



### Permanent Traffic Garden Supplies & Equipment

The following information table will assist in making decisions about materials for permanent traffic gardens. Refer to the following information for further considerations and tips on what to look for.



Because permanent traffic gardens have a typical lifespan of 7 to 10 years and are designed to withstand changing weather conditions, your best bet will be to apply surface markings using the same traffic paints used to mark actual roads. Below is a list of suggested materials. Your striping contractor should also be consulted and may have additional suggestions.

Refer to **Appendix V: Traffic Garden Products & Services** for information about where to source supplies and equipment for installation.

*Table 10. Permanent surface-applied products and coatings*

Product	Typical Usage	Features and Attributes
<b>Traffic Paint (Latex Acrylic)</b>	for outlining road lanes and for stenciling traffic pavement markings	<ul style="list-style-type: none"> <li>professional-grade paint used for striping asphalt</li> <li>available through local hardware supply stores or at specialty traffic supply stores</li> <li>vibrant, real-traffic appearance</li> <li>durable product that will last longer due to the lack of vehicle traffic</li> <li>available in traffic striping colors (white, yellow, red, blue, green)</li> <li>the contractor generally supplies paint and application equipment</li> </ul>
<b>Thermoplastic Products</b>	for outlining road lanes and for traffic pavement markings	<ul style="list-style-type: none"> <li>excellent appearance with vibrant and lasting colors</li> <li>highly durable and fast drying</li> <li>high-quality attributes may not be necessary where there is little wear and no vehicular traffic</li> <li>expensive product</li> </ul>
<b>Streetbond (Commercial Brand)</b>	for filling in spaces such as roundabout circles; for creating sidewalks	<ul style="list-style-type: none"> <li>requires professional application</li> <li>a vibrant, colorful appearance that remains stable</li> <li>custom colors available</li> <li>added cooling properties</li> <li>available through specialty traffic supply stores or contractors</li> </ul>
<b>Sealcoat</b>	for coating the entire site to create a black appearance and cover striping	<ul style="list-style-type: none"> <li>range of sealers available with different properties</li> <li>extends the life of the surface</li> <li>creates a blank canvas for traffic garden striping and pavement markings</li> </ul>

## Step 3: Design & Supplies



### Temporary Traffic Garden Supplies & Equipment

The following information table will assist in making decisions about materials for a fixed temporary traffic garden, though, because of the impermanent nature of both gardens, some materials will also work well for a pop-up garden. Whether using tape, chalk, or marking paint to add striping lines and pavement markings, refer to the following information for further considerations and tips on what to look for. The material choice may also impact other equipment needed for installation.

List supply quantities for your planned installation based on what is shown on the layout drawing. List also the companion equipment for prepping and installing these supplies. The following table will assist with this process also.

Table 11. Temporary surface-applied products

Product	Pop-up Traffic Garden	Temporary Traffic Garden	Typical Usage	Features & Attributes
Sidewalk Chalk & Railroad Chalk	✓	x	for outlining road lanes and for stenciling traffic pavement markings	<ul style="list-style-type: none"><li>▪ sidewalk chalk is cheap and widely available</li><li>▪ railroad chalk is similar but stronger and can be purchased in bulk boxes of white and yellow sticks from commercial suppliers</li><li>▪ either chalk can be used for lines and stencils, but the results will smudge with traffic garden usage</li></ul>
Spray Chalk	✓	✓	for outlining road lanes and for stenciling traffic pavement markings	<ul style="list-style-type: none"><li>▪ significantly more costly than sidewalk chalk</li><li>▪ far superior appearance to sidewalk chalk and is much more durable</li><li>▪ can create roadway striping and markings with a “real-traffic” appearance</li><li>▪ washes away after a couple of rain events</li><li>▪ removable with a pressure washer (although it may need some additional scrubbing depending on how heavily applied)</li><li>▪ life can be extended by spraying touch-ups, “fixing” with hairspray, or using artist-grade spray chalk</li><li>▪ purchase from hardware stores, big box department stores, and online</li></ul>

## Step 3: Design & Supplies

Product	Pop-up Traffic Garden	Temporary Traffic Garden	Typical Usage	Features & Attributes
Duct Tape	✓	✓	for outlining road lanes and for some details, like pedestrian crossings	<ul style="list-style-type: none"> <li>creates vibrant and even striping lines and markings with a "real-traffic" appearance</li> <li>easily applied to the surface and readily removed</li> <li>tape may become loose after heavy rains, especially when applied to low surface points that hold water</li> <li>look for longer and higher-grade tape rolls (60 yards, 10mil)</li> <li>available in a range of vibrant colors</li> <li>widely available from hardware stores and online commercial suppliers</li> </ul>
Tempera Paint	x	✓	for filling in spaces such as roundabout circles	<ul style="list-style-type: none"> <li>easy-to-work-with washable product</li> <li>asphalt can soak up paint, so have plenty of paint on hand.</li> <li>will wash away, especially with heavy rain</li> <li>available in craft stores, big box department stores, and online.</li> <li>5-gallon bottles are available at much better value online</li> </ul>
Spray Marking Paint	x	✓	for outlining road lanes and for stenciling traffic pavement markings; for filling in spaces such as roundabout circles	<ul style="list-style-type: none"> <li>marking spray paint stays on the surface and cannot be readily removed</li> <li>marking paint lasts for 2 to 6 months before weathering away; it can last longer depending on weather conditions</li> <li>double-check that paint is labeled "marking" for any non-permanent applications</li> <li>available in a range of colors</li> <li>available from a hardware store, traffic supply stores, or online</li> </ul>
Artificial Turf Grass	✓	x	for creating internal blocks (surrounded by streets) and roundabout circles	<ul style="list-style-type: none"> <li>adds extra realism to the appearance</li> <li>helps clearly defines streets and blocks</li> <li>reduces the need to outline the streets during the layout process</li> <li>use industrial-grade Velcro to keep materials in place</li> <li>available from hardware stores and artificial turf specialty suppliers</li> <li>low-cost options do not lay flat or stay in place as well</li> </ul>

## Step 3: Design & Supplies

### Mobile Traffic Garden Supplies and Equipment

The following worksheet will assist in determining the material and equipment needs for a pop-up or mobile kit traffic garden. The worksheet also provides tips on where to source the supplies and the equipment. Select supplies quantities for your planned installation based on what is shown on the layout drawing and listed in the worksheet. Be sure to also note any companion equipment you may need for prepping and installing these supplies.

This worksheet can also be used to assist with project budgeting or grant applications.

*Marking and measuring tools are needed to locate surface markings. Lines, arrows, and road markings may be applied temporarily or permanently to the surface using a variety of tapes, chalks, paints, and a range of tools. Always test application materials on the surface in advance.*

Table 12. Pop-up traffic garden supplies and equipment worksheet

#### LINES & MARKINGS

Materials + Tools	Sources and Notes	Quantity	Cost (\$)
Duct tape	<b>hardware stores, commercial suppliers</b> <ul style="list-style-type: none"><li>▪ many vibrant colors</li><li>▪ industrial grade, 2" width, 60-yard rolls</li><li>▪ approx. \$10/60 yd roll</li></ul>		
Spray chalk	<b>widely available from large box stores, hardware stores, and online</b> <ul style="list-style-type: none"><li>▪ 12oz. sprays up to 160 LF</li><li>▪ \$8-\$12/12oz can; wide variations in price depending on the source</li></ul>		
Sidewalk chalk	<b>Widely available in stores and online</b> <ul style="list-style-type: none"><li>▪ starts at \$5 per 10-stick box and varies widely</li></ul>		
Railroad chalk	<b>available in white, yellow, and red sticks from online commercial suppliers</b> <ul style="list-style-type: none"><li>▪ sold by the case. \$52/144 sticks. Varies.</li></ul>		

## Step 3: Design & Supplies

### LINES & MARKINGS (*continued*)

Materials + Tools	Sources and Notes	Quantity	Cost (\$)
Yardstick	available at a hardware store ▪ \$1-\$2		
Open reel hand-wind measuring tape	available at a hardware store ▪ 50'-100' length preferred ▪ \$15+		
Retractable measuring tape	available at a hardware store ▪ 50'-100 length preferred ▪ \$6-\$50		
Chalk line + chalk powder set	available at a hardware store ▪ use temporary powder (blue) ▪ \$67- \$10		
Traffic stencils	Some are available at suitable scales online; others may need to be custom made ▪ traffic-grade stencils best results ▪ price varies widely ▪ see the stencil set worksheet		





## STEP 4: INSTALLATION



*Figure 33. Perrywood Traffic Garden installation in progress*

### **Making Your Traffic Garden Real**

While permanent, temporary, and pop-up traffic gardens have a similar appearance and much of the guidance for how to create them is similar, they have very different installation needs and processes. This section will help you with installation planning information relevant to implementing your specific type of traffic garden project.

### Preparing for Traffic Garden Installation

Whether planning a volunteer installation or hiring a professional installation crew, you will need a plan of action to complete the installation. Important details include:

- engaging the installation team
- acquiring supplies or equipment
- scheduling the work
- preparing the site, including arranging for any repairs or fixes
- keeping everyone informed about plans and dates
- watching the weather and making last-minute calls to reschedule if necessary

### Preparing the Site

Allow plenty of planning time and flexibility in the schedule to prepare the asphalt surface. When scheduling the work, check the forecast for temperature and rain, as these factors can impact the cleaning work.

Regardless of your traffic garden type, you'll need to perform the following tasks at your outdoor site:

**Cleaning:** It is very important to clean the surface using a power washer or a broom to ensure that surface-applied products will adhere properly. You may have to access a water supply for power washers.

**Crack Repair:** Any crack repair needs to be scheduled in advance. Work with the contractor to identify the cracks that need attention.

**Resealing the Surface:** Any seal coating should be performed in conjunction with crack repair. Drying may take anything from a few hours to a few days—budget for this time in your schedule!

**Covering Up Existing Surface Markings:** Existing markings can be covered with paint that has been mixed to match the surrounding surface. It's best to cover up with a "patch" rather than to follow the outlines of the markings, as that will only draw the eye to the previous markings.

## Step 4: Installation

### Conducting Surface-Marking Installation

Surface markings form the skeleton of your traffic garden, demarcating its boundaries and shaping the contours of your miniature world's roads. To sustain the illusion of the traffic garden, these surface markings must be applied from the design with significant attention to detail.

#### Professional v. volunteer installation

The installation process for adding a traffic garden layout involves accurately marking, measuring, and applying materials to the site. Use your layout drawing as a guide for where to add striping and markings. While volunteer teams have installed many traffic gardens, one way to ensure your hard work in planning and designing is honored is to hire a professional contractor. Especially in the case of fixed traffic gardens, if funds are available, it is best to hire a professional striping company. However, if funds are limited, installing a traffic garden with a volunteer team is still practical.

##### PROFESSIONAL INSTALLATION

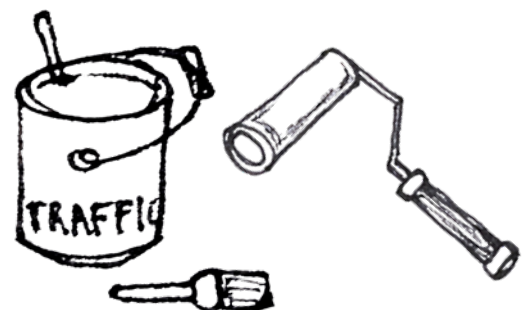
*(managed and installed by contractors; uses professional-grade equipment and supplies)*

- ✓ installation supplies and equipment provided
- ✓ lasts longer, with superior appearance
- ✓ reduces chance of installation errors
- ✓ installers become familiar with traffic gardens
- ✗ installers may not be immediately familiar with traffic gardens
- ✗ project size may be too small for contractors
- ✗ often requires project team to get multiple bids

##### VOLUNTEER INSTALLATION

*(managed by project leader; installed by volunteers; uses hardware store equipment and supplies)*

- ✓ creates relationships and community bonds
- ✓ often inspires future community projects
- ✗ labor is difficult
- ✗ requires significant oversight
- ✗ installation supplies not provided
- ✗ increases chance of installation errors





### Innovations in surface application

Autonomous painting devices—or, as we like to call them, “paint robots”—are an emerging option for traffic garden installation, especially with certain types of surface-marking projects. While paint robots are currently primarily used in the U.S. for custom roadway markings (like airport runways) or to paint sports fields, paint robots have to date helped to install two traffic gardens in Virginia, one temporary and one permanent. In both cases, the paint robot worked from a digital layout of the traffic garden.

While these paint robots aren’t yet available commercially, your parks department may own or lease a field-marking autonomous robot that you may be able to use for installation. As these paint robots become more popular and available, it will pay to remember that these devices can streamline the installation process in numerous ways.

- Paint robots reduce the effort and labor of installation significantly. The paint robot uses GPS technology to mark, measure, and paint with incredible precision and speed. Work that takes human installers 1 to 2 days takes a paint robot 1 to 2 hours.
- Installation staging takes much less organization and requires only the paint robot, the GPS station, and the supply of paint. The device will likely be transported in a van or truck and is accompanied by a single operator who sets it up and controls the device via a handheld pad.
- Once the device has been painted and installed, that same digital layout can be used for future maintenance at the same site. The paint robot will repaint lines exactly as previously installed.



Figure 34. Robot Laying out Westside Traffic Garden, Roanoke, VA

## Step 4: Installation



### Permanent Traffic Garden Installation

Because permanent traffic gardens are envisioned as long-term and much-loved community resources, they are the traffic gardens that most require professional-grade installation. With a little research, you may discover that professional assistance isn't as out of reach as it first may seem. For a list of examples of how others have installed traffic gardens, see [\*\*Appendix C\*\*](#). Many of the funding sources listed in these sections could be put toward the cost of hiring a contractor for installation.

#### Professional installation plan

Seek installation quotes from contractors who have experience striping and painting asphalt surfaces. The following type of contractors may be interested in performing traffic garden installations:

- parking lot striping contractors
- roadway striping contractors
- playground surface contractors
- art asphalt design contractors

Professional contractors have the equipment and skills to perform this type of work as well as lower-cost access to commercial-grade surface-marking materials. If necessary, revise the layout (potentially simplifying the number of pavement markings) to lower costs or level of work. The professional installers will provide all the needed installation supplies and equipment as a part of their service and will include their price of use in their bid.

Professional installation reduces the burden on your team to assemble the supplies and installation equipment. However, your team will need to take an active role in being present and advising during installation and in answering questions as they arise. The importance of features on paper may not be fully appreciated by contractors, so your project team should carefully review how any layout changes the professionals may recommend during installation would change the features and offerings of the final traffic garden.



## Step 4: Installation

Table 13. Professional installation plan

### Professional Installation Process

#### 1. Advance Preparation

- ☐ Sign the contract and pay the fees.
- ☐ Ask the contractor to meet at the site to go over the work.
- ☐ Go over layout details, materials, and colors.
- ☐ Go over stencil sizing and ensure correct stencils are available.
- ☐ Determine contractor's staging needs for trucks and equipment.
- ☐ Notify property owners; arrange for access, keys, and staging area.
- ☐ Determine whether water is available/needed.
- ☐ Watch weather.
- ☐ Discuss installation start and end times.
- ☐ Stay in communication with the property owner and the contractor.

#### 2. Before Starting

- ☐ Have the site opened up (if necessary).
- ☐ Confirm weather.

#### 3. Marking & Measuring

- ☐ Stay onsite to answer questions.
- ☐ Watch out for measuring errors.
- ☐ Sort out any issues that arise around fit and spacing.

#### 4. Adding Surface Lines & Pavement Markings

- ☐ Stay onsite to answer questions.
- ☐ Watch out for any installation errors, including paint errors.

#### 5. Finishing Up

- ☐ Make sure everything is removed and the site has been cleaned up.
- ☐ Return the key or ensure gates and/or building are locked up.
- ☐ Send first photos to team members.

#### What to Expect During Installation

The contractor will clean the site before starting and haul all the equipment and materials to and from the site. Marking, measuring, and then installing the surface-applied materials is considerable work. Your role is to make sure that the contractor has what they need to conduct the work and that the work is performed in accordance with the plans. You may have to sort out issues that arise during the installation process. At the end of the work, you need to confirm that the site is clean and that the key has been returned. Make sure to take photos throughout to document the process.

## Step 4: Installation



### Temporary Traffic Garden Installations

Temporary traffic gardens can also benefit from professional installation, but their shorter lifespans might make it harder for stakeholders and team members to justify the expense of contractors. If this is the case, you can always go the do-it-yourself route.

#### DIY installation plan

What a DIY installation saves in funds, it sacrifices in time and sweat. This is a type of volunteer project that needs to be well managed so that the labor is performed accurately and leaves the traffic garden with a high-quality finish. Valuable installation assistance may be available from local organizations and community groups.



*Figure 35. Volunteer instruction session prior to commencing installation of the Loch Lomond Elementary temporary traffic garden*

## Step 4: Installation

Table 14. Do-it-yourself installation plan

### Do-It-Yourself Installation Process

#### 1. Advance Preparation

- ☐ Volunteer organizing and instructions.
- ☐ Identify unloading spaces.
- ☐ Notify property owners and arrange for access and keys.
- ☐ Determine whether water is available/needed.
- ☐ Gather supplies, materials, and tools.
- ☐ Arrange to have the site cleaned.
- ☐ Watch weather.
- ☐ Set installation around daylight hours.

#### 2. Before Starting

- ☐ Have the site opened up (if necessary).
- ☐ Sweep leaves and debris off the surface.
- ☐ Unload and stage all the supplies, tools, and equipment.
- ☐ Set up direction signs, volunteer table, and task notice board.
- ☐ Hold volunteer meetings and training.

#### 3. Marking & Measuring

- ☐ Measure and mark the lines and intersections with chalk.
- ☐ Step back and check to see that layout markings are being installed correctly.
- ☐ Watch out for measuring errors.
- ☐ Correct and finish the marking and measuring.

#### 4. Adding Surface Lines & Pavement Markings

- ☐ Choose key places to start, like intersections.
- ☐ Add striping lines and center lines to streets.
- ☐ Add crosswalks, stop bars, shark's teeth, roundabout circles, etc.
- ☐ Locate and add stencil pavement markings.
- ☐ Finish by touching up any spots.

#### 5. Cleanup

- ☐ Wipe and sort tools and supplies.
- ☐ Remove signs, tables, and other equipment.
- ☐ Pack everything, clean up the site, and remove trash.

#### What to Expect on the Day

Laying out the striping lines and markings is considerable work. The site is measured and pre-marked with chalk lines and spots, which provide a guide to the people adding the striping lines. Installations need to be well managed to prevent errors and to keep the project moving forward. Whatever measuring method is used, it is important to wait until marking is complete before adding permanent lines. Errors are difficult to fix once many surface products have been applied. Most tasks work best with a team of 2 to 3 people. Keep tools and supplies organized while working.



## Step 4: Installation



### Mobile Traffic Garden Setup and Storage

The harder part of designing a mobile traffic garden is figuring out how to make the kit so that it is truly portable and does not take too much time and effort to set up and take down each time it is to be used. Choosing your materials, storage containers, and carrying system is also key to this process. The time and effort to move and set up a traffic garden may take from the actual program itself if it's a small staff or a single individual. There is scope for careful planning and materials and supplies selection to create the ideal setup and storage system for the mobile kit.



*Figure 36. Choosing the materials, storage, and carrying systems for a mobile traffic garden is key for their handling and ease of set up.*

## Pop-Up Traffic Garden Installations

**Pop-up traffic garden volunteer installation plan:** You will need many volunteers to assist with the labor involved in the installation. This is a type of volunteer project that needs to be carefully planned and well-managed so that the work is performed accurately and with a high-quality appearance. Valuable installation assistance may be available from local agencies such as the department of public works or the transportation department also.

## Step 4: Installation

Table 15. Pop-up traffic garden installation plan

### Pop-Up Traffic Garden Installation Process

#### 1. Advance Preparation

- ☐ Volunteer organizing and instructions.
- ☐ Identify unloading spaces.
- ☐ Gather supplies, materials, and tools.
- ☐ Coordinate with event organizers.
- ☐ Watch weather.

#### What to Expect on the Day

Laying out the striping lines and markings is considerable work, so allow plenty of time in advance of the event to get this work accomplished. The site is measured and pre-marked with chalk lines and spots, which provide a guide to the people adding the striping lines. Installation needs to be well managed to prevent errors and to keep the project moving forward. Most tasks work best with a team of 2 to 3 people. Keep tools and supplies organized while working.

#### 2. Before Starting

- ☐ Sweep leaves and debris off the surface.
- ☐ Unload and stage all the supplies, tools, and equipment.
- ☐ Set up volunteer table and task notice board.
- ☐ Hold volunteer meetings and training.

#### 3. Marking & Measuring

- ☐ Measure and mark the lines and intersections with chalk.
- ☐ Step back and check to see that layout markings are being installed correctly.
- ☐ Watch out for measuring errors.
- ☐ Correct and finish the marking and measuring.

#### 5. Cleanup

- ☐ Wipe and sort tools and supplies.
- ☐ Pack all installation supplies and equipment.
- ☐ Add portable traffic signs and any other features.
- ☐ Tidy up the site and install welcome signs for the public.

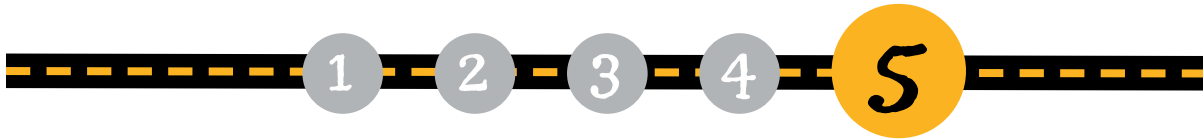
#### 4. Adding Surface Lines & Pavement Markings

- ☐ Choose key places to start, like intersections.
- ☐ Add striping lines and center lines to streets.
- ☐ Add crosswalks, stop bars, shark's teeth, roundabout circles, etc.
- ☐ Locate and add stencil pavement markings.
- ☐ Finish by touching up any spots.

#### 6. End of Event

- ☐ Remove all surface materials and pavement markings.
- ☐ Scrub or spray chalk from surface.
- ☐ Remove signs, tables, and other equipment.
- ☐ Pack everything, clean the site, and remove trash





## STEP 5: LAUNCH & UPKEEP



*Figure 37. Clockwise from top left: Ribbon-cutting at Aiton Elementary Traffic Garden including selected second-grade student representatives; Briya summer camp students cut the ribbon for The Secret Traffic Garden in Washington, DC; Ribbon-cutting at Thomas Elementary Traffic Garden including second-grade student representatives; The ribbon-cutting at the Bike Safe Playground, Hagerstown, Maryland included many local officials.*

### Launching the Traffic Garden: A Party in Disguise

After planning, designing, and installing your traffic garden, you may find yourself short on energy. But it's not time to quit! Although your traffic garden now exists, there's still the important work of launching it into community view. The launch process is intended to attract positive media and community attention to the garden, which can ensure its longevity and/or use. The good news? This step, whether it results in a ribbon cutting or launch party, is intended to be celebratory. Take this opportunity to luxuriate in the hard work you've done with your team, with the people you did it for: your neighbors and friends. Think of it as a party. Who doesn't love a party?

## Step 5: Launch & Upkeep

### Who gets an invite?

In short, everyone. As a community resource, the launch of your traffic garden should welcome all from the community.

It's particularly important, however, to remember to make space in this event for recognitions. Over the course of your launch ceremony, be sure to showcase not only the traffic garden, but all the individuals who helped contribute in some way to its creation. Have a podium where you can recognize your dream team and important stakeholders, and where you can invite key officials like the mayor or school superintendent to speak.

This launch event can also be an invaluable promotional opportunity. Make sure the media knows about your event. Send your local news outlets a press release explaining the background and value of the new traffic garden amenity in advance of its launch.

A ribbon-cutting ceremony is a perfect fit for a launch. It will gather all key contributors in one place and offer press-ready images of children having fun on wheels. Refer to **Appendix W: Sample Ribbon-Cutting Planning & Checklist** for more detailed planning information.

### LOCAL STORY

In March 2019, the City of Alexandria hosted a community workshop at the local library where children were invited to become the traffic engineers and design their own traffic garden. After careful review, City staff combined the work of three neighborhood girls, Lucy, Maisie, and Alli, as inspiration for the final design of the Jefferson Park Traffic Garden layout.



The traffic garden was painted and ready for kids to start using it in the Summer of 2019. At the launch event in November 2019, local children were led through a bicycle rodeo course and practiced key skills, such as starting and stopping, turning, and using hand signals. Bicycle and helmet checks were provided, and residents spoke with City staff about other Vision Zero efforts.

*Figure 38. The Jefferson Park Traffic Garden bike rodeo launch event included local biking organizations and local families in Alexandria, Virginia.*

## Step 5: Launch & Upkeep



### Tips to Enhance Ribbon-Cutting Fun:

- Ask around the community for a portable podium with a built-in sound system.
- Borrow lots of balance bikes and invite young attendees to ride after the ribbon is cut. (Local Parks and Recreation Department or YMCA may have a bike fleet to borrow.)
- Ask the DOT, Public Works, or the mayor's office for a loan of giant scissors.
- Stage photo of all involved in the project behind the ribbon before it's cut.
- Include children in cutting the actual ribbon with the giant scissors.
- Hand guests a free colorful bike pin to wear. (They look great in the event photos.)
- Tape a wide ribbon between pair of portable traffic signs.
- Have students create a large traffic garden banner in advance for display.
- Identify and prepare some children for local TV news interviews. (The media love this.)
- Decorate the event with traffic- and construction-themed décor.
- Have custom traffic sign cookies made as a takeaway souvenir for guests.
- Create a display table with the design drawing and photos from the project.
- Invite local biking organizations to host additional display tables



*Figure 39. The Mayor and the School Superintendent joined the Westside Traffic Garden project team in cutting the ribbon at the launch in front of a large group of invited guests. The students presented a banner to the project team at the event.*



### After the Launch: Don't Go Home Just Yet!

Beyond the launch, the ongoing building of community support can continue by holding other events and inviting community members, officials, and the media along.

Table 16. More ways to celebrate your traffic garden project

Avenues of Expression	Format
<b>Hold an Event to Unveil New Features</b>	<ul style="list-style-type: none"> <li>• Create naming opportunities and hold an unveiling ceremony.</li> <li>• Hold award events for outstanding people or groups.</li> </ul>
<b>Hold Facility-Related Events</b>	<ul style="list-style-type: none"> <li>• Hold behind-the-scenes tours for the community.</li> <li>• Create an annual celebratory event at the site.</li> </ul>
<b>Community Recognition</b>	<ul style="list-style-type: none"> <li>• Nominate a project for outside awards.</li> <li>• Tell community success stories in different forums.</li> <li>• Create videos and slideshows documenting the project.</li> <li>• Build permanent recognition into the site.</li> </ul>



Figure 40. The Aiton Elementary Traffic Garden equipment shed dedication honored the head custodian at the school with a sign and named the facility after him.



Figure 41. The traffic garden team conducting an insider tour of the Thomas Elementary Traffic Garden for school administration officials

## Step 5: Launch & Upkeep



### Keeping Your Traffic Garden in Local Media

Local media outlets can play an indispensable role in making your ribbon-cutting ceremony or another launch event a hit. You can use these launch events as the basis for long-term, collaborative relationships with these outlets. Below is a table that breaks down numerous ways you can sustain media attention on your traffic garden before, during, and long after its launch.

*Table 17. Working with local media to promote your traffic garden*

MEDIA PROJECTS	SUGGESTED ACTIVITIES
<b>BEFORE LAUNCH:</b> Prepare for Working with Media	<ul style="list-style-type: none"><li>• Designate a project team member to handle media.</li><li>• Identify media people in the community and regionally.</li><li>• Identify press office staff with local government agencies.</li><li>• Write up background information and prepare a press release.</li><li>• Develop interesting local background stories related to the project.</li><li>• Have photos and renderings on hand for distribution.</li></ul>
<b>DURING LAUNCH:</b> Work with Media on Ribbon Cutting or Events	<ul style="list-style-type: none"><li>• Notify media about upcoming events and let them know who will be attending.</li><li>• Immediately after launch, send out a press release with a detailed story.</li><li>• Use opportunities to put traffic gardens in the context of Vision Zero, Safe Streets approach, SRTS, and other aspects of safe streets work.</li></ul>
<b>AFTER LAUNCH:</b> Ongoing Media Work	<ul style="list-style-type: none"><li>• Distribute articles and videos through newsletters and social media.</li><li>• Continue to develop positive stories about the traffic garden and how it is serving as a place of learning and fun activities for local community members.</li><li>• Make sure to include local community members of all backgrounds in the stories.</li><li>• Create a library of articles, photos, and video footage.</li></ul>



### LOCAL STORY

The occasion of the Thomas Elementary Traffic Garden ribbon-cutting events led to numerous positive local and national stories online, on the radio, and on TV. Media organizations in attendance at the ribbon cutting included WAMU, Fox5, and WJLA, as well as a media team from DDOT. The local public radio segment was later broadcast nationally. Subsequently, the National Highway Transportation Safety Administration (NHTSA) filmed a traffic garden explainer video at the traffic garden that has been distributed nationally.



*Figure 42. NHTSA came to the Thomas Elementary Traffic Garden to film a national PSA.*

## Looking After the New Traffic Garden

Once you've successfully launched your traffic garden, you'll need to turn your attention to the more tender work of caring for it. Traffic gardens are magical to children for their ability to sustain a miniature world just for them; but this illusion, whether fixed or mobile, temporary or permanent, requires upkeep. Once you've realized the traffic garden, you and your dream team will become the stewards of its magic.

Luckily, a traffic garden's maintenance needs are predictable and often minor. Their lack of moving elements, and the limited wear from use, means that a straightforward and easy maintenance plan will keep it in tip-top shape. Ideally, the project team will have this maintenance plan in place by launch. Limiting mechanical vehicles on the site will also help to reduce maintenance needs.

Other key aspects of sustaining a new traffic garden include:

- training for educators and instructors so they learn how the traffic garden can best support their work; and
- collecting data and reporting about the usage and successes so that the traffic garden continues to be supported locally.

## Step 5: Launch & Upkeep

Maintenance of a permanent traffic garden also involves ensuring the community remains aware of their ability to use it. Welcome signs will invite families in; newsletter articles will remind them to stop by and point them toward contact information.

Additionally, a traffic garden's long-term reputation as a valuable community amenity will require consistent programming and events. The addition of a permanent traffic garden to a school site, for example, can open up a whole new host of long-term educational opportunities such as:

- PE programming
- after-school bicycling and roadway safety programs
- SRTS events, like Walk to School Day and Bike to School Day
- new STEM and art programs
- art installations and education
- outdoor fun and play programs

Let's explore some of these potential uses in more detail:

### **Bicycle and roadway safety programs**

For school site settings, the addition of a traffic garden is an opportunity to become a new home or partner for after-school safety lessons. These lessons take advantage of the site's proximity to new learners as well as the traffic garden's natural function. There is no set way that such programs must look, but they should provide a positive and worthwhile experience for participants and those delivering the program.

Lessons and curriculum programming can be developed for the following topics:

- bicycling instruction and skills development
- walking and bicycling roadway safety education
- daily physical activity encouragement and health benefits
- community walking and biking encouragement and awareness
- independent, active travel
- personal security skills
- bullying and anti-harassment training when using active transportation
- training on interactions with strangers while using active transportation

Lessons can occur at a variety of frequencies, but it's important for the curriculum

## Step 5: Launch & Upkeep

to hold to its stated frequency. Weekly lessons should meet weekly; monthly lessons should meet monthly. School programming for traffic gardens can be enhanced through signs with additional lessons. Montbello Bicycle Park in Denver, CO, uses signs with QR codes that link to online video demonstration lessons with six different provided lessons.

### STEM learning programs

Beyond bicycling and roadway safety programs, traffic gardens make a create place for STEM programs and events. Some of the core STEM concepts that can be practiced in a traffic garden include:

- distances, measures, and lengths
- angles
- area grids
- reading maps and map keys
- shape outlines

Children are creative thinkers, so asking them how they would lay out the traffic garden results in many ideas and suggestions. You may even want to show children how to incorporate some of the features they suggest. These introductions can introduce children to the fundamental principles of design and engineering, exposing them to the concepts governing the formation of their real-world transportation networks. In all STEM exercises that involve adding to or adjusting the traffic garden layout, use the original design's guidance for the sizing and materials; any added features should be scaled to existing traffic features and should use similar letter and number sizing.

### LOCAL STORY

For the Cora Kelly STEM Elementary traffic garden project, 60 third-grade students participated in a design workshop where they met with city officials. While the city planner was explaining the concept of a traffic garden to the students, a girl excitedly exclaimed, "I had my birthday party at the Jefferson playground traffic garden!" The students subsequently visited the proposed site, adjacent to their school, and then attended a workshop where they prepared and submitted their layout concepts. At a subsequent workshop, city officials went through the 60 traffic garden layouts submitted, finalizing the design using elements from five of the third-grade students.



*Figure 43. 3rd grade students at the Cora Kelly Elementary STEM workshop design the traffic garden for their school grounds and the adjacent playground.*

## Step 5: Launch & Upkeep

Below you'll find a list of other STEM-related activities you can host at your traffic garden. See also **Appendix X: Sample STEM Activity Sheets**.

Table 18. STEM learning programs

Program Concept	Format	Potential Locations or Partner
Conduct a pop-up traffic garden event with companion STEM activities	Set up a small-scale temporary traffic garden as a demonstration project and allow local children to have fun bicycling and playing in the pop-up. Such pop-ups work well as part of a larger event, such as Open Streets or bike rodeos. Host adjacent activities table for older children that get them thinking how they would have designed the traffic garden. Gather the designs for use in project team layout meetings.	<ul style="list-style-type: none"> <li>▪ planned traffic garden site</li> <li>▪ school playground</li> <li>▪ preschool playground</li> <li>▪ school parking lot</li> <li>▪ school gym/auditorium</li> <li>▪ recreation center parking lot</li> <li>▪ recreation center sports courts</li> </ul>
Involve local children or school class groups in the design process	Hold a "design charrette," in which children can cut out street elements and other parts and lay them out on a base drawing of the traffic garden site.	<ul style="list-style-type: none"> <li>▪ STEM teacher at school</li> <li>▪ local library community room</li> </ul>
School STEM Night	Host a table at Family Science or STEM Night. Conduct a traffic garden model demonstration and offer hands-on activities.	<ul style="list-style-type: none"> <li>▪ school gym</li> <li>▪ school parking lot</li> <li>▪ school STEM teachers</li> </ul>
Hold a STEM design contest	Have local community members or students submit their dream traffic garden designs or models. Announce winners and display submissions at subsequent events and in local media. Incorporate design and model elements into the project layout.	<ul style="list-style-type: none"> <li>▪ school art or STEM teachers</li> <li>▪ scouting or other children's groups</li> <li>▪ local library</li> </ul>



## Step 5: Launch & Upkeep

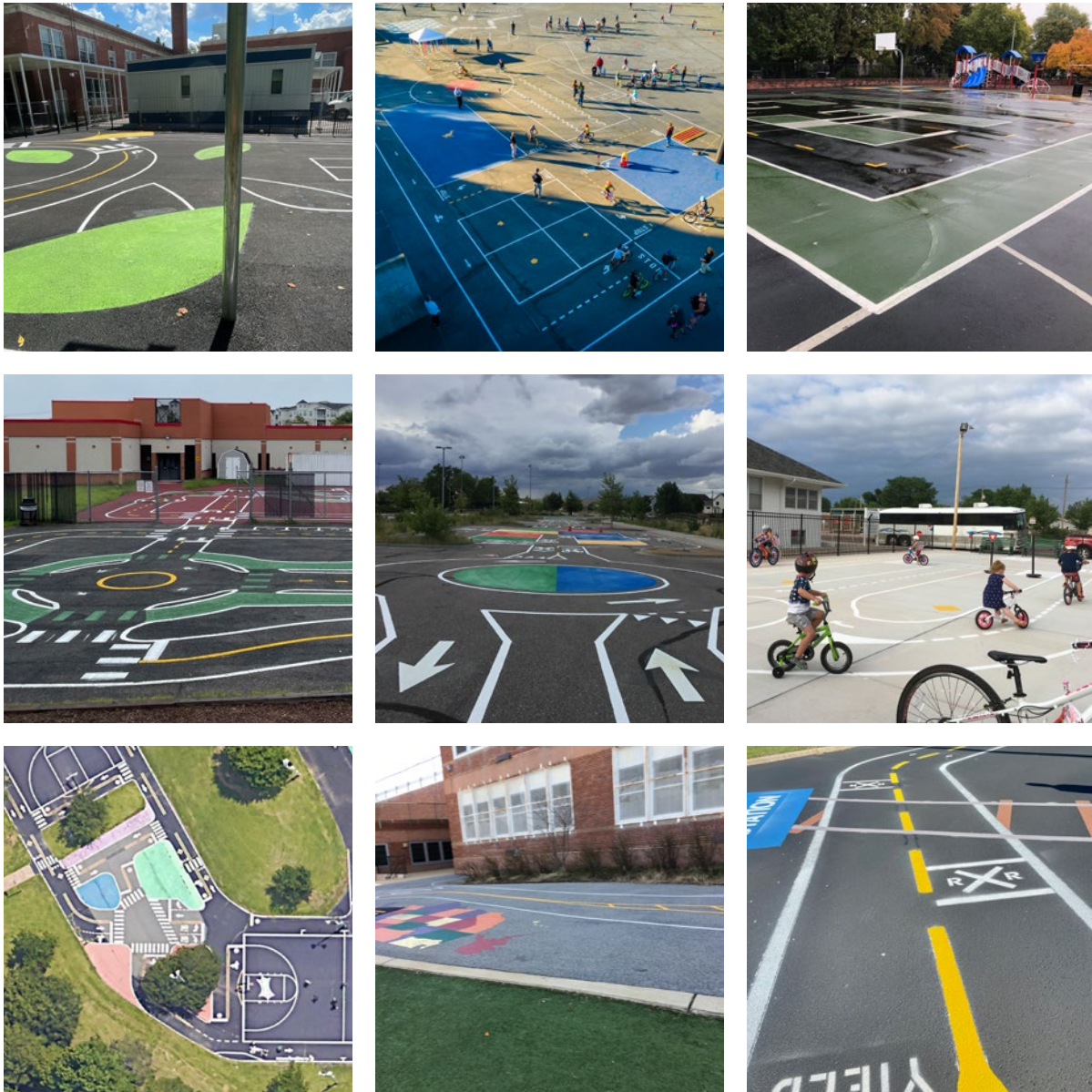


Figure 44. Traffic gardens combined with other features. **Top row:** Anne Beers Elementary Traffic Garden, Washington DC (four square); Auburn Elementary Traffic Garden, California (four square within the internal blocks of the traffic garden); Bucyrus Safety Town (basketball courts). **Middle row:** Cora Kelly ES Traffic Garden, site split between school playground (red surface) and public playground (black surface); Montbello Bicycle Course (parking lot which remains striped for annual food truck event); Scottsbluff Traffic Garden (outdoor winter ice hockey rink). **Bottom row:** Charlotte, NC (basketball courts); Thomas Elementary Traffic Garden (painted U.S. map); The rail tracks and crossings in the Westside Traffic Garden were added to reflect the local rail heritage of the City of Roanoke and create several crossings in the streets.



## Step 5: Launch & Upkeep

### Keeping a Traffic Garden Record

As traffic gardens continue to gain popularity in the region, it will be valuable to create a collective record of the projects and their outcomes in local communities. Recording information about the traffic garden will allow those involved to assess progress, make adjustments, evolve programming, and cite needs for maintenance and support. Tracking the method and scale of a single effort and can help us to understand how a traffic garden can succeed in a community. This record can also assist funding new traffic garden projects or maintenance projects for existing ones.

There are several ways to create a record. The table below elaborates on some of the main methods.

*Table 19. Traffic garden reporting information*

Information Type	Purpose	Considerations
Visual	This data explains the traffic garden as a concept and illustrates it in action. Show images of children having fun and learning. Illustrate varying uses for traffic gardens.	May need photo permission to take photos of the public. May need express permission from parents or guardians to take photos of children. While photos taken using personal phones are useful, it may be necessary to arrange for professional-quality photos for some uses, such as reports or media stories.
Data	This is fundamental to help form an understanding of what is taking place at the traffic garden.	Qualitative data captures what can be observed but not measured. Quantitative data is information about quantities and numbers. By having a specified time period and creating some metrics and performance measures to record the facility's use and success, the data will provide valuable information and insights into the value of the effort. Examining and interpreting the collected information is part of determining impacts and effectiveness.
Benchmarking	Tracking performance metrics on an annual basis enables progress toward longer-term goals. Documenting the facility operation annually allows agencies and the public to follow the progress and understand the impacts.	Benchmark reports are a valuable way to report on the collected information, data, and analysis, as well as to show photos of the facility in use. Such reports can be created as short brochures or lengthy reports. Someone needs to be charged with the project, as it may involve work throughout the year.

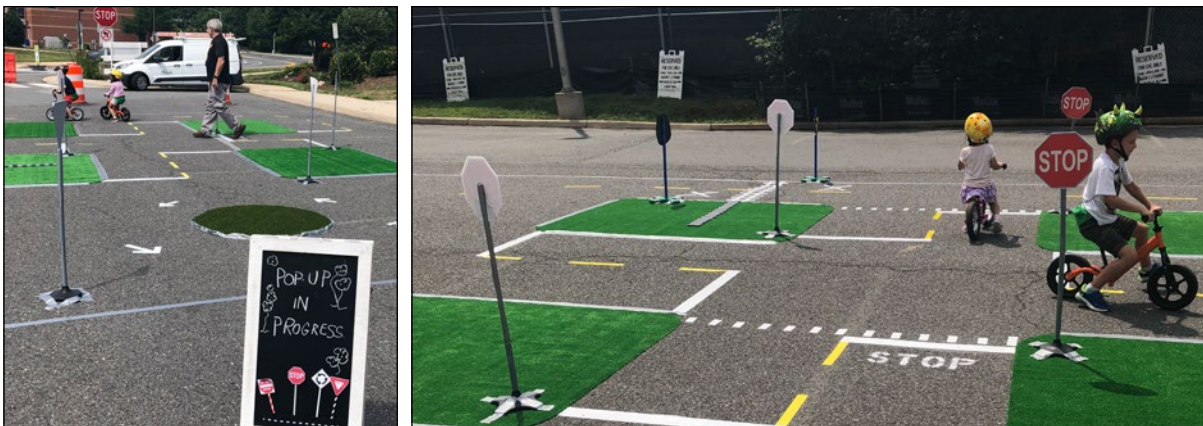
### Examples of Collectible Information

- counting the number of participating students receiving instruction
- counting the programs held annually at the site
- before-and after surveying of the educators using the traffic gardens for instruction (in person or online)
- pre- and post-skills assessment reports by PE teachers
- surveying caregiver's perception of safety before and after instruction, as well as guest's likeliness to return.

Ideally, the record will collect information using each of these forms. Together, they will paint a picture of the traffic garden's local impact and provide additional insights on effectiveness. This is an ongoing process that should take place throughout the life of the traffic garden. Having a standardized collection method enables broader regional reporting and a more complex understanding of outcomes. (If you need help developing or collecting standardized methods, you may consider a research partnership with a local university.) The traffic garden record, when well-kept, can act as a North Star for your garden and for future gardens.

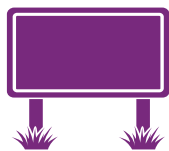
### LOCAL STORY

George Mason University researchers have been exploring how learning takes place at traffic gardens in D.C. schools. They started by testing wearable microphones on students to record their responses and reactions while using the traffic garden. They observed the PK teachers deliver lessons in the classroom and recorded students riding balance bikes in the traffic garden immediately afterward.



*Figure 45. George Mason University researchers testing methods for capturing information about young riders for subsequent traffic garden research.*

## Step 5: Launch & Upkeep



### Maintaining Fixed Traffic Gardens

#### Care and feeding of the permanent traffic garden

The process of keeping a permanent traffic garden in good shape encompasses many aspects of operation. By dividing these tasks up between community leaders (and children!), you can encourage a collective sense of ownership for the garden. We suggest creating a framework plan for dividing tasks and monitoring maintenance.

Table 20. Looking after the traffic garden

<b>Create a Framework</b>	<ul style="list-style-type: none"><li>• Create a traffic garden operations-and-maintenance manual for facilities staff to receive after the installation.</li><li>• Create a plan to refresh or repaint surface markings periodically (dependent on weathering.)</li><li>• Insert new routines, checklists, and reporting into existing facility practices.</li></ul>
<b>Adopt Maintenance Routine</b>	<ul style="list-style-type: none"><li>• Prepare a checklist for routine and periodic maintenance that includes inspection, cleaning, and spot repair needs.</li><li>• Conduct routine checking and repair of ancillary equipment (for example, at the start and end of the season).</li><li>• Create a site maintenance record to be completed periodically.</li></ul>
<b>Practice Preventative Maintenance</b>	<ul style="list-style-type: none"><li>• Provide dedicated storage to protect ancillary equipment from the elements.</li><li>• Conduct regular, preventative asphalt maintenance, including crack repair.</li><li>• Consider periodic washing (low pressure) to remove grit and restore surface material vibrancy.</li><li>• Limit vehicles crossing the site.</li><li>• Provide tarps to quickly cover fleets of bicycles or portable signs that may be left outside temporarily.</li></ul>
<b>Facilitate Maintenance Stewardship</b>	<ul style="list-style-type: none"><li>• Create a traffic garden refreshment kit that includes paint supplies and traffic stencils.</li><li>• Prepare instructions to enable community service organizations to assist with refreshing surface markings and cleanup.</li><li>• Create a central reporting procedure for the traffic garden and associated equipment for facilities staff.</li></ul>

#### Routine asphalt maintenance

Routine and periodic maintenance is needed for the asphalt base, surface-applied markings, and other equipment associated with the traffic garden. Putting routine practices in place from the start will protect and preserve the site and equipment while also reducing the overall maintenance needed.

## Step 5: Launch & Upkeep

Table 21. Permanent traffic garden routine maintenance

Maintenance	Asphalt Base	Surface-Applied Materials	Ancillary Elements
<b>Elements Requiring Maintenance</b>	<ul style="list-style-type: none"> <li>▪ site surface (including surrounds)</li> <li>▪ approaches to site</li> </ul>	<ul style="list-style-type: none"> <li>▪ line striping</li> <li>▪ pavement markings</li> <li>▪ painted assembly areas</li> <li>▪ decorative features</li> </ul>	<ul style="list-style-type: none"> <li>▪ fixed or portable traffic signs</li> <li>▪ information signs</li> <li>▪ bicycle pumps and repair kits</li> <li>▪ helmets</li> <li>▪ storage and shelter</li> </ul>
<b>Routine Tasks</b>	<ul style="list-style-type: none"> <li>▪ remove leaf and branch debris</li> <li>▪ remove grit and weeds</li> </ul>	<ul style="list-style-type: none"> <li>▪ limited, especially when higher-quality materials used</li> </ul>	<ul style="list-style-type: none"> <li>▪ keep supplies orderly, tidy, and clean</li> </ul>
<b>Periodic Tasks</b>	<ul style="list-style-type: none"> <li>▪ inspect asphalt surface condition routinely</li> <li>▪ conduct spot repair and fill cracks that develop (greater than 0.5")</li> </ul>	<ul style="list-style-type: none"> <li>▪ touch-ups may be needed occasionally to keep the installation looking its best</li> <li>▪ repaint striping and pavement markings after 5 to 10 years (depending on initial materials)</li> <li>▪ higher-quality materials, such as Street Bond, may not need frequent touch-ups</li> </ul>	<ul style="list-style-type: none"> <li>▪ clean out and tidy storage areas</li> <li>▪ check equipment and tune up as needed (like tightening screws)</li> <li>▪ maintain bikes (min. annually)</li> <li>▪ check and fill tires</li> </ul>
<b>Refreshment</b>	<ul style="list-style-type: none"> <li>▪ a well-constructed and maintained base should outlast the traffic garden</li> </ul>	<ul style="list-style-type: none"> <li>▪ plan on repainting striping and pavement markings after 5 to 10 years (depending on initial materials used)</li> </ul>	<ul style="list-style-type: none"> <li>▪ replace damaged equipment</li> <li>▪ replace bikes (every 5 to 10 years)</li> </ul>
<b>Factors Contributing to Maintenance and Overall Life</b>	<ul style="list-style-type: none"> <li>▪ heavy vehicles driving across the surface</li> <li>▪ expansion of surface cracks</li> <li>▪ weeds growing up unchecked in surface cracks</li> <li>▪ inadequate restoration from utility work</li> <li>▪ stormwater runoff and any associated erosion</li> </ul>	<ul style="list-style-type: none"> <li>▪ exposure to the elements</li> <li>▪ vehicles driving across the surface</li> <li>▪ mechanical snow plowing</li> <li>▪ grit and silt buildup</li> </ul>	<ul style="list-style-type: none"> <li>▪ inadequate storage or shelter provisions will increase maintenance needs</li> <li>▪ leaving equipment outside exposed to the elements</li> <li>▪ lack of routine tuneups and/or repairs</li> <li>▪ trash, leaves, tree debris</li> </ul>



## Step 5: Launch & Upkeep

### On Your Mark, Get Set....Go!

If you've made it to the end of this guide, you now have the solid foundation you need to design, install, and launch a traffic garden in your community. Congratulations! Revisit this guide any time to review material or if new questions crop up over the course of your project on developing a vision, securing funding, finding the perfect site, designing a layout, installing your traffic garden, and celebrating it with family and neighbors.

Remember, as you embark on your project, that what makes a traffic garden special is its ability to bring wonder to your community's youngest members. A traffic garden can introduce children to a whole new world made just for them, while also showing them the fruits of friendly collaboration and determination. With long-term care, the traffic garden can become a source of pride for your community, a place where your family creates memories for generations to come.

Keep up the great work, and here's to a successful traffic garden!



# ACKNOWLEDGMENTS

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Department of Environmental Services



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# SUPPLEMENTAL MATERIALS



# Glossary

These terms are used within this guide or may be used in a particular way for traffic garden projects:

- **Aerial Photo:** Typically refers to bird's-eye view images that focus on landscapes and surfaces. Aerial photos are widely available through online sites such as Google Maps or programs such as Google Earth.
- **Adobe InDesign or Illustrator:** Graphic software for preparing illustrative traffic garden layouts.
- **Access or Accessibility:** The degree to which a space can be entered by all people, including people with wheelchairs, walkers, and strollers.
- **Autodesk AutoCAD:** Graphic design software for preparing traffic garden layouts.
- **Balance Bike:** A two-wheeled pedal-less bike that teaches young children to balance on two wheels.
- **Base Drawing:** This shows the basic information about the existing site.
- **Design:** A system for implementing a process, usually satisfying certain constraints.
- **Design Charrette:** A collaborative workshop where participants sketch designs and share a broad diversity of design ideas.
- **Erosion:** The process by which the surface gets worn down.
- **Facility:** A place provided for a particular purpose.
- **Google Earth:** A software program that allows access to satellite aerial images of landscapes and surfaces. Also available through Google Maps.
- **Google Maps:** A website that allows access to online maps and satellite aerial images of landscapes and surfaces. Also provides access to Google Earth.
- **Grade:** A measure of how much the ground or road surface inclines or slopes.
- **Intersection:** A location in the street network where two or more streets meet or cross.
- **Network:** A system of streets connected together to allow users to move around on foot or using wheeled devices.
- **Operation:** This is the act of how something functions.
- **Pavement Markings:** The markings and symbols added to a surface to convey information.



# Glossary

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- **Pop-up:** An installation that is installed quickly in a temporary location and intended to stay in place for only a short period.
- **Professional:** Engaged in an activity as a paid occupation rather than as a pastime or volunteer.
- **Risk Competence:** Becoming knowledgeable and skilled in assessing risks and acquiring the competence to take risks more safely.
- **Roadway Awareness:** A knowledge of the road environment and the safety risks involved.
- **Safe Routes to School:** An approach that promotes walking and bicycling to school through infrastructure improvements, safety education, incentives, resources, and enforcement.
- **Scale:** The scale is shown as the length in the drawing, then a colon (":"), then the matching length on the real thing.
- **Sealcoat:** Sealcoating is a defensive coat added to asphalt surfaces to protect from weathering.
- **Site:** This is a place where the project can take place.
- **Stakeholder(s):** Those impacted or have a role in the project or have an interest or concern in its outcome.
- **Striping:** Paint applied to a surface to define space.
- **Streets Network (land):** A system of elements connected in a way that allows people to move around on foot or using wheeled devices.
- **Survey (topographical):** A gathering of information about the shape and features of the land surface.
- **Topographical Information:** Data about the shape and features of the land surface.
- **Traffic Garden:** A network of reduced-sized connected streets free of motorized vehicles where children can actively learn about roadways and transportation safety.
- **User Group:** A group of people identified as particular types of traffic garden users.
- **Vision Zero:** A strategy to eliminate all traffic-related fatalities and severe injuries while increasing safe, healthy, and equitable mobility.
- **Volunteer:** A person who freely offers to engage in a task, usually without pay.

# Abbreviations

*The following abbreviations are used in the guide:*

- ADA Americans with Disabilities Act
- DIY Do it yourself
- DOT Department of Transportation
- ES Elementary school
- HS High school
- LCI Licensed cycling instructor
- MS Middle school
- MOU Memorandum of Understanding
- MUTCD Manual of Uniform Traffic Control
- MWCOG Metropolitan Washington Council of Governments
- PE Physical education
- PK Pre-kindergarten
- RFP Request for proposal
- SRTS Safe Routes to School
- STEM Science, Technology, Engineering and Math

## Appendix A:

# Traffic Garden as Place

Use this worksheet to assist in creating a vision for how your future traffic garden will serve your community.

Traffic Garden as a Place	Range of Possibilities	Planning Notes
Who are the intended users?	<input type="checkbox"/> children <input type="checkbox"/> educators and teachers <input type="checkbox"/> family members and caregivers <input type="checkbox"/> community members and organizations	
How will they use the traffic gardens?	<input type="checkbox"/> skills and educational learning space <input type="checkbox"/> fun and active play	
What devices will be used on traffic garden streets?	<input type="checkbox"/> children's balance bikes <input type="checkbox"/> full-size balance bikes <input type="checkbox"/> two-wheel pedal bicycles (no gears) <input type="checkbox"/> two-wheel pedal bicycles (gears) <input type="checkbox"/> recumbent bicycles <input type="checkbox"/> adaptive or specialized bicycles	
What other devices will be part of the traffic garden world?	<input type="checkbox"/> other wheeled devices for play and learning <input type="checkbox"/> devices for traveling actively to the site <input type="checkbox"/> mobility devices	
What learning programs will be available?	<input type="checkbox"/> bicycle skills lessons <input type="checkbox"/> road safety programs <input type="checkbox"/> fun and play <input type="checkbox"/> outdoor math and STEM	
What devices will be excluded from traffic garden streets?	<input type="checkbox"/> children's e-devices <input type="checkbox"/> adult e-devices	

## Appendix B:

# Traffic Garden Vision Worksheet

Use this worksheet to assist in creating a project vision for the future traffic garden.

Describe the project type envisioned.	
What is the intended purpose(s) for installing a traffic garden?	
List devices that can be used in the traffic garden.	
How will the traffic garden operate?	
Who runs the facility?	
Who maintains the facility?	
Is the facility fenced or open?	
Describe users and requirements.	
Intended users (age, grade)?	
How will the site serve people using mobility devices?	
Will there be requirements (age, helmets)?	

## Appendix B: Traffic Garden Vision Worksheet

How will people access the site?	
Will people arrive on foot, by bicycle, and/or by other rolling devices?	
Will the site be accessible by transit?	
Will Traffic Garden Serve Established Programs?	
Are there established bicycle programs?	
Are there existing safety education programs?	
Are there PE units?	
Would local organizations be interested in partnerships?	
Consider these additional questions:	
How will the traffic garden grow over time?	
How does the facility vision align with the community vision for children and families?	
How will facility success be defined?	
How will overall community success be defined?	





## Appendix C:

# Traffic Garden Funding Examples

The following examples illustrate how communities around the U.S. have successfully funded recent traffic garden projects.

Traffic Garden Project	Funding Source + Notes
<p>Hillcrest Park Traffic Garden, Winterville, NC</p>  <p>The entrance to the Hillcrest Park traffic garden in Winterville, NC</p>	<p>BikeWalkNC obtained an AARP Community grant on behalf of the local community.</p>
<p>Temporary traffic gardens in various Virginia schools</p>  <p>A temporary traffic garden at Hoffman Boston Elementary School in Arlington, VA</p>	<p>Several school systems in Virginia have been awarded Virginia DOT SRTS grants to install temporary traffic gardens. The non-infrastructure grant requirements specifically list traffic gardens as an eligible program or activity.</p>

## Appendix C: Traffic Garden Funding Examples

Traffic Garden Project	Funding Source + Notes
<p data-bbox="337 428 860 459">Bike Safe Play Court in Hagerstown, MD</p>  <p data-bbox="342 974 865 1045"><i>The entrance to the Bike Safe Play Court in Hagerstown, MD</i></p>	<p data-bbox="1016 720 1422 751">Maryland Department of Health</p>
<p data-bbox="264 1102 935 1173">Mountain View Elementary School Traffic Garden in Lacey, WA</p>  <p data-bbox="248 1751 959 1822"><i>The traffic garden at Mountain View Elementary School in Lacey, WA</i></p>	<p data-bbox="992 1371 1446 1556">Funded by State Farm. Additional assistance was provided by community volunteers who helped with the design and installation.</p>



## Appendix C: Traffic Garden Funding Examples

Traffic Garden Project	Funding Source + Notes
<p data-bbox="380 378 818 449">Aiton Elementary School Traffic Garden in Washington, DC</p>  <p data-bbox="246 1024 954 1092"><i>The Aiton Elementary School traffic garden roundabout and crossing in Washington, DC</i></p>	<p data-bbox="997 680 1442 793">Vision Zero grant through the District of Columbia Department of Transportation (DDOT)</p>
<p data-bbox="324 1104 873 1171">Thomas Elementary School Traffic Garden in Washington, DC</p>  <p data-bbox="311 1789 886 1856"><i>The Thomas Elementary School traffic garden in Washington, DC</i></p>	<p data-bbox="997 1428 1442 1541">Vision Zero grant through the District of Columbia Department of Transportation (DDOT).</p>

## Appendix C: Traffic Garden Funding Examples

Traffic Garden Project	Funding Source + Notes
<p data-bbox="253 375 945 409">Lil' Philly Safety Village in the City of Philadelphia, PA</p>  <p data-bbox="331 989 870 1052"><i>Bicycle practice at Lil' Philly Safety Village in Philadelphia, PA</i></p>	<p data-bbox="1008 682 1430 751">The project was funded by a Play Everywhere grant.</p>
<p data-bbox="418 1064 781 1098">Multiple D.C. public schools</p>  <p data-bbox="258 1677 943 1740"><i>A teacher assisting a student at the Aiton Elementary School traffic garden in Washington, DC</i></p>	<p data-bbox="1000 1314 1442 1493">Traffic garden specifications are included in school modernization requests for proposals (RFPs), which are embedded in the overall rehabilitation cost.</p>



## Appendix C: Traffic Garden Funding Examples


Traffic Garden Project	Funding Source + Notes
<p data-bbox="354 373 844 405">Montbello Bicycle Course, Denver, CO</p>  <p data-bbox="316 1169 885 1201"><i>The Montbello Bicycle Course in Denver, CO</i></p>	<p data-bbox="1016 737 1425 842">Funded from the Safe Routes to School Capital Improvement Program Fund.</p>
<p data-bbox="332 1207 868 1239">Charlotte Bike Playground, Charlotte, NC</p>  <p data-bbox="328 1814 873 1881"><i>Markings at the Charlotte Bike Playground in Charlotte, NC</i></p>	<p data-bbox="992 1514 1446 1581">A community grant from the Knight Foundation funded the project.</p>



## Appendix C: Traffic Garden Funding Examples

Traffic Garden Project	Funding Source + Notes
<p data-bbox="331 375 867 407">Seven Oaks Traffic Garden, Odenton, MD</p>  <p data-bbox="250 989 948 1052"><i>An entrance to a roundabout in the Seven Oaks traffic garden in Odenton, MD</i></p>	<p data-bbox="987 625 1451 806">Design and installation were funded by the community homeowner association with pro bono assistance from a community bicycling advocate.</p>
<p data-bbox="306 1064 891 1096">Jefferson Park Traffic Garden, Alexandria, VA</p>  <p data-bbox="225 1677 976 1740"><i>A four-way intersection in the Jefferson Park traffic garden in Alexandria, VA</i></p>	<p data-bbox="987 1314 1451 1495">The Vision Zero Department budget within the Department of Transportation funded the project. Services included in-house staff installation.</p>

## Appendix C: Traffic Garden Funding Examples

Traffic Garden Project	Funding Source + Notes
<p data-bbox="354 375 846 407">Westside Traffic Garden, Roanoke, VA</p>  <p data-bbox="256 989 946 1052"><i>A four-way intersection at the Westside traffic garden in Roanoke, VA</i></p>	<p data-bbox="992 625 1446 806">A DMV Grant funded the planning and design, and the school system provided the site. The school system and DOT jointly installed the traffic garden.</p>

## *Appendix D:*

### **Getting to Know Traffic Gardens**

By introducing the principles of TRANSPORTATION and TRANSPORTATION DESIGN, we are teaching for the future. Not only are children learning how to use transportation safely, but they will also value and demand transportation safety. They may grow up to support- or even plan- the designs for safe systems in their communities.



# GETTING TO KNOW TRAFFIC GARDENS

Traffic gardens offer safe and comfortable miniature worlds where kids can play with pals and have imaginative fun while learning.



Figure 46. A parking lot was transformed into the Westside Elementary School Traffic Garden in Roanoke, Virginia.

Traffic gardens provide a low-stress environment for people of all ages to learn and practice important street-safety skills, such as riding a bicycle, signaling, and crossing the street safely. In addition, traffic gardens can bring communities together around the importance of traffic safety. They help us see how we can all play a role in keeping pedestrians and bicyclists safe.

## WHAT CAN A TRAFFIC GARDEN DO?

- **Provide space to play.** Traffic gardens are safe, accessible, and welcoming places where families can play and kids have a place to go with pals and siblings.
- **Teach for the future.** When kids learn traffic rules at a young age, they are more likely to become safe and enthusiastic transportation system users when they get older. Traffic gardens offer comfortable ways to introduce kids to critical transportation skills.
- **Bring a community together.** With community vision, a neglected space can be transformed into something useful, attractive, and vibrant. Kids of all ages can help too, learning about transportation, collaboration, and teamwork as they help build and use the traffic garden.

**BENEFIT:** Traffic gardens add use to existing and under-utilized asphalt surfaces.

- Traffic gardens are an outdoor place for healthy activities.
- Kids readily recognize the concept and start engaging without the need for direction.
- The surface markings transform existing neglected and invisible places, bringing them back to life.



## Appendix D: Getting to Know Traffic Gardens



**BENEFIT:** Traffic gardens are set up in different ways to serve a range of purposes, like...



*Figure 47. Preschoolers on balance bikes with a teacher at Aiton Elementary*

- ▶ a place to teach and practice bicycling skills and interactions (all ages and abilities).
- ▶ an outdoor classroom for active learning about lifelong walking and biking roadway skills.
- ▶ a comfortable, safe community place for imaginative play alone or with pals.
- ▶ a local amenity for family-friendly outdoor physical activity.

**BENEFIT:** Traffic gardens are used for both formal and informal instruction by...



*Figure 48. Local official checks helmet fit*

- ▶ PE teachers and Safe Route to School Coordinators, for lessons and programs.
- ▶ preschool teachers, for outdoor active play and roadway lessons.
- ▶ local biking instructors, to teach beginning learners and adaptive riding.
- ▶ families, for outdoor fun and biking instruction.

## Appendix D: Getting to Know Traffic Gardens

**BENEFIT:** Participants learn through fun and physical engagement opportunities, like...



Figure 49. "Popsicles on the Playground" event, Prince George's County, MD

- ▶ developing confidence by navigating the mini-streets, intersections, and crossings.
- ▶ practicing life-long skills while engaged in fun and imaginative play.
- ▶ developing an understanding of how street interactions work.
- ▶ experiencing success and achievement at a broad range of ability levels.
- ▶ engaging in healthy outdoor activities that develop social skills and feelings of independence.

**BENEFIT:** Traffic gardens serve a wide range of ages, skill levels, and device users. Some examples include...



Figure 50. Having fun on wheels at Earth Day Roanoke festival

- ▶ preschool students riding balance bikes.
- ▶ elementary-age students practicing biking and roadway skills on two-wheelers.
- ▶ children with a range of balance and mobility needs who use recumbent bicycles, larger balance bikes, and other adaptive devices.
- ▶ new and adult beginner bike riders and learners.

## Appendix E:

# Community Resources Worksheet

Explore Community Resource	Tips and To Do	Results
<b>Sites:</b> Local agencies or owners may be willing to donate or allow the use of space.	<input type="checkbox"/> Contact schools, Parks and Recreation department, churches, and parking lot owners.	
<b>Existing Programs:</b> Local providers may provide joint programming and support through their broadcast networks.	<input type="checkbox"/> Connect with existing local programs related to health, education, environment, active transportation, child safety, community service, immigrant services, and more.	
<b>Local Grants:</b> Service organizations, foundations, and agencies may have funds to support aspects of the traffic garden.	<input type="checkbox"/> Make personal visits and requests to community connections. <input type="checkbox"/> Seek out local grants and sign up for grant notifications. <input type="checkbox"/> Submit unsolicited requests.	

## Appendix E: Community Resources Worksheet

Explore Community Resource	Tips and To Do	Results
<b>Volunteers:</b> People may be willing to donate their time on a once-off or ongoing basis to a project that provides community benefits.	<input type="checkbox"/> Send requests through social media, local organizations, elected officials' newsletters, and personal connections. Ask people from underrepresented communities to do the same.	
<b>Local Agencies:</b> Officials representing the school system or departments like Parks and Recreation, Public Works, Transportation, and Municipal Planning Organizations may provide assistance in various ways.	<input type="checkbox"/> Ask connections at agencies whether they can share staff resources (for example, paint crews, sign-making services), donate used equipment (for example, signs, paint installation devices), or provide materials to assist the project.	



## Appendix F:

# Traffic Garden Project Team Worksheet

This worksheet helps ensure your dream team members are representative of your wider community and possess a range of skills.

Project Team Leadership		
	Name	Contact information
Project leader		
Leader assistant		
Other Team Candidates		
	Candidates	Contact information
<b>Range of perspectives:</b> <input type="checkbox"/> People of color <input type="checkbox"/> Women <input type="checkbox"/> Children <input type="checkbox"/> Teens <input type="checkbox"/> Grandparents/caregivers <input type="checkbox"/> Local business owner		
<b>School community:</b> <input type="checkbox"/> School administration <input type="checkbox"/> SRTS coordinator <input type="checkbox"/> PE teacher <input type="checkbox"/> Pre-K teacher <input type="checkbox"/> Parent(s)		
<b>Organizations and agencies:</b> <input type="checkbox"/> Disability community <input type="checkbox"/> Active transportation <input type="checkbox"/> Arts and cultural <input type="checkbox"/> Transportation officials		
<b>Desirable skills:</b> <input type="checkbox"/> Digital designer <input type="checkbox"/> Writing <input type="checkbox"/> Media relations <input type="checkbox"/> Artist/maker <input type="checkbox"/> Bike skills educator <input type="checkbox"/> Project manager		

## Appendix G:

### Potential Stakeholders List

Stakeholders	How or Where to Find	Suggestions
Local community, including local residents and families, close-by neighbors, retirees, and young people	<input type="checkbox"/> Make local inquiries. <input type="checkbox"/> Contact KidicalMass groups. <input type="checkbox"/> Stop and chat with families riding by on bicycles.	
Underrepresented voices, including community voices, low-income families, and communities of color; also immigrants and first-generation community members	<input type="checkbox"/> Contact local non-profits. <input type="checkbox"/> Ask elected officials or staff. <input type="checkbox"/> Seek out churches and church groups. <input type="checkbox"/> Seek out immigrant and refugee groups. <input type="checkbox"/> Attend community events like a health fair or food distribution.	
Local mobility organizations, including disability and biking organizations	<input type="checkbox"/> Contact bicycling advocacy organizations. <input type="checkbox"/> Contact pedestrian or transit advocacy. <input type="checkbox"/> Contact disability mobility groups. <input type="checkbox"/> Research local bicycle advisory committees. <input type="checkbox"/> Seek out roadway safety organizations (Families for Safe Streets). <input type="checkbox"/> Seek out League Certified Instructors (LCIs). <input type="checkbox"/> Visit a local bike shop(s) or bike co-op.	

## Appendix G: Potential Stakeholders List

Stakeholders	How or Where to Find	Suggestions
School community representatives, including representatives from preschool, elementary, and local colleges	<ul style="list-style-type: none"><li><input type="checkbox"/> Speak with a school principal or other staff.</li><li><input type="checkbox"/> Attend school transportation committees and groups.</li><li><input type="checkbox"/> Contact SRTS representatives.</li><li><input type="checkbox"/> Speak with PE teachers.</li><li><input type="checkbox"/> Speak with STEM and art teachers.</li><li><input type="checkbox"/> Speak with preschool teachers.</li><li><input type="checkbox"/> Contact PTA, parent's art group, and preschool parent-education programs.</li><li><input type="checkbox"/> Reach out to urban planning or design professors or students.</li></ul>	

## Appendix H:

# Community Engagement Guides & Online Resources

Description	Where to Find Online	Type of Resource
Kid Partners for Great Planning, Improving Design Outcomes and Planning Conversations, ITE Winter 2018-2019	<a href="https://bit.ly/3i1tRFp">https://bit.ly/3i1tRFp</a>	Magazine article
FHWA Hispanic Pedestrian and Bicycle Safety	<a href="https://bit.ly/30VDEXb">https://bit.ly/30VDEXb</a>	Report
National Center for Safe Routes to School Spanish Resources	<a href="https://bit.ly/3a1USA9">https://bit.ly/3a1USA9</a>	Resource webpage
Safe Routes National Partnership Where the Duct Tape Meets the Road: How To Create Pop-Up Safe Routes to School Projects	<a href="https://bit.ly/3edu2eL">https://bit.ly/3edu2eL</a>	Short guide
DIY Community Cookbook, AARP Vermont and Community Workshop	<a href="https://bit.ly/3eqW9Hj">https://bit.ly/3eqW9Hj</a>	Guide







# Appendix I:





## Traffic Garden Project Criteria

Criteria	Pop-Up Traffic Garden	Temporary Traffic Garden	Permanent Traffic Garden	Mobile Kit Traffic Garden
Minimum Site Dimensions	<div><input type="checkbox"/> The minimum size is approximately 44' x 44'</div> <div><input type="checkbox"/> The minimum size includes a 5' buffer around the outside edge of the street network</div> <div><input type="checkbox"/> No maximum site dimensions</div>			<div><input type="checkbox"/> The suggested minimum size is roughly 20' x 20'</div>
Site Surface Material	A hard surface such as: <div><input type="checkbox"/> asphalt parking lot</div> <div><input type="checkbox"/> asphalt playground</div> <div><input type="checkbox"/> asphalt trail network</div> <div><input type="checkbox"/> sports courts</div>			<div><input type="checkbox"/> If the kit is used indoors and outdoors, the design will need to consider the impact of grit on materials.</div>
Surface Conditions	<div><input type="checkbox"/> good condition suitable for bike riding</div> <div><input type="checkbox"/> no wide cracks (greater than ½")</div> <div><input type="checkbox"/> no potholes (pop-up or temporary)</div> <div><input type="checkbox"/> funds to fix wide cracks &amp; potholes (permanent)</div> <div><input type="checkbox"/> no embedded elements in the surface (for example, cut-off metal poles, trailer hooks) unless the site can be surfaced</div>			<div><input type="checkbox"/> Good conditions for bike riding are needed.</div> <div><input type="checkbox"/> There should be no wide cracks or embedded metal items</div>
Slopes	<div><input type="checkbox"/> preferably flat</div> <div><input type="checkbox"/> slope no greater than 2% grade</div> <div><input type="checkbox"/> slope away from buildings, fixed objects, or drop-offs</div>			
Site Geometry	<div><input type="checkbox"/> square or rectangular space</div> <div><input type="checkbox"/> other shapes possible</div>	As wide a range of sites as possible: <div><input type="checkbox"/> square</div> <div><input type="checkbox"/> rectangular</div> <div><input type="checkbox"/> set of sports courts</div> <div><input type="checkbox"/> non-contiguous pieces with a connecting path</div> <div><input type="checkbox"/> set of existing asphalt paths</div>		<div><input type="checkbox"/> square or rectangular space</div> <div><input type="checkbox"/> other shapes possible</div>
Drainage conditions	<div><input type="checkbox"/> well-drained, without storm drains or raised utility holes in or close to the traffic garden space</div> <div><input type="checkbox"/> sufficient space to design around low points in the surface</div>			<div><input type="checkbox"/> outdoors, well-drained</div>

## Appendix I: Traffic Garden Project Criteria

Criteria	Pop-Up Traffic Garden 	Temporary Traffic Garden 	Permanent Traffic Garden 	Mobile Kit Traffic Garden 
Access	<input type="checkbox"/> well-connected with easy-to-find access <input type="checkbox"/> no barriers to access for strollers or users of mobility devices			<input type="checkbox"/> deploy in an accessible location
Vehicular Access	<input type="checkbox"/> no vehicles crossing, turning, or backing into the site <input type="checkbox"/> system to block vehicles	<input type="checkbox"/> no vehicles crossing, turning, or backing into the site on a routine basis <input type="checkbox"/> access to maintenance and emergency vehicles <input type="checkbox"/> ability to add a system to block and prevent vehicular access		<input type="checkbox"/> no vehicles crossing, turning, or backing into the site
Age Range	<input type="checkbox"/> for ages two through 4th grade	<input type="checkbox"/> for ages three and up	<input type="checkbox"/> potentially all ages	<input type="checkbox"/> PK to 4th grade
How Many Users?	<input type="checkbox"/> depends on installation, but is likely less than 10 to 15	<input type="checkbox"/> design for a class group (20 to 25) <input type="checkbox"/> a larger site may facilitate more users		<input type="checkbox"/> design for a class group (20-25)
Bonus Features	<input type="checkbox"/> close-by benches <input type="checkbox"/> water	<input type="checkbox"/> routine maintenance in place <input type="checkbox"/> benches and picnic tables <input type="checkbox"/> water (for installation and maintenance also) <input type="checkbox"/> places to park bikes and strollers <input type="checkbox"/> lighting		
Permission or ROW	<input type="checkbox"/> must be easy to obtain permission to use the site	<input type="checkbox"/> ability to obtain permission to use the site for the life of the installation		

# Appendix I: Traffic Garden Project Criteria

Criteria	Pop-Up Traffic Garden 	Temporary Traffic Garden 	Permanent Traffic Garden 	Mobile Kit Traffic Garden 
General Features				
Must-Haves	<input type="checkbox"/> good quality hard surface <input type="checkbox"/> adequate site size to allow for a buffer around the edge of the street network			
Less Desirable	<input type="checkbox"/> extensive pavement markings that cannot be worked around concealed, resealed, or painted over <input type="checkbox"/> concrete site (because of joints and light background color)	<input type="checkbox"/> extensive pavement markings that cannot be concealed, resealed or painted over <input type="checkbox"/> concrete site (because of joints and light background color) <input type="checkbox"/> a hard-to-find location <input type="checkbox"/> locked facility with limited opening hours		<input type="checkbox"/> small site <input type="checkbox"/> heavy kit taking a long time to set up
Disqualifiers	<input type="checkbox"/> hazards like a sloped site, steep slopes at edges, fixed hard-edged objects	<input type="checkbox"/> hazards that cannot be mitigated through design or within the available budget, like a sloped site, steep slopes at edges, fixed hard-edged objects within the site, and vehicles driving through or close to the site		

## Appendix J:

# Securing Site Permission Worksheet

Documenting Site Information and Owner Permissions	
<input type="checkbox"/> Search online property tax records.	
<input type="checkbox"/> Attach a marked-up map or aerial outlining the site.	
Identify the Site	
Site name:	
Map address:	
Specific location:	
Tax parcel information:	
Establishing Site Ownership and Potential for Usage	
Property/landowner:	
Existing public access:	
<input type="checkbox"/> right-of-way	
<input type="checkbox"/> easement	
<input type="checkbox"/> other	
Opening hours:	
Who maintains?	
Contacting the Owner or Site Representative	
Date contacted & request:	Date contacted & request:

## *Appendix K:*

# Field Visit Preparation and Checklist

### **Planning for visit:**

- ☐ Let appropriate people know you will be entering the site.
- ☐ If necessary, pre-arrange for gate unlocking.
- ☐ Determine whether sign-in is needed and where to go.
- ☐ Check the weather forecast.

### **Prepare an aerial view of the site on a computer or mobile phone:**

- ☐ Use Google Earth, Google Maps, Canva, or similar.
- ☐ Print copies of aerial (show site and directly adjoining areas).
- ☐ Alternatively, use screenshots of aerial images on a phone.

### **Suitable clothing:**

- ☐ Shoes for muddy or rough surfaces.

### **Getting to the site location:**

- ☐ Distribute address and sign-in instructions to all attendees.
- ☐ Map the specific location if it is hard to find on a larger property.

### **Bring along:**

- ☐ clipboard and pencil/markers
- ☐ aerial view of the site (on paper or screen)
- ☐ long measuring tape or wheel, yardstick, short ruler, chalk
- ☐ phone camera (plus optional measuring apps)
- ☐ drone camera (optional, if available/permitted)

### **Other useful items:**

- ☐ Measure Map phone app
- ☐ graph paper for sketching the site
- ☐ sample templates



## Appendix K: Field Visit Preparation and Checklist

### Field visit worksheet

- Use prompts to gather information and save it for future reference.
- Take close-up photos to document existing conditions.

#### Field visit worksheet

Site name/address:	The weather during the visit:
Your name/date:	Others present:

### Site access and amenities

Check all that apply and add notes where appropriate.

#### Site amenities checklist

Confirm approach to site:	<input type="checkbox"/> arriving on foot <input type="checkbox"/> arriving with a device (wheelchair, stroller, etc.) <input type="checkbox"/> arriving by bike <input type="checkbox"/> arriving via transit <input type="checkbox"/> emergency services access <input type="checkbox"/> maintenance access <input type="checkbox"/> installation crew access
Locating site:	<input type="checkbox"/> Is the site readily visible to passersby? <input type="checkbox"/> Does the site have a street address? <input type="checkbox"/> Does the site show up using map apps?
Entering site:	<input type="checkbox"/> unlocked gate(s) <input type="checkbox"/> locked gates(s) <input type="checkbox"/> no gates/wide open <input type="checkbox"/> no steps or barriers <input type="checkbox"/> ability to prevent motor vehicle entry
Available amenities:	<input type="checkbox"/> trash can(s) <input type="checkbox"/> bench(es) <input type="checkbox"/> close-by bathrooms
Available utilities or services: (Confirm operationally)	<input type="checkbox"/> electrical supply and outlets <input type="checkbox"/> water spigots <input type="checkbox"/> outdoor lighting

## Appendix K: Field Visit Preparation and Checklist

### Site conditions

Check all that apply and add notes where appropriate. Use marks and arrows to indicate and locate collected information about infrastructure and issues on aerial or sketch.

#### *Site conditions checklist*

Surface material:	<input type="checkbox"/> asphalt <input type="checkbox"/> concrete <input type="checkbox"/> rubberized surface
General condition:	<input type="checkbox"/> new/excellent <input type="checkbox"/> good <input type="checkbox"/> moderate <input type="checkbox"/> poor <input type="checkbox"/> mixed
Asphalt fatigue/alligator cracking:	<input type="checkbox"/> widespread <input type="checkbox"/> limited <input type="checkbox"/> none
Cracking:	<input type="checkbox"/> minor (less than ¼" wide) <input type="checkbox"/> moderate (¼" - 1" wide) <input type="checkbox"/> serious (> 1" wide) <input type="checkbox"/> widespread <input type="checkbox"/> limited
General environment:	<input type="checkbox"/> weed growth in cracks <input type="checkbox"/> silted cracks <input type="checkbox"/> pools of silt <input type="checkbox"/> evidence of erosion <input type="checkbox"/> leaf & branch debris <input type="checkbox"/> gravel/mud spilling onto the surface <input type="checkbox"/> other:
Site drainage:	<input type="checkbox"/> drains well <input type="checkbox"/> water pooling (or silt sitting on the surface) <input type="checkbox"/> unknown
Site slope:	<input type="checkbox"/> the visible direction of the fall (slope) <input type="checkbox"/> steep areas <input type="checkbox"/> dips

## Appendix K: Field Visit Preparation and Checklist

Active erosion:	<input type="checkbox"/> missing pavement <input type="checkbox"/> crumbling pavement edge <input type="checkbox"/> gully next to or near pavement <input type="checkbox"/> washed down soil or gravel
Climate factors evident:	<input type="checkbox"/> full sun <input type="checkbox"/> available shade
Vertical elements in or adjacent to the surface:	<input type="checkbox"/> light poles <input type="checkbox"/> fencing <input type="checkbox"/> signposts <input type="checkbox"/> bollards
Flush elements embedded in the surface:	<input type="checkbox"/> stubs of poles, posts, or bollards <input type="checkbox"/> metal hooks embedded in the surface <input type="checkbox"/> locking devices embedded in the surface
Other fixed infrastructure in or adjacent to the surface:	<input type="checkbox"/> buildings <input type="checkbox"/> sheds <input type="checkbox"/> kiosks <input type="checkbox"/> shipping containers <input type="checkbox"/> utility holes <input type="checkbox"/> grates <input type="checkbox"/> electrical boxes
Surface edges:	<input type="checkbox"/> drop-off next to the site <input type="checkbox"/> height differences where surfaces meet <input type="checkbox"/> protruding grates or utility holes <input type="checkbox"/> potholes <input type="checkbox"/> other:
Opening into the surface area:	<input type="checkbox"/> building doorways <input type="checkbox"/> gates for paths and trails <input type="checkbox"/> shed doorways
Note elements overhanging surface:	<input type="checkbox"/> large trees <input type="checkbox"/> building air conditioners (i.e., drips)

# Appendix L:

## Fixed Site Evaluation Worksheet

Site Name & Address:												
Your Name & Date:												
General Description of Site		YES	NO	Conditions				NOTES				
				Excellent	Good	Poor	Fixable					
Access	Sidewalk access											
	Trail connection											
	Barrier-free access											
	Close-by transit											
	Closed to motor vehicles											
Availability	Existing community facility											
	Existing public access											
	Use permission needed											
Location	Central to neighborhood											
	Central to population											
	Easily found/visible spot											
	Next to a low-speed street											
	Safe, comfortable crossings											
	Compatible adjacent uses											

## Appendix L: Fixed Site Evaluation Worksheet

General Description of Site		YES	NO	Conditions				NOTES
				Excellent	Good	Poor	Fixable	
Community	Lower-income neighborhood							
	Many young people close-by							
	Adjacent attractions/draws							
	Existing events/programs							
	Special something about the site							
Site	Adequate space available							
	Mostly flat surface							
	Close-by fixed objects							
	Adjacent drop-offs							
	Existing amenities in place							
Surface	Suitable asphalt surface							
	Existing surface markings							
	Existing maintenance program							



## Appendix M:

# Develop a Traffic Garden Layout Worksheet

*Draft layout drawing information table*

Draft Layout Drawing Information	Confirm Included
Project name and address	
Name and contact information for the preparer	
Date of preparation (plus revision dates)	
Drawing scale, date, and due north	
Outline of site	
Outline of directly adjacent and surrounding features such as buildings, driveways, sidewalks, paths, and trails	
Location of adjacent doorways and gates	

## Appendix M: Develop a Traffic Garden Layout Worksheet

Draft Layout Drawing Information	Confirm Included
Location of any fixed or semi-permanent physical items such as drainage grates, poles, signposts, bollards, fences, trash cans, sheds, electrical boxes, etc.	
Location of water or electrical sources for the site	
The layout of the proposed street network with dimensions	
Other proposed pavement markings or traffic features	
Outside dimensions and street widths	
Note about information source (for example, Google Earth)	

## Appendix M: Develop a Traffic Garden Layout Worksheet

*Final layout drawing information table*

Final Layout Drawing Information	Confirm Included
Project and address	
Name and contact information for the preparer	
Date of preparation (plus revision dates)	
Drawing scale, date, and due north	
Outline of the site and full dimensions	
Outline and label existing features	
Outline of directly adjacent and surrounding features such as buildings, driveways, sidewalks, paths, and trail	
Location of adjacent doorways and gates	
Location of any fixed or semi-permanent physical items such as drainage grates, poles, signposts, bollards, fences, trash cans, sheds, electrical boxes, etc.	
Location of water or electrical sources for the site	

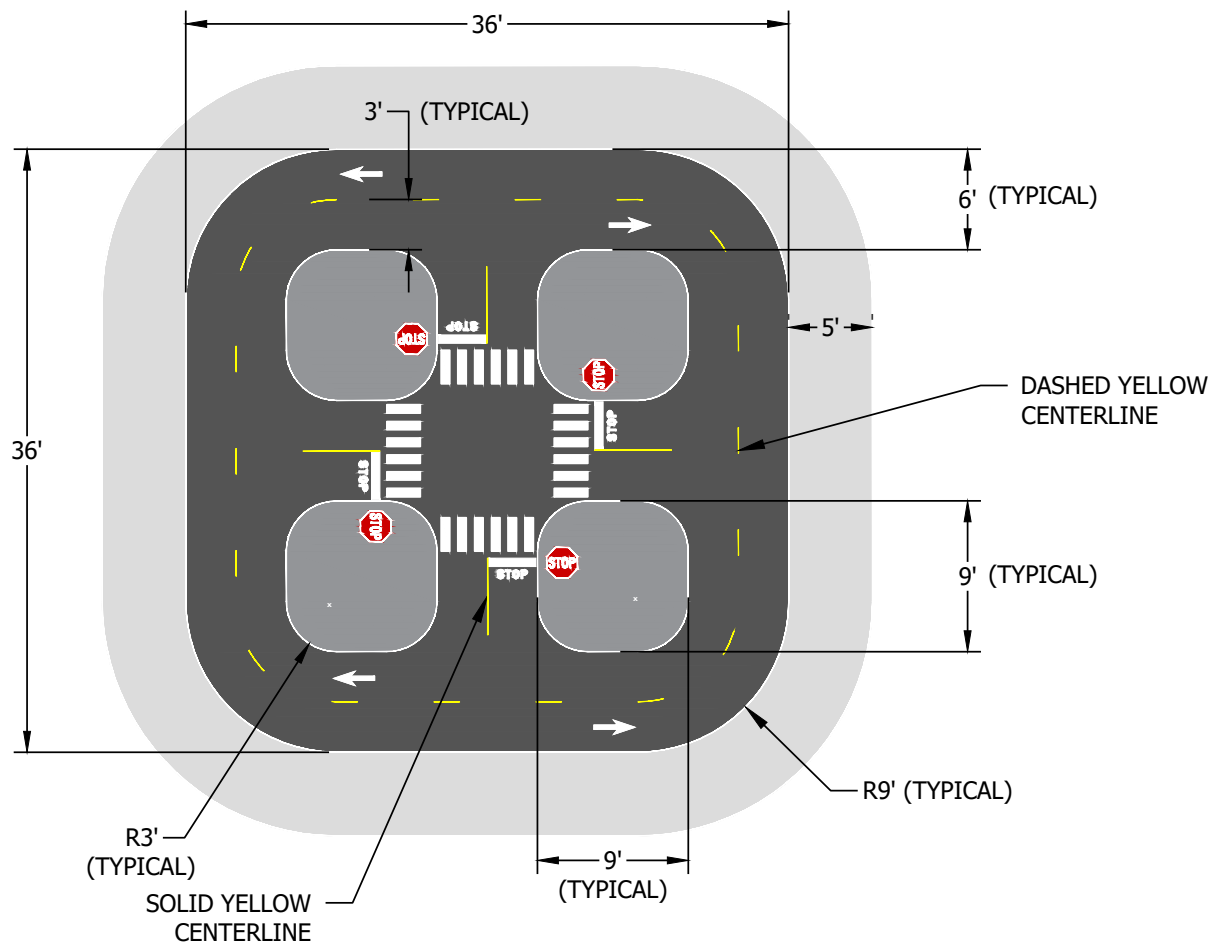
## Appendix M: Develop a Traffic Garden Layout Worksheet

Final Layout Drawing Information	Confirm Included
The layout of the complete street network	
All proposed pavement markings	
Any additional crossings or features	
Included detailed dimensional information	
Include typical details for recurring markings	
Add important notes about the site and project	
Surrounding buildings and features, including paths, trails, driveways, and doorways	
Closest street(s) and label (at the same scale or in an insert)	
Property lines (only if accurate and verified)	
Notes about information source and accuracy	

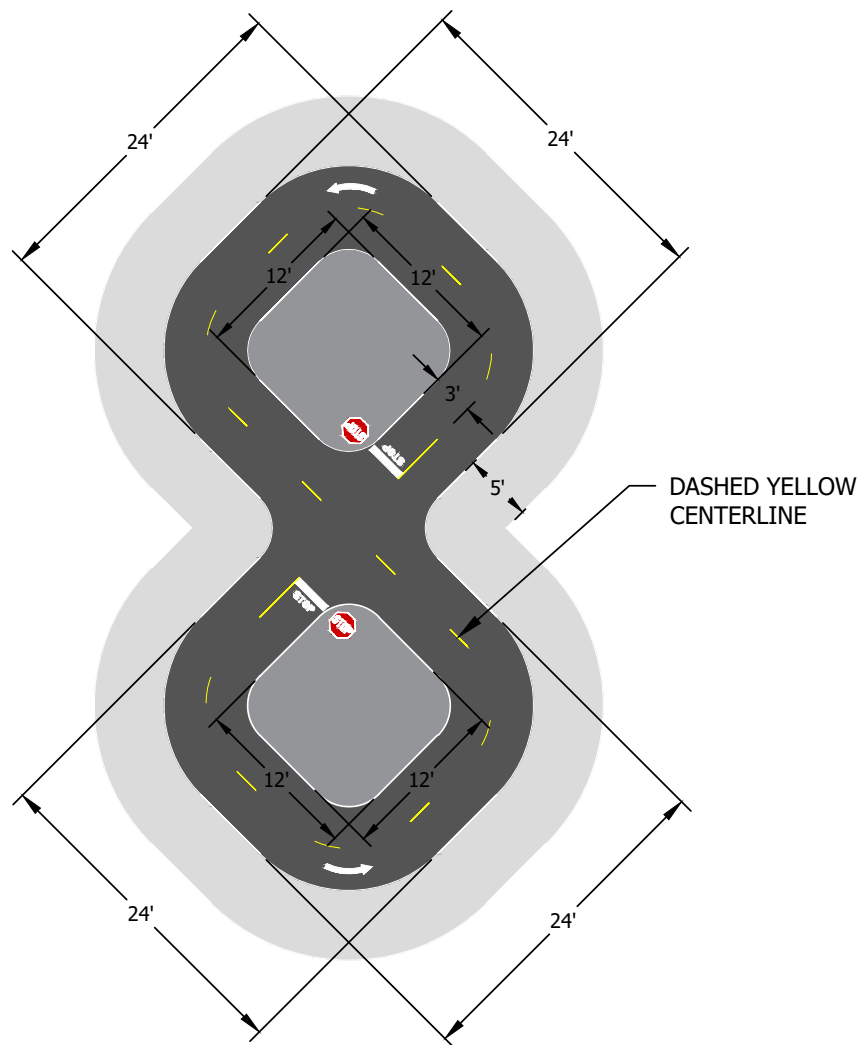
*Appendix N:*  
**Traffic Garden Layouts**



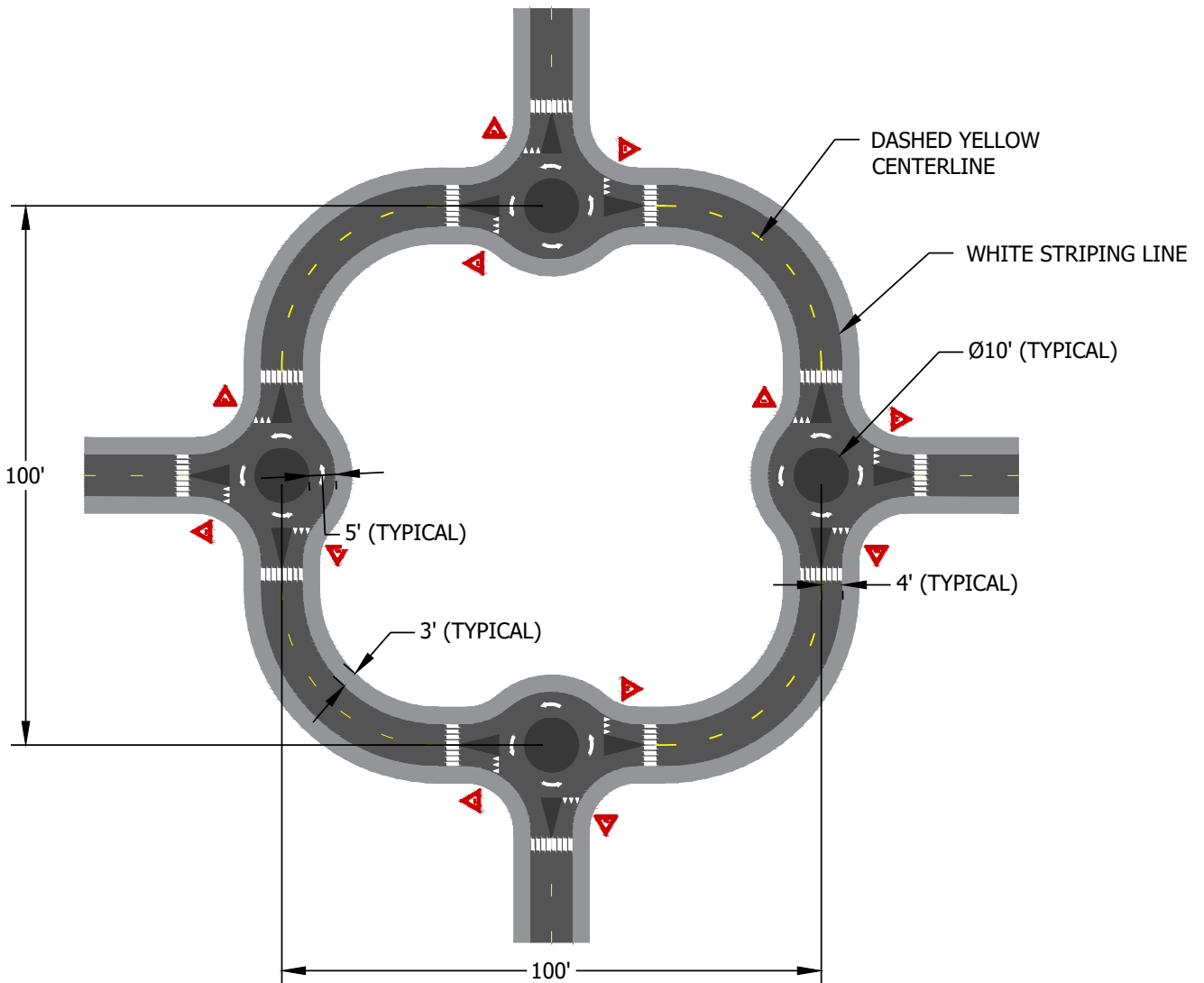
# Town Square



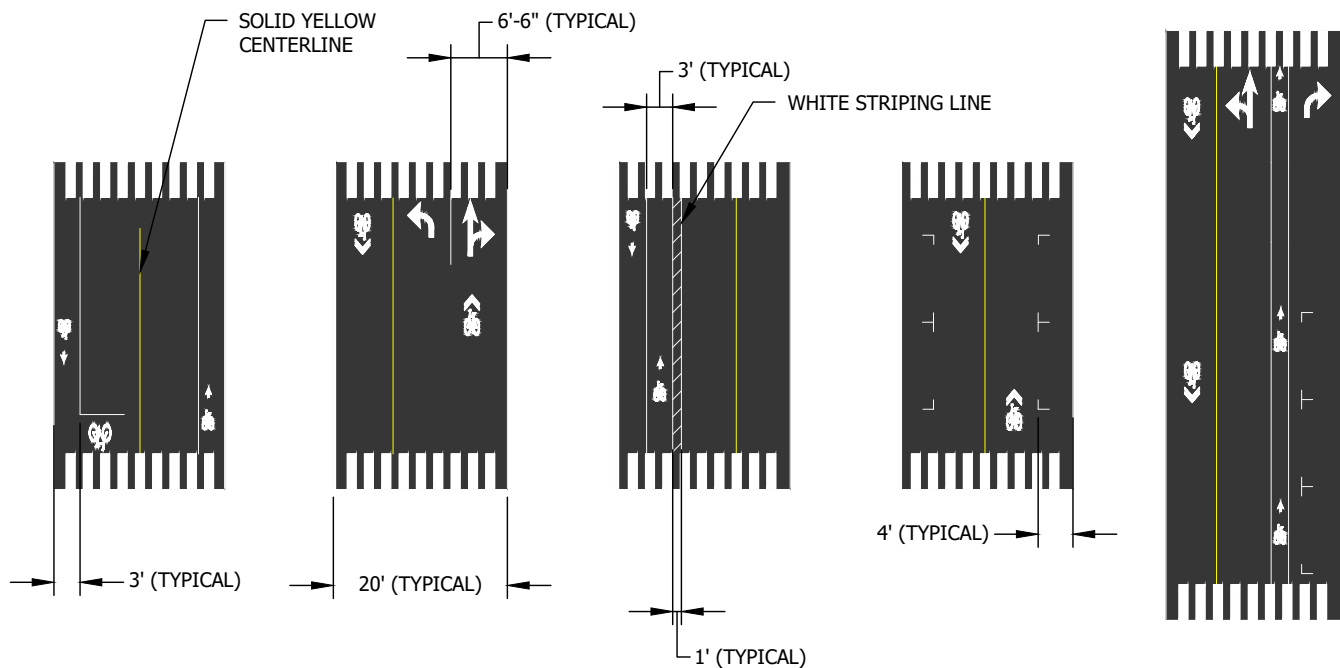
# Double Diamond



# Magic Roundabout



# Bike Lanes and Shared Lane Layout Elements



# Appendix O:

## Design Checklists

### *Traffic garden drawing review checklist*

Does the layout accommodate walking and bicycling activities?	Y/N
Are there clear walking and bicycling path and route options around the site?	
Do streets connect clearly and consistently to form a network?	
Can users change directions at several locations?	
Are signs and pavement markings shown at intersections?	
Are stops/starts close together? Short cross streets?	
Is there adequate space for multiple users to spread out?	
Are there different areas for users of varying skill levels and abilities?	
Are there options for users with mobility issues + added symbols?	
Does layout accommodate other aspects of operation?	Y/N
Are there well-located places for groups to assemble during programming	
Where will people arrive at the site?	
Upon arrival, how do users access the traffic garden?	
Are there suitable places for accompanying adults to sit and watch?	
Where do people park their bicycles?	
Is equipment storage readily accessible for the start and end of programs?	



## Appendix O: Design Checklists

Check design details	Y/N
Are signs and pavement markings shown on all intersections and crossings?	
Do roundabouts flow in the correct direction?	
Are correct lane configurations shown?	
Do any streets or lanes end abruptly?	
Are there any sharp turns with small turning radii?	
Are radii shown at all corners and dimensioned?	
Are any streets too narrow edge to edge (especially when one-way)?	
Are any streets too wide edge to edge?	
Are any street segments overly short?	
Are there any hills or curves of concern?	
Adequate buffering provided for users from any physical elements?	
Are any sharp corners or fixed objects in the direct path of a bicyclist missing a turn?	
Adequate buffers and clearances from adjacent buildings, poles, and storage	
Check for errors or omissions	Y/N
Are existing features and edges represented correctly?	
Are all the existing access points, paths, and doors indicated?	
Does anything seem off or shown in a different location to real life?	
Do field visit photos match the details shown, or is anything missing?	
Are all dimensions included for widths, lengths, and markings?	
Does dimensional information add up and make sense?	

## Appendix O: Design Checklists

The **base layout drawing** of the site can be prepared using a Google Earth image. The base drawing should show existing conditions based on the collected field information combined with available digital information.

### *Base layout drawing checklist*

Base Layout Drawing Information	Confirm Included
Project name and address:	
Name and contact information for the preparer:	
Date of preparation (plus revision dates):	
Drawing scale, date, and due north:	
Outline of the site:	
Outline of directly adjacent and surrounding features (buildings, driveways, sidewalks, paths, trail connections):	
Location of adjacent doorways and gates:	
Location of any fixed or semi-permanent physical items, such as drainage grates, poles, signposts, bollards, fences, trash cans, sheds, electrical boxes, etc.:	
Location of water or electrical sources for the site:	
Note about information source (for example, Google Earth):	

## Appendix O: Design Checklists

The **conceptual layout drawing** is prepared on the base drawing and should include additional information about what is proposed.

### *Conceptual layout drawing checklist*

Conceptual Layout Drawing Information	Confirm Included
Project name and address:	
Name and contact information for the preparer:	
Date of preparation (plus revision dates):	
Drawing scale, date, and due north:	
Outline of the site:	
Outline of directly adjacent and surrounding features such as buildings, driveways, sidewalks, paths, and trails:	
Location of adjacent doorways and gates:	
Location of any fixed or semi-permanent physical items, such as drainage grates, poles, signposts, bollards, fences, trash cans, sheds, electrical boxes, etc.:	
Location of water or electrical sources for the site:	
The layout of the proposed street network with dimensions:	
Other proposed pavement markings or traffic features:	
Outside dimensions and street widths:	
Note about information source (for example, Google Earth):	

## Appendix O: Design Checklists

The **final layout drawing** is prepared on the same base drawing and should include more detailed and accurate information.

### *Final layout drawing checklist*

Final Layout Drawing Information	Confirm Included
Project and address:	
Name and contact information for the preparer:	
Date of preparation (plus revision dates):	
Drawing scale, date, and due north:	
Outline of the site and full dimensions:	
Outline and label existing features:	
Outline of directly adjacent and surrounding features, such as buildings, driveways, sidewalks, paths, and trails:	
Location of adjacent doorways and gates:	
Location of any fixed or semi-permanent physical items, such as drainage grates, poles, signposts, bollards, fences, trash cans, sheds, electrical boxes, etc.:	
Location of water or electrical sources for the site:	
The layout of the complete street network:	
All proposed pavement markings:	
Any additional crossings or features:	
Included detailed dimensional information:	
Include typical details for recurring markings:	
Add important notes about the site and project:	
Surrounding buildings and features, including paths, trails, driveways, and doorways:	
Closest street(s) and label (at the same scale or in an insert):	
Property lines (only if accurate and verified):	
Notes about information source and accuracy:	
Notes directing installation:	

## Appendix P:

# Types of Bicycles Used at Traffic Gardens

*Table of bicycles used in traffic gardens*

Type of Bicycle	Range of Devices	Discussion
Balance bicycles	<ul style="list-style-type: none"> <li><input type="checkbox"/> young children's balance bikes (typically 12", 14", 16")</li> <li><input type="checkbox"/> balance bikes for older/taller users (20")</li> </ul>	<p>Balance bicycles prepare students better for later biking instruction as they teach students the critical skill of balance. They are not just intended for small children; they work for new riders of all ages and for many of those with mobility impairments.</p> <p>Planning how to manage a balance bicycle fleet to allow for ready access for play and instruction is key for traffic gardens. Due to the small size of children's balance bicycles, most bike parking racks are oversized, so it may be necessary to build custom facilities to keep the bicycles orderly and accessible. Refer to <a href="http://TwoWheelingTots.com">TwoWheelingTots.com</a> for more detailed balance bicycle reference information.</p>
Two-wheel pedal bicycles (no gears)	<ul style="list-style-type: none"> <li><input type="checkbox"/> two-wheel pedal bikes (typically 14", 16", 18", 20", 24")</li> </ul>	<p>School programs need a range of pedal bicycle sizes to accommodate children of various sizes and ages. Adding training wheels to a two-wheel pedal bicycle is not recommended, as this equipment is no longer used to teach children how to ride a bicycle in instructional programs.</p>
Two-wheel pedal bicycles (with gears)	<ul style="list-style-type: none"> <li><input type="checkbox"/> two-wheel pedal bikes with gears for children (typically 26", 27.5")</li> </ul>	<p>Youth bicycles are lighter in weight than small adult bikes, and components are sized for children's hands and strength. If the plan is to accommodate larger pedal bicycles, it will be necessary to scale up traffic garden streets and corner radii.</p>



## Appendix P: Types of Bicycles Used at Traffic Gardens

Type of Bicycle	Range of Devices	Discussion
Recumbent bicycles	<ul style="list-style-type: none"> <li><input type="checkbox"/> adjustable bicycles for children (ages 5 to 12)</li> <li><input type="checkbox"/> recumbent foot cycle</li> </ul>	Recumbent bikes are long and low, so children have very different riding positions. They are suitable for children with mobility issues who may be unable to master balance. These devices may feature alternative steering (rear wheel). They are very maneuverable devices that work well on traffic garden streets.
Adaptive or specialized bicycles	<ul style="list-style-type: none"> <li><input type="checkbox"/> tricycles and trikes</li> <li><input type="checkbox"/> handcycles</li> <li><input type="checkbox"/> buddy bicycle (type of tandem)</li> </ul>	Many of these riding devices have large turning radii. Traffic gardens, by their nature, are small-scale and feature smaller turning radii on street corners and roundabouts. However, as the traffic garden is flat, riding devices can run outside the radii striping, although care should be taken with portable traffic sign placement.

## Appendix Q:

# Devices Found In & Around Traffic Gardens

Additional Devices Found in or around Traffic Garden	Range of Devices	Discussion
Other wheeled devices for play and learning	<input type="checkbox"/> scooter (two-wheel) <input type="checkbox"/> scooter (three- or four-wheel)	Scooters are widespread among families traveling on foot, as they are used for younger kids to keep up with walking adults. They are fun devices for children to use in traffic gardens. They may also be used for roadway safety learning for students who cannot ride a bike. Using the scooter allows them to participate in learning without being left out in front of other students.
Devices for traveling actively to the site	<input type="checkbox"/> cargo bikes <input type="checkbox"/> e-bikes <input type="checkbox"/> electric scooters <input type="checkbox"/> strollers and wagons	As many families choose to travel actively to local destinations, traffic garden guests may arrive with a range of wheeled devices depending on the ages and abilities of family members. They will need to be able to readily access the site and have a place to park their devices, so they do not overflow into the traffic garden.
Mobility devices	<input type="checkbox"/> wheelchairs (motorized or push) <input type="checkbox"/> motorized scooters <input type="checkbox"/> walking frame (wheeled or other)	Family or community members who use mobility devices need to have barrier-free access. Upon arrival, they need to have comfortable places where they can observe traffic garden activities and where other family members can join them.
Suggestions for devices to exclude from traffic garden streets	<input type="checkbox"/> child scooter with battery assist <input type="checkbox"/> hoverboards <input type="checkbox"/> e-scooter <input type="checkbox"/> motorized cars (child driver) <input type="checkbox"/> e-bikes (with exceptions) <input type="checkbox"/> cargo bike	Children or adults are not recommended to use boosted devices on traffic garden streets, as these devices create a speed differential and unstable traffic flow around new learners. Motorized mini-cars are also not recommended for similar reasons, plus they are wide relative to the streets. Additionally, many of these devices are inherently less stable. An exception could be made for e-bikes and cargo demonstrations or lessons.

## Appendix R:

### Traffic Garden Programs

Traffic Garden Learning	Elements of Program	Discussion
Bicycle skills lessons	<ul style="list-style-type: none"> <li><input type="checkbox"/> how to ride</li> <li><input type="checkbox"/> how to navigate streets</li> <li><input type="checkbox"/> how to ride in a group</li> <li><input type="checkbox"/> group or individual lessons</li> </ul>	As well as considering how to accommodate specific bicycle skills programs, it is important to examine the instructor's needs for delivering the lessons. This includes considering where equipment is stored, how they access the site and equipment, and what space they need to manage students and bikes.
Road safety programs	<ul style="list-style-type: none"> <li><input type="checkbox"/> meaning of traffic features</li> <li><input type="checkbox"/> safe street crossing</li> <li><input type="checkbox"/> how to signal and maneuver around other road users</li> <li><input type="checkbox"/> crossing guards and safety patrol learning</li> <li><input type="checkbox"/> SRTS school programs</li> <li><input type="checkbox"/> walking and biking encouragement</li> <li><input type="checkbox"/> scouting badges</li> </ul>	Safety lessons vary depending on the age and cognitive ability of the children. The knowledge is built over time, and learning is enhanced because of the ability to simulate and act out street scenarios in a safe and comfortable place. Having the street network already in place makes lesson setup much easier for educators. The traffic garden can also become a place that can help bring families and communities together to talk about the importance of road safety and how everyone can do their part in keeping kids safe.

## Appendix R: Traffic Garden Programs

Traffic Garden Learning	Elements of Program	Discussion
Fun and play	<ul style="list-style-type: none"> <li><input type="checkbox"/> active challenges for children so they can have fun while getting exercise</li> <li><input type="checkbox"/> art fun and imaginative play</li> <li><input type="checkbox"/> in conjunction with the school through recess and before and after school play</li> <li><input type="checkbox"/> play area for a community outside school hours and during holidays</li> </ul>	<p>Fun and play are key parts of children's learning. Young children learn about how things fit together and how the world works through play. Many well-established outdoor games work in traffic gardens, ranging from Red-Light-Green-Light to bike/running relays or chasing bubbles. Games can also be linked to learning topics (such as math and spelling) using the traffic garden as a backdrop. Traffic gardens lend themselves to imaginative fun, including adding cardboard buildings, chalk art, and outdoor museums. For local families, traffic gardens can be a great free destination where children can be active and play with others.</p>
Outdoor math and STEM activities	<ul style="list-style-type: none"> <li><input type="checkbox"/> math measuring lessons</li> <li><input type="checkbox"/> math area calculations</li> <li><input type="checkbox"/> map drawing</li> <li><input type="checkbox"/> STEM street design activities</li> </ul>	<p>Chalk and measuring tools combine well with traffic gardens to create all sorts of measuring and other types of large-scale math challenges. Similarly, the space is suitable for mapmaking activities as children explore and record it in 2-D. Beyond everyday math, these spaces serve STEM street design programs.</p>

## Appendix S:

# Traffic Garden Potential Activities & Programs Ideas

*Traffic garden activities and programs by age and skill for school-based traffic gardens*

Traffic Garden Type	Potential Program Setup				
Traffic garden (school-based)	Integrated into school PE and physical activities, classroom learning, and after-school activities.				
Suggested Activity	PK	ES	MS/ HS	Adult	Learning
Free play on balance bikes, two-wheel pedal bicycles, and/or scooters during recess or before/after school	X	X			skill building, physical activity, imaginative play
PE biking curriculum and units (multiple grade levels)	X	X	X		skill building, physical activity, roadway safety
Disability-modified bicycling programs (multiple grade levels)	X	X	X		skill building, physical activity
Challenge circuits (bicycling loops, crosswalk hopping, slow bike race)	X	X	X		physical activity, imaginative play, community building
PK classroom curriculum + safety lessons	X				physical activity, roadway safety, imaginative play
Personal safety lessons, including strangers and harassment	X	X	X		physical activity, roadway safety
After-school Bike Club (maintenance lessons, final ride, and certificate)		X	X		physical activity, roadway safety
Outdoor STEM lessons (math & measuring streets/alternative routes)	X	X	X		physical activity, roadway safety, imaginative play
Box City Building/STEM events and challenges	X	X	X		physical activity, roadway safety, imaginative play
Bling Your Bike/Walk Day (reflective crafts, etc.)	X	X			skill building, physical activity, roadway safety
PE teachers, SRTS coordinators, and biking organization community educators typically deliver programs. Additional potential for programming by PK teachers, classroom teachers, and STEM specialists.					
Key: Preschool = PK; Elementary School (ages 5-11) = ES; Middle School (12-14) = MS; High School (14-18) = HS					



## Appendix S: Traffic Garden Potential Activities & Program Ideas

*Traffic garden activities and programs by age and skill for non-school site traffic gardens*

Traffic Garden Type	Program Setup				
Traffic garden (non-school site)	Programming varies widely and may be coordinated through Parks and Recreation (or similar). The location may be available to host non-profit bicycling or other civic organizations holding biking instruction programs and community events.				
Activity	PK	ES	MS/ HS	Adult	Learning
Free play on bikes and scooters	X	X			skill building, physical activity, imaginative play
Bike rodeo events	X	X			skill building, physical activity, roadway safety
Host Walk or Bike to School Day events	X	X	X		physical activity, imaginative play, community building
Bike Club (maintenance lessons, final ride, and certificate)		X	X		physical activity, roadway safety
Community summer camp programs	X	X	X		skill building, physical activity, roadway safety, imaginative play
Informal biking lessons by families and local biking instructors	X	X	X	X	skill building, physical activity, roadway safety
Adult biking lessons and skills classes				X	skill building, physical activity, roadway safety
Modified disability biking programs (blind, mobility impaired)	X	X	X	X	skill building, physical activity, roadway safety
SRTS coordinators and biking organizations/community educators typically deliver programs. Additional potential for programming by STEM educators, scouting organizations, and other civic groups.					
Key: Preschool = PK; Elementary School (ages 5-11) = ES; Middle School (12-14) = MS; High School (14-18) = HS					

## Appendix T:

# Traffic Sign Criteria & Considerations

Traffic Sign Element	Criteria	Considerations
Fixed signs	<ul style="list-style-type: none"> <li><input type="checkbox"/> sign head = 12" wide (approx.)</li> <li><input type="checkbox"/> signpost = 44" - 48" high</li> <li><input type="checkbox"/> use standard MUTCD style and colors for sign head</li> <li><input type="checkbox"/> where adult learners will be using the site regularly, consider larger sign heads and higher posts</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> The sign may need professional installation to ensure appropriate anchoring.</li> <li><input type="checkbox"/> Consider the safety aspect and location when signs are fixed.</li> <li><input type="checkbox"/> Anchoring eliminates flexibility in moving signs around the site.</li> <li><input type="checkbox"/> File any metal sign edges, so they are smooth, and add a bead of silicon.</li> <li><input type="checkbox"/> A sign can be crafted from a range of durable, lightweight materials suitable for use outdoors.</li> <li><input type="checkbox"/> Ensure no protruding bolts.</li> </ul>
Portable signs	<ul style="list-style-type: none"> <li><input type="checkbox"/> sign head = 12" wide (approx.)</li> <li><input type="checkbox"/> signpost = up to 48" high</li> <li><input type="checkbox"/> sign base = 15 to 25 lbs.</li> <li><input type="checkbox"/> use standard design, style, and colors for sign head</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Many commercial products are available at a range of price points and quality.</li> <li><input type="checkbox"/> The sign may fall over if insufficiently weighted. Additional weights can be added to a base.</li> <li><input type="checkbox"/> Heavier bases can be challenging to move around.</li> <li><input type="checkbox"/> May need onsite storage and a handcart if portable signs cannot be left on the street layout.</li> <li><input type="checkbox"/> Onsite storage may limit access and use.</li> <li><input type="checkbox"/> File any metal sign edges, so they are smooth, and add a bead of silicon.</li> <li><input type="checkbox"/> Signs can be crafted from a range of durable, lightweight materials suitable for use outdoors.</li> <li><input type="checkbox"/> Ensure no protruding bolts.</li> </ul>

## Appendix T: Traffic Sign Criteria & Considerations

Traffic Sign Element	Criteria	Considerations
Surface-applied signs (painted or stenciled)	<ul style="list-style-type: none"> <li>□ size to fit available space next to the roadway (12" to 16" width)</li> <li>□ use stencils that follow standard sign head format</li> <li>□ use standard design, style, and colors when representing signs</li> </ul>	<ul style="list-style-type: none"> <li>□ Signs can be stenciled on the surface during striping installation.</li> <li>□ "Stop" and "Yield" sign stencils may need to be custom-made.</li> <li>□ Ensure that the stenciled sign does not conflict with pedestrian crossings.</li> <li>□ The use of surface-applied signs eliminates safety or security concerns.</li> <li>□ Surface-applied signs may be harder to see and follow, providing less of a "real-world" lesson.</li> </ul>
Combination of portable and surface-applied signs	<ul style="list-style-type: none"> <li>□ see above criteria</li> </ul>	<ul style="list-style-type: none"> <li>□ A combination may make it possible to sign intersections for the public during off hours while portable signs are stored.</li> <li>□ Onsite storage creates the need for arranging access and coordination.</li> <li>□ A combination creates a hybrid appearance.</li> </ul>
Traffic signals	<ul style="list-style-type: none"> <li>□ limited available options, so criteria driven by availability</li> </ul>	<ul style="list-style-type: none"> <li>□ Options include scaled-down portable traffic signals with battery packs, donated traffic signals, or custom-crafted non-operational signals.</li> <li>□ Possible safety issue if signals are fixed rigid and metal objects.</li> <li>□ Operating signals require a power source that needs maintenance.</li> </ul>

## Appendix U:

### Other Traffic Garden Equipment

Equipment Element	Criteria	Considerations
Storage	<ul style="list-style-type: none"> <li><input type="checkbox"/> sized depending on storage needs (for example, bicycles and associated gear, portable signs)</li> <li><input type="checkbox"/> lockable but readily accessible</li> <li><input type="checkbox"/> room to maneuver internally so multiple people can store and remove items simultaneously</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> There are many commercially available options at a wide range of price points.</li> <li><input type="checkbox"/> Storage may need professional installation.</li> <li><input type="checkbox"/> Storage is usually locked, so arrangements must be made for access.</li> <li><input type="checkbox"/> Consider adding a sign identifying storage.</li> <li><input type="checkbox"/> Include a sign on the exterior or interior letting people know who to contact for maintenance requests.</li> </ul>
Shelter	<ul style="list-style-type: none"> <li><input type="checkbox"/> sized depending on shelter coverage needs (for example, balance bicycles, helmets)</li> <li><input type="checkbox"/> designed to keep equipment orderly and attractive</li> <li><input type="checkbox"/> designed so that children can readily take equipment in and out</li> <li><input type="checkbox"/> provisions to allow the use of cable lock system</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> A shelter may need to be custom-made for the site and site needs.</li> <li><input type="checkbox"/> A shelter allows bicycle fleets to stay outside temporarily without having to be put in storage between classes or lessons.</li> <li><input type="checkbox"/> Include racks or hooks so bikes can be kept orderly.</li> </ul>
Bike parking	<ul style="list-style-type: none"> <li><input type="checkbox"/> size to fit available space near where families will be observing activities</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Racks are intended for short-term parking.</li> <li><input type="checkbox"/> Refer to APBP Bicycle Parking Guidelines for guidance.</li> </ul>

## Appendix U: Other Traffic Garden Equipment

Equipment Element	Criteria	Considerations
Challenge ramps	<ul style="list-style-type: none"> <li><input type="checkbox"/> keep low for balance bike riders (8" maximum height)</li> <li><input type="checkbox"/> paint in light colors so that ramps are visible against the surface</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Portable options are available.</li> <li><input type="checkbox"/> Consider traffic speed bumps that can be affixed to asphalt.</li> <li><input type="checkbox"/> Ramps can be molded on the surface using asphalt.</li> </ul>
Information signs	<ul style="list-style-type: none"> <li><input type="checkbox"/> readable by the general public in an accessible location</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Signs typically provide basic rules and safety information.</li> <li><input type="checkbox"/> Signs may also describe how to use the traffic garden.</li> <li><input type="checkbox"/> QR codes can link to online information (safety or instructional videos).</li> <li><input type="checkbox"/> Check whether additional permissions or zoning approvals are required to add a new sign.</li> </ul>



## Appendix V:

### Traffic Garden Products & Services

A handful of firms in the U.S. specialize in products for equipping traffic gardens. However, most of the products needed to install and equip a traffic garden are widely available through other sources.

Company & Web Address	Notes
<b>Traffic Garden Specialists</b> These businesses sell products specifically aimed at traffic gardens.	
Scale Products Company <a href="http://TrainSignals.com">TrainSignals.com</a>	<ul style="list-style-type: none"> <li>Scale Products Company specializes in high-quality scaled equipment for traffic gardens. They provide custom-manufactured signs and operating traffic signals as well as small-scale buildings.</li> <li>Safety Town on Wheels is a mobile kit assembled by Scale Products Companies. The towable enclosed trailer includes an entire portable town kit and is designed to be easily and quickly set up and taken down by two people.</li> </ul>
<b>Traffic Safety Suppliers</b> Some construction or highway products are useful in traffic gardens. Many sites sell these products, with several representative sources listed.	
Traffic Safety Store <a href="http://TrafficSafetyStore.com">TrafficSafetyStore.com</a>	This site features commercial-grade traffic supplies, including: <ul style="list-style-type: none"> <li>roll-up portable stop signs</li> <li>recycled rubber speed bumps (range of prices)</li> <li>cone sign toppers</li> </ul>
Traffic Safety Supplies <a href="http://tssincva.com">tssincva.com</a>	This site features commercial-grade traffic supplies, including: <ul style="list-style-type: none"> <li>pavement marking supplies (equipment and paints)</li> <li>portable traffic signs</li> </ul>
Traffic Safety Warehouse <a href="http://TrafficSafetyWarehouse.com">TrafficSafetyWarehouse.com</a>	This site features commercial-grade traffic supplies, including: <ul style="list-style-type: none"> <li>pavement marking &amp; striping supplies</li> <li>portable traffic signs</li> <li>roll-up signs plus fold-up bases</li> <li>speed bumps</li> </ul>

## Appendix V: Traffic Garden Products & Services

Company & Web Address	Notes
<b>Industrial Suppliers</b> These are general products aimed at the industrial market. There are many suppliers of these products, with several representative sources listed.	
Uline <a href="http://Uline.com">Uline.com</a>	This site features a comprehensive array of commercial-grade packaging and supplies for industry, including: <ul style="list-style-type: none"> <li>▪ roll-up signs</li> <li>▪ traffic posts</li> <li>▪ portable bases for signs</li> <li>▪ speed bumps</li> <li>▪ parking lot stencils ("Stop," "Yield," arrows)</li> </ul>
Home Depot <a href="http://HomeDepot.com">HomeDepot.com</a>	This site features commercial-grade supplies, including: <ul style="list-style-type: none"> <li>▪ traffic cones</li> <li>▪ delineator posts</li> <li>▪ traffic barricades</li> <li>▪ pavement marking and striping supplies</li> <li>▪ spray chalks</li> </ul>
<b>Parking Lot Suppliers</b> Many products aimed at commercial parking lot operations also have applications in traffic gardens.	
My Parking Sign <a href="http://MyParkingSign.com">MyParkingSign.com</a>	This site features signs, including: <ul style="list-style-type: none"> <li>▪ wide range of portable signs and bases at many cost points, sizes, and weights</li> <li>▪ weighted sign bases (including types with small wheels)</li> <li>▪ custom sign options are also available</li> </ul>
Magic Master <a href="http://MagicMaster.com">MagicMaster.com</a>	This site features: <ul style="list-style-type: none"> <li>▪ range of portable signs and bases at many cost points, sizes, and weights</li> <li>▪ weighted sign bases (including versions with wheels)</li> </ul>
1800Stencil <a href="http://1800Stencil.com">1800Stencil.com</a>	This site includes: <ul style="list-style-type: none"> <li>▪ professional-grade roadway sign, word, arrow, and symbol stencils in a range of sizes</li> </ul>

## Appendix V: Traffic Garden Products & Services

Company & Web Address	Notes
<b>School Commercial Suppliers</b> Specialty sites aimed at the school market; sells play equipment and educational materials suitable for use in traffic gardens.	
Noah's Park & Playground <a href="http://NoahsPlay.com">NoahsPlay.com</a>	This preschool supply site includes commercial-grade play equipment, including:: <ul style="list-style-type: none"> <li>▪ portable roadway sign sets</li> <li>▪ trike path kits (options: \$4,258-\$12,741)</li> <li>▪ bike storage/general store: \$3,903</li> </ul>
Kaplan <a href="http://KaplanCo.com">KaplanCo.com</a>	This preschool supply site includes commercial-grade play equipment, including:: <ul style="list-style-type: none"> <li>▪ traffic sign kits (\$105/9 signs)</li> <li>▪ village traffic signs set (\$241/4 signs + signal)</li> </ul>
Guidetime <a href="http://GuideCraft.com">GuideCraft.com</a>	This preschool supply site includes a set of portable signs:: <ul style="list-style-type: none"> <li>▪ drivetime signs Kit: \$75/ signs</li> </ul>
<b>Surface Application Products</b> High-quality commercial-grade products are suitable for asphalt and with special attributes.	
SealMaster <a href="http://SealMaster.net">SealMaster.net</a>	This manufacturer sells surface products, including:: <ul style="list-style-type: none"> <li>▪ asphalt seal coating</li> <li>▪ colored pavement products are typically used on courts of different types</li> <li>▪ The site features a seal coat quantity calculator. Representatives can provide information about local professional applicators.</li> </ul>
Traffic Striping Paint	Many manufacturers and available products can be purchased at local hardware supply stores or specialty traffic supply stores. Some manufacturers have familiar names (for example, Rustoleum) and many less familiar brands with products aimed at the traffic and parking striping industry.

# Sample Ribbon-Cutting Planning & Checklist

*Ribbon-cutting event worksheet*

Ribbon-Cutting Date:
Event Start/End Time:
Setup Time:
Site Address:
Site Contact Name/Information:

## **In advance**

- ☐ Plan speeches by dignitaries and team members.
- ☐ Invite media to interview guests and record footage.
- ☐ Remind people if they need ID to sign in at school.
- ☐ Coordinate and select the date and event with partners.
- ☐ Visit the space + confirm the accessibility.
- ☐ Secure space + date.
- ☐ Alert key people about the date.
- ☐ Assign roles and secure helpers.
- ☐ Make arrangements for chairs, tables, and a podium.
- ☐ Plan and order refreshments.
- ☐ Prepare an On-the-Day plan.
- ☐ Invite honorary speakers and prepare a speaking order.
- ☐ Prepare an invite with all information and send it via Evite or similar.
- ☐ Prepare a press release and send advance media information.
- ☐ Arrange for photos and filming.

## Appendix W: Sample Ribbon-Cutting Planning & Checklist

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### **On the day**

- ☐ Unload supplies and set up the area.
- ☐ Arrange chairs, podium, and ribbon next to the traffic garden.
- ☐ Set up equipment, materials, and signs.
- ☐ Set up refreshments and paper products.
- ☐ Put out signs directing guests to the site.
- ☐ Suggest kids and others bicycle into the newly launched traffic garden.
- ☐ Offer refreshments and socialize upon arrival.
- ☐ Welcome honorary speakers and let them know what's planned.
- ☐ Hold speeches and give awards.
- ☐ Invite representatives to stand behind the ribbon and take photos.
- ☐ Gather the group behind the ribbon for the official photo.
- ☐ Cut the ribbon in a group with big scissors.
- ☐ Invite attendees to visit the traffic garden.

### **After the event**

- ☐ Send out press immediately after the end of the event.
- ☐ Thank all involved, including hosting partners.
- ☐ Circulate photos and news articles.

### **Enhancing the occasion**

- ☐ Make a commemorative program.
- ☐ Have bicycle badges available for speakers and guests to wear.
- ☐ Order custom traffic sign cookies.



## *Appendix X:*

### **Sample STEM Activity Sheets**

Children are creative thinkers, so asking them how they would design a traffic garden will provide many ideas and suggestions. A traffic garden design charrette can be a fun addition to church events, health fairs, local libraries, food distributions, back-to-school nights, STEM or science fairs, local festivals, or farmer's markets. Below are some materials that will need to host a traffic garden design event, including:

- ☐ traffic garden design brief
- ☐ traffic garden layouts
- ☐ traffic garden street cutouts
- ☐ traffic garden observation notebook and pledge
- ☐ blank letter template (for writing to City Hall or Public Works Department)

Sample activity sheet materials are provided on the following pages.

# Traffic Garden DESIGN

## The Design Problem:

- There is an empty asphalt court next to the playground
- Need space to learn to ride bikes away from cars
- Useful to have a place to learn street safety
- How do you get to the traffic garden with your bike?
- How do you make it fun for lots of ages?

## Materials:

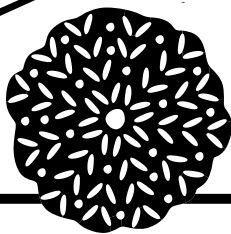
- Streets, intersections, pedestrian crossings, signs
- Site Drawing + glue sticks + Markers

## Deliverable:

**Traffic Garden Design:** A detailed design drawing of a miniature set of streets where kids can have fun riding bikes while also learning about street safety



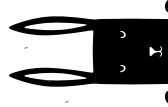
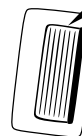
playground



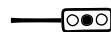
path to trail



bench



DIY Traffic Garden

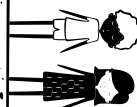


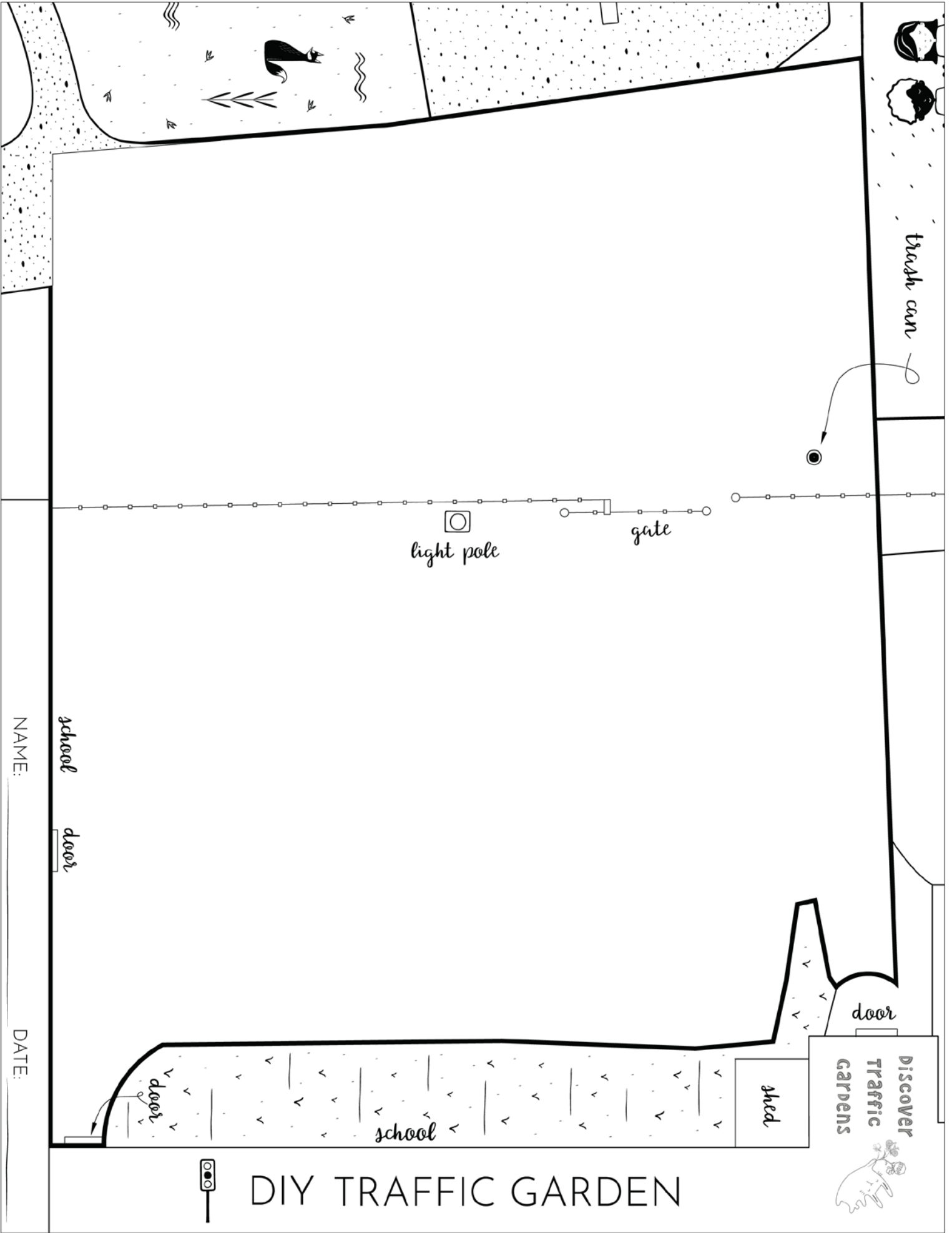
sidewalk

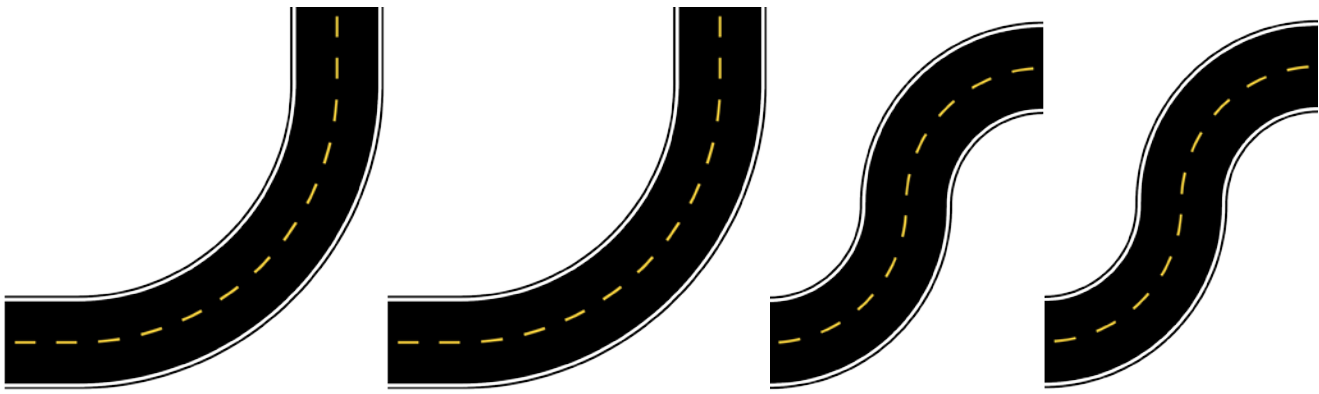
trash can



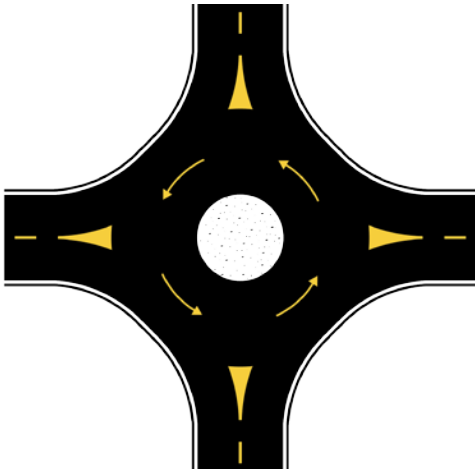
Discover  
Traffic  
Gardens



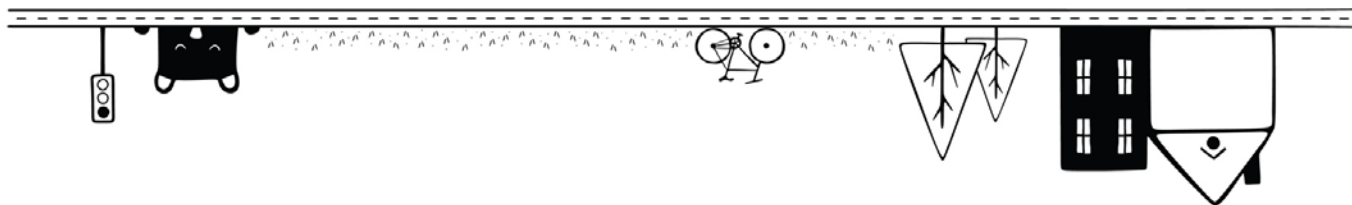




Discover  
Traffic  
gardens







CAN YOU DRAW A MAP OF YOUR FAVORITE NEIGHBORHOOD?

TRAFFIC GARDEN

# designers pledge

I WILL DESIGN  
SO THAT **ALL PEOPLE** CAN  
WALK + BICYCLE + SCOOT  
SAFELY ALONG OR NEXT  
TO THE SIDEWALK  
OR CROSSING THE STREET



VISIT US at [TRAFFICGARDENS.COM](http://TRAFFICGARDENS.COM)



LIFETIME MEMBERSHIP

traffic garden designer

NAME: \_\_\_\_\_



LIFETIME MEMBERSHIP

traffic garden designer

NAME: \_\_\_\_\_



LIFETIME MEMBERSHIP

traffic garden designer

NAME: \_\_\_\_\_



LIFETIME MEMBERSHIP

traffic garden designer

NAME: \_\_\_\_\_



LIFETIME MEMBERSHIP

traffic garden designer

NAME: \_\_\_\_\_



LIFETIME MEMBERSHIP

traffic garden designer

NAME: \_\_\_\_\_



LIFETIME MEMBERSHIP

traffic garden designer

NAME: \_\_\_\_\_



LIFETIME MEMBERSHIP

traffic garden designer

NAME: \_\_\_\_\_





Dear \_\_\_\_\_

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Your friend,

\_\_\_\_\_



