



GREEN ALLEY & CONNECTED RESILIENT STREETS TOOLBOX

**Texas State Summer Study Abroad
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INTRODUCTION

This guide blends the insights and experiences from a two-week field study conducted in London, UK and Amsterdam, NL in the summer of 2025. Our research team was composed of students from Texas State University and the University of Westminster in London. In London, we collaborated with the JUST streets team and analyzed Vision Zero efforts across multiple boroughs, with particular attention to the School Streets initiative at St. Mark's Primary School in Lambeth. In Amsterdam, we examined the Plantage Middenlaan near Wertheimpark, observed shared street designs in the Rijnburrt Neighborhood, and experienced in Utrecht, NL how urban design can shift focus from vehicle efficiency to a more human centered approach while simultaneously addressing public health and climate resilience.

To analyze streets, students used the Street Interview Tool (SIT) and the Resilient Streets Asset Mapping Checklists created by Dr. Fields. "Interviewing" the street with the SIT document was used to capture a glimpse into what being on the street felt like and was helpful when determining the function and dominant use of the street. The Resilient Streets Asset Mapping Checklist was used to mark 'yes' or 'no' for design features related to green/blue infrastructure and Vision Zero elements, with additional space provided to record notes and other observed features.

The student team was tasked with synthesizing the results of the trip to help inform the development of more resilient street practices back at home in San Marcos, Texas. The objective was to support local planners and policymakers in reimagining public streets as spaces that prioritize safety, sustainability, and inclusivity by applying these international tested strategies.

The central thesis from this research is that San Marcos can become a more resilient, livable city by combining two key strategies, adapting the Vision Zero's safe system approach and adding more green infrastructure designs. Developing a people-centered street design and more nature-based solutions, San Marcos can help prevent traffic fatalities, mitigate urban heat, manage flood risks, and create a healthier environment for our beautiful community.

Students selected examples of resilient streets in London and Amsterdam and Central Texas for this guide and provided text for the document. The report includes a brief background on resilient places and streets, details of the student activities in London and Amsterdam, and a selection of resilient street examples from London, Amsterdam, and selected Central Texas locations.

BACKGROUND:

CORE FEATURES OF RESILIENT PLACES AND STREETS

Resilient streets combine two key characteristics: green/ blue infrastructure and safe systems design (Vision Zero) to achieve resilience from climate change and safety for all road users (Fields and Renne 2021). Green and blue infrastructure refers to a network of natural areas and open spaces that act as “urban sponges” managing heat and water while also providing public amenities (Fields and Renne 2021). Resilient streets prioritize improving sustainability, connectivity, and safety. When both characteristics are met, people are better able to get around safely, and places are more resilient to withstand climate change. Resilient streets achieve the idea of “bouncing forward,” meaning that instead of maintaining the status quo or returning to the same conditions after a major climate event, they aim to improve conditions by focusing on changing weaknesses existing in the current car-centered design (Fields & Renne, 2021, p. 14).

Additionally, resilient spaces serve as public amenities and corridors. Streets and parking account for up to 50% of urban space, meaning that half of a city’s land use is dedicated to moving cars (Fields & Renne, 2021, p. xvii). Reclaiming land from cars can open space for public use. For example, in the Borough of Lambeth in London, the district's Kerbside Policy aims to reclaim 25% of the curbside to resilient, sustainable uses (Lambeth Council, 2023, p. 3). Reclaiming this space to the public over cars offers an efficient way to serve community members.

Green infrastructure describes features that use vegetation to achieve climate resiliency. Elements like adjacent parks, greenery in medians, bioswales, planter boxes, and street trees are all examples of green infrastructure. Blue infrastructure focuses on water management and includes water squares, canals, and adjacent water features. Together, green and blue infrastructure manage heat and water, making streets and spaces more resilient to climate events.

Vision Zero, a movement that began in Sweden, describes the safety and accessibility aspect of resilient streets. Core to the movement is the understanding that traffic-related fatalities are preventable rather than unavoidable accidents (Foxy & Shahum, 2018, p. 1). Rather than focusing exclusively on changing human behavior, Vision Zero takes a systematic approach to safety by modifying physical conditions, such as installing curb bulb-outs, protected bike lanes, traffic trees, planter boxes, etc.

Design choices for Vision Zero make streets resilient by increasing safety and access for people of all ages and abilities. Another strategy for success is lowering vehicle speeds. Places that have adopted Vision Zero principles understand the concept of “crash physics,” which shows that lower speeds result in lower fatality rates (Fields and Renne 2021). At 40 mph, a person has a 30% chance of surviving, but at 30 mph, the likelihood of survival increases to 80%. Vision Zero approaches speed by having low speeds for neighborhood streets where many modes of travel are integrated and having higher speeds in areas where modes of transit are separated. Beyond safety, Vision Zero designs also contribute to a more enjoyable street by mitigating noise, encouraging active travel, and decreasing air pollution.

Resilient practices require bold interventions. Changes to a car-dominant system demand radical solutions to how we approach mobility and urban space but can be implemented incrementally to achieve more just outcomes by involving the community and allowing people to transition to alternative modes of mobility. By implementing Vision Zero practices and green/ blue infrastructure, we can begin to incrementally improve the resiliency of our streets.

LONDON AND AMSTERDAM PROJECT OVERVIEWS

In London, we collaborated with students from the University of Westminster and worked with them to examine 3 project areas funded through the EU-funded Just Streets project. The Just Streets project connects cities across Europe together to help pilot safer, more just street environments. The University of Westminster Just Streets program is lead by Dr. Enrica Papa and Dr. Sabina Ciaboata. They coordinate with cities across Europe and help to guide coordination with the London projects. The University of Westminster students' backgrounds ranged in education and work experience, which was valuable when working on the project.

Our objective was to look at three different areas in London (Camden, Lower Marsh, and Lambeth) and then determine ways the streets could be redesigned and governed to deliver just, healthy, inclusive spaces for all. In Lambeth, for example, students identified current conditions and purpose of the street. They examined a tactical urbanism project that had installed planter boxes and street furniture to partially close a street to car traffic and enhance safety for nearby primary school.

The Camden Team used the Healthy Streets framework to research the conditions of the street. The Team focused on designs to improve justice, health, and inclusivity and the potential for community engagement to empower the community to improve the area. The Lambeth School Street achieved goals of safety and health by decreasing carbon emissions in the area and limiting interactions with pedestrians and cars. It also increased interaction with the space by adding colorful planter boxes and furniture.

The Texas State students continued their work in Amsterdam. Here we worked with Dr. Jonne Silonsaari from the University of Amsterdam on their interpretation of Just Streets program. The Texas State students were split into four groups to produce a video showcasing one of three topics: compilation of resilient streets in London and Amsterdam, overview of Just Streets in Amsterdam, and importance of School Streets.

The school streets team, for example, aimed to communicate the value of small, incremental changes, success and importance of school streets with the goal of inspiring school street projects in Texas. The team compiled video and photo examples across Amsterdam and included examples from London and Texas. They used the SIT and Resilient Streets Asset Mapping Checklist to analyze the streets and collect data. The message of the video ultimately showed that through community action and policy support, streets can be transformed.

In addition to the project work in London and Amsterdam, students were asked to identify their favorite examples of green streets and alleys from the trip. The table below lists the many different forms a resilient street can take. The table combines elements of green/ blue infrastructure and Vision Zero to distinguish various types of streets. Dr. Fields provided the table, and we were asked to identify project examples. The table shows differing examples based on the intensity of the street from local streets to arterials to even highways. The examples below were intentionally selected by students to help provide inspiration for San Marcos resilient street and alley transformations.

GREEN ALLEYS AND CONNECTED RESILIENT STREETS TYPOLOGIES OVERVIEW

GREEN LOCAL STREETS: TYPOLOGIES AND LOCATIONS

Pedestrian Streets

- Lower Marsh, Waterloo, London, GB
- Houthaven, Amsterdam, NL
- Funenpark, Amsterdam, NL
- N Gower Street, London, GB
- Sint Nicolaasstraat, Amsterdam, NL
- Dirk van Hasseltssteeg Alley, Amsterdam, NL
- Buiten Bantamerstraat, Amsterdam, NL
- Amsterdam Centrum, NL

Shared green streets

- Plantage Middenlaan, Amsterdam, NL

Greenway corridors & bicycle streets

- Plantage Middenlaan, Amsterdam, NL
- Czaar Peterbuurt, Amsterdam, NL

Pedestrian medians/ ramblas

- Aldrich Street Paseo, Mueller, Austin, TX

Integrated plazas & tiny streets

- Hercules Road, Lambeth, London, GB

Market/ festival streets

- Lower Marsh, Waterloo, London, GB

Green buffered/ green façade streets

- Frans Halstraat, De Pijp, Amsterdam, NL
- Hercules Road, Lambeth, GB
- Visschersteeg Utrecht, NL
- Manor Road, Austin, TX

School streets/ play streets

- Hemonystraat, Amsterdam, NL
- Kennington Oval, Lambeth, GB

Water boulevard/ water square

- CM Allen Parkway, San Marcos, TX

LOWER MARSH, WATERLOO, LONDON, GB



TPOLOGY

Pedestrian Streets, Market Street

DESCRIPTION

This road becomes a pedestrian-only zone during the daytime. The street is filled with planter bollards (you can even see one being moved in the photo), artwork, and a textured roadway, making it an inviting place to explore.

RESILIENT PLACE BENEFITS

- Pedestrian safety improves when vehicle traffic is reduced
- Local businesses attract more customers through welcoming spaces
- Community identity grows stronger through placemaking features

APPLICATION CONSIDERATIONS

- Planter bollards and public art need regular maintenance
- Drivers must understand pedestrian-only times; clear signage and moveable diverters are needed
- Local businesses and residents should be involved in planning and decision-making

HOUTHAVENS, AMSTERDAM, NL



TPOLOGY

Green Alley/Pedestrian Street

DESCRIPTION

City's first climate-neutral district. Former timber harbor is now a zone with residential areas with homes, facilities, and commercial spaces focused on sustainability.

RESILIENT PLACE BENEFITS

- 100% climate neutral with a main focus on sustainability and aiding the environment. Includes daycare centers, restaurants and home.
- Many of the roads are car-free and are focused on pedestrians and providing safe places for residents.
- The area also has numerous parks and canals that add to both green and blue infrastructure.

APPLICATION CONSIDERATIONS

- Building homes on the canals presents architectural challenges and issues with sea level rise
- Affordable housing is an issue as the percent of social housing included in the project was decreased from the original goal

PLANTAGE MIDDENLAAN, AMSTERDAM, NL



TPOLOGY

Green Connectors & Arterials: Transit/train Streets, Pedestrian medians

DESCRIPTION

This street near Werthimpark reimagines the traditional roadway as a low-speed space designed for people, not cars. It combines pedestrian and bike access, public transit, and visible green infrastructure features like permeable surfaces. This layout prioritizes accessibility, climate resilience and safety all in one unified street design.

RESILIENT PLACE BENEFITS

- Supports the Vision Zero goals through shared surface, low speeds, and mixed-use
- access.
- It encourages walking, biking and transit and has place features like benches, shade, and even a dog park.
- Promotes green infrastructure and integration of transit showing how climate mitigation and adaptation can work together.

APPLICATION CONSIDERATIONS

- It would be beneficial in areas where low-speed, mixed street designs would work well like in downtown areas.
- Green infrastructure elements must be maintained for long-term sustainability.

FRANS HALSTRAAT, DE PIJP, AMSTERDAM, NL



TPOLOGY

Green Buffered Street

DESCRIPTION

This project transformed a typical street with on-street parking into a forested buffer with shared space intersections and art installations.

RESILIENT PLACE BENEFITS

- The trees and foliage provided shade and reduced the heat stress of the area.
- The narrowed streets and increase of peripheral objects through tree plantings slow vehicles. The shared space structure of the intersections reinforced this.
- The planting areas double as space for embedded cultural & art installations that add amenity value and make the space more enjoyable to walk in.

APPLICATION CONSIDERATIONS

- This style of shared space intersection with trees and planter space may be useful in slowing drivers.
- The differing material textures of the pavement may also be applicable for these crossings to improve accessibility and create a safer walking environment.
- The parking spaces for deliveries and accessibility are an important tool to build political acceptance of the changes.

HEMONYSTRAAT, AMSTERDAM, NL



TYPOLOGY

School Street/ Play Street

DESCRIPTION

The street is split into 2 parts with one side being a playground space that is separated from the slow, traffic-calmed street by a fence and shrubs.

RESILIENT PLACE BENEFITS

- Undulating speed bumps slow cyclists and cars (“School” is also written on the street to designate the area)
- Low speed limits and traffic-calming help to slow speeds throughout the entire day and not just during school hours
- The green shrubbery acts as a type of median between the playground and traffic-calmed street segment
- Brick pavers communicate slow speeds and could be made permeable as well
- Green shrubbery and street trees provide shade and mitigate heat

APPLICATION CONSIDERATIONS

- Adding design features like undulating speed bumps, brick pavers, and narrow lanes communicate to users of the street is a slow speed, school street.
- The protected playground acts as a median and invites interaction with the street which promotes safety. Playgrounds near schools and streets that are slow speed can be more prevalent with design features that prompt slow speeds. The fence and green shrubs act as an important tool to prevent kids from running into car traffic.

CZAAR PETERBUURT, AMSTERDAM, NL



TPOLOGY

Bicycle/School streets

DESCRIPTION

This street is near a school street in a residential area. The street accommodates bikes, pedestrians, and delivery vehicles

RESILIENT PLACE BENEFITS

- Limited car parking for deliveries allows local use but creates a safe place for walking and biking to school
- Greenery lining the street adds public amenity and shade and helps neighbors interact in little front garden-like areas

APPLICATION CONSIDERATIONS

- Different material and colors for the street and sidewalk can be applied for alleyways and connecting streets to communicate uses of the street.
- In areas with heavy foot traffic, curb extensions can be added to improve interactions between pedestrians and cyclists.

KENNINGTON OVAL, LAMBETH, GB



TYPOLOGY

School Street/ Play Street

DESCRIPTION

Street previously allowed through car traffic and has been converted to a school street through tactical urban interventions like planter boxes, colorful paint, and play spaces. Car traffic is not permitted on some sections but allowed in other areas at slow speeds. Space is also part of a local cycle network which causes some tension between user groups.

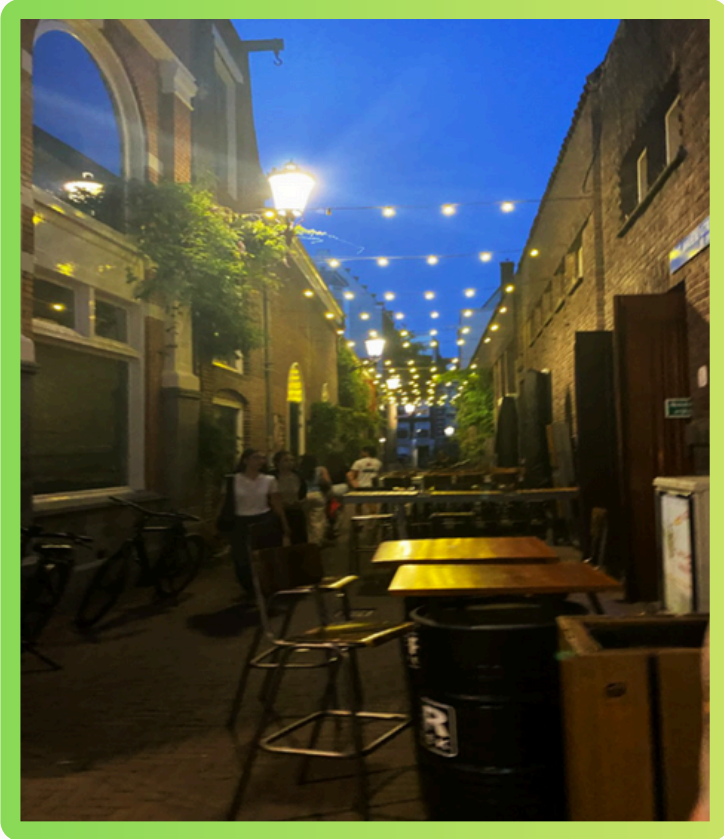
RESILIENT PLACE BENEFITS

- Elements of play like street paint, ping pong table, and street logs make the space more engaging and attractive to pedestrians
- Planter boxes and street furniture along street communicates low speed
- Street closure lessens chances of cyclist or pedestrian collision with cars

APPLICATION CONSIDERATIONS

- Playful elements and tactical interventions can be made to slow drivers and encourage pedestrians to utilize the street.
- Street closures around schools make them safer by eliminating potential collision but may be politically challenging in heavily car- dependent areas.
- Rerouting the bicycle network onto adjacent traffic-calmed streets could help to mitigate user group issues.

SINT BARBERENSTRAAT, AMSTERDAM, NL



TPOLOGY

Pedestrian Street

DESCRIPTION

This pedestrian alleyway in central Amsterdam swaps between a shared street for mobility and a lively social space with retractable tables.

RESILIENT PLACE BENEFITS

- The newly installed hanging greenery and greenwalls add amenity value and help cool the street.
- The brick pavement slows bikes and vehicles using the space.

APPLICATION CONSIDERATIONS

- The folding tables attached to the walls of the adjacent pub accommodated the nightlife on the alleyway, while retaining mobility purposes during the daytime and slow hours. This may be applicable in quieter areas and spots of alleyways without heavy foot traffic.

HERCULES ROAD, LAMBETH, GB



TPOLOGY

Integrated Plaza

DESCRIPTION

Green spaces have been added throughout Hercules Road as apart of Lambeth's Kerbside Strategy to make 25% of the curbside uses more sustainable. This slows cars, adds public space, and adds green space to deal with water/heat issues.

RESILIENT PLACE BENEFITS

- Added greenery and seating serve as a public amenity and water absorption
- Replacing curbside use from parking to greenery makes safer, more lively neighborhoods
- Curb extensions signal drivers to drive at lower speeds

APPLICATION CONSIDERATIONS

- Increasing gardens and greenery along streets and in curbs can combat heat, absorb water, and provide public space.
- Reclaiming street parking spaces for sustainable uses, especially in downtown areas, can create more productive public spaces.
- In high-speed areas that should be slower, design changes like extended green curbs can communicate to drivers to drive slower.

FUNENPARK, AMSTERDAM, NL



TPOLOGY

Pedestrian Street

DESCRIPTION

This is in the Funenpark neighborhood. It has a car-free center space with greenery and linked alleys that provide connections for walking and biking. The area feels like a neighborhood in a park.

RESILIENT PLACE BENEFITS

- The lack of cars offered safety for kids to play in the open space, trees to be planted, pedestrians and cyclists to move easily and no noise pollution.

APPLICATION CONSIDERATIONS

- Car-free community spaces could be integrated in San Marcos to extend the campus-like setting into the center of the city.
- There is potential to repurpose parking lots into linked green spaces that act as safe avenues for walking and biking to campus and around downtown. The alley system could help to create a type of green spine through downtown.

N GOWER STREET, LONDON, GB



TPOLOGY

Pedestrian Street

DESCRIPTION

This alley is a small cut-off between main road segments and is only open to pedestrians and cyclists. There are movable bollards for emergency vehicles.

RESILIENT PLACE BENEFITS

- Street trees provide shade and mitigate heat stress
- Alley is wide enough to accommodate micro-mobility users, pedestrians, and emergency vehicles if necessary
- Permeable pavement helps absorb and retain water

APPLICATION CONSIDERATIONS

- Lining alleyways with trees can provide heat mitigation and beautification to areas.
- Pedestrianizing alleyways promotes walkability and works well here because of the old street network. This is like a small eddy in the larger system.
- Having permeable pavement in corridors with limited vehicle access can maintain the health of groundwater systems by lessening the amount of vehicle related substances infiltrating the ground.

CLAYLANDS ROAD, LAMBETH, LONDON, GB



TPOLOGY

Shared green streets

DESCRIPTION

This intersection was transformed from a 4-way thoroughfare, into a speed table with shared space and curb bulb-outs planting space.

RESILIENT PLACE BENEFITS

- The newly planted trees provide amenity value and in the long term can help reduce heat stress and improve air quality in the vicinity.
- The speed table decreases car speeds while elevating pedestrians, making it easier for pedestrians to cross.
- The curb bulb-outs increase space for green infrastructure, while narrowing the roadway where the shared space begins, alerting drivers to slow down.

APPLICATION CONSIDERATIONS

- Material differences with bricks are woven alongside traditional asphalt, creating contrast with the shared space against the typical roadway.
- This project included sign-enforced traffic filtering to redirect through-travel motor traffic while retaining access for active transport and emergency vehicles. Traffic filtering like this may be applicable for low-traffic intersections where alleyways and streets meet.
- This speed table may also be applicable for connections between alleyways.

HERCULES ROAD, LAMBETH, LONDON, GB



TPOLOGY

Green Buffered Street

DESCRIPTION

This street was transformed with a closed-off traffic filter end, bioswales, and sidewalk extensions that replaced parking spots with community gardens and social space.

RESILIENT PLACE BENEFITS

- The bioswales soak up and filter water.
- The permeable pavements added to the sidewalks also help soak up and filter water.
- The traffic filter promotes active transportation for connectivity through the neighborhood.

APPLICATION CONSIDERATIONS

- Traffic filters that incorporate bioswales and retractable barriers create a buffer between the busy road and the neighborhood section. This may be applicable for creating green buffers to shield green alleyways and streets from busier thoroughfares.

SINT NICOLAASSTRAAT, AMSTERDAM , NL



TPOLOGY

Pedestrian Street

DESCRIPTION

This street provides a connection between two major boulevards. Elements of art, street art, and fine art display cases embedded in walls line this busy corridor.

RESILIENT PLACE BENEFITS

- The planter space allows for shrubbery which added amenity value.
- The colorful markings on the street add visual complexity which decreases bike speeds, invites social interactions, and adds an element of play to the street.

APPLICATION CONSIDERATIONS

- The paint and thermoplastic applied to the street bricks do increase the social interactions between users and the street but also appear to deteriorate quickly. This may be applicable for a green alleyway, if a sustainable method for painting and refreshing the street can be found. The embedded tile pieces faced similar deterioration issues.

DIRK VAN HASSELTSTEEG ALLEY, AMSTERDAM, NL



TYOLOGY

Pedestrian Street

DESCRIPTION

This is a residential alleyway that connects to main streets on either side.

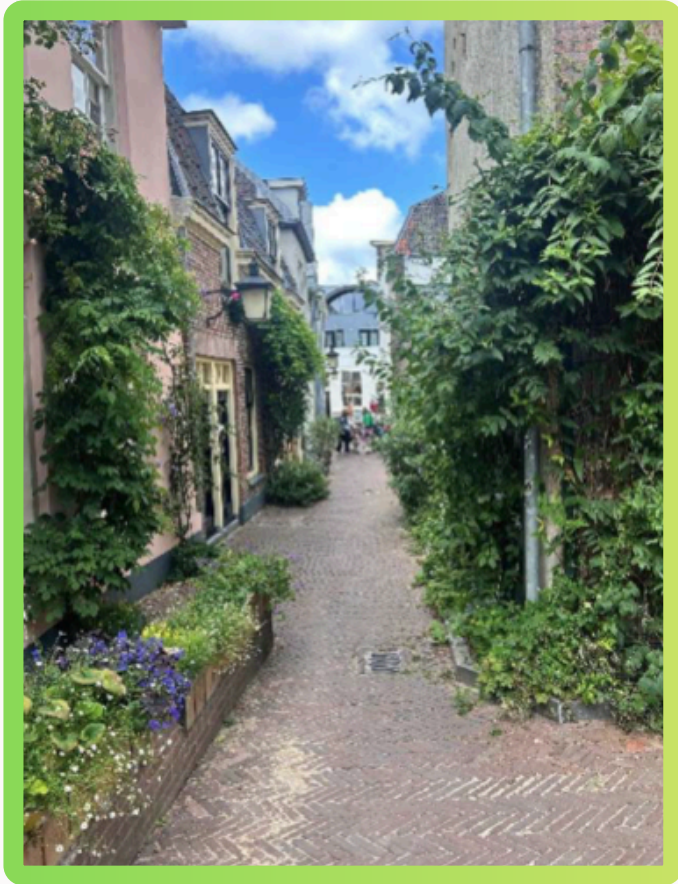
RESILIENT PLACE BENEFITS

- Green vine canopy provides shade and human scale walking environment
- Plants lining both sides collect water
- Pedestrian and cycle access quiets the residential area

APPLICATION CONSIDERATIONS

- Closing car traffic in alleyways in residential areas can provide residents with better access to their homes in higher density areas.
- The green canopy offers shade and can be applied in alleys that are pedestrianized to relieve heat stress.
- Pedestrian and cycle access can increase economic develop for surrounding areas by increasing the number of people passing through alley.

VISSCHERSTEEG UTRECHT, NL



TYOLOGY

Green Local Streets: Green Buffered/ Green facade streets

DESCRIPTION

These neighborhoods feature extensive use of green infrastructure by directly using vegetation within the street and building designs. This includes green buffers, street trees and vegetated facades that soften the urban environment and generally improve ecological function. Vertical greening that you see in the picture perfectly aligns with how we can utilize extra space with greenery.

RESILIENT PLACE BENEFITS

- Green buffers and street trees reduce urban heat island effects and improve microclimates along the pedestrian routes.
- Vegetated areas enhance biodiversity and manage stormwater through natural absorption.
- Improved comfort and promotes an active lifestyle.

APPLICATION CONSIDERATIONS

- Similar vertical greening could be incorporated within Texas State University buildings and surrounding areas.
- This would require maintenance planning to sustain the vegetation health, but would create a cooler and more enjoyable view within the city.

BUITEN BANTAMERSTRAAT, AMSTERDAM , NL



TPOLOGY

Pedestrian Street

DESCRIPTION

This street connects a major boulevard to a bridge crossing the canal in the neighborhood. Retractable barriers at the end of the street allow for emergency vehicle access.

RESILIENT PLACE BENEFITS

- The cuts into the pavement for planters along the sides allow for significant amounts of greenery that reduce the heat stress and improve air quality of the area.
- The brick pavement helps slow down cyclists going through the tight street.

APPLICATION CONSIDERATIONS

- The density of plants in the side street planter space that lines the edges of the buildings here could be applicable in a green alleyway setting. Specifically, the variety and use of larger shrubbery significantly impact how welcoming the street is.

AMSTERDAM CENTRUM, NL



TPOLOGY

Green alley

DESCRIPTION

An alleyway in Amsterdam that has been enhanced to be a more inviting place to pass through or gather. Some businesses did have outdoor seating in this area, open to bikes and pedestrians.

RESILIENT PLACE BENEFITS

- Permeable pavers allow for water to pass through and not pool and flood. Overhead lighting adds an increased feeling of safety and visibility. Small amounts of outdoor seating for neighboring businesses makes it a nice place to hangout.

APPLICATION CONSIDERATIONS

- This is what San Marcos alleys could be like, an inviting place stroll through on your way to the next part of town where you feel safe.

ALDRICH STREET PASEO, MUELLER, AUSTIN, TX



TYPOLGY

Pedestrian Ramblas

DESCRIPTION

This is a purpose-built pedestrian street that connects Aldrich Street to Mueller Lake Park.

RESILIENT PLACE BENEFITS

- The ample tree density and canopy coverage provides shade and decreases heat stress in the area.
- The brick pavement slows cyclists through the area.

APPLICATION CONSIDERATIONS

- The tight space here is capable of containing a large number of trees, which is critical to achieving their benefits for cooling the street.
- The trees here also act as a useful dividing buffer between an artificially created furnishing zone and mobility zone. Using trees as buffers may be applicable for creating quieter social nooks along green streets and alleyways.
- The alley also provides great acoustics and is the location of the annual Honk! Music Festival. Music in the Alleys could be a great new event as they are shaded and cool places with great sound.

MANOR ROAD, AUSTIN, TX



TPOLOGY

Green Buffered Streets

DESCRIPTION

Protected pedestrian islands and cycle tracks have been incrementally added along Manor Road where the speed limit is 20 mph in some sections, but mostly 35 mph.

RESILIENT PLACE BENEFITS

- Separated cycle track that is painted red protects cyclists and promotes active travel
- Protected and wide sidewalks improve accessibility and comfort for pedestrians
- Pedestrian island enhances safety for people crossing the street
- Greenery implemented in various locations calms traffic and lessens heat stress

APPLICATION CONSIDERATIONS

- This road is primarily trafficked by cars, but by adding a cycle track and better sidewalks, other modes of mobility are encouraged too. On streets with four lanes, consider removing two and adding cycle track and better sidewalks on either side.
- Protected crosswalk with pedestrian island and greenery slows drivers while improving safety for pedestrians. Streets with high traffic or multiple lanes would benefit from safer crosswalks.
- Greenery implemented in various locations can be added to more heavily trafficked streets to combat heat produced from tire friction and carbon emissions.

CM ALLEN PARKWAY, SAN MARCOS, TX



TPOLOGY

Water Boulevard/ Water Square

DESCRIPTION

This is a great local example of a street retrofit. Bioswales were added on either side of the street to help manage stormwater and runoff. There is additional greenery along the street that provides more water mitigation and shade. There is also a small water square that collects water to limit flooding and add a community amenity.

RESILIENT PLACE BENEFITS

- Street trees and vegetation along the street provide shade and heat mitigation
- Green medians communicate speed to drivers
- Brick-paved crosswalk indicates pedestrian space and green bulb-outs slow drivers

APPLICATION CONSIDERATIONS

- Bioswales can be added along other highly trafficked areas and flood plains to help retain water when heavy rain occurs.
- Different material crosswalk communicates to drivers to stop before the curb, allowing more space for pedestrians to cross. Adding similar crosswalks in downtown areas can increase space and safety for pedestrians. Brick pavement can also be extended across the road to the other side to allow pedestrians to cross the main road easier.

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