

Word on the [flex] Street

Applying Lessons Learned from
Rapid Street Transformations During
the Pandemic to the Design of
Flexible Streets of the Future

Innovation Incubator

Spring 2021

Vida Shen and Annie Ryan

San Francisco | Urban Design

An isometric illustration of a city street scene, rendered in a light pink and white color palette. The street is shown from an elevated perspective, with buildings lining both sides. The street itself is divided into various zones: a car lane with several cars, a bike lane with people riding bicycles, a pedestrian walkway with people walking and a dog, and a park area with trees and a bench. A 'Zip' sign is visible on the street. The overall design emphasizes flexibility and multi-use functionality.

Perkins&Will

Introduction

Streets are perhaps the most contested forms of public space in cities today. They are ubiquitous, making up approximately 80% of a city's total area on average*, and yet unlike parks or open space we design our streets to prioritize a single user—the vehicle. For decades, American transportation engineers have used metrics like vehicles per hour and peak commute period to design roads to move vehicles first, and address other mobilities last (if at all). To add insult to injury, the literature is clear that the continued deference to vehicle movement in the design of our streets results in an infrastructural arms race with no end in sight. When we design our streets to make it easier to travel by car more people will choose driving over

other modes, thus increasing the number of cars on the road and playing into the failed logic that more roads are needed to sustain the increase in drivers. The cycle repeats, and at no point are we closer to reducing vehicle trips or greenhouse gas emissions.

Not only is this logic failed in its assumption that cities can eventually build their way out of traffic with more or wider roads, it assumes that streets should be designed to facilitate a single moment in time (peak commutes) rather than a spectrum of events that unfold over the course of a day, each placing different needs on the street. Recent events with COVID-19 offer a timely reminder that flexible streets—streets that can adapt to facilitate

**Source: Urban Street Design Guide, NACTO
(National Association of City Transportation Officials)*



different types of activities depending on the moment—are necessary components of a more resilient, people-first city.

This research incubator explores the concept of flexible streets championed by leaders in the planning and mobility industries, including our own colleagues at Nelson\Nygaard, to establish a “flex street” definition that planners and urban designers can use to communicate with communities and local officials. In establishing this flexible street definition, we looked to recent street transformations spurred by COVID-19 to understand both the strengths and limitations of implementing flex streets in cities today, and the

need for a distinction between “flex streets” and tactical urbanism.

To further articulate these findings and their applicability for all cities, we developed three illustrative street typologies. These typologies are intended to help guide conversations between designers, transportation engineers, local officials, and most importantly community members. By illustrating the many important functions of our streets and their limitless potential for change, we believe urban designers can help streets achieve a greater level of status as true public spaces in our cities.



Flexible Street Design Toolbox

To-date there are many guides and manuals for designing multi-modal, human scale streets. The following guides proved most helpful for establishing a new set of principles for flexible streets that leverage past research and recent events related to COVID-19

Global Street Design Guide

*Global Designing Cities Initiative, NACTO**



Sets a global baseline for human-centered street design that, unlike other NACTO* manuals, does not view streets through an exclusively American lens. With an exhaustive catalogue of street types and recommended dimensions and design strategies, this is the most comprehensive guide for street design today.

While helpful in defining mobility goals of a street, the guide does not explicitly discuss street flexibility per se. Standards are provided as fixed solutions for more multi-modal street outcomes, and streets are defined primarily by the movement they facilitate rather than the activities they sustain.

Similarly, as a “street” guide, the document is focused primarily on the zone between one sidewalk and the other. The extent to which setbacks, or the spaces between sidewalks and a building’s edge, could be better leveraged to enhance the function of a street is not fully explored.

Blueprint for Autonomous Urbanism

NACTO*



In comparison to the Global Street Design Guide, the Blueprint for Autonomous Urbanism is a decidedly more helpful flexible street design manual. Assumes that streets are moving towards a curbless condition which will better facilitate future mobilities not yet in existence. A curbless streetscape is a helpful quality for a flexible street, since the curb no longer serves as a limiting factor. Material, texture, and moveable elements thus must work together to define the street zones and facilitate activity or movement depending on the time of day.

Important takeaways include the design considerations around seamless mobility- or the transferring from one mode to the next on a single trip.

*NACTO: National Association of City Transportation Officials

San Francisco Parklet Manual

City of San Francisco



As the birthplace of the “parklet”, it is only fitting that the City of San Francisco’s design manual for parklets serves as an essential reference for flexible street transformations along the sidewalk. San Francisco’s Parklet Manual is useful not only as a guide to the design components of a parklet, but as a roadmap for how parklet project applications are approved, permitted, and sponsored.

While parklets are only one type of flexible street adaptation, this design manual offers important lessons for how other types of street transformations could be implemented at scale within other cities. By defining the permitting process, and articulating the roles and responsibilities of the project applicant versus the city agencies, the manual provides an essential and user-friendly implementation framework.

Principles for the Living Street of Tomorrow

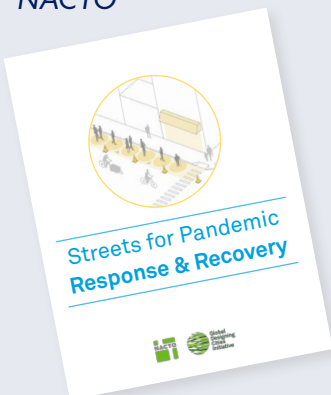
Gehl, Greenfield Labs



Born out of a partnership between Gehl and Greenfield Labs, a former research group for the Ford Motor Company, the Principles for the Living Street of Tomorrow provides a set of aspirational goals for streets of all types to embody in the midst of emerging mobilities. Formatted as a sort of manifesto for streets, the principles focus primarily on experience and intent rather than specific design strategies. Inherent in each principle is an expectation that streets should be uniquely informed by the people who use them, and that a street is an ever-evolving place that ebbs and flows over time. As defined by the principles, the living street optimizes for place, forgives, embraces the human scale, invites participation, supports a range of interactions, delivers access and opportunity, promotes sharing with others, provides a variety of real choices, allows people to be more human, and improves a sense of place.

Streets for Pandemic Response & Recovery

*NACTO**

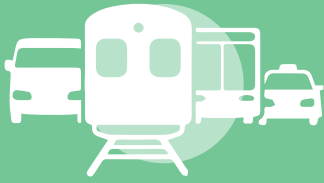


The most recent of the NACTO* street design guides, the Streets for Pandemic Response and Recovery offers NACTO’s most explicit guidance to-date on how streets can be adapted temporally for uses that go beyond mobility. While the impetus for this guide is COVID-19, the framework is broad enough to be applicable for a post-pandemic world as well. Street transformation strategies cover the following topics: safe movement, access to food and essential services, public health, social services such as schools and daycares, play and recreation, and communication.

Flexible Street Design Lenses

The following design lenses offer a new set of principles for defining and evaluating flexible streets of the future. These lenses build from best practices street design and public realm principles established by industry leaders such as NACTO and Gehl, with a specific focus on transformation and change over time within the right-of-way.





Mobility

1. Prioritize modes that are able to move more people per hour.
2. Adapt to changing mobility patterns throughout a day or week
3. Invest in real transit options for users of all incomes and abilities



Place

1. Foster social interactions and community connections with inclusive gathering spaces.
2. Create memorable streets that celebrate history, diversity, and culture of a place through their design.



Economy

1. Facilitate an inclusive enterprise environment for businesses of all sizes and customers of all income levels.
2. Enable vendors to distribute their goods through a variety of modes.
3. Promote dynamic shopping, dining, and entertainment experiences.



Natural Systems

1. Design streets as 'living infrastructure' that improve local ecosystems.
2. Create habitat areas that improve biodiversity and connect people to nature.
3. Design for the impacts of local climate and extreme weather.



Public Health

1. Prioritize safe and accessible recreation options for all ages and abilities.
2. Improve physical and mental health outcomes with green street design.
3. Prioritize pedestrian and bicycle safety over vehicle traffic convenience.



Social Equity

1. Prioritize transit-dependent populations in programming and design considerations.
2. Leverage existing community assets in street design strategies.

Lessons from the Pandemic

As the COVID-19 pandemic spread, city streets seemingly transformed overnight from bustling hubs of activity into solemn ghost towns. With many Americans no longer making their regular commutes, many streets saw rapid reductions in traffic counts. The Slow Streets movement, seeking to take advantage of these car-free streets and reclaim them for people as play streets or slow-

speed travel streets, gained in popularity across the globe. Restaurants and small businesses, unable to operate safely indoors, began to deploy outdoor operations resulting in new and creative iterations of the traditional “parklet”. These rapid transformations offer the following lessons in flexible street design for the future:

1

Successful Street Programming Requires Stewards

Every street needs stewards. There are an infinite number of ways to program a flexible street, but long-term success requires a holistic vision from someone who sees how the street fits into a larger context. Street stewards can be anyone—a business owner, a resident, an artist. Stewards are people who spend time in the area and are recognizable to others who spend time there as well. They take ownership of programming initiatives, and are accountable when problems arise. They are the ultimate advocate for a street’s future, and help ensure that future flexibility is always prioritized.



2

Top-Down and Bottom-Up Approaches are Both Essential

While individual property owners bring an essential understanding of their businesses or neighborhoods could benefit from flexible streets, the actual transformation of street space requires a great deal of time and money to implement. COVID-19 revealed the tremendous burden placed on restaurants, first when adapting to a pick-up or delivery model, and then later when deploying outdoor street dining. Local government can provide funding and policies that lower cost and logistical burdens on individuals, while also handling corridor-level coordination.



3

'Faster' is not Always 'Better'

"Quick-build projects don't solve the disparities caused by the legacy of racist planning and disinvestment. Design low-stress street networks that specifically center the safety of and joy-filled travel by Black people. These routes, networks, wayfinding elements, and reparations-centered policies should derive from a participatory process that includes the voices of Black people, people living with disabilities, trans people, elders and youth."

*-- Dr. Destiny Thomas
Founder and CEO, Thrivance Group*



4

Street Life is Temporal, and the Design of a Street Should Reflect This

While traffic engineering standards design streets for a peak condition that is both fleeting and ever changing, the end result is always a static street design with fixed dimensions and right-of-way distributions. Traffic and circulation is temporal, and yet it is expected to occupy a static container. Play streets, already a phenomenon before the pandemic, illustrate the power community members hold to redefine the purpose of their streets and infuse flexibility. In neighborhoods where park space is limited, streets can and should be thought of as alternative parks or playgrounds.



5

Streets Should Reflect the Communities they Serve

Flexible design elements, from paint to furniture, can be opportunities to reflect the history or culture of a neighborhood, as well as showcase local artists and designers. Similarly, businesses and programming that spill out from the surrounding buildings and into the streets should be reflective of the people who live nearby and rely on these streets in order to get to work, shop, or socialize. This street scene in Harlem illustrates how outdoor dining in a closed street can showcase the demographics of a neighborhood for all to see.



3 Future Flex Street Typologies

**Major
Streets**

**Local
Streets**

**Side
Streets**



Major Streets

Dimensions

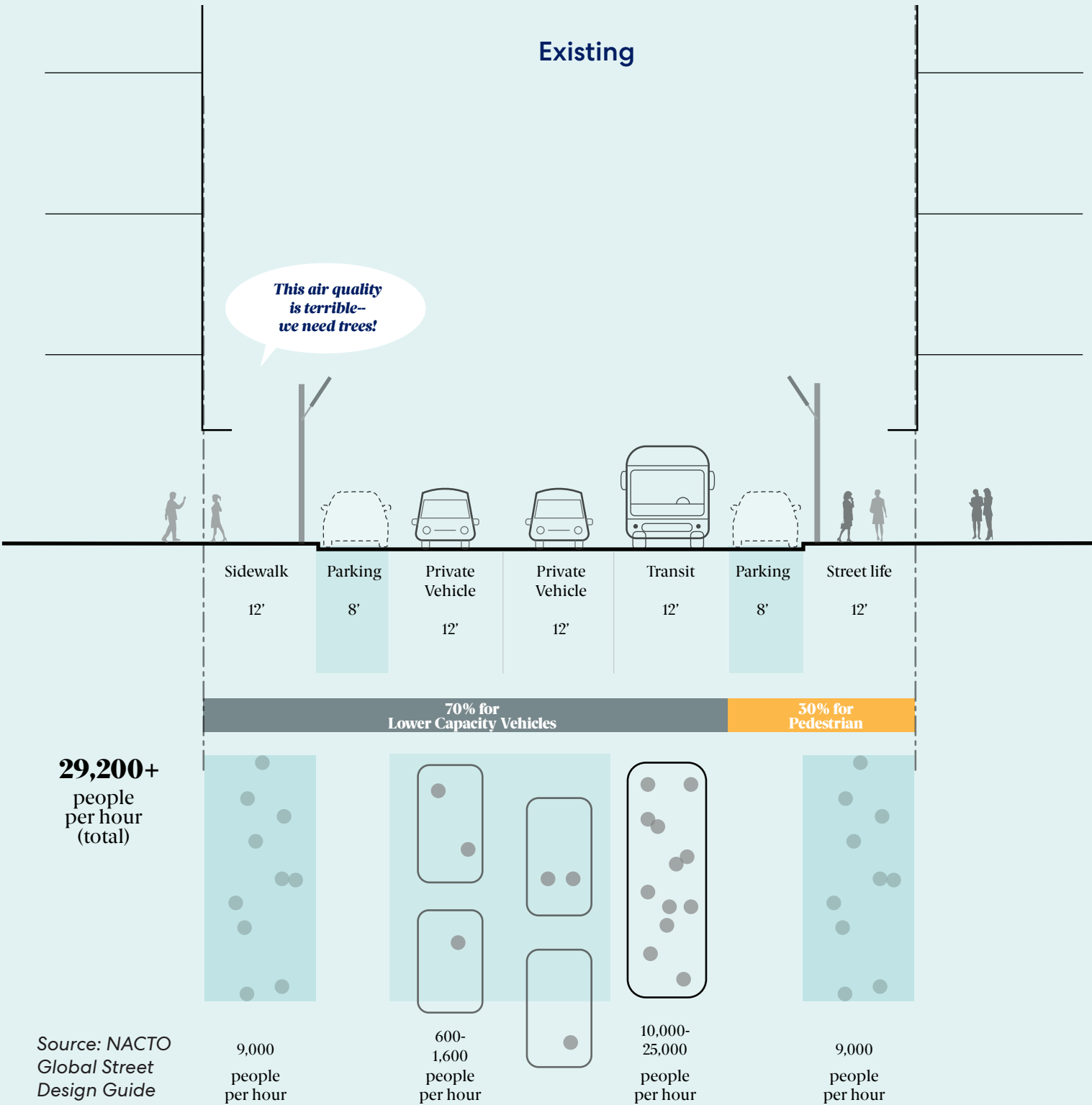
76 to 100 feet (typical)

Transit Types

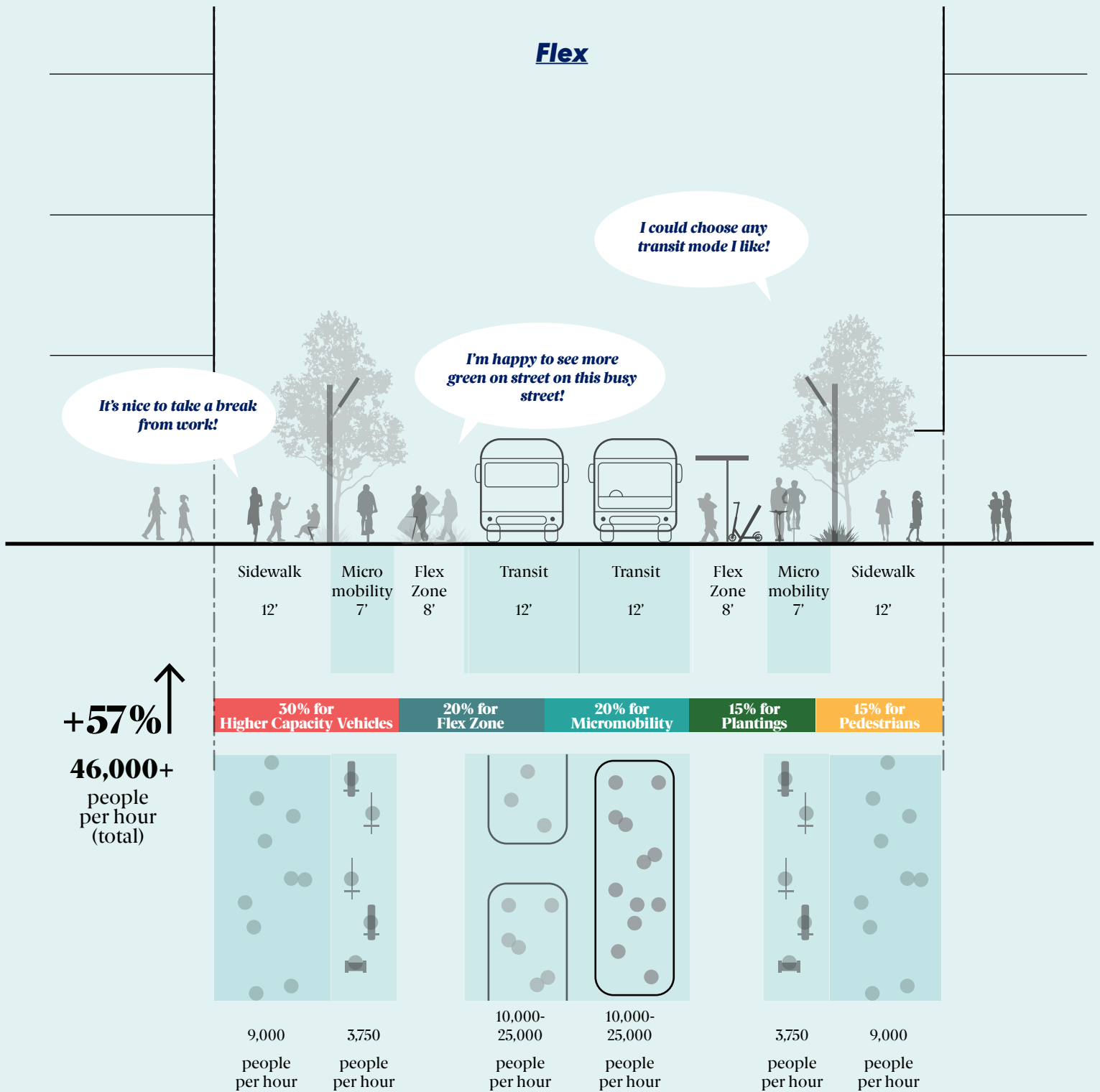
Light rail or streetcar, bus, bike, micromobility, rideshare, pedestrian

Land Uses

Central business district (office, ground floor retail, civic/government), mixed-use residential, institutional



"Flex Beyond the Commute Period"



Major Streets

Weekday 7-10 AM



1 Commuters arrive, most by Bus Rapid Transit (BRT), and some by bike or micro-mobility



2 Moving more people / hour improves business viability



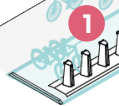
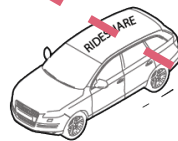
3 Free wifi and charging stations at bus stops



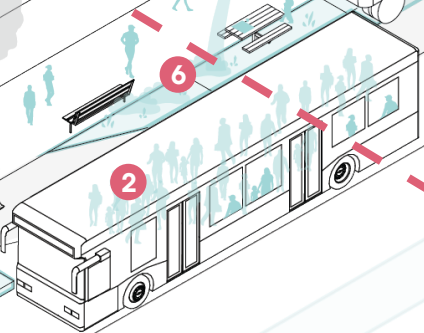
4 Accessible bike-to-work options

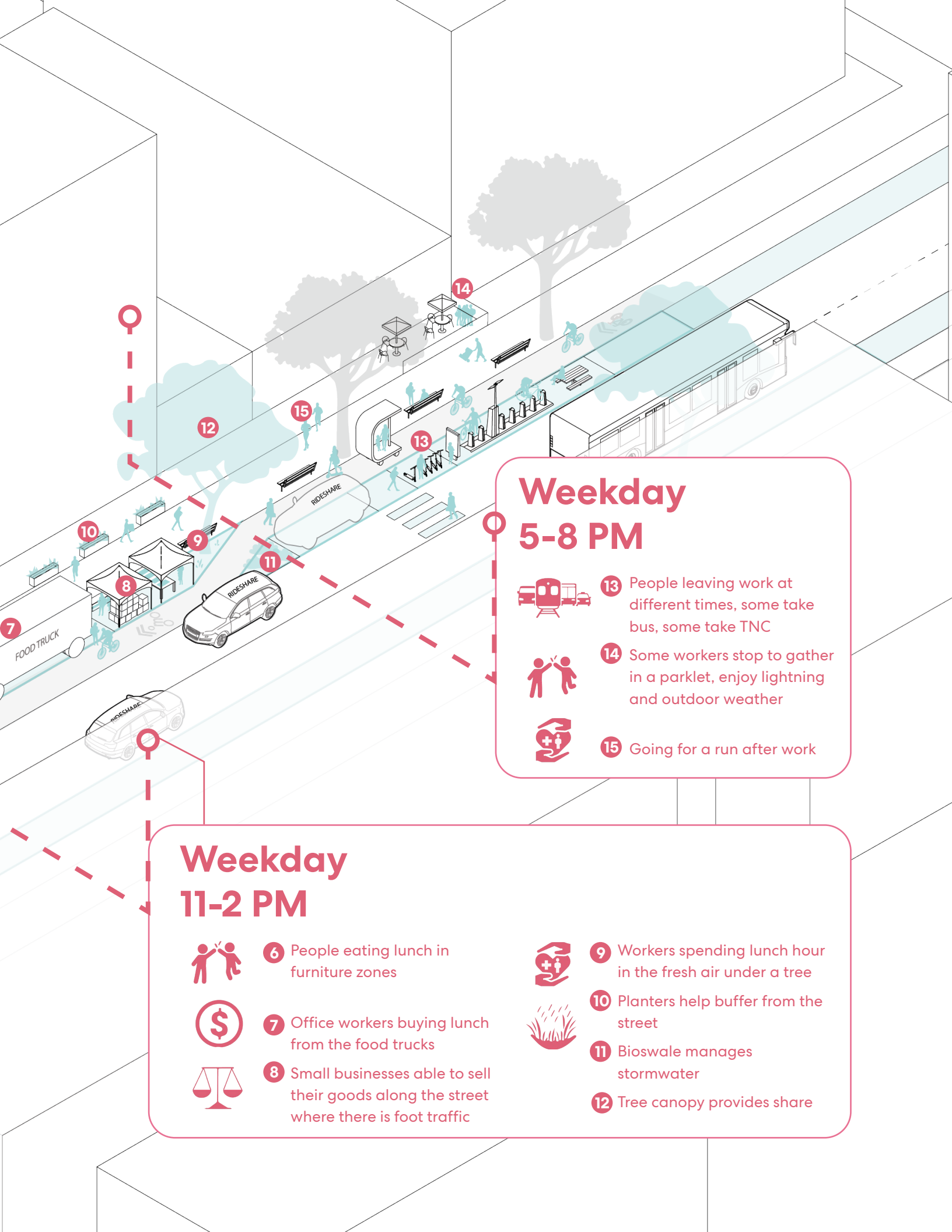


5 Outdoor seating for a cup of morning coffee



COFFEE & BAGEL





Weekday 5-8 PM



- 13 People leaving work at different times, some take bus, some take TNC



- 14 Some workers stop to gather in a parklet, enjoy lightning and outdoor weather



- 15 Going for a run after work

Weekday 11-2 PM



- 6 People eating lunch in furniture zones



- 7 Office workers buying lunch from the food trucks



- 8 Small businesses able to sell their goods along the street where there is foot traffic



- 9 Workers spending lunch hour in the fresh air under a tree



- 10 Planters help buffer from the street

- 11 Bioswale manages stormwater

- 12 Tree canopy provides shade

Local Streets

Dimensions

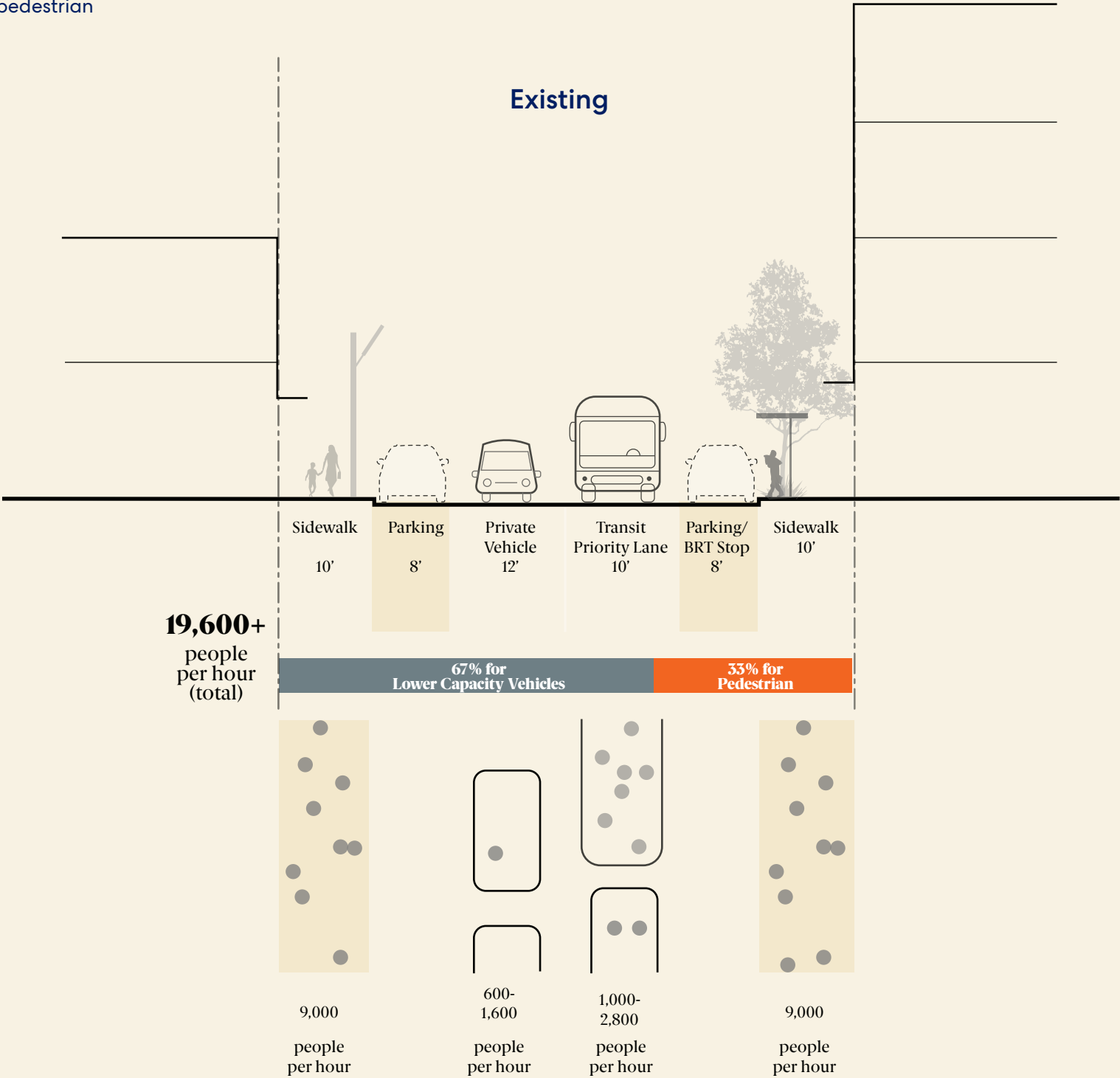
60 feet (typical)

Transit Types

Bus, bike, micromobility, rideshare, pedestrian

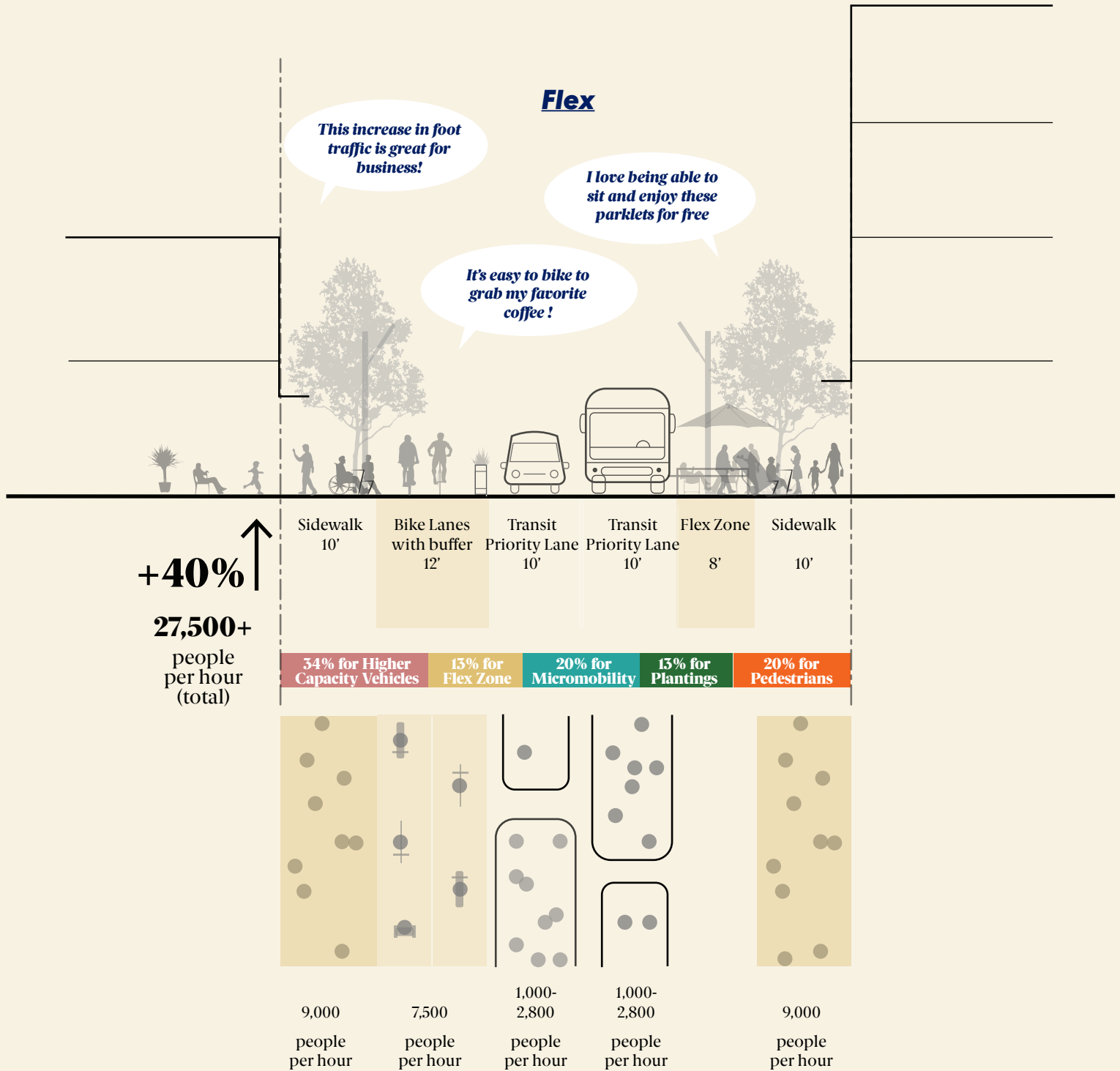
Land Uses

Office or residential above ground floor
retail, multifamily residential, institutional



Source: NACTO
Global Street
Design Guide
(2016)

"Flex for Third Places"

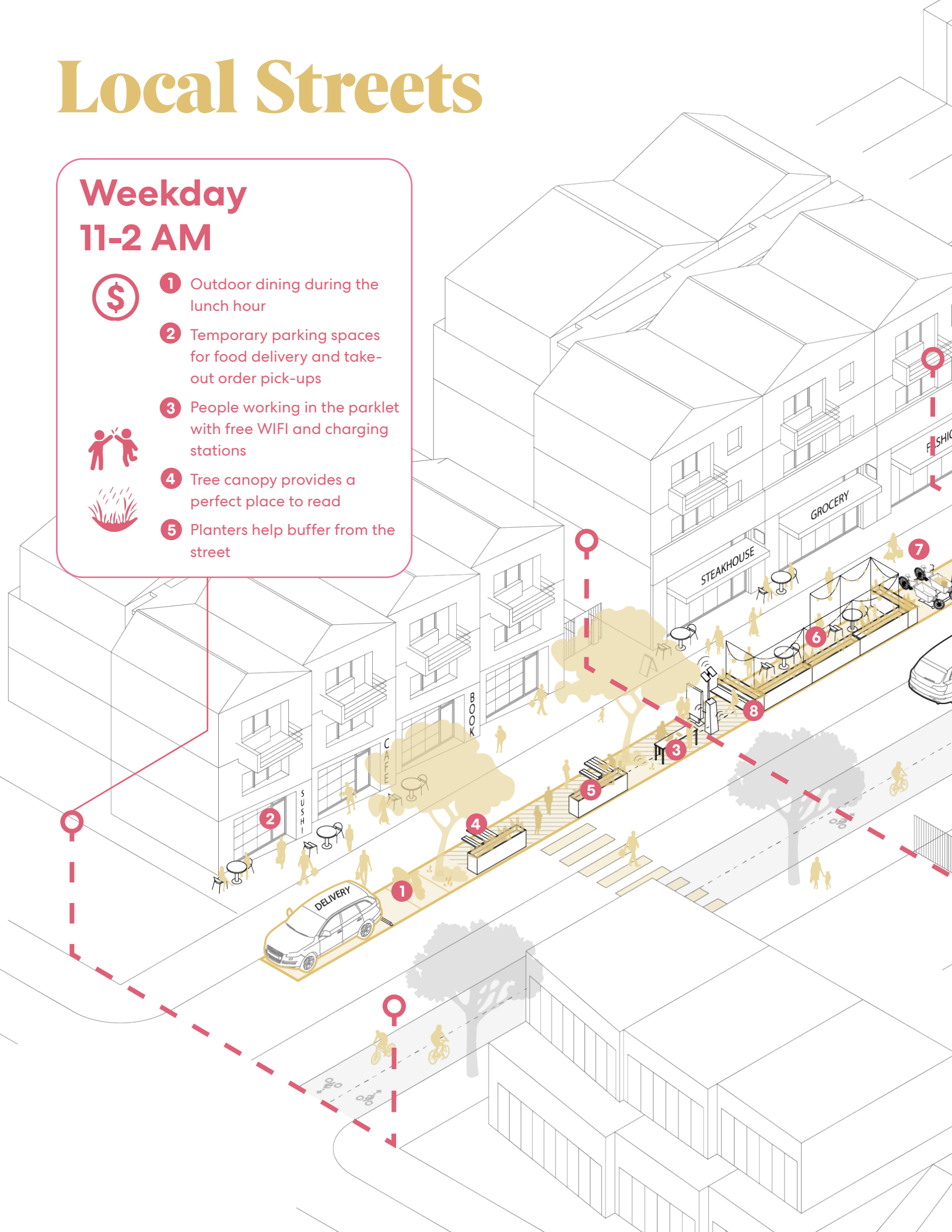


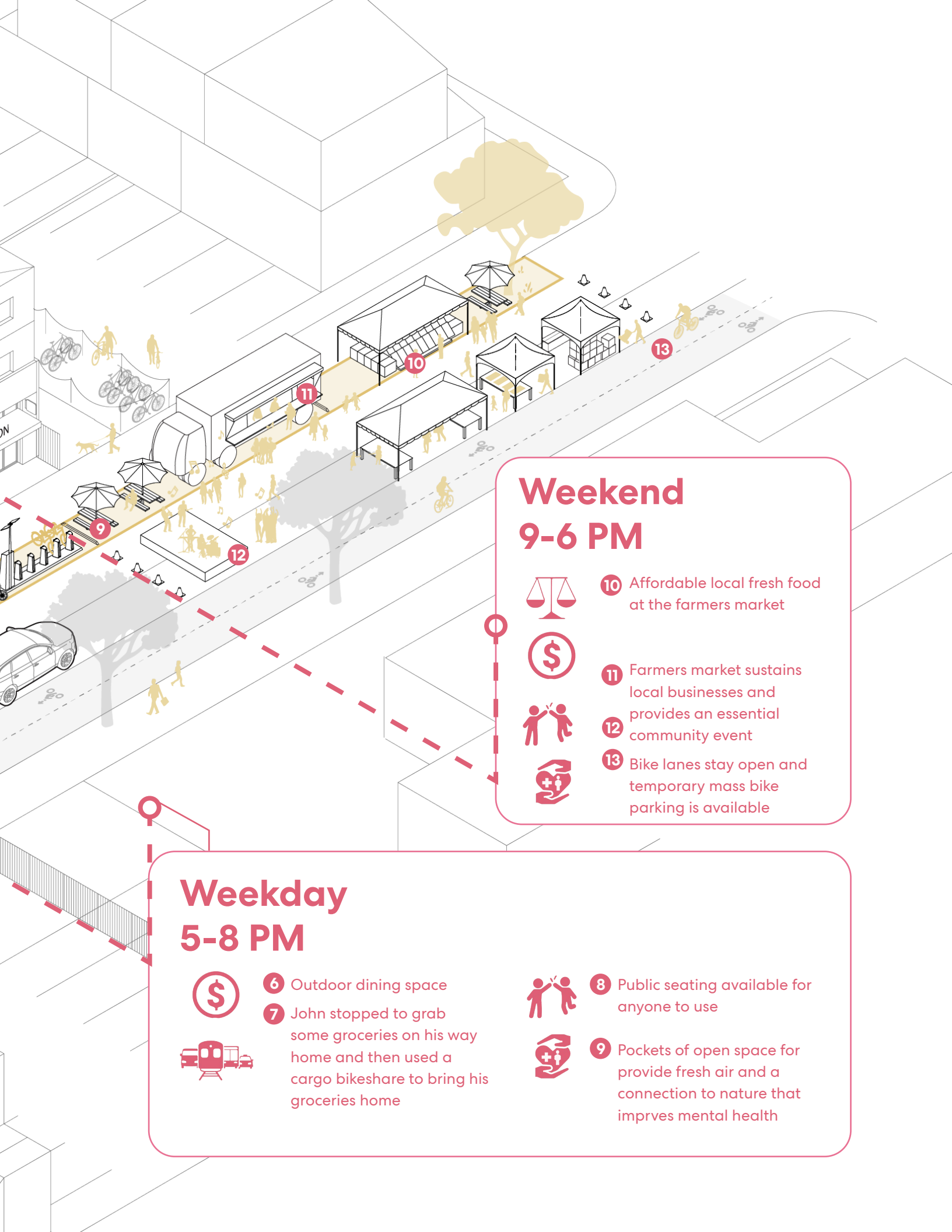
Local Streets

**Weekday
11-2 AM**



- 1 Outdoor dining during the lunch hour
- 2 Temporary parking spaces for food delivery and take-out order pick-ups
- 3 People working in the parklet with free WIFI and charging stations
- 4 Tree canopy provides a perfect place to read
- 5 Planters help buffer from the street





Weekend 9-6 PM



- 10 Affordable local fresh food at the farmers market



- 11 Farmers market sustains local businesses and provides an essential community event



- 12 Community event



- 13 Bike lanes stay open and temporary mass bike parking is available

Weekday 5-8 PM



- 6 Outdoor dining space
- 7 John stopped to grab some groceries on his way home and then used a cargo bikeshare to bring his groceries home



- 8 Public seating available for anyone to use



- 9 Pockets of open space for provide fresh air and a connection to nature that improves mental health

Side Streets

Dimensions

50 to 60 feet (typical)

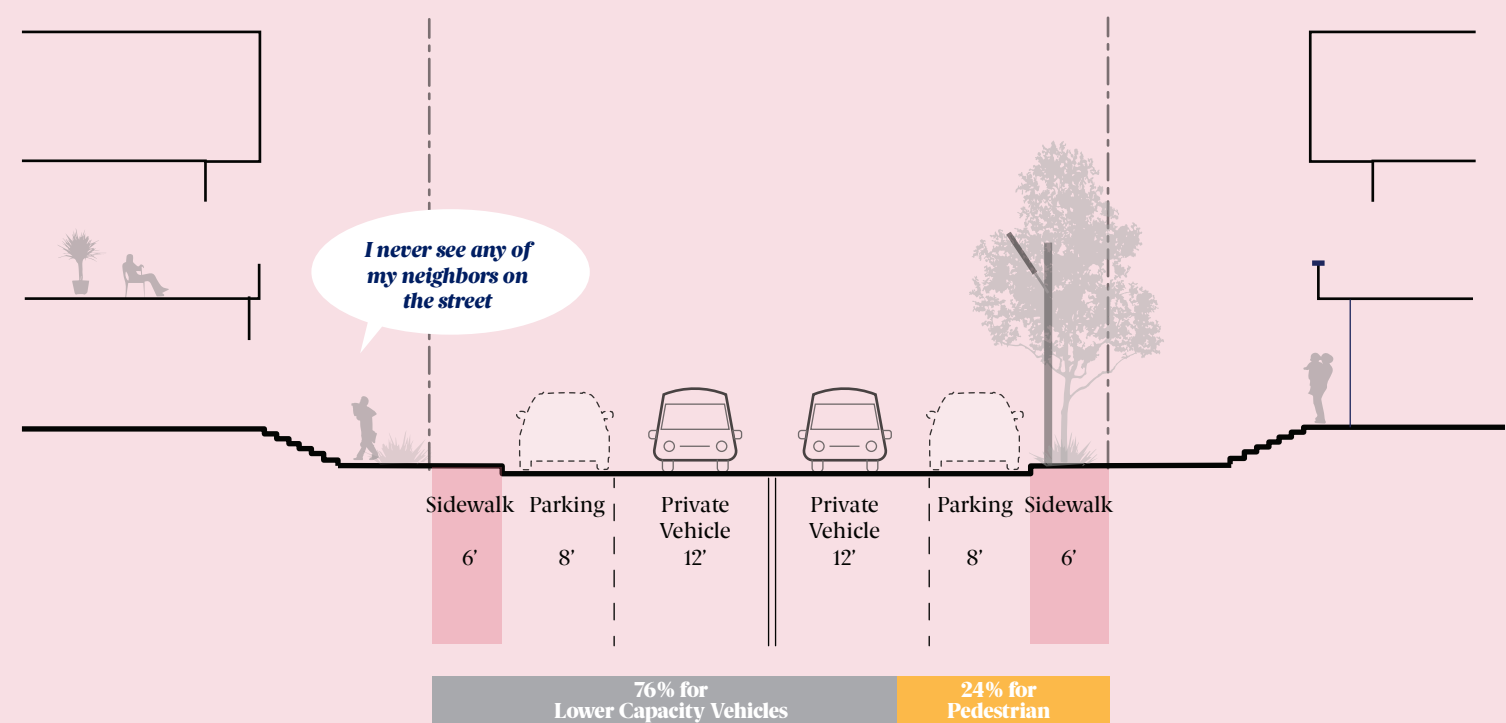
Transit Types

Bike, micromobility, rideshare, pedestrian

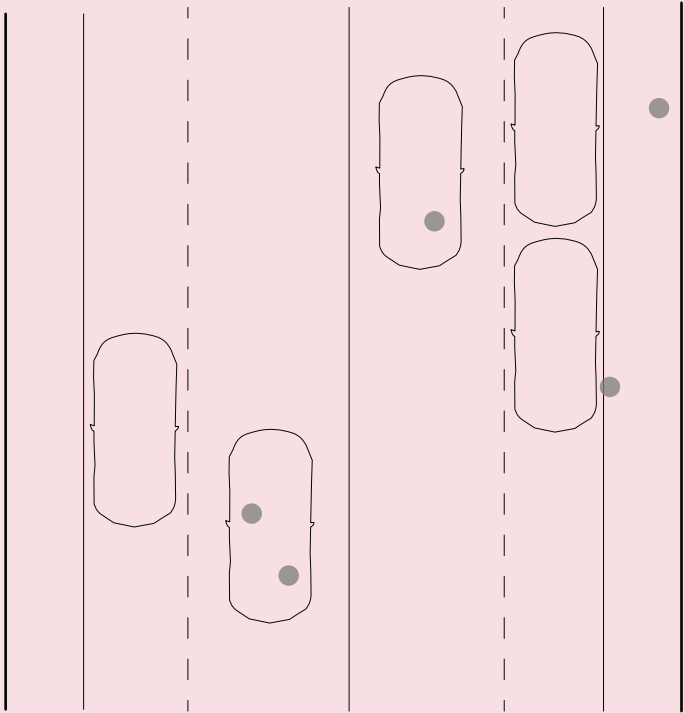
Land Uses

Mixed-use residential, multi-family residential, single-family residential

Existing

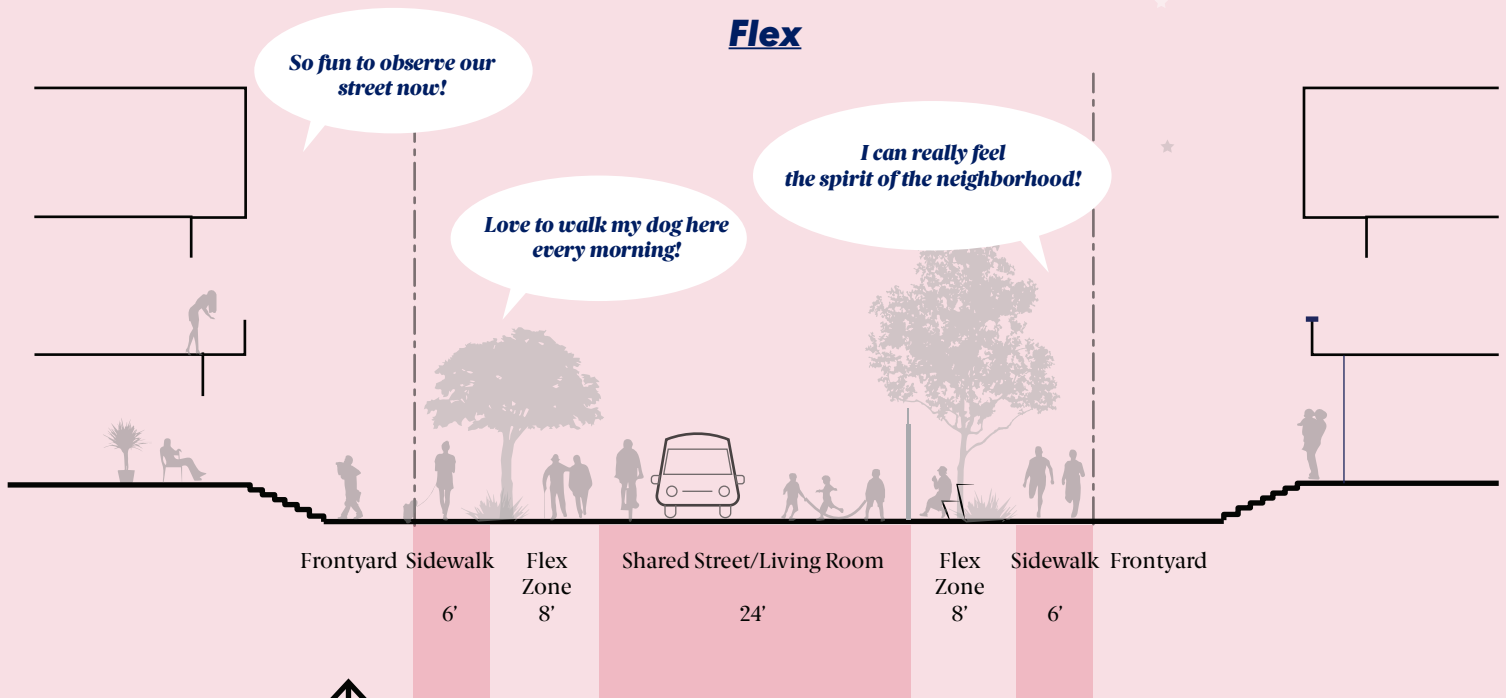


12'
community
use street
width

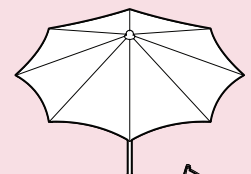
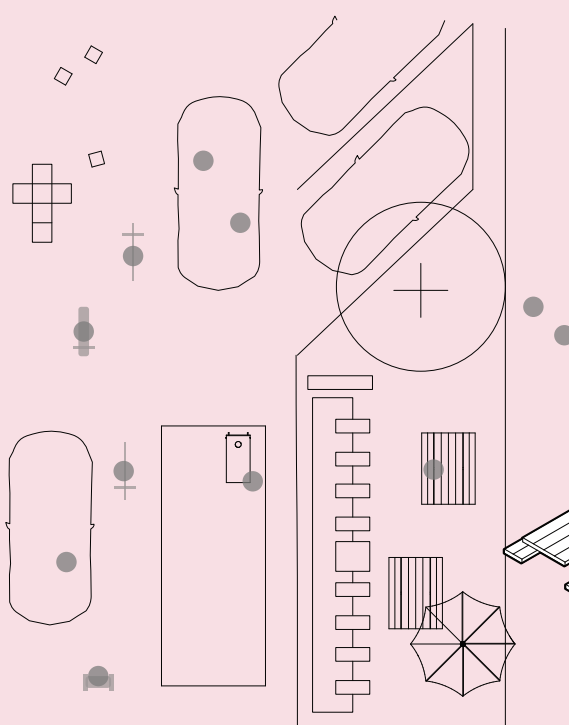
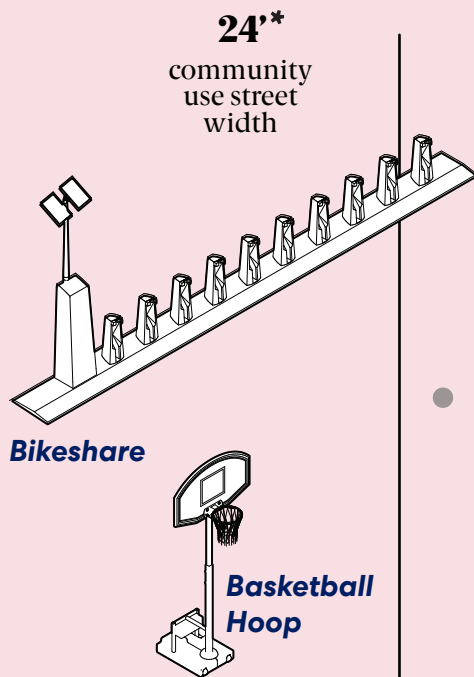


Source: NACTO
Global Street
Design Guide
(2016)

"Flex for a connected community"



+100%



*Assumes some of flex zone and living room area will be used by vehicles

Side Streets

Weekday 6-9 AM



- 1 Public wi-fi stations help people of all incomes work from home



- 2 Children's bike pool facilitates safe routes to school for younger riders



- 3 Micro mobility commute options (shared street)



- 4 Dog walking in the flex zone



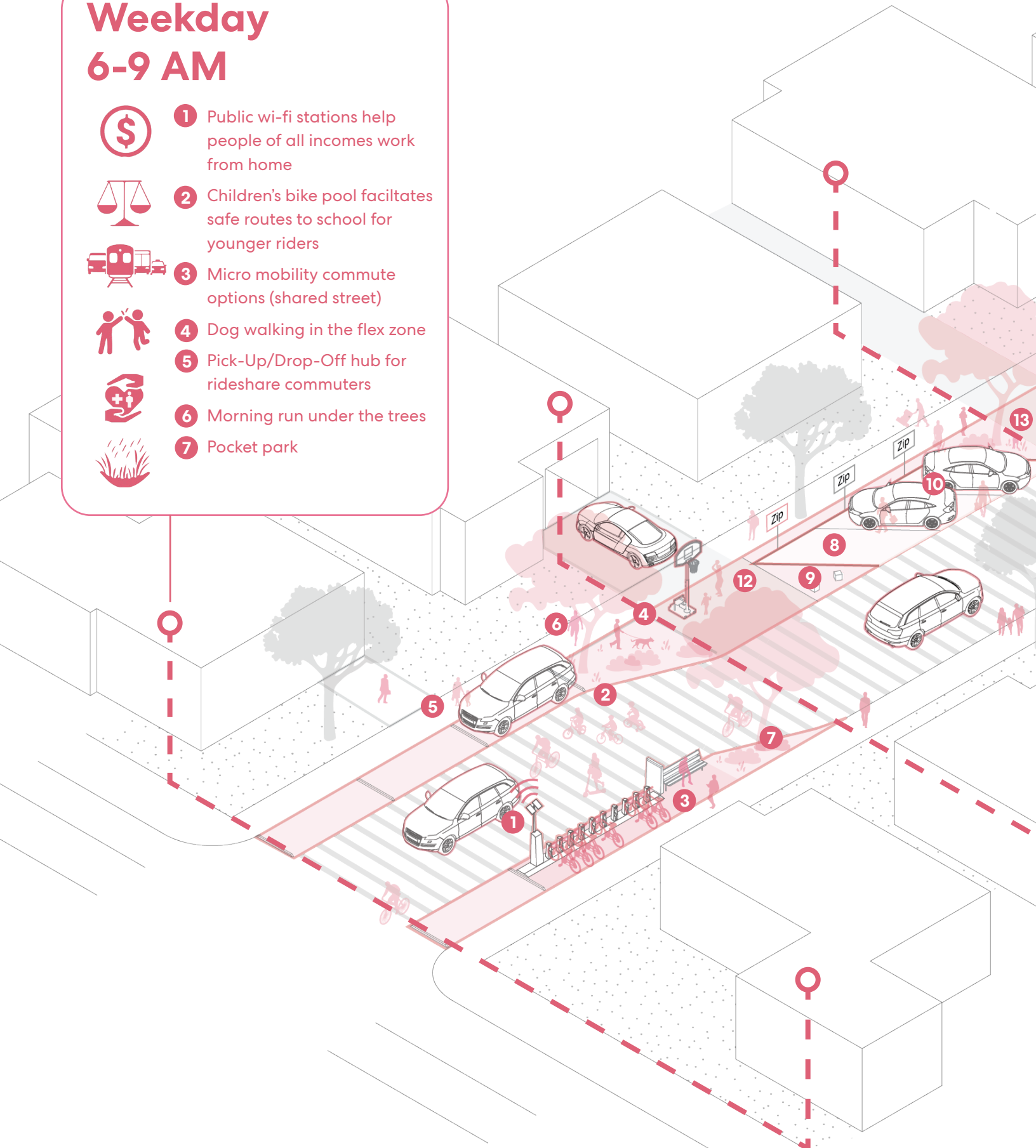
- 5 Pick-Up/Drop-Off hub for rideshare commuters

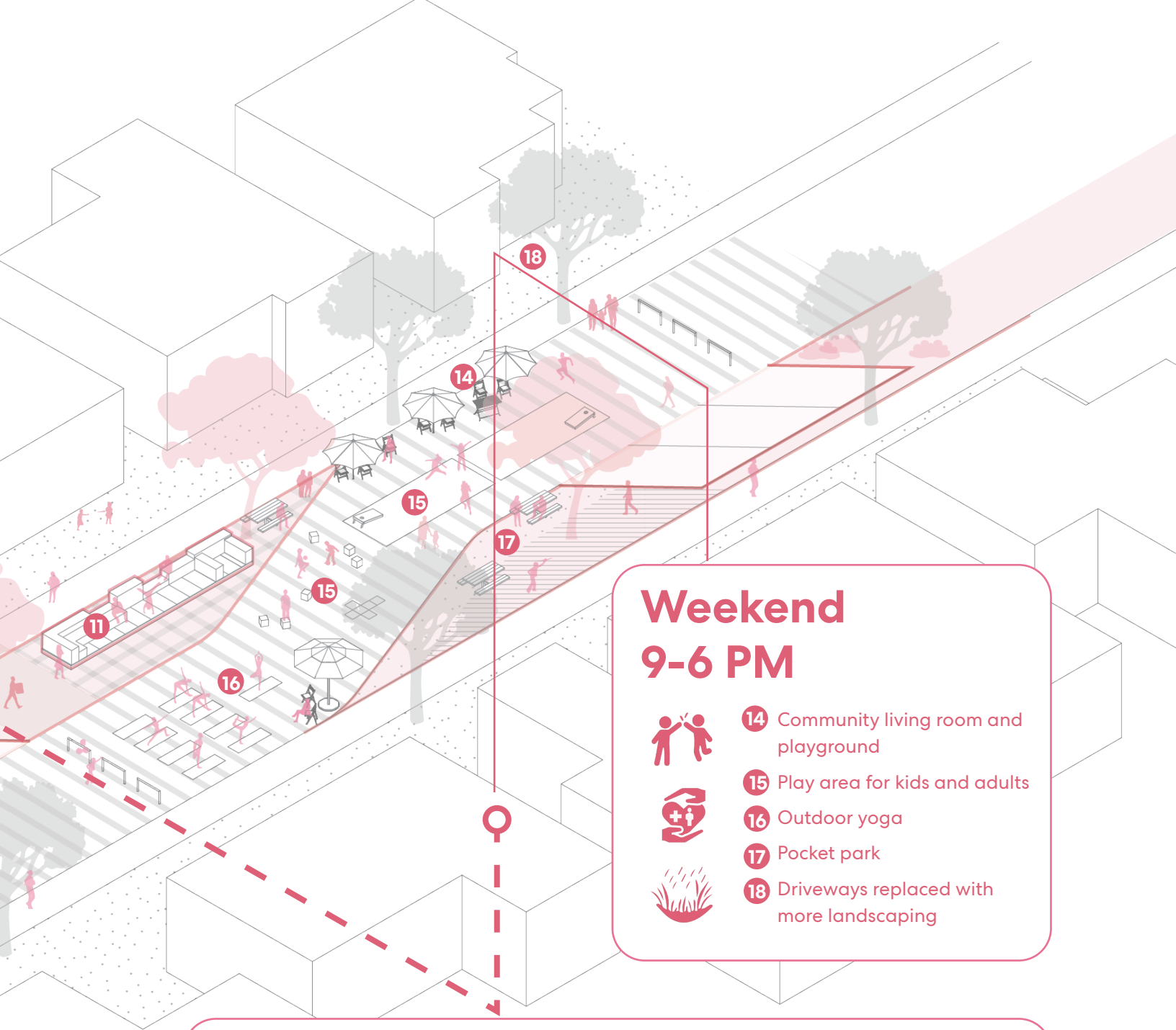


- 6 Morning run under the trees



- 7 Pocket park





Weekend 9-6 PM



14 Community living room and playground



15 Play area for kids and adults



16 Outdoor yoga

17 Pocket park

18 Driveways replaced with more landscaping

Weekday 5-8 PM



8 Delivery vehicles dropping off food and groceries



9 Seating in the flex zone lets parents stay close while their children play



10 Car share vehicles return to parking spaces



11 Elderly women sit and share cookies in shade, exchange life stories



12 Afternoon exercise on equipment



13 Special parking area with permeable pavers

Sources

Global Designing Cities Initiative, and National Association of City Transportation Officials. *Global Street Design Guide*. Island Press, 2016

“Living Streets.” Living Streets, <https://www.ourlivingstreets.com/>. Accessed 17 Apr. 2021.

National Association of City Transportation Officials. *Blueprint for Autonomous Urbanism*. 2019.

“Streets for Pandemic Response & Recovery.” National Association of City Transportation Officials, 12 Aug. 2020, <https://nacto.org/publication/streets-for-pandemic-response-recovery/>.

