

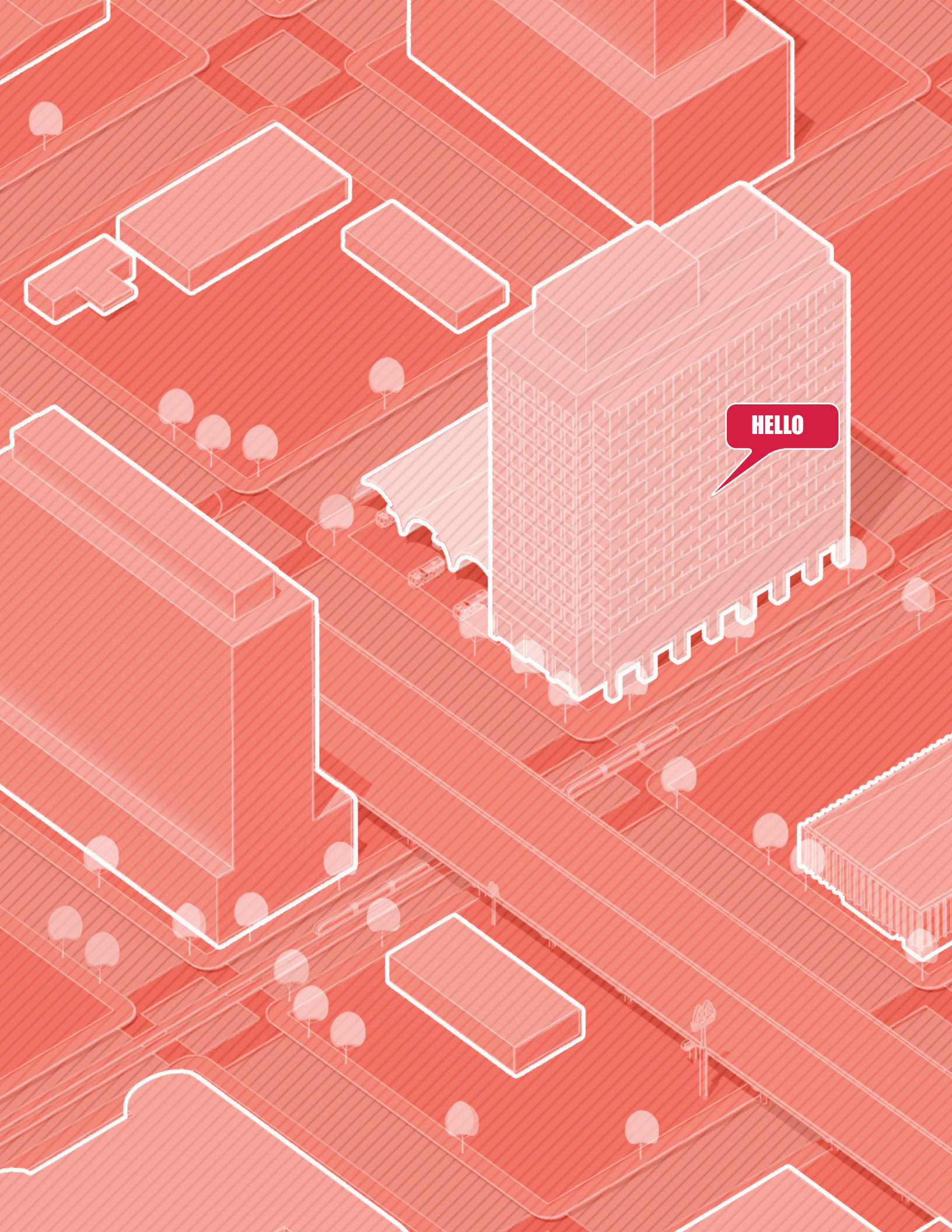
An isometric illustration of a cityscape in shades of red and white. The scene features several rectangular buildings of varying heights, some with detailed window patterns. A prominent building on the right has a stepped roofline. The streets are marked with white lines, and small, stylized trees are scattered throughout the urban environment. The overall style is clean and modern, with a strong geometric focus.

PROGRAMMING CATALOG



PROGRAMMING CATALOG





INSERT LETTER FROM PRESIDENT
ON METRO LETTERHEAD



WWW.RIDEMETRO.ORG

01

BUILDING RIDERSHIP

TOWARD MAKING BETTER STOPS
AMENITIES BUILD RIDERSHIP
WAITING ENVIRONMENT AND VEHICLE ENVIRONMENT
ECOLOGICAL THINKING FOR RIDERSHIP AND PLACEMAKING
COLLABORATION WITH AGENCIES AND INITIATIVES

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PARK AND RIDES
RAIL STOPS
TRANSIT CENTERS
SHELTERS

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PROGRAMMING CATALOG

01

BUILDING RIDERSHIP

Understanding the needs of the community that can inform all stages of the transit experience from arriving, to waiting, to boarding, leads to an increase in ridership. Ridership is further maintained by providing a transit experience that is supported by a well-connected transit system providing service to neighborhoods and destinations.

The Programming Catalog outlines the opportunities for place making as transit environments are planned and built.



Transit environments designed as destinations that are multi-functional, neighborhood centric, while providing diverse amenities to passengers thrive in high ridership.

Transit stops are iconic city markers that reside in all neighborhoods within a city, and as such they have a critical role in servicing individual communities and its passengers. Great stops provide a safe and accessible environment for passengers while elevating the surrounding community. Well-designed stops act as a feedback loop that not only elevate the passenger experience but also create a better transit system overall.

These transit environments operate at two scales, the larger neighborhood or district scale, and the individual scale of the waiting environment.

At the larger scale, transit facilities need to be planned with contextual relationships of connectivity and the local ecology. The facilities should reinforce place making opportunities by providing safe and accessible passages that arrive to programmed waiting environments. These planning strategies are also beneficial when considered with the local ecology of Houston. By designing transit environments with landscape strategies that consider stormwater management, the environments will have the added benefit of contributing to overall city improvements that reinforce place making opportunities.

At the scale of waiting environments, amenities that provide comfort, safety, and real-time information, make wait time more pleasant while strengthening community relationships. Waiting environments should offer a positive impact on existing riders, potential riders, and address community needs by serving all demographic and accessibility needs of an individual. The design of waiting environments should also consider the interaction with vehicle environments to provide safe passage for pedestrians.

The Programming Catalog visualizes these topics and opportunities throughout the document, with focus towards, ecology, safety and place making.

COLLABORATION WITH AGENCIES AND INITIATIVES

PUBLIC AGENCIES

METRO
TxDOT
COH Planning Department
Harris County Flood Control
TIRZ
Management Districts
Houston Parks Boards
COH Public Works
Houston-Galveston Area Council
COH Public Health

HOUSTON INITIATIVES

Resilient Houston
Climate Action Plan
Plan Downtown
Plan Houston
Houston Bike Plan
Beyond the Bayous
Bayou Greenways 2020
COH Sidewalk Program
Complete Communities

REFERENCE DOCUMENTS

Houston Public Works - Chapter
19 Floodplain Guidelines

METRO Transit Design Standards
Section 5, Curb-Side Standards
[shelter]

Accessibility Standards (TAS-
402) Chapter 4; Accessible
Routes?

PARTNERSHIPS

Partnering with city agencies with similar goals can help accelerate improvements that impact overall city experiences.

CONNECT WITH CITY INITIATIVES

Connecting overall transit improvements with strategic short term and long term city initiatives, will provide for a transit system that seamlessly connects with city ambitions.

COMMUNITY ENGAGEMENT

Understanding the needs of the community is a critical step towards outlining implementable strategies and phasing those strategies.

BIKE PLAN / TRAILS

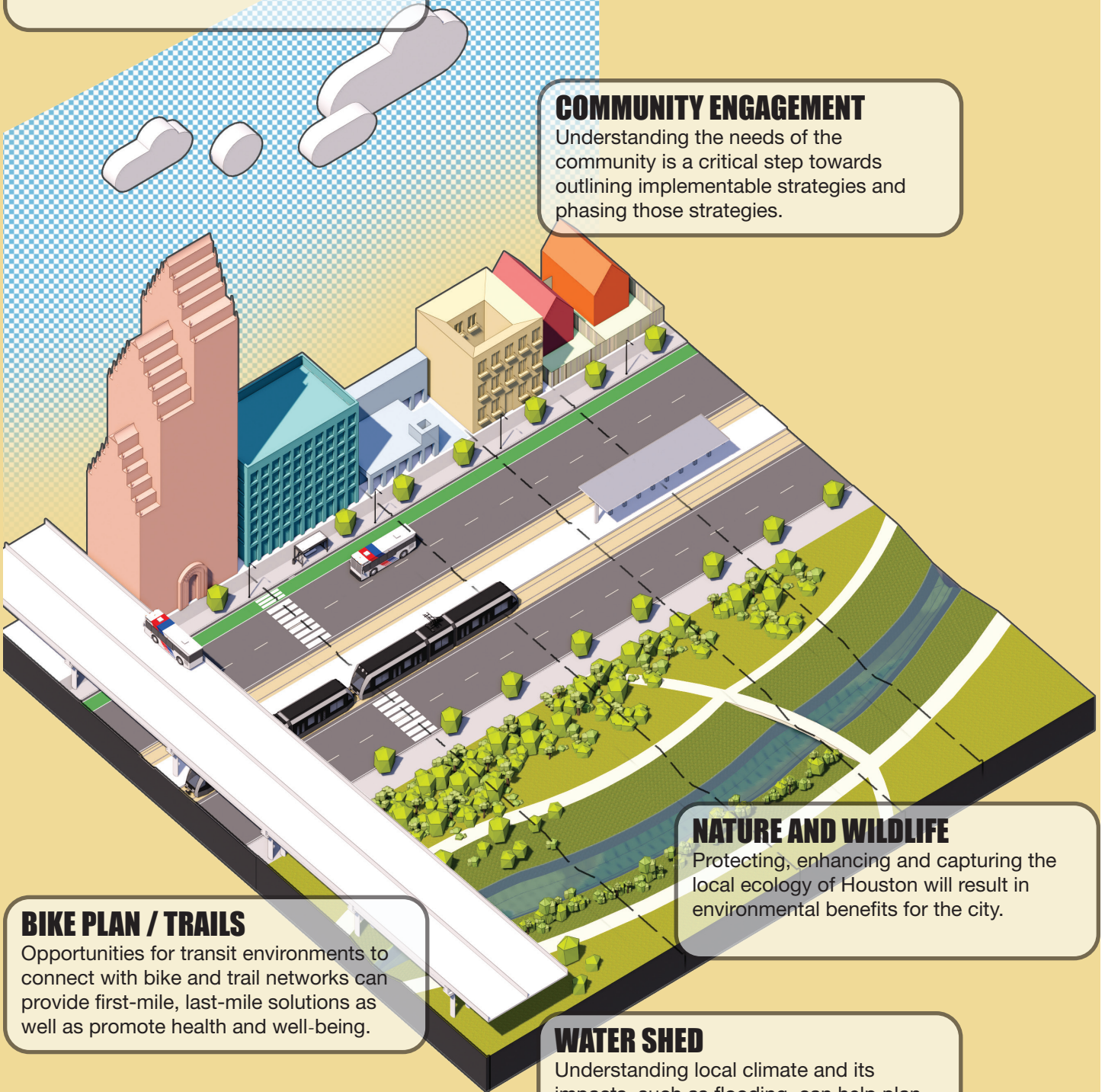
Opportunities for transit environments to connect with bike and trail networks can provide first-mile, last-mile solutions as well as promote health and well-being.

NATURE AND WILDLIFE

Protecting, enhancing and capturing the local ecology of Houston will result in environmental benefits for the city.

WATER SHED

Understanding local climate and its impacts, such as flooding, can help plan for transit environments that reduce negative impacts of development.



02

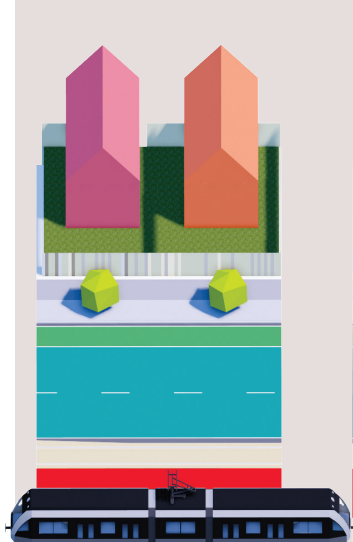
CITY-WIDE CONNECTIONS

A well-designed transit system is a thriving component of the city that is almost invisible but highly reliable when needed. It interacts with the daily routines of riders, inviting them to participate in many of the rituals that are part of riding public transportation.

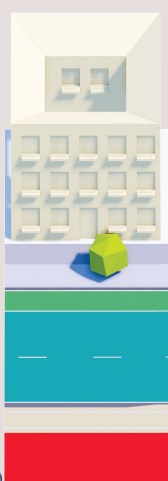
Active components that connect with local culture and community offerings can help improve wait-time and provide benefits for the riders and community.

A DAY IN THE LIFE SCENARIO

METRO IMPACTS THE DAILY TRANSIT ROUTINES
OF INDIVIDUALS CONNECTING THEM TO KEY
PLACES AND NEIGHBORHOODS



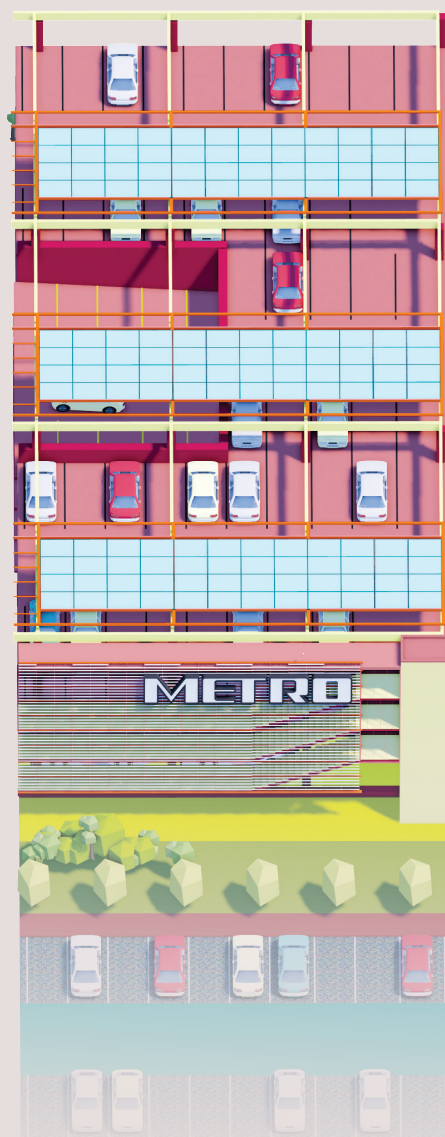
HOUSE TO RAIL



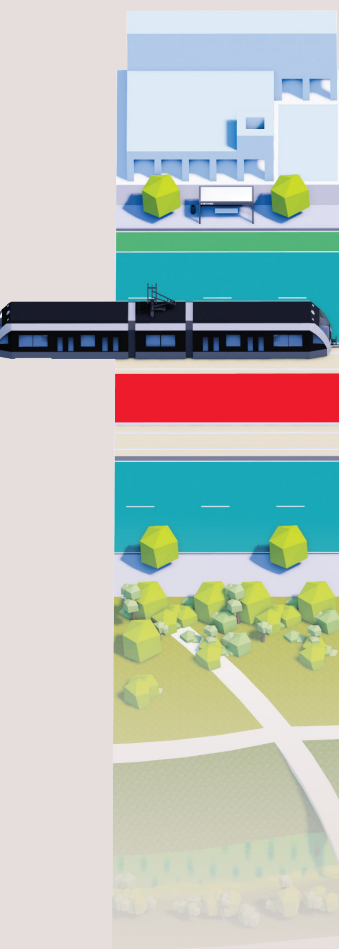
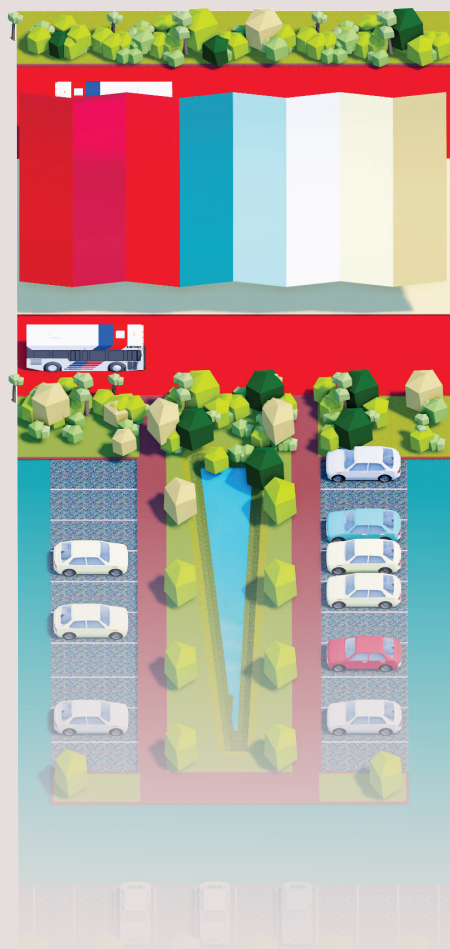
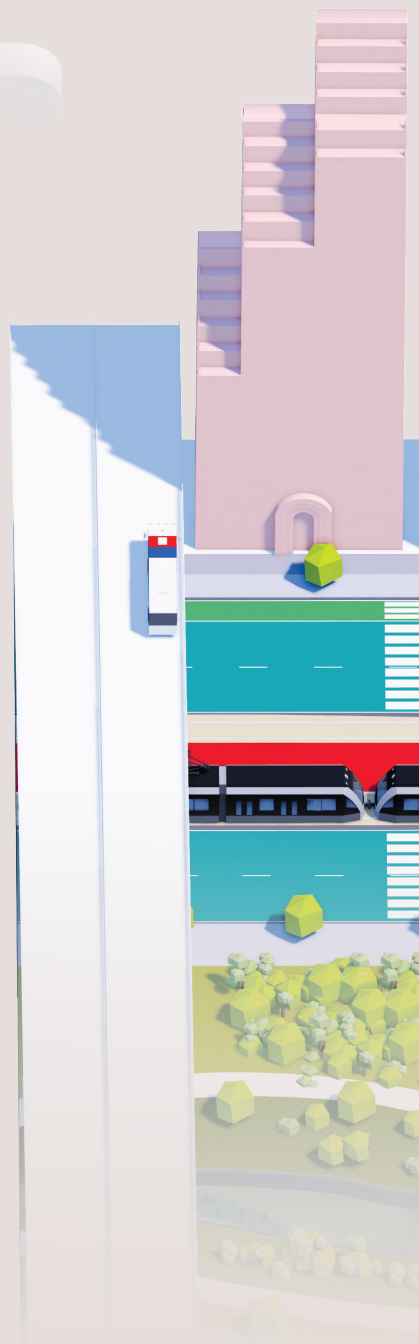
MIXED USE TO RAIL



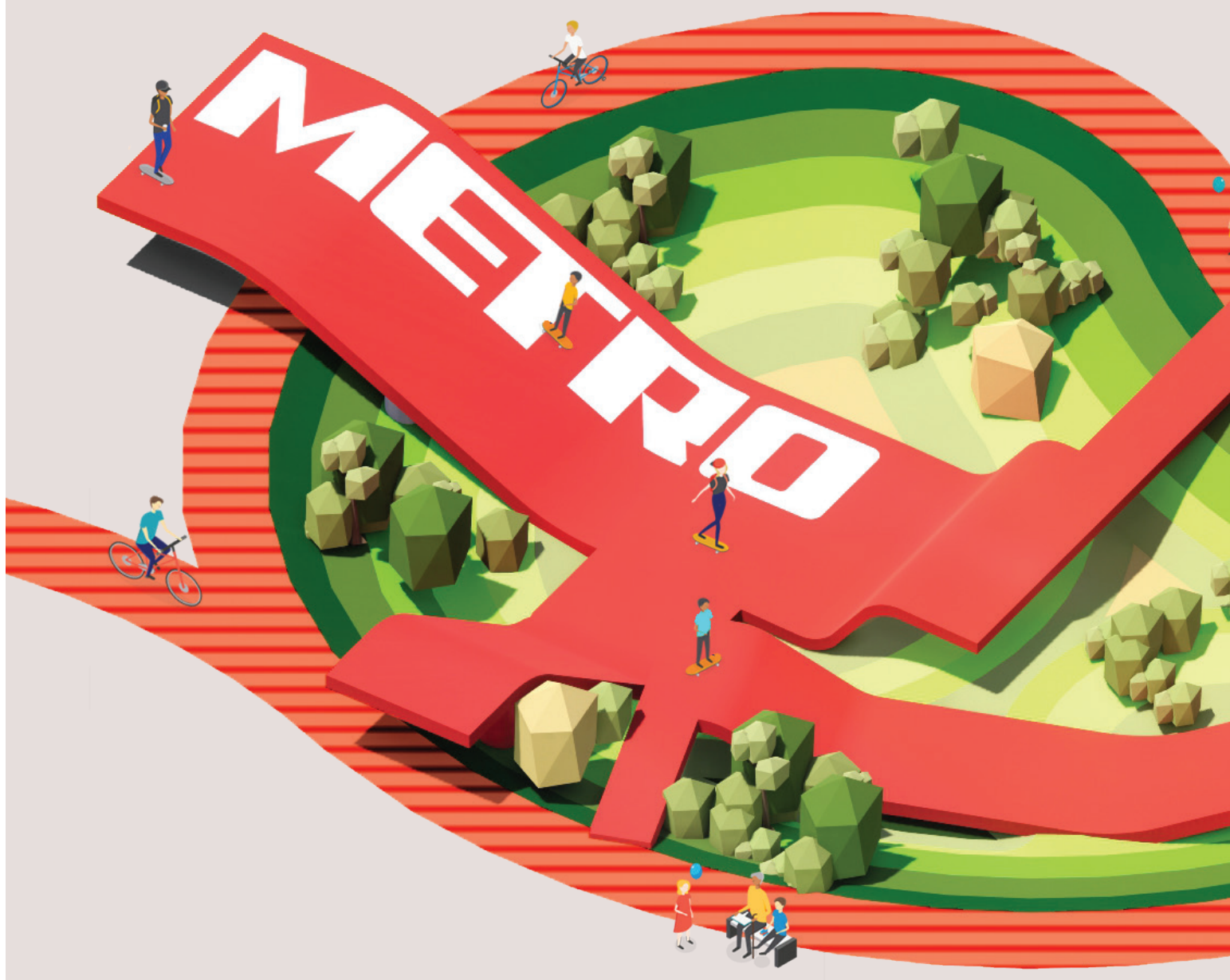
COMMERCIAL TO RAIL



HOME/WORK TO PARK AND RIDE

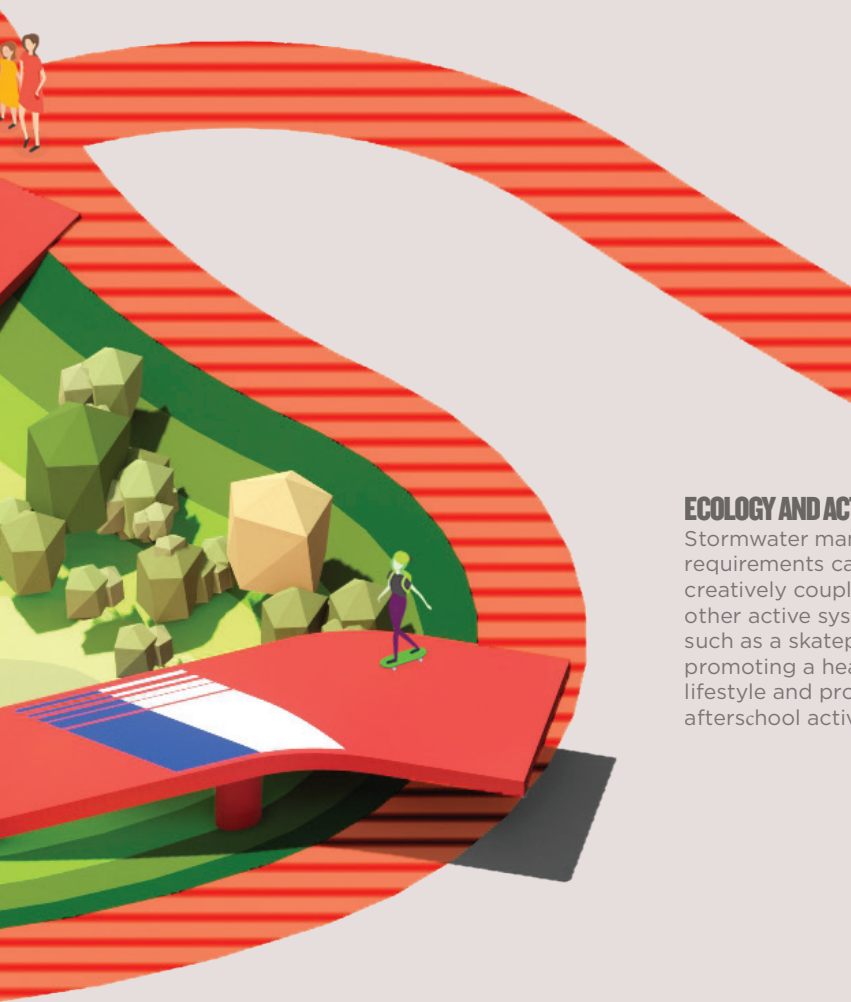
**RETAIL TO RAIL****HOME/WORK TO PARK AND RIDE****RAIL/BUS TO CBD**

ACTIVE CULTURAL LINKAGES



HEALTH AND WELL-BEING

There is potential to integrate and utilize open spaces at result METRO's facilities, promoting healthy lifestyle.

**ECOLOGY AND ACTIVITY**

Stormwater management requirements can be creatively coupled with other active systems, such as a skatepark, for promoting a healthy lifestyle and providing afterschool activities.

**HEALTHY MOBILITY**

METRO's facilities have the ability to connect to city-wide trails and bikeways, addressing first-mile and last-mile issues while promoting healthy lifestyle.

SPORTS

METRO facilities are at times adjacent to open spaces that can host sports fields benefiting neighborhoods.

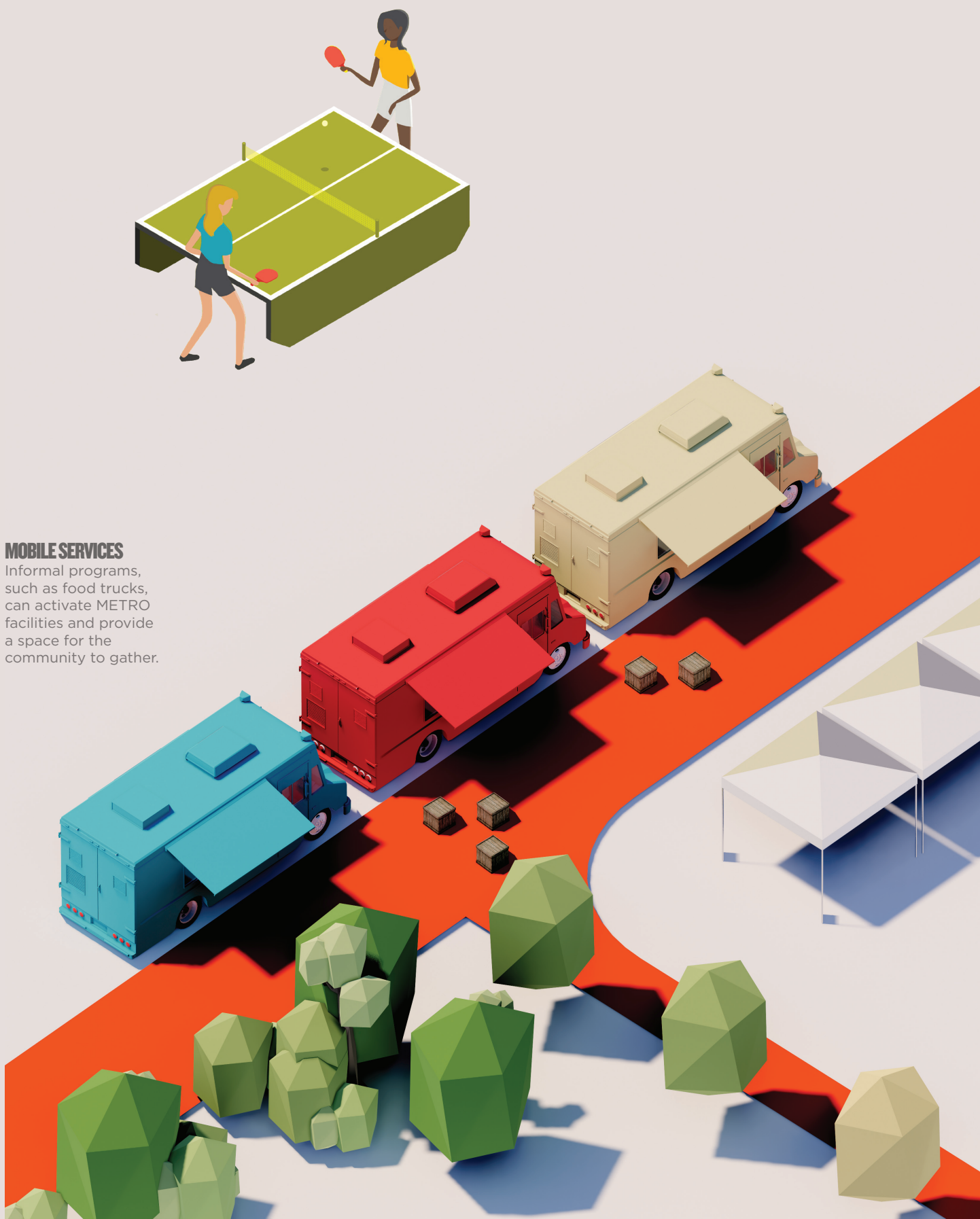


CONVERTING PARKING SPACES

The potential to convert parking spaces at METRO facilities to temporary basketball courts and other community programs can provide benefits to adjacent neighborhoods.

MOBILE SERVICES

Informal programs, such as food trucks, can activate METRO facilities and provide a space for the community to gather.

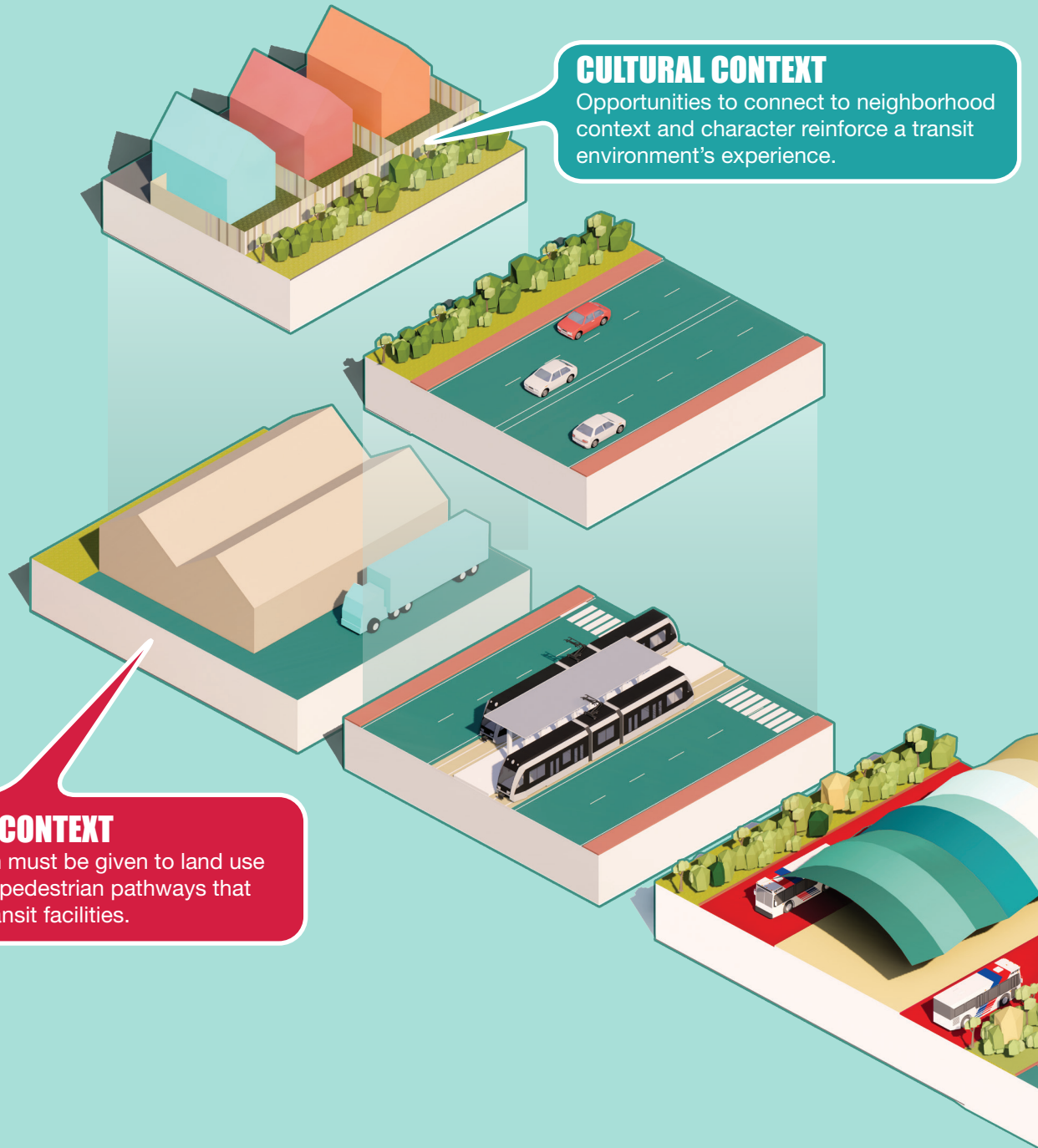


03

TRANSIT ENVIRONMENTS

Transit environments are critical nodes within a city that are informed by community preferences. These environments must address safety, comfort, reliability, connection with multiple transit and mobility systems, connection with parks and open spaces, and connection with neighborhood context and character. These environments must also address sustainability and local ecological strategies.

Transit environments have the potential to seamlessly connect with a city's thriving network of exchanges and offer riders an experience beyond the expected.



CULTURAL CONTEXT

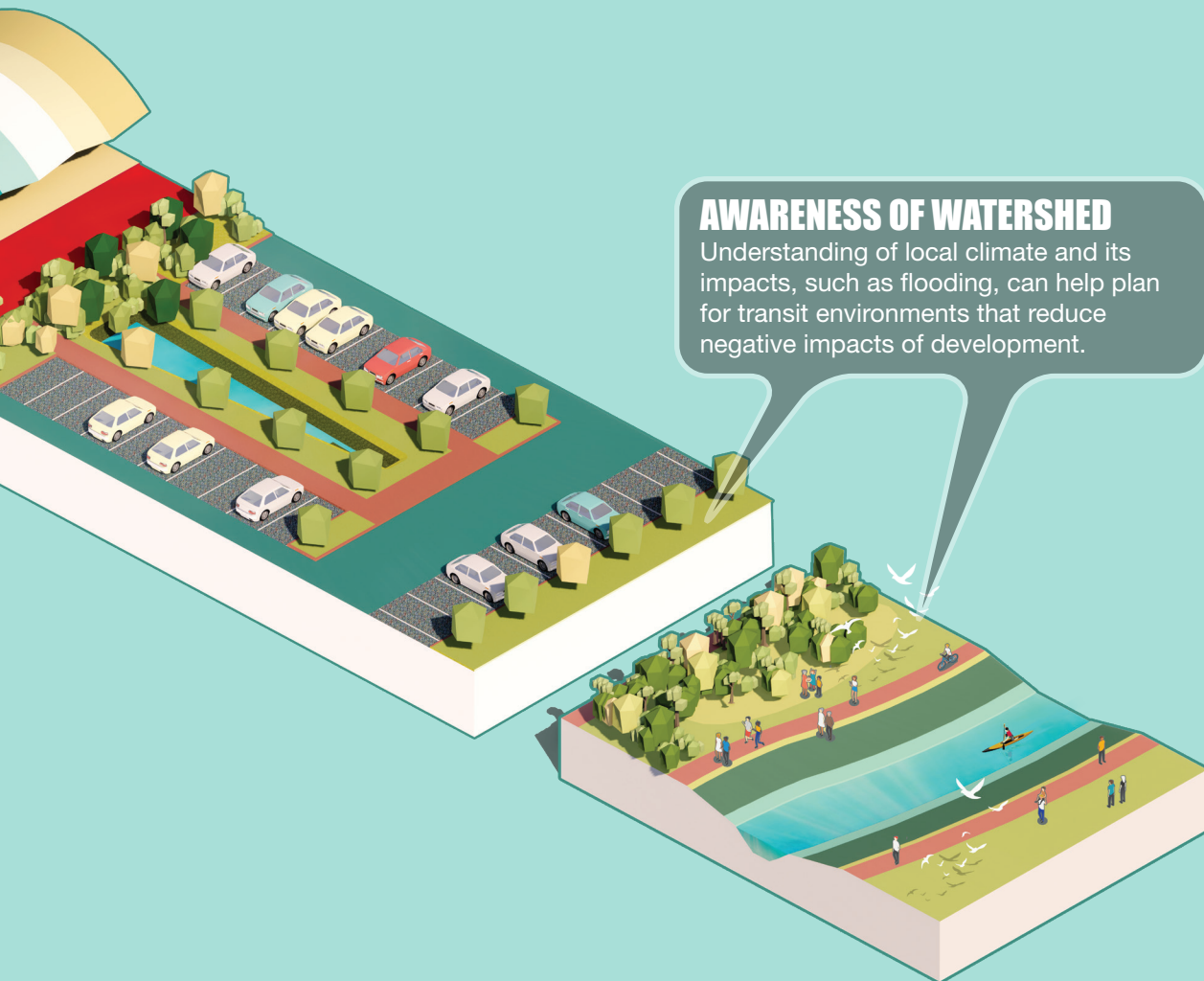
Opportunities to connect to neighborhood context and character reinforce a transit environment's experience.

LAST MILE CONTEXT

Consideration must be given to land use diversity with pedestrian pathways that connect to transit facilities.

TRANSIT EXCHANGES

Sheltered Park and Ride with Adjacency to Light Rail, Neighborhoods,
and Local Ecology with Trails



COMFORT AND CULTURE

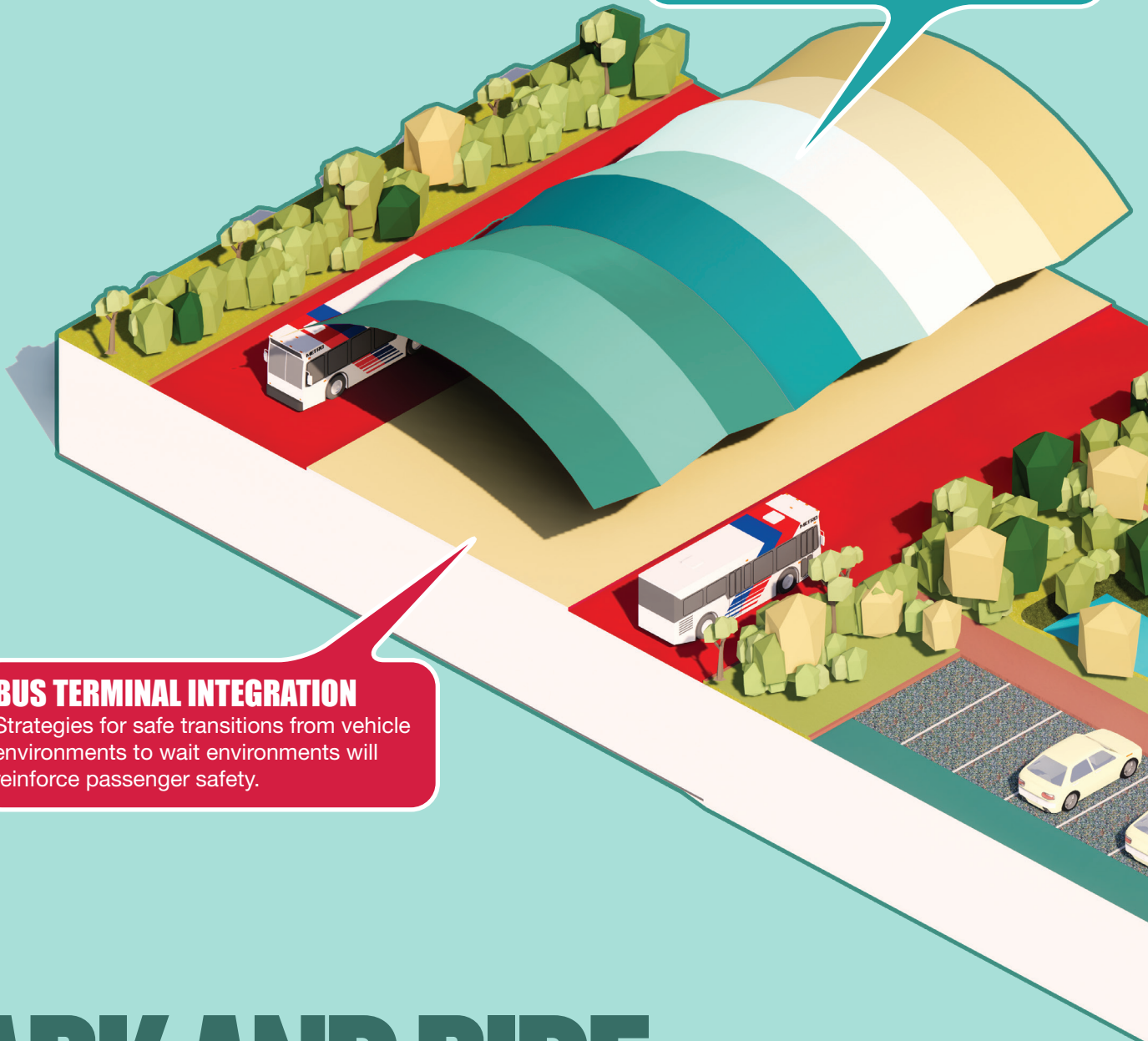
Canopies can provide opportunities to personalize the character of a transit facility within a community, as well as provide shelter from harsh environments while utilizing sustainable strategies.

BUS TERMINAL INTEGRATION

Strategies for safe transitions from vehicle environments to wait environments will reinforce passenger safety.

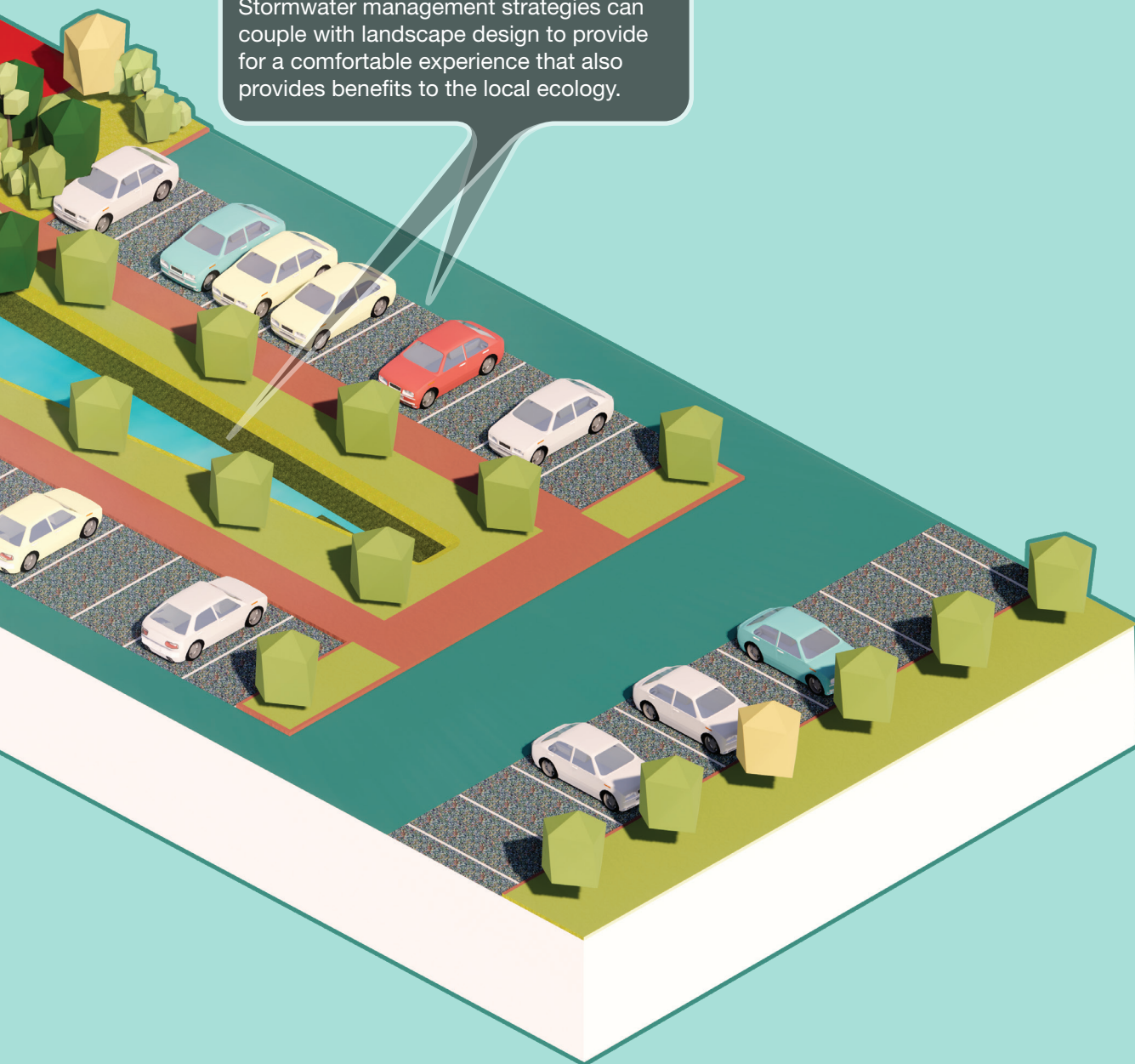
PARK AND RIDE WITH SHELTER

Park and Ride Sheltered Wait Area Adjacent to
Parking Lot



ECOLOGICAL INTEGRATION

Stormwater management strategies can couple with landscape design to provide for a comfortable experience that also provides benefits to the local ecology.



COOL AND PERVIOUS SURFACES

Select pavement materials that manage radiative and thermal properties to reduce Urban Heat Island Effect. For local climate select permeable pavement materials to manage stormwater runoff.⁵

CANOPIES

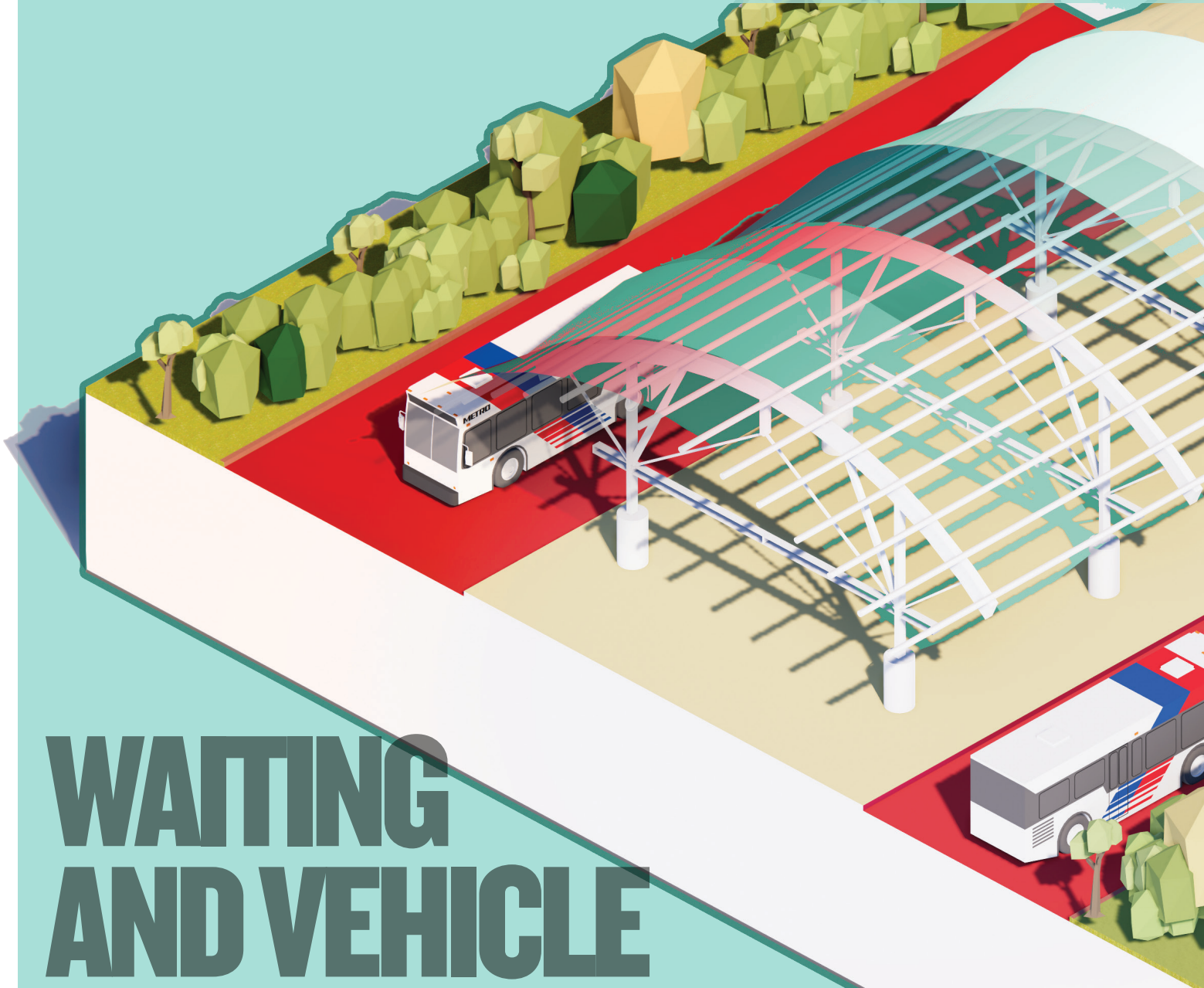
Canopies allow communities to personalize a transit node, while providing protection from a variety of regional conditions. Canopy materials should manage solar reflectance and emittance values to reduce Urban Heat Island Effect.⁴

WAITING AND VEHICLE ENVIRONMENT

Park and Ride Sheltered Wait Area Adjacent to
Parking Lot

LIGHTING

Provide shelter lighting that utilizes solar LED light system, with potential to integrate with the shelter canopy. Lighting is also an opportunity to reinforce a comfortable and safe environment and create a transit identity.



BIKE AND TRAIL CONNECTION

Transit nodes should integrate city-wide bike and trail systems for providing users with ease of access and connectivity to manage first and last mile connection.

LANDSCAPE

Selection of native plants and trees should aim to enhance the environment and contribute towards biodiversity, while improving the overall air quality.⁶ Design of landscape systems can also assist in managing stormwater runoff.

STORMWATER MANAGEMENT

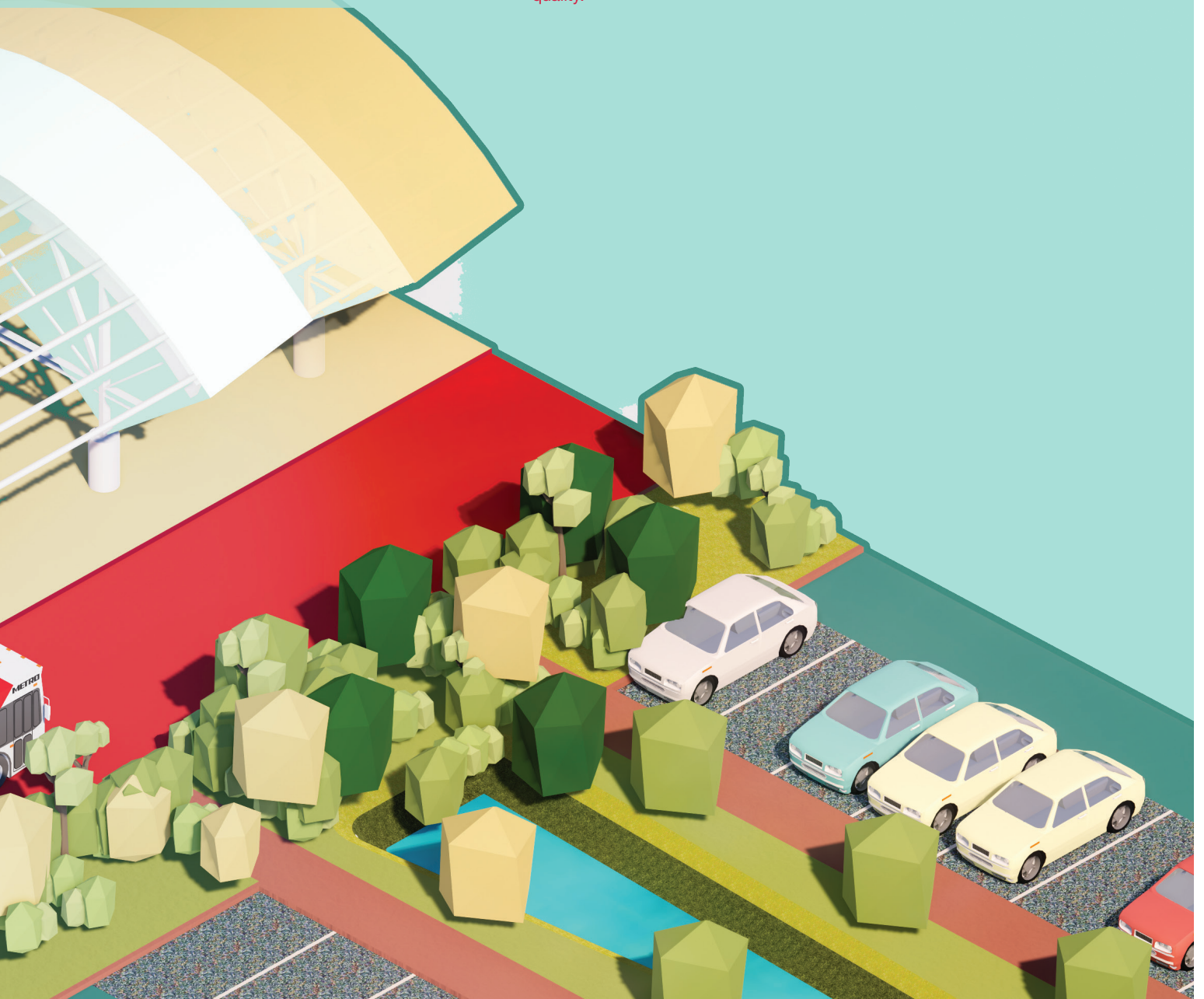
Provide integrated on-site stormwater management solutions that complement pedestrian circulation, and create a public amenity. Integrated on site solutions can also contribute towards improved air quality.^{1,2,3}

ACCESS FOR ALL

Surfaces, material selection, and transition details should allow for people of all generations and disability levels to access the city's transit system with ease.

CHARGING STATIONS

Provide integrated on-site charging stations for alternative vehicles that reduce CO2 emissions and contribute towards larger city initiatives.⁷



SEATING

Benches and seating should be organized to allow for optimal pedestrian flow and signal arrival into a transit environment. These are also opportunities to collaborate with community and city initiatives and funding.

TRASH

Selection of native plants and trees should aim to enhance the environment and contribute towards biodiversity, while improving the overall air quality.⁶ Design of landscape systems can also assist in managing stormwater runoff.

REAL TIME INFO

Real time information can provide passengers with arrival, departure, and delay estimates, to better plan and adjust their trips.

SIGNAGE

Signage should consider universal design strategies as well as conform with METRO's wayfinding guidelines for a consistent and predictable experience across all transit facilities.

ADVERTISEMENT

Strategic locations for advertisement should be programmed to not detract from the overall experience. Advertising provides opportunities for both public and private messaging with opportunity to connect with the community.

CULTURAL CONTEXT

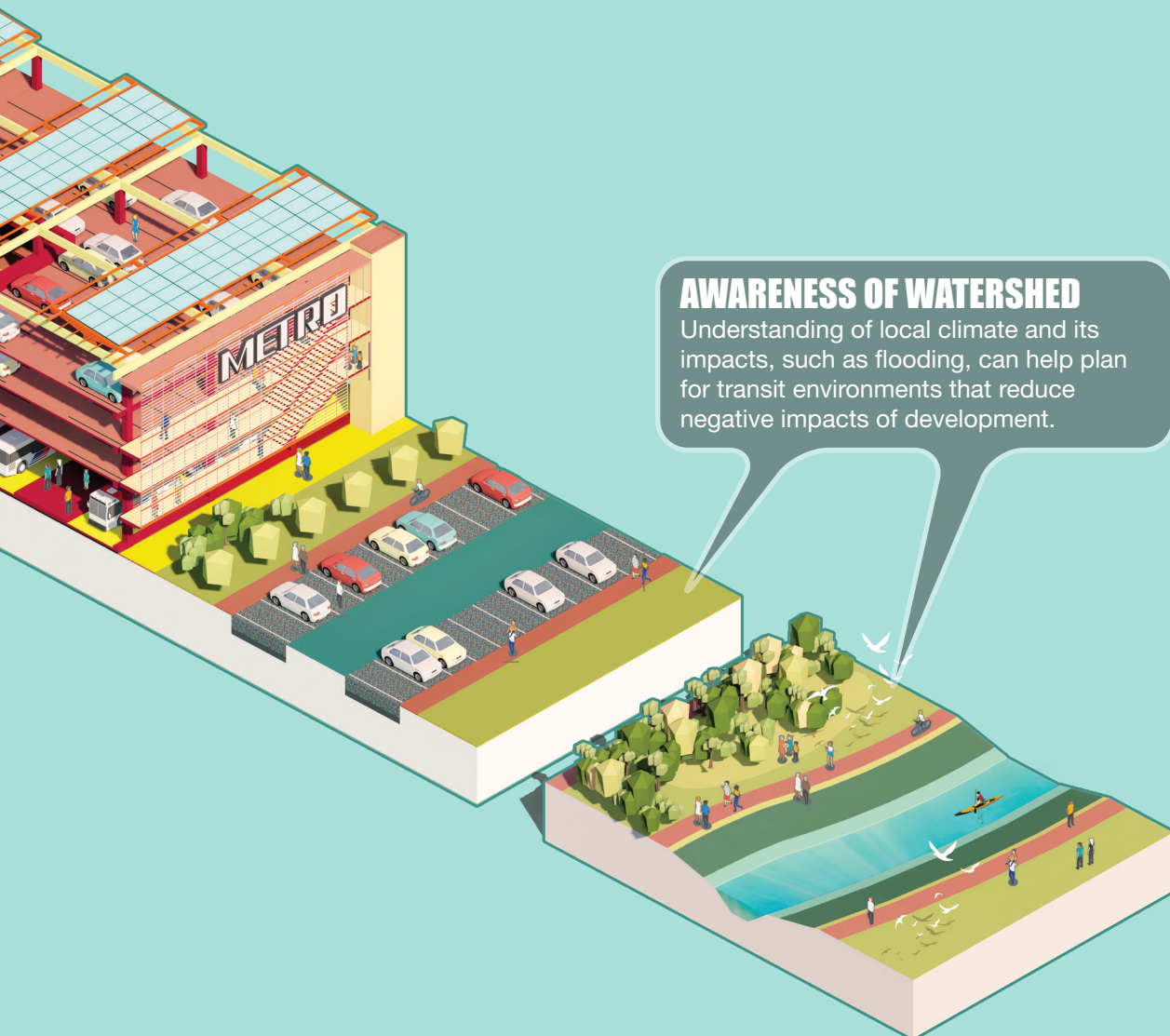
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TRANSIT EXCHANGES

Park and Ride Garage with Adjacency to Light Rail, Neighborhoods, and Local Ecology with Trails



COOL AND PERVIOUS SURFACES

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PARKING GARAGES

Parking garages should consider sustainable strategies to mitigate the negative impact of development such as rainwater capture and energy storage. Garages should also provide for safe pedestrian connectivity.

PARK AND RIDE WITH GARAGE

Park and Ride Garage with Adjacency to Parking Lot

LIGHTING

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LIGHT RAIL

Center Street Light Rail System Connecting to Local City Services

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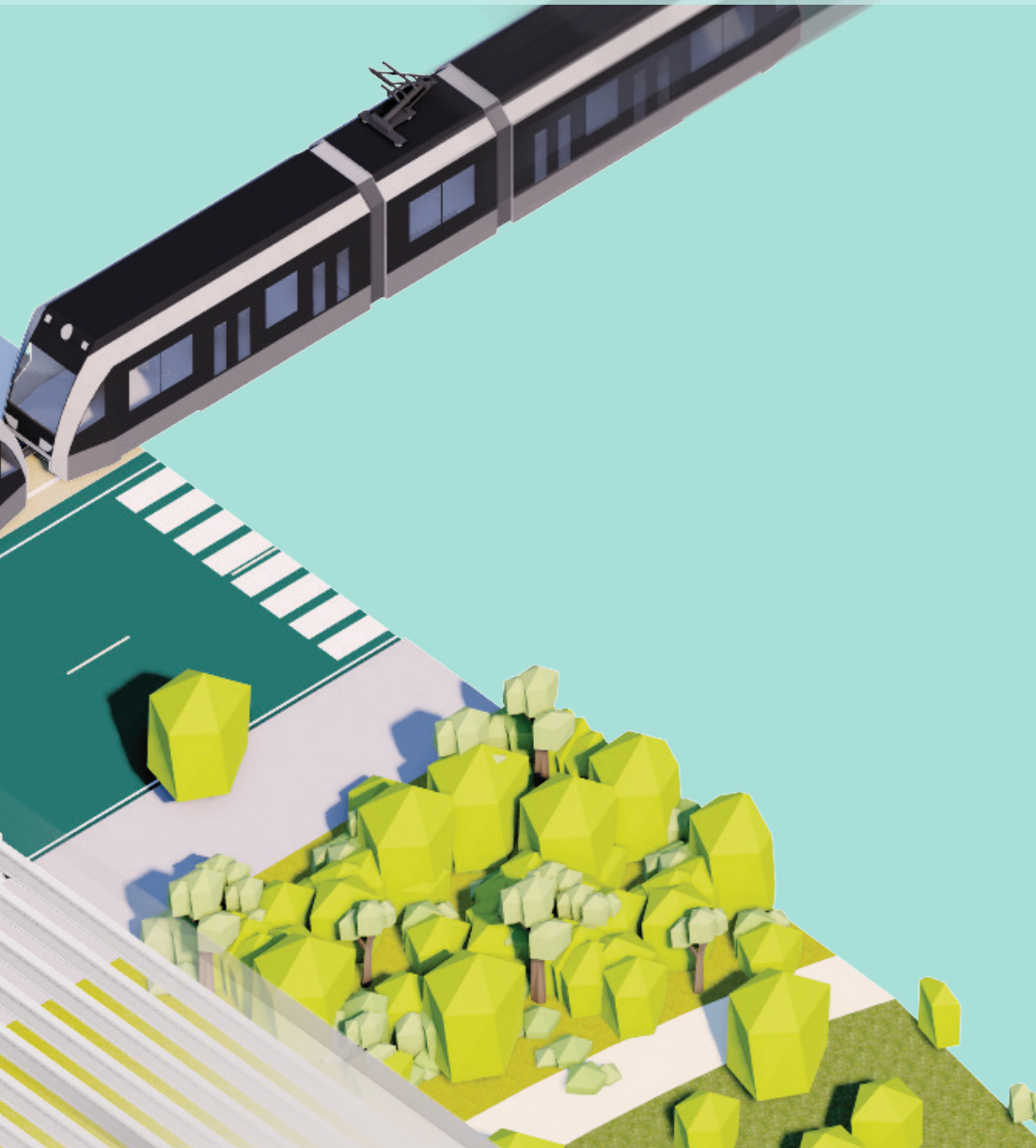
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ELEVATED LIGHT RAIL

Connecting to Local City Bike and Trail Networks and Providing Community Open Spaces

COOL AND PERVIOUS SURFACES

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CANOPIES

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EVENTS

Allowing connected open spaces to be available for community gatherings will allow for a stronger connection with the community and provide a safe active transit environment.

BUS STOP

Sheltered Bus Stop Connecting to City Services

SHELTERS

The design of the shelter should provide protection from a variety of regional conditions. Shelter materials should manage solar reflectance and emittance values to reduce Urban Heat Island Effect.⁴

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04

TRANSIT AMENITIES

Transit amenities reinforce desirable experiences at transit facilities by considering the following:

PHYSICAL AMENITIES

Amenities that provide for safe and comfortable wait environments secure ridership.

LIGHTING AND IDENTITY

Transit facilities that have a clear identity both at night and daytime serve as safe and legible spaces within the city.

SECURITY AMENITIES

Providing riders with options that monitor their safety, improves the experience of waiting at isolated transit facilities.

ECOLOGICAL AMENITIES

Green Infrastructure, stormwater management strategies coupled with landscape design, provide for a comfortable experience that also provides benefits to the local ecology.

CULTURAL AMENITIES

Amenities that reinforce the neighborhood character and provide neighborhood identity, increase community pride and upkeep of transit facilities.

PHYSICAL AMENITIES

BUS SHELTER

Shelters are tools to improve ridership experience, improve operational efficiency, build the brand identity of a system, and foster local economic development.

SEATING

Providing well considered seating options at or near transit stops dramatically improves the passenger experience.

BIKE STORAGE

Bike parking elements can expand transit sheds, enhancing access to stop-adjacent destinations, and boost intermodal connectivity.

TRASH RECEPTACLES

Trash receptacles are common at bus stops, especially at stops with benches or shelters. The decision whether to install trash receptacles or not seems to be a general policy matter.

WAYFINDING & SIGNAGE

Providing clear and simple information like route and system maps, schedules, expected travel times, real-time arrival times, and ridership procedures makes the system more attractive and simpler to use, and improves rider satisfaction.

CHARGING STATIONS

Many passengers access bus route information on their cell phones, providing charging stations for cellphone and digital tablets will improve passenger experience.

DRINKING FOUNTAINS

Provide passengers and the public access to water.

NEWSPAPER STANDS AND KIOSKS

Provide passengers and the public access to city information. Kiosks can also provide opportunities to purchase tickets and re-load transit cards.

PANIC BUTTONS & CAMERAS

Providing riders with options to alert authorities and monitor their safety, improves the experience of waiting at isolated transit facilities.

SHELTERS

The design of the shelter should provide protection from a variety of regional conditions. Shelter materials should manage solar reflectance and emittance values to reduce Urban Heat Island Effect.⁴

INTERPRETIVE WAY-FINDING

Neighborhood, historic, cultural markers that establish the importance of that locale and reinforce the link with mobility, neighbors and businesses.

SIGNAGE

Signage should consider universal design strategies as well as conform with METRO's wayfinding guidelines for a consistent and predictable experience across all transit facilities.

SEATING AND SHELTER

Seating and shelter design should be organized to allow for optimal pedestrian flow and serve different demographics and abilities.

OPPORTUNITIES

Consider an enclosure fence around a tree that is providing shade, designed at a height to act as a lean bar. This allows green infrastructure to co-exist with pedestrian needs.



OPPORTUNITIES

Consider opportunities for partnerships along the transit corridor, in which access, identity and maintenance could be a partnership.

BIKE STORAGE

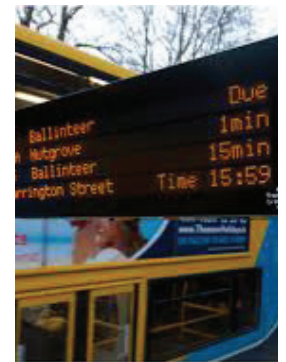
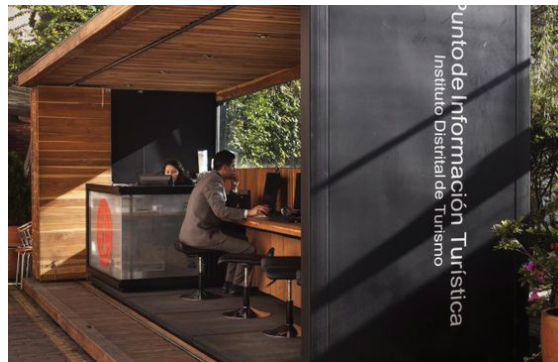
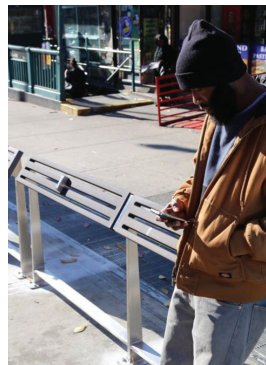
Bike storage are extensions of transit sheds connecting to city-wide bikeways and trails.

BIKE REPAIR STATION

Repair stations are helpful amenities that provide for basic repair of most bicycles and are important to establishing a diverse mobile infrastructure.



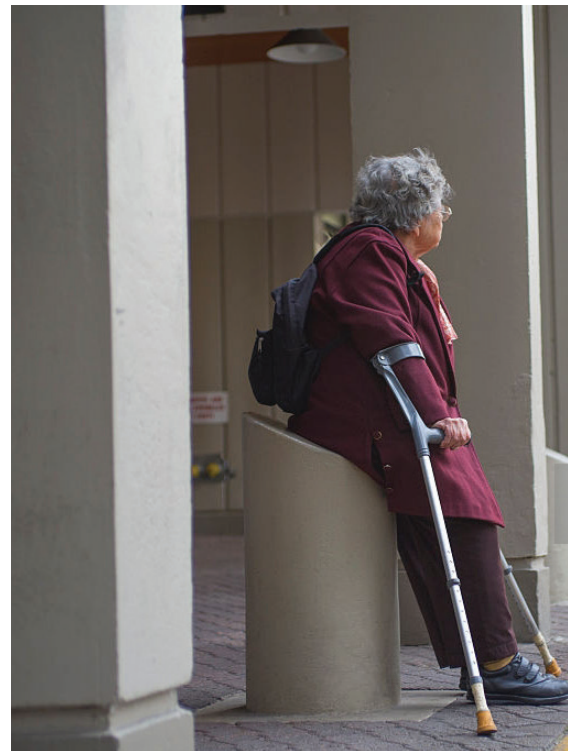
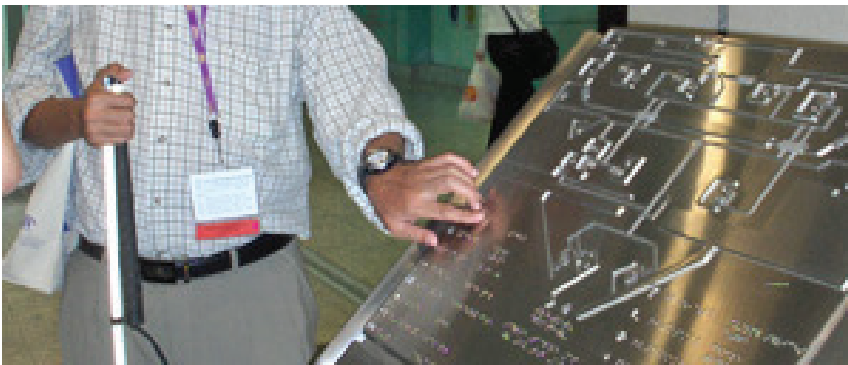
REFERENCE IMAGES AND EXAMPLES: PASSENGER AMENITIES





REFERENCE IMAGES AND EXAMPLES: UNIVERSAL DESIGN





LIGHTING AND IDENTITY

LIGHTING

Lighting significantly influences the passenger's perception of safety and security at a bus stop. It is necessary at nighttime and winter months when daylight is limited. It also creates spatial rooms and provides transit identity and neighborhood identity opportunities.

LIGHTING HIERARCHY

Different hierarchies of lighting offer different experiences, such as bollard lighting versus street lighting versus shelter lighting versus landscape lighting. These lighting hierarchies create spatial rooms marking clear transitions from one experience to the next.

LIGHT LEVELS

Both illumination levels for safety and security should be considered. Light levels should also provide opportunities for transit identity while following requirements that provide accepted levels of light into a neighborhood. The balance of temperature and intensity should conform to the neighborhood character.





REFERENCE IMAGES AND EXAMPLES: SECURITY AMENITIES

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BOLLARDS

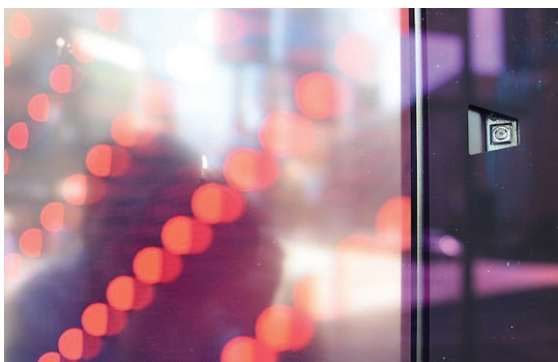
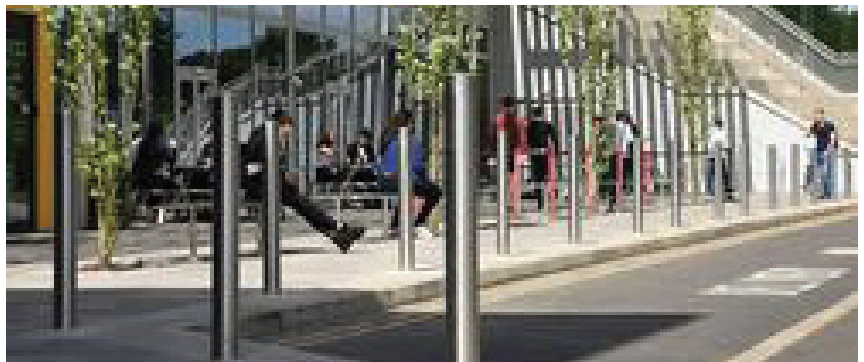
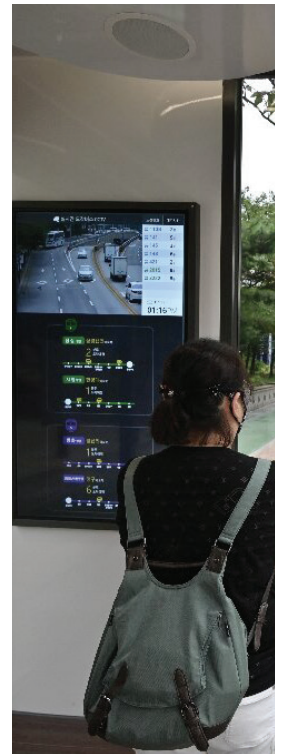
Bike parking elements can expand transit sheds, enhancing access to stop-adjacent destinations, and boost intermodal connectivity.

CAMERAS

Trash receptacles are common at bus stops, especially at stops with benches or shelters. The decision whether to install trash receptacles or not seems to be a general policy matter.

PANIC BUTTONS

Providing clear and simple information like route and system maps, schedules, expected travel times, real-time arrival times, and ridership procedures makes the system more attractive and simpler to use, and improves rider satisfaction.



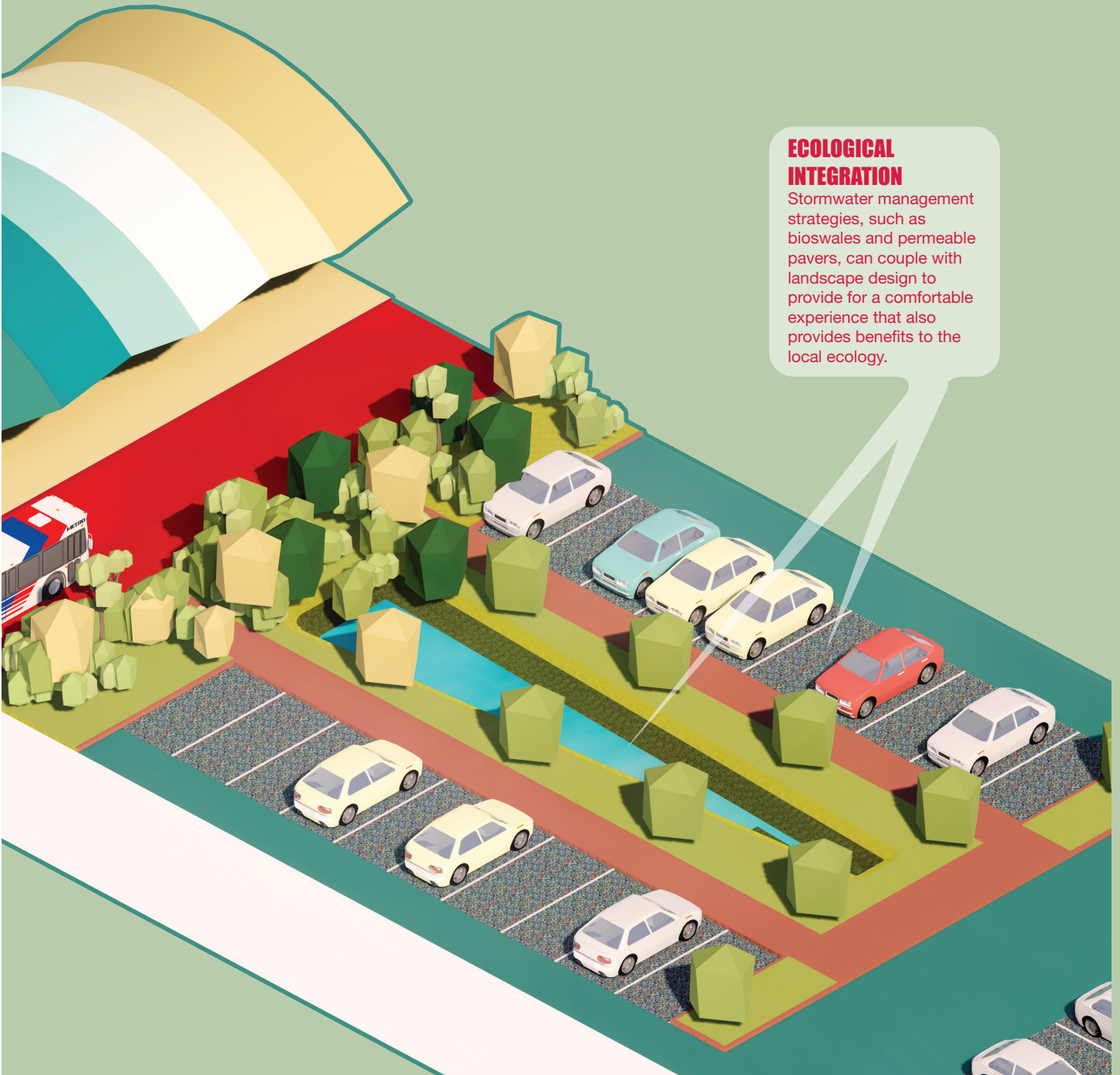


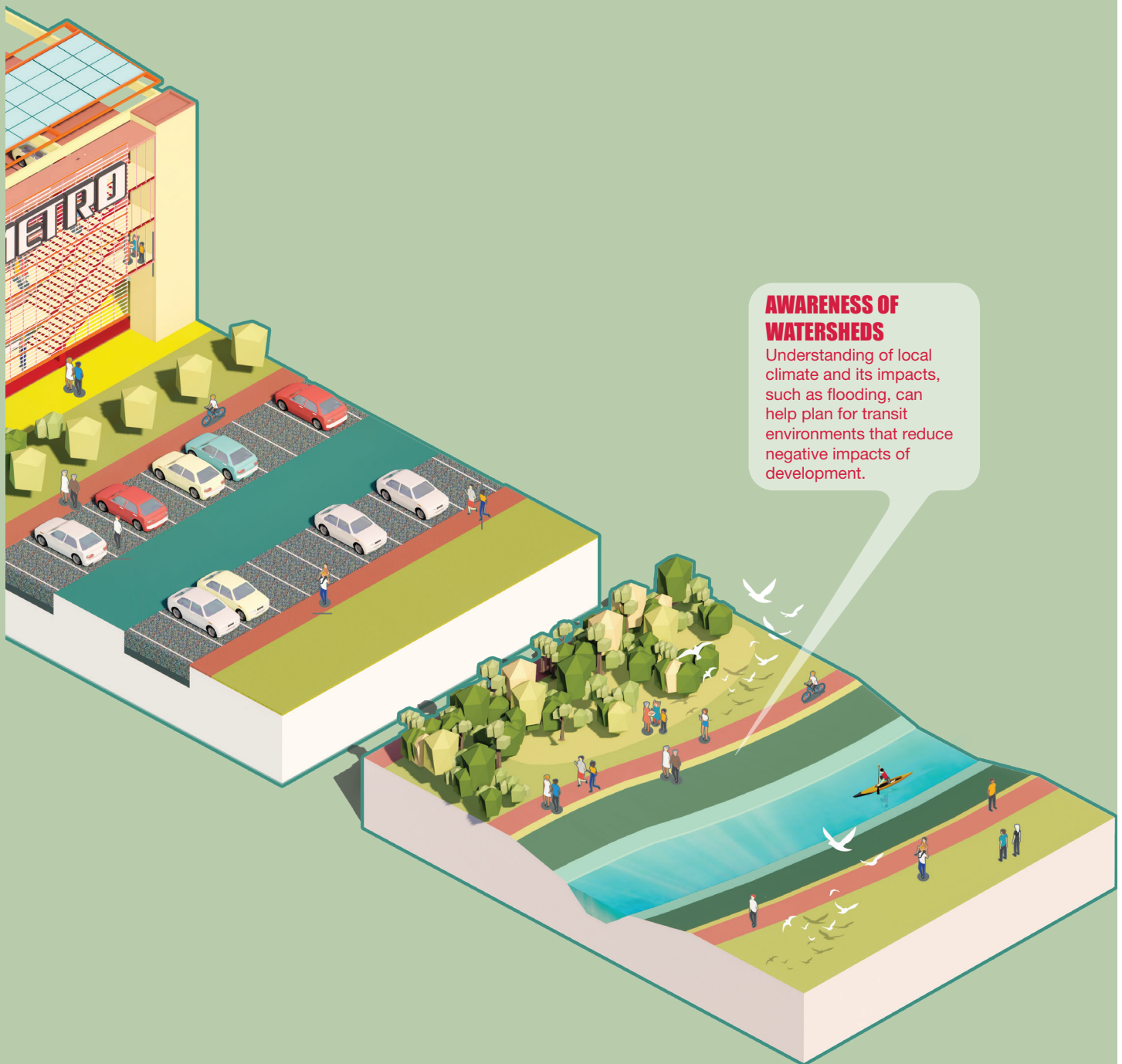
ECOLOGICAL AMENITIES

STORMWATER MANAGEMENT
Integration of systems to reduce runoff from rainfall improve the passenger experience and assist the city with flood reduction strategies. Systems such as bioswales, low-impact development, bio-filtration planters, and permeable surfaces help manage stormwater runoff.

ECOLOGICAL INTEGRATION

Stormwater management strategies, such as bioswales and permeable pavers, can couple with landscape design to provide for a comfortable experience that also provides benefits to the local ecology.





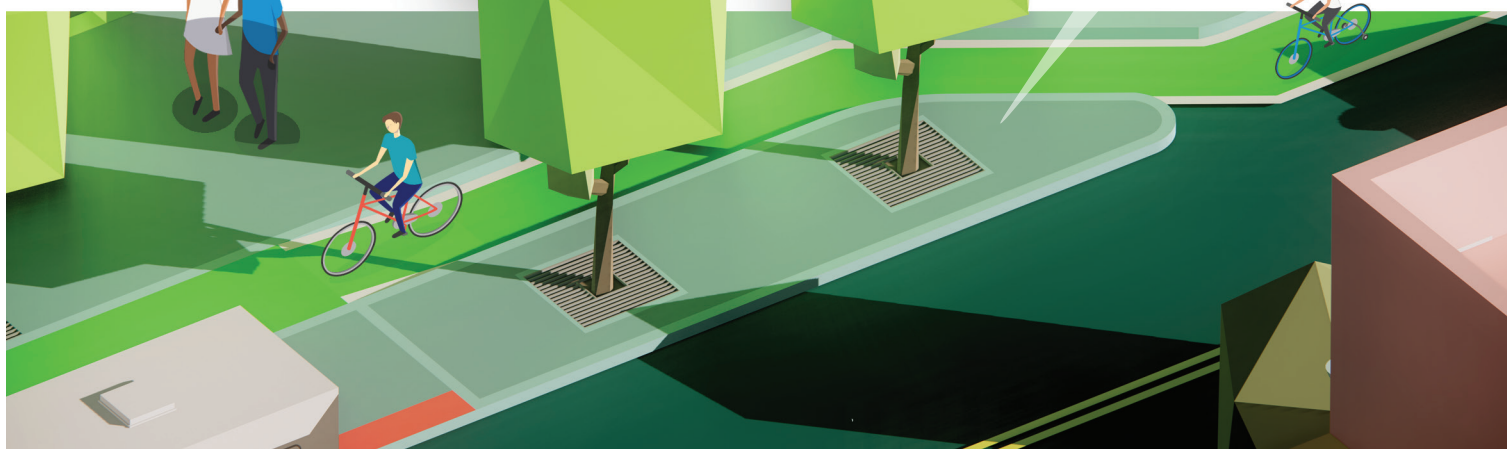
AWARENESS OF WATERSHEDS

Understanding of local climate and its impacts, such as flooding, can help plan for transit environments that reduce negative impacts of development.

LOW IMPACT DEVELOPMENT STRATEGIES

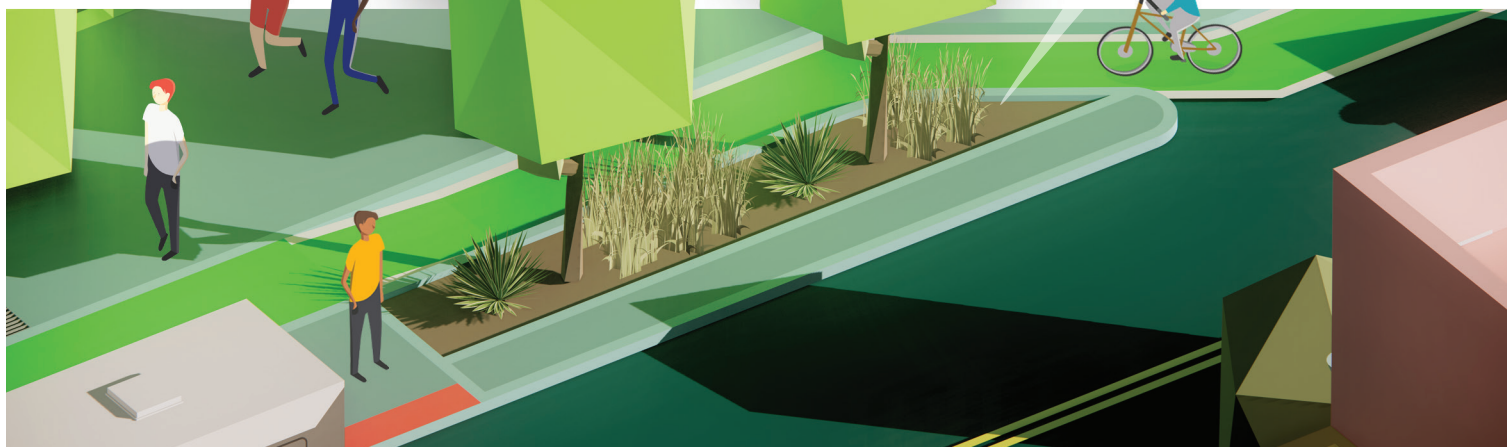
TREE WELLS ALONG PERMEABLE PAVERS

Coupling tree planting zones with permeable surfaces helps mitigate stormwater runoff.



PERVIOUS STRIPS

Coupling tree planting zones with permeable zones that included native vegetation helps mitigate stormwater runoff.





BIOFILTRATION PLANTERS

These planter zones with impermeable bases can provide a pleasant edge for seating while filtering stormwater runoff.



INTEGRATED BIOSWALES

Using native vegetation, bioswales are an effective strategy for filtering stormwater runoff.

REFERENCE IMAGES AND EXAMPLES: STORMWATER MANAGEMENT





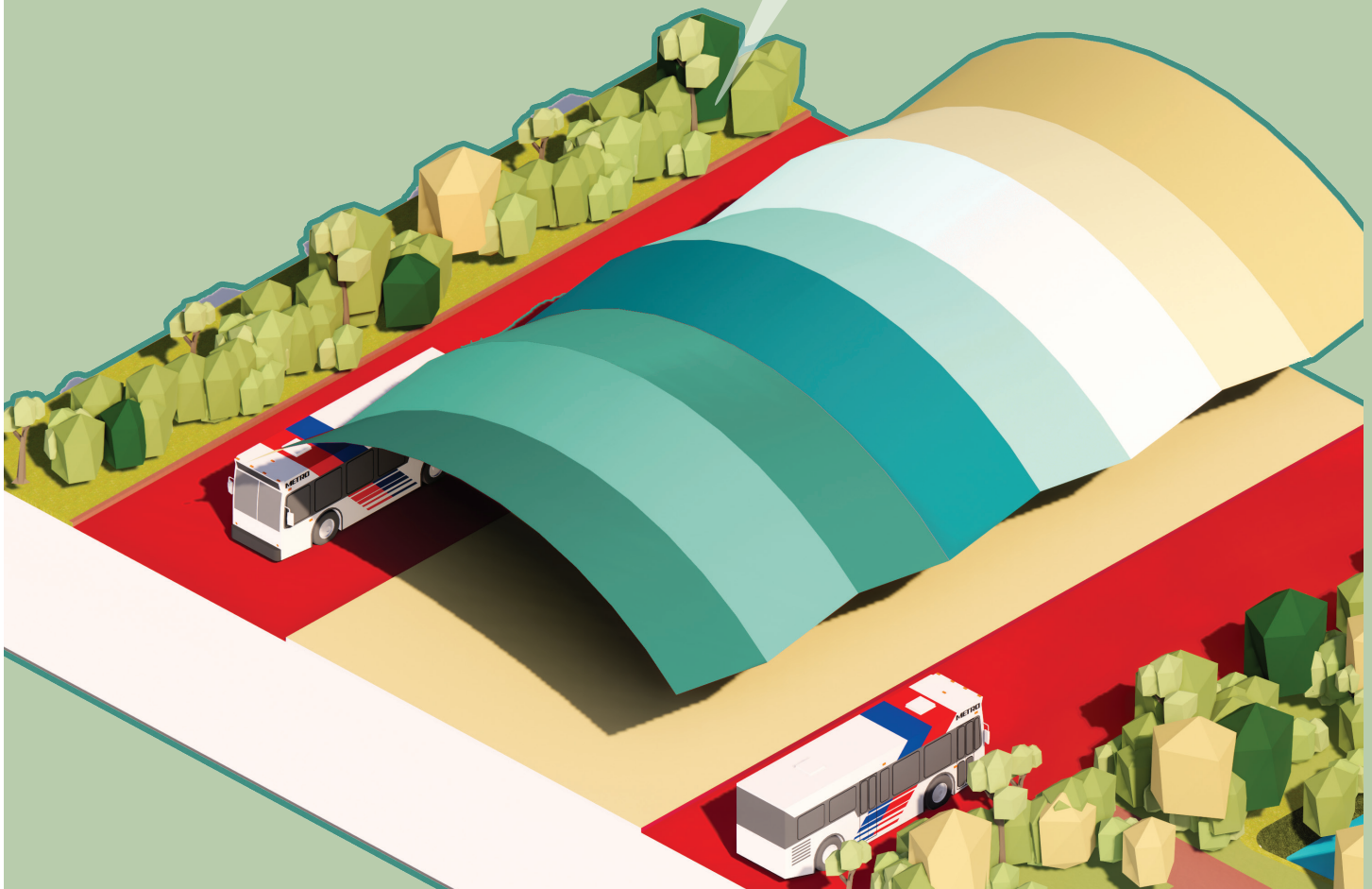
ECOLOGICAL AMENITIES

LANDSCAPE DESIGN

Tree canopy and planted zones can improve transit experience for waiting, by increasing comfort and reducing perceived wait time. Select native vegetation can also improve the natural ecosystem and reduce harmful pollutants. Landscape design can offer opportunities for incorporating local ecology and aesthetics that also provide other functions such as buffers and edges.

LANDSCAPE BUFFERS

Offer protected environments for vehicle and pedestrian zones, while providing benefits for the natural ecosystem. These zones can also be imagined as pollinator gardens or bioswales.





STRUCTURED LANDSCAPE ZONES

Open space as a result of transit planning can provide for community partnerships in hosting events, such as festivals and markets. These spaces can also connect to city-wide bike and trail networks.



LANDSCAPE STRIPS

Offer protected edges for separating vehicle and pedestrian zones, while providing benefits for the natural ecosystem. These zones can also be imagined as pollinator gardens or bioswales.

REFERENCE IMAGES AND EXAMPLES: LANDSCAPE DESIGN





CULTURAL AMENITIES

Amenities that reinforce the neighborhood character and provide neighborhood identity, increase community pride and upkeep of the transit facilities.



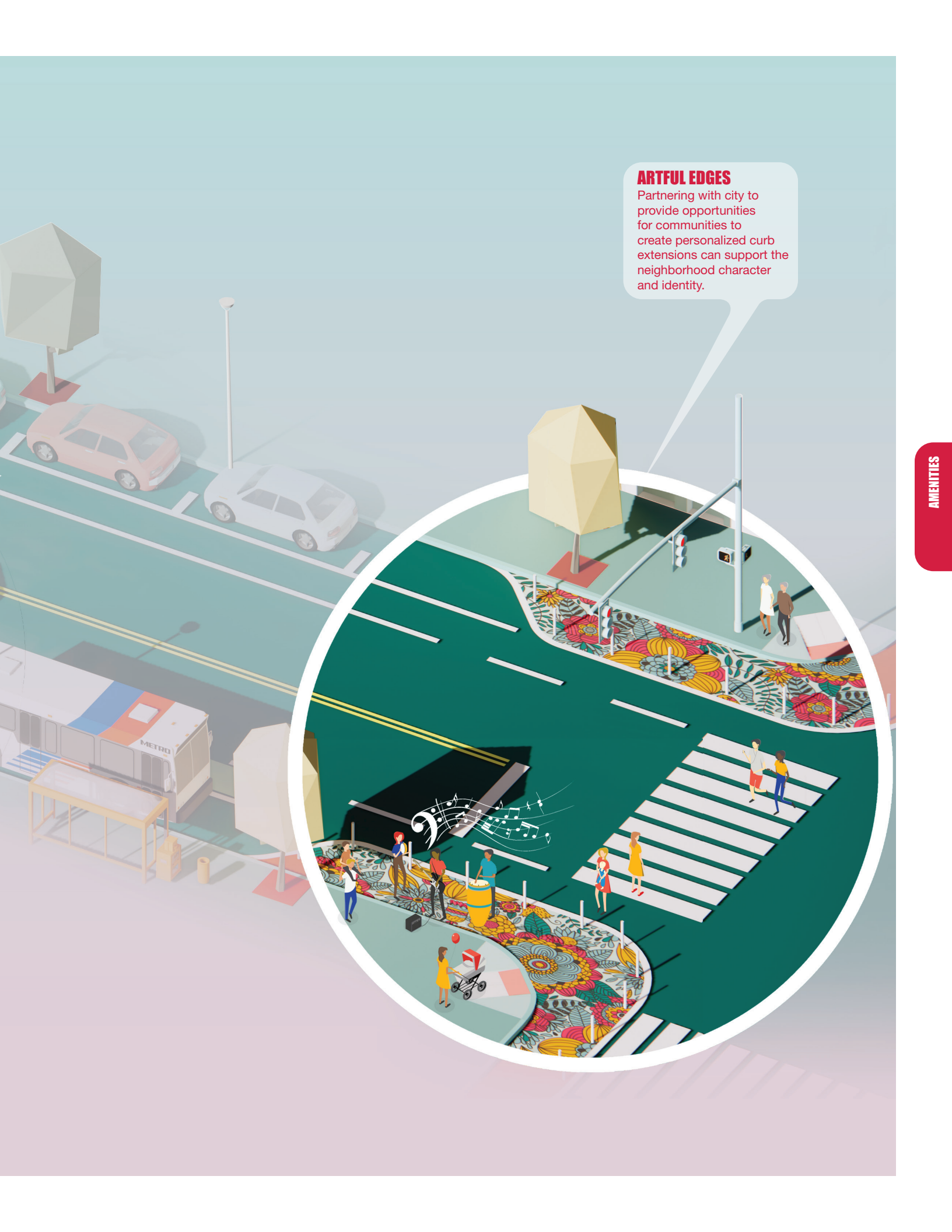
SOCIAL HUBS

Partnering with city to provide opportunities for communities to gather, linger, and mingle, provides for safe and active zones near transit facilities.



SHARING CULTURE

Partnering with city to provide opportunities for communities to share their local food and craft can support neighborhood pride.



ARTFUL EDGES

Partnering with city to provide opportunities for communities to create personalized curb extensions can support the neighborhood character and identity.

REFERENCE IMAGES AND EXAMPLES: COMMUNITY / CULTURE / IDENTITY

Cultural Amenities provide opportunities for Neighborhoods to personalize transit facilities in concord with the community character and context and reinforce a unique station identity.

ADVERTISEMENT

Bus shelter advertising is highly scalable. The format delivers a low cost of entry that is friendly to local groups and small businesses, but the sheer breadth of exposure makes these ads attractive to large brands as well.

ART

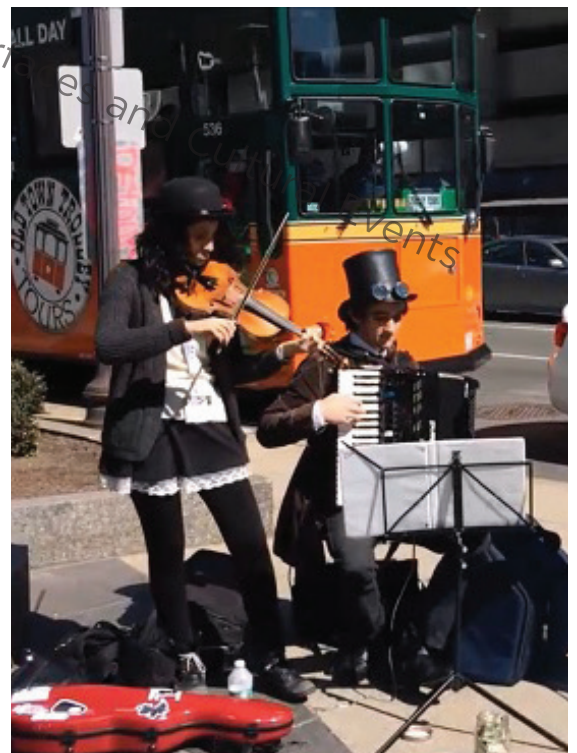
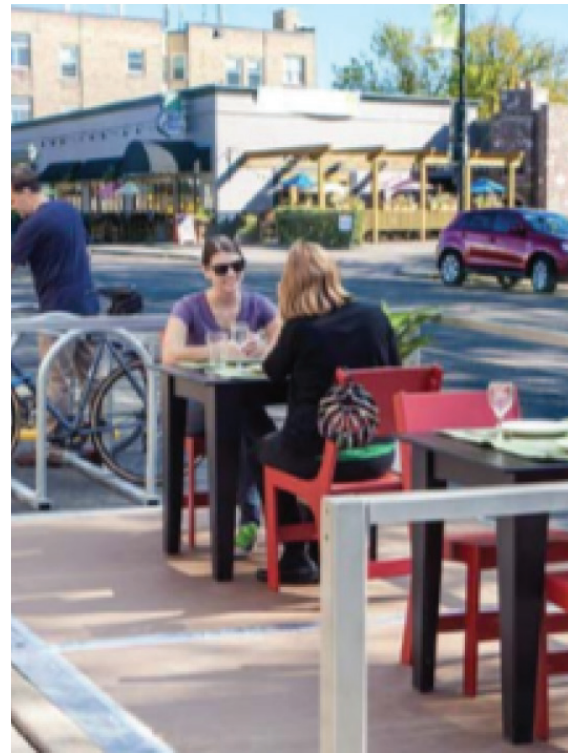
Incorporation of public art offers exciting opportunities for increasing the experience of the transit environments and the surrounding pedestrian environment. Installing artwork throughout the transit facilities by working with artists, community groups, government agencies, and businesses offers opportunities to capture the spirit and vitality of the region. Art may be in the form of murals, mosaics, sculpture, lighting, painted sidewalks, and other possibilities.





REFERENCE IMAGES AND EXAMPLES: COMMUNITY / CULTURE / EVENTS





05

TRAFFIC CALMING

Traffic calming measures increase pedestrian safety and provide for seamless transitions as passengers connect to city services.

TRAFFIC CALMING

CURB EXTENSIONS

Curb extensions visually and physically narrow the roadway, creating safer and shorter crossings for pedestrians while increasing the available space for street furniture, benches, plantings, and street trees. Curb extensions have multiple applications and may be segmented into various sub-categories, ranging from traffic calming to bus bulbs and midblock crossings.

PAVEMENT MARKINGS

The width allocated to lanes for motorists, buses, trucks, bikes, and parked cars is a sensitive and crucial aspect of street design. Lane widths should be considered within the assemblage of a given street delineating space to serve all needs, including travel lanes, safely islands, bike islands, bike lanes, and sidewalks.

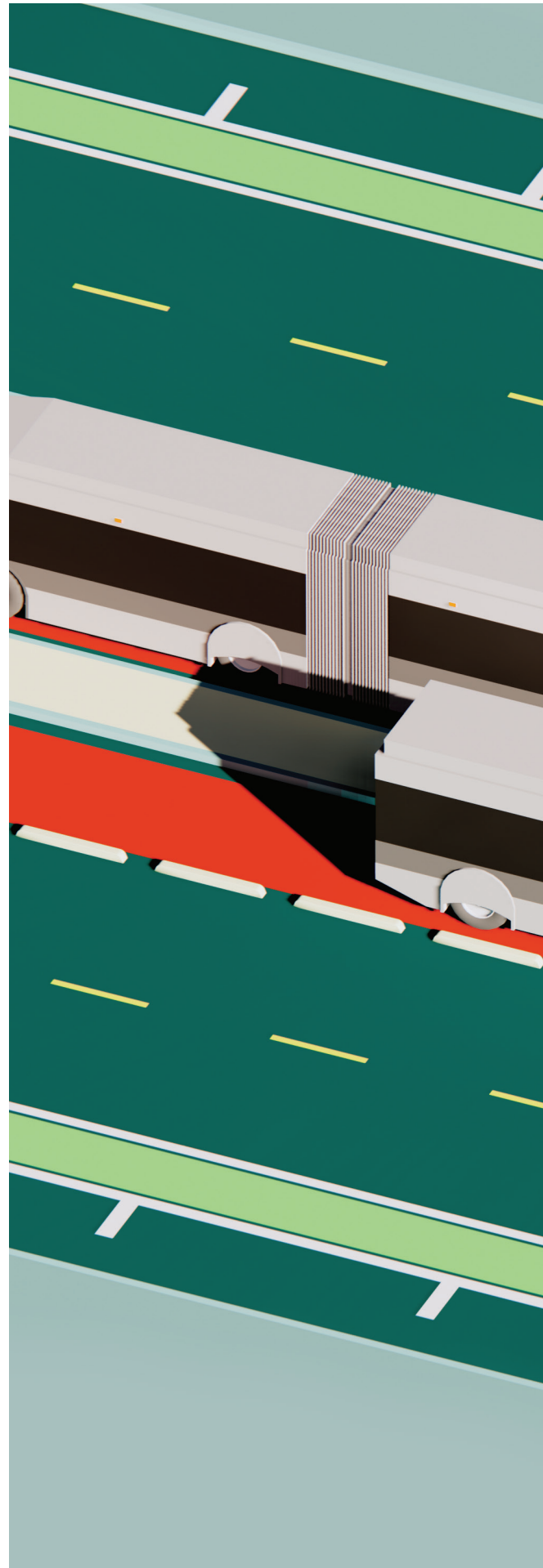
Each lane width discussion should be informed by an understanding of the goals for traffic calming as well as making adequate space for larger vehicles, such as truck and buses.

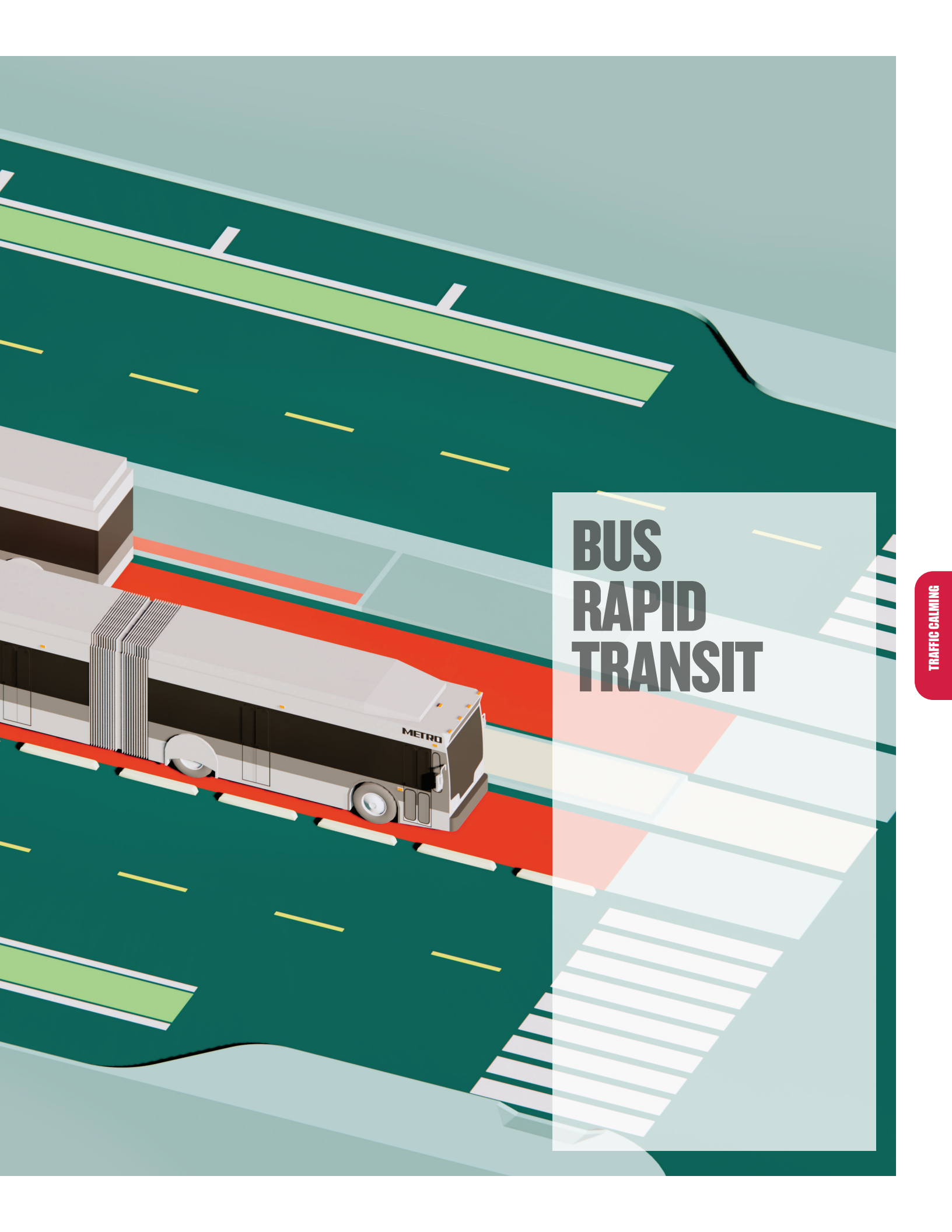
RAISED MEDIANS

Vertical speed control elements manage traffic speeds and reinforce safe, pedestrian-friendly speeds. These devices may be appropriate on a range of street types, but are most widely applied along neighborhood, residential, or low-speed streets where freight traffic is discouraged. They may be installed in tandem with horizontal traffic calming measures such as curb extensions or chicanes, or applied individually on streets with a constrained right-of-way.

WIDENING SIDEWALKS

Sidewalks play a vital role in city life. As conduits for pedestrian movement and access, they enhance connectivity and promote walking. As public spaces, sidewalks activate streets socially and economically. Safe, accessible, and well-maintained sidewalks are a necessary investment for cities, and have been found to enhance general public health and maximize social capital. Superior sidewalk design can encourage walking by making it more attractive.



An isometric illustration of a bus rapid transit system. A grey and black articulated bus with 'METRO' written on its side is traveling on a red-paved dedicated lane. The lane is flanked by green grassy areas and white dashed lines. In the background, there are stylized buildings and a crosswalk with white stripes. A semi-transparent white box containing the title 'BUS RAPID TRANSIT' is positioned over the right side of the image.

BUS RAPID TRANSIT

MIDBLOCK

**TRANSIT ROADWAY WITH ON-STREET
PARKING**



**TRANSIT ROADWAY WITH NO
ON-STREET PARKING**

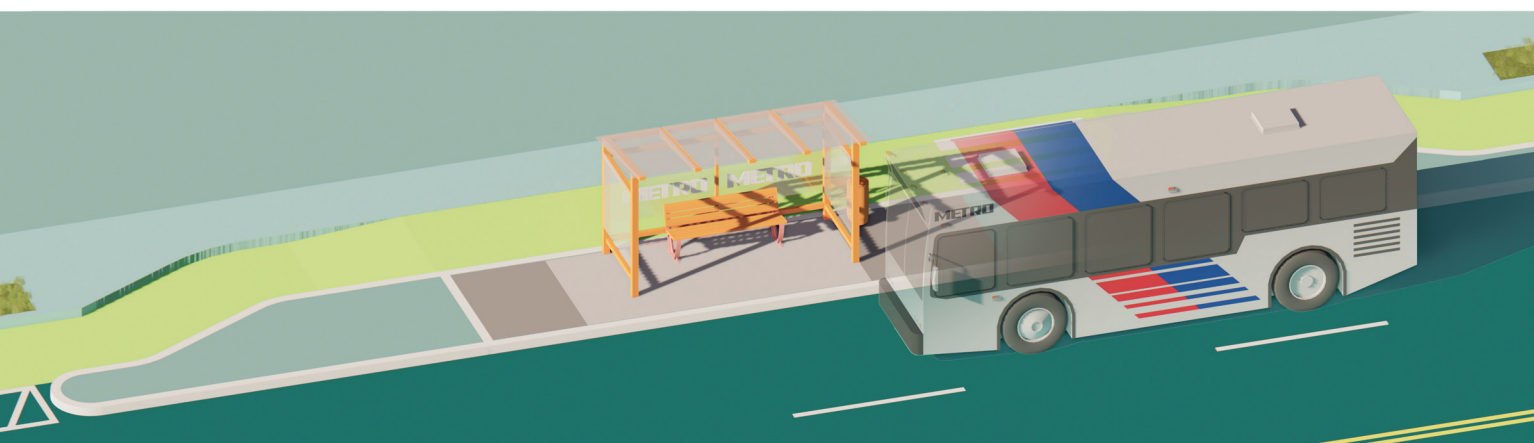
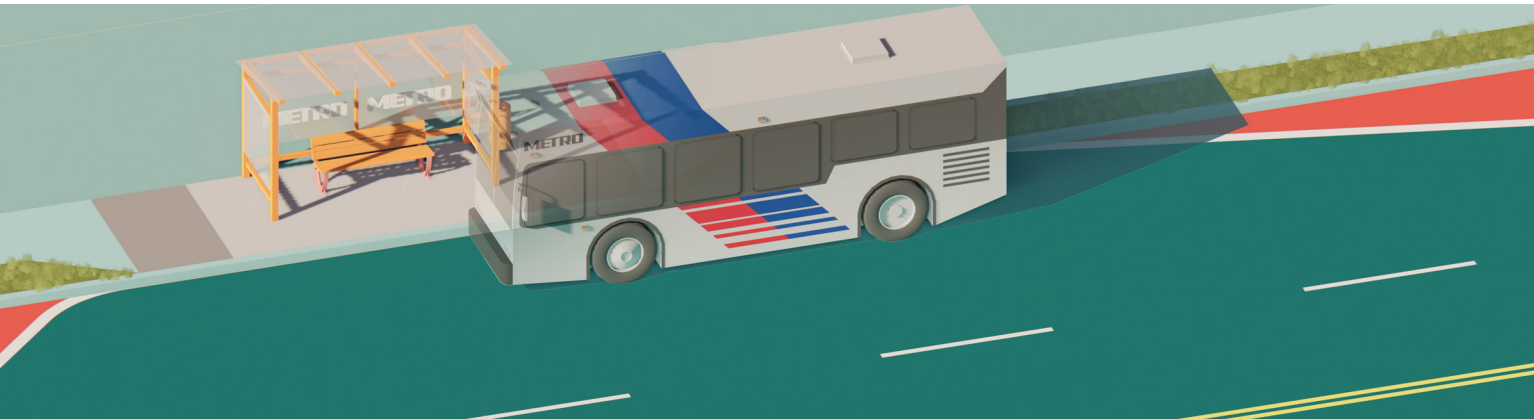


**TRANSIT ROADWAY WITH BUFFERED
BIKE LANE**

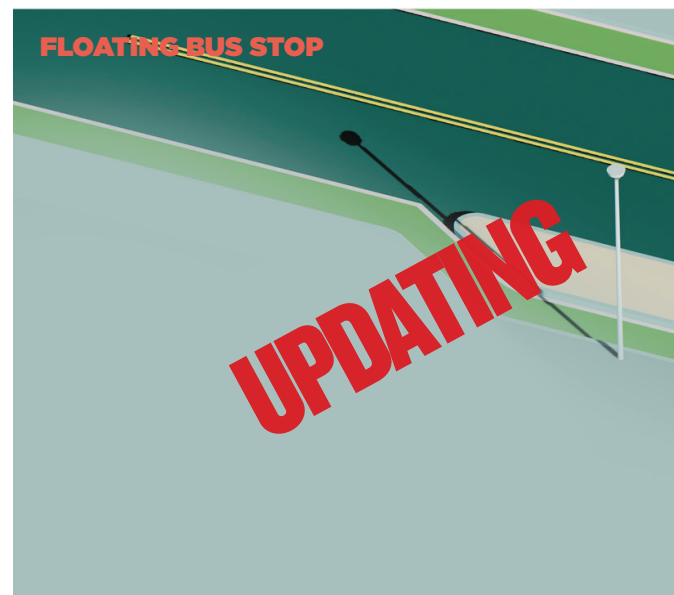
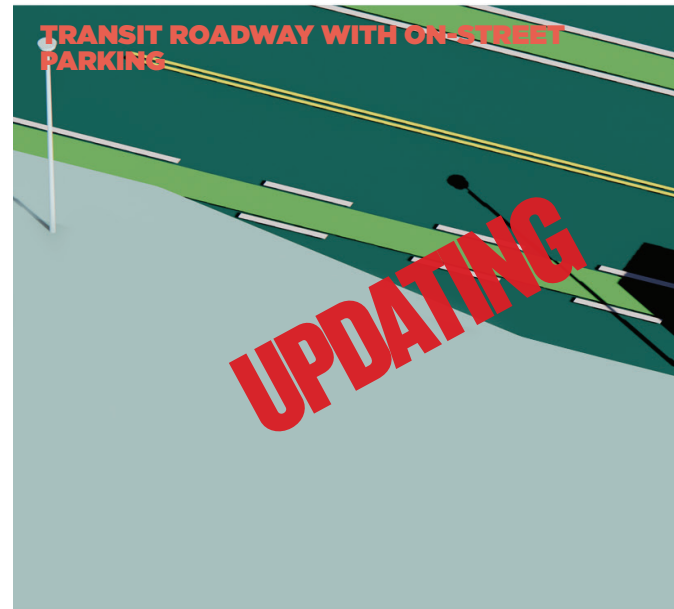


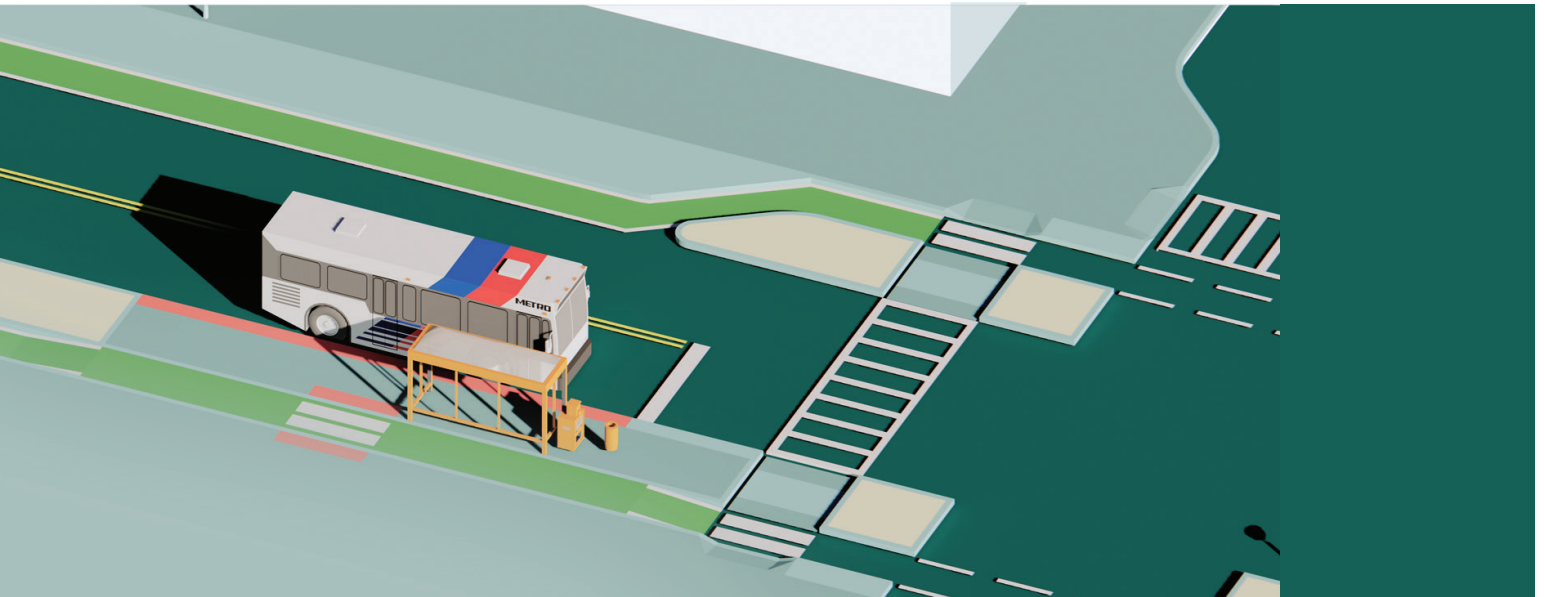
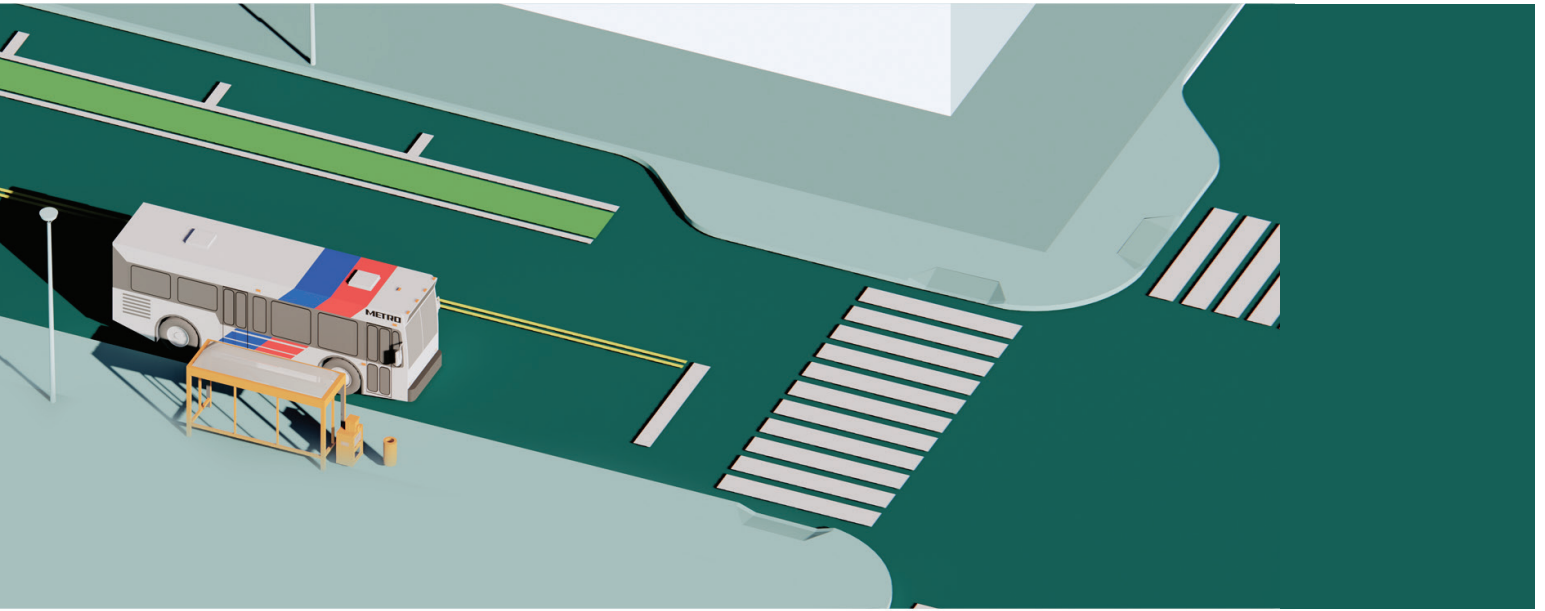
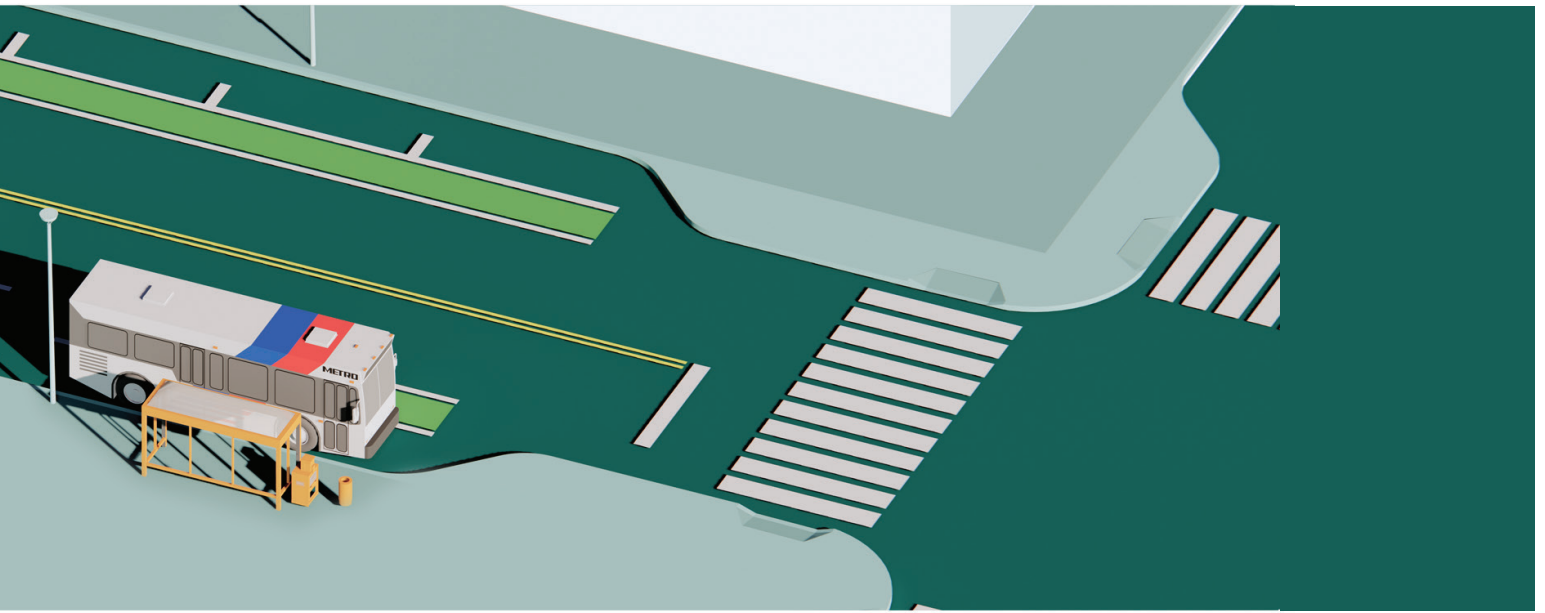
FLOATING BUS STOP WITH PARKING





NEAR SIDE





REFERENCE IMAGES AND EXAMPLES: TRAFFIC CALMING





06

APPENDIX

List of reference material and notes on the subject of transit facilities, environments and amenities, including local reference material.

ONLINE REFERENCES

NACTO
Climate Action Plan
Plan Downtown
Plan Houston
Houston Bike Plan
Beyond the Bayous
Bayou Greenways 2020
COH Sidewalk Program
Complete Communities

CATALOG AND BOOK REFERENCES

Houston Public Works - Chapter 19 Floodplain
Guidelines

METRO Transit Design Standards Section 5,
Curb-Side Standards [shelter]

Accessibility Standards (TAS-402) Chapter 4;
Accessible Routes?



NOTES

1. Refer to Houston Public Works Chapter 19 Floodplain Guidelines for City of Houston detention and mitigation requirements.
2. Refer to LEED Stormwater Management Green Infrastructure and Buildings guidelines.
3. Refer to ENVISION program by Institute for Sustainable Infrastructure.
4. Refer to LEED Sustainable Sites Requirements for solar reflectance index values.
5. Refer to NACTO, per NACTO 'Pervious pavements have multiple applications, including sidewalks, street furniture zones, and entire roadways. Selection of pavements, such as permeable pavers, permeable concrete, permeable asphalt or other materials, should be based on engineering constraints and the surrounding street context.
6. Refer to TxDOT's common use of native plant list in the appendix.
7. Refer to City of Houston's Climate Action Plan.