Intersection Design Principles

Reclaiming Space at Intersections

Reclaiming space for pedestrians and non-motorized users at intersections can be accomplished with short-term and long-term solutions.

Street trees serve to create pedestrian-friendly spaces at intersections, providing shade, beautification, and a sense of enclosure.

- **Short-term options**: Fixing short-term damage, such as painting, signage, and traffic calming measures. These options are reversible and can be implemented quickly.

- **Long-term options**: Installing permanent features like concrete curbs, raised medians, and planting strips. These options require more planning and investment but provide a more permanent solution.

The diagram visually illustrates various strategies for reclaiming space at intersections, emphasizing the importance of pedestrian and non-motorized user safety and comfort.
The Boston Complete Streets approach puts pedestrians, bicyclists and transit users on equal footing with motor-vehicle drivers. This initiative aims to improve the quality of life in Boston by creating streets that are both great public spaces and sustainable transportation networks. It embraces innovation to address climate change and promote healthy living. The objective is to ensure Boston’s streets are:

**Multimodal**
Incorporates pedestrians, people with disabilities, bicyclists, transit users, motor vehicle drivers. Multimodal level of service (LOS) informs roadway design to ensure that streets are shared by all users and not dominated by cars.

**Green**
Incorporates street trees, rain gardens, bioswales, paving materials and permeable surfaces, with plants and soils collecting rain water to reduce flooding and pollution. Green design elements promote an environmentally sensitive, sustainable use of the public right-of-way.

**Smart**
Incorporate intelligent signals, smart meters, electric vehicle sharing, car and bicycle-sharing, way-finding and social networks for greater system efficiencies and user convenience.

**OPPORTUNITIES**
Design for pedestrians, people with disabilities, bicyclists, transit users as well as motor vehicle drivers

Combine trees, bioswales, permeable paving with soil infiltration zones to reduce flooding and pollution

Use smart technology for greater system efficiencies and user convenience
LOCIALIZED INTERVENTIONS
PASSEIG DE ST JOAN BOULEVARD
BARCELONA, SPAIN

The layout of paseo de St Joan as an important 50m boulevard was first laid down by Ildefons Cerdà in his Ensanche project, approved in 1859.

Cerdà’s isotropic layout of 20m-wide streets also features various main 50m-boulevards with wide pavements lined with two rows of trees as well as a central roadway. Passeig de Sant Joan is one of these.

Josep Fontseré’s Ciutadella project (winner of the 1872 contest) featured a new central promenade which was to prolong the Salón de St Joan. The Ciutadella fortress was demolished and turned into a public park and this led to the prolongation of paseo de St. Joan thus recovering the vertical axis featured in Fontseré’s project.

OPPORTUNITIES
Incorporate parkettes, leisure space, and programmed public space with traditional streetscapes, where ever space allows

Modernize street use while respecting and incorporating historical design intentions
CASE STUDIES

VISUAL INTEREST

VANKE CLOUD CITY PHASE 2
GUANGZHOU, CHINA

Located in Guangzhou, Vanke Cloud City Phase 2 is a pioneer mixed use development project in China. It is composed of four residential towers with over 5000 small apartments (8-35 sq.m) surrounded by fashionable commercial frontage.

This project is one of the first small apartment projects in China, aiming to satisfy the young newcomers who work in big cities but cannot afford the high price of real estate.

With small apartments, young people can continue living in first tier cities, enjoying rich career opportunities, modern facilities, comprehensive public services, and access to cutting-edge information, all while still being able to afford a home.

Modular Grid System
The landscape framework is based on a modular grid system. From softscape, to paving, to outdoor furniture and installation, landscape elements are arranged on this system so that they are easy to construct, assemble, and replace.

Interactive Landscape Installation
A series of fun, interactive installations animate the landscape. The Cloud Line is a continuous tubular steel structure, bent into a bar, parallel bars, monkey bars, benches, and other fitness facilities. Cloud Seat is a modular set of interactive spaces made of pre-perforated steel plate. Cloud Seat is lit up at night and produces stunning lighting effects through the perforated plate.

OPPORTUNITIES

Incorporate whimsical design elements which appeal to a wide range of users.

Consider using modular systems of construction to maximize project efficiency and minimize costs.

Imaginative lighting strategies can animate and reinforce the street’s night time presence.
CASE STUDIES

GATEWAY
LONSDALE STREET REDEVELOPMENT
MELBOURNE, AUSTRALIA

Lonsdale Street is the first key project as part of the State Government’s Revitalizing Central Dandenong Initiative to bring new energy, activity and amenity to the street. Central Dandenong has a unique cultural richness, a dynamic produce market, performing arts precinct and distinctive retail sector, yet economic decline over many years, took its toll on civic character and public realm. Lonsdale Street was historically a prosperous retail spine but in recent years had developed into a major arterial route dissecting the retail heart and creating a significant physical and psychological barrier to the city.

Connections
Instead of a significant barrier, Lonsdale Street became a key connecting catalyst, fostering clear and legible street connections to each of the City’s key public assets.

Street Life
Creating a memorable boulevard, animated along its length and connected to a range of finer grain experiences from active retail edges, pocket parks, to civic plazas.

Knitting into the Urban Morphology
Ensuring Lonsdale Street was structured to build upon the distinctive urban structure of the City, reinforcing existing fine grain patterns.

Protecting Valued Urban Places
Identifying Lonsdale Street and its adjacent precincts as a significant opportunity to curate the ongoing retention of cultural destinations and creating new opportunities for urban places and activity.

Investment and Design Excellence
Creating opportunities for investment and further development via the creation of a rich and enduring public realm experience.

OPPORTUNITIES
Incorporate technological design elements, such as LED lighting, to create processional and gateway aesthetics and to help create improved safety

Build on the fine grain urban fabric of Saskatoon’s urban grid

Build on cultural momentum in Riversdale and Downtown and become a meeting place for ideas and cultures to merge

Imaginative lighting strategies can animate and reinforce the street’s night time presence

Repetitive design features can create a strong sense of arrival and formal procession
CASE STUDIES

STREETSCAPE PERMEABILITY
BUFFALO NIAGARA MEDICAL CAMPUS
BUFFALO, USA

At Buffalo Niagara Medical Center, a monotonous urban environment was ecologically barren and lacking a unique identity. This project worked to re-establish a strong vegetated footprint for the site.

Long angled planting beds maximize additional tree planting area while respecting the root zones of existing large street trees. A tiered system of vegetation increases permeability while cooling the space. The shrub layer, understory tree planting, and canopy tree planting are composed of a mix of native and urban-adapted species with a high tolerance to Buffalo’s harsh winters and salting regime.

A new experience emerges within the campus— a once homogeneous edge transforms into a dynamic and ever-changing forested walkway, offering new experiences for students, patients, and visitors who use the path every day.

OPPORTUNITIES
Maximize vegetative footprint wherever possible to enhance microclimate, pedestrian experience and street identity

Respect Tree Root zones and prioritize the health of the Urban Forest

Choose hardy vegetation that is adaptable to urban conditions and has seasonal + spatial interest
CASE STUDIES

STREET CHARACTER
OMOTESANDO STREETSCAPE
TOKYO, JAPAN

Omotesando is a Zelkova tree-lined avenue located in Shibuya and Minato, Tokyo, stretching from the entrance of the Meiji Shrine, to Aoyama-dori where Omotesando Station can be found.

Omotesando is known as one of the foremost ‘architectural showcase’ streets in the world, and is the main vehicle and pedestrian thoroughfare for the shopping district commonly referred to as Harajuku.

It is often times referred to as “Tokyo’s Champs-Élysées”. Its latest development, Omotesando Hills, a large shopping mall, opened in 2006. Omotesando's side streets known as Ura-Harajuku, feature a range of smaller cafes, bars, and restaurants, as well as boutique stores.

OPPORTUNITIES
Understanding the long term impact of a developed tree canopy, incorporate large Shade Trees where ever possible.

Encourage development of boutiques, cafes and bars to animate street life.

Connect into the finer grain of surrounding urban fabric.

Design subtle vehicular access in an urban condition.

Designing for winter conditions and snow removal.

Connecting to a large shopping centre in an urban context.
CASE STUDIES

GREEN INFRASTRUCTURE
21ST ST COMPLETE / GREEN STREET
PASO ROBLES, USA

21st Street is a commercial and residential street in Paso Robles, California. The street, one of four railroad crossings in town, was established decades ago in a natural drainageway.

This project dealt with several issues including the lack of existing stormwater infrastructure. And while children and seniors used the corridor to access services, vehicle speeds were high on this regional street.

A concept plan was prepared for five contiguous blocks of 21st Street, between Vine Street and Riverside Avenue, transforming them into a green, complete street that meets several objectives, including:

1. Containing the 10 year storm within the street section
2. Increasing ground-water recharge
3. Improving pedestrian and bicyclist mobility
4. Reducing sediment into the nearby Salinas River

OPPORTUNITIES

Incorporate green infrastructure—such as pervious pavers, engineered median swale channel, structural soil cells, and drought tolerant native plants.

Use local or recycled materials and consider repurposing existing site artifacts to reinforce local character and site memory.

Engage with local artists to create streetscape interventions which create sense of community and place.