

07

CASE
STUDIES

IMAGINE
IDYLWYLD



Intersection Design Principles

1 Accessible for All

Universal accessibility design principles should inform all aspects of intersection design, ranging from geometry to signal timing with a commitment to achieving the best outcome for all users within the constraints of each site.

2 Ease of Maintenance

Intersection materials should be long-lasting and sustainable, requiring a low amount of maintenance. Pavement are not allowed in crosswalks, and a clear accessible path should be provided across intersections.

3 Reclaiming Space

Intersections that contain wide, undisturbed areas of pavement not necessary for the efficient movement of motor vehicles provide opportunities to reclaim street space for pedestrians, transit users, and bicycles, as well as green space.

4 Minimum Signal Cycle Lengths

Signal cycle lengths should be minimized to reduce delay for all users. As technology advances, traffic signalization should evolve towards a smarter, more equitable system that passively detects pedestrians, bicycles, transit, and motor vehicles.

5 Traffic Controls

Intersections should be evaluated to provide the most efficient and cost-effective method of control, including stop- and yield-controlled, as well as signalized intersections.

6 Emissions Reductions

Coordinated signal timing can reduce energy consumption and emissions and should be considered in every project, but should not cause excessive delay to environmentally-friendly modes of travel such as walking and bicycling.

7 Smart Tags

"Tags" are an evolving technology that provide information to people via mobile devices with internet access, which are particularly useful for people walking or using transit. Designs should consider including tags to provide way-finding information, as well as details about local facilities and businesses.

8 All-Weather Access

Intersections should function during all weather conditions including rain and snow. Designs should prevent ponding of precipitation at curbs, and provide storage space for snow during winter.

9 Obeying the Law

Intersections should facilitate predictable movements, and encourage people to obey all traffic laws, in particular laws that impact the safety of non-motorized users. Traffic controls should be designed in a consistent, predictable manner to help encourage safe behaviors.

10 Stormwater Management

Green street elements should be incorporated whenever possible to reduce runoff and the amount of impervious surface at intersections and street corners. Greenways should be incorporated not only to recharge groundwater, but to filter pollutants and improve air quality.

11 Sensors

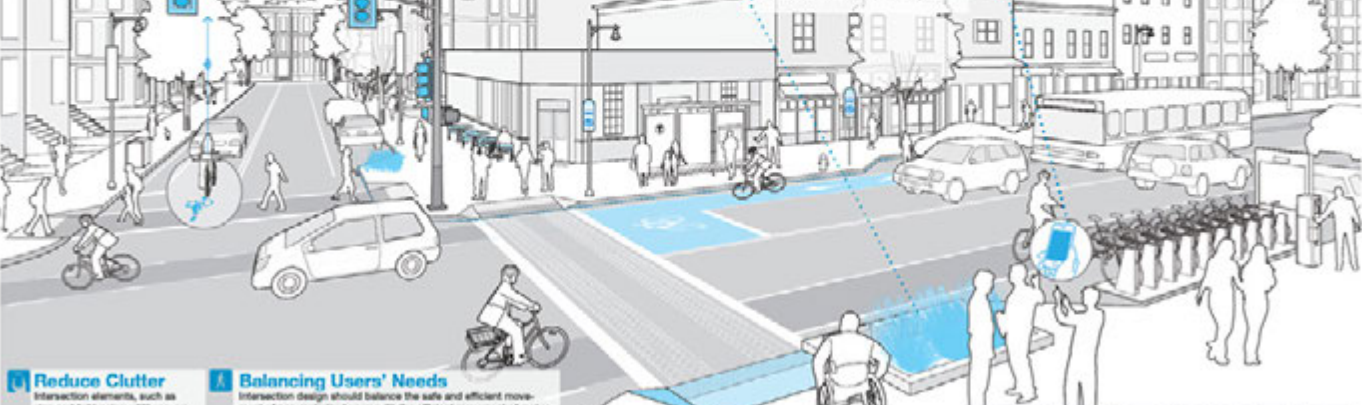
Opportunities should be explored to install sensors to monitor and study operations, traffic conditions, modal counts, and air quality to improve efficiency.

12 Reduce Clutter

Intersection elements, such as sign and light poles, utility covers, hydrants, traffic control devices, etc. must be thoughtfully laid out to maximize accessibility and functionality, and utilities should be accessible for maintenance without obstructing pedestrian crossings.

13 Balancing Users' Needs

Intersection design should balance the safe and efficient movement of non-motorized users with the efficient movement of motor vehicles. Pedestrians and bicyclists are susceptible to far greater injuries in the event of a crash with a motor vehicle. As pedestrians are the most vulnerable roadway user, intersection designs must prioritize their needs. This design principle must inform all aspects of intersection design, from determining the number of lanes, to the configuration of crosswalks, to the design of traffic controls.



The Boston Public Works Department (PWC) and Boston Transportation Department (BTD) are responsible for approving all intersection designs. The Public Improvement Commission (PIC) must approve all changes made to city-owned right-of-ways. Intersection designs may also require coordination with the Boston Fire Department, Emergency Medical Services (EMS), and the Mayor's Commission for Persons with Disabilities.

PLANNING AT INTERSECTIONS

Reclaiming Space at Intersections

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

Short-term ways to creatively redistribute space at intersections include reclaiming parking spaces for parklets, bicycle share stations, temporary plazas, and mock curb extensions. Space can be reclaimed with seating areas, planters, and paint.

Long-term options include tightening corner radii, permanent curb extensions, the removal of turn lanes or parking lanes, the closure of slip lanes and incorporating the space into the sidewalk, or the narrowing of travel lanes. Spaces can be reclaimed for a variety of purposes including improving safety, widening sidewalks, adding bicycle facilities, and providing space for traffic control devices, utilities, green space, street furniture, vending, and public art. Space can be reclaimed in the middle of an intersection, extended from corners, or legs of an intersection can be closed to motor vehicle traffic and converted for other purposes such as a pedestrian plaza. Large sculptures can be incorporated to serve as a gateway treatment and landmark. An island or extension can also provide a location for a transit stop.

Some of Boston's intersections are especially broad for historic reasons. The evolution of Boston's transportation network produced streets that intersected at irregular angles, and often large corner radii were built to accommodate streetcar tracks; this additional roadway pavement at intersections can be reclaimed to make the space more comfortable for pedestrians and bicyclists, and to reinforce the sense of place and community identity.



CASE STUDIES

STREETScape DESIGN

BOSTON COMPLETE STREETS GUIDELINES BOSTON, USA

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

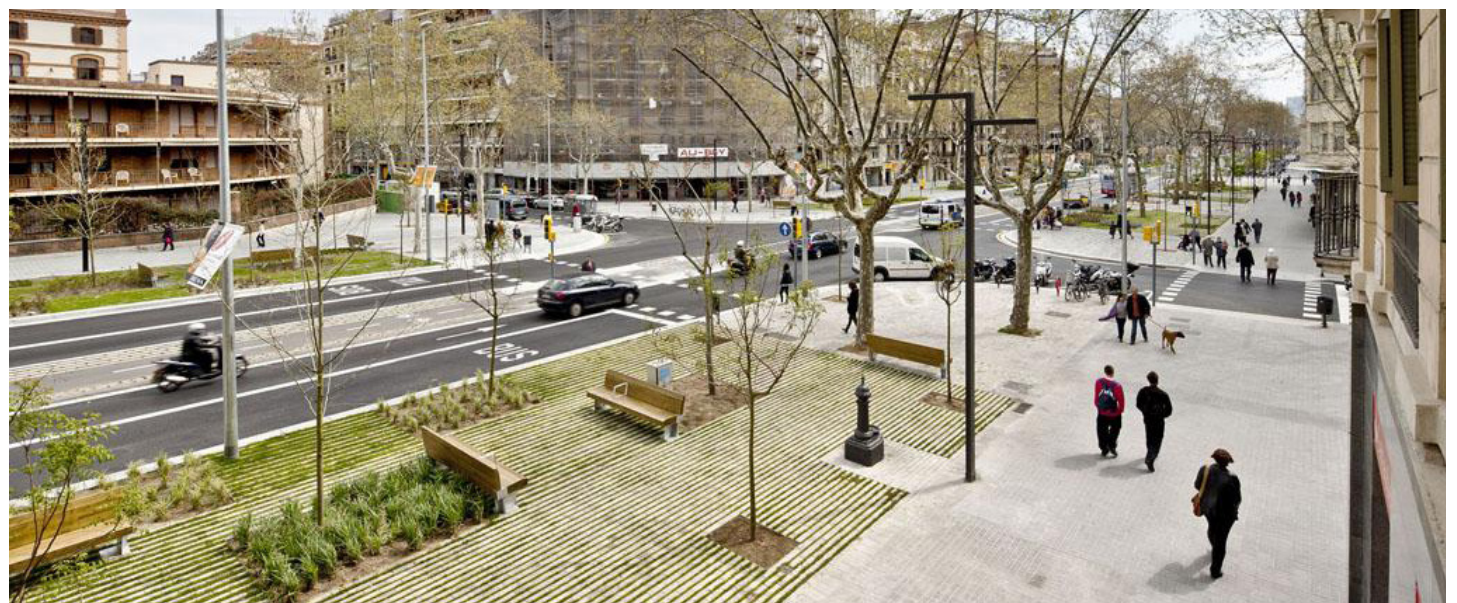
Incorporate intelligent signals, smart meters, electric vehicle sharing, car and bicycle-sharing, way-finding and social networks for greater system efficiencies and user convenience

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



CASE STUDIES

LOCALIZED 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.

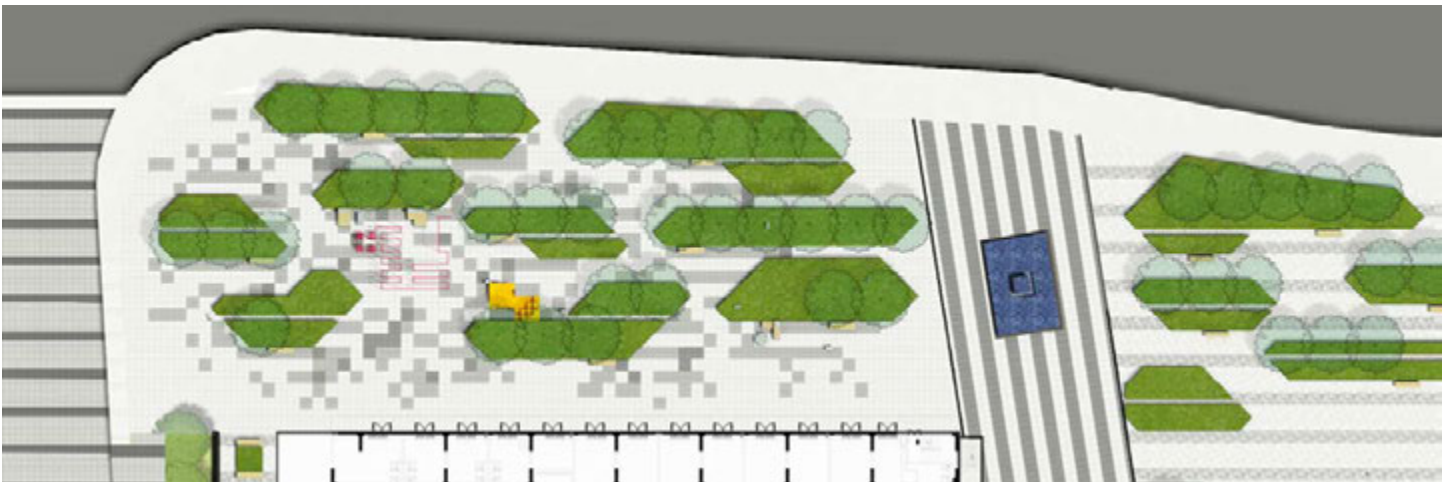
Cerdà's isotropic layout of 20m-wide streets also features various main 50m-boulevards with wide pavements lined with two rows of trees as well as a central roadway. Passeig de Sant Joan is one of these.

Josep Fontseré's Ciutadella project (winner of the 1872 contest) featured a new central promenade which was to prolong the Saló 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

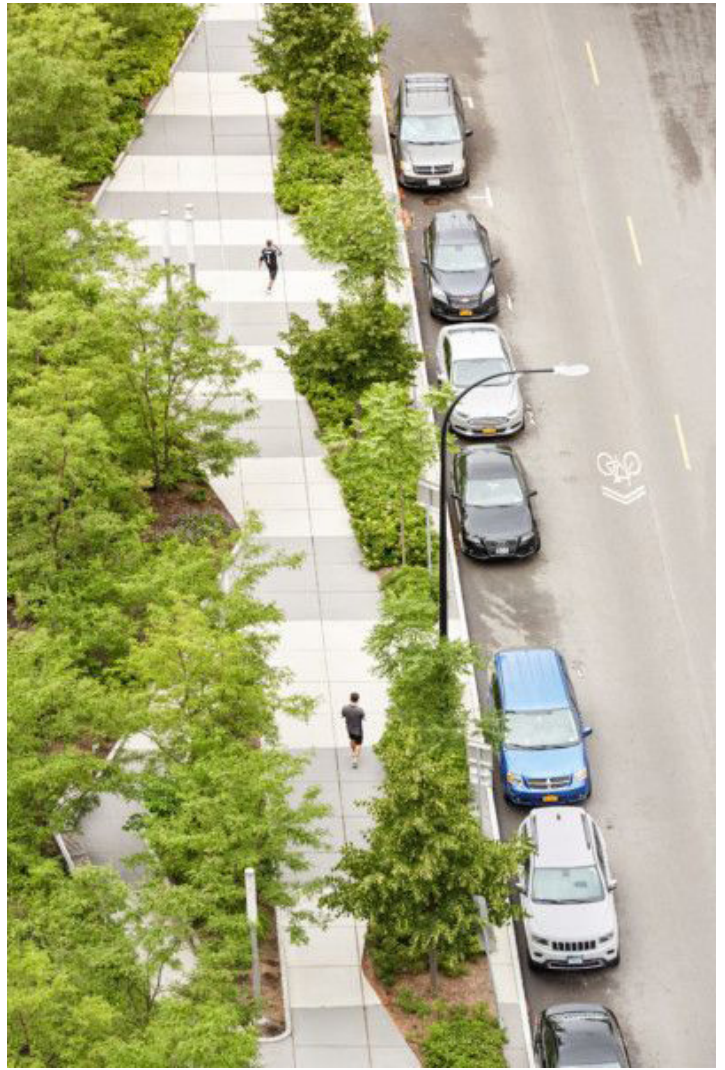
Incorporate technological design elements, such as LED lighting, to create processional and gateway aesthetics and to help create improved safety

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

OMOTESANDŌ STREETScape

TOKYO, JAPAN

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

Omotesandō 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, Omotesandō Hills, a large shopping mall, opened in 2006. Omotesandō'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.

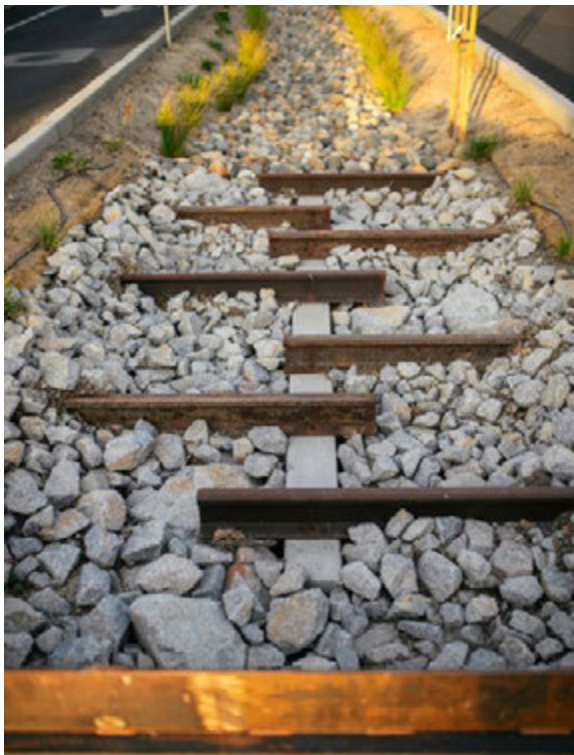
Encourage development of boutiques, cafes and bars to animate street life.

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 re-purposing 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