



CHAPTER 3

SITE DESIGN

Site design is the most basic component of the design process for any development project. It involves fundamental decisions about where buildings are located on a site, how they relate to their surroundings, and where space is provided for pedestrians, vehicles and bicyclists. Private development also shapes the public realm by defining the edges of the street. When new development is planned so that it emphasizes the needs of pedestrians, rather than vehicles, it has the power to reinvigorate the public realm.

3.1 Siting and Orientation

A successful site design must coordinate many different activities. Buildings must be located where they can connect to the public realm, but they must also be arranged within the site so that appropriate space is provided for parking, outdoor seating and other activities.

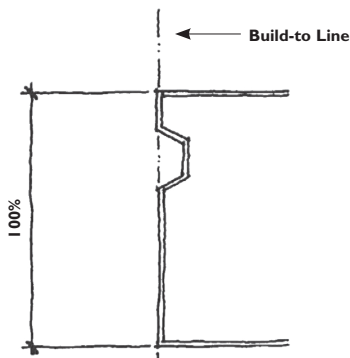


Buildings in Oakland, California, help to frame the public realm.

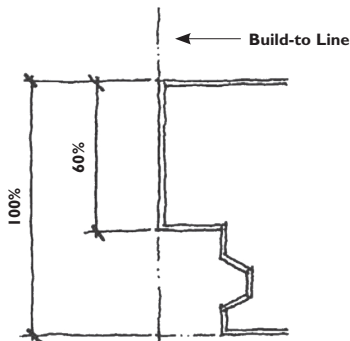
3.1.1 Orientation to the Street

Buildings should be highly visible and readily accessible from the sidewalk, encouraging people to walk from place to place.

- ◆ Orient buildings towards the street, so that they frame the pedestrian environment.
- ◆ Do not locate parking between buildings and the street edge.
- ◆ Place entrance doors and windows for retail uses fronting directly onto the street at ground level.
- ◆ Provide a place to enter the site or building directly from the sidewalk.
- ◆ Provide a high percentage of windows on the ground floor façades of commercial buildings to facilitate greater visual transparency.



On some streets, the entire building should meet the back of the sidewalk, except for features such as recessed entrances.



On other streets, it is appropriate for part of the building to be set back from the sidewalk, creating space for amenities such as courtyards and outdoor seating areas.

3.1.2 Setbacks

Front setbacks or build-to lines set the amount of space, if any, that lies between a building and the sidewalk or street. They define the transition between private development and the public realm.

- ◆ Site buildings at the back of the sidewalk to provide a strong definition of the public realm.
- ◆ Consider setting portions of a building back from the street to create usable outdoor space. To ensure that the setback does not result in an excessive void along the street, use fences, walls, planters or landscaped areas to define the edge of the outdoor space.
- ◆ Where mature trees are present on a site, set back portions of buildings to preserve the trees.



A small setback creates space for outdoor dining at this restaurant in Healdsburg, California.

3.1.3 Building Mass

A site design must determine how each building's mass—its three-dimensional form—will fit within the site as a whole. The site design must strike a balance that provides a built edge to define the public realm, while not presenting an overwhelming face to the street.

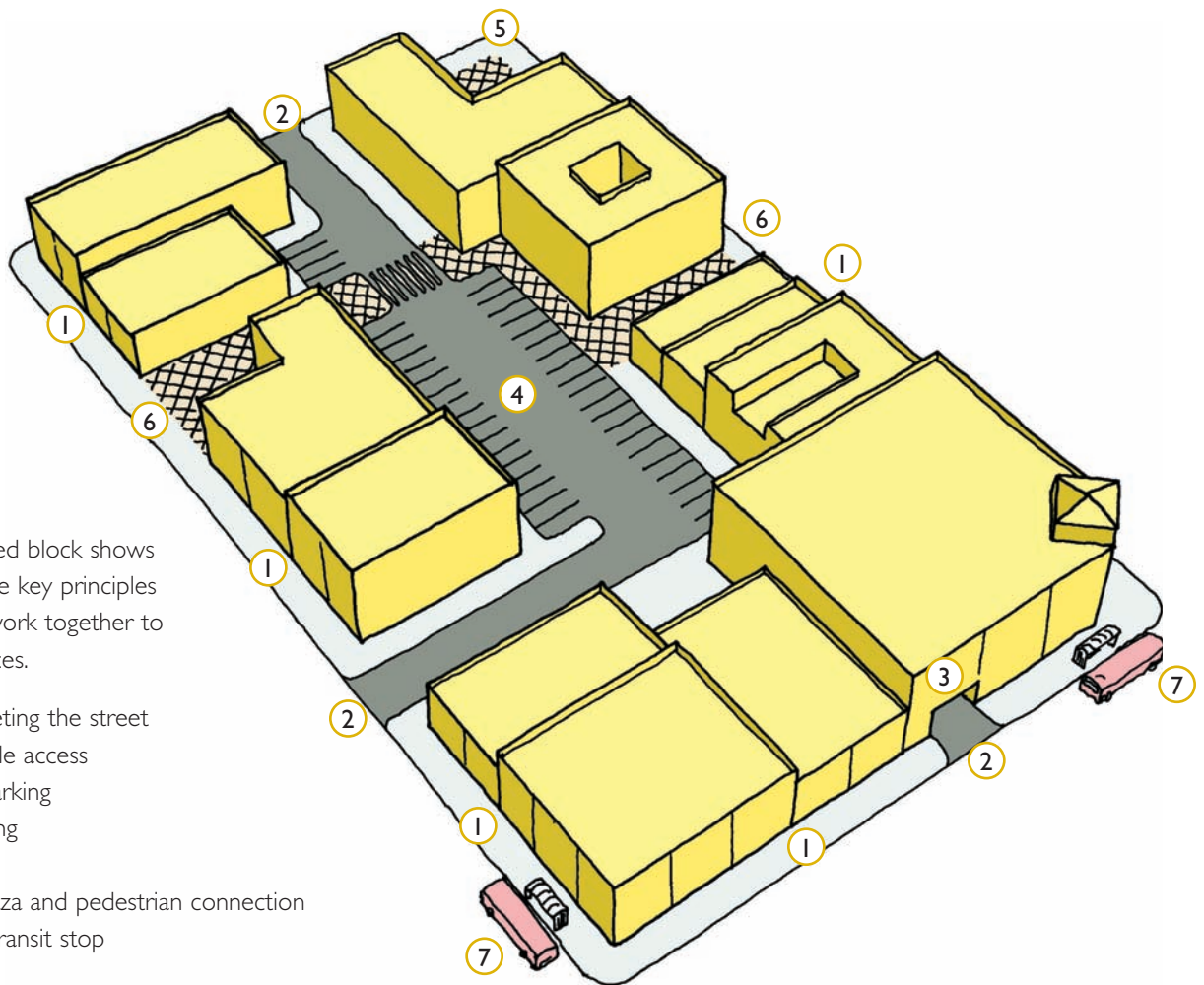
- ◆ Develop a complex of buildings rather than a single large structure. Ensure that the spaces created between buildings can function as pedestrian plazas, courtyards and other outdoor gathering areas.
- ◆ Concentrate a site's building mass at the street edge. For multiple-story buildings, step the building back from the street edge at upper levels to allow sunlight into the street.
- ◆ Place a building's mass so that it responds to the surrounding development. Where necessary, provide a transition that relates to adjacent buildings.

See Also

"Change in Development Intensity"
on page 38



As this building in San Diego becomes taller, it steps back to allow sunlight to enter the street.



This well-designed block shows how some of the key principles in this chapter work together to create great places.

- ① Buildings meeting the street
- ② Limited vehicle access
- ③ Structured parking
- ④ Surface parking
- ⑤ Corner plaza
- ⑥ Mid-block plaza and pedestrian connection
- ⑦ Convenient transit stop



A corner building in Mountain View, California, includes design features that highlight the site's prominence.

3.1.4 Corner Sites

Sites gain prominence when they are located at the intersection of two streets. More people pass by corner sites, and the buildings on these sites are more visible. The design of corner sites should acknowledge and celebrate this prominence, and it should help to define the edges of the street intersection.

- ◆ Place buildings located on street corners so that they meet the corner, or use a small setback to provide a public plaza with direct access to the building.
- ◆ Include special architectural and design features on buildings located at corners, such as taller building elements or architectural detail. Additional corner treatments might include a rounded or angled facet on a corner building entrance or an embedded corner tower.
- ◆ Locate the main entrance of corner buildings at the corner, where feasible.
- ◆ Do not establish parking areas at the corner of a corner site. Instead, provide parking behind the building.

3.1.5 Plazas and Open Space

A thoughtfully designed site can include small plazas, courtyards and other outdoor spaces. These spaces can create a visual connection to the public realm as well as a physical transition zone between the building and the street.

- ◆ Integrate semi-public outdoor spaces, such as plazas or courtyards, into commercial development where feasible to help support pedestrian activity and connect to the public realm.
- ◆ Design plazas and building forecourts to maximize circulation opportunities between adjacent uses.

See Also
"Plazas and Piazzas"
on page 92



A fountain provides a focal point for this plaza in Cathedral City, California.



The design of this site in Menlo Park, California, gives shape and character to public space.

- ◆ Provide landscaping and high-quality paving materials, such as stone, concrete or tile, for plazas and open spaces.
- ◆ Account for climatic factors such as sun orientation and prevailing winds when locating all open space areas.
- ◆ Place outdoor furniture, such as seating, low walls, trash receptacles, bike racks and other elements, in outdoor pedestrian spaces.
- ◆ For larger projects, develop a comprehensive open space network that includes plazas and other open space elements to connect different uses.
- ◆ Integrate adjacent land uses on a site into the open space areas and the paths that link them.
- ◆ Site buildings to define open space areas.
- ◆ Ensure that outdoor areas are visible from public streets and accessible from buildings, as well as streets and pedestrian and bicycle networks.
- ◆ Coordinate outdoor furniture with the design of the building.
- ◆ Use drought-tolerant plant materials that are consistent with the architectural design of the building.
- ◆ Use decorative tree grates in pedestrian areas.
- ◆ Where a plaza is adjacent to a parking area, provide landscaping for screening purposes.



A small plaza in Livermore, California, creates a welcoming environment for pedestrians.



Trees provide areas of shade for a corner plaza in the summer.



Deciduous trees allow for winter sun to penetrate into the plaza space.

See Also
"Transformation of Existing Places"
on page 20



A formal seating area in San Diego makes this site more inviting to its users.

3.1.6 Outdoor Seating

By incorporating outdoor seating, a well-designed site can encourage foot traffic and provide places where people are encouraged to stop and linger. Some outdoor seating areas can be located within the interior of a site, for the enjoyment of people who live or work there. Depending on the site, there may also be opportunities to place outdoor seating closer to the public realm, especially if the site faces a scenic view. Many of the visual simulations in Chapter 2 illustrate how outdoor seating can be incorporated into a site.

- ◆ Incorporate seating into well-trafficked outdoor areas, to maximize opportunities for people to interact.
- ◆ Include formal seating, such as benches and chairs, along with informal seating, such as low walls and stairs, in all outdoor seating areas.
- ◆ Use movable seating where practical so that people can accommodate their own preferences and respond to the weather or time of day.
- ◆ Place seating to take advantage of scenic views towards cityscapes, parks, open space and the coast.
- ◆ Provide lighting to ensure that outdoor seating areas are safe places at night.



An informal seating area in Berkeley, California, allows people to stop and enjoy the public realm.

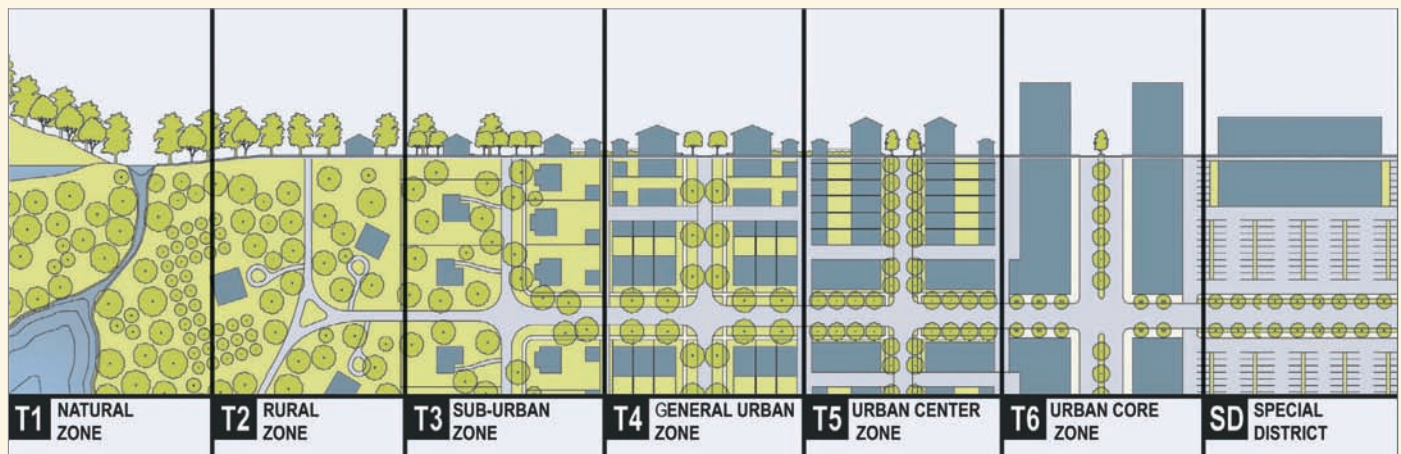
Form-based Codes

Typical zoning ordinances in use since early in the 20th century regulate land use on a parcel-by-parcel basis. They are largely proscriptive in that they state, often to excess, land uses that are not permitted on parcels within a specific zoning designation. This type of zoning regulates development so that it fits within specific floor-area ratios or residential densities. Therefore, it provides a high level of economic predictability for a property owner without establishing any certainty about the physical character of that development and how it might shape the public realm. It allows buildings to be designed as individual objects with no relationship to other buildings. In recent decades, design guidelines have emerged as a tool to obtain some level of design predictability and architectural quality, but guidelines are typically advisory rather than mandatory.

In recent years, however, a different approach to building regulations has emerged: the Form-Based Code (FBC). FBCs regulate how buildings—even on a parcel-by-parcel basis—establish the physical character of streets and public space. They achieve this through the use of illustrated standards for development, in addition to the quantitative values used in typical codes. In a community developed under an FBC, buildings delineate the form of public space and have a relationship to other buildings in the shaping of that space. The standards in an FBC are calibrated to the specific context of a community and are often drafted during multi-day community-wide charrettes or design-intensive workshops. Although an FBC can be adopted for an entire city, it is usually adopted as an overlay or add-on to a traditional zoning ordinance so that it can be applied to a particular part of a city, such as a downtown area or commercial corridor.

The FBC is developed on the framework of a Regulating Plan, which classifies an area into a series of different types of places and provides a spatial structure to the development that fronts those streets. That spatial structure is the organizing feature for the town or community for which the FBC is prepared. This ability to respond to virtually any physical context is a large part of why FBCs can be used in the practice of place-based planning. By focusing on the framing of public space, the enforcement of community character and the predictability of urban form, FBCs can be a powerful tool for implementing smart growth principles in the development of communities.

Form-based codes are a tool that jurisdictions can use to implement many of the guidelines presented in this document; they are effective in establishing a basic framework of good urbanism. However, additional planning and design guidance is often necessary to ensure the high architectural quality of individual projects.



The transect establishes a series of typologies from rural to urban core and is the primary tool used to establish the Regulating Plan.

Source: Duany Plater-Zyberk & Company

3.2 Neighborhood Context

Many outstanding communities in the San Diego region contain opportunities for development on vacant or underutilized sites. The design of infill development must be sensitive to the existing neighborhood context and positively contribute to the public realm.



The design of these townhouses in Santa Cruz, California, helps make them compatible with a nearby neighborhood.



New development in La Jolla frames an existing scenic viewshed.

See Also
Chapter 9: Parking

3.2.1 Compatibility

The compatibility of new development with existing development is especially important when new development includes new uses or higher densities. Good site design must carefully balance the need to respond to the existing context with the need to introduce new development that can improve the character and the scale of the surrounding area.

- ◆ Design buildings so that they have heights, massing, setbacks and design character that are compatible with surrounding buildings.
- ◆ Incorporate the area's typical landscape treatments into the site design to connect new development to the existing context.

3.2.2 Views

A view of a beautiful or striking landscape feature is a valuable community asset. A view can function as a way-finding tool, as well as influence the identity of a community. New development should capitalize on site-specific opportunities by maintaining existing views and framing new views.

- ◆ Place buildings to frame significant views by ensuring that gaps between buildings provide a view of a significant feature from a publicly-accessible vantage point.
- ◆ Create an interesting focal point on sites that are the terminus of a major visual axis, such as at the terminus of a street, trail or multi-use path.

3.2.3 Coordination with Adjacent Properties

Coordination between multiple sites can help to develop a consistent community character. New projects need to consider adjacent sites to identify potential opportunities for the coordination of building programs, site amenities and functional operations.

- ◆ Develop shared facilities such as driveways, parking areas, plazas and walkways in order to increase pedestrian access.
- ◆ Coordinate site designs with existing development on adjoining properties to avoid creating excessive noise or intrusions on privacy, particularly when development is adjacent to sensitive uses such as residential development.
- ◆ On larger sites with multiple buildings, design parking areas and open spaces so they can be shared by several buildings.

3.3 Site Access

Vehicle access should not dominate a site, even where vehicle access must be accommodated for parking or loading areas. Pedestrian and bicycle access should be given equal consideration.

3.3.1 Building Entrances

Entrances to buildings are the transition area between the public and private realms; they are highly active places. When entrances to retail businesses are placed where they are visible and inviting to people on foot, they add to the visual interest of the public realm.

- ◆ Orient the main entrances to a building toward a public street, and include architectural features that give them prominence.
- ◆ Locate transit stops, pedestrian seating, bicycle parking and similar amenities near building entrances.
- ◆ Orient the entrances of residential buildings toward the street.
- ◆ Provide multiple entrances into large buildings, such as those that occupy most of a city block or have frontages longer than 150 feet.

3.3.2 Vehicle Access

While it is often important to allow vehicles to access a site, each access point should be designed to minimize conflicts with pedestrians and bicyclists.

- ◆ Limit access points to the minimum number that is necessary to serve the property.
- ◆ Minimize the width of all driveways. If a driveway must accommodate large vehicles, such as delivery trucks, use the minimum width that can accommodate the effective turning radius of these vehicles.
- ◆ Place all driveways at right angles to the street. Do not include a curb return at the corner of the driveway unless the driveway is signalized.
- ◆ Where possible, provide access to service vehicles through an alley, or through a common access point that is shared with other vehicles.
- ◆ Where a driveway crosses a sidewalk, clearly demarcate the sidewalk across the entire width of the driveway.
- ◆ Indicate major entrances with special design treatments, such as entry signage or distinctive landscaping.

See Also
“Links to Transit”
on page 41



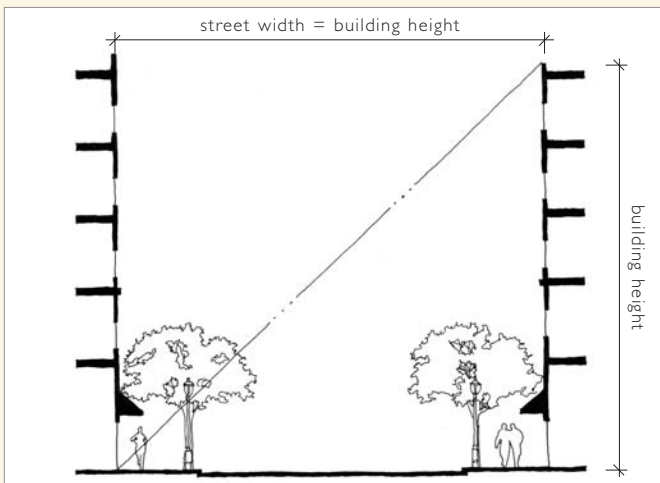
These closely spaced building entrances in La Mesa are inviting to pedestrians.

See Also
Chapter 9: Parking

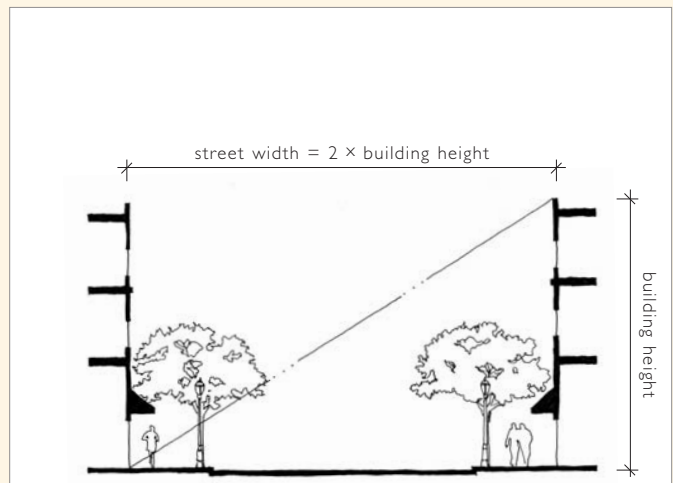
Change in Development Intensity

Many established communities were originally developed with small, low-rise buildings, at a time when land values reflected their automobile-oriented nature. However, the introduction or expansion of transit in a community represents a significant investment. To ensure that this investment is productive, new development within walking distance of a transit stop must occur at a high enough intensity to provide increased ridership for the transit operator. Communities often grapple with issues related to this increase in development intensity. Concerns about the increase may relate to the height of buildings; the floor-area ratio (FAR) or dwelling units per acre that are allowed; or a combination of these issues.

Over time, many of the properties near a transit stop are likely to redevelop at similar intensities. However, the first project that increases the development intensity on a block or street is likely to draw a great deal of attention, since it represents the most visible change. The following principles and illustrations show how this first project can be designed to win greater acceptance from the community.



A 1:1 ratio of building height to street width creates a well-defined "outdoor room."

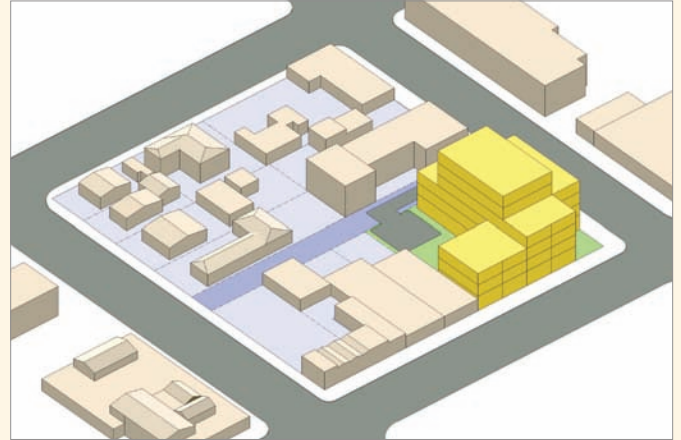
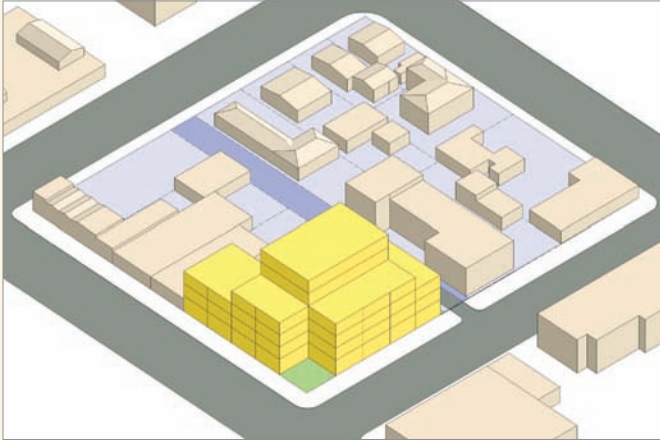


A 1:2 ratio can also create an enjoyable space for pedestrians.

- **Street Wall Height.** One requirement for new development in Smart Growth Areas is to enhance the pedestrian environment and promote multiple modes of travel. Therefore, it is important to consider how taller new development shapes the public realm of the street and sidewalk. Research has shown that pedestrians benefit from a sense of enclosure by buildings, creating what is often referred to as an "outdoor room." As discussed in *Great Streets*, the well-known book by urban designer Allan Jacobs, comfortable and enjoyable street environments typically maintain a ratio of building height to street width—measured from building face to building face—that is between 1:1 and 1:2, as shown above. While this ratio is a good general rule, it may be more appropriate to limit heights further in some special locations—for example, next to open spaces or the coast—in order to create a transition between built and natural spaces.
- **Building Mass.** An important issue for new development introduced into established contexts is its scale. Older communities are often made up of one- and two-story buildings on parcels that are generally 25 to 50 feet wide. New buildings should exhibit massing characteristics that are in keeping with the smaller scale of older development. The diagrams on the opposite page provide some examples of how the building mass of new development can be sculpted to exhibit a contextual relationship with the existing condition.
- **Good Design.** In addition to appropriate street wall heights that reinforce the public realm and massing forms that relate to the existing context, design solutions can solve many issues that arise from increased development intensities. Design that emphasizes a pedestrian scale, quality construction and materials, and well-detailed public frontages will create a greater level of acceptance and satisfaction in established neighborhoods and communities.

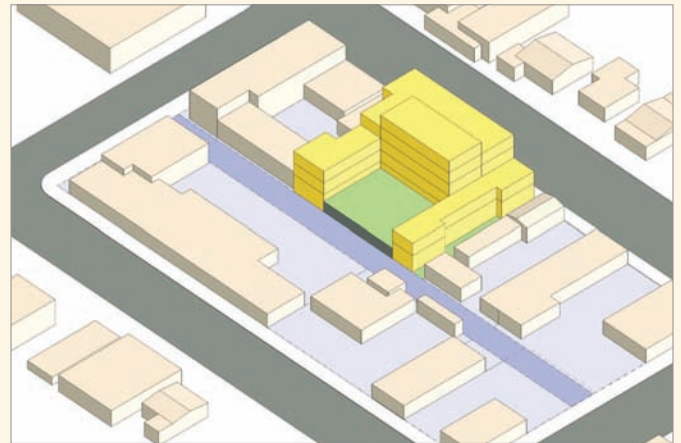
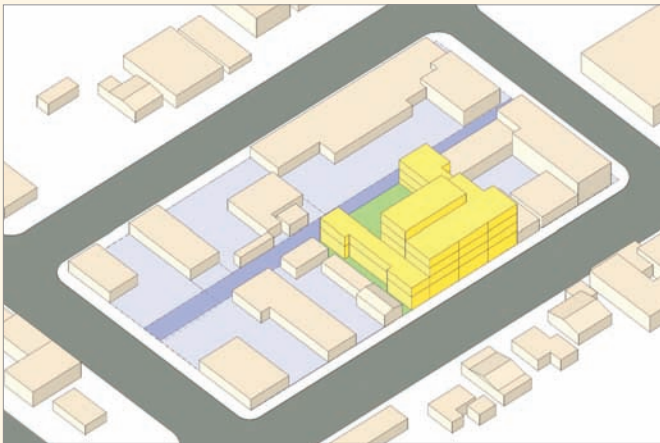
Examples of Contextual Development in Existing Neighborhoods

Mixed-Use Building on Corner Site



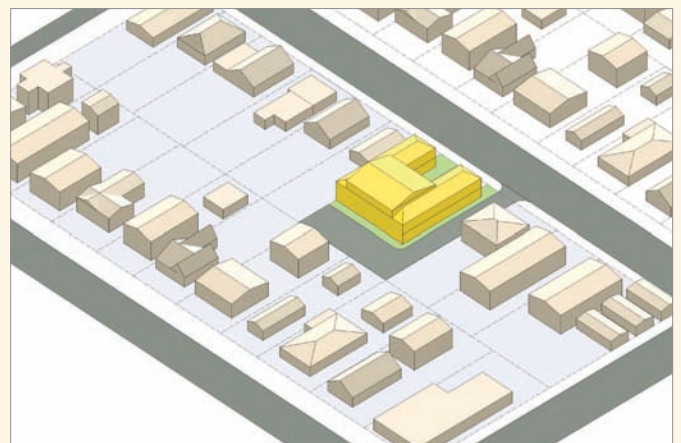
A large corner site provides an emphasis at the intersection of the streets, establishes a street wall and steps the height back on all sides. Podium parking and a small surface parking lot are accessed from an alley.

Mixed-Use Building on Mid-Block Site



A building on a mid-block parcel on a commercial corridor establishes a good street wall to frame the pedestrian realm. The building is set back from the side property lines to allow for windows, and it steps down to two and three stories at the sides and rear. Parking is provided in the building's podium.

Residential Building in Single-Family Neighborhood



By maintaining established neighborhood setbacks and providing a series of small-scaled building forms, an 8-unit residence can be appropriately sited on a street that is comprised primarily of single-family residences. A surface parking lot is provided behind the building.



The pedestrian entrance to a site in Oakland, California, is highlighted by a gateway.

3.3.3 Pedestrian and Bicycle Access

All sites must provide clear, safe points of access for pedestrians and bicyclists, not just vehicles.

- ◆ On larger sites containing multiple buildings, highlight the site's entrance with design features that create a clear pedestrian path.
- ◆ Provide a clear, safe path between bicycle parking areas and entrances from the street.

3.4 Connectivity

Good connectivity within a site allows people to easily move to and from the public realm. Site planning should increase connectivity by implementing design solutions that maximize access and optimize pedestrian use of new development.

3.4.1 Universal Access

New development should be designed for the use and enjoyment of all community members regardless of their physical ability. Universal access can be a challenge in places with significant topography, such as some of the communities in the San Diego region.

- ◆ Connect all commercial buildings to the public sidewalk via a publicly accessible path or walkway.
- ◆ Avoid excessive steps or level changes in primary circulation networks.
- ◆ Utilize materials with flat, smooth surfaces that do not create tripping hazards along pedestrian walkways to and from buildings and parking areas.

3.4.2 Pedestrian Connections

To connect to the street and public realm, new development should be designed with clear pedestrian connections to the sidewalk.

- ◆ Provide attractive, well-marked pedestrian links that create a clear path of travel between parking, buildings and sidewalks.
- ◆ Include elements such as special paving materials, landscaping, pedestrian-scaled lighting and seating along pedestrian paths and walkways to encourage pedestrian use.
- ◆ Use special design features to increase pedestrian safety where walkways cross traffic lanes. Potential design features include colored or patterned pavement, curb extensions to narrow travel lanes, and low-level lighting such as a bollard light.



Unobstructed pedestrian pathways and sidewalks, such as this one in Coronado, ensure that community members of all physical abilities can use and enjoy their surroundings.

See Also
"Pedestrian Sidewalk Zones"
on page 65



A pedestrian and bicycle overpass in San Diego creates a connection across a canyon.

Crime Prevention through Environmental Design

Crime Prevention through Environmental Design (CPTED) is the practice of designing sites, buildings and public spaces with the goal of reducing crime, alleviating the fear of crime and improving quality of life. CPTED is based upon the idea of defensible space, developed by the architect Oscar Newman. According to this concept, all space is defended by the people who use it. If a space is defended by legitimate users, it is protected against crime; if a space is defended by illegitimate users, it cannot be used for its intended purpose. The premise of CPTED is that crime and misbehavior can be controlled by designing a space to encourage legitimate use. Today, CPTED principles are employed by planners, designers and law enforcement officers to prevent crime.

Designers can consider the following guiding principles to incorporate CPTED into a site design:

- **Natural Surveillance.** Encourage legitimate activity and provide visual access to spaces, in order to increase the number of people using, watching and caring about the place.
- **Territory Reinforcement.** Ensure that the transitions between private and public space are visible, so that people have an appropriate perception of how spaces are meant to be used.
- **Access Control.** Clearly communicate where people are allowed and not allowed to prevent illegitimate use of a space.
- **Maintenance.** Ensure that development is designed in a way that reduces maintenance needs after construction. Poorly maintained spaces send a signal that the community is willing to tolerate negative activities in these spaces.
- **Appropriate Use.** Utilize design rails and decorative ledges to discourage skateboard use of seating walls. Avoid blank walls that can provide a blank surface for graffiti.

- ◆ Provide shade and landscaping along walkways.
- ◆ Provide design cues along pedestrian connections to help demarcate the transition between public and private spaces. Design cues include a change in colors, materials, landscaping or the dimensions of the space.
- ◆ Provide illumination along walkways that lead to parking areas as well as in the parking areas themselves.

3.4.3 Links to Transit

Transit stops should be easy to identify and locate, comfortable and accessible. To provide the best experience and increase ridership, transit stops should be integrated into the public realm. This can be achieved through site design that incorporates the transit facility into public spaces that are adjacent to compatible uses, such as markets, cafés and other services that meet the needs of transit patrons.

- ◆ Place building and site entrances close to adjacent transit stops, and orient buildings to face the transit stop.
- ◆ For public spaces that incorporate transit stops, include multiple areas with direct visual and physical access to the transit line.



Building entrances near transit connections, as shown in this example from San Diego, facilitate movement between the public and private realms.

3.5 Energy Conservation and Landscaping



A parking lot in San Diego is shaded by solar panels that provide energy for buildings on the site.

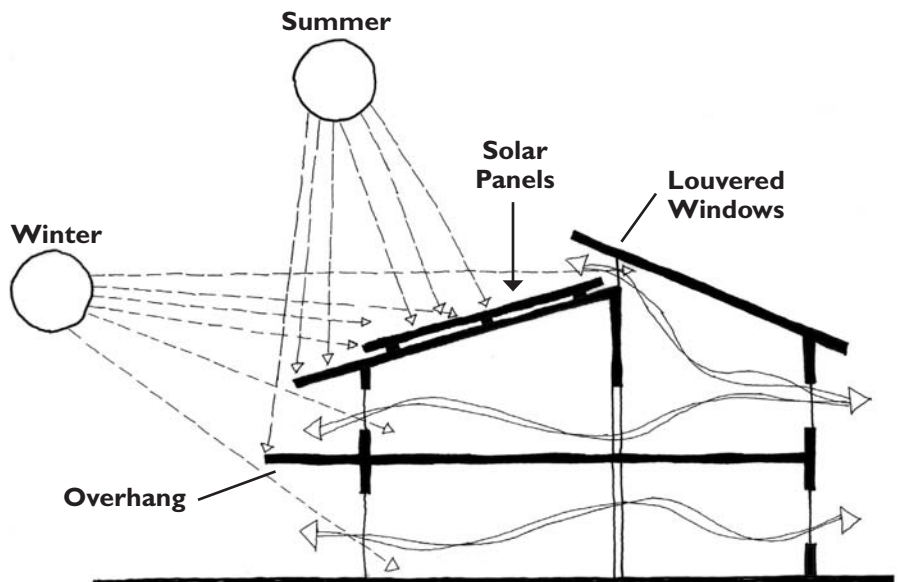
See Also
"Resource Conservation"
on page 53

Landscaping is an integral part of a site's design. It has a significant effect on the appearance and comfort of the accompanying space. Incorporating sustainable design practices into the design of a site's landscaping can help to reduce the consumption of resources, create a more comfortable and livable environment and provide significant savings in maintenance costs. In addition, buildings can be placed within the site to take advantage of the region's climate.

3.5.1 Environmental Influences

Much of the San Diego region has a semi-arid Mediterranean climate, with ample sun and little rain. Well-planned sites can take advantage of this climate by orienting buildings so that they can be lit during the day by sunlight, rather than artificial light. Sites can also incorporate energy-generating technologies, such as solar panels and turbines that capture sea breezes and the seasonal Santa Ana winds. Shaded areas should also be available for the comfort of people sitting outdoors.

- ◆ Orient buildings to the sun to provide natural heating and daylighting and maximize energy efficiency.
- ◆ Take advantage of natural winds by placing buildings so that door and window openings are oriented to the prevailing wind direction.
- ◆ Plant shade trees where they can provide natural shading and cooling for buildings.
- ◆ Incorporate solar panels, other photovoltaic systems and wind turbines into sites and buildings where practical.



Orienting a building to the sun and prevailing winds can reduce heating and cooling costs by taking advantage of winds and natural light.

3.5.2 Landscape Design

A site's landscape design is an integral part of the overall site design and should be used to integrate development into its setting, rather than to camouflage it. The function of landscape materials should be considered before they are incorporated into a site design to ensure that the chosen materials create an aesthetically pleasing and comfortable environment.

- ◆ Use landscaping at the edges of paths, plazas and seating areas to help define the spatial organization of the site.
- ◆ Use a hierarchy of planting sizes and materials to mark the transition between the horizontal ground plane at the sidewalk or parking area and the vertical frontages of buildings.
- ◆ Use landscaping to activate building facades, soften building contours, highlight important architectural features, screen less attractive elements, add visual interest and provide shade.
- ◆ Maintain landscaped areas regularly to keep landscapes aesthetically pleasing, and to remove dead and dying plants that could create a fire hazard.
- ◆ Regularly thin the ground-level plantings below tree canopies to reduce the “fuel ladder” effect during wildfires.
- ◆ On slopes, provide space between tree canopies to limit the risk of fires that jump from tree to tree. The appropriate spacing ranges from 10 feet on shallow slopes to 30 feet on very steep slopes.
- ◆ Accent gateway or entry points with distinctive trees and plants.

3.5.3 Heat Island Effect

The foliage provided by trees and shrubs helps to reduce the heat island effect, a condition in which air and surface temperatures are higher in a localized area than in adjacent areas. This difference in temperature is due to a number of factors, including a reduction in the amount of shade, an increase in the amount of heat-absorbing surfaces and the accumulation of waste heat from cars and energy consumption. Appropriate landscape coverage can reduce the heat island effect. Plants also contribute to cooling the air through the evaporation of water from their leaves, resulting in a more comfortable pedestrian environment and decreased energy consumption.

- ◆ Plant trees and vegetation that will provide significant amounts of shade in areas with large heat-absorbing surfaces, such as parking lots.
- ◆ Use trees and shade structures, such as trellises, to shade plazas, sidewalks, parking areas and buildings in order to reduce heat gain and create a more pleasant pedestrian environment.
- ◆ Choose trees with a broad, leafy canopy to provide adequate shade for sidewalks and buildings.
- ◆ In paved areas, use materials with high solar reflectance, such as light-colored concrete, that reflect solar energy rather than absorbing and re-radiating it.



Landscape design enhances public space and softens the edges of these apartments in San Diego.



A new development in La Jolla's Bird Rock neighborhood reduces the heat island effect by incorporating new trees and landscaping, utilizing shade structures and incorporating solar-reflective materials.



Landscaping in the San Diego region should use plants that are adapted to the area's limited annual rainfall.

3.5.4 Climate-Appropriate Plant Materials

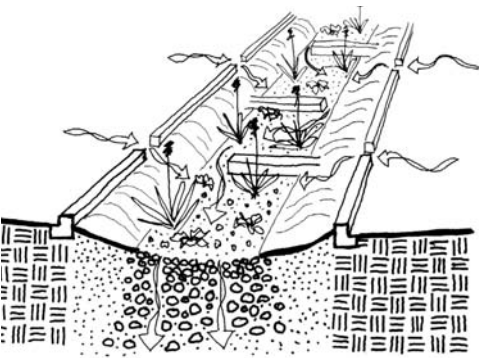
The San Diego region has an exceptional climate with little rainfall. Because water is precious in the region, landscaping should make ample use of native plants and other plants with low water requirements. It is also important to choose plants that help to reduce fire hazards, especially in parts of the region that are prone to wildfires.

- ◆ Choose plants that are suitable for the climate of the San Diego region. Use native or other climatically appropriate and drought-resistant plants.
- ◆ Within 30 feet of buildings, maintain an irrigated zone of low-growing, fire-resistant plants.
- ◆ Avoid plants that are highly combustible or create large amounts of fuel for fires.
- ◆ When choosing street trees and other shade trees, consider the functional and aesthetic benefits of shade trees as well as the need to conserve water. Choose species that can thrive with moderate irrigation once they are established.
- ◆ Minimize the amount of turf in landscaping, or consider turf alternatives. Turf lawns use significant amounts of water and have high maintenance demands that contribute to air pollution and greenhouse gas production.
- ◆ Design irrigation systems to provide different zones of irrigation, or “hydro-zones,” based on the water requirements of different types of plants.
- ◆ Limit the use of overhead irrigation spraying. Use drip irrigation specifically directed to where water is needed.
- ◆ Include irrigation controls that regulate the use of irrigation in response to rainfall.
- ◆ Irrigate plants at night or early in the morning to minimize water loss due to evaporation.
- ◆ Provide 2 to 3 inches of mulch on plant beds to help them retain moisture.
- ◆ To control disease, invasive plants and pests, use integrated pest management techniques such as introducing natural predators, planting species that will attract beneficial insects and installing mechanical trapping devices for pests.

3.5.5 Green Stormwater Solutions

Incorporating methods to reduce stormwater runoff and including design interventions to capture, clean and recycle stormwater runoff creates multiple benefits, including reducing impacts on stormwater infrastructure and recharging groundwater.

- ◆ Incorporate design features such as cisterns to capture, store and reuse stormwater.
- ◆ Use permeable paving materials for streets, sidewalks, parking lots and driveways.



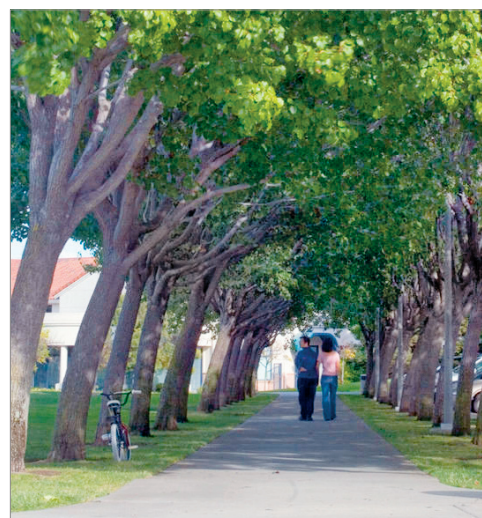
Vegetated swales can be used to detain and infiltrate stormwater runoff.

- ◆ Minimize the amount of paved areas dedicated to parking; where those facilities are necessary, include “green” stormwater collection and treatment measures.
- ◆ Incorporate stormwater retention features that minimize runoff into streets, parking lots, landscaped areas and open spaces. Stormwater retention features include drainage swales and retention basins.
- ◆ Divert stormwater from roofs to vegetated swales or retention areas rather than storm drains.

3.5.6 Urban Forest

The urban forest includes all of the trees and vegetation growing within an urbanized area. The urban forest decreases energy usage by providing shade. Social benefits include the creation of aesthetically pleasing and comfortable environments, which contribute to the character of a community and increase property values. Environmental benefits include battling climate change by sequestering carbon dioxide, a major greenhouse gas, and creating valuable habitat for animals within urban environments.

- ◆ Require street tree planting and maintenance as a condition of all development and renovation projects, including tree planting, staking and irrigation.
- ◆ Preserve and incorporate significant existing landscape elements into new development and landscape plans.
- ◆ Where an immediate impact is desired, use larger, more mature plant materials.
- ◆ Design landscaped areas to reconnect fragmented vegetation and help establish networks to surrounding natural areas.
- ◆ Preserve ecologically significant or sensitive vegetation and wildlife habitat.
- ◆ Incorporate multiple trees throughout surface parking lots.



Urban trees provide shade for pedestrians.

3.6 Fences and Walls

The use of fences and walls must balance the need for privacy and security with the need to maintain visibility and contribute positively to the character of the community.

- ◆ In order to coordinate the overall site design, integrate new fences and walls with the existing through the use of similar materials, span dimensions, heights and construction techniques.
- ◆ Do not use screening fences and walls between buildings and the street.
- ◆ Design screening fences adjacent to residential properties so that they maintain a character and scale appropriate to the residential neighborhood.
- ◆ Ensure that fences around plazas and outdoor spaces are semi-transparent and architecturally compatible with the building.
- ◆ In fire hazard areas, limit the use of wood and other flammable materials in fences.



Fences and walls, such as this one in Burbank, California, can be designed to integrate with the site in an appealing way.

3.7 Parking

See Also
Chapter 9: Parking



A pedestrian path through a parking lot in San Diego provides a connection to the building.

Parking needs should be met with creative designs that prioritize the pedestrian and are incorporated into sites without dominating the public realm.

- ◆ Avoid facing a public street with surface parking areas. If unavoidable, they should be buffered by landscaping or low walls and fencing to create an edge to the sidewalk.
- ◆ Do not constrain pedestrian circulation between the parking area and other neighborhood amenities that can be reached on foot. For example, avoid placing fences where they would limit pedestrian circulation.
- ◆ Divide all surface parking areas into smaller units to decrease visual impacts associated with large expanses of pavement and vehicles. This can be achieved through the use of landscaped walkways, tree rows or other landscape solutions.
- ◆ Incorporate fully accessible pedestrian circulation paths within parking areas and between adjoining residential, retail and office developments.
- ◆ Provide landscaping in all parking areas for shade and aesthetic enhancement.
- ◆ In order to reduce the visual impact of large parking areas, provide landscaping to buffer views of those areas from public streets.
- ◆ Place “wheel stops” adjacent to tree wells and planter areas, so that parked cars cannot extend into landscaped areas.
- ◆ Facilitate drainage of parking areas into swales with the use of flush curbs, perforated curbs and tree offsets.
- ◆ Delineate the transition between a swale area and its surrounding landscape with plant material in and adjacent to the swale.