

Complete Streets Design Toolkit

Complete Streets Design Toolkit

Purpose of the Toolkit

The elements presented in this Complete Street Design Toolkit reflect the best practices of complete streets for movement and align with the goals and purpose of this study and other past and current studies. They are meant to ensure a high quality to the various urban design dimensions and details of future improvements along Central Avenue in this study area. They are guidelines not standards, and they are flexible rather than authoritative, providing the basic preferences and orientations of the City, its residents and other stakeholders and groups within the study area, left for discretionary design interpretation by the various architects, engineers and urbanists, that will collaborate with them in future processes.

These guidelines are crafted to support the goals by:

1. Establishing a measure of urban harmony along Central Avenue
2. Encouraging a pedestrian-friendly multi-modal environment.
3. Supporting the historical culture of the corridor.

With every design format there is always a need for samples to formulate and illustrate the ideas of the concepts that have been presented. This Complete Streets Design Toolkit is just as it seems, the pieces to the larger puzzle that is the Complete Street.

With the main topics of the Pedestrian, Bicycle, Automobile, and Public Transportation, there is a need to understand how these uses of the street can be incorporated harmoniously with each other, and build upon the efforts of economic development for the private landowners adjacent to this street.

Focusing on the Pedestrian speaks to the general requirements of materials, safety, comfortability, and wayfinding. With each of these elements supporting the pedestrian to be a part of the larger system.

Focusing on the Bicyclist tells a story of various opportunities to incorporate the bicycle facilities, travel lanes, buffers, storage, and safety to get the bicyclists to be aware of their surroundings, but also be protected by other users in the street.

Focusing on the Automobile sets a tone for keeping the auto driver at a lower speed, setting expectations for surprises, safety and parking facilities (on-street and off-street)

Focusing on Public Transportation deals with integration of a larger system into an economically sustainable pattern that promotes ridership by providing safe and fun experiences for the rider. It tells how stations, crossings, lanes, modes and shading all help to work with the other focus factors and finalize the complete street.

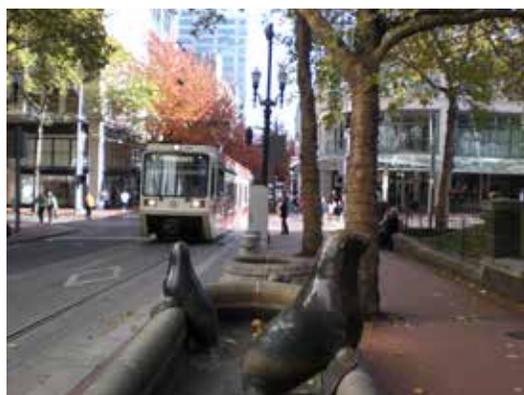




Image 1 - Multiple materials and scoring techniques to increase design appeal.

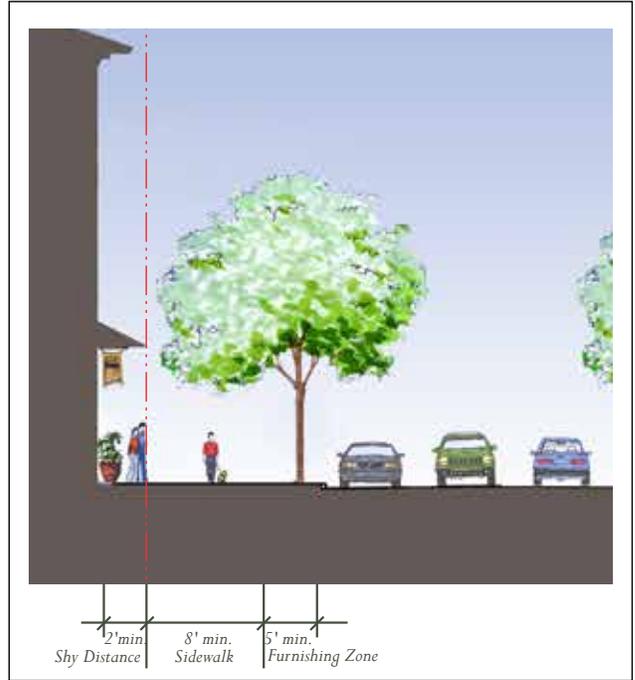


Image 6 - Diagram showing the sections of the sidewalk and their average dimensions



Image 7 - The pedestrian should feel safe while walking on the sidewalk.



Image 2 - Stone mosaic with a permeable fill between the stones.



Image 3 - Bricks with sand support a permeable material system.



Image 4 - Textured Concrete to promote traction.



Image 5 - Decorative tile mosaic



Image 8 - Sidewalk has a clear path with no intrusions.

Complete Streets Design Toolkit: Focusing on the Pedestrian

Sidewalks

General

- Sidewalks are an essential component of creating a pedestrian friendly environment. Well-designed sidewalks provide the necessary comfort, safety, and sense of welcome to support walking.
- Sidewalks at a street or alley intersection should meet the level of the street or alley or be equipped with a ramp.
- Sidewalk designs should always conform to the Americans with Disabilities Act, as well as all state and local codes.
- Sidewalks should also comply with any additional design requirements that may be included in neighborhood plans, designated school route plans, other city plans or ordinances, or state and federal requirements.

Size

- Sidewalks in retail areas should provide an average of 10 feet of walking clearance and generally range up to 15 feet in width. Size in part should be determined by location zoning.
- The clearance requirements for sidewalks should also apply to projections of sidewalks across driveways and crosswalks.
- A “Shy distance” is a designated width or buffer area along a path to allow for the pedestrian to instinctively avoid proximity to objects such as buildings, retaining walls, curbs, poles, and fences. A shy distance should be maintained between the required clear path of a sidewalk and obstacles near the clear path to maintain the usable width of the clear path.
 - o A shy distance of 2 feet should be maintained adjacent to vertical barriers (including structures, walls, fences, signs, hedges, etc.) that extend to a height greater than 3.5 feet above the sidewalk surface and extend more than 4 feet in length parallel to the sidewalk.
 - o A shy distance of 1 foot should be considered for all other fixed obstacles except that soft vegetative landscaping (grasses, annuals, succulents, and woody plants with stems less than one inch in diameter) less than 3.5 feet in height do not require a clear zone.
 - o Shy distances do not apply where handrails are required on ramps, slopes, or stairs.
- Landscaping adjacent to sidewalks should be pedestrian friendly, and free from barbed wire, spiky plants, rapidly growing vines, and other landscaping that may cause puncture wounds or tripping hazards.

Location

- Sidewalks are typically required on both sides of the street when such streets are generally fronted by buildings or parking.
- Alleys do not require sidewalks, though sidewalks may cross alleys and should remain at the same elevation when crossing an alley.

Character

- Retail sidewalks should be paved from building face to street curb and punctuated with trees and grates along the curb line.
- On Central Avenue and side streets serving ground floor retail, the buffer between sidewalk and street paving (typically the first 5 feet off of the curb line) is often the “furnishing zone” where utility poles, trees, hydrants, signs, benches, transit shelters, and planters should be placed.
- On side streets serving ground floor residential, a continuous landscape planted strip or parkway is strongly recommended to create a “detached” or “setback” sidewalk.
- Moveable chairs and tables should be utilized in the open spaces and as café seating, where space permits and as long as the clear walking path is not blocked.
- On Central Avenue, special paving (using texture, color or patterned brick, stone, stamped or stained concrete, or similar sturdy ornamental materials) should be used to enhance the architecture and the experience.



Image 1 - Intersection utilizing a granite material for the curbs on the corners.



Image 2 - Landscaping integrated into the bulb-out. Notice that there is still a clearly defined visibility of pedestrians allowed.



Image 3 - Special paving in the intersection.



Image 4 - Bulb-out intersection with a continued paving for the crosswalk that is separate from the asphalt paving of the street.



Image 5 - A bulb-out intersection allowing the pedestrian to be clearly seen by oncoming traffic.



Image 6 - Bulb-out intersection with a clearly defined crosswalk.



Image 7 - Mid block crosswalk with granite used for curb material.



Image 8 - Crosswalk that is paved differently than the street.

Complete Streets Design Toolkit: Focusing on the Pedestrian

Street Intersections

General

- Intersections are the primary location for the pedestrian crossing of streets.
- Curb extensions (bulb-outs) shorten crossing distances and provide sidewalk space for curb ramps and landings.
- Installing curb extensions physically deters parking at intersection corners and improves the visibility of pedestrians.
- Mid-block crossings are pedestrian crossing points not at intersections.
- A curb ramp needs to be installed at both ends of the crossing in a direct line of travel, consistent with the standards of the Americans With Disabilities Act as well as local and state codes.

Size

- The dimension of the curb radius (See Image 9) affects the pedestrian safety of an intersection. The smaller the radius, the less area required to cross and the slower the speed of a vehicle making a turn.
- Depending on traffic, the curb radius at the end of bulbed-out intersections should be 10 to 25 feet.
- Depending on traffic, the curb radius at a non-bulbed out intersection with parallel parking should be limited to 20 feet as the effective turning radius is 28 feet. (See Image 9)
- Where larger radii are required, consideration should be given to alternative paving to "simulate a small turning radii. (See Image 10)

Location

- Bulb-out Intersection corners should be used on all streets that have a parking lane, except when space is limited or where longer turning radii are required for frequent large vehicles. (See Image 9)

Character

- In commercial areas, crosswalks should be marked by a paving design that is clearly different from the street paving through design and texture.
- In residential areas, cross walks should be marked clearly for vehicular and pedestrian traffic.
- Mid-block crossings should be required and consideration should be given to the safety with such things as pedestrian activated blinking lights in the street or, on busier streets, mid-block traffic lights.

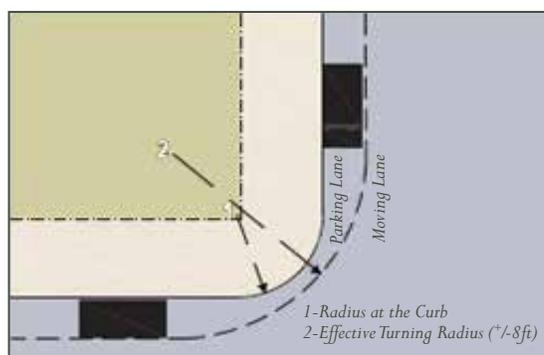


Image 9 - Effective turning radius (from SmartCode v9.0 by Duany Plater-Zyberk and Company)

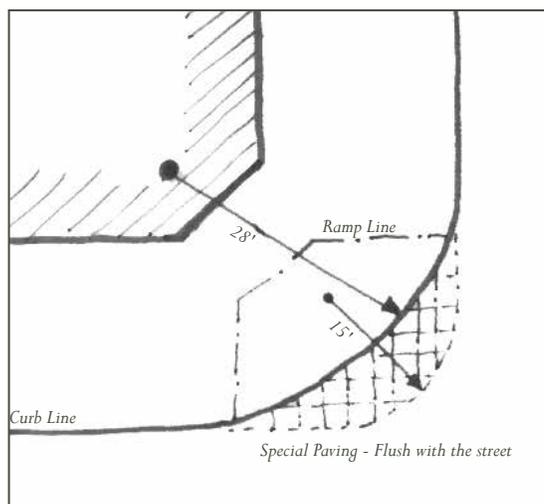


Image 10 - A simulated smaller turning radius.



Image 5 - Painted reminders help pedestrians remember to look both ways before crossing the street.



Image 1 - Rounded corner at intersection allows smooth flow of pedestrian activity.



Image 6 - Reflective Pedestrian Mid-Block Crossing



Image 2 - Pedestrian crosswalk marked with ladder style paving clearly indicates safe crossing spots.



Image 4 - Landscaped median creates shorter walking distance between both sides of the streets.



Image 3 - Medians provide safe havens for pedestrians when around various modes of transit.

Complete Streets Design Toolkit: Focusing on the Pedestrian

Safety Elements and Considerations

General

- Pedestrian-oriented signal improvements prioritize pedestrian convenience and safety.
- Pedestrians should not walk more than 200 feet laterally in order to cross a street. Well-designed mid-block crossings provide better safety for pedestrians by reducing the likelihood of a motor vehicle collision.
- Curb extensions and bus bulbs can improve safety for pedestrians and motorists at intersections and mid-block crossings by increasing pedestrian visibility.
- Medians enable pedestrians to focus on each direction of traffic separately with a safe place to wait in the middle of the street.
- When curbs are not used, bollards should be used to prevent vehicles from entering the pedestrian zone.
- Minimize the number of driveways and curb cuts along a block to reduce conflicts between pedestrians and automobiles.
- Encourage buildings along the sidewalk to provide overhead cover in the form of canopies, awnings, and overhangs, especially where there is an insufficient or immature street tree canopy.

Size

- Buffer zones of grass, trees or other vegetation of 4 to 6 feet can greatly enhance the pedestrian experience and add a sense of safety from moving traffic.
- Mid-block crosswalks should be provided on all blocks 500 feet or longer, or along Central Avenue where signalized crossings are more than 1/4 mile apart.
- Curb extensions should be provided at all corners and mid-block crossings, especially when providing on-street parking.

Location

- Bulb-out Intersection corners should be used on all streets that have a parking lane, except when space is limited or where longer turning radii are required for frequent large vehicles.
- To ensure pedestrian safety and smooth flow of traffic, transitions in the width of the Pedestrian Zone should not be abrupt and should be signaled by some sort of transitional element.
- Bollard placement and design should be coordinated with emergency vehicle access; in certain locations, removable bollards may be appropriate to balance pedestrian protection with emergency access.
- Locate street amenities in a furnishing zone along or near the curb as a barrier to automobile traffic; this is especially applicable to street lights, parking meters, street trees, trash receptacles, news racks, and heavy planters.

Character

- Provide overhead safety lighting on the approach sides of both ends of mid-block crossing treatments.
- Use high-visibility (ladder style) crosswalk markings to increase visibility of crosswalks.



Image 1 - Street clock



Image 2 - Sidewalk and/or plaza seating.



Image 3 - Sidewalk benches and masonry planters.



Image 4 - Sidewalk planters and benches constructed out of metal.



Image 5 - Concrete bollards and planters.



Image 6 - Street bollards, trash receptacles, and lighting.



Image 7 - Sidewalk planters and bollards



Image 8 - Sidewalk seating with a decorative safety wall.

Complete Streets Design Toolkit: Focusing on the Pedestrian

Street Furnishings

General

- The use of permeable or porous pavement and landscape designed to treat and attenuate stormwater flow in the furnishing zone is encouraged whenever feasible as a means of reducing stormwater runoff and volumes.
- Public streetscape furnishings should include a variety of amenities and selection of materials that add to the excitement, vitality and historic nature of the corridor.
- Street furnishings should provide a continuity of streetscape features along the length of a street.
- Benches and other forms of seating (e.g., low walls, planter edges, wide steps, etc.) should be provided throughout the corridor, with more seating provided in areas with ground-level retail frontages and entrances to major employers or activity.
- Seating should be provided for a minimum of two people. Single seats may be provided as long as they are in groups of two or more. Seating can be integrated into buildings and street walls, but generally should be located where shade is available.

Size

- Street furnishings need to be designed for universal access and to facilitate use by those of all ages and abilities.
- Sidewalks accommodating street furnishings should be at least 15 feet wide. (Clear path and furnishing zone combined)

Location

- Whereas the function of features such as light standards, street trees, and parking meters requires an even distribution along the length of a street, street furniture should generally be located in high activity areas where people can be expected to congregate.
- Street furnishings should be located in conjunction with active pedestrian areas such as intersections, key building entries, public parks and plazas, bus stops, important intersections, and pedestrian streets.
- Separate trash and recycling receptacles should be located regularly at intersections, near major building entrances, near bus stops and light rail stations, and adjacent to outdoor seating areas.

Character

- Street furniture should strengthen sense of place by utilizing design, materials, and colors that best complement the context of existing buildings and landscape.
- Attractively designed benches should be provided in sidewalks, plazas, parks and other high pedestrian use areas to further promote pedestrian use. These benches should be fixed in place and constructed of durable and low-maintenance materials. Benches at bus stops should be incorporated into the design of the bus shelter.
- The style and color of the trash receptacles should be coordinated with the selected bench design.



Image 1 - Interior storefront facade with decorative paneling and brick paving.



Image 2 - Shaded storefronts with entrances facing the sidewalk.



Image 5 - Storefronts with wide sidewalks and clear signage.



Image 3 - Storefront awning



Image 4 - Storefront with outdoor signage and seating.

Complete Streets Design Toolkit: Focusing on the Pedestrian

Access to Retail Frontages

General

- Private furnishings permitted in front of retail frontages include seating and tables, merchandise displays, planters, art, and portable signage.
- Maintain the alignment of buildings at the sidewalk edge and orient the primary entrance toward the street
- Where outdoor dining will be provided, buildings should set back in order to maintain clear space for walking on the sidewalk.

Size

- Awnings, canopies, and umbrellas should provide adequate vertical clearance (minimum of 8 feet) so they do not infringe upon the pedestrian travel zone.
- Street wall massing, articulation and detail, street level building entrances and storefront windows and doors, as well as the use of quality materials and decorative details, should be used to promote pedestrian-scaled architecture along the street.
- The storefront activity zone should be at least 2 feet wide, to allow doorways and signage to stay out of the pedestrian clear space for walking.

Location

- Coordinate the location of entrances and walkways with bus stops and other transportation facilities as appropriate to encourage bus travel and retail usage.

Character

- On streets with commercial frontages, businesses are encouraged to provide decorative elements (e.g., landscaping, potted plants, etc) that activate the public streetscape, visually enhance the building frontage, identify building entrances, and generally enhance the public realm without constricting the flow of pedestrian traffic.

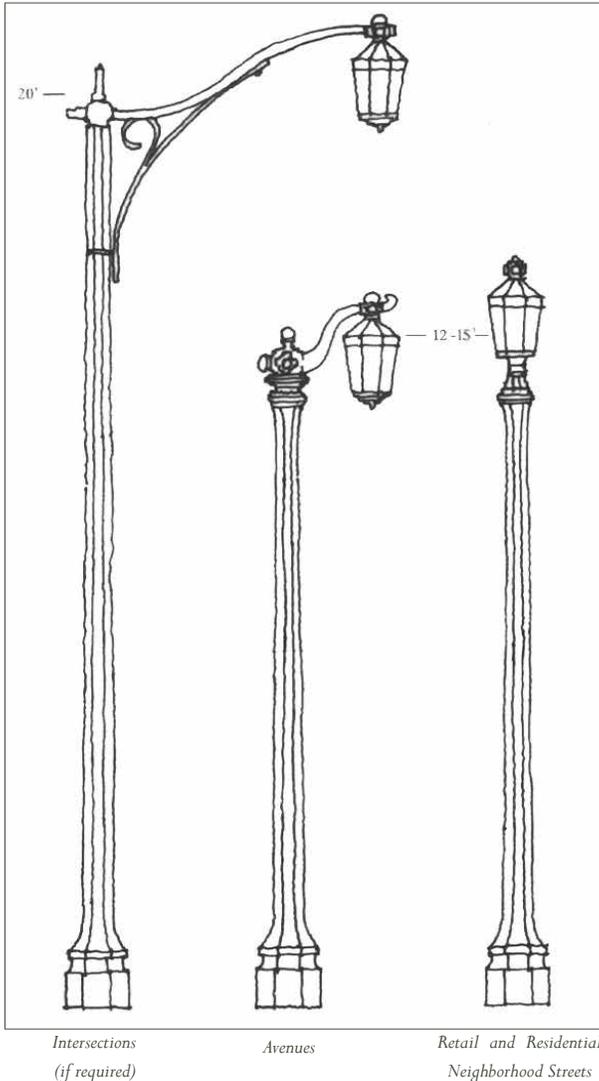


Image 1 - Typical mounting types (Not indicative of any prescribed ornamental style)



Image 4 - Residential Street with lamp post in parkway



Image 5 - Residential Street with fully shielded lamp post in parkway utilizing post for signage



Image 6 - Bishop's Crook Lamp is an example of historic specialty lamps that may be appropriate for select areas.



Image 7 - Lamp that uses one fixture for pedestrians and another fixture at 20 feet tall for vehicular traffic.



Image 8 - Multi-fixture lamp is appropriate for higher density retail areas (T5 to T6)



Image 9 - Classic Acorn Lamp is appropriate in residential areas T4 and T6 and in small scale neighborhood retail areas.



Image 10 - Contemporary fully shielded light fixture bracket mounted at 14' height on a 20' pole - a good method for integrating pedestrian scale lighting with required roadway lighting.



Image 11 - Post decoration options - banners



Image 2 - Alternative to Cobra head lighting



Image 3 - Top of Lamp post



Image 12 - Base of Lamp post



Image 13 - Post decoration options - hanging plants

Complete Streets Design Toolkit: Focusing on the Pedestrian

Street Lighting

General

- All new developments should provide pedestrian scaled streetlights where feasible.
- All new alleys should have lights mounted on outbuildings or garages. These lights should be connected to a separate circuit other than the main building.
- Outdoor lighting should create and encourage a pedestrian friendly environment, which is especially beneficial to residential neighborhoods and neighborhood business districts. Pedestrian-scale lights should improve walkway illumination for pedestrian traffic and enhance community safety and business exposure.
- Street lighting should be designed to be appropriate to its neighborhood identity. Such things as height of lamp post, lamp head and lighting source and spacing can all be calibrated accordingly.
- All street lighting should be “full-cutoff” or “fully shielded” to minimize light pollution, save energy, and direct stronger light towards the ground surface. (Refer to Images 5 and 10)
- Where existing light poles provide street lighting, new light fixtures may be mounted on existing poles to maximize resources and minimize installation time. A more expensive option is to install the new light fixtures on top of free-standing poles which receive power via underground conduit. (Refer to Images 2 and 10)

Size

- The height of lamp posts should be designed to be proportional to the width of the street. The general regulated height of street lamps should be 12 to 15 feet for pedestrian-oriented neighborhoods. Typically the 12 foot lampposts should be used in residential neighborhoods and the 15 foot lampposts on the retail streets. This is not required for parking areas. (Refer to Image 1)
- For those intersections that require more light, the 20 foot lamppost can be instituted for safety, but should be used only if necessary.

Location

- The minimum clearance from a street light pole to the face of curb should be 2 feet.
- The minimum clearance from a street light pole to the edge of a sidewalk should be 1 foot.
- The minimum clearance from a street light pole to the

centerline of a tree should be 20 feet.

- A consistent on-center distance for lampposts should be established appropriate to the location. Typically this dimension is 90 feet on center.
- On residential side streets, light posts should be placed within the parkway (tree planting strip) where one exists or within 2 feet from the curb when such a location does not reduce the sidewalk dimension to less than 5 feet.
- In existing residential neighborhoods, when street lighting will be added and neither of the above conditions can be met, lamp posts should be placed within 1 foot of the sidewalk in the front yard (front setback), provided an utility easement is already in place in that location.
- Lighting poles may be alternating sequence from one side of the street to the other, to ensure continuous light pockets.

Character

- All lamp posts should have a base, a middle and a top.
- Where applicable, the style of the street fixtures should be consistent with the dominant style of the buildings on the street.
- High pressure sodium lights are discouraged since they visually render all colors the same.
- Cobra-heads should not be used in residential streets or pedestrian-oriented commercial streets. Cobra-heads should only be used on high-volume traffic streets and should be decorative and have a supplemental non cobra-head light mounted at 12 to 14 feet to light the sidewalk.
- Shoe box style lighting should not be used, except in large parking areas, in the rear of buildings.
- Where taller lights are required, for example a major thoroughfare, consideration should be given to a design appropriate to the larger scale. Reproductions of historic lamps such as the “bishops crook” poles are a more aesthetic solution than the cobra head. (Refer to Image 6)
- Column streetlights should be used on residential streets. (Refer to Image 9)
- Multi-head column streetlights should be used on retail streets. (Refer to Image 8)



Image 6 - Parking within the alley is away from the vehicular path.



Image 1 - A retail alley made into a pedestrian shopping street.

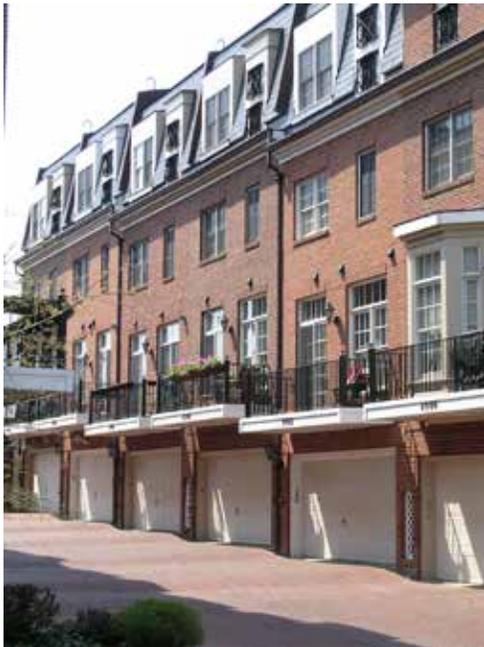


Image 9 - The backs of housing with continuous garages and balconies facing an alley



Image 2 - Alley in a commercial or retail zone.

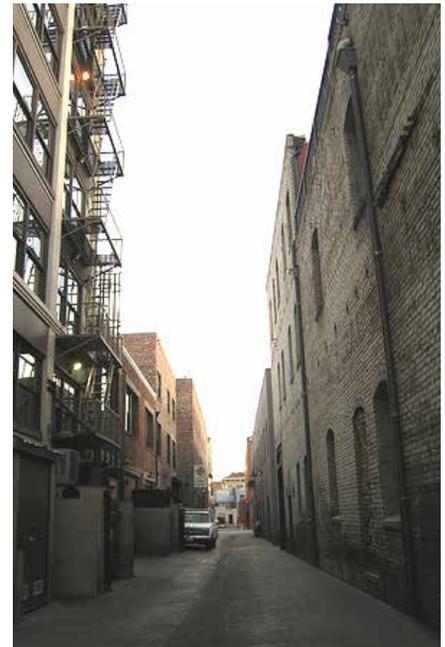


Image 3 - Alley with service entries and mechanical sheds.

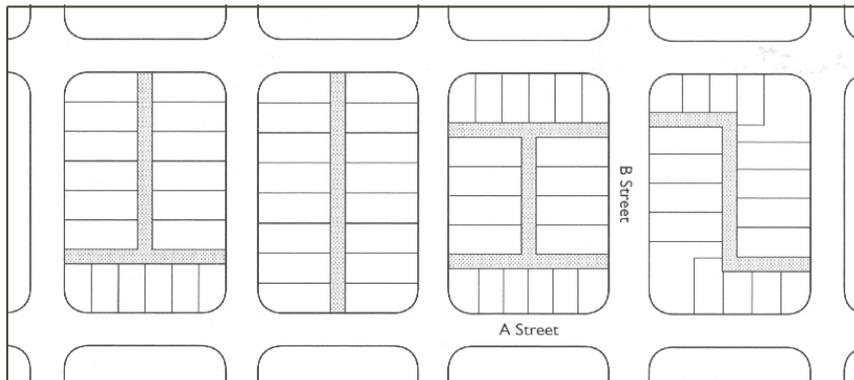


Image 13 - Alley organization showing T, I, H and Z layouts

Complete Streets Design Toolkit: Focusing on the Pedestrian

Utilizing the Alleys

General

- Alleys should provide access to parking, delivery and servicing of businesses.
- Alleys should never be one-way.
- Alley intersections on streets with prime frontages should be avoided, if possible.
- On end lots garages or wing walls should be brought close to the alley to minimize the apparent width of the alley.
- Appropriate space in alleys should be allocated for transformers, trash enclosures (where necessary) and other “dry utilities.”
- These dry utilities should be screened or enclosed.

Size

- Alley width from building face to building face should be at least 20 feet at ground level.
- Alley paving should never exceed 20 feet wide.
- Alleys are encouraged to have an alternate 16-foot asphalt pavement within the 20-foot right-of-way.
- The maximum amount of alley parking is gained with “head-in” parking, perpendicular to alley. When parking vehicles, clear of the alley the right-of-way should require a 17- to 20-foot driveway (i.e. distance between edge of alley and garage).
- Parallel parking along the alley requires a driveway width of 7.5 to 10 feet.
- Parking should be adjacent to garages to preserve narrow alley dimensions between the garages.
- At alley intersections, a 15-foot triangle of clear visibility, above vegetation 24 inches in height, over pavement should be maintained. Turning for trucks can be accommodated through unpaved but stabilized surfaces at corners.
- No linear alley should be greater than 300 feet.
- When an alley does extend over 300 feet, it should be curved or jogged to prevent high traffic speeds.

Location

- Alleys should always be located in the middle of blocks. It is desirable that the length of an alley is not visible from the public realm.
- Alley entrances:
 - o Are discouraged on streets facing public green spaces.
 - o Are encouraged to align with each other when across a street or should be separated by a minimum of 75 feet.
 - o Should be a minimum of 75 feet from an intersection measured from the right-of-way.

Character

- Where alleys intersect streets, the continuation of street elements (curb, sidewalk, material, and sidewalk grade) should be maintained. The street curb should be continued, as a flush curb or as a valley gutter, across the alley entry.
- Transition to alley pavement, when different from street pavement, should occur at the sidewalk. The grade and paving material of the sidewalk should carry across the alley entrance.
- Where alleys are not used as fire emergency routes, an emphasis on building over the entrance to the alley should occur.
- Carriage houses are encouraged on alleys to promote a safe environment and bring ‘eyes’ onto the alley.



Shaded plaza with pedestrian amenities.



Street tree planted in permeable material



Raised tree planter



Tree with elegant grating and seasonal plant

Complete Streets Design Toolkit: Focusing on the Pedestrian

Shading with Trees and Structures

General

- Purpose of street trees or shade structures:
 - o Any proposed street tree planting or shade structure installation should first be considered from the standpoint of the people using or passing along the streets. Of secondary consideration is the benefit, embellishment or enhancement of the properties abutting the street.
 - o Enclose or frame the space of the street with a canopy.
 - o Provide shade
 - o Provide a layer between traffic and pedestrian creating the feeling of safety for the pedestrian.
 - o Provide an aesthetic accompaniment to the architecture.
 - o Reduce the heat island effect created by paved surfaces.
 - o Aid in storm water management through transpovaporation.
- Street trees should be appropriate for the region and climate and should not be an invasive species.
- Street trees should be disease resistant and drought tolerant.
- Where trees are not available or desirable, structures should be integrated to add the required shade.

Size

- Street trees or shade structures should be provided the appropriate space for root growth as prescribed for the species or appropriate foundation of the shade structure, while maintaining clear space for pedestrian walkability.
- Minimum height of base of canopy or shade structures should be 8 feet, at time of maturity, for vertical clearance of pedestrians and vehicles.
- On retail streets, the base of the canopy should be a minimum of 10 feet so as to not obscure windows and signage.
- On retail streets, trees should be in a grated or permeable planting square with a minimum 4 foot width.
- Street trees should be a minimum box size of 36".

Location

- Street trees should be planted within the furnishing zone on commercial streets and within the parkway, between the sidewalk and the street curb, on residential streets.
- Tree or shade structure spacing should be a minimum of 30 feet on center and a maximum of 70 feet on center, depending on the species of tree or design of shade structure.
- Street trees or shade structure may be alternating spacing from one side of the street to the other, on narrow streets.

Character

- Retail streets should be lined with a single uniform type of tree or shade structure.
- On residential streets, street tree species should be consistent within a given street but could vary from street to street.
- Deciduous trees should be used as street trees.
- Trees with too large of a canopy such as elms or ficus are not appropriate for retail streets and require a larger parkway.



Image 1 - Street wayfinding signs



Image 2 - Colored wayfinding signs.



Image 3 - Transit wayfinding signage



Image 4 - Pedestrian friendly street maps



Image 5 - Sidewalk street sign



Image 6 - Illuminated parking sign



Image 7 - Decorative wayfinding and public signage examples.



Image 8 - Storefronts with appropriate sized signage.

Complete Streets Design Toolkit: Focusing on the Pedestrian

Wayfinding and Signage

General

- Signage can contribute to creating strong building identity when it is well-integrated with the design of the architecture.
- Wayfinding system should provide directional and information signs that are attractive, clear and consistent in theme, location, and design.
- Signs should identify key historic, cultural, civic, and shopping destinations and facilities, e.g., public parking structures, parks and open space areas, transit routes and stops, etc.
- Signs should be conceived as an integral part of the area, representing the historic culture of the area.
- Signage should respect residential uses within and adjacent to the area. The intent is to promote a more peaceful living environment without undue impacts upon residential uses.
- Remove any obsolete signs.

Size

- Retail signs should be appropriately scaled from the primary viewing audience.
- Signs should be in proportion to the building, such that they do not dominate the appearance.

Location

- Wayfinding items should be co-located within the furnishing zone with other streetscape furniture (e.g., light standards, transit shelters) where possible to reduce visual clutter in the public realm.
- The location, size, and appearance of tenant identification signs should contribute to street activity and enhance the street-level experience that is appropriate for the corridor.
- No sign should be located where street trees are blocking visibility.

Character

- Signs should use appropriate means of illumination.
- Illuminated signs that reflects the individual character of the corridor are encouraged.
- A sign should be subordinate to the overall building composition and should appear to be in scale with the building facade.



Image 1 - Bike lane intersecting arterial road.



Image 2 - Bike lane separated from vehicular travel lanes.



Image 4 - Colored bike lane



Image 3 - Bike lane and pedestrian lanes separated with landscaping and indicated with brick paving.



Image 5 - Two-way bike lane



Image 6 - Separated bike lane at intersection with individual turning lanes.

Complete Streets Design Toolkit: Focusing on the Bicyclist

Bike Lanes

General

- Bicycle facilities provide safe, comfortable mobility opportunities for a range of users and are considered a fundamental part of a complete street.
- Repair rough or uneven pavement surface.
- Use bicycle compatible drainage grates. Raise or lower existing grates and utility covers so they are flush with the pavement.
- The removal of a single travel lane will generally provide sufficient space for bike lanes on both sides of a street.
- Streets with excess vehicle capacity provide opportunities for bike lane retrofit projects. Depending on a street's existing configuration, traffic operations, user needs and safety concerns, various lane reduction configurations may apply. For instance, a four-lane street (with two travel lanes in each direction) could be modified to provide one travel lane in each direction, a center turn lane, and bike lanes.
- By providing a center turn lane safety benefits can be realized as backups will no longer occur in the inside travel lane caused by left turning vehicles.

Size

- The minimum width of a bike lane should be 5 feet against a curb or adjacent to a parking lane.
- On streets where the bike lane is adjacent to the curb and the curb includes a 1 to 2 foot gutter pan, bike lanes should be a minimum of 4 feet wide.
- Wider bike lanes are recommended on streets with higher motor vehicle speeds and traffic volumes.
- The bicycle lane should be at least 6 feet wide

Location

- Bicycle lanes should be located on both sides of the road on two-way streets.
- On one-way streets, bicycle lanes should be installed on the right-hand side.

Character

- Colored bike lanes are used to guide bicyclists through major vehicle/bicycle conflict points, especially at locations where the volume of conflicting vehicle traffic is high.
- Colored bike lanes typically extend through the entire bicycle/vehicle conflict zone.
- Since bicyclists tend to ride a distance of 2.5 to 3.5 feet from the curb face, it is important that the pavement surface in this zone be smooth and free of structures.



Image 1 - Cycle track separated with concrete and paving.



Image 2 - Cycle track separated from main road with wide sidewalks and tree buffer.



Image 5 - Cycle track separated by raised median with transit uses.



Image 3 - Brick paved cycle track located behind parked vehicles.



Image 4 - Cycle track intersection crossing



Image 7 - Elevated cycle track.



Image 6 - Cycle track located behind parked cars and separated by bollards.

Complete Streets Design Toolkit: Focusing on the Bicyclist

Cycle Tracks

General

- A cycle track is an exclusive bicycle facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane.
- Cycle tracks provide space that is intended to be exclusively or primarily for bicycles, and are separated from vehicle travel lanes, parking lanes and sidewalks.
- Can either be one-way or two-way, on one or both sides of a street, and are separated from vehicles and pedestrians by pavement markings or coloring, bollards, curbs/medians, or a combination of these elements.
- Cycle tracks provide increased comfort for bicyclists and greater clarity about expected behavior on the part of both cyclists and motorists.

Size

- Cycle tracks should have a minimum width of six and a half feet to provide safe passing for bicyclists, eight feet is desirable for new construction.
- A buffer should be required between the cycle track and the vehicle or parking lane when the cycle track is wider than 7 feet, but it is recommended wherever possible.
- For a two-way cycle track, the minimum buffer width is 3 feet and in rural areas, the barrier width should be dependent on the speed of the main road.

Location

- Where on-street parking exists, the cycle track should be placed between the parking and the sidewalk. Drainage inlets should be provided adjacent to the sidewalk curb to facilitate run-off.
- Cycle tracks can be at street-level, provided that there is a physical separation.
- Cycle tracks can also be grade-separated from the roadway and should be two or three inches above street-level. A small ramp should be provided where cyclists may enter or leave the cycle track or where motorists cross the driveway.
- A cycle track retains priority at low-volume intersections and driveways and bicyclists should have the right-of-way over other vehicles at driveway crossings.

Character

- The cycle track should have signage, pavement markings and/or different coloration or texture to indicate that the facility is provided for bicycle use.
- Signage, in addition to bollards, can add to the physical separation of the facility.
- If the speed of the main street is 45 miles per hour or less, the cycle track should turn inwards prior to crossing a side street so as to improve cyclist visibility to motorists.



Image 1 - Bike box located at an intersection.



Image 2 - Colored bike lane to indicate safe left-turning point at intersection.



Image 5 - Bike lane at intersection separated from pedestrians



Image 3 - Bicycle lane indicator



Image 4 - Bike lane signage



Image 6 - Bicyclist signalization



Image 7 - Pedestrian and bicyclist lanes clearly marked

Complete Streets Design Toolkit: Focusing on the Bicyclist

Safety Elements and Considerations

General

- Facilities such as striped bicycle lanes contribute to the buffer between motor vehicle travel lanes and the adjacent sidewalk. Other facilities include sidewalks, side paths, and striped bicycle lanes.
- At signalized intersections along cycle tracks where cyclists are provided a protected phase for the through movement, right-turns on red by vehicles should be prohibited.
- The use of a bicycle signal head is required for separated bicycle phases to ensure all users know which signals to follow. Signals guiding bicycle traffic should be clearly identified to distinguish from those for motorists.

Size

- Bicycle facilities are more appropriate to areas which have longer block lengths and fewer driveways.
- Arrows should be spaced approximately 200' center to center, with the first arrow on each block or roadway segment placed no further than 100' from the nearest intersection.

Location

- To increase drivers' awareness of bicyclists in the cycle track, the stop line at intersections is usually moved back about 16 feet.
- The cycle track can be dropped into a bicycle lane about 16 feet prior to the intersection.

Character

- The bike lane should be colored starting 16 feet prior to the intersection and in certain locations the bike lane markings can be extended through the intersection. .
- Shared lane arrow markings should be installed in conjunction with "share the road" signs.



Image 1 - Arched bicycle racks



Image 2 - U-shaped bicycle racks.



Image 3 - Circular bicycle racks.



Image 4 - Improvised bicycle parking



Complete Streets Design Toolkit: Focusing on the Bicyclist

Bike Storage and Racks

General

- Bicycle parking within the public sidewalk generally should be accommodated with a number of smaller racks distributed along the length of a block, rather than one or two large concentrations of bike racks.
- Curb extensions are good locations to site bicycle racks due to the space required for bicycle parking.
- In-street bicycle parking should be considered where there are space constraints on the sidewalk.
- Covered and convenient bicycle parking areas should be provided for projects that will likely have a demand for them.
- Short-term bicycle parking facilities are best used to accommodate visitors, customers, messengers and others expected to depart within two hours.

Size

- Alley width from building face to building face should be at least 20 feet at ground level.
- A row of inverted “U” racks should be installed with 15 inches minimum between racks.

Location

- Bicycle racks should be located so that parked bicycles do not block the travel path of pedestrians or infringe upon seating areas.
- Racks should be located at least 24’ to 30’ from the curb to accommodate ingress and egress to parked vehicles.
- Short-term bicycle parking should be located within 50 feet of building entrances. When a building has more than one entrance, the parking must be distributed to serve all buildings or entrances.
- Bicycle racks should be located in prominent locations within the public amenity zone that are clearly visible to cyclists from the street and from adjoining buildings.
- Bicycle racks should be located within proximity to street trees to discourage the use of trees for bicycle parking.
- The rack should be placed so that bicycles park parallel to the curb or street wall, or angled if there is additional space available while still meeting the minimum clearances.
- Empty racks should not pose a tripping hazard for visually impaired pedestrians. Position racks out of the walkway’s clear zone.

Character

- Bike racks should be designed to allow the bicyclist to secure the bicycle frame to the device at two points of contact.
- Appropriate bicycle rack designs include the inverted U, the ribbon type rack, or the corkscrew.
- Bicycle racks should support different bicycle frames and sizes.
- The rack should be simple and easy to use.
- The rack should allow easy locking of the frame at least one and preferably both wheels.



Complete Streets Design Toolkit: Focusing on the Automobile

Lane Widths and Road Diets

General

- “Right-sizing” lanes saves costs by reducing the amount of right of way needed in new roads.
- Saves on maintenance expenses by reducing amount of asphalt used.
- Road diets are often conversions of four-lane undivided roads into three lanes (two through lanes and a center turn lane)
- Road diets provide more space for other modes of travel by freeing right of way for sidewalks, turn lanes or medians, landscaped pedestrian buffers, and/or bicycle lanes.
- In general, narrower roads result in lower vehicle speeds.

Size

- Vehicles such as transit buses require wider lanes. Modern buses can be 10.5 feet wide from mirror to mirror and justify a minimum 11 feet wide lane on roadways with 30 to 35 mph target speeds.
- To prevent speeding, reducing lane widths by 1 foot, from 12 feet to 11 feet or 11 feet to 10 feet, can decrease construction costs by 2 percent.
- Reducing the driving lane width has been shown to reduce speeds by as much as 3 mph for every foot of lane narrowing.
- Road Diets provide space for other modes of travel, as lanes are often unnecessarily built to the upper end of a suggested safe range.
- Reduce potential collision points along with the number and severity of crashes; can improve overall safety for all modes by 30 percent.
- Motor vehicle level of service is either unaffected or improved for volumes of 15,000–20,000 ADT, as a left-turn lane in both directions or a median with left-turn pocket lanes improve flow rate.

Location

- The width of a roadway sends an implicit message to drivers about how they should drive
- Wide streets encourage high speeds, while narrower roads force vehicles to move more slowly to stay in their lane
- Road diets reduce crossing distances for pedestrians and allow space for medians or islands for easier and safer crossings.
- Added medians and bicycle lanes provide motorist and emergency responders with necessary space to maneuver.
- Roadway narrowing is a relatively easy design treatment, as it can often be implemented with pavement markings.
- Roadway narrowing can be coordinated with utility work in ROW to save costs.

Character

- Benefits neighborhood context through decreased speeds, making for quieter, more comfortable neighborhoods.
- Re-striping existing right of way during resurfacing to reduce lane width is a low-cost way to incrementally build a network of bicycle facilities.
- Provides additional flexibility in design options, such as including bicycle lanes or on-street parking, increasing the sidewalk width, installing parkways, or adding landscaping.
- On roads with speed limits of 25 mph or less, bicycles and motorized vehicles can share lanes, thus space can be reallocated from lane width to pedestrian use.
- Improves speed-limit compliance during most times of use, as reducing road to one lane in each direction allows prudent drivers to set the speed. This benefit is less effective during off-peak times.
- Narrow streets are easier and safer for pedestrians to cross.



Complete Streets Design Toolkit: Focusing on the Automobile

On-Street Parking

General

- On-street parking buffers pedestrians from moving cars and calms traffic by forcing drivers to stay alert.
- Zoning regulations should have “build-to” lines rather than mandatory front setbacks which would encourage parking to be on the interior of the block.
- Where appropriate, metered or time-restricted parking should be used to provide reasonable short-term parking for retail customers and visitors while discouraging long-term parking.
- In developing and redeveloping areas, provide the amount of on-street parking for planned, rather than existing, land-use densities.

Size

- Parallel parking is the ideal arrangement, because it requires the least amount of space and allows pedestrians to easily cross through the thin line of cars.
- Diagonal parking is acceptable on low speed collector streets with ground floor retail, as long as the extra curb-to-curb width is not achieved at the expense of sidewalk width.
- On-street parking should conform to accessibility requirements and provide an appropriate number of accessible spaces.
- A minimum 1.5-foot-wide operational offset should be provided between the face of curb and edge of potential obstructions such as trees and poles. This will allow the unobstructed opening of car doors.
- Parking should be prohibited within 10 feet of either side of fire hydrants (or per local code), at least 20 feet from nearside of mid-block crosswalks (those without curb extensions) and at least 20 feet from the curb return of intersections (30 feet from an approach to a signalized intersection) unless curb extensions are provided.
- Reverse (back-in) angled parking requires a wider roadside due to the longer overhang at the rear of most vehicles.

Location

- Parking located in front of a street-front business encourages people to get out of their cars and walk, and is essential to leasing street-oriented retail space.
- The bulk of a building’s parking supply should occur behind the building so that the front of the building will be defined by shop fronts and building entrances rather than parking lots.
- On-street parking should generally be prohibited on streets with speeds greater than 35 mph due to potential hazards associated with door openings and maneuvering in and out of spaces.

Character

- The conventional practice of placing surface parking lots in front of buildings results in a disconnected pedestrian environment.
- On-street parking provides convenient access to adjacent uses and provides the best possible option to visitors since it offers the shortest possible time between stopping and shopping.
- On-Street parking can lessen the need for parking lots and structures, which convert a significant amount of acreage to parking.



Complete Streets Design Toolkit: Focusing on the Automobile

Off-Street and Shared Parking

General

- Shared parking can be defined as parking utilized jointly among different buildings and facilities in an area to take advantage of different peak parking characteristics that vary by time of day, day of week, and/or season of year.
- Allow for off-street parking facilities to be located off-site of the lot on which the structure or use being served is located
- Since most parking spaces are only used part time, allowing for shared parking arrangements significantly reduces the amount of land devoted to parking.
- Shared parking arrangements can be implemented through shared parking agreements between individual developers or the construction of public parking facilities.

Size

- Reduce stall dimensions and allow for compact car spaces.
- The buffer between the parking lot and the street should be no less than 15 feet wide

Location

- Parking facilities can be located in the interior of blocks and concealed by “liner” buildings with retail, offices, and housing.
- Encourage shared parking between uses that experience their peak business during different time periods for example offices with daytime business hours and restaurants and bars with evening hours and weekends.
- Specify a maximum distance from the structure or use within which the off-site parking facility must be located. •These location requirements are typically based on acceptable walking distances.
- Parking behind the building is accessible yet out of view.

Character

- The location of parking facilities behind buildings is vital in creating more welcoming and pedestrian-friendly streetscapes that will attract users.
- Parking facilities in front of buildings create physical and psychological barriers to the building, as opposed to buildings placed close to the street, framing the public space and inviting people in.
- Design sites such that vehicles and parking lots are not the dominant feature
- Signage could be used to direct users to the parking facility and to get people from the parking area to the entrance, which may be in the front of the building.
- Off street parking can be combined with on-street parking could be provided in the front of the building to provide visible and convenient auto access.
- Screening can be continuous landscaping, attractive fencing or stone walls, among other materials.
- Landscaping on the periphery of a parking facility and within parking areas can be used to soften the appearance of a parking facility from the street.
- Expanses of parking should be broken up with landscaped islands and planted strips.
- Integrate parking structure with the surroundings, particularly through scale, materials, colors and style. Architectural treatments can be used to screen cars and relate to the design of adjacent buildings.
- Building vertically reduces the acreage of land converted to parking, thereby, reducing impervious surfaces.
- In lower density areas incentives may be required to defray the costs of structured parking
- Parking considerations should be secondary to the design and placement of buildings on the site.
- Use site topography to help conceal parking lots



Complete Streets Design Toolkit: Focusing on Public Transportation

Combining Modes of Transit

General

- Safe and easy access transit stations and secure bicycle parking facilities are necessary to encourage commuters to access transit via bicycle.
- Bicycling to transit reduces the need to provide expensive and space consuming car parking spaces.
- Accommodate people who want to bring their bicycle with them on the transit portion of their trip, through bike storage on buses
- Provide maps at major stops and stations showing nearby bicycle routes.
- Provide wayfinding signage and pavement markings from the bicycle network to transit stations.
- Provide well lit and visible routes from bicycle parking locations to station/stop platforms.
- Provide safe and secure long term parking such as bicycle lockers at transit hubs.

Size

- Shared bike/ bus lanes can be attractive to cyclists who sometimes prefer to ride in bus lanes as transit vehicles may be more predictable and more responsive to cyclists in the road. These lanes work best when the lane width are around 16-feet to allow a clear 3 feet of separation between the bicyclist and a passing bus. In constrained areas or where traffic is lighters a shared lane might be 14 feet.

Location

- Provide direct and convenient access to transit stations and stops from the bicycle and pedestrian networks.
- Provide High-visibility crosswalks and mid-block crossings to provide safer bicycle and pedestrian access to bus stops

Character

- Transit use can overcome large obstacles to bicycling, including distance, hills, riding on busy streets, night riding, inclement weather, and breakdowns.
- Providing bicycle routes to transit helps combine the long-distance coverage of bus travel with the door-to-door service of bicycle riding.



Complete Streets Design Toolkit: Focusing on Public Transportation

Accommodating Loading and Unloading of Passengers

General

- Types of Bus Stops:
 - o Curbside Stop (near-side, far-side, or mid-block) - Provides easy access for bus drivers, and minimal delay. Can cause traffic backup behind the bus, and may encourage unsafe passing by motorists. Easy to install and relocate. Requires a 'no parking zone.'
 - o Nub, or 'Bus Bulb'- Provides easy access for bus drivers, and minimal delay. Can cause traffic backup behind the bus, and may encourage unsafe passing by motorists. Reduces pedestrian crossing distance and provides additional sidewalk area at the stop. Requires adequate road space to install.
 - o Bus Bay (with acceleration and/or deceleration lane) - Minimizes delay to passing traffic. Bus drivers may have difficulty reentering the traffic stream when heavy. Often used on higher speed streets. Requires adequate right of way so that pedestrian area is not sub standard.
 - o Open Bus Bay - Similar to bus bay, but allows bus to decelerate as it moves through the intersection. Requires adequate right of way so that pedestrian area is not sub standard.
 - o Queue Jumper Bus Bay - Similar advantages to bus bay and open bus bay, but allows bus to bypass traffic queues at a signalized intersection. May cause delays to right-turning vehicles. Requires adequate right of way so that pedestrian area is not sub standard.

Size

- Maintain pedestrian circulation and coordinate with existing landscaping.
- Americans with Disabilities Act (ADA) requirements must be followed around the shelter and between the shelter and other street furniture.
- Bus stops should be designed such that pedestrians in wheelchairs can access the bus shelter and board the bus.
- Transit stops where neither a bus turnout nor bus bulb-out can be accommodated, buses may sometimes be unable to pull directly adjacent to the curb to deploy a lift.
- A paved landing pad is an important feature, especially for disabled and elderly riders. Typical dimensions are 5-feet by 8-feet.

Location

- Choose type of bus loading based on: traffic volume, traffic speed, bus frequency, bus passenger volumes, traffic signals or stop signs. Additionally, geometric considerations such as turn lanes, street right-of-way and sidewalk width, space for installing a bench or shelter, lighting, affect on adjacent businesses or land owners, and the presence of on-street vehicle parking. Other factors to include are how a stopped bus will affect the sight distance for pedestrians using crosswalks and the sight distance for parallel traffic and cross traffic, and how the bus will affect the traffic stream as it enters or leaves a stop.

Character

- A Dedicated Transit Lane can provide transit service reliability in areas with traffic bottlenecks or high peak-period congestion.
- Dedicated Transit Lanes Can reduce transit travel times by 5–25 percent.



Complete Streets Design Toolkit: Focusing on Public Transportation

Transit Stops and Design

General

- Dignified transit stops convey the message that transit is a viable alternative form of transportation.
- Improve the visibility of the transit service and to provide maps and other informational signage to help people use the service.
- Lighting is important for safety and security of transit patrons. A brightly lit bus stop makes it easier for the bus driver to observe waiting passengers and allows motorists to see pedestrians moving to and from the bus stop.
- Waste receptacles can be provided at higher use transit stops to reduce unwanted items being brought on the transit vehicle
- Signs serve as a source of information to patrons and operators regarding the location of the bus stop
- Benches provide comfort and convenience at bus stops and are usually installed on the basis of existing or projected ridership figures. A bench may be installed by itself or as part of a shelter.
- Shelters provide protection from the elements and seating for patrons waiting for rides.

Location

- Standardized Shelters can help minimize maintenance costs and provide consistent branding for a transit service. If paired with advertising, some vendors will supply the shelters free of charge to the city.
- Custom Shelters – convey a sense of place and are more in keeping with the architectural character of an area.
- Well-planned and designed transit facilities provide safe, comfortable and intentional locations for riders to access transit.

Character

- An attractive, well designed shelter can also be a positive addition to a streetscape that contributes to a sense of place.



Complete Streets Design Toolkit: Focusing on Public Transportation

Shade for Waiting Passengers

General

- Motorists, pedestrians, and cyclists typically prefer shady streets. Shade provides protection from heat and sun and contributes to the spatial definition of a street.
- In hot and arid climates providing shade for pedestrians is necessary to encouraging sidewalk level activity for the whole year.

Location

- Architectural encroachments over the sidewalk such as awnings, arcades, and cantilevered balconies are another way to protect pedestrians from the elements and meanwhile shield storefronts from glare.
- Allow for construction of engineered shade over city right-of-way.

Character

- Engineered shade standards should be incorporated in the current zoning ordinance to require structures to be designed with non-heat loading construction materials,
- If lights are used consider solar powered LED's to eliminate the need for electrical service to the structure.
- Shade can be provided with canopy trees or architectural encroachments over the sidewalk.
- Canopy trees should be planted in a planting strip between the sidewalk and the street in order to provide continuous definition and shade for both the street and the sidewalk.

Complete Streets Case Studies



Complete Streets Case Studies

Oak Street - Roanoke, Texas

Year of Design Completion: 2005

Year of Construction Completion: 2006

Complete Streets Elements:

Pedestrian Improvements

Sidewalk Widening

Street Intersection Improvements

Safety Element Installation

Street Furnishing Installation

Street Lighting Installation

Utility Pole Relocation to Alleys

Street Tree Installation

Wayfinding Design and Installation

Bicycle Improvements

Bicycle Racks and Storage

Automobile Improvements

Lane Width Reductions

On-Street Parking Improvements

Off-Street and Shared Parking Installation

Economic Development Results:

12 new buildings

6 new restaurants

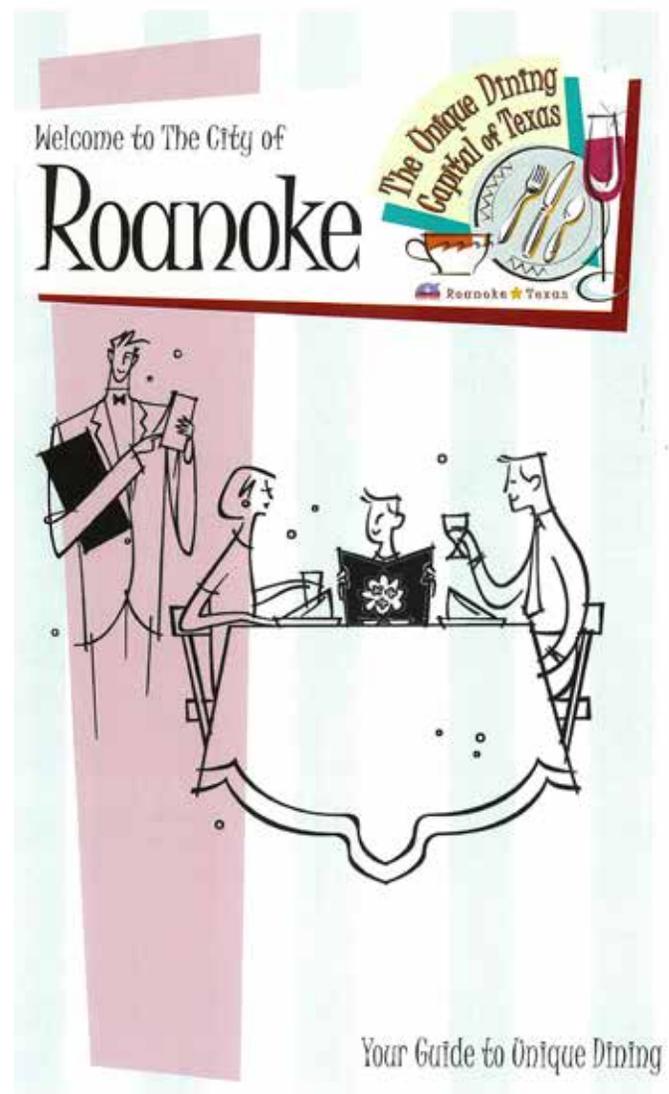
Restaurant: \$600 / foot of gross dining space

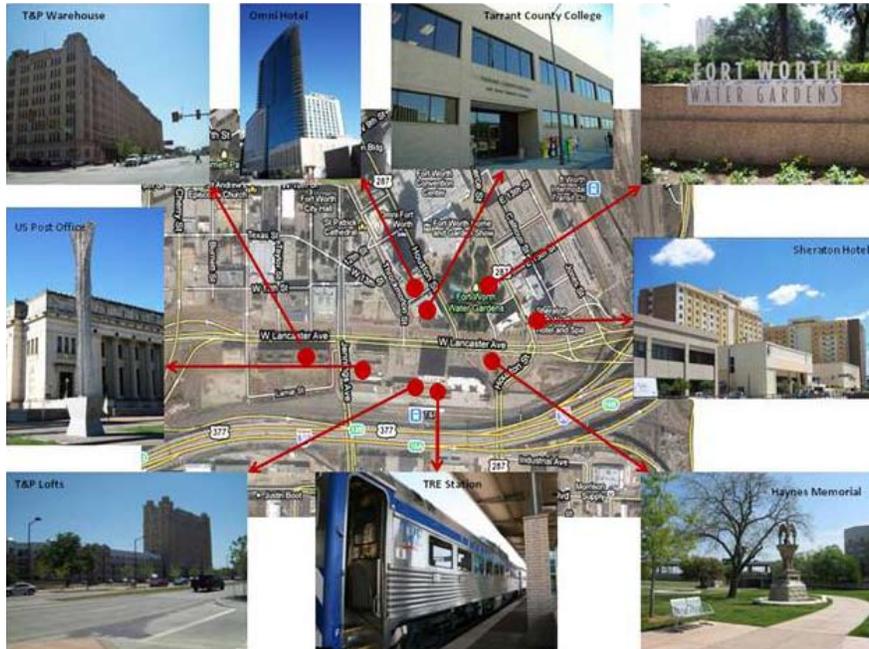
Growing office and multi-family demand

Ad Valorem Taxable Value of Land:

2006: \$4.06 per square foot

2011: \$12.25 per square foot





Complete Streets Case Studies

Lancaster Avenue - Fort Worth, Texas

Year of Design Completion: 2004

Year of Construction Completion: 2009

Complete Streets Elements:

Pedestrian Improvements

Sidewalk Widening

Street Intersection Improvements

Safety Element Installation

Street Furnishing Installation

Street Lighting Installation

Street Tree Installation

Wayfinding Design and Installation

Automobile Improvements

Lane Width Reductions

On-Street Parking Improvements

Economic Development Results:

Freeway realignment;

Lancaster Avenue reconstruction;

Convention center expansion;

Water Gardens improvements;

Houston/Commerce two-way conversion;

Sheraton Grand Hotel and Spa renovations;

Omni Hotel and Condominiums;

Municipal parking garage construction;

Texas & Pacific Lofts (two buildings);

Commuter rail extension and station at T&P Terminal

Building/Lofts;

Intermodal transportation center;

Santa Fe Warehouse;

Hyde Park Transit Plaza;

Ninth Street;

Tax Increment Financing district;

Zoning changes; and

Zipper Building.

Ad Valorem Taxable Value:

2003: \$184,102,181

2012: \$500,682,004

Implementation Strategies

Implementation Strategies

What are Complete Streets?

Complete Streets are streets everyone can use! They are designed and operated to enable safe access. People of all ages and abilities are able to safely move along and across streets, regardless of how they are traveling. They allow buses to run on time and make it safe for people to walk to and from train stations. They also contextually respect the adjacent neighborhood form and function in terms of design.

What is Context Sensitive Solutions (CSS)?

"Context sensitive solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist."

-- Federal Highway Administration (FHWA)

CSS takes the Complete Street and addresses the context of the buildings and adjacent development opportunities in order to enhance the ability to maintain the lifecycle costs with increased taxable value along the street; utilizing the future taxes to repay improvements and maintain the roadway in perpetuity.

Ownership versus required maintenance

Today, many cities are struggling with the high cost of maintaining roadways built to reach the extents of city limits. Without the necessary tax base, these costs, combined with other city services and public safety requirements, add to the burden of the strained resources that we are experiencing. Quality, compact development with less parking, more public space and, in some locations, more density, can provide higher tax revenues for the City to use toward the required services and maintenance.

Through the two case studies in the previous section, the return on the investment has been realized by the adjacent development they have addressed. There are many more cases where integrating Complete Streets appropriate to area contexts has resulted in quality new development and higher land values.

Attracting Regional and Federal Support

In addition to a renewed identity for the community, the projects have attracted federal, state and regional funding to help support additional improvements or begin implementation of the projects.

In Duncanville, city officials and a local developer cited the Main Street Plan and new zoning for the area in a successful bid for a Housing and Urban Development Grant for Sustainable Communities through the regional North Central Texas Council of Governments (NCTCOG) to implement the first phase of the roadway construction. The results of the redesign complemented by a form-based code have been almost 100% occupancy for commercial along the street and into the side streets, and residential homes in adjacent neighborhoods selling on an average of five days. Redevelopment has not been fully activated, but instead a series of rehabilitation along the roadway with existing buildings have revitalized the Main Street area and created a need for additional low-density urban residential in the form of three-story mixed use apartments and two-story townhomes.

Steps to Success on Central Avenue

1. City adoption of a Complete Streets and Context Sensitive Solutions (CSS) Program

By adopting a Complete Streets and CSS Program, the City could set a tone for developers and City departments that streets need to be improved for the benefit of all modes of transportation and funding for street improvements will take economic development into consideration when planning these improvements. With the cost of construction rising at exponential rates, adopting policies to build and maintain quality streetscapes can help promote the quality private development and services that residents and visitors desire.

Also, adopt the ITE Manual for Walkable Urban Thoroughfares to better align complete street and context design. Adopted as a recommended practice by the Institute of Transportation Engineers, the manual provides guidance to support the design recommendations in this report.

2. Collaborate BRT integration using Context Sensitive Solutions

Utilizing the guidelines and toolkit, address the integration of BRT into Central Avenue so that the stations and crossings are working with development in the area to create a great context. Use the street network and design tools to promote multi-modal transportation and solve critical issues in the area.

- a. Station locations should address resident concerns about location, but also use the location to realize its potential to catalyze development and property values. For instance, rather than relocating a station due to loitering concerns, redesign the station to be a center alignment, instead of a curb alignment.
- b. Street furniture and station structures need to accommodate safety and comfortability for passengers. In addition, the design of the station must be in coordination with the character of the adjacent development or neighborhood plan.
- c. Flexibility in the station design and location must be accommodated. Any uniformity in stations will artificially create limits on each neighborhood and will effect the true economic development potential of the adjacent context. Each station must be designed for its place and context in order for it to be an asset to the community it serves.

3. Work with neighborhoods and commercial owners to update policies per neighborhood plans and subdivision ordinance

a. Height allowances and transition towards adjacent residential

The commercial properties along Central Avenue generally occupy the full block they sit on, but on occasion transition to single family residential. The urban context of Central Avenue from 1st Street to Girard Boulevard has proven, through recent developments, that urban residential options and mixed-use development are in high demand, but existing sector plans and zoning within the Hospital and University sub areas restrict taller buildings. By providing more square footage for commercial or residential activity, taller structures along Central Avenue could help encourage redevelopment by allowing developers to recoup more of their development costs. Wholesale changes to height regulations in zoning would likely be controversial, so this Plan recommends a measured approach that helps increase development value while meeting neighborhood goals.

One option for getting neighborhood support for taller structures along the corridor is to allow height bonuses in exchange for public amenities within a development. In the case of the Volcano Heights Sector Development Plan, recently adopted unanimously by the Environmental Planning Commission and City Council, height bonuses are awarded up to a prescribed height for providing amenities such as plazas, trails and sustainable development. A point system has been established to gauge the level of importance for the various treatments in this Major Activity Center. If various elements for the communities are desired, such as ground floor retail, outdoor dining areas, wider sidewalks, development of parts of Central Avenue, those can be written into the point scale and applied towards the requirements for buildings to go from 2 stories to 3 or 4 stories.

b. Temporary use permits for surface parking to permit evolutionary shared parking system

In order to improve parking for public use now, the city should consider issuing developers temporary use permits for surface parking as a first phase for a planned development on the site. The temporary use permit can have a time limit, typically two to five years, and should stipulate that the public is allowed to use the lot. By charging for parking, it may be possible to hasten redevelopment of sites by

Implementation Strategies

creating an early revenue stream.

c. *Assist neighborhoods to identify and structure shared parking agreements*

Along with the policy of permitting temporary use permits for surface parking, the City should work with developers, landowners and neighborhoods to create shared parking agreements and potentially a series of parking structures as market demands require. It is not recommended that the City pay for these improvements, but instead assist in setting up a parking management system and utilize various taxing systems and innovative finance tools to support the development of these surface or structure lots.

This parking management system should also take into account a need for additional on-street parking along Central Avenue and time limits for those spaces. Typically urban areas with ground floor retail require revolving parking spaces on the street to give opportunity for new shoppers to park freely. By setting some spaces to be 30 minute parking and others to be 2 or 3 hours limit on parking, it gives the appearance of additional parking and will improve retail opportunities.

d. *Assist neighborhoods in identifying support for improving alleys aesthetically and through use activation, as well as encouraging maintenance from the neighborhoods and landowners*

A series of alleys exist within the Central Avenue corridor, but they do alternate between commercial and residential uses. It is recommended that the City support neighborhoods in identifying programs or developing programs to reclaim the alleys for use and safety within the neighborhood. By mowing unpaved alleys, cleaning any trash, and providing lighting, the alleys can be activated and these introductions can improve crime prevention. For paved alleys, allowing garage access for homes or mixed-use development, will put activity on the alley and allow consistent “eyes on the street,” which can help prevent crime.

In addition, allowing small studio units to be constructed on top of the garage on the alley is a good means to provide more eyes on the street, but also to allow density to increase, without the need for building heights to be raised. This also provides rental opportunity for homeowners to help cover the cost of maintaining older, historic homes in this area.

4. Identify and implement an improvement funding source that is most acceptable to the context and area

There are a variety of innovative funding options that can work with the existing and future development to implement these recommendations for Central Avenue. The following are recommendations that integrate reinvestment, reimbursement and general adherence to the need for public places to be maintained to keep the quality of a place to stay clean, safe and special for the neighborhoods it serves. Many of these mechanisms were written for the Volcano Heights Sector Development Plan, but have been adapted for this study.

City Ordinances allow for a variety of financial tools that enable rising property values from development to pay for infrastructure. Desired outcomes at Volcano Heights will likely require the use of one or more of the following methods:

• *Tax Increment Development District*

Described in the City of Albuquerque Code of Ordinances, Section 4-10, Tax Increment Development Districts (TIDDs) capture a portion of the increase in property and gross receipts taxes resulting from the area’s development. Funds can be used to pay back debt on a range of projects similar to PIDs, including elaborate streetscapes like the urban boulevard, parks and trails, civic spaces, and other amenities. TIDDs are typically used for a large, master-planned development, rather than a single subdivision. Unlike other funding mechanisms, they do not impose new costs or taxes on property owners (except those incurred by rising property values caused by development). TIDD proceeds can also be used for ongoing maintenance and improvement of facilities. TIDDs require major coordination among property owners to apply for and maintain districts, issue bonds, and manage revenues and bond payment.

A TIDD funding source is the best source of funding for a community because it does not increase tax base, but instead redirects existing tax revenue and redirects it from the General Fund to the TIDD fund. The incentive for this type of funding is that reimbursements are tied to private development and, legally ties a developer to perform successfully in order to be reimbursed for public infrastructure. This is ideal for the Hospital District due to its large amount of vacant property along Central Avenue. It would provide an incentive to developers by assisting in showing public support for development in the area and assist in securing financing for a project.

- **Special Assessment Districts**

Described in the Albuquerque Code of Ordinances, Section 6-8, Special Assessment Districts (SADs) involve an additional charge added to property taxes to fund necessary improvements in new subdivisions, such as drinking water and sewer lines, paving and other government services. SADs can typically take on a purpose for funding, such as transportation, utilities or a parking management district. SADs can be requested by a percentage of landowners in an area or imposed by a local government, and SAD revenues are used to pay back city general funds or service debts, such as bonds, incurred for infrastructure construction.

- **Public Improvement District or Business Improvement District**

Described in the Albuquerque Code of Ordinances, Section 6-9 and enabled by New Mexico Statute Section 5-11-1 to 5-11-27 NMSA 1978 (2001), Public Improvement Districts involve an additional charge added to property taxes to fund a broad array of improvements in a subdivision, ranging from roads and drainage to recreational facilities, trails, parks, public buildings, libraries and other amenities. Like SADs, PID revenues are used to pay back general funds or debts incurred for the construction of infrastructure. The City of Albuquerque currently requires unanimous vote of property owners to establish a PID, though state statutes allow PIDs to be created with ¾ of property owners in agreement.

The Business Improvement District is similar to the Public Improvement Districts except that this mechanism is an additional charge to businesses and multi-family, and is not directly taxed to single-family residential. There is a district boundary created that identifies the included taxable entities and the improvements are directly applied to maintenance and life cycle costs for the infrastructure and district identity only.

These types of funding sources are ideal for the Edo and University areas along Central Avenue. The most ideal would be a Business Improvement District that utilizes an additional charge on the property tax to dedicate funds for improvements in the area. Given the current level of existing businesses and their direct economic benefit for the improvements of the corridor, allows this group to align the context to the vision for their respective segment. The BID also does not include neighboring residential property owners so it does not increase their tax level, which is a growing concern of the neighboring community.

- **Public/Private Tax Rebate Agreement:**

Similar to a TIDD, this type of agreement allows for cities, counties and other taxing entities to enter into agreements with developers that let developers obtain rebates for infrastructure in return for development that meets standards set by the affected governments for density, walkability, sustainability, etc. Under this type of public/private partnership, the rebates can only be requested after the development has been completed as agreed upon and new property or sales tax revenues have been generated there for a set time period.

Such an arrangement can allow rebates of tax revenues for a flexible range of infrastructure improvements, such as streets and utilities, but unlike TIDDs, developers must pay those costs upfront themselves – the agreement cannot be collateralized to allow bonding or other debt acquisition based on expected rebates. At least one such agreement has been made in New Mexico – a project in Rio Rancho whose developer may request up to \$2.8 million in rebates for infrastructure costs from gross receipts (sales) taxes generated on site, after the development is complete and has been in use long enough that those revenues have been collected by the New Mexico Taxation and Revenue Department.

5. Set vision and design for improvements for Central Avenue in each sub area that will promote Context Sensitive Solutions and allow for multi-modal operations aligning with the goals and recommendations of this plan.

6. Engage neighborhoods and landowners to begin process of aligning Central Avenue plan with appropriate catalytic redevelopment.

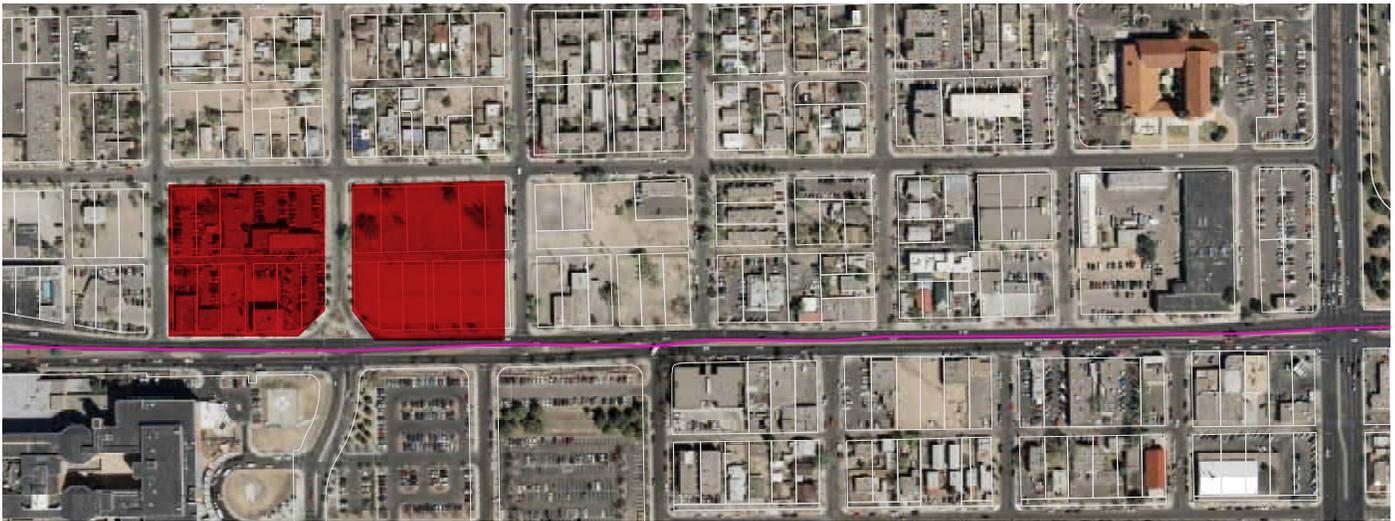
The following maps identify locations that offer those opportunities for continued dialogue.

Implementation Strategies

EDo Catalytic Area of Focus



Hospital Catalytic Area of Focus



University Catalytic Areas of Focus





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