

Additional Planning and
Site Requirements

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Mixed-Use Aesthetic Districts

The West Land Use Area is home to two unique mixed-use districts not dissimilar to Iowa River Landing in their design intent. As such, it is important to establish an aesthetic character throughout the district that is of a higher standard and serves to enhance the pedestrian experience within and adjacent to the public right-of-way.

Street planning and layout within the mixed-use districts will generally head-in parking, street trees, and gracious sidewalks wide enough to accommodate large retail shopping crowds and outdoor cafes. The design of streets in these areas must be coordinated with the City and will require the use of City-approved furnishings and light fixtures in addition to requirements for enhanced stormwater management and landscaping requirements.

Site Furnishings

Site furnishings within the West Land Use Area shall consist of one family of furnishings congruent with existing furnishings throughout Coralville. These furnishings include benches, trash receptacles, light fixtures, bike racks, tables, chairs, planters, bollards and any other furniture element that improves pedestrian comfort within public or semi-public spaces.

Existing site furnishings in Coralville, shown below, are part of the Steelsites RB series by Victor Stanley. Any new site furnishings installed within the public right-of-way shall be furnished in gloss-black powdercoat and come from the same series of furnishings or an approved complimentary family of products. Private developers building within the Mixed-Use districts are encouraged, but not required, to provide exterior site furnishings that compliment or coordinate with the City-approved furnishings described herein.



Figure 57: Bench by Victor Stanley, Model RBF-28



Figure 58: Mixed-Use Aesthetic District 01



Figure 59: Mixed-Use Aesthetic District 02

Site Lighting

Except in the case of detached and attached single-family residential dwellings, all exterior building and site lighting shall be downcast in nature and exterior light fixtures must possess sharp, cut-off qualities to prevent off-site glare. No portion of the lamp, lens, or diffuser shall be visible from the side or top of any shield, or otherwise protrude from the bottom of the shield. No exterior lighting fixture shall emit light at or above a horizontal plane that runs through the lowest point of the shield. Lighting levels from a site should not exceed one (1) foot-candle at the property line.

Generally, all lamps shall be LED, or others with similar qualities to conserve energy, reduce glare and provide for improved color correct vision. Except for detached and attached single family dwellings, lamps driveways and parking lot light fixtures shall maintain a color temperature range between 4,000 and 5,000 Kelvin. Lamps for pedestrian scale fixtures, including bollards and wall lighting, shall maintain a color temperature range between 3,500 and 4,000 Kelvin.

No light fixture shall exceed 400 watts and not more than 250 watts when adjacent to any residential uses and or zoning districts. The maximum height of any parking lot light pole shall be thirty feet (30') and not more than twenty-five feet (25') when adjacent to any residential uses and/or zoning districts.

In designated **Mixed-Use Aesthetic Districts 01 and 02**, all street lighting within the public R.O.W. shall conform to City of Coralville standards for pedestrian and roadway lighting.



Figure 60: City-Standard Light Fixtures for Pedestrian and Roadway Applications

Outdoor Displays, Sales and Service Areas

Outdoor Displays and Sales and Outdoor Food and Beverage Service Areas for Permanent Businesses

Appropriately zoned retail properties within the West Land Use Area may define limited areas within their site for permanent and/or intermittent outdoor display and sales (i.e., pumpkins, plants, lawn and garden goods), including outdoor seating areas for food and beverage service.

Said areas cannot be located upon any parking stalls or drive aisles and must be situated immediately adjacent to the retail establishment or tenant space which shall have exclusive use of said areas. Off-site businesses/non-tenants shall not be allowed to utilize these areas.

The layout of any outdoor display, sales, and seating areas shall be designed so to not create a traffic hazard or congestion and shall allow for the safe and unimpeded flow of pedestrian traffic, including exiting from the building. A minimum five feet (5') of clearance shall be maintained along all sidewalks and walking paths/pedestrian routes.

Outdoor food and beverage service areas are required to have a permanent barrier or fence, that is a minimum three feet (3') tall, enclosing the outdoor seating area. The permanent barrier or fence shall be architecturally consistent and appropriate with the level of finish and appearance of the adjacent retail building.

All outdoor display and sales and food and beverage service areas must be clearly defined and detailed on a site plan and obtain approval as part of a site plan process or otherwise obtain approval of a Conditional Use Permit from the Board of Adjustment. All other City Code requirements for seasonal and temporary uses must be met.

Seasonal Garden Centers / Seasonal Outdoor Displays for Permanent Businesses

Seasonal garden centers, selling outdoor lawn and garden goods and supplies, and the sale of agricultural products, may be permitted on appropriately zoned retail properties within the West Land Use Area.

No more than 20% of a parking lot or the total parking available on an individual site may be utilized for a seasonal garden center and no main drive aisles, as determined by the City, shall be blocked or closed. The layout shall be designed so to not create a traffic hazard or congestion and shall allow for the safe and unimpeded flow of pedestrian traffic, including exiting from the building. A minimum five feet (5') of clearance shall be maintained along all sidewalks and walking paths/pedestrian routes.

No detached or freestanding signage shall be permitted except as may be allowed by the City's Sign Code. All other City Code requirements for seasonal and temporary uses must be met including obtaining an annual permit and the limitation of the installation and operation to between May 1st and November 15th of each year. Seasonal garden centers and temporary agricultural product sales must be completely dismantled and all structures, materials, goods and products removed from the site by or on November 15th of each year.

All proposed seasonal garden centers and temporary agricultural product sales must be clearly defined and detailed on a site plan and obtain approval of a Conditional Use Permit from the Board of Adjustment. Information to be shown on the site plan includes details of product display and storage areas, all proposed tents, fencing, barriers, and other structures as well as proposed modifications to the site circulation and parking areas.

Seasonal Outdoor Food and Beverage Service Areas

Appropriately zoned retail properties within the West Land Use Area may define limited areas for temporary or seasonal outdoor food and beverage service.

These service areas must be located directly outside of the business they serve and may be located within a public or private sidewalk or outdoor patio. Said service areas cannot be located upon any parking stalls or drive aisles.

Outdoor food and beverage service areas are required to have a removable barrier or fence, that is a minimum three feet (3') tall, enclosing the outdoor seating area. The removable barrier or fence shall be architecturally consistent and appropriate with the level of finish and appearance of the adjacent retail building. The location and layout shall be designed so to not create a traffic hazard or congestion and shall allow for the safe and unimpeded flow of pedestrian traffic, including exiting from the building. A minimum five feet (5') of clearance shall be maintained along all sidewalks and walking paths/pedestrian routes.

All outdoor food and beverage service areas must be clearly defined and detailed on a site plan and obtain approval of a Conditional Use Permit from the Board of Adjustment. The barrier or fence and all tables, chairs, and other appurtenances shall be removed at the end of the season. All other City Code requirements for seasonal and temporary uses must be met.

Cluster Mail Boxes / Cluster Box Units (CBU)

For all uses and developments, provisions must be made for cluster mail boxes and cluster box units (CBU) in compliance with the applicable local postal regulations. CBUs must be located in areas to afford safe access and cannot be situated to pose a safety hazard or cause unnecessary traffic congestion. The proposed location and design for CBUs shall be submitted for review as part of the development application for all developments for which CBUs may be required. The following design requirements shall be considered:

- When possible, all CBUs shall be located internally to the development and sized and spaced logically to maximize convenience and access while minimizing the overall size and appearance.
- Except as may be necessary for single family residential developments, CBUs should not be located within public street rights-of-way.
- All CBUs shall be located on concrete pads and have paved connections to the area sidewalk and/or trail system.
- CBUs that may generate high vehicle traffic should be located within dedicated drive-up / pull-off lanes.

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On and Off Street
Parking

On and Off-Street Parking

On-Street Parking Standards

On-street parking along both public and private streets is encouraged to support and supplement off-street parking. The addition of on-street parking can help reduce the size of nearby off-street parking areas, increase the appeal of certain retail districts, and calm traffic along by adding a degree of “side-friction.” When possible and practical, off-street parking should be established on local and minor collectors. At the discretion of the City, credit may be given to adjoining businesses for on-street parking in mixed-use, retail, and office districts. Credit for on-street parking will not be given to residential uses.

Off-Street Parking Requirements

Off-street parking requirements and design standards shall comply with City Code unless otherwise noted herein these design guidelines. At the discretion of the City, credit for shared parking between uses with different peak use time periods may be allowed at a rate determined by the City on a case-by-case basis.

The following table identifies the parking requirements by use.

Table 1: Off Street Parking Requirements

Use	Requirement
Detached Single Family Dwellings	2 enclosed spaces per DU
Horizontally Attached Single Family	2 enclosed spaces per DU
Horizontally Attached Multi-Family	2 spaces (1 enclosed) per DU
Vertically Attached Multi-Family	2.25 spaces (1 enclosed) per DU
Mixed-Use	1 space per 250 sq. ft. gross floor area office/retail + 2 enclosed spaces for each dwelling unit
Restaurants, coffee shops, bars	1 space per 100 sq. ft. gross floor area including outdoor seating areas
Multi-Tenant Retail Center	1 space per 250 sq. ft. gross floor area
Retail	1 space per 225 sq. ft. gross floor area
Office	1 space per 200 sq. ft. gross floor area
All other uses	See City Zoning Code

Parking for Persons with Disabilities:

All parking areas must comply with the federal, state and local laws regarding the provision of parking spaces for persons with disabilities including but not limited to Iowa Code Chapter 321 (L) and the Americans with Disabilities Act. Per the Iowa Code, the Table 48-2 provides the current minimum total number of parking spaces required for persons with disabilities.

Bike Parking and Accommodations

At full build-out, the West Land Use Area will be well served by trails. Streets classified as local and collectors can also be considered bicycle friendly for bicycle commuters. In order to promote and support the benefits of commuting and traveling by bike, bicycle parking and related support facilities should be included as a part of all developments.

All uses, except for single family, shall have paved internal connections to the public sidewalk and any adjoining or nearby public trails. All retail and office uses shall provide on-site surface or in-building bicycle storage space or bike racks of no less than one (1) space for every thirty-five (35) vehicle parking spaces with a minimum of four (4) spaces provided per site. All multi-family developments must provide on-site surface or in-building bicycle storage space or bike racks of no less than one (1) space for every fifteen (15) dwelling units with a minimum of four (4) spaces provided per development.

Office uses are encouraged to provide in-building bicycle facilities including bike lockers, repair and maintenance areas, locker rooms/showers/changing rooms, to accommodate their employees and customers.

Exterior bicycle parking facilities must be located in a visible area close to the front entrance of the main building or buildings and shall include screening to reduce its visual impact. The facilities shall be located on a paved surface (preferably permeable paving) and connected to the trail and/or parking lot by a paved access.

The design of all bicycle facilities should consult and consider the guidelines from the Association of Pedestrian and Bicycle Professionals (APBP) - *Essentials of Bike Parking, Revision 1.0, September 2015, www.apbp.org*.

Driveway and Parking Lot Design Standards

Off-street parking requirements and design standards shall comply with City Code unless otherwise noted herein these design guidelines.

Detached Single Family Dwellings and Horizontally Attached Single Family

The minimum driveway width to individual dwelling units shall be eight feet (8') and said driveways shall be a minimum four inch (4") thick PCC paving. The driveway approach and public sidewalk shall comply with the City's design standards. Driveway curb cuts shall be located no closer than three feet (3') to any adjoining property line unless said driveway is shared with or connected to the driveway of the adjoining property. To afford a tandem parking space within a driveway, a minimum depth of twenty-five feet (25') shall be provided between the face of the garage and the sidewalk, the public street ROW line, the back of curb or easement line of a private street - whichever is closer.

Multi-Family Residential, Mixed-Use, Commercial, Office, and Industrial

Paving and Markings - All common driveways and parking lots shall be minimum five inch (5") thick PCC or six inch (6") thick HMA paving with integral, minimum four inch (4") tall PCC curbs along all pavement edges. Wheel stops are prohibited. All private streets shall be constructed to public street design standards. All private streets, parking lots and driveways shall be adequately maintained to allow for the free and safe movement of traffic and emergency service vehicles and should be signed and striped according to Manual on Uniform Traffic Control Devices (MUTCD) standards from the Federal Highway Administration (FHWA).

Drive Aisle Dimensions - The minimum width of a one-way driveway shall be sixteen feet (16'), eighteen feet (18') for industrial uses, and the minimum width of a two-way driveway shall be twenty-four feet (24') (twenty-eight feet (28') for industrial uses). Fire lanes required for multi-story buildings shall be a minimum of twenty-six feet (26') wide and located within thirty feet (30') of the building.

Parking Stall Dimensions - Perpendicular and diagonal parking spaces shall be a minimum of eighteen feet (18') in length and nine feet (9') in width. Parallel parking spaces shall be a minimum of twenty feet (20') in length and ten feet (10') in width. Any parking space parallel to a wall or other solid barrier shall be widened by an additional two feet. All parking spaces abutting a sidewalk shall have a minimum sidewalk width of six feet (6').

Setbacks - No parking may be within thirty feet (30') of a property used or zoned for Single Family Residential. A minimum parking lot setback of fifteen feet (15') is required from all public and private street ROW and easement lines, and a minimum fifteen foot (15') parking lot rear and side yard setback is required.

Location - Parking for multi-family, office, commercial and industrial uses should be located near the rear of the site, away from public streets and behind the building(s). Preference should be given to creating several smaller parking fields separated by green space versus one large parking area. Commercial, office and retail buildings should be designed with multiple entrances to allow front door/side street access as well as rear parking access.

Vehicle Drive Thrus

The following section provides guidelines and site design requirements applicable to all vehicle drive-thru facilities and their associated vehicle stacking and parking areas. The intent of these provisions is to promote an aesthetic and high quality design that is compatible with the surrounding and adjoining uses and provide for the safe circulation of pedestrian, bike, and vehicle traffic.

Drive-thru facility is defined as any establishment that provides or dispenses products or services, through an attendant or an automated machine, to persons remaining in their vehicle. Typical facilities include but are not limited to: financial institutions, fast-food restaurants, coffee shops, dry cleaners, and pharmacies. Car washes, service stations and fueling stations are, for the purpose of this guideline, not included.

Requirements:

1. All food and beverage service drive-thrus shall provide no less than twelve (12) vehicle queuing spaces per drive-thru (six (6) of which shall be located before the ordering station if separate from the pick-up window). All other drive-thru facilities shall have no less than five (5) vehicle queuing spaces. Queuing spaces shall be no less than twelve feet (12') in width and twenty feet (20') in depth and shall not block any designated parking space.
2. Drive-thru structures and components shall be incorporated into the overall design of the building; window service and menu boards shall be screened from view of public streets. With the exception of free-standing ATMs, stand-alone drive-thru canopies shall be prohibited.
3. Drive-thru facilities shall not be permitted immediately adjacent to any single-family or multi-family rowhouse land uses.
4. Drive-thru facilities adjacent to any residential land uses shall be set back a minimum distance of eighty feet (80') from a residential property line to the nearest point of any stacking lane.
5. Drive-thru facilities on sites less than ten-thousand square feet (10,000 sf) are discouraged.
6. Double drive-thru lanes (side-by-side) shall be entered via a single lane that splits to provide access to both lanes. Exiting shall be by similar means whereby the two lanes must converge to provide a single lane width at the exit point.
7. To the extent feasible, the stacking lanes should be linear and straight, with a minimum amount of curves and turning movements. Where appropriate, an escape lane should be provided.
8. Stacking and queuing lanes shall not wrap around the building on more than two sides.
9. Drive-thru lanes shall not be directly accessed from or exit onto any public street.
10. The access point to the stacking lane of a drive-thru facility should be set as deeply as possible into the site and provide a minimum distance of 3 car lengths between the entrance to the stacking lane and the access point to the site from the main access drive.
11. On-site circulation must be designed to minimize the conflicts between pedestrians and vehicles.
12. Raised islands, decorative paving treatments, and soft landscaping or other forms of barriers to separate stacking lanes from main parking areas and driveways are required where possible.
13. The stacking lane should be located to avoid blocking access to parking spaces and loading and service areas.

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Circulation Guidelines

Circulation Guidelines

Pedestrian and Bicycle Circulation

Planning and future development in the West Land Use Area should prioritize pedestrian and non-motorized vehicle movement throughout the development area in order to capitalize on the significant health and social benefits of walkable neighborhoods and communities. This Master Plan has been developed to encourage walkability but it shall be the responsibility of the developer to ensure that the appropriate infrastructure is constructed at the time of development.

All walks including those within the public street ROW shall have a minimum five foot (5') width and five inch (5") depth non-reinforced Portland Cement Concrete. When located within the ROW they shall be one foot (1') from the edge. All hard surface trails shall be located as indicated in the shared use paths diagram at ten feet (10') width unless otherwise indicated and shall be constructed of six inch (6") non-reinforced Portland Cement Concrete. Trails within street ROW shall be located one foot (1') inside the edge of the ROW and shall typically be placed on the north and east sides of the street unless otherwise indicated by the city.

In any new residential development, the developer shall install all sidewalks planned within the public ROW at the same time as the utility and roadway infrastructure is constructed. It shall be the responsibility of the developer to protect and/or repair any public sidewalk damaged by any residential contractor during the construction of a residential dwelling unit. Residential streets shall have, at minimum five foot (5') wide sidewalks on both sides of the street.

Where indicated on this plan, a minimum ten foot (10') wide Shared-Use Path (SUP) shall be constructed on the north or east side of the road and five foot (5') wide sidewalk shall be provided on the opposite side.

Figure 61 details the anticipated locations of public trails within the West Land Use Area.

Shared-use Paths (SUPs) located within the city parks, open spaces and greenways are intended to be constructed by the City. SUPs shown on private property, within public street ROW or as required to provide access to public sanitary sewer mains, shall be constructed by the benefited and/or adjoining property owner/developer at the time of development. All multi-family residential, commercial, and office developments shall include internal sidewalk circulation network around buildings and parking lots as well as connections to the adjoining public sidewalks. Sites that adjoin a public SUP shall make one or more internal private connections to the public path. See **Figures 62-64** for typical cross sections.

The minimum general requirements for development with regards to pedestrian access are as follows:

- All site developments and new buildings shall be oriented and placed to prioritize pedestrian movements over those of the automobile.
- All buildings and sites shall be designed to be pedestrian friendly by way of connecting walkways.
- Pedestrian connections shall be made when feasible, between adjacent and connecting developments and to all adjacent public streets.
- Minimum 5 ft wide public sidewalks are required to be install within the public right-of-way adjacent to all new development. In residential subdivisions, sidewalks must be installed by the lot owner along their lot frontage prior to issuance of an occupancy permit. All sidewalks within a residential subdivision shall be installed within three (3) years of the recording of the plat or at such time that construction has been completed on no less than seventy percent (70%) of the lots within the subdivision.

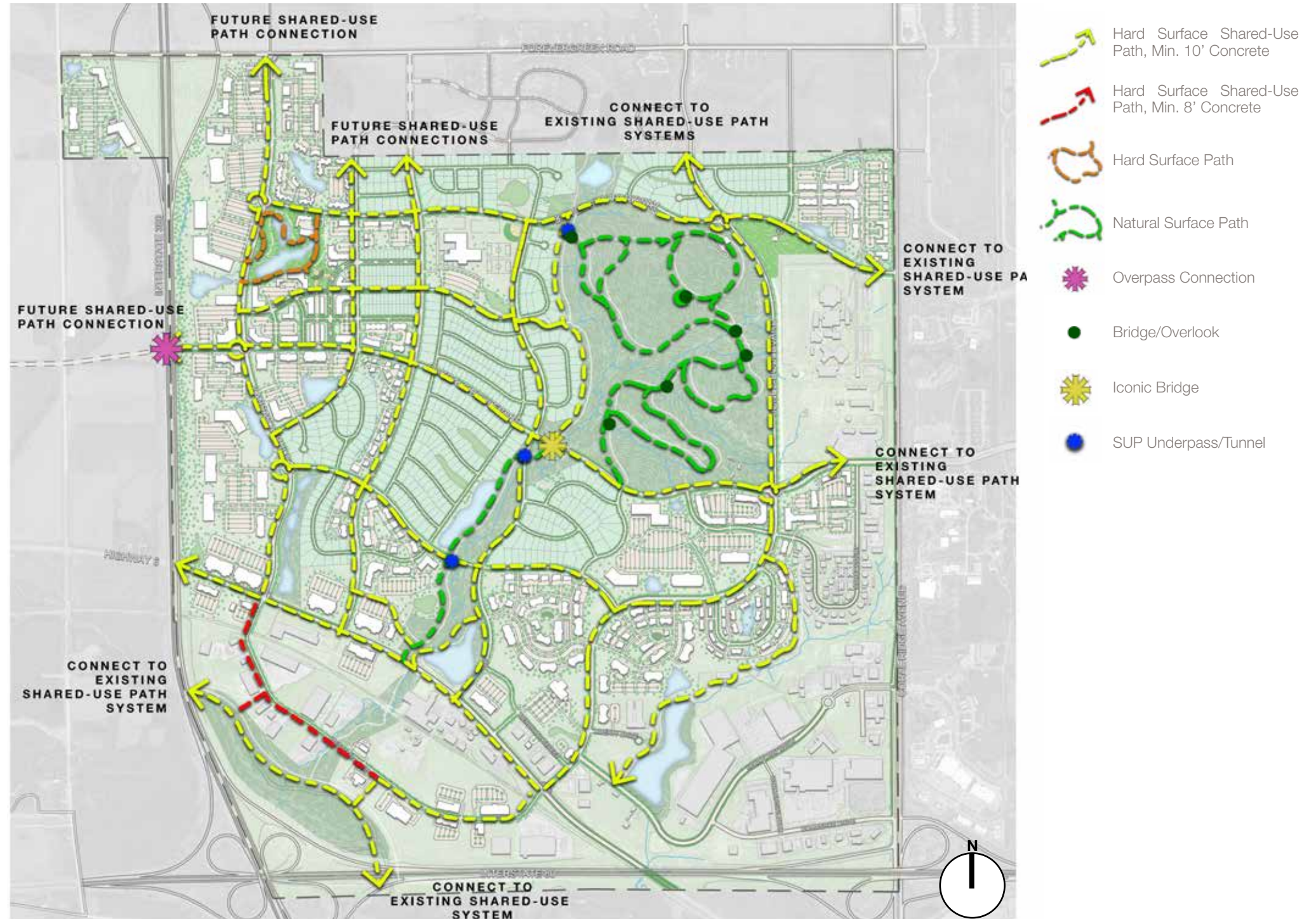
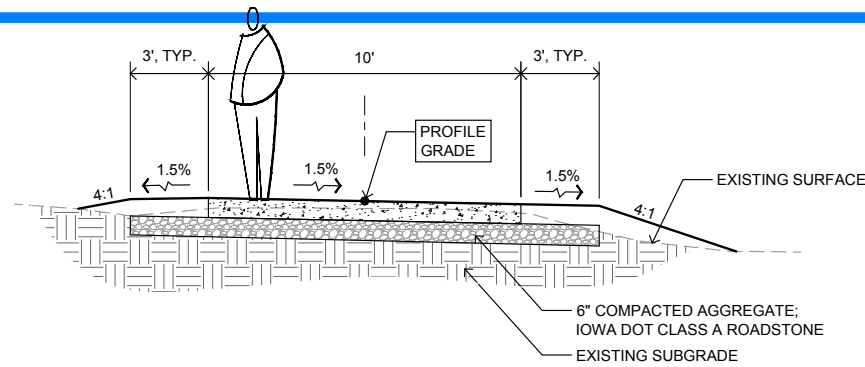


Figure 61: Shared Use Paths Plan



NOTE:
TRAIL CROSS SLOPE NOT TO EXCEED 1.5%

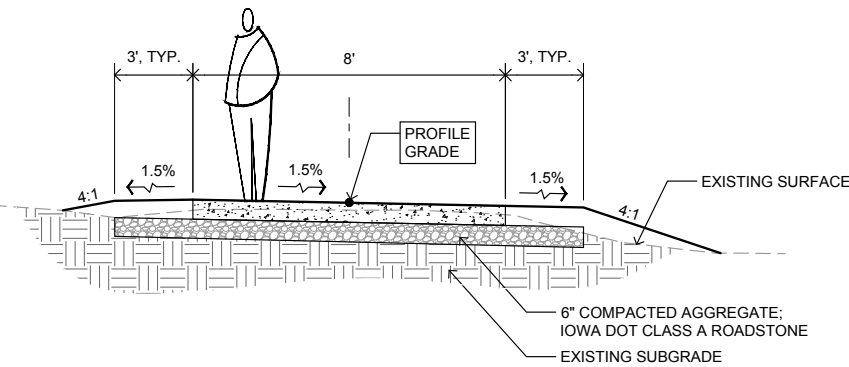
Figure 62: 10' Hardsurface Path Section

Traffic and Pedestrian Intersection Clear Zones

A Traffic Visibility Zone shall be maintained on each corner of a property at the intersection of two street ROW's, a street ROW and an alley ROW, a street ROW and a railroad ROW, and also at the point where an access drive to a parking area for more than four vehicles intersects with a public street or alley ROW. The Traffic Visibility Zone is measured twenty-five (25') both directions from the point of intersection along the intersecting ROW or access drive to two points that are connected diagonally (see Figure 65). The Traffic Visibility Zone is the space in this triangle higher than two and one-half feet (2½') and lower than nine feet (9'). The Traffic Visibility Zone shall contain no fence, structure, earth bank, hedge, parking area, planting, wall, sign or other visual obstruction except the following:

1. Public utility poles.
2. Traffic control and warning signs and signals.
3. Trees trimmed to a height of at least nine feet (9').
4. Signs mounted ten feet (10') or more in height with supports that do not encroach into the Traffic Visibility Zone.

A secondary traffic vision clear zone shall maintain on each corner of a property at the intersection of a public or private street or alley ROW and a private driveway not covered by the regulations for a Traffic Visibility Zone as noted herein above and where a private driveway not covered by the regulations for a Traffic Visibility Zone could be constructed on an adjoining undeveloped property. Said secondary traffic vision clear zone is defined as that area bounded by the street ROW line and the intersecting driveway line, or intersection adjoining undeveloped property line, and a straight line joining points on said ROW line and driveway line fifteen feet (15') feet from the point of intersection of said ROW line and driveway line (see Figure 66 and 67).



NOTE:
TRAIL CROSS SLOPE NOT TO EXCEED 1.5%

Figure 63: 8' Hardsurface Path Section

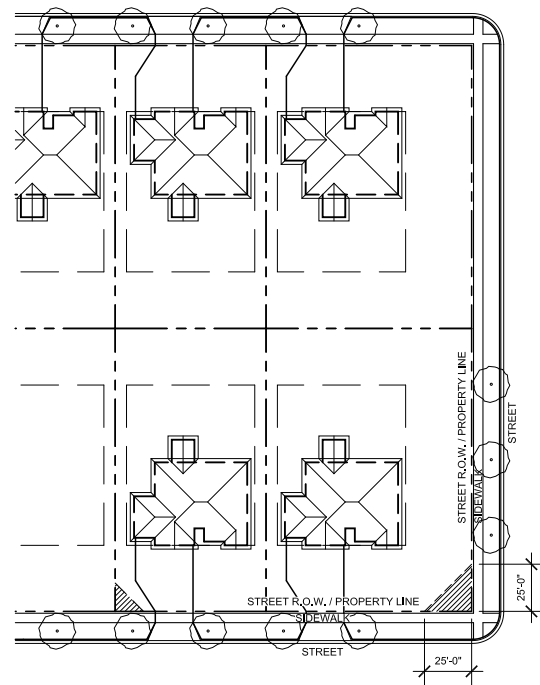


Figure 64: Natural Surface Section

Figure 65: Intersection/Corner Lot Vision Clearance

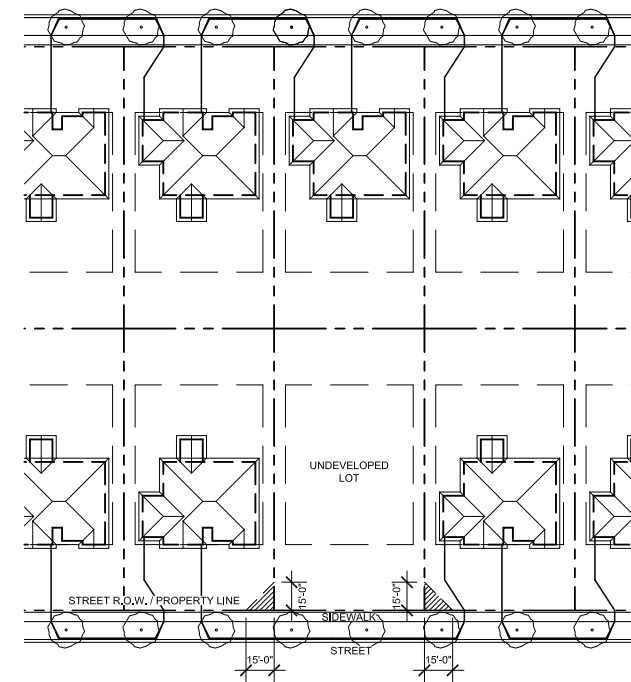


Figure 66: Undeveloped Property Vision Clearance

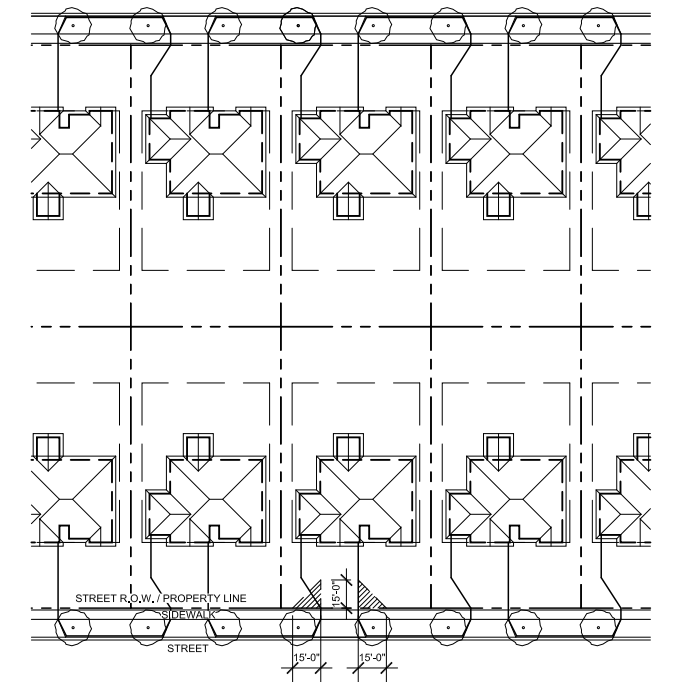


Figure 67: Driveway Vision Clearance

Circulation Guidelines

Vehicular Access Management

Overview

The following provides guidance for designing and managing vehicular access points, driveway locations, intersection spacing, etc. These guidelines are based on a traffic and circulation analysis as well as an access management report both prepared by Shive-Hattery specifically for the West Land Use Area. (“Access Management Guidelines – West Land Use Area (WLUA) - September 2015” and “Traffic and Circulation Analysis – West Land Use Area (WLUA) – September 2015.”)

Ten Principles of Access Management

Access management involves regulating the provision of entrances and exits and turning movements to and from adjacent property, as well as the design and spacing of intersections along roadways. The objective of access management is to create an efficient roadway network, which preserves traffic flow while promoting safe use of the transportation network.

Although multiple sources were used in the development of these guidelines, the following ten principles identified by the Transportation Research Board (TRB) and included in the Iowa Statewide Urban Design and Specifications (SUDAS) Design Manuals, form the basis of the access management guidelines presented herein.

1. Provide a Specialized Roadway System: Different types of roadways serve different functions. It is important to design and manage roadways according to the primary functions that they are expected to serve.

2. Limit Direct Access to Major Roadways: Roadways that serve higher volumes of regional through traffic need more access control to preserve their traffic function. Frequent and direct property access is more compatible with the function of local and collector roadways.

3. Promote Intersection Hierarchy: An efficient transportation network provides appropriate transitions from one classification of roadway to another.

4. Locate Signals to Favor through Movements: Long uniform spacing of intersections and signals on major roadways enhances the ability to coordinate signals and ensure continuous movement of traffic at the desired speed.

5. Preserve the Functional Area of Intersections and Interchanges: The functional area of an intersection or interchange is the area that is critical to its safe and efficient operation. This is the area where motorists are responding to the intersection or interchange, decelerating, and maneuvering into the appropriate lane to stop or complete a turn.

6. Limit the Number of Conflict Points: Drivers make more mistakes and are more likely to have collisions when they are presented with the complex driving situations created by numerous conflict points.

7. Separate Conflict Areas: Drivers need sufficient time to address one potential set of conflicts before facing another. The necessary spacing between conflict areas increases as travel speed increases, to provide drivers adequate perception and reaction time.

8. Remove Turning Vehicles from Through-traffic Lanes: Turning lanes allow drivers to decelerate gradually out of the through lane and wait in a protected area for an opportunity to complete a turn. This reduces the severity and duration of conflict between turning vehicles and through traffic, and improves the safety and efficiency of roadway intersections.

9. Use Non-traversable Medians to Manage Left Turn Movements: Medians channel turning movements on major roadways to controlled locations. Non-traversable medians and other techniques that minimize left turns or reduce driver workload can be especially effective in improving roadway safety.

10. Provide a Supporting Street and Circulation System: Provide a supporting network of local and collector streets to accommodate development, as well as unified property access and circulation systems.

Seven Guidelines for Access Management

1. Design roadways based on their function classification

2. Locate signals to favor through movements

3. Preserve the functional area of intersections

4. Limit the number of conflict points

5. Separate conflict areas

6. Remove turning vehicles from through traffic

7. Use non-traversable medians to manage left turn movements

The following identifies seven (7) major guidelines for access management that should be considered when developing and evaluating projects within the West Land Use Area.

Guideline 1: Design roadways based on their function classification.

Urban roadways are organized into a functional classification system based on the degree to which through travel versus access to adjacent property is emphasized. The four primary roadway classifications include major arterials, minor arterials, collectors, or local roads. **Table 2** details the lane and ROW standards for each classification.

Major arterials serve the major activity centers of an urban area and consist mainly of the highest-traffic-volume roadways. Major arterials place an emphasis on through travel and access to abutting land is generally limited.

Roadways that interconnect with and augment major arterials are classified as minor arterials. Minor arterials serve roadway trips of moderate length and place more emphasis on property access than major arterials.

Collectors' primary function is to collect traffic from local roadways in residential, commercial, and industrial areas, or in the central business districts and convey it to the arterial system. Collectors generally provide an even balance between access and through travel functions.

Local roadways consist of all other roadways within the urban area. The primary purpose of these roadways is to provide access to abutting land and collector streets.

In general, access points (driveways and entrances/exits) should be managed to occur in relative greater frequency along lower functional classification roadways, with local roads providing the highest frequency of access points transitioning to minor arterials providing the lowest frequency of access points. Access points to adjacent property should generally be prohibited along major arterials. Managing access points to occur in relative greater frequency on lower functional classification roadways may decrease the frequency and severity of crashes, as these roadways typically have lower traffic volumes and speeds.

Figure 69 presents recommended roadway classifications for the proposed Coralville WLUA roadway network.

Table 2: Design criteria for arterials, collectors, and local roads

Classification	Minimum Traffic Lane Widths (ft.) ¹	Maximum TWLTL width (ft.) ¹	Minimum Pavement Width (ft.) ²	Minimum Median Width (ft.) ²	Minimum Right-of-Way Width (ft.) ²
Major Arterials	11	12	31/34 ³	16	100
Minor Arterials	11	12	31/34 ³	16	85
Collectors	11	12	31/34 ³	4/9 ⁵	66
Local Roads	-	-	26/29 ⁴	4/9 ⁵	60

¹ SUDAS, Chapter 5, Section 5C-1 Geometric Design Tables.
² Source: Joint municipal design standards of the communities of Iowa City, Coralville, North Liberty, Solon, Tiffin, and University Heights.
³ 31 feet without a bike lane and 34 feet with a bike lane.
⁴ For low volume residential streets 26 foot roadways may be used where parking is allowed on one side only.
⁵ 4 feet for paved and 9 feet for grassed medians, although medians on collector and local roads is discouraged.

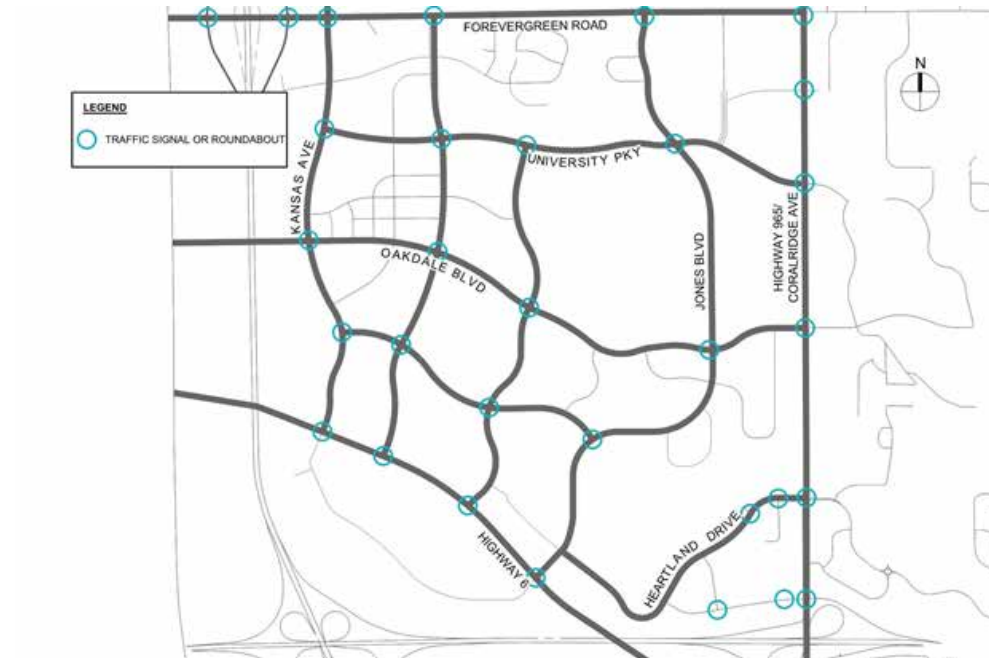


Figure 68: WLUA Existing and Potential Signal/Roundabout on Intersecting Arterial Roadways

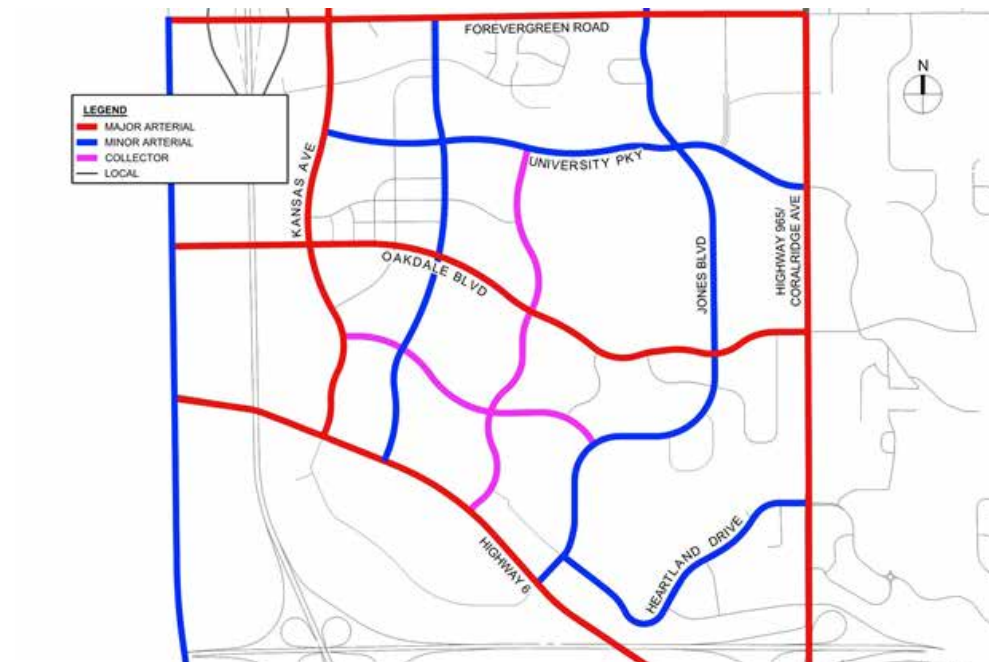


Figure 69: Recommended WLUA Roadway Classifications

Guideline 2: Locate signals to favor through movements.

Uniform spacing of signalized intersections along roadways improves the ability to coordinate signal timings along roadways. Coordinated signal timings helps to reduce travel time, stops, and delays through the grouping or platooning of vehicles. In general, signalized intersections spaced within 3/4 of a mile will likely benefit from coordination and signalized intersection spaced greater than 3/4 of a mile may not benefit from coordination.

Higher classification roads require greater separation distances between accesses and/or intersections due to higher traffic speeds and the complexity of driver decision making.

Guideline 3: Preserve the functional area of intersections.

The functional area of an intersection is the area that is critical to its safe and efficient operations. This is the area where motorists are responding to the intersection by decelerating and maneuvering into the appropriate lane to stop or complete a turn. **Figure 70** illustrates the functional and physical areas of a signalized intersection.

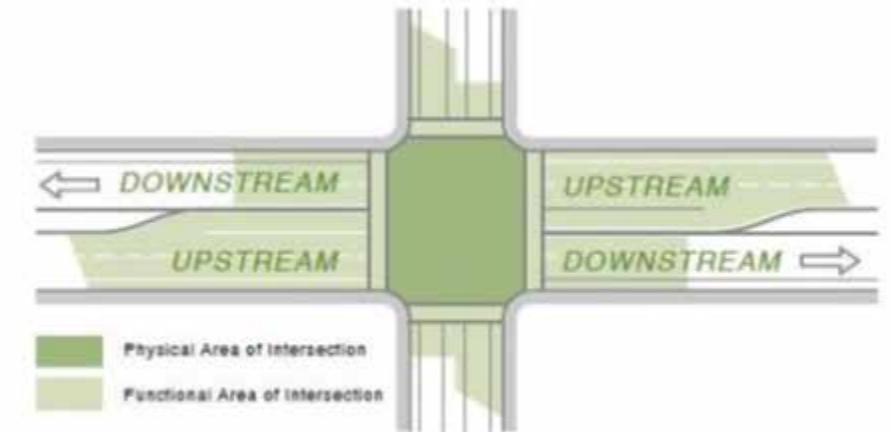


Figure 70: Example of Signalized Intersection Physical and Functional Area (Source: Federal Highway Administration)

Seven Guidelines for Access Management (cont.)

The upstream functional area of intersections is generally defined as the distance required for drivers to change speeds to complete a movement and is based on the following:

- Distance traveled during driver's perception/reaction time, = d1
- Deceleration distance while the driver maneuvers to a stop, and = d2
- Queue storage length required (50 feet minimum). = d3

Table 3 presents minimum upstream functional distances at 10 mph increments between 20 and 60 mph and their associated d1, d2, and d3 lengths.

Table 3: Minimum Upstream Functional Distance

Posted Speed (mph)	d1	d2	d3	Total Minimum Upstream Functional Distance (ft.)
	Driver's Perception/Reaction Distance (ft.)	Desirable Maneuvering Distances (ft.)	Minimum Queue Storage Length (ft.)	
20	45	70	50	165
30	65	160	50	275
40	90	275	50	415
50	110	425	50	585
60	135	605	50	790

Source: SUDAS, Chapter 5, Section 5I-3 Access Location, Spacing, Turn Lanes, and Medians

For example the minimum functional upstream approach distance with a posted speed limit of 30 mph would equate to 275 feet (65 ft. [d1] + 160 ft. [d2] + 50 ft. [d3] = 275 ft.)

The downstream functional area of an intersection varies as well and can be loosely defined as the distance required for a motorist to complete a full stop (Transportation Research Board (TRB), The Access Management Manual). In some instances signalized intersections will experience overlapping intersection functional areas as illustrated in **Figure 71**. In these cases, there is no clear area between the two intersections where a driveway can operate without infringing upon the functional area of one of the signalized intersections.

Figures 71 and **72** illustrate, the importance of applying sound engineering judgment to determine where and if access points should be permitted. Considerations include, but are not limited to, the following:

- Traffic volume using the access point,
- Predominant turning maneuver to/from access point,
- Through traffic volume on roadway,
- Type of median, and
- Proximity to other access points.

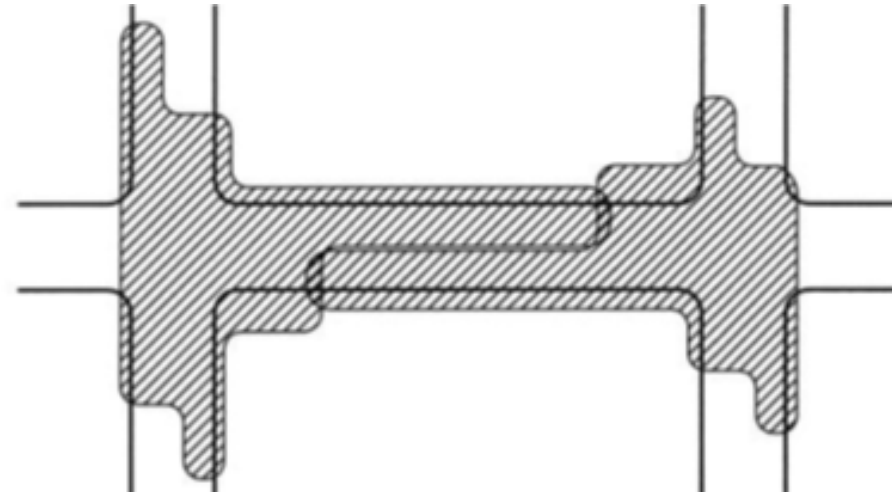


Figure 71: Example of Overlapping Signalized Intersection Functional Area
(Source: Federal Highway Administration)

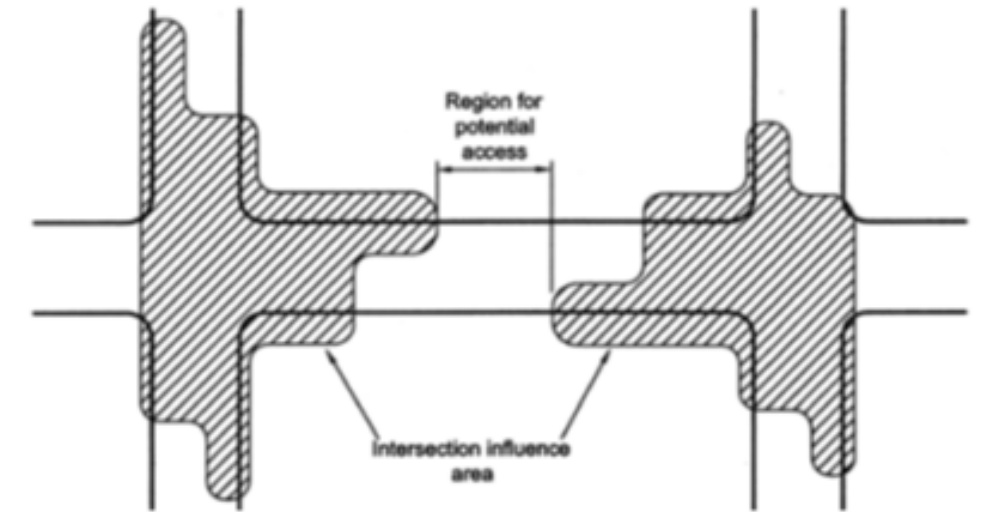


Figure 72: Example of Preferred Location for Full Access
(Source: Federal Highway Administration)

Ideally, access points with full access (ability to perform left-, through-, and right-turn movements) should be located in areas clear of the functional areas of both signalized intersections as illustrated in Figure 60.

Guideline 4: Limit the number of conflict points.

Conflict points are locations where travel paths of two different vehicles cross. Conflict points can be managed by limiting the type and frequency of access points. Full movement access points, which allow left-, through-, and right-turn movements, create more conflict points than right-in/right-out access points. Managing the frequency and type of conflict points improves safety and traffic operations of the roadway due to fewer crashes and less vehicular delay. **Figure 73** illustrates the types of vehicular conflicts.

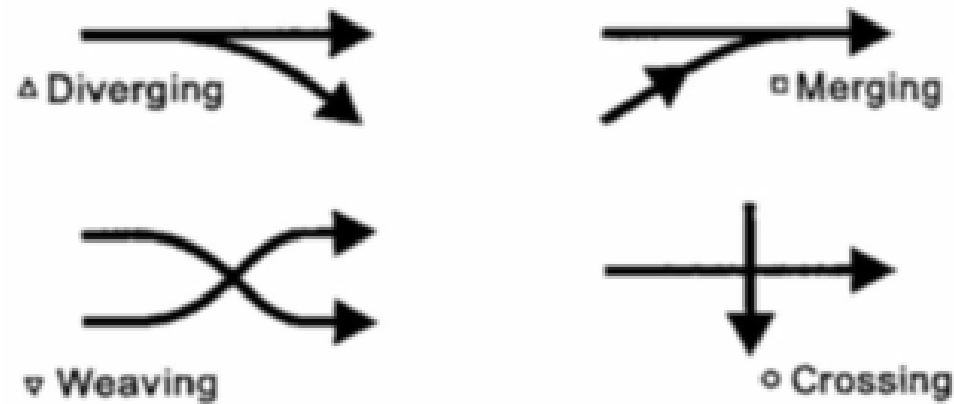
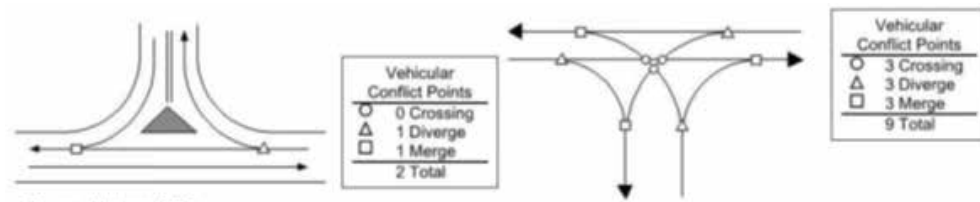


Figure 73: Types of Vehicular Conflict

Source: SUDAS Chapter 5, Section 5I-3 Access Location, Spacing, Turn Lanes, and Medians

Figure 74 illustrates the number of conflict points at right-in/right-out access points compared with the number of conflict points at full access points. A right-in/right-out access point creates two conflict points (one merging and one diverging). Whereas a conventional full access point creates nine conflict points (three merging, three diverging, and three crossing).



Source: Alabama DOT

Figure 74: Right-In/Right-Out Access Conflict Points versus Full Access Conflict Points

Source: SUDAS Chapter 5, Section 5I-3 Access Location, Spacing, Turn Lanes, and Medians

Another way to manage the number of conflict points is through the type of intersection control. Intersection control type refers to the way vehicles are managed at intersections (i.e. stop signs, signals, or roundabout). **Figure 75** illustrates the number of conflict points at a conventional four-approach intersection compared with the number of conflict points at a conventional roundabout.

Roundabouts generally reduce the frequency and severity of crashes over signalized/stop controlled intersections due to fewer conflict points and lower vehicular speeds transiting the intersection. However, roundabouts are not always the optimal choice in intersection control. Roundabout configurations may require more right-of-way, impede pedestrian/bicycle movements, and create more conflicts for emergency vehicles transiting the intersection. In addition, a roadway corridor with roundabouts would not provide major through movement benefits that a coordinated signalized corridor would. Detailed design level analyses with operational considerations given to the larger surrounding roadway network should be conducted to determine if specific intersections may benefit from a roundabout configuration

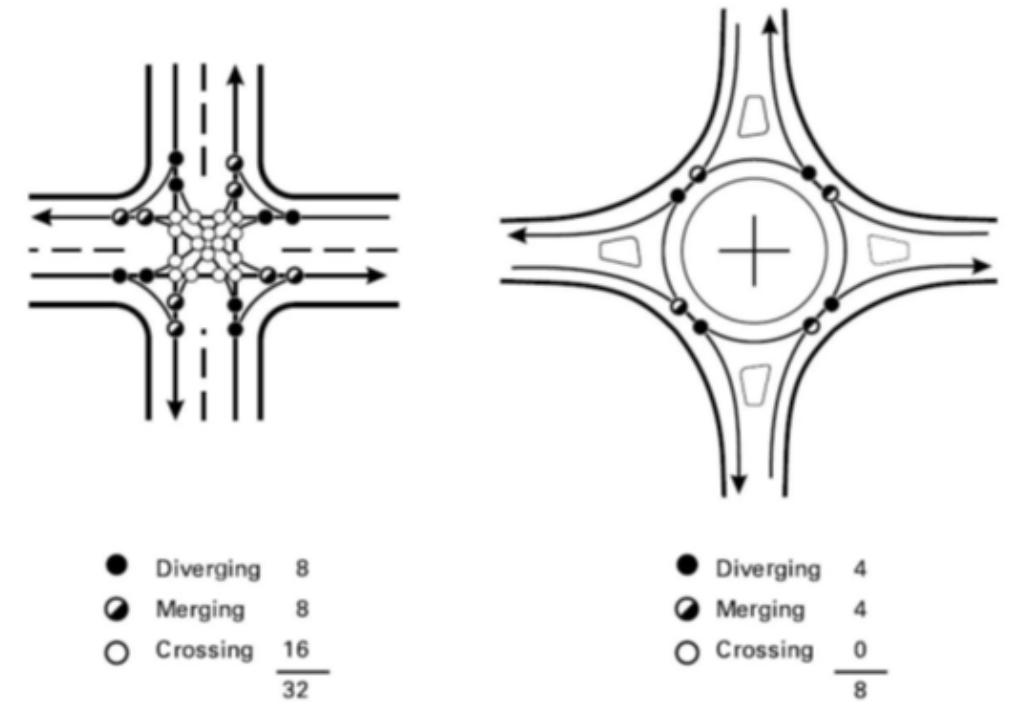


Figure 75: Signalized/Stop Controlled Intersection Conflict Points Versus Roundabout Conflict Points

Source: Rhode Island Department of Transportation

Guideline 5: Separate conflict areas.

Providing adequate distances between conflict areas (i.e. access points) enables motorists to address one potential set of conflicts at a time. Higher classification roadways (arterials and collectors) will generally require greater separation distances between access points due to higher traffic speeds and volumes, as well as greater number of lanes, which increase the number of conflict points and complexity of motorist's decision making.

As **Figure 76** illustrates, an additional 11 conflict points are created when access points are spaced too closely to one another.

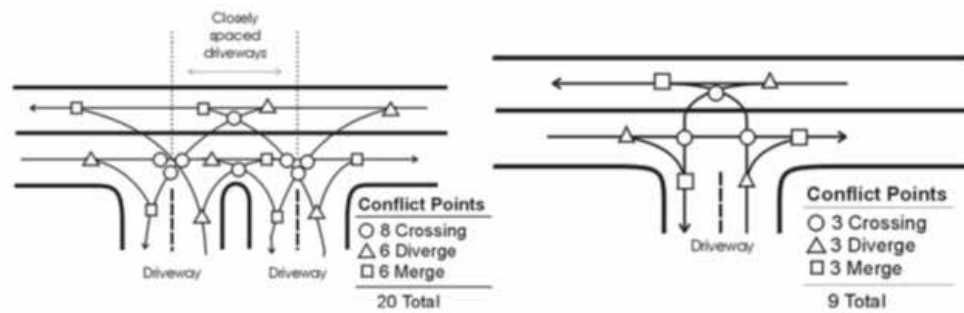


Figure 76: Conflict Points Comparison – Closely Spaced Access Points Versus Single Access Point
Source: SUDAS Chapter 5, Section 51-3, Access Location, Spacing, Turn Lanes and Medians

In general, direct access to adjacent property from major and minor arterials should be avoided wherever possible, but permitted along collector and local roads, with a higher frequency of access points occurring along local roads than collectors.

Major Arterials

Access points along major arterials should be spaced far enough apart so motorists are able to assess one potential conflict area at a time. SUDAS identifies the following criteria as means to achieving this condition:

- Prohibit access points in the functional area of intersections (Refer to Guideline 2),
- Prohibit access points within the AASHTO stopping sight distance, and
- Prevent right-turn overlap.

Stopping sight distance is the distance traveled while a motorist perceives/reacts and then brings their vehicle to a full stop. The exact distance is a function of a motorist perception/reaction time, speed the vehicle is traveling, and braking efficiency of the vehicle.

Right-turn overlap occurs when access points are spaced so close to one another that through maneuvering vehicles must monitor right-turning vehicles at the intersection that is being transited, as well as right-turning vehicles just downstream of the intersection that is being transited. This condition is often referred to as right-turn overlap and is illustrated in the intersection with closely spaced access points in **Figure 76**.

Table 4 below lists minimum stopping sight distances and minimum distances needed to prevent right-turn overlap along major arterials.

Table 4: Minimum Stopping Sight Distances and Minimum Distances to Prevent Right-Turn Overlap

Posted Speed (mph)	Minimum Spacing to Prevent Right-Turn Overlap (ft.) ¹	Minimum Stopping Sight Distance (ft.) ²
15		80
20		115
25	120	155
30	185	200
35	245	250
40	300	305
45	350	360
50	-	425
55	-	495
60	-	570
65	-	645

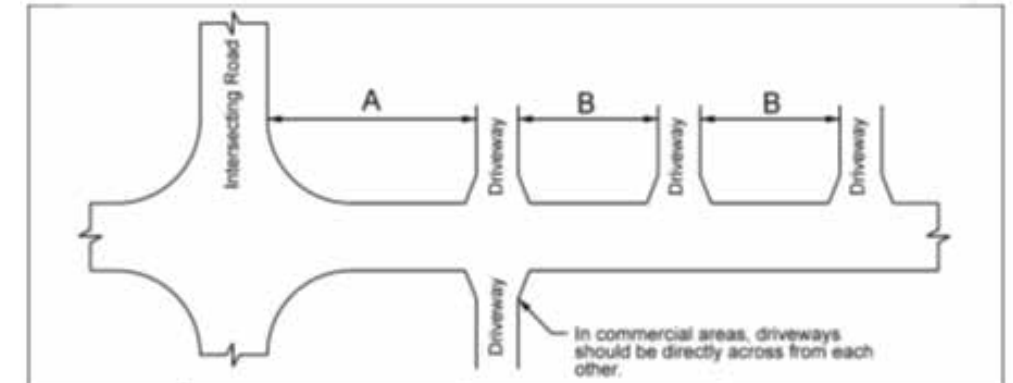
¹ Source: Transportation Research Board Record 644, 1977.

² Source: AASHTO A Policy of Geometric Design of Highways and Streets, 2004, Exhibit 9-55 Design Intersections Sight Distance – Case B1 – Left Turn From Stop.

Minor Arterials, Collectors, and Local Roads

Table 5 lists minimum distances for intersections and driveways along minor arterials, collectors and local roads.

Table 5: Minimum Distance between Driveways or from Intersecting Streets



		Minor Arterial		Collector		Local	
		Residential Area (ft.)	Commercial/Industrial Area (ft.)	Residential Area (ft.) ¹	Commercial/Industrial Area (ft.)	Residential Area (ft.)	Commercial/Industrial Area (ft.)
A	Minimum intersection clearance ¹	145	170	100	100	75	75
B	Minimum driveway spacing ²	100	200	75	100	- ⁴	- ⁴

Source: SUDAS, Chapter 5, Section 51-3 Access Location, Spacing, Turn Lanes, and Medians

¹ Values are measured from the back of the curb, intersecting road to the adjacent driveway near edge.

² Values are measured between driveway edges.

³ One access point allowed per lot. Depending on lot size, an additional driveway may be allowed upon approval of the jurisdiction.

⁴ Local requirements are set by the jurisdictional engineer.

Guideline 6: Remove turning vehicles from through traffic.

Removing turning vehicles from through traffic allows motorists that are making turns to decelerate gradually out of the through lane and wait in a dedicated area for an opportunity to complete a turn. This reduces the severity and duration of conflicts between turning vehicles and through traffic, and improves the safety and efficiency of roadway intersections.

Separate left- and right-turn bays may be provided to remove turning vehicles from the through traffic stream. A plan view example of an intersection with a left-turn bay, a through-lane, and right-turn bay is depicted in **Figure 77**. The term turn-“bay” is used instead of turn-“lane” to indicate a non-continuous travel lane, which is formed near the approach to an intersection to allow left/right-turn maneuvers.

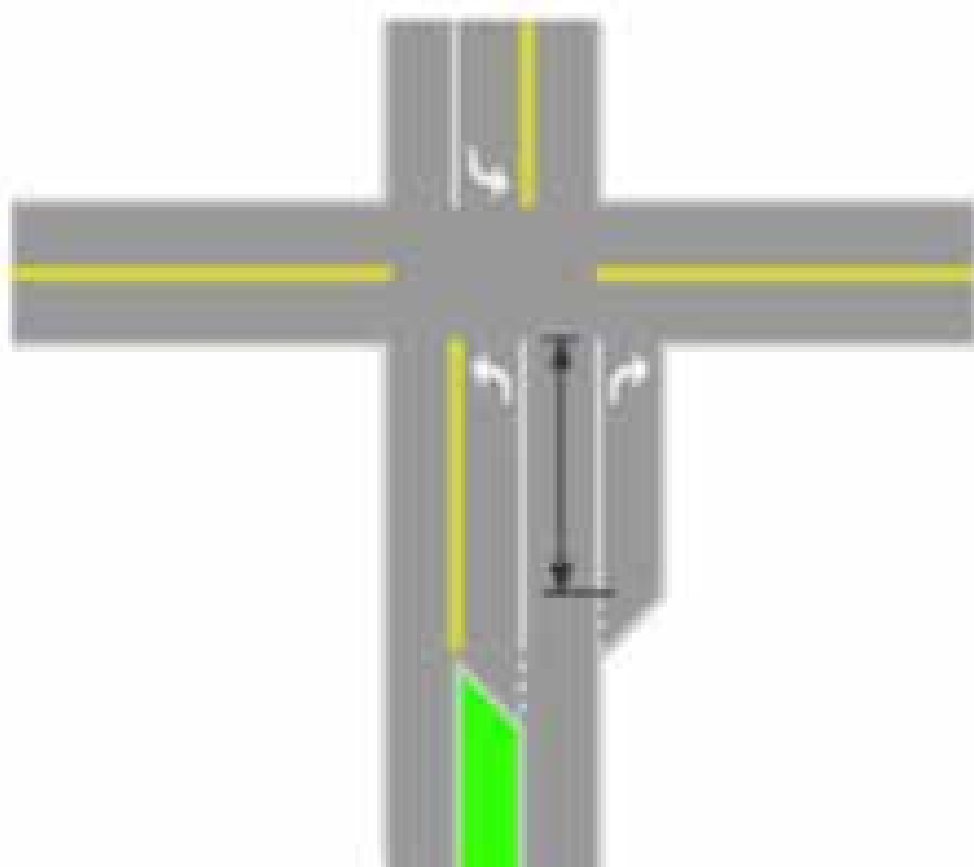


Figure 77: Example of Dedicated Left-Turn Bay, Through-Lane, and Right-Turn Bay
Source: Google Images

A center two-way left-turn lane (TWLTL) is another method of removing turning vehicles from the through traffic stream. TWLTL allows vehicles a protected area to wait to make left-turn maneuvers into adjacent property driveways. In addition, TWLTLs allow left-turning vehicles from adjacent property driveways to make left-turns onto roadways in two stages. The first stage is a maneuver from the adjacent property driveway to the TWLTL, followed by a second maneuver merging into the through traffic stream from the TWLTL. This two stage approach requires gaps in only one direction of travel at a time, as opposed to two simultaneous gaps in both directions of travel needed to perform left-turns in a single maneuver.

TWLTLs along two-lane roadways (one through travel lane in each direction) are often referred to as three-lane roadways. Similarly, TWLTLs along four-lane roadways (two through travel lanes in each direction) are often referred to as five-lane roadways. SUDAS identifies the upper limit for three-lane roadways at around 17,000 vehicles per day, with volumes appropriate for five-lane roadways above 17,000 to 24,000 vehicles per day. Examples of three- and five-lane roadways are pictured in **Figure 78**.



Figure 78: Three and Five Lane Roadways
Source: Google Images

Guideline 7: Use non-traversable medians to manage left turn movements.

Non-traversable medians are physical barriers in a roadway that separate vehicular traffic traveling in opposite directions. Breaks in non-traversable medians are designed to manage turn movements. Breaks in non-traversable medians that allow left-turn movements from all directions are generally reserved for intersections. Midblock non-traversable breaks are generally used to prohibit left-turns from adjacent property onto roadways. **Figure 79** illustrates how conflict points are reduced through non-traversable median treatments.

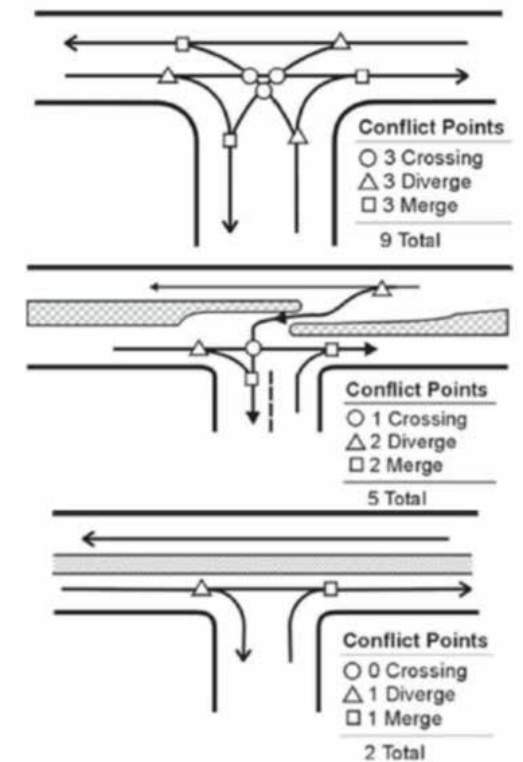


Figure 79: Non-Traversable Median Access Management
Source: SUDAS Chapter 5, Section 51-3 Access Location, Spacing, Turn Lanes and Medians

The use of non-traversable medians can sometimes be controversial among businesses/property owners, because they can restrict movements into adjacent properties. TWLTLs are often determined to be a compromise, in that TWLTLs increase the width between opposing directional traffic, which studies have shown does decrease the frequency of crashes while allowing full access (left-, through-, and right-turn movements) to adjacent properties.

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