

Chapter Four

CIRCULATION

Lawson Hills
Master Planned Development

OVERVIEW

The street system of any town or city directly impacts its character, both visually and functionally. In the Lawson Hills MPD, narrower street sections are proposed to calm traffic and provide a pleasant and safe pedestrian atmosphere consistent with the goals of the MPD Ordinance. Streets and their associated landscaping will create neighborhood identity and a sense of place. Street trees and landscape parkways will soften the hardscape, calm traffic, act as a unifying design element. A connected neighborhood street system and a separate non-motorized trail system will increase pedestrian activity and decrease reliance on the automobile.

NON-MOTORIZED COMPONENTS

Lawson Hills encourages alternate modes of transportation including walking and cycling through an integrated system of pedestrian friendly streets, on-street cycling lanes, multi-purpose trails, sidewalks and forest paths. The trail system is described in detail in the Parks, Open Space and Trails section of the MPD.

INTEGRATION OF MPD STREET NETWORK WITH EXISTING STREET NETWORK

The Lawson Hills street network will be functionally integrated with the existing street network by ensuring that intersections between the new and existing system align or are re-aligned, by placement of traffic signals, and by widening of adjacent existing streets to accommodate new vehicle trips. Improvements at multiple off-site intersections will maintain the function of the existing system. In addition, the Lawson Hills MPD proposes to build two of the minor arterials shown on Figure 7.3 on page 7-23 of the Transportation Element of the City's Comprehensive Plan.

- Lawson Parkway is located and sized to function as the "Lawson Connector".
- The North Connector is located and sized to function as the North portion of the "North Connector".

The Lawson Hills MPD street network will connect to the external street system at two points: at the intersection of Botts Drive and Lawson Street; and at the intersection of the Lawson Parkway and SR 169. Lawson Parkway will be aligned at its intersection with Lawson Street/Botts Drive and controlled with a stop sign, signal or roundabout. Lawson Parkway will by-pass residential areas in downtown Black Diamond thereby protecting surrounding neighborhoods from pass-through traffic. The intersection of Lawson Parkway will be aligned with Roberts Drive and connected perpendicular to SR 169 and controlled with a signal or roundabout. Frontage improvements and widening of SR 169 will be necessary to maintain function and Levels of Service.

LAWSON HILLS MAIN ENTRY AT SR 169

The main entry to the Lawson Hills MPD intersects SR 169 in an area where Roberts Road and Ravensdale Road converge at odd angles. The City of Black Diamond is requiring that Roberts Road and the Lawson Hills MPD main entry be aligned to eliminate the odd angles. Substantial design work will be needed at the preliminary plat stage to determine the exact location of the Lawson Hills entry and any re-alignment of existing streets in the vicinity. The applicant is committed to working with the City on a solution for this intersection.

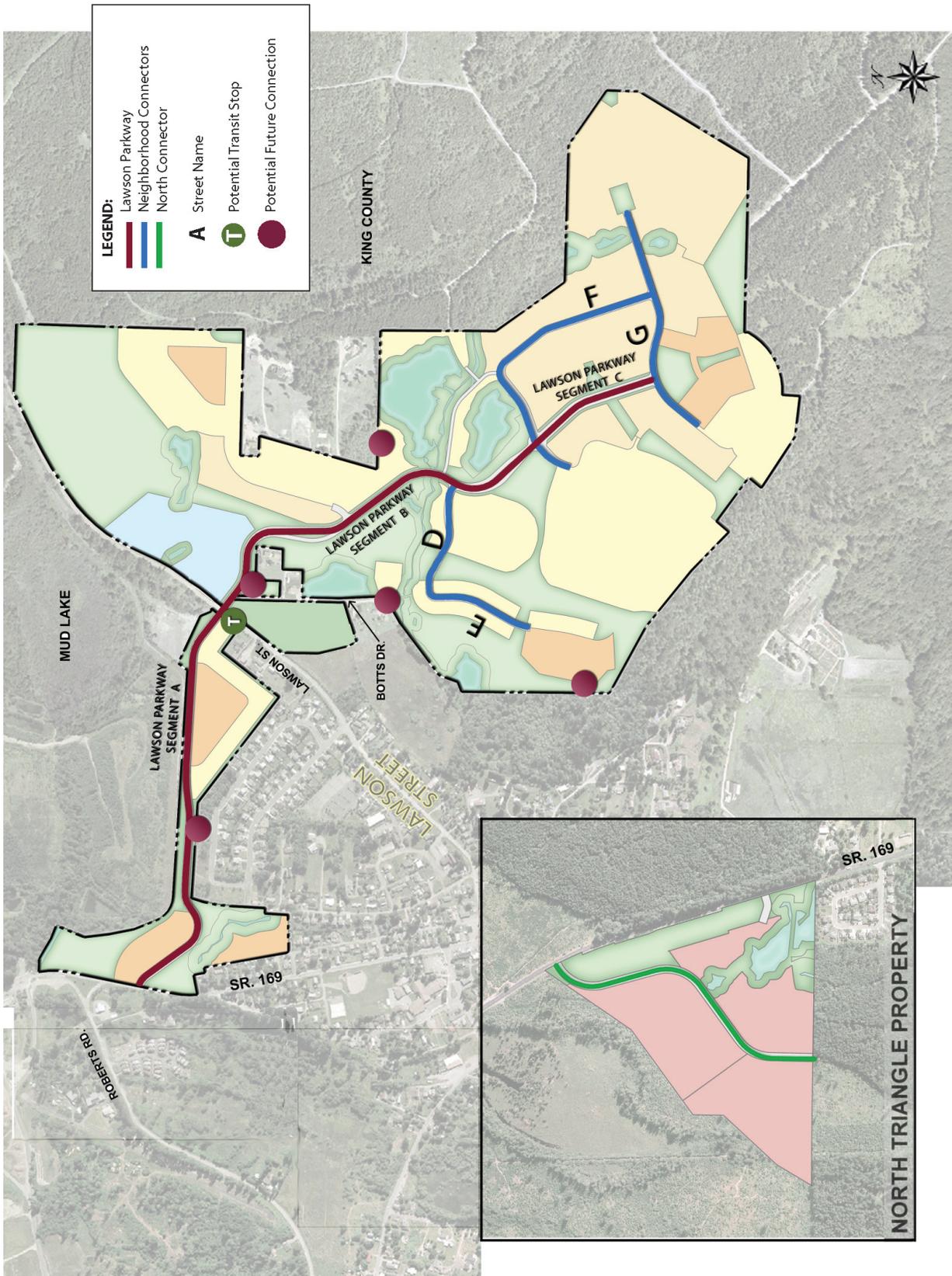
STREET NETWORK CONNECTIVITY

All levels of the street network are proposed as a connected grid system where critical areas do not limit connectivity. At the city level off-site improvements are proposed that will increase connectivity city-wide. At the arterial/collector level, the circulation plan shows approximate locations of connections on-site and to adjacent properties. At the development parcel level, neighborhood streets within development parcels will be stubbed to or connected to adjacent development parcels and off-site properties where necessary to provide access or to increase overall connectivity. General locations of connections are symbolized on the circulation plan (Figure 4-1).

PROPOSED STREET NETWORK

The MPD street network consists of a hierarchy of streets including Lawson Parkway, Neighborhood Connectors, neighborhood streets and local access. While the street standards establish the typical condition, those standards may be modified in specific locations to respond to the topography and other natural features of the site. It is anticipated that utilities will be located within road right of ways.

Figure 4-1 Circulation Plan



LAWSON PARKWAY

Lawson Parkway is the main collector of the Lawson Hills Community plan. It is the principal streets (carrying more than 5,000 vehicles per day) that provide interior circulation through the site and connect the site to the City's street network. Boulevards collect vehicle trips from Neighborhood Connectors and neighborhood streets and channel them to the City's external street network. These streets will connect to the external street system at SR 169 and at the intersection of Lawson Street and Botts Drive.

Lawson Parkway is the principal street connecting the Lawson Hills main property. It is located and sized to function as the "Lawson Connector" a minor arterial shown on Figure 7-3, page 7-23 of the Transportation Element of the City of Black Diamond. It runs south-east connecting the entire site to Lawson Street and SR 169. Lawson Parkway crosses Lawson Creek at one location. This crossing is unavoidable as there is no other access to approximately three-quarters of the site. A second access to the site is provided via Botts Drive and an existing stream crossing.

The North Connector is the principal street connecting development parcels on the North Triangle. It is located and sized to function as the north portion of the "North Connector" a minor arterial shown on Figure 7.3, on page 7-23 of the Transportation Element of the City of Black Diamond. Light standards are provided every 150' and staggered.

The design of Lawson Parkway varies in response to its location within the community plan and the topography. The design variations are represented by the different segments and will vary from a very formal boulevard to a garden or forest parkway that is somewhat rural in character. Lawson parkway will be a public street. The segments are as follows:

LAWSON PARKWAY - SEGMENT A

Segment A extends east from highway 169 to the intersection with Lawson Street.

The Segment A consists of a 34' wide road section within a minimum of 60' right of way. The paved section contains one 12' wide travel way and a 5' wide striped bicycle lane in each direction. The roadway has a vertical curb and gutter and curb returns have a 20' radius. No on-street parking is permitted. No back out driveways are permitted.

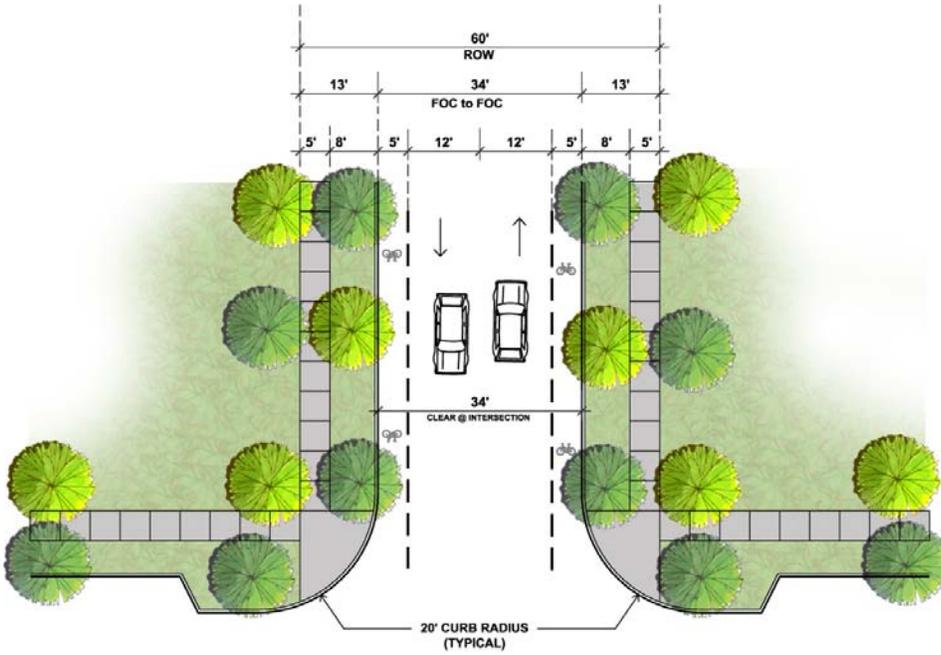
To buffer pedestrians from vehicles, the sidewalks are detached from the pavement by 7'6" wide landscaped parkways. Sidewalks may be modified as allowed in this section.

The landscaped parkways will create a strong community identity through landscape and monumentation concepts as well as provide areas for rain gardens and other low impact ways of accommodating storm water if underlying soils allow. Vertical curb and gutter may be modified in locations where these features exist.

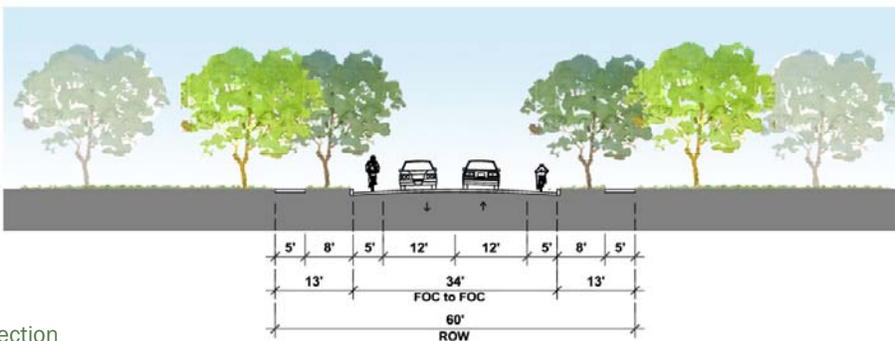


View

Figure 4-2 Lawson Parkway - Segment A



Plan



Section

LAWSON PARKWAY - SEGMENT B

The Lawson Parkway –Segment B, which extends from Lawson Street to the Lawson Creek crossing, is a variation that is designed to be a garden or forest parkway. It has a landscape median with an organic, meandering character. That allows the travel lanes to split both horizontally and vertically to respond to topography.

The Parkway consists of two 20' wide paved sections divided by a landscaped median, the width of which varies. The paved section contains a vertical curb on the outer edges, 5' wide striped bicycle lane, and a 15' wide travel lane. Curb returns at intersections with other streets have a 17' curb radius. No on-street parking is permitted. No back out drive-ways are permitted.

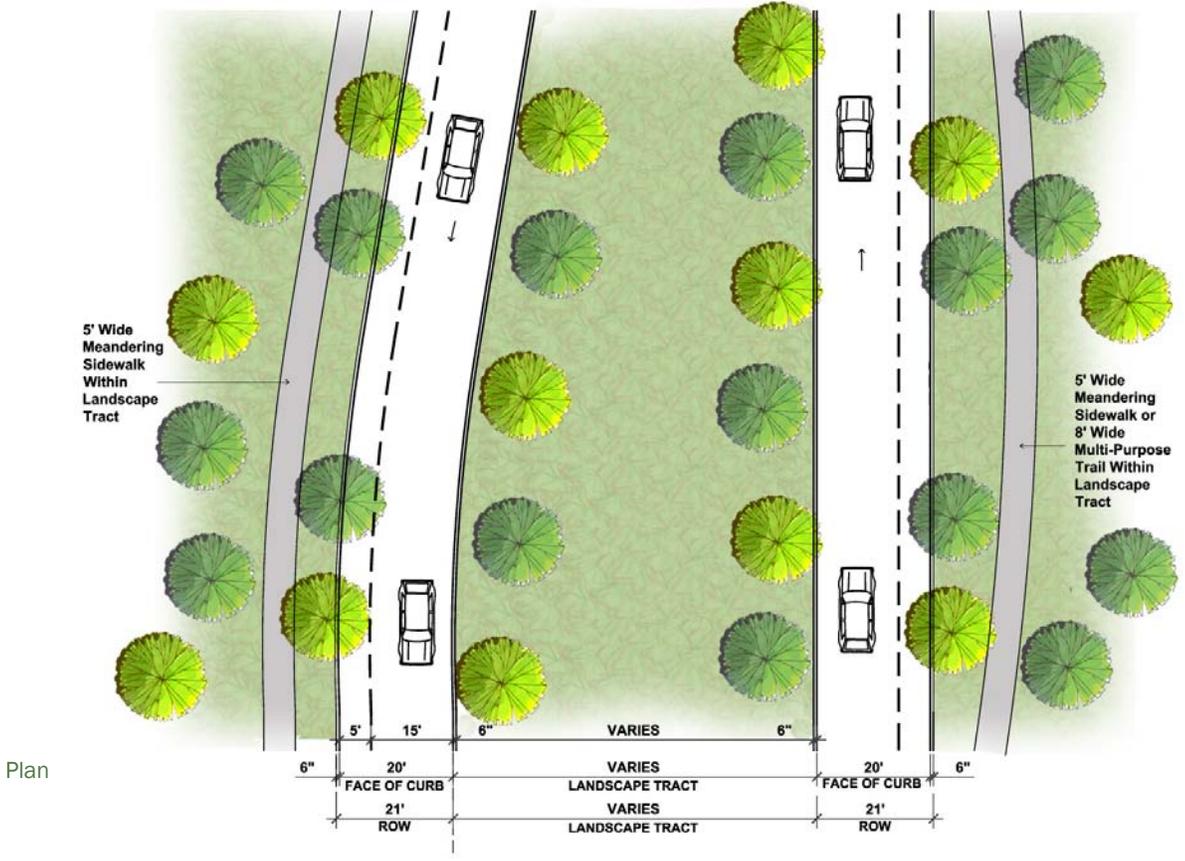
Detached meandering 5' wide sidewalks are provided on both sides of the roadway. The sidewalks will meander and shall be separated from the pavement by a minimum of 4'6" of landscape to provide buffer to the pedestrians from traffic. The 5' sidewalk on one side may be replaced with an 8' wide multi purpose trail.

The landscaped parkways and medians will create a strong community identity through the landscape and monumentation concept as well as provide areas for rain gardens and other low impact ways of accommodating storm water where underlying soils allow. Some segments of the North Connector may use this section for LID purposes.

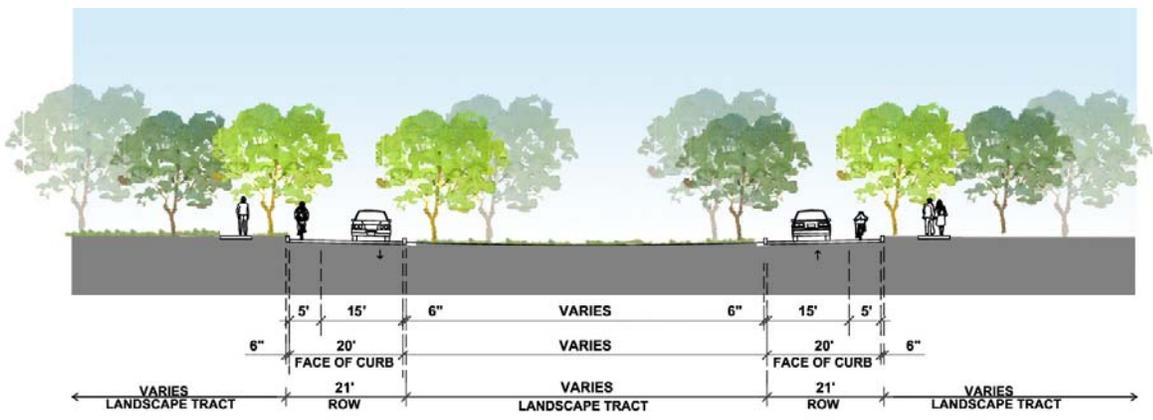


View

Figure 4-3 Lawson Parkway - Segment B



Plan



Section

LAWSON PARKWAY - SEGMENT C

Segment C extends from the Lawson Creek crossing to the hilltop park with a more formal character.

Segment C consists of two 18' wide paved sections divided by a landscaped median. The paved section contains a vertical curb on the outer edges, 5' wide striped bicycle lane, and a 13' wide travel lane. Curb returns at intersections with other streets have a 17' curb radius. No on-street parking is permitted. No back out driveways are permitted.

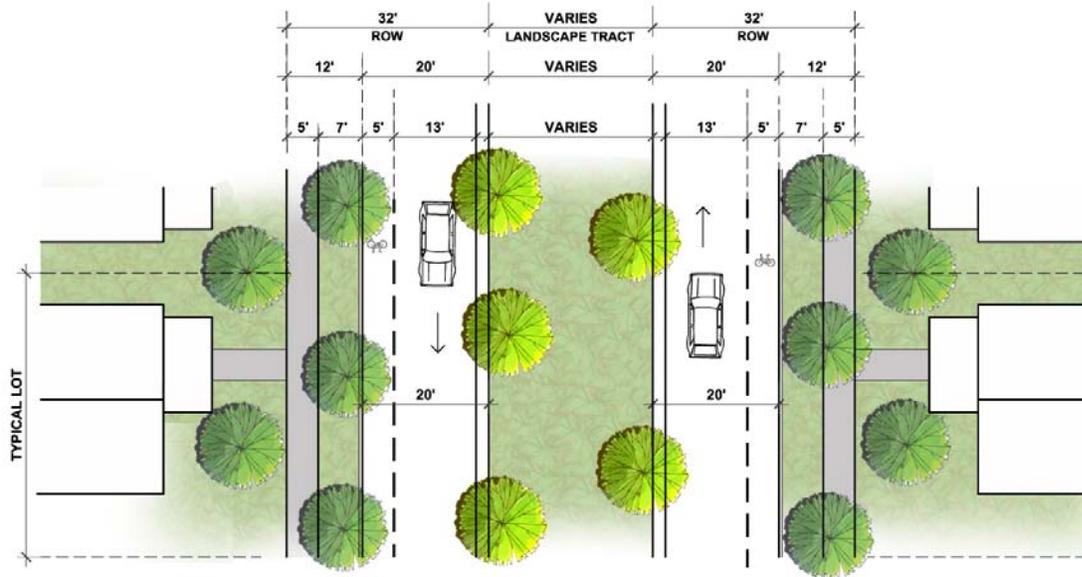
Detached 5' wide sidewalks are provided on both sides of the roadway, and shall be separated from the pavement by 6'6" of landscape to provide buffer to the pedestrians from traffic.

The landscaped parkways and medians will create a strong community identity through the landscape and monumentation concept as well as provide areas for rain gardens and other low impact ways of accommodating storm water where underlying soils allow.

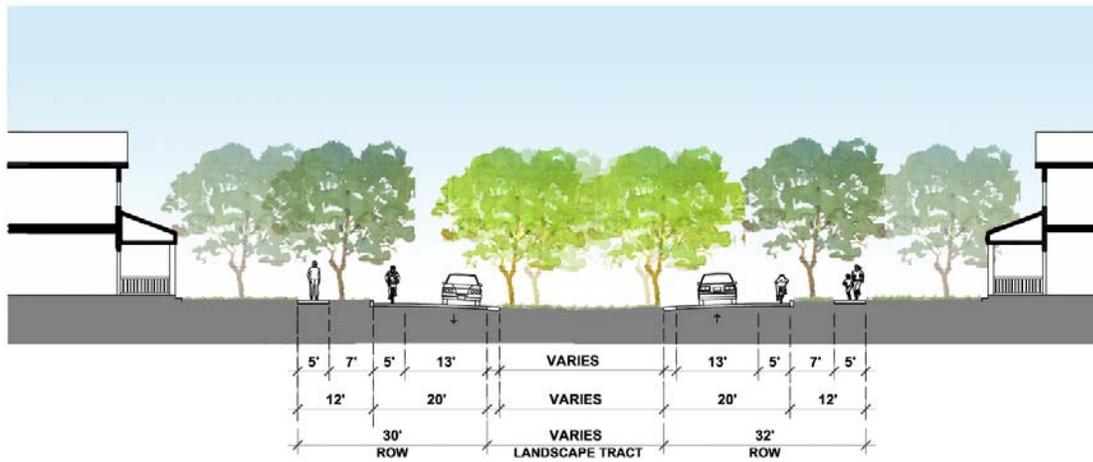


View

Figure 4-4 Lawson Parkway - Segment C



Plan



Section

LAWSON PARKWAY AT SENSITIVE AREAS

The Lawson Parkway at Sensitive Areas is a modification to the Lawson Parkway where it must cross sensitive areas and their buffers. These special circumstances warrant modifications to the roadway to keep it as low impact as possible and still maintain safety.

As the Lawson Parkway crosses into the buffers for the sensitive areas, the on-street bike lanes on one side transition off the roadway and joins with the multi-purpose trails . The roadway along with the on-street bike lane on one side gradually narrows as it enters the buffer area. Where the roadway actually crosses a sensitive area, it narrows even further to a 24' wide paved section, which includes two travel lanes and a 4' wide bike path. This transition occurs over a distance of 20' and special paving is utilized to slow traffic and alert drivers to the change in width.

The multi-purpose trails may either stay separated from the roadway, or become adjacent to the roadway, depending upon the unique circumstances of each crossing.

NEIGHBORHOOD CONNECTOR

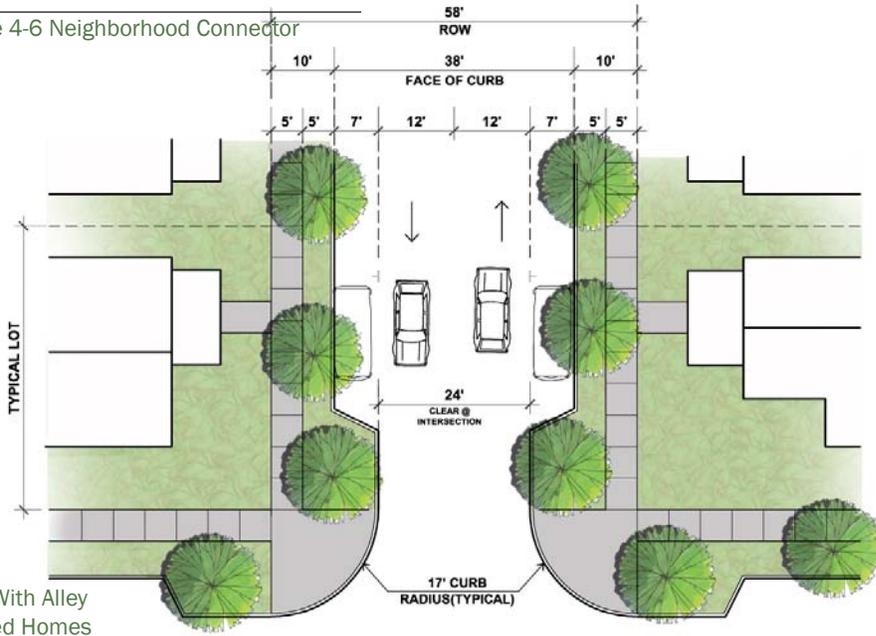
The Neighborhood Connector connects different neighborhoods to the parkway.

The Neighborhood Connector consists of a 38' wide road section within a 58' wide right of way. The paved section contains one 12' wide travel way in each direction and allows for 7' wide parking bays on both sides. 5' wide sidewalks are provided on both sides and separated from the parking bays by a 4'6" wide planting strip. At intersections, the parking bays are eliminated for traffic calming purposes and the roadway width is 24', thus creating a fairly minor crossing for pedestrians. The roadway has a vertical curb and gutter, and curb returns have a 17' radius.

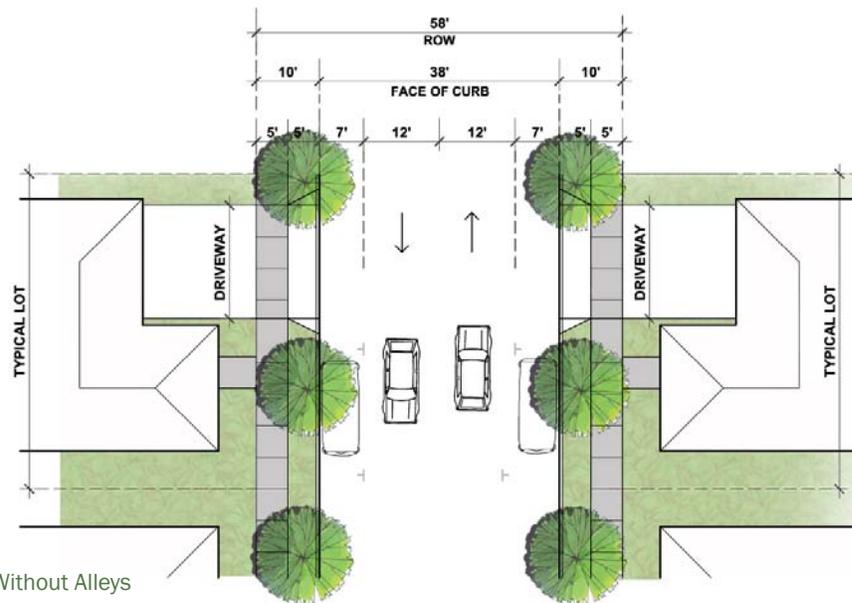
The parkway strips on both sides may contain areas for rain gardens and other low impact ways of accommodating storm water. Vertical curb and gutter as well as parkway strip width may be modified in locations where these features exist. Light standards are provided at intersections and mid-block as necessary.

The Neighborhood Connector section may be modified to accommodate specific site and design conditions, such as topography, traffic demand, reduction of impervious surface etc. Variations could include narrower right-of-way sections with reduced on street parking, narrower landscape strips or sidewalks only on one side.

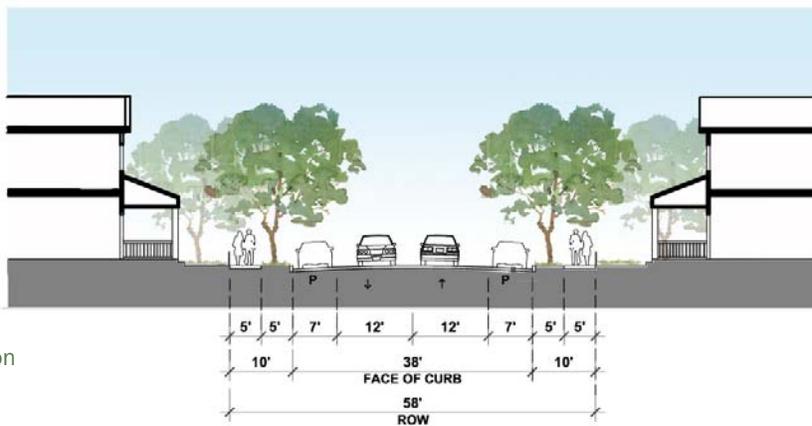
Figure 4-6 Neighborhood Connector



Plan With Alley Loaded Homes



Plan Without Alleys



Section

NEIGHBORHOOD STREET

The Neighborhood Street and its variations will make up the majority of the streets within Lawson Hills. It will link individual residences and neighborhoods together, and to the collectors.

The Neighborhood Street consists of a 34' wide road section within a 54' wide right of way. The paved section contains one 10' wide travel way in each direction and allows for 7' wide parking bays on both sides. 5' wide sidewalks are provided on both sides and separated from the parking bays by a 4'6" wide planting strip. At intersections, the parking bays are eliminated for traffic calming purposes and the roadway width is 22', thus creating a fairly minor crossing for pedestrians. The roadway has a vertical curb and gutter, and curb returns have a 17' radius.

The parkway strips on both sides may contain areas for rain gardens and other low impact ways of accommodating storm water. Vertical curb and gutter as well as parkway strip width may be modified in locations where these features exist. Light standards are provided at intersections and as necessary mid-block.

The Neighborhood Street section may be modified to accommodate specific site and design conditions, such as topography, traffic demand, reduction of impervious surface etc. Variations could include narrower right-of-way sections with reduced on street parking, narrower landscape strips or sidewalks only on one side.



View

Figure 4-7
Neighborhood Street



NORTH CONNECTOR

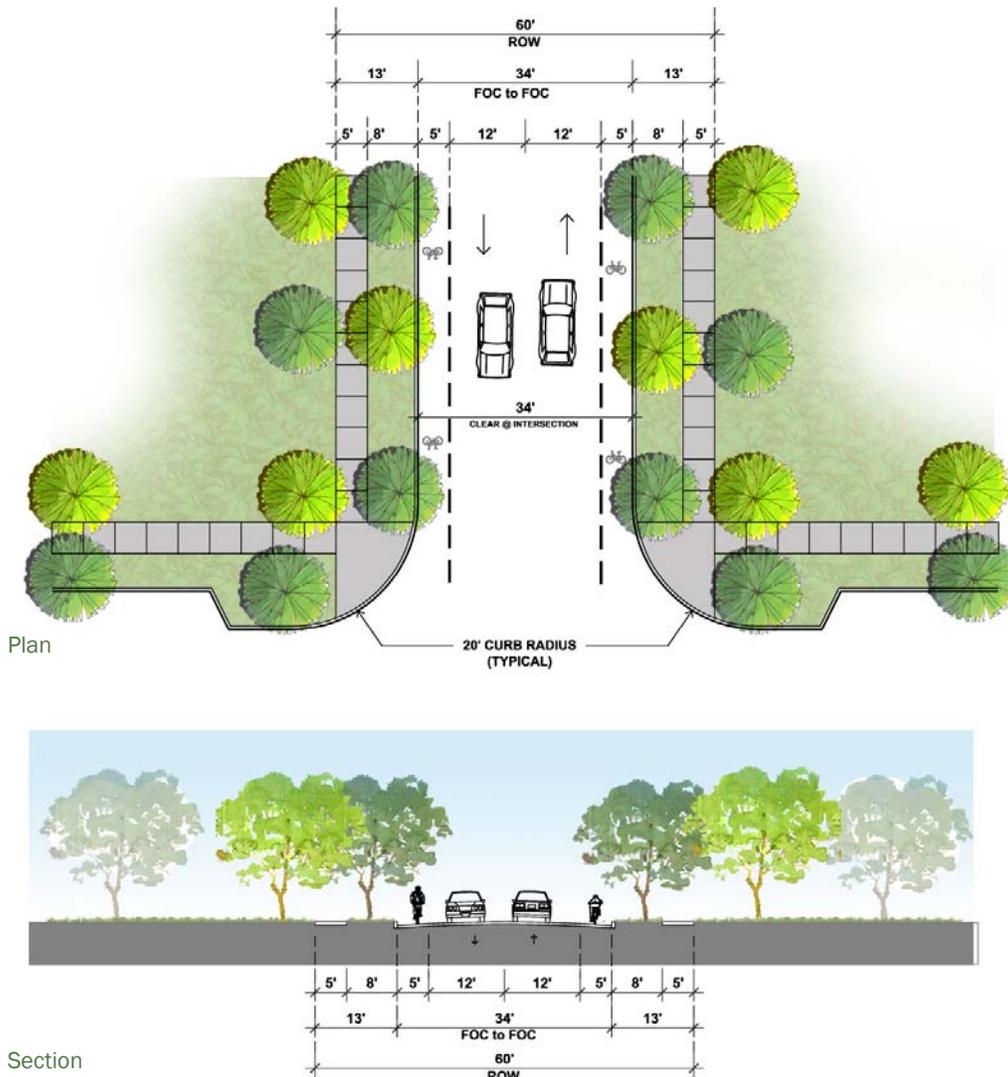
The North Connector connects Parcel B through the North Triangle property to Highway 169.

It consists of a 34' wide road section within a minimum of 60' right of way. The paved section contains one 12' wide travel way and a 5' wide striped bicycle lane in each direction. The roadway has a vertical curb and gutter and curb returns have a 20' radius. No on-street parking is permitted. No back out driveways are permitted.

To buffer pedestrians from vehicles, the sidewalks are detached from the pavement by 7'6" wide landscaped parkways. Sidewalks may be modified as allowed in this section.

The landscaped parkways will create a strong community identity through landscape and monumentation concepts as well as provide areas for rain gardens and other low impact ways of accommodating storm water if underlying soils allow. Vertical curb and gutter may be modified in locations where these features exist.

Figure 4-8 North Connector



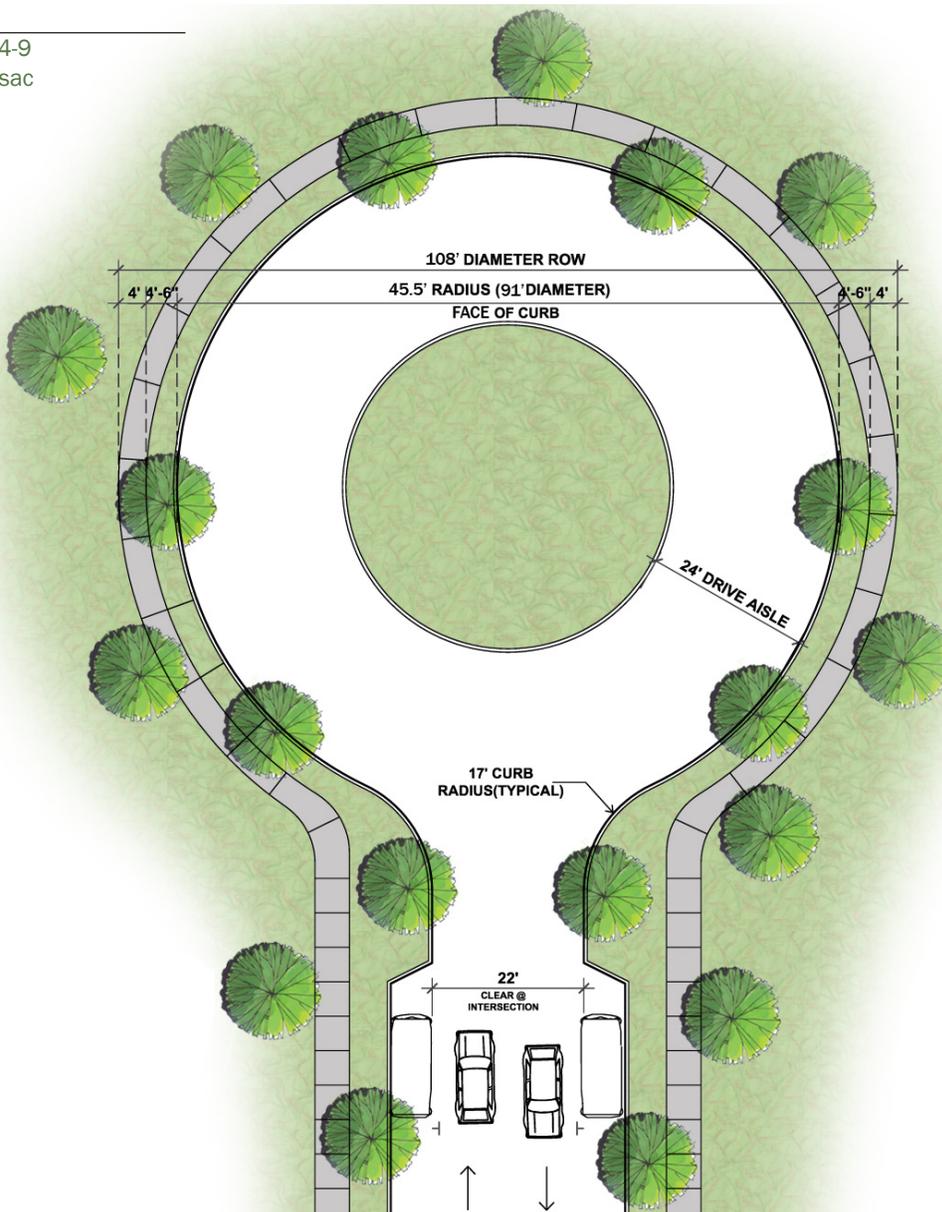
CUL-DE-SAC

The cul-de-sac will be used at the end of neighborhood streets primarily to serve as a turn around.

The bulb of the cul-de-sac is located within a 108' right of way. The cul-de-sacs will have an inside radius of 24' and an outer radius of 45' to face of curb. The bulb will contain a 24' wide travel lane along the exterior edge with a center island.

There may be a 4' sidewalk around one side of the cul-de-sac where it can connect to the community trail system. Where there is no connection to the trail system, this portion of sidewalk may be eliminated. The central islands will be landscaped and may be used for rain gardens or for collecting storm run off.

Figure 4-9
Cul-de-sac



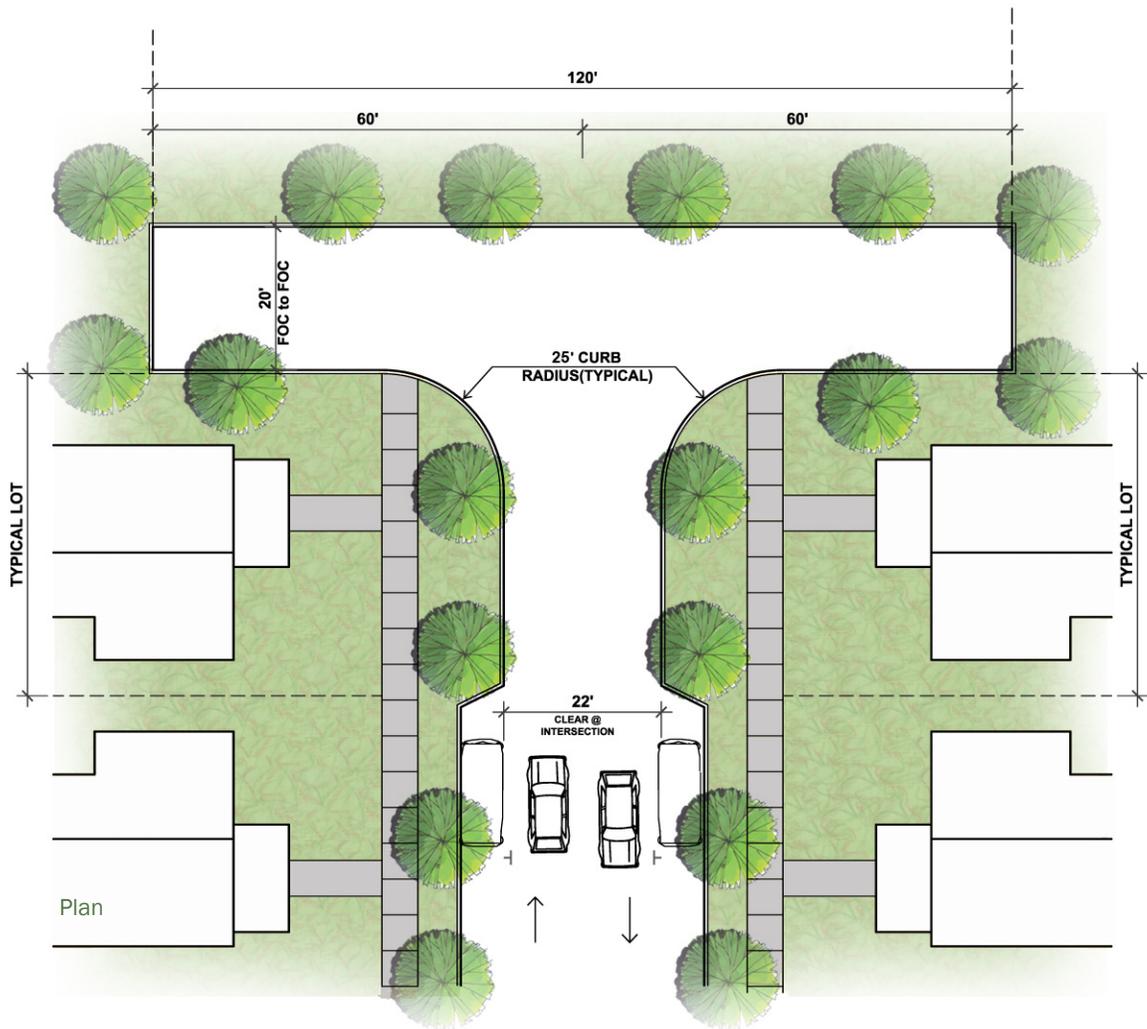
Plan

HAMMERHEAD

The hammerhead will be used at the end of neighborhood streets and alleys primarily to serve as a turn around and uses less land than a standard cul-de-sac.

The hammerhead has a paved driving surface that is 120' long by 20' wide. The curb returns are a minimum of 25' and no parking is allowed in the hammerheads. No sidewalks are required. Hammerheads may also utilize alleys as their 20' wide driving surface. The hammerhead is not required to be at 90 degrees, it can be reconfigured as a "Y" or right angle to meet site constraints.

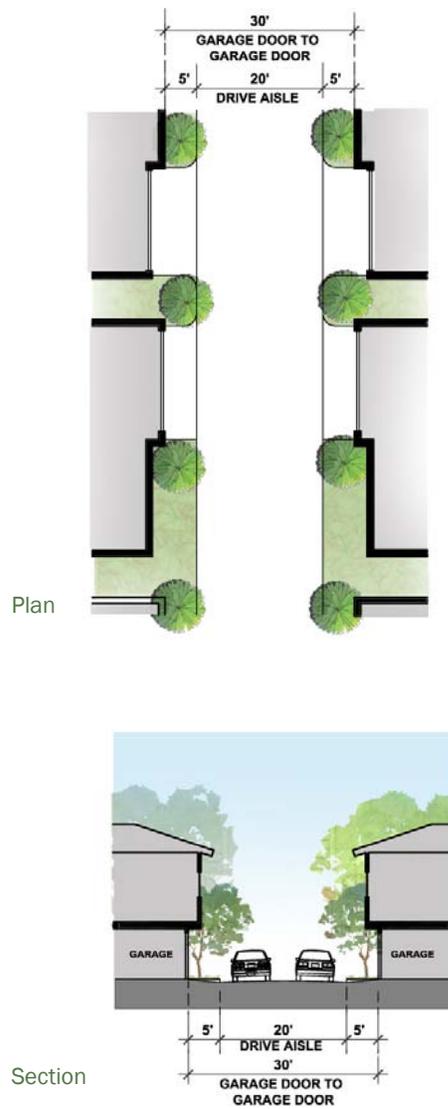
Figure 4-10 Hammerhead



RESIDENTIAL ALLEY

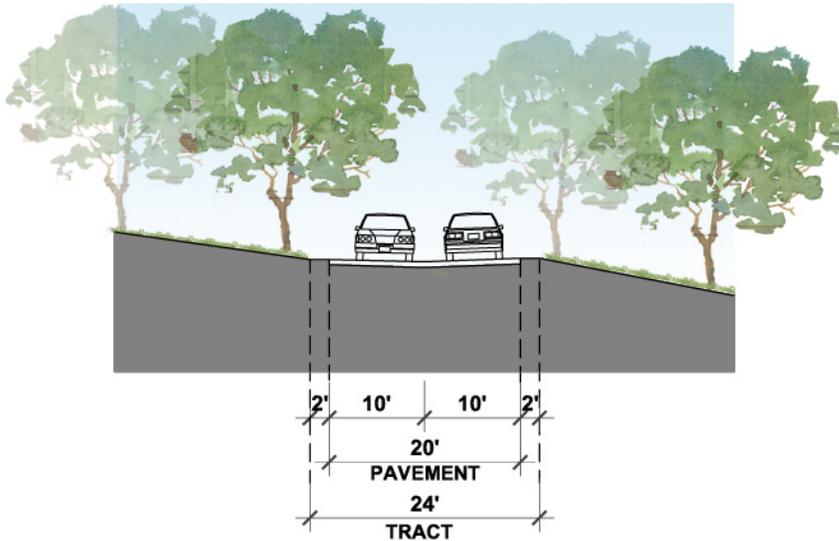
Residential Alleys are located behind residential lots, and the purpose is to provide vehicular access to garages. Alleys will have a 20' paved surface. Garages will be setback a minimum of 5 feet from the edge of pavement and a minimum of 15 feet from the center-line of the pavement. No resident or guest parking is allowed within the alley way except in designated parking spaces.

Figure 4-11
Residential Alley



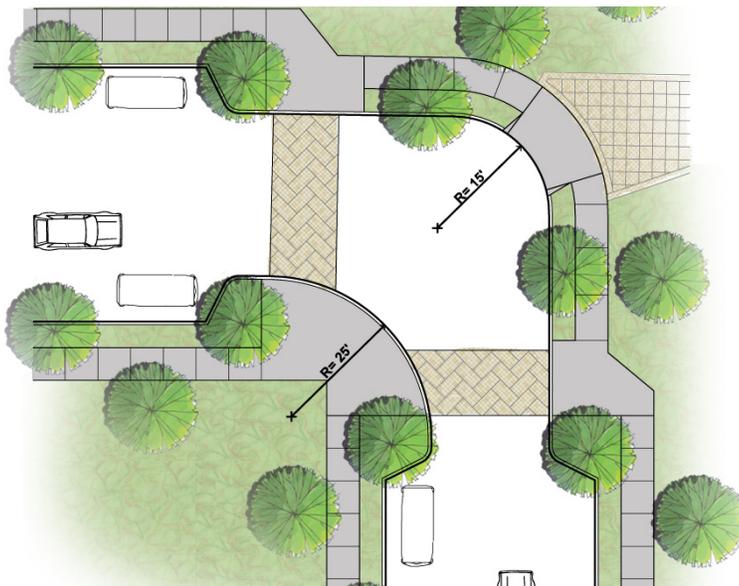
PRIVATE ROAD/ACCESS ROAD

Private Roads/access roads are used to provide access to individual parcels where no through connection is needed to the existing or future public street system. They are also used internally within individual parcels. The maximum length of a private road is 150 feet without a turnaround. They consist of two 10 foot travel lanes within a 24 foot wide tract.



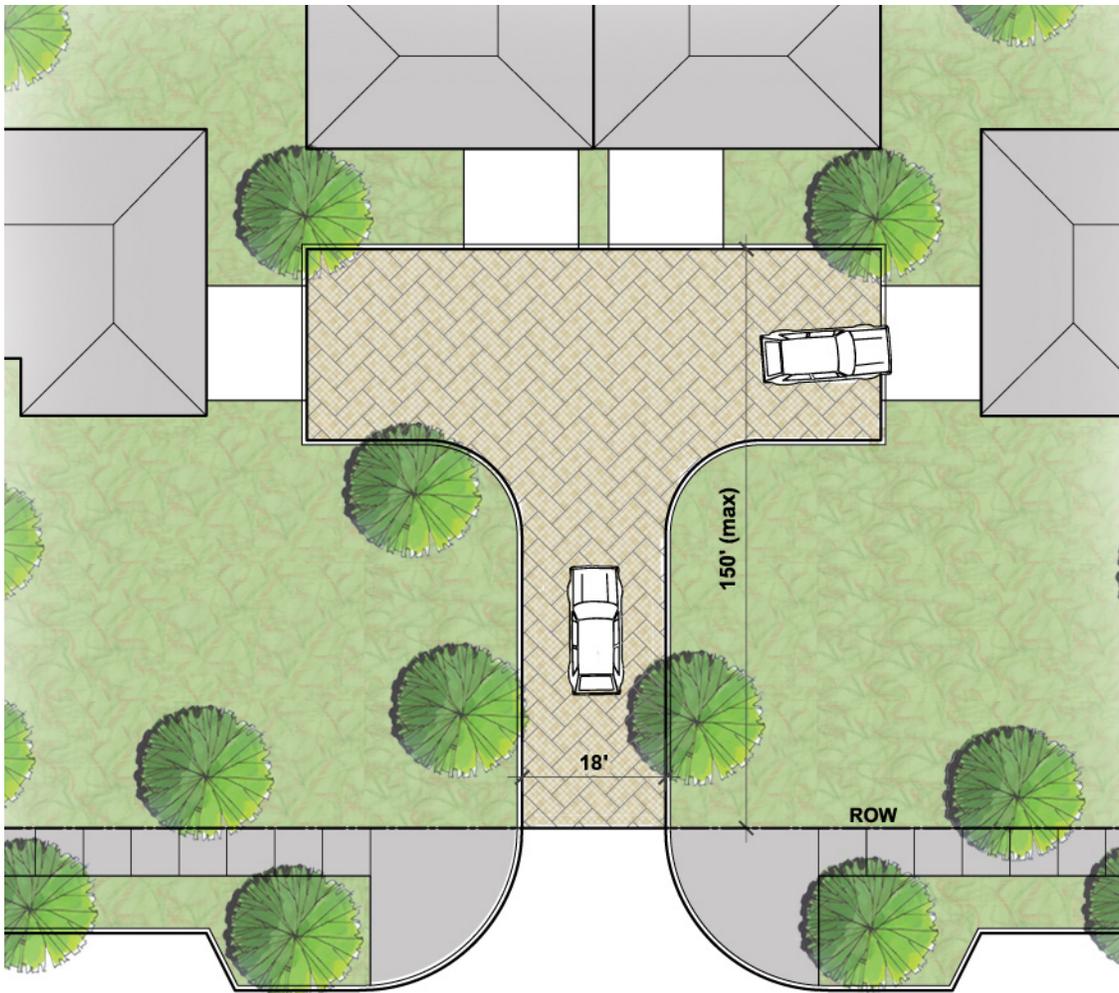
90 DEGREE INTERSECTION

The 90 degree intersection elbow will be used with neighborhood streets to reduce traffic speeds, discourage through traffic and provide access to individual residences within implementing projects. Parking will be eliminated within the 90 degree intersection elbow from pedestrian crossing to pedestrian crossing. The planting strip will be eliminated along the inside of the corner. Pedestrian crossings will be provided on both sides of the intersection and painted, textured or of a different material to be visible to the approaching traffic. The inside corner shall have a minimum 25 foot radius along the face of the curb. The outside corner will have a minimum radius of 15 feet along the face of the curb.



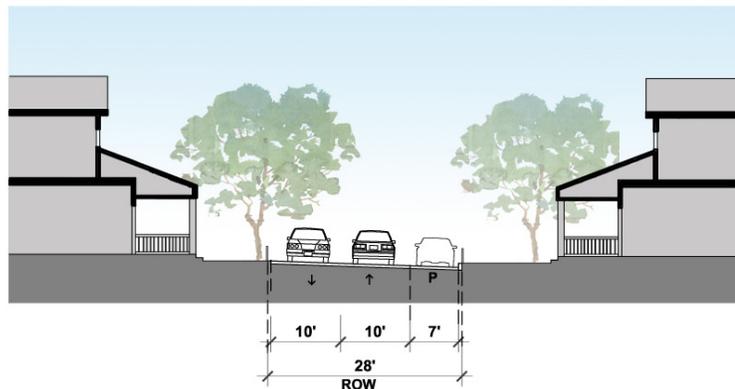
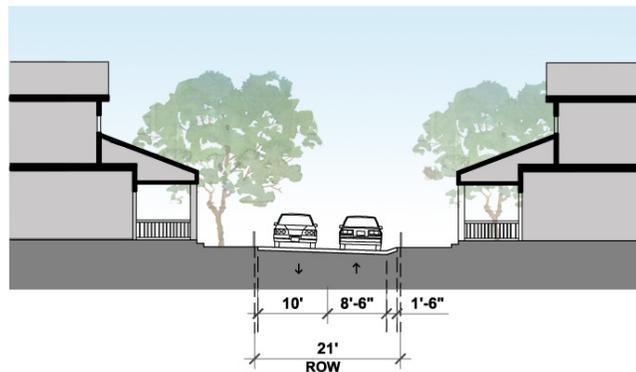
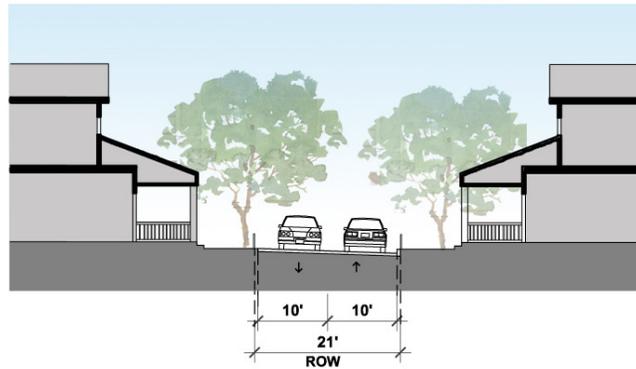
AUTOCOURT/SHARED DRIVE

An autocourt or shared drive is a limited (generally never serving more than 10 different addresses for an autocourt; or 4 residences for a shared drive) private access way used to serve primarily residential uses. This street type provides vehicular access to the structures while reducing the number of driveways on a residential street. Special paving or landscaping should be used to designate these facilities as serving only the adjacent buildings, and not part of the community vehicular network. The shared drive differs from the autocourt in that there is no turnaround necessary.



AUTO/PEDESTRIAN SHARED DRIVE

Auto/Pedestrian shared drives are local access roads that are intended to be used by both pedestrian and vehicles. Typically these will be private driveways or parking areas serving a limited number of residences or multi-family buildings and will have low vehicular traffic volumes. Scored or patterned pavement will be used to differentiate the function of the shared drive from adjacent streets. Variation of the alignment and width along the drive is encouraged to create interest, slow traffic and promote pedestrian activity and safety.



MODIFICATION TO STREET SECTIONS

Street sections maybe modified to best fit the character of the proposed neighborhood and to respond to natural site features.

Modifications to street sections related to on-street parking, bicycle lanes, planter strips and/or sidewalks must meet the following guidelines:

- On-street parking is required within a development to the extent necessary to satisfy any on-street or guest parking requirement for the development. This means that some streets within a development may have street parking and some may not.
- Bicycle lanes are only required to be included in street sections that are classified higher than a neighborhood street. Bicycle lanes may be eliminated if an adequate off-street facility is provided as a replacement.
- A sidewalk may be eliminated where access to any occupied use (e.g. residential) is not provided. For example, if a street does not have any residences on one side, the sidewalk may be eliminated on that side.
- A sidewalk may be eliminated if a separated trail section is provided as a replacement. For example, where a paved multi-use trail is provided along the road (it may be separated), the sidewalk may be eliminated on one or both sides.
- A sidewalk on one side may be eliminated in cul-de-sac or hammerhead type of street ends where minimal residences are proposed. For example, where a number of residences take access from either a cul-de-sac or hammerhead street, if less than five residences are on each side, a sidewalk may be eliminated on one side.
- Planter strips may be reduced or eliminated within or adjacent to a critical area or buffer; along the side of a street that is adjacent to a park or open space area; in commercial/office and mixed-use areas; or where the planter strip would create a threat to public safety (for example, sight distance or pedestrian visibility). In commercial/office and mixed-use areas, tree wells may be provided instead. Planter strips may be reduced or eliminated in street sections that are traversing slopes in order to minimize or avoid construction of walls. Where planter strips are reduced or eliminated due to topography, planted areas and trees should be provided at the back of the sidewalk to produce the same affect.

PROPOSED OFF-SITE IMPROVEMENTS

Off-Site improvements including intersection and frontage improvements are proposed in the EIS to maintain Level of Service 'C' on impacted roads. Proposed off-site improvements are shown and described in the Phasing Plan.