

wells, in addition to those required by the IGCMP, will be installed in the northern part of the Plan Area and a monitoring plan will be developed for those wells, all subject to the review and approval of the Department of Environmental Health. Two of the groundwater monitoring wells have been constructed; one monitoring well remains to be constructed. The monitoring plan will include provisions for maintenance and a mechanism for funding for the wells and the monitoring program. The wells will be installed prior to construction of any residential units or the golf course. In addition, the CC&R's will contain provisions to require the Homeowners Association to be responsible to investigate any claim by a neighboring or adjacent property owner regarding groundwater contamination, and to take such action as is necessary to remediate if the contamination arises from activities on properties within the Plan Area.

7.10.2 Water Conservation

Water is needed for humans, flora and fauna to exist in all aspects of life from drinking, food production and preparation, construction operations and materials, landscaping and recreation. Considering that water is a limited natural resource for which there is a large demand, water conservation measures are included in the Plan as described below.

Demand for water within the Plan Area will be for drinking, residential use, recreation and irrigation of landscaped areas. The Plan promotes water conservation by using raw water for irrigation of the golf course and landscaped areas and requiring the installation of water saving devices in homes and commercial buildings such as low flow plumbing fixtures. Other strategies include the use of native and drought tolerant plants in areas such as landscape corridors, entrances and street medians as well as the use of drip and low-flow irrigation systems in the design.

The Arthur Hill Championship 18-hole golf course will be designed for water efficiency. Trees, landing areas and greens will be irrigated using raw water, as well as areas of high use. The roughs, including riparian and natural open space areas may receive limited or no irrigation. The golf course will utilize state of the art moisture sensors and valve-inhead distribution systems for proper application and water conservation.

Bickford Ranch currently has a right to purchase 217 miners inches of water from the Antelope and Caperton Canals. Improvements will be made to the canals that will result in water conservation by reducing the amount of leakage and evaporation. A portion of Caperton Canal has



been encased on the project site. This conservation work performed by PCWA will result in a greater supply of raw water than is needed to serve the Plan Area. Additional encasement of Caperton Canal is planned.

7.11 ENERGY CONSERVATION

The primary demand for energy is the fuel for motorized vehicles and electricity in the operation of buildings. The search for energy is expensive and can be environmentally disruptive. However, energy conservation can reduce the demand for new energy sources. The Plan provides a Village Commercial site that allows retail commercial support uses that should result in less off-site vehicular trips for these types of services. Other energy conserving features within the Plan Area provides alternative modes of transportation such as pedestrian walkways and paths, bicycle lanes, equestrian trails and a golf cart circulation system. Utilization of these forms of travel would reduce the demand for energy resources. Most trees within the Plan Area are deciduous, which creates summer shade and winter sun, to maximize energy efficiency.

Energy conservation measures will be included in homes and buildings by the requirement of Title 24 of the California Building Codes. These measures include efficient heating and cooling equipment, adequate building insulation and weather stripping.

Within the Plan Area, 920 Heritage Ridge residential units, the community clubhouses and golf course maintenance buildings will be equipped with energy-producing photovoltaic systems. Photovolataic systems are rooftop mounted and collect solar power for use within individual residential uses. At buildout, the system is anticipated to produce the equivalent of two (2) megawatt power plant. Theoretically, the photovoltaic system could provide more electricity to the power grid than the project consumes. One solar electric home power system will have a lifetime carbon dioxide reduction of approximately 102,000 pounds, equivalent to emissions from 128,000 vehicle miles traveled.

Photovoltaic systems will be utilized at the golf course maintenance facility, fire station, sheriff's service center and the Village Commercial site.

Approximately 83 residences adjacent to Bickford Ranch will be able to voluntarily participate in the photovoltaic program as well through a retrofit system available through the Plan Area's solar program. With 1,000 homes participating in the program, the Bickford Ranch photovoltaic program will make it the largest residential solar community in the country.



7.12 LIGHT CONSERVATION

The Bickford Ranch Plan Area and its surroundings are considered an area of intrinsically dark landscapes and low brightness. The Plan Area is designed to preserve and protect the nighttime sky from lighting glare and pollution through the use of restrictive lighting practices and systems.

The individual fixtures and lighting systems in the Plan Area will be designed, constructed and installed in a manner that controls glare and light trespass, minimizes obtrusive light and conserves energy and resources. The intent of these standards is to design a state of the art lighting system that maintains public safety and security in the Plan Area while curtailing to the extent feasible the degradation of the nighttime visual environment through limiting evening light radiation and/or light spill.

Specific development standards and guidelines are contained in the Bickford Ranch Development Standards and Design Guidelines. Standards are provided for specific types of lighting treatments for street, parking lot, and site lighting that is greater than the County's typical lighting standards. The approach to lighting in the Bickford Ranch Specific Plan is unprecedented in the County. Implementation of the lighting restrictions will ensure that the Bickford Ranch project will result in substantially less night sky light than similar large-scale communities in Lincoln, Rocklin and Roseville.

7.13 AIR QUALITY

Air quality in the Sacramento Valley is recognized as a significant environmental concern, which influences the quality of life for all residents. Vehicle trips are a major factor in the deterioration of air quality, and new urbanization can influence the degree to which air quality impacts the region. The location of new residential and employment areas and the spatial layout of communities plays a role in the effectiveness of efforts to maintain air quality over a period of many years.

The primary source of emissions that contributes to worsening of air quality is motorized vehicles. Vehicle trips from home to work, shopping, recreational opportunities and other destinations contribute to air quality impacts. The design of the Plan Area addresses air quality impacts by providing a variety of housing types within close proximity to recreational and commercial uses. In addition, the Plan Area is proximate



to employment and shopping opportunities in Loomis, Rocklin, Roseville, Stanford Ranch and Twelve Bridges.

The Plan Area incorporates numerous land use strategies to reduce its emissions, such as pedestrian trails, bike trails, electric charging circuits for both vehicles and landscaping equipment, a parkand-ride lot and transit amenities, and a mixed use commercial center. Miles of open space corridors will connect the Village Center and the communities within the Plan Area.

As an age-restricted community, the Heritage Ridge community includes residents with unique travel patterns that reduce the overall air quality impacts of the Plan Area. While residents of age-restricted communities make relatively fewer trips than residents of conventional housing developments, their trips are typically made during non-peak hours, which is beneficial to traffic patterns and air quality. In addition, age-restricted communities, such as Heritage Ridge within the Plan Area, typically generate vehicle trips one-third that of conventional residential projects. Fewer vehicle trips results in a reduction in long-term air quality impacts that could be expected from a non-age restricted development.

The Bickford Ranch Air Quality Plan (2000) outlines a comprehensive approach to more efficiently utilize project design to improve the project's overall impact to air quality. The air quality plan includes a number of on and off-site mitigation strategies to reduce air quality impacts.

The on-site improvements are projected to reduce overall emissions by between 15 and 26 percent. The off-site mitigation strategy will provide a direct reduction in regional emissions equal to 105% of the on-road mobile source ozone precursor emissions generated by the project. Additionally, Placer County can use the Bickford Ranch off-site mitigation funds to receive matching funds from the State of California, if available, to achieve a total off-site mitigation of nearly 210 percent of the project's estimated impact.

As described in the Circulation Section (Section 8), the Bickford Ranch Specific Plan is designed with a number of features that reduce the Plan Area's impact to air quality by reducing emissions. By including retail support services, health club facilities and recreational facilities within the Plan Area, vehicle miles traveled are reduced because Bickford Ranch residents do not have to travel out of the area to obtain these services.

Resource Management



Within the Plan Area, an extensive pedestrian, equestrian and bicycle pathway system and golf cart transportation system will reduce dependence on the automobile and will facilitate connection among land uses. The Village Commercial site includes bicycle lockers, a kiosk with transit and ridesharing information and a park and ride lot to encourage community carpooling. Two bus stops are planned for transit service: one in the Ridge Community along Bickford Ranch Road and the other in the Heritage Ridge Community.

The air quality plan also identifies several features that will be included in the design of residential uses to reduce air quality impacts including the use of low nitrogen oxide emitting water heaters, natural gas CNG fireplaces, energy efficient windows and ozone-destroying air conditioning units. Bickford Ranch homes that utilize air to air heat pumps for air conditioning will have their air conditioning units equipped with an ozone destruction catalyst. The ozone destruction catalyst converts approximately 80% of harmful ground-level ozone into oxygen. The installation of a high-speed internet line to each lot will also promote telecommuting. Open burning of any kind is not permitted in the Plan Area. This level of air emission mitigation is unprecedented in the County and reduces the severity of air quality impacts that result from this project.



8. CIRCULATION

8.1 CIRCULATION SYSTEM CONCEPT

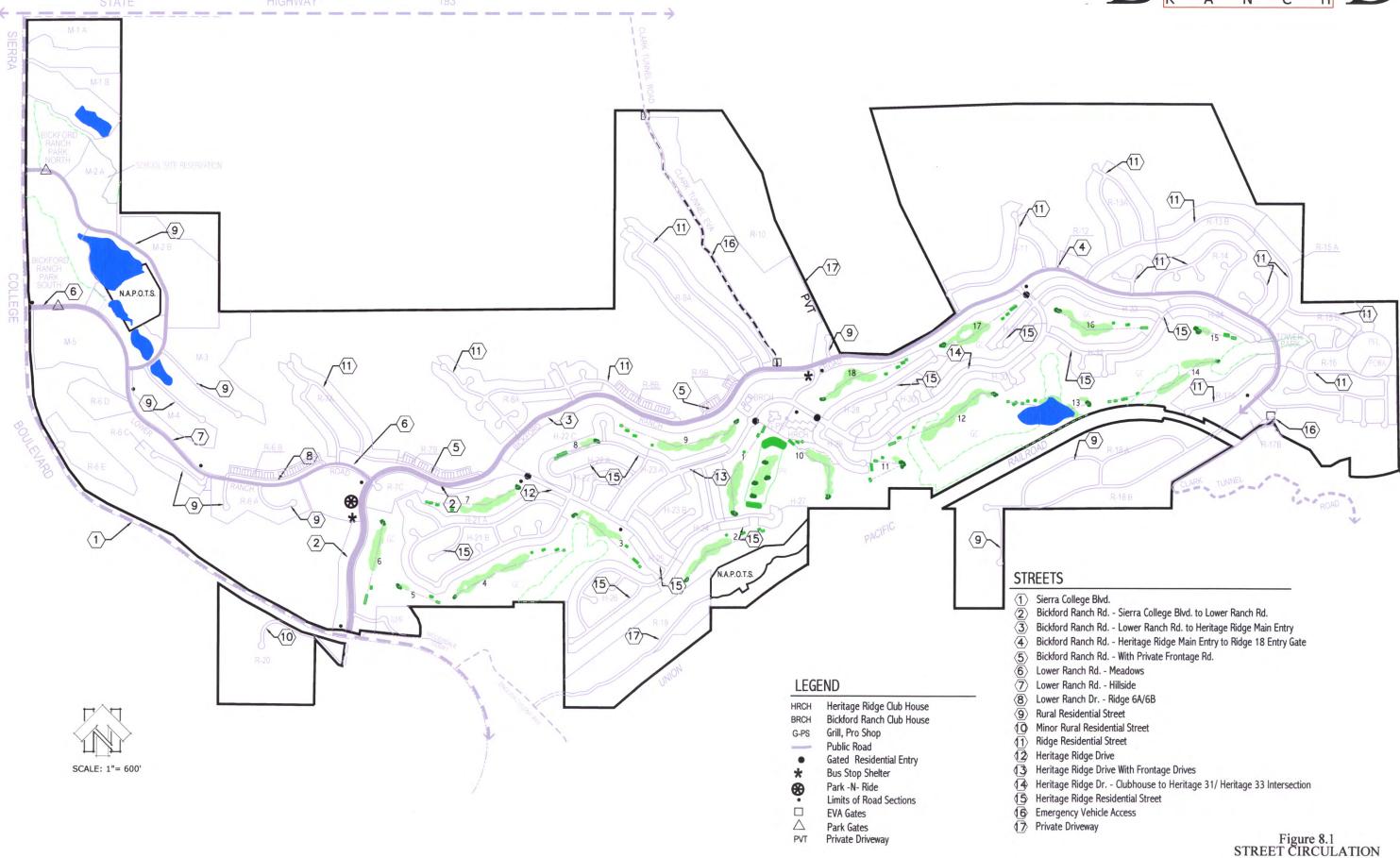
Bickford Ranch has been carefully designed to provide a variety of circulation opportunities in a safe and efficient manner. This section of the Specific Plan describes how the Plan includes a circulation pattern that accommodates pedestrians, bicycles, golf carts, horses, motorized vehicles and public transit. Most of the roadways within the Plan Area are exclusive to the Plan in that they do not serve areas beyond the Plan Area boundaries.

8.2 CIRCULATION PATTERN

Bickford Ranch will provide new roadways to meet the needs of pedestrian, bicycle, golf cart, horse and vehicular traffic to access and circulate within the Plan Area. Bickford Ranch is located at the southeast corner of Sierra College Boulevard and Highway 193. These two roads are regional roadways in Placer County. Figure 8.1 presents the conceptual street circulation within the Plan Area.

The Plan Area's primary access will be Bickford Ranch Road, which will begin at Sierra College Boulevard from an expanded intersection at Caperton Court. Bickford Ranch Road will serve as the primary public access corridor into the Plan Area, intersecting with Lower Ranch Road within the Plan Area. Lower Ranch Road will provide secondary public access from Sierra College Boulevard north of Bickford Ranch Road. An additional entrance adjacent to the northern boundary of Bickford Ranch Park will access the school site from Sierra College Boulevard. This additional entrance will access the school site as well as the rest of the Plan Area via Lower Ranch Road. If the school site is utilized and traffic conditions warrant, a signalized intersection will be constructed.

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Clark Tunnel Road will be closed to vehicular traffic at a point near its southerly crossing of the Plan Area boundary, but access will continue to be allowed for emergency vehicles, pedestrians, equestrians and bicyclists. That portion of Clark Tunnel Road lying between its northerly crossing of the Plan Area boundary and Bickford Ranch Road will also be closed, but access will continue to be allowed for emergency vehicles, pedestrians, equestrians and bicyclists. The final design of the improvements at the points of closing will be subject to review and approval by the Department of Public Works. The remaining portion of Clark Tunnel Road within the Plan Area will be replaced by Bickford Ranch Road and abandoned.

8.3 GENERAL STREET DESIGN CRITERIA

In some cases, Bickford Ranch's residential streets will be designed to retain a rural character. Residential streets will be constructed within rights-of-way ranging from 40-122 feet in width, with pavement sections varying from 22-56 feet in width. In some cases, road right-of-way will flare in width and widen at the Plan Area's entrances and intersections.

Sidewalks within the Ridges and Heritage Ridge communities connect to pedestrian/bicycle trails along Bickford Ranch Road and Lower Ranch Road. Most residential streets will accommodate bicycles on both sides. Public utility easements will be provided immediately adjacent to the public right-of-way.

All roads and streets within the Plan Area, with the exception of those streets in the Heritage Ridge Community, will be public streets and offered for dedication to the County. When adequate provisions for funding are established, the County will accept Bickford Ranch Road and/or Lower Ranch Road and/or the unnamed school access road into the County maintained road system. One or more county service area zone(s) of benefit will be created and assessment(s) will be established to fund on-going maintenance of any street intended to be public or for any county maintained road. Private roads within the Heritage Ridge Community will be maintained by the HOA.



Residential streets within the Plan Area will be constructed as either rural residential or minor residential streets. Locations of residential streets are preliminary and are shown on the Master Lotting Plan in Section 5. Specific alignments will be determined at the Final Small Lot Subdivision Map submittal. Street sections, which depict dimensions for each type of roadway, contained within the Plan Area are contained in this section of the Specific Plan. Design details for each street section are contained in the Bickford Ranch Development Standards.

8.4 PLAN AREA ROADWAYS

The following describes existing roadways in the vicinity of the Bickford Ranch and the future streets that accommodate traffic within the Plan Area. Bickford Ranch will fund on-site roadways, pay Placer County traffic mitigation fees and fund the project's obligation of off-site roadway improvements by participating in fair share funding and fee programs, including the South Placer Regional Transportation Authority (SPRTA) fee.

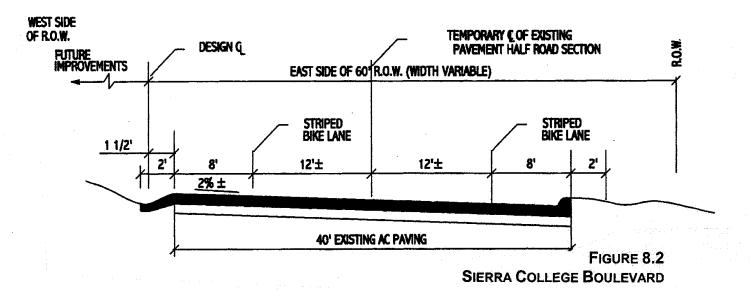
8.4.1 Highway 193

Highway 193 (Hwy 193), also known as the Lincoln Newcastle Highway, is an east-west regional highway in South Placer County. Highway 193 is a two lane roadway that originates in the City of Lincoln at the intersection with Highway 65 and extends east to Newcastle at Interstate 80. The California Department of Transportation acquired rights-of-way from Bickford Ranch and has made limited improvements to the vertical profile of Hwy 193 from Bickford Ranch to Lincoln.

8.4.2 Sierra College Boulevard

Sierra College Boulevard originates at Highway 193 (Hwy 193) on the north and extends south through areas of Loomis, Rocklin, Roseville, and becomes Hazel Avenue in the unincorporated area of Sacramento County. Sierra College Boulevard is two lanes from Highway 193 south to Interstate 80. A typical cross section of Sierra College Boulevard is shown in Figure 8.2.





The Plan Area proposes improvements to Sierra College Boulevard at the intersections at Bickford Ranch Road, Lower Ranch Road and the access through Bickford Ranch Park to the school site.

The intersection of Bickford Ranch Road and Sierra College Boulevard ultimately will include a traffic signal as well as left and right turn lanes on both Bickford Ranch Road and Sierra College Boulevard. Lower Ranch Road at Sierra College Boulevard will be stop-controlled on the Lower Ranch Road approach to Sierra College.

The Bickford Ranch Specific Plan Area has agreed in concept to construct an additional lane along Sierra College adjacent to the project boundary.

8.4.3 Bickford Ranch Road

Bickford Ranch Road serves as the main access from Sierra College Boulevard into the Plan Area and as the primary roadway of the overall circulation system. Within the Plan Area, Bickford Ranch Road will run in an east-west direction, connecting land uses throughout the community. Consequently, the number of lanes required of Bickford Ranch Road will vary to accommodate volumes of traffic at different locations.



<u>Bickford Ranch Road – Sierra College Boulevard to</u> Lower Ranch Road

The portion of Bickford Ranch Road from Sierra College Boulevard to Lower Ranch Road of the Village Center will be constructed as a four lane divided street with a minimum 80-foot right-of-way and generally follows the edge of Hole #6 of the golf course. The roadway cross-section will consist of one travel lane in each direction and two travel lanes and a bike lane in each direction. Along the east and west side of the roadway are open space corridors. The entrance segment will feature a median and turn lanes at the entrance at Sierra College Boulevard. This segment of Bickford Ranch Road is shown on Figure 8.3.

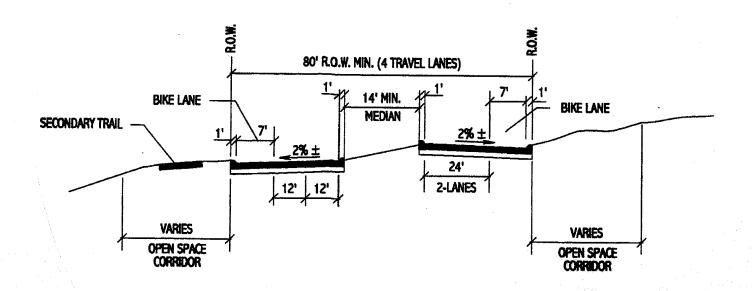


FIGURE 8.3
BICKFORD RANCH ROAD
SIERRA COLLEGE BOULEVARD TO LOWER RANCH ROAD



<u>Bickford Ranch Road – Lower Ranch Road to</u> <u>Heritage Ridge Main Entry</u>

The portion of Bickford Ranch Road between Lower Ranch Road and the Heritage Ridge main entry will be constructed as a two lane divided road within a minimum 56-foot right-of-way and generally follows the edge of Boulder Ridge. The roadway cross-section will consist of one travel lane in each direction and a bike lane in each direction. Along the north and south side of the roadway are 20 to 100 foot wide open space corridors. This segment of the roadway will include a median, as shown on Figure 8.4.

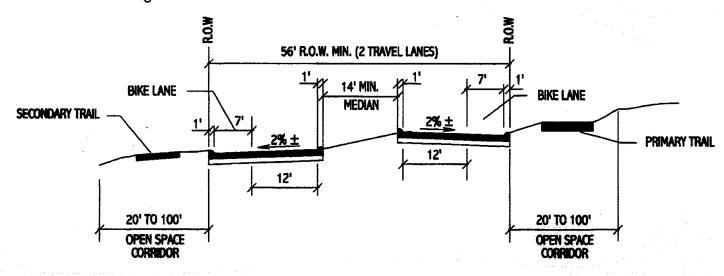


FIGURE 8.4
BICKFORD RANCH ROAD
LOWER RANCH ROAD TO HERITAGE RIDGE MAIN ENTRY

Bickford Ranch Road - Heritage Ridge Main Entry to Ridge 18

This portion of Bickford Ranch Road features one travel lane in each direction without a median and generally follows the existing Clark Tunnel Road alignment. The right-of-way is a minimum 40 feet with two travel lanes and a bike lane on each side of the two travel lanes. Along the north and south side of the roadway are 20 to 100-foot wide open space corridors. Figure 8.5 presents a cross-section of this segment of Bickford Ranch Road.



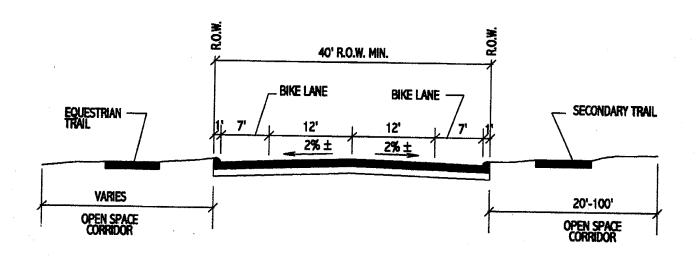
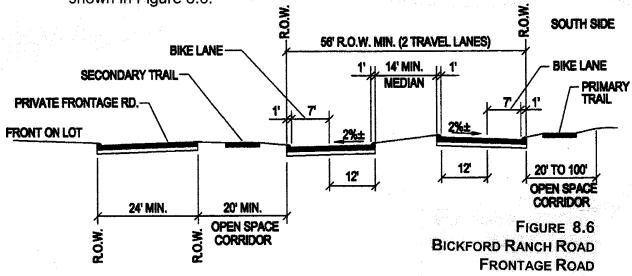


FIGURE 8.5
BICKFORD RANCH ROAD
HERITAGE RIDGE MAIN ENTRY TO RIDGE 18 ENTRY

Bickford Ranch Road with Frontage Road

Bickford Ranch Road has another street section when it is adjacent to front-on lots with a frontage road which may be either a two-way or a one-way street. Between Bickford Ranch Road and the frontage road is a twenty-foot (20') wide open space corridor with a secondary trail, as shown in Figure 8.6.





8.4.4 Lower Ranch Road

Lower Ranch Road within the Meadows Community

Lower Ranch Road is a secondary access to the Plan Area, connecting at the west to Sierra College Boulevard and at its eastern terminus to Bickford Ranch Road at the Village Commercial site. Lower Ranch Road will be constructed as a two lane rural secondary roadway with a minimum 40-foot right-of-way and a portion of the road that is public will be offered for dedication to Placer County. This street has two travel lanes with bike lanes along each side. Figure 8.7a presents the cross section of Lower Ranch Road within the Meadows community.

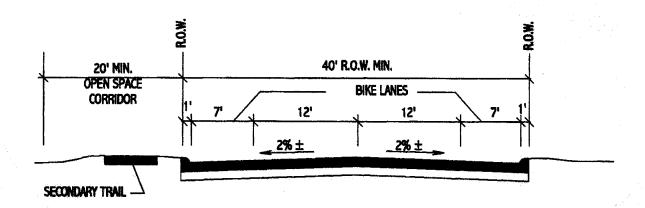


FIGURE 8.7A
LOWER RANCH ROAD WITHIN THE MEADOWS COMMUNITY

Lower Ranch Road Adjacent to a Hillside

This section of Lower Ranch Road located adjacent to the hillside along Ridge 6 leading into the Meadows community, will be constructed within a minimum forty-foot (40') right-of-way. This street has two travel lanes with bike lanes along each side. Figure 8.7b presents the cross section of Lower Ranch Road adjacent to a hillside.



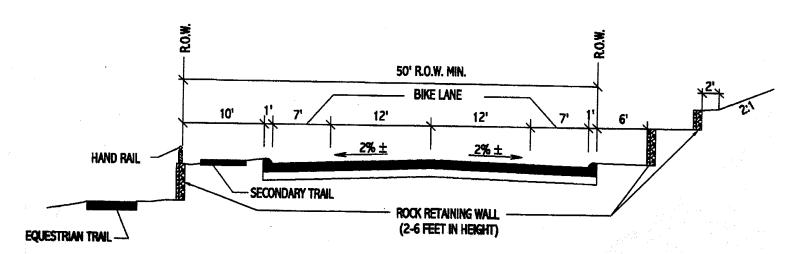


FIGURE 8.7B LOWER RANCH ROAD ADJACENT TO A HILLSIDE

Lower Ranch Road Along Ridge 6A and 6B

This portion of Lower Ranch Road has a minimum forty-foot (40') right-of-way and is located along Ridge 6A and Ridge 6B, that connects the Meadows Community to the Village Center. The right-of-way that will remain public will be offered for dedication to Placer County. The adjacent frontage road may be either a one- or two- way street. Figure 8.7c presents the typical cross section of Lower Ranch Road adjacent to Ridge 6A and 6B.

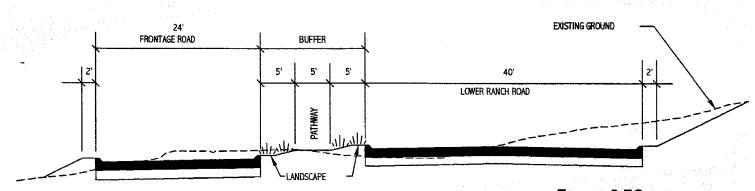


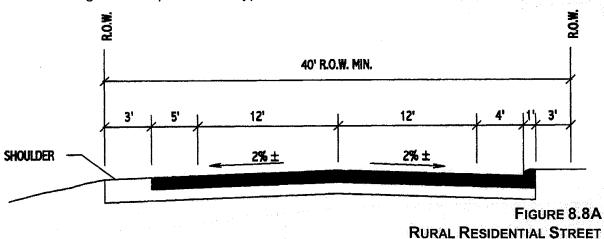
FIGURE 8.7C LOWER RANCH ROAD ADJACENT RIDGE 6A AND 6B



8.4.5 Rural Residential Streets, Minor Rural Residential Streets and Private Access Drives

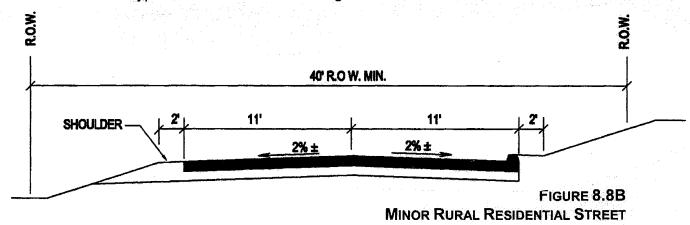
Rural Residential Streets

Rural residential streets are used primarily in the Meadows and in some areas of the Ridges community. These streets generally have a minimum 40-foot right-of-way with two travel lanes and paved shoulders. Figure 8.8a presents a typical section of a rural residential street.



Minor Rural Residential Streets

Minor rural residential streets are used primarily in more rural largelot Ridge communities serving six or fewer residential units. These streets have a minimum forty-foot (40') right-of-way with a two-lane roadway. This typical section is shown in Figure 8.8b.





Private Driveways

Private driveways are used primarily as a shared driveway access for four or fewer residential units. A typical private driveway section is shown in Figure 8.8C.

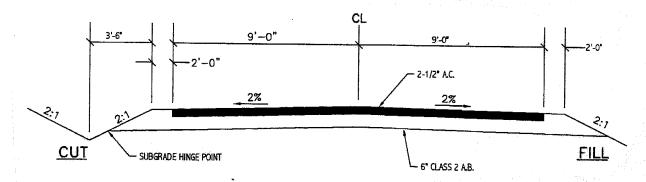
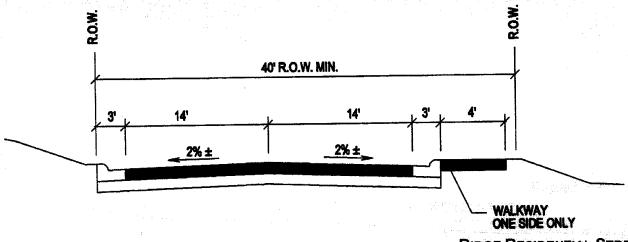


FIGURE 8.8C PRIVATE DRIVEWAYS

8.4.6 Ridge Residential Streets

Within the Ridges, residential streets will feature a minimum forty-foot (40') right-of-way with two travel lanes, with curbs and walkway on one side of the street. A private driveway will extend from a cul-de-sac residential street north of Bickford Ranch Road to serve R-10.

Figure 8.9 presents a Ridge residential street cross-section for Type A Lots (see Development Standards Figure 8.3). For Type B Lots (see Development Standards Figure 8.3), Figure 8.9b shall apply.



RIDGE RESIDENTIAL STREET
Type A Lots



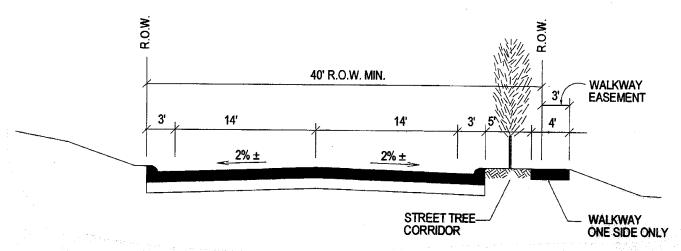
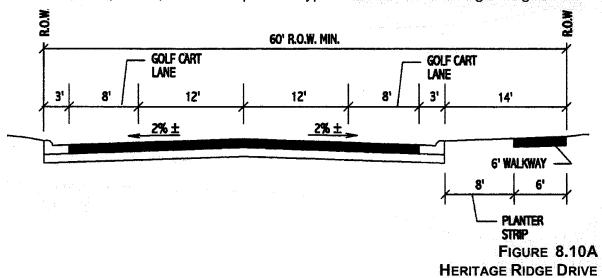


FIGURE 8.9B RIDGE RESIDENTIAL STREET TYPE B LOTS

8.4.7 Heritage Ridge Drive

Heritage Ridge Drive is the major street within the Heritage Ridge community. This street has a minimum 60-foot right-of-way with no onstreet parking. Where residential uses front the street, there is a minimum 76-foot right of way with on-street parking. Both right-of-way widths feature two travel lanes and a golf cart and eight-foot planter strip and sidewalk on one side of the street. This street will be used primarily by Heritage Ridge residents and will be maintained as a street. Figures 8.10a, 8.10b, and 8.10c present typical sections of Heritage Ridge Drive.





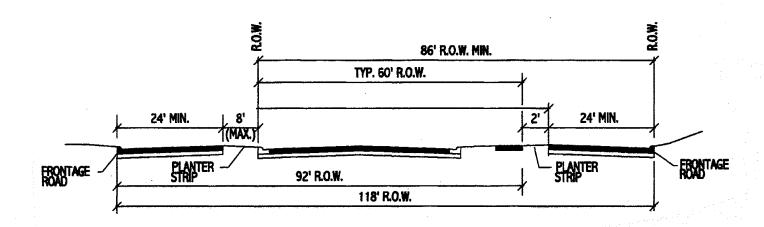


FIGURE 8.10B HERITAGE RIDGE DRIVE WITH FRONTAGE STREET

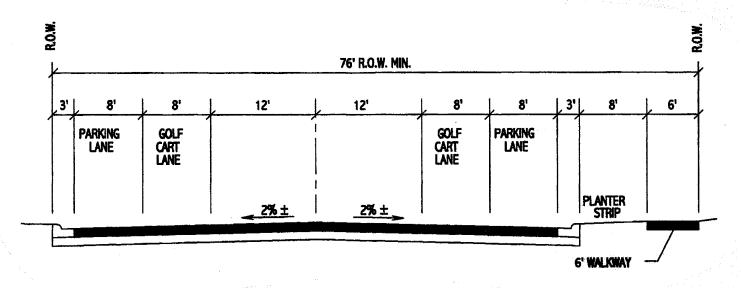


FIGURE 8.10C HERITAGE RIDGE DRIVE – CLUBHOUSE TO H-31/H-33 INTERSECTION



8.4.8 Heritage Ridge Residential Street

Heritage Ridge residential streets range from a minimum 40 foot right-of-way with two 14-16 foot travel lanes with curb, gutter and sidewalk on one side of the street. Figure 8.11 presents the Heritage Ridge residential street cross-section.

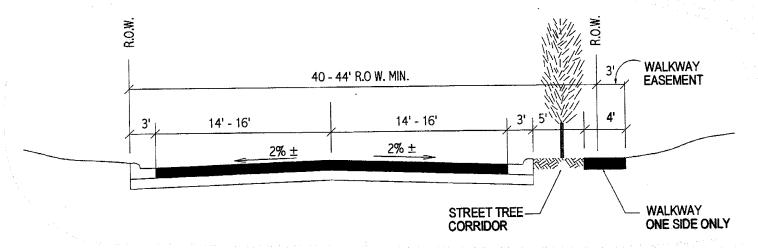


FIGURE 8.11
HERITAGE RIDGE RESIDENTIAL STREET SECTION

8.5 SIGNALIZATION

Projected traffic volumes at the intersection of Sierra College Boulevard and Bickford Ranch Road will ultimately require a traffic signal. Initially, a stop sign will control the Bickford Ranch Road approach to the intersection for Bickford Ranch Road until traffic volumes warrant the need for a traffic signal. Although warranted now from existing traffic, a signal will be constructed at the intersection of Sierra College Boulevard and Highway 193. If a school is constructed on the reserved school site, a traffic signal will be constructed at the School Access Road and Sierra College Boulevard.

The intersection of Lower Ranch Road and Bickford Ranch Road may be signalized in the future depending on traffic warrants.



8.6 TRAILS

The Plan Area features 33.6 miles of public pedestrian, hiking, biking and equestrian trails which are recreational amenities to Bickford Ranch residents and residents of surrounding communities. Within the Plan Area, twenty-five miles of trails will be separated from roadways. All public equestrian, bicycle and pedestrian (EBP) trails are routed so that neighboring communities can access them and to provide the potential to linking to future regional trail systems.

With the exception of the South Loop Trail, trails will be constructed consistent with the overall project phasing plan (Section 10). Trails located along major roads will be constructed with the respective roadway improvements and trails located in Natural Open Space (i.e. wilderness trails) will be constructed along with improvements for the adjacent subdivision. The South Loop Trail will be constructed in conjunction with the golf course in Phase 1 to allow for a continuous loop trail. Trails will not be available for use prior to the County's acceptance of improvements for the respective roadway, subdivision, golf course or other improvement project, as applicable. The phasing of trails within the Plan Area is shown on Figure 10.7.

All public trails are proposed for dedication to Placer County. Any changes in alignments or uses of these trails, once dedicated, will be the responsibility of the County. The Plan Area's trail system is summarized on Table 8.1 and depicted on Figure 8.12. The South Loop Trail is shown on Figure 8.13.



TABLE 8.1 TRAIL SYSTEM

Key	Name	Trail Type	Length (in miles)				
Trails							
PT	Bickford Ranch Road	Primary Trail	1.3				
PT	Heritage Ridge Access	Primary Trail	0.2				
MP	Clark Tunnel Road N	Multi-Purpose	8.0				
MP	Clark Tunnel Road S	Multi-Purpose	0.4				
ST	School Access Road	Secondary Trail	0.8				
ST	Lower Ranch Road	Secondary Trail	1.0				
ST	Bickford Ranch Road	Secondary Trail	3.7				
MT	Ridges (NE)	Minor Trail	0.8				
ET	Bickford Ranch Road	Equestrian	1.9				
ET	Sierra College Blvd	Equestrian	1.0				
ET	Lower Ranch Road	Equestrian	0.9				
WT	Sierra College Blvd.	Wilderness	1.3				
WT	Northwest Corridor	Wilderness	3.2				
WT	Northeast Corridor	Wilderness	2.9				
WT	South Loop	Wilderness	2.8				
PED	Heritage Ped Trail (Pvt)	Pedestrian	2.0				
			25.0 miles				
Bike Trails							
	Bickford Ranch Road	Bike Lane	6.3				
	Lower Ranch Road	Bike Lane	2.3				
B 1 1 2			8.6 miles				
	Total		33.6 miles				
	Off-S	Site Trails					
SC	Sierra College Boulevard (existing)	Bike Lane	2.1 miles				