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Alum Rock Avenue, at White Road, is a gateway to the neighborhood, schools and city library. Besides connecting residents to downtown San Jose, the street is a regional link to Alum Rock Park, Sierra Vista Open Space Preserve, the Bay Area Ridge Trail, and the Diablo Range foothills. Santa Clara County Parks and Recreation identified Alum Rock Avenue with potential for an urban trail connecting people to the natural environment in ways that support healthy lifestyles and provide more connectivity to regional open space and trails. Development of Class I trails and on-street bikeways is consistent with the City of San Jose’s ongoing efforts to develop a 100-mile interconnected trail network.

Santa Clara County Parks initiated a study of walking and cycling trail opportunities on Alum Rock Avenue, from White Road to Alum Rock Park. Topography, right-of-way width, access to property and traffic requirements were the primary physical constraints assessed for the concept study. Community outreach meetings with residents along Alum Rock Avenue early in the process provided valued input for neighborhood character preferences that shaped design concepts. A working group representing the City of San Jose, Caltrans, Valley Transportation Authority, and County Roads departments was valuable to understand the operations and maintenance of the corridor. Findings of this study will be presented back to the neighbor-
hood and their input integrated into final recommendations.

**OPPORTUNITIES**
The under-developed public right-of-way (100–112’) offers generous space for pedestrian and bicycle improvements that would serve the neighborhood and would improve regional connectivity to recreational lands. Resident access, street parking, bus service, and utilities will need to be accommodated with any improvements. Caltrans owns the right-of-way from just east of White Road to Mt Hamilton Road and recognizes the need to provide for safe pedestrian and bicycle travel along its facilities. Their “Complete Streets” design guidelines would support concepts for pedestrian and cycling enhancements.

Near Mountain View Avenue, a series of small frontage drives provide access to resident homes, parallel to Alum Rock Avenue. Topography and mature trees have separated the main roadway down the middle of the street right-of-way. These residential non-traditional street zones offer a theme to enhance the “lower” Alum Rock Avenue corridor.

East of Mt Hamilton Road, Santa Clara County owns the street right-of-way on the “upper” street corridor. The wide right-of-way extends to Alum Rock Park but steep topography creates some challenges and opportunities for an urban trail.

Miguelitas Creek is a constraint for expanded facilities, but an existing pedestrian/bicycle bridge provides safe crossing without using the street. The street frontage along the San Jose Country Club Golf Course is already a walking path and ideal for expansion.
CONCEPTS
A residential “Shared Street” concept is proposed for Alum Rock Avenue between Millar Avenue and Mt Hamilton Road that would serve resident only traffic, with a bicycle and pedestrian priority. Similar to existing frontage “shared streets” east of Mountain View Avenue, narrow streets with resident parking, would be separated from Alum Rock Avenue with a landscape zone of trees and plantings. Storm water runoff can be captured and recharged into the landscape. By narrowing the street corridor with a near continuous landscape buffer on the south side of the street, the roadway would adopt a greener, more residential appearance as Alum Rock Avenue extends east to the foothills. The north side of the street will have minimal changes, except for intersection improvements.

Near Mt Hamilton Road, the San Jose Country Club abuts Alum Rock Avenue on the north side of the street. Without resident driveways, the road shoulder has become a staging area for cyclist parking. Expanding this recreation based parking could help reduce parking conflicts near Alum Rock Park. This location also provides a good transition for consolidating walkers and slower cyclists on the north side of Alum Rock Avenue to cross the Miguelitas Creek Bridge.

East of Miguelitas Creek, an urban trail will parallel the street. The paved trail for walkers and cyclists, with a soft rock shoulder for equestrians and runners will be separated from the roadway. Near Alum Rock Park, the trail will meet the street and include a landscape buffer with street parking.

Throughout the corridor, street crossings will be improved for pedestrian and cyclist safety. Signals,
pavement markings, and informational wayfinding signs at key locations will inform vehicles, cyclists, and pedestrians on how to move through intersections.

Through-traffic on Alum Rock Avenue will remain one lane each way with a center turn lane where it exists today. On lower Alum Rock Avenue, buffered bike lanes will be added each way between White Road and Kirk Avenue/Fleming Avenue intersection. Moving east, experienced cyclists are anticipated to share the roadway with vehicles if they choose not to use the parallel “shared streets” travel lane.

**IMPLEMENTATION**
Santa Clara County Parks has taken the lead to identify the opportunity, introduce the idea to the neighbors, and engage them for input and support. Stakeholder public agencies have been involved with their input integrated into the design concept. While there is no project identified by any agency at this time, the feasibility study can be used to prioritize individual construction projects or several construction projects implemented in phases, which will be based on available funding and staff, among numerous other variables.
INTRODUCTION
Consistent with the Parkland Acquisition Plan 2012, Santa Clara County Parks and Recreation Department staff looked to identify regional recreational needs and opportunities that would address the County Parks’ mission and goals. That review identified an opportunity within an unincorporated urban island in the Alum Rock neighborhood. The focus of this feasibility study is to “explore the development of enhanced hiking/biking opportunities along Alum Rock Avenue from White Road to Alum Rock Park using existing County and Caltrans right-of-way.”

STUDY GOALS AND PROCESS
The County’s goals were to explore design alternatives to improve walking and cycling connectivity to Alum Rock Park and the regional County trail system. That connectivity along Alum Rock Avenue is predominately within unincorporated lands of Santa Clara County, though surrounded by the City of San Jose. The study will:

- Assess existing conditions of the built and undeveloped right-of-way along Alum Rock Avenue from White Road to Alum Rock Park.
- Identify design options to improve accessibility and safety for pedestrians and cyclists along Alum Rock Avenue.
- Engage the community for input on current corridor access concerns and feedback on design alternatives.
- Work with the City of San Jose, Caltrans, VTA, and County Roads and Airport Department to strategize on design recommendations consistent with each agency.

- Present a design concept and cost estimate that can be used by stakeholder public agencies for project planning, development, and funding.

BFS Landscape Architects, with Alta Planning + Design, led this design study with a 13-member agency working group. Two community meetings and a “Walk the Rock” community outreach event gave corridor residents the opportunities to highlight their accessibility and safety concerns. A final report will be presented to County Supervisors for acceptance.

Alum Rock residents and design/planning team, along with City Council and County Supervisor representatives, walked the 2-mile study corridor during the “Walk the Rock” event.
The Alum Rock area is at the base of the eastern foothills and borders Alum Rock Park, the oldest city park in California. The 720 acre regional park offers open space, trails, and traditional park facilities. Access to the regional park and trails is limited due to the configuration of area roadways. There is only one vehicle entrance into the park—Penitencia Creek Road. The Alum Rock Avenue entrance was closed to vehicles in 2000 due to a landslide. However, the entrance is still open to walkers, cyclists, and equestrians.

Alum Rock Avenue is a popular cycling street as it provides access to the Diablo Mountain Foothills, Sierra Vista Open Space Preserve trails, and Mt Hamilton Drive (Highway 130). At the Mt Hamilton Drive intersection, informal parking for fifteen to twenty cars on the north side of Alum Rock Avenue provides parking for cyclists and walkers.

With a wide 100’–112’ right-of-way, Alum Rock Avenue was planned as a major transportation corridor.
FIGURE 3: REGIONAL PARKS AND TRAIL CONNECTIONS

Legend

- Existing Regional Trails
- Proposed Regional Trails
- Alum Rock Ave
- Unincorporated Island
- City Park
- Open Space
- County Park

Map compiled by BFS Landscape Architects 8/1/2016
Sources: County of Santa Clara GIS, City of San Jose GIS, Santa Clara County Parks & Recreation Department
to serve the outlying regions of East San Jose. The Caltrans right-of-way turns at Mt Hamilton Drive, but the wide Santa Clara County right-of-way continues to Alum Rock Park. Caltrans published the Transportation Concept Report (TCR) for State Route 130, November 2016, which does not identify any long range plans for roadway expansion (http://www.dot.ca.gov/dist4/systemplanning/docs/sr130_final.pdf). The TCR acknowledges maintenance and pedestrian needs as part of Caltrans’ roadway responsibilities. The “Complete Streets” program within Caltrans acknowledges opportunities for balancing vehicle traffic with safe pedestrian and bicycle use relevant to the Caltrans segment of Alum Rock Avenue.

FUTURE IMPROVEMENTS
The City and County have no current improvement plans for Alum Rock Avenue along the project study corridor. Within this study corridor, the City only has jurisdiction of Alum Rock Avenue between White Road to Manning/Millar intersection. The concept of adding Class II bike lanes on Alum Rock between White Road and S. Capital Avenue is being evaluated this year by the City*. West of Capitol Avenue, the high traffic volumes, multiple bus lines, and high on-street parking demand does not support Class II or III bike route at this time. The Valley Transportation Authority (VTA) operates bus lines within the project study corridor, and is currently completing a bus rapid transit (BRT) project west of White Road which does not include any bikeway improvements. VTA has no long range improvements planned for the project study corridor.

The City of San Jose has been developing “Urban Village” design concepts for urban retail neighborhoods to promote neighborhood identity. Though the Alum Rock Village was not included in this planning effort, the City has initiated a study to better define and increase visibility of Alum Rock Park’s multiple pedestrian and vehicular entries. Findings from that study are not yet available, but should support further wayfinding in the area.

PEDESTRIAN NEEDS
Alum Rock Avenue is a main corridor connecting citywide residents to Alum Rock Park. While residents use this corridor, the sidewalk/path system is incomplete. The north side of Alum Rock Avenue between White Road and the San Jose Country Club has a 6’ wide sidewalk, parkway planting, and parallel parking; almost a continuous walk up to Miguelita Creek. However, after crossing a pedestrian/bike bridge, the access to Alum Rock Park is a combination of aggregate road shoulder and informal decomposed granite paths.

Throughout the rest of the corridor, sidewalk improvements are minimal; there are occasional short segments of sidewalk on the south side of Alum Rock Avenue, but these are not continuous.

Where topography has separated the roadway from resident driveways, a paved frontage street provides resident vehicle access.

Pedestrians of all ages, including parents with baby strollers, young children, and the elderly, may find street crossing challenging because of gravel paving,

* Class II bike lanes provide a striped lane for one-way bike travel on a street or highway. Class III bike lanes provide for shared use with pedestrian or vehicle traffic.
uneven pavement edges, open storm water channels, and traffic bollards.

There are only three striped street crossings across Alum Rock Avenue and only one signalized crossing at the Kirk Avenue/Fleming Avenue intersection. There are six bus stops within the project corridor. On the south side of the street, access to the bus landings is a challenge. Roadway shoulder slopes have eroded to create uneven walking surfaces. The level of street lighting, particularly at intersections, should be assessed.

BICYCLE ROUTE
While there is regional recreational cycling along the study corridor, it was observed to be mainly experienced cyclists. From White Road to the Kirk Avenue/Fleming Avenue intersection, the wide road offers cyclists an irregular width of pavement outside the fogline striping. Traveling northeast from the intersection, the roadway narrows with little room for bicycles to share with vehicles. With a 35-40 mph speed limit, vehicle traffic moves quickly regardless of wide (15') or narrower (11') road widths. Beyond Mt Hamilton Road, the curving roadway, steep grades, and speeding vehicles make this more hazardous for on-street cycling. The steep topography offers little room for roadway expansion without retaining walls and guardrails.

TRAFFIC
The capacity of Alum Rock Avenue is about 15,000 vehicles per day (Hexagon, Dec. 2015). The existing Level-of-Service (LOS) at Alum Rock Avenue/White Road intersection is measured at LOS D. Existing traffic at the Alum Rock Avenue and Fleming Avenue intersection was recently measured as part of this
This project study portion of Alum Rock Avenue (State Route 130) is forecast to have little growth, though there is expected to be an increase in traffic west of White Road. Under Caltrans standards, Alum Rock Avenue is operating well within capacity with no significant need for road widening. Timely maintenance can help preserve roadway capacity and operational improvements can help maximize operational efficiency and reliability.

**PARKING**
There was no inventory of parking spaces for this study. The design team has observed there is continuous parking by residents along the corridor, whether formal or informal in wide, unassigned road shoulder areas.

If walking or cycling improvements are introduced, there may be some reduction of parking in some locations due to increased traffic control. The informal parking on the north side of the street is typically used by recreational cyclists. Parking near the Mt Hamilton Road intersection is advantageous because it does not impact residents.

The east end of Alum Rock Avenue provides a pedestrian and bicyclist entry to Alum Rock Park. Alum Rock Park visitors park their vehicles for extended periods of time along Alum Rock Avenue and other nearby neighborhood streets. Any reduction in parking availability would impact residents and park visitors. Increased parking limits and enforcement was requested by residents at both community meetings.

**SUMMARY**
Large segments of the road right-of-way are not formally defined for access and parking. Redesign of these areas for improved walking and cycling, with landscape enhancements, is possible while still retaining a less urban appearance.

Closer to the park, the wider right-of-way offers the possibility of a separated trail for pedestrian, bicycle, and equestrian use connecting to the regional Bay Area Ridge Trail.
EXISTING CONDITIONS OVERVIEW

Initial impressions of the corridor are reflected in the following photographs. There are many singular conditions with drain inlets, trees, and varied pavement conditions, but Alum Rock Avenue can generally be segmented into six distinct segments for purposes of discussion and planning.

ALUM ROCK AVENUE STUDY SEGMENTS

1: White Road to Manning Avenue/Millar Avenue
2: Manning Avenue/Millar Avenue to west of Mountain View Avenue
3: Before Mountain View Avenue to Rennie Avenue/Ridgeview Avenue at San Jose Country Club Golf Course
4: Rennie Avenue/Ridgeview Avenue to Miguelita Creek
5: Miguelita Creek to Canyon Drive along San Jose Country Golf Course
6: Canyon Drive to Alum Rock Park

FIGURE 5: ALUM ROCK AVENUE SEGMENTS AND PHOTO KEY
SEGMENT 1: WHITE ROAD TO MANNING AVE / MILLAR AVE

Existing Conditions
• Attractive arrival and transition from Commercial Zone to Residential Neighborhood
• Angled parking
• 100’ wide right-of-way
• Roadway curve and planted median slows traffic
• Transition from four travel lanes to two travel lanes

Opportunities
• Widened sidewalks offer room for bicycle parking, benches, and wayfinding signage for an “urban trail” to Alum Rock Park and Bay Area Ridge Trail.

PHOTO 1-A: Alum Rock Avenue looking northeast between White Road and Stewart Avenue.

PHOTO 1-B: Looking northeast between Stewart and Millar Avenues.
EXISTING CONDITIONS

PHOTO 2-A: Between Harriet Avenue and Rockway Drive looking northeast.

PHOTO 2-B: From Donna Adelle Court and El Campo Drive intersection looking southwest.

SEGMENT 2: MANNING AVE / MILLAR AVE TO WEST OF MOUNTAIN VIEW AVE

Existing Conditions

• South side street shoulder conditions vary greatly—limited curb, gutter and sidewalk at intersections to base rock/chip seal shoulders
• Random parallel, angled, and perpendicular parking
• Utilities generally set back to edge of right-of-way
• Stormwater swales and drain inlets located at edge of travel lane shoulders
• Signalized Kirk Avenue/Fleming Avenue intersection with street light

Opportunities

• Right-of-way varies from 100’ to 112’ wide, with space for “urban trail” enhancement opportunities on south side of street
• Generally flat right-of-way grades
Segment 2: Continued

PHOTO 2-C: At El Campo Drive looking southwest.

PHOTO 2-D: Between El Campo Drive and Kirk Avenue looking northeast.
SEGMENT 3: WEST OF MOUNTAIN VIEW AVE TO RENNIE AVE / RIDGEVIEW AVE AT SAN JOSE COUNTRY CLUB GOLF COURSE

Existing Conditions

- Greater topographic changes from north to south across right-of-way
- Mature trees bisect right-of-way
- Narrower paved area minimizes cyclists zone on roadway
- Narrow frontage drives parallel to Alum Rock Avenue serve as access for residential properties as well as parking for residents
- Miguelita Creek crossing is limited to pedestrian bridge

Opportunities

- Topography changes and trees slow street traffic and provide buffer to properties
- Topography and trees reduce vehicle turns across potential bike/pedestrian zone
- Enhancement opportunities on both sides of street right-of-way for trail access
Segment 3: Continued

PHOTO 3-C: Between Oakmore Drive and Rennie Avenue looking southwest at the residential frontage road.
PHOTO 4-A: Between Ridgeview Avenue and Mount Hamilton Road looking northeast.

PHOTO 4-B: At Mt Hamilton Road looking southwest.

SEGMENT 4: RENNIE AVE / RIDGEVIEW AVE TO MIGUELITA CREEK

Existing Conditions
- Topography and trees constrain the roadway and unimproved shoulder areas
- Highway 130 turns south off Alum Rock Avenue
- Miguelita Creek and bridge limits access enhancement on south side of Alum Rock Avenue
- Gravel shoulder on north side used for cycling staging area (Photo 4-B)

Opportunities
- Pedestrian/bicycle bridge on north side of street provides access over creek ravine
- Good sight lines for narrower vehicle lanes/shared bike lane over bridge
- Space for additional recreational parking on north side of street
- Potential bike/pedestrian trail transition from south to north side of Alum Rock Avenue
Segment 4: Continued

PHOTO 4-C: Miguelita Creek Bridge between Mt Hamilton Road and Cureton Drive looking northeast.

PHOTO 4-D: Miguelita Creek Bridge
SEGMENT 5: MIGUELITA CREEK TO CANYON
DRIVE ALONG THE SAN JOSE COUNTRY CLUB
GOLF COURSE

Existing Conditions

- Increased topography across the right-of-way diminishes potential for bike/pedestrian trail
- Access drives and paths for residents parallel to Alum Rock Avenue are narrow with steep grades on south side of Alum Rock Avenue
- Alum Rock Avenue roadway narrows which requires shared lanes for vehicles/cyclists

Opportunities

- Existing path on north side of right-of-way, is constrained but should be adequate for a shared trail
- Limited opportunity for trail on north side with few driveway crossings
Segment 5: Continued

PHOTO 5-C: Existing path along the Golf Course.

PHOTO 5-D: Existing path near north end of Golf Course.
PHOTO 6-A: North end of Golf Course path looking south near Canyon Drive.

PHOTO 6-B: Looking southwest between Chula Vista Drive and Canon Vista Avenue.

SEGMENT 6: CANYON DRIVE TO ALUM ROCK PARK

Existing Conditions
- Similar to Segment 5 with less topography change across right-of-way
- Access driveways and street parking on both sides
- Steeper gradients on Alum Rock Avenue and side driveways

Opportunities
- Right-of-way offers options for bike/pedestrian enhancements

SUMMARY OF EXISTING CONDITIONS
The right-of-way varies from 100’ to 112’. The topography will create some unique challenges for making improvements. Currently the residents adjacent to Alum Rock Avenue have adequate access and parking but a general concern has been voiced for improving safety for pedestrians and recreationists.
COMMUNITY PARTICIPATION
To reach residents along the corridor, a flier was mailed to 800 addresses. Fifty people attended the first community meeting at the Dr. Roberto Cruz-Alum Rock Branch Library. The project background, planning goals, and initial concepts were presented. Residents were provided opportunities to share verbal and written comments on walking and cycling needs along the corridor up to Alum Rock Park and the Bay Area Ridge Trail. A summary of comments are:

- Traffic and speed of vehicles is a concern, primarily on Alum Rock Avenue east of Kirk Avenue and Fleming Avenue intersection.
- Current loss of parking from Alum Rock Park and potential loss of parking if improvements are made.
- Sidewalks would be valued but there is a desire for a more “natural character” of corridor.
- Cycling and walking is important for the wide variety of users.

As a follow-up to the evening meeting, a Saturday site walk of the entire corridor length, “Walk the Rock,” allowed residents and the design team to observe specific conditions that are perceived obstacles to safe cycling and walking. All conclusions were similar to those at the evening workshop.

DESIGN CONCEPT
Utilizing the underdeveloped areas of the corridor right-of-way, the design concept seeks to enhance walking and cycling options that will provide area residents with more active recreation choices. The diverse issues along the corridor will require varied design responses, however the primary concept recommends:

- Create a “shared street” on the southside of Alum Rock Avenue from Millar Avenue and Manning Avenue to Mountain View Avenue. Integrate a limited access frontage drive for resident property access, parking, informal east/west cycling, and walking similar to other locations on Alum Rock Avenue. Incorporate signage, planting, and pavement treatments to communicate a high priority for pedestrian and bicycle use.
- Create a landscape buffer between Alum Rock Avenue and proposed frontage drive.
- Create buffered east-west bike lanes on Alum Rock Avenue between Millar and Manning Avenues and Mountain View Avenue.
- Modify existing “shared street” frontage drives and landscape buffers between Mountain View Ave and Ridgeview Avenue.
with signage and pavement treatments, retain existing trees, parking, and access for residents.

- Transition all east-west pedestrian and cycling activity to a trail system on the north side of Alum Rock Avenue from Ridgeview Avenue to Alum Rock Park. Utilize the existing pedestrian bridge to cross Miguelita Creek. Incorporate new street parking at the intersection of Mt Hamilton Drive and Alum Rock Avenue for recreational users.

- Create a signage system along the 2-mile plus corridor to highlight bicycle use of street and frontage drives.

- Maximize use of landscape areas for bus stop landings, benches, new trees, stormwater treatment, and low maintenance planting.

- Comply with Caltrans “Complete Streets” planning guidelines to accommodate proposed walking/cycling improvements to corridor with vehicle travel.
There are considerable conditions along the corridor, particularly intersections, that will require further study and variations to the proposed concept.

BICYCLE FACILITIES

Because of the wide variations in existing conditions and possible improvements, the treatments for walking and bicycling may change between segments. Figure 6 aims to help explain how people would get from end to end and what facilities would be available. The goal is to make the transitions as seamless and logical as possible. As Figure 6 shows, after completion, the bicycle access along the Alum Rock Avenue study area could be vastly improved. In many cases, more than one bicycle facility will be offered depending on the rider’s level of comfort.

GENERAL CORRIDOR TREATMENTS

Shade Trees

Street trees can enhance streets both functionally and aesthetically. Trees provide shade for adjacent buildings and to people walking along the sidewalk. Street trees also can slow traffic speeds—especially when placed on a curb extension in line with on-street parking—and may increase pavement life by reducing sun exposure. Aesthetically, street trees frame the street and the sidewalk as discrete public realms, enriching each with a sense of rhythm, character, and human scale.

By careful street tree selection and the use of tree wells, street trees should have a limited impact on the structural integrity of the sidewalk. Native and drought tolerant trees should be prioritized.
High Visibility Crosswalks
There are a variety of high visibility crosswalks including “continental” style, as shown in the photo below. These high visibility crosswalks are more visible to approaching motorists from a greater distance and have been shown to improve yielding behavior especially when used in conjunction with advanced stop lines or yield lines.

Rectangular Rapid Flashing Beacon
A rectangular rapid flashing beacon (RRFB), is a type of active warning beacon that uses an irregular flash pattern similar to emergency flashers on police vehicles and have been shown to have a higher compliance yield rate than standard crossing warning signs and markings or in-pavement lighting. These are typically installed at mid-block crosswalks, not at roadway intersections.

Hybrid Beacon
A hybrid beacon, also known as a High-intensity Activated Crosswalk (HAWK), consists of a signal-head with two red lenses over a single yellow lens on the major street, and pedestrian and/or bicycle signal heads for the minor street. There are no signal indications for motor vehicles on the minor street approaches. These are typically installed on higher speed roadway segments to improve non-motorized crossings of major streets in locations where side-street volumes do not support installation of a conventional traffic signal.

Pedestrian Scale Lighting
Lighting is crucial to the visibility of all roadway users. Major intersections and pedestrian safety islands should be adequately lit with pedestrian-scale lighting (in addition to vehicle oriented lighting) to enhance visibility. Taller, brighter lighting with infrequent placement directed toward the center of the street generally create light and dark pockets and make pedestrians feel less safe. Pedestrian scale lighting has more frequent spacing of lamp posts at a lower height which create a more even light level for pedestrians.

Curb Extensions
Curb extensions, also called bulbouts, visually and physically narrow the roadway, creating more visible and shorter crossings for pedestrians while increasing the available space for street furnishings, landscaping, and street trees. Curb extensions decrease the overall width of the roadway and can serve as a visual cue to drivers that they are entering a neighborhood or other area with more pedestrian traffic. By narrowing the roadway, curb extensions can also
subconsciously trigger drivers to slow down as they travel through an area. Curb extensions also allow for pedestrians to be within the “sight visibility cone” of a motorist, especially as speeds increase above 15-25 MPH.

**Raised Pedestrian Median Refuge Island**
Raised pedestrian median refuge islands are protected spaces placed in the center of the street to facilitate pedestrian and bicyclist crossings. Crossings of two-way streets are facilitated by allowing pedestrians and bicyclists to navigate only one direction of vehicular traffic at a time.

**Bus Stops**
Many segments along Alum Rock Avenue have VTA bus stops. These can be improved with the addition of bus shelters, trash cans, schedules, lighting, and benches. Bus stops can help add character to the neighborhood while providing shelter to those waiting. Many communities have created bus stops that include public art elements. Connectivity to the bus stops can also be improved through the addition of crosswalks and ADA-compliant sidewalk access. The concrete bus pads in the roadway should be maintained so as to not create a hazard for people walking or biking.

**Wayfinding**
Wayfinding or signage assists residents and visitors in finding key community destinations. Signs may include mileage to destinations, typical travel time (walking or biking) or other useful information; however, information should be concise for ease of use.

Wayfinding can also be customized to fit the aesthetic or “brand” for neighborhood identity.

**Street Furnishings**
Street furnishings provide a more human feeling to roadways. Examples include benches, trash cans, street lamps, signs, and public art. Such furnishings can reduce litter, provide opportunities for rest, enhance the community identity, and improve the overall aesthetic and experience of a corridor. Street furnishings can be customized to fit the character of the area.
SEGMENT TREATMENTS

The following sections describe the possible designs and considerations specific for each segment of Alum Rock Avenue.

Segment 1
This segment is located between White Road and Manning Avenue/Millar Avenue. The concept recommends a six-foot bike lane behind the angled parking on both sides of the street. Vehicle travel lane widths do not need to change. There may be opportunities for a bike corral in the dead space created by angled parking.

FIGURE 8: SEGMENT TREATMENTS ALONG ALUM ROCK AVENUE
Segment 1 has a more “urban character” than the rest of the study segments. It has existing sidewalks on both sides of the street and frequent crosswalks for connectivity. Additional street furnishings and bike parking could help to make the segment more inviting for all. These additional amenities could be placed in curb extensions or other locations with wider sidewalks to allow for comfortable passing of pedestrians.
Segment 2
This Segment is located between Manning Avenue/ Millar Avenue and just west of Mountain View Avenue (at the beginning of the residential frontage roads). Figures 10 and Figure 11 show two concepts for how this segment could be reconfigured. Both concepts are the same for the westbound direction, with buffered bike lanes installed between the parking/curb extensions and the vehicle travel lane.

Concept Alternative 2.1A includes a landscaped median/left turn lane in the center of the roadway and a buffered bike lane in the eastbound direction.
Concept Alternative 2.1B also includes an eastbound buffered bike lane between the vehicle travel lane and parking lane. The remaining space could accommodate a planting area, shared street, parking, and sidewalk. The planting area could serve as a stormwater catchment area as well as a potential transition area for neighborhood character enhancement and could include shade trees. The shared street would also accommodate people on bicycles who are less comfortable riding with automobile traffic. A contra-flow lane could be provided to accommodate two-way bicycle travel. A new sidewalk and landscaping would be included for pedestrians.

This segment has several VTA bus stops. Improvements to this segment should include making the stops ADA compliant and providing additional amenities for people waiting at the bus stops.

This segment helps serve as the transition area between the more urban feel of the western end of the Alum Rock Avenue study area and the more rural character at the eastern end. Treatments such as landscaped medians could help with this transition as well as slow drivers down as they travel along this segment.
Alum Rock Avenue/Kirk Avenue/Fleming Avenue Intersection

This intersection is the only signalized intersection along the corridor other than White Road on the western edge of the study area (Segment 1). This intersection is generally seen as the midpoint of the corridor and can serve as a transition between the flatter, more urban segments and the steeper, more rural segments of the corridor. This intersection can also help transition people walking or cycling between a shared path on the south side in Segment 2 to a shared path on the north side in Segment 3.

Existing crosswalks and signalization can be maintained at this intersection, but additional intersection treatments can be added to make this intersection more pedestrian and bicycle friendly. This study looked at potential intersection treatments including retaining the traffic signal or modifying it with a roundabout. Improvements here would differ slightly depending on whether Intersection for Alternative Concept 2.1A or Intersection for Alternative Concept 2.1B is used, but both include enhancements for pedestrian and bicycle visibility, as shown in Figure 12.
and Figure 13. Both concepts include left turn lanes at the intersection.

Curb extensions could be added on the east side of Fleming Avenue to prevent drivers from using the shared street as a travel lane instead of an access route. With this concept, the intersection could also include intersection crossing markings that indicate the intended path of bicyclists. They guide cyclists on a safe and direct path through intersections, including driveways and ramps by clearly defining the boundary of the bicycle lane. The crossing distances for pedestrians is also greatly reduced with this concept with the addition of ADA-compliant curb extensions.

As an alternative to a traffic signal, a roundabout configuration could be considered. The center could be landscaped with a mountable apron for emergency vehicle access. Crossing distances for pedestrians are also reduced due to curb extensions.
Segment 3
This segment is between Mountain View Avenue and Rennie Avenue/Ridgeview Avenue.

This segment is part of the transition between the more urban roadway segments to rural segments. More landscaping can be planted to add to the character of the neighborhood. This short section of roadway could be reconfigured to transition into a shared path on the north side of the roadway. It would include a space for landscaping and parking and buffered bike lanes on both sides of the street. Reconfiguring the roadway will provide a landscaped median/left turn lane approaching the Kirk Avenue/ Fleming Avenue intersection. The south side would include a parking/curb extension space next to the existing sidewalk and landscaping.

Due to the existing frontage roads in this segment, the shared path in Concept 3.1 would transition into a shared street for Segment 3.2 (similar to previous segments). The space between the frontage road and Alum Rock Avenue includes a significant amount of vegetation and a slope, which provides the character preferred by residents. Figure 16 shows the transition from Concept 3.1 to Concept 3.2. On the
north side, the sidewalk and landscaping would not change. However, the westbound vehicle lane could become a shared street where people on bicycles traveling fast down the hill could share the lane with vehicles. A smaller contraflow bike lane could be included for the bicyclists who may be traveling slower as they travel uphill and do not feel comfortable taking a full lane. The existing landscaping and slope could be maintained up to the main road that could be designated as a Class III Bike Route with shared lane markings and signage. Again, the existing landscaping and slope could be maintained down to a new shared street that could provide parking and access to homes. A new sidewalk would also be included in this design.

Alum Rock Avenue/Mountain View Avenue Intersection
As part of the potential reconfiguration of Alum Rock Avenue, the intersection of Alum Rock Avenue with Mountain View Avenue should also be considered.

There are several ways this intersection can be reconfigured to better accommodate pedestrians and bicyclists. In Figure 16, motorists or bicyclists traveling south on Mountain View Avenue must turn right onto the frontage road prior to turning left onto Alum Rock Avenue. Yield markings and intersection crossing markings would be added to warn drivers to use caution when approaching the intersection and to guide bicyclists.
FIGURE 16: SEGMENT 3 | CONCEPT 3.3 MOUNTAIN VIEW AVENUE INTERSECTION
Segment 4
Segment 4 is between Rennie Avenue/Ridgeview Avenue to Miguelita Creek.

Unlike past sections with large, undeveloped roadway space, these existing roadway segments would be modified to better accommodate and connect people along the corridor. As shown in Figure 17 and Figure 18, Segment 4.1 has two different concepts. If reconfigured, it could include a paved bicycle and pedestrian path next to an unpaved walking/equestrian path. It would maintain the existing landscaping and slope up to the travel way which would have
parallel parking lanes on either side of the Class III designated Bike Route with bicyclists sharing the roadway with vehicles. In order to accommodate the large amount of people driving and parking in order to ride bikes, a variation of Concept 4.1A could include back-in angled parking. Concept 4.1B also includes a sidewalk and a wide landscaping area next to the existing informal travel lane that residents use to access their homes.

Concept 4.2 includes the same bike/pedestrian/equestrian paths with landscaping and slope leading to the vehicle travel way. This concept includes back-in angled parking on the north side of the Class III designated Bike Route with parallel parking on the south side. Back-in angled parking provides more benefits than head-in angled parking because it increases visibility between all modes when leaving the parking space and allows for a safe space for

FIGURE 18: SEGMENT 4 | ALTERNATIVE CONCEPT 4.1B - RENNIE AVENUE / RIDGEVIEW AVENUE TO MIGUELITA CREEK
people to unload their bicycles to use the trail or access the park. The sidewalk would still be installed on the south side of the roadway, but the landscaping space would be narrow. The existing informal travel lane would remain as is.

Concept 4.2 is at Miguelita Creek Bridge. To better accommodate people on bicycles, the bollards could be removed at both ends of the pedestrian and bike bridge.
Alum Rock Avenue / Mt Hamilton Road Intersection
During public outreach, it was revealed that many people park near the intersection of Alum Rock Avenue and Mt Hamilton Road, cross the roadway, and either walk or bike up Alum Rock Avenue to Alum Rock Park. Therefore, concepts were developed for this intersection to help improve the conditions for pedestrians and bicyclists. There are many potential reconfigurations for this intersection. For instance, traffic calming elements could be added to slow down drivers as they travel through the intersection while maintaining the current alignment. Or, the intersection could be completely reconfigured to incorporate turning movements for drivers in order to slow them down.

Figure 20 shows the existing condition where those traveling along Alum Rock Avenue would have uninterrupted travel through that intersection. Traffic calming features could be added to slow down drivers as they travel through this intersection. For example, the right-hand turns from Alum Rock Avenue and from Mt Hamilton Road could be tightened through use of curb extensions so drivers could not speed as they turn.

Mt Hamilton Road is the continuation of State Route 130. Therefore, Figure 21 shows a different option. In this option, those traveling west on Alum Rock Avenue would need to come to a stop at the Mt Hamilton Road intersection before turning either onto Mt Hamilton Road or continuing on Alum Rock Avenue. Those traveling eastbound on Alum Rock Avenue or northbound onto Mt Hamilton Road would have uninterrupted travel at the intersection. This could be done through a curb extension on the north and southeast sides. The curb extension on the north side could provide plenty of landscaping and could even act as a gateway with public art.

Another option for reconfiguration of the intersection, as shown in Figure 22, includes a roundabout. The roundabout design would slow down motorists prior to entering the intersection from all sides and crossing distances for pedestrians would be shortened.
FIGURE 20: SEGMENT 4 | ALTERNATIVE CONCEPT 4.3A - MT HAMILTON ROAD INTERSECTION / ALUM ROCK AVENUE EXISTING “T” CONFIGURATION
FIGURE 22: SEGMENT 4 | ALTERNATIVE CONCEPT 4.3C - MT HAMILTON ROAD ROUNDBOAUTH
Segment 5
Segment 5 is between Miguelita Creek to Canyon Drive along the San Jose Country Golf Course.

The existing paved portion in Segment 5 has less available space and has a narrower and steeper slope than Segment 4. Concept 5 would pave the existing bicycle/pedestrian path next to the golf course, but leave an unpaved portion for walking or equestrian use. The landscaping slope would remain, with improved drainage and utility access. The vehicle travel lane would be designated as a Class III Bike Route and the existing landscaped slope and informal travel lane would remain as is as there would not be enough roadway space to accommodate Class II bicycle lanes. The bicyclists who are uncomfortable or not traveling fast enough to safely share the roadway with vehicles could use the path next to the golf course.

FIGURE 23: SEGMENT 5 | CONCEPT 5 - MIGUELITA CREEK AND CANYON DRIVE

LEGEND
Typical Alum Rock Ave
Study Segments
Segment Numbers
Segment 6
Segment 6 is between Canyon Drive and Alum Rock Park.

Segment 6.1 is from Brundage Way/Alum Rock Avenue to approximately 200 feet east of Chula Vista Drive. Segment 6.2 is located approximately 200 feet east of Chula Vista to Alum Rock Park.

Continuing from Segment 5, Segment 6.1 would include a paved bicycle and pedestrian path next to an
unpaved walking/equestrian path on the north side. It also includes a Class III Bike Route surrounded by the sloped landscaping. The informal parking and travel lane would remain as is.

Segment 6.2 approaching Alum Rock Park is generally a flat road except for the south frontage road, but toward Chula Vista Drive the homes drop off and three levels emerge (north, middle, south sides).

Modifications to this segment could include a paved bicycle and pedestrian path next to an unpaved walking/equestrian path on the north side. Grade changes on the north side can be accommodated with landscaping. Parallel parking can be added to the street. The southern existing landscaping and slope would remain as would the parking and travel lane.

**FIGURE 25: SEGMENT 6 | CONCEPT 6.2 - ≈ 200’ EAST OF CHULA VISTA DRIVE TO ALUM ROCK PARK**
ALUM ROCK PARK ENTRANCE
To improve the entrance to Alum Rock Park, the driveway and roadway connections could be formalized and a designated space provided for people walking, bicycling, and on horseback to access the park. Through the outreach process it was revealed that once people reach the park, they have to turn around to find parking. To facilitate this movement, a roundabout/cul-de-sac could be added, which would also accommodate emergency vehicle access. Potential gateway options are included below. The City of San Jose is currently preparing an Alum Rock Park Gateway and Wayfinding Study. That study should be considered with any proposed improvements at the entrance to Alum Rock Park.
CONCEPTUAL COST

Conceptual costs for changes to existing streets have been estimated based on similar roadway improvements in 2016. Final development costs will include additional costs for public agency administration, environmental review, or other coincidental roadway changes not identified at this time.

IMPLEMENTATION

The County of Santa Clara and community have developed a shared vision for enhancing the recreational value of Alum Rock Avenue.

Once the feasibility study is accepted by the County Board of Supervisors, it is expected that the Roads and Airports Department will be the lead agency for the County. As the recommendations are integrated into the County and Caltrans work plans, the plan will likely be broken into phases as budgets allow. The Santa Clara County 2016 Measure B sales tax is potentially the primary source of funding for the County’s share of this project.

When funded, preliminary design and supplemental traffic studies can begin in coordination with Caltrans and VTA. The concepts in this feasibility report will likely be modified by each agency’s design standards specific to each particular street segment.

### ALUM ROCK AVENUE STUDY SEGMENTS COSTS

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<td><strong>8,626,829</strong></td>
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### ADDITIONAL FEATURES:

- Kirk Ave/Fleming Avenue Intersection Options: $1,676,080
- Mt Hamilton Road Intersection Options: $1,254,500
- Alternate Roundabout at Alum Rock Avenue Park Entrance: $450,000

**GRAND TOTAL:** $12,007,409

*Note: Variations within segments as well as alternative configurations are included in the costs above. The magnitude of change between intersection options is minimal. Costs shown for intersection options are representative of either option at each location.*