Circulation

Suisun Valley's roadway network will be designed to support a range of desired agricultural and tourist uses and achieve the following goals:

- Allow for continued use of local roads by agricultural vehicles.
- Facilitate safe, barrier-free pedestrian access between points of interest.
- Maintain the rural character of the area.
- Discourage high speed vehicular travel.
- Improve life safety access during major storm events.

Planned improvements for Suisun Valley roadways will handle the expected increase in vehicle traffic volumes over the next twenty years, both from commuting trips passing through Suisun Valley and trips to and from destinations within the Valley. The improvements are also designed to address growth in nonauto travel modes such as bicycling and walking.

To allow for needed improvements within the financial resources available, the County proposes three phases of roadway improvements to address a variety of issues identified by the community for Suisun Valley Road, Mankas Corner Road, Rockville Road, and Abernathy Road (See Figure 2-4). The vision underlying this approach is to create a tiered plan that achieves some of the goals listed above in the short-term, and ultimately satisfies all of the goals in the long-term. Although these are presented sequentially, it is expected that some portions of phases could be implemented as funding becomes available.

Phase I Improvements

Phase I provides limited, spot improvements that reduce speed, provide dedicated left-hand turns, improve pedestrian crossings, and provide new pathways. These improvements will occur near and fronting ATCs along Morrison Lane, at Gomer School, and surrounding the Mankas Corner Rd/Clayton Rd intersection.

The costs to improve these areas are provided by location and by type of cost in the tables at the end of the section. The total cost of $4.6 million is divided among the three ATCs, as follows:

- Mankas Corner
  - Approach Prototype – $ 858,000
  - ATC Prototype – $710,000
- Gomer School
  - Approach Prototype – $1,195,000
  - ATC Prototype – $670,000
- Morrison Lane
  - Approach Prototype – $540,000
  - ATC Prototype – $640,000

Phase II Improvements

Phase II improvements would expand right-of-ways, improve utility pole placement, slow traffic, and provide dedicated left-hand turns in addition to the improvements described in Phase I. Phase II improvements would occur along Suisun Valley Road, Mankas Corner Road, Abernathy Road, and Rockville Road.

Costs to improve these areas are separated by location. The total cost of $39.6 million is divided among the locations, as follows:

- Suisun Valley Road - $23.5 million

- Rockville Road – $6.3 million
- Abernathy Road - $5.6 million
- Mankas Corner Road – $4.2 million

Phase III Improvements

Phase III improvements expand upon Phase II improvements, establishing pedestrian crossings, pathways, and bicycle and equestrian access. These improvements will occur along Suisun Valley Road, Mankas Corner Road, Abernathy Road, and Rockville Road.

These costs to improve these areas are separated by location. The total cost of $3.7 million is divided among the locations, as follows:

- Suisun Valley Road - $2.1 million
- Rockville Road – $1 million
- Abernathy Road - $360,000
- Mankas Corner Road – $258,000

Other Improvements

Other improvements could address recurring flooding along portions of Abernathy Road, Mankas Corner Road, Suisun Valley Road, and Rockville Road. This flooding is associated with the 100-year floodplain. These areas have a one percent or greater chance of flooding each year. Improvements may include constructing up-stream reservoirs or detention basins or raising affected road segments one foot above flood level. The cost to raise roadways and associated potential negative environmental effects must be considered when selecting improvement options.

The North Connector project is a four-mile corridor proposed to extend through the suburban commercial district near the Cordelia Junction and connect with Abernathy Road. The North Connector project is not part of this strategic plan but is nevertheless a significant project within the area. The North Connector would create new roads between Red Top Road and Business Center Drive and Suisun Valley Road and Abernathy Road. The Business Center Drive/Mangels Boulevard intersection would be reconstructed to align the main flow of traffic along Business Center Drive.

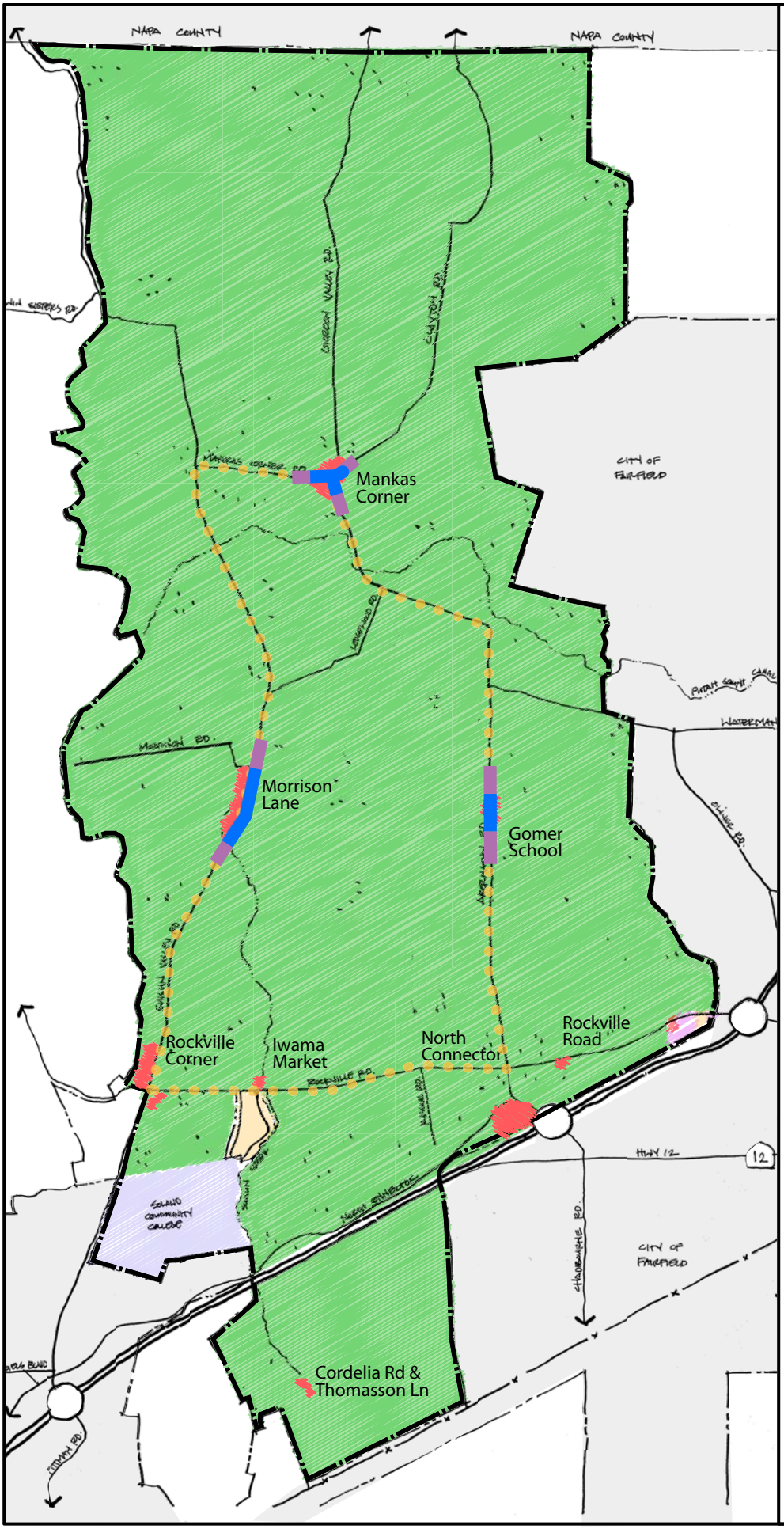
Background

The majority of Suisun Valley roads are located in areas that have a strong rural identity. These rural roads are generally two-lane roads with little to no shoulders for a significant portion of their lengths. Properly-sized shoulders are necessary to park disabled vehicles off of the roadway and onto the shoulder. Surrounding topography is relatively flat, but there are small areas along various roadway stretches that have moderate elevation differences (side slopes in excess of 2:1) between the roadways and the adjacent land. These steep slopes are also a major constraint to widening a road that both vehicles and bicyclists will use. Utility poles are located very close to the pavement on most Suisun Valley roads. Several historic, narrow bridges contribute to the rural character of the Valley and present additional constraints to roadway expansion.

According to American Association of State Highway and Transportation Officials (AASHTO), standards, the proper lane width for a collector roadway type is 12 feet. Shoulder width should be eight feet to allow for disabled vehicles to pull off the road as well as accommodate pedestrians and or bikes in a rural setting. Where driveway volumes are high, dedicated left-turn pockets are desirable. Similarly, the adopted County Road standards recommend 12-foot lanes for roads, with shoulders as follows:

- Between 751 and 4,000 vehicles per day (vpd): four feet graded
- Between 4,001 and 10,000 vpd: four feet graded and four feet paved

With the proposed increase in vehicles on the project roads over the next 20 years, existing shoulders should be widened to meet the demand. Existing and projected 2030 traffic volumes for the project roads are shown in Table 2-3.



Suisun Valley Strategic Plan

Figure 2-4

Roadway Phases

Legend

- Phase I - ATC Prototype
- Phase I - Approach Prototype
- Phase II and III

Land Use Designations

- Agriculture
- Traditional Community - Residential
- Neighborhood Commercial
- Service Commercial
- Public/Quasi-Public
- Neighborhood Agricultural/Tourist Center

0 900' 1800'

NORTH

SOLANO COUNTY 1850

2/02/10

Table 2-3
Existing (2008) and Projected 2030 Traffic Volumes

Roadway	Existing 2008 Volume (vpd)	Projected 2030 Volume (vpd)
Suisun Valley Road	2,600	8,300
Mankas Corner Road	2,600	3,800
Abernathy Road	6,900	9,200

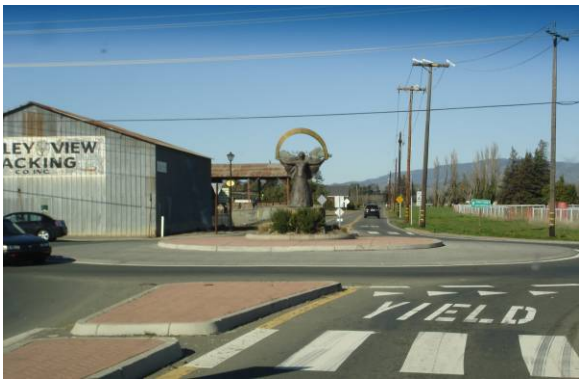
EXISTING CONDITIONS

Mankas Corner Road

Mankas Corner Village area

Mankas Corner Road is a rural two-lane road extending approximately 1.9 miles between Suisun Valley Road and Abernathy Road. Lane widths are 10.5 feet with paved shoulders between zero and seven feet wide at varying locations. Terrain is relatively flat with short stretches of road that have steep side slopes of 2:1. Utility poles are placed relatively close to the pavement edge at different locations.

Abernathy Road



Existing roundabout at Abernathy and Rockville Roads

Abernathy Road is a rural two-lane road running approximately 1.8 miles between Rockville Road and Mankas Corner Road within the Suisun Valley. Lane widths range between 11 and 13 feet. Paved shoulders occur frequently and fluctuate between zero and seven feet. Lands adjacent to Abernathy Road are relatively level with the road. Utility poles are placed relatively close to the edge of pavement at different locations.

A roundabout is located at the intersection of Abernathy Road and Rockville Road. The diameter of round-a-bout is approximately 110 feet with a lane width of approximately 20 feet. Lane approach widths in the north and south directions are 11 feet. Portions of Abernathy Road are periodically inundated by floodwater that occurs when Suisun Creek overtops its bank.

Suisun Valley Road

Suisun Valley Road is a local/rural two-lane road, approximately eight miles in length that extends from I-80 in Fairfield to the Solano County/Napa County line. Approximately seven miles of Suisun Valley Road from Monte Vista Court to the Solano County/Napa County line is located within the Suisun Valley Agricultural Region. A small portion of Suisun Valley Road runs through a suburban commercial district within the City of Fairfield, while the remainder of the road extends through a more rural area north of the city limits. The speed limit ranges from 15 miles per hour (mph) to 55 mph. Lane

widths are 12-feet with intermittent paved shoulders on both sides.

Existing Bridge on Suisun Valley Road

Shoulder widths range between zero and seven feet. Side slopes vary in steepness from flat to greater than 2:1. Two bridges along Suisun Valley Road cross Suisun Creek at approximately 1.3 miles north of Rockville Road, and approximately 100 feet south of Twin Sisters Road. Their lengths are approximately 100 feet and 150 feet respectively. Drainage swales comprised of rock and grass are located on both sides of the road. Culverts are located near driveways and streets intersecting Suisun Valley Road.

Rockville Road

Rockville Road in Suisun Valley is a two-lane local road that covers approximately three miles between Suisun Valley Road and the Fairfield City Limits just west of I-80. Lane widths are 12 feet with paved shoulders on both sides of the roadway along the majority of the route varying in width between zero and seven feet. Side slopes are mostly gradual, except for a very small area with steep slopes. A bridge with four-foot shoulders crosses Suisun Creek just west of Willotta Drive.

Roadway Design Solutions

Proposed Phase I Improvements

One of the major points of interest for the Suisun Valley is the initial development of ATCs at Mankas Corner, Gomer School, and Morrison Lane. These centers will attract vehicles and generate pedestrian activity; thus, improvements should slow vehicles as they approach ATCs and accommodate vehicles entering and exiting tourist uses at each center.

Mankas Corner

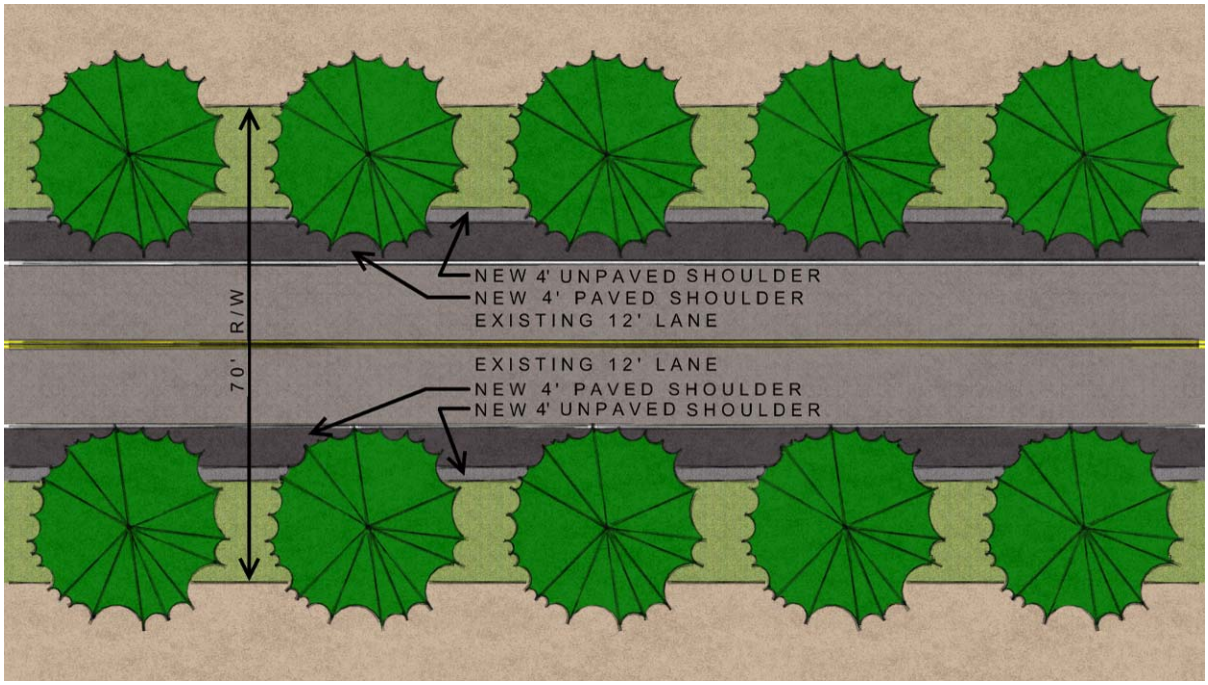
Phase I Improvements Approaching Mankas Corner ATC

Traffic calming treatments for Mankas Corner Road and Clayton Road would be used to calm traffic as it approaches the village area. These treatments should begin approximately 1/4 mile from the Mankas Corner intersection along each street.

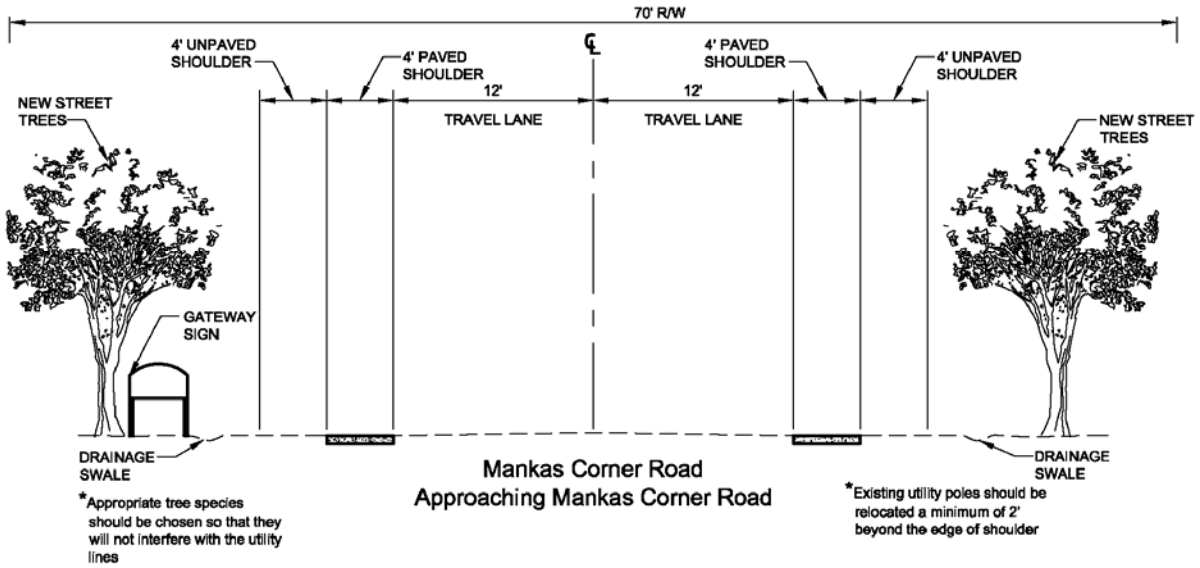
The right-of-way would be widened to a minimum of 70 feet to accommodate new shoulders, trees, and other improvements. Left turn pockets should be considered for driveways. High-visibility pedestrian crossings should be installed where the path of travel for tourists is apparent. Transverse pavement markings (e.g., chevron markings, optical bars) may also be used in conjunction with the trees to aid in slowing traffic. Transverse markings should be spaced a predetermined distance to give drivers the perception they are speeding up, which in turn should increase speed awareness and cause them to slow down.

New street trees, spaced 35 to 45 feet apart, should be placed on both sides of Mankas Corner Road and Clayton Road, in tandem with new gateway signage announcing entrance to the ATC. The gateway sign should be large enough to attract driver attention.

The following plan and section views show how Phase I roadway improvements could be implemented on Mankas Corner Road and Clayton Road.



Proposed improvements along Mankas Corner Road and Clayton Road adjacent to the Mankas Corner ATC



Section showing proposed improvements on Mankas Corner Road on the approach to Mankas Corner ATC.

Phase I Improvements within Mankas Corner ATC

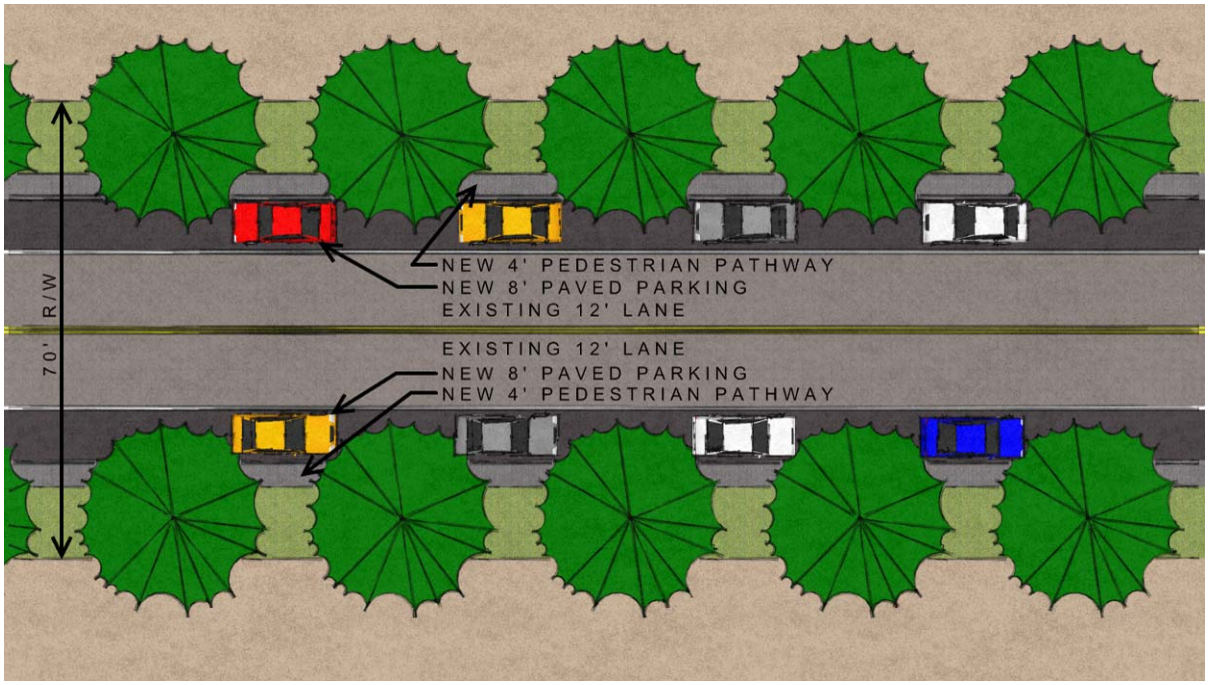
The Mankas Corner ATC area could extend up to 400 feet from the intersection of Mankas Corner Road and Clayton Road. The right-of-way would be widened to a minimum of 70 feet to accommodate new shoulders, trees, and other improvements. On-street parking is recommended within the ATC as a traffic calming measure. This would require widening the existing shoulders to 8 feet: 4 feet paved and 4 feet unpaved. These improvements will encourage drivers to slow down and be more aware of the surroundings. As the area develops, pedestrian activity is anticipated on both sides of the roads, including crossings at marked crosswalks. A minimum 4-foot decomposed granite pedestrian pathway should be provided along the on-street parking areas.

Marked pedestrian crosswalks are recommended at the Mankas Corner intersection. Mankas Corner Road and Clayton Road should be redefined using on-street parking, sidewalk pathways, and defined driveways. As vehicles approach the intersection, the perceived narrowness of the road caused by the parking, along with the observation of pedestrians in the area, should induce drivers to slow down. With on-street parking, farm equipment vehicles should not be allowed within the village, except during posted periods of time when there is no on-street parking (e.g. early in the morning, late in the evening).

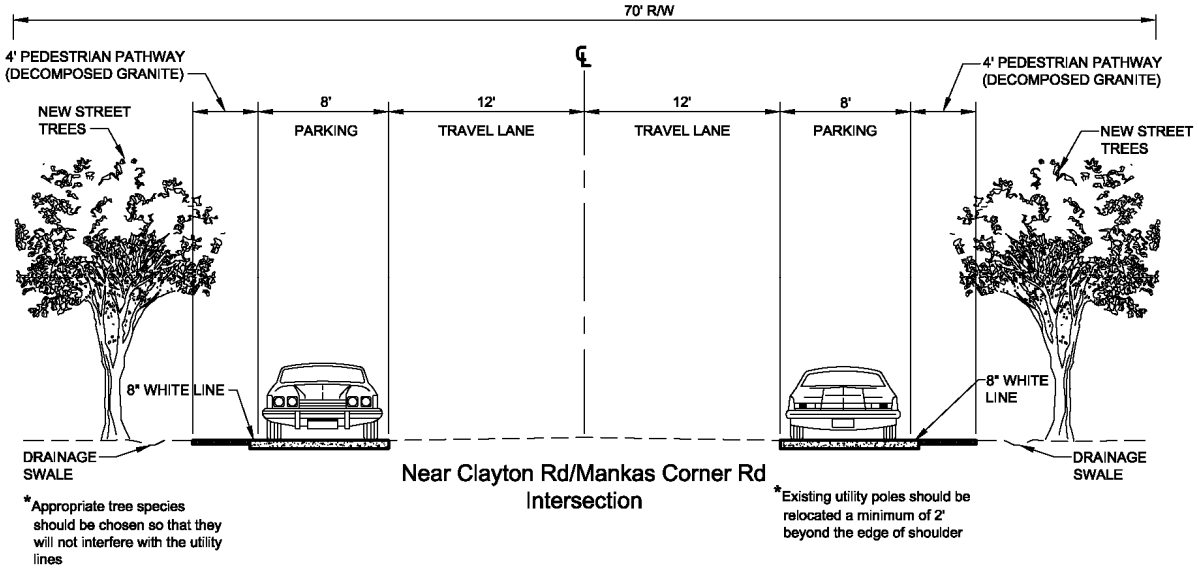
A parking district should be set up to allow businesses to share parking. Parking could be on- or off-street. Off-street parking could be combined into one location and the costs of providing this would be distributed among the various businesses.

On-street parking could be designed as parallel or perpendicular but should be designed to accommodate both bicyclists and pedestrians. The design of this parking would be resolved through further parking studies and discussions with property and business owners within the Mankas Corner ATC.

The following plan and section views show how Phase I roadway improvements could be implemented at Mankas Corner. These diagrams show parallel on-street parking. If desired, angled or perpendicular parking could also be used. Angled and/or perpendicular parking would require more right-of-way than parallel parking, but would provide more on-street spaces.



Proposed Improvements along Mankas Corner Road and Clayton Road within the Mankas Corner ATC



Section showing proposed improvements near the intersection of Clayton Road and Mankas Corner Road in the Mankas Corner ATC.

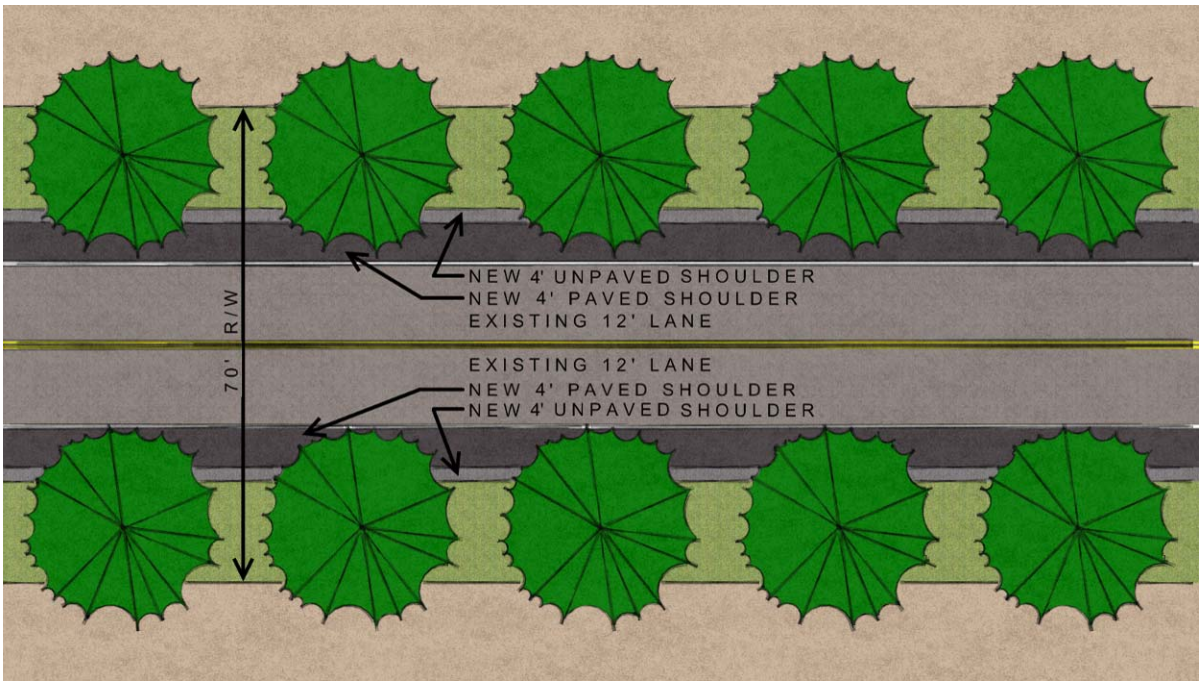
GOMER SCHOOL

Phase I Improvements Approaching Gomer School ATC

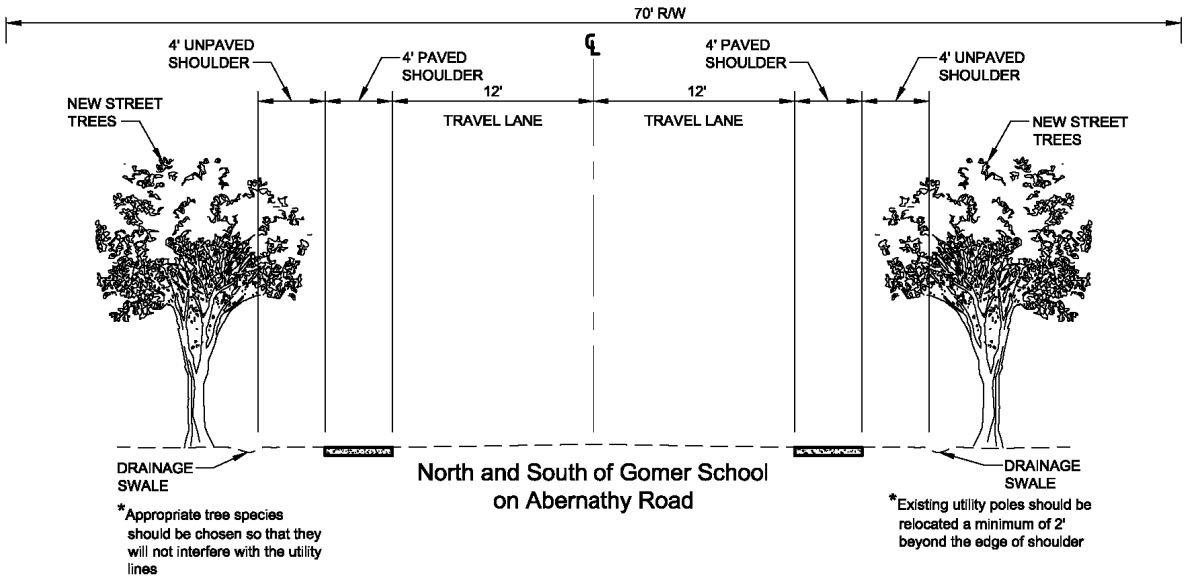
Traffic calming measures along Abernathy Road would decrease vehicle speed as vehicles approach Gomer School. Slowing traffic at this location would allow safe entry/exit into and out of the ATC. The right-of-way would be widened to a minimum of 70 feet to accommodate new shoulders, trees, and other improvements. New street trees, spaced 35 to 45 feet apart, are proposed north and south of Gomer School on both sides of Abernathy Road. As these trees mature, they will create an appearance of arrival for the ATC, as well as a perception that the road width is narrowed, encouraging drivers to slow down.

Since the Gomer School ATC is in an isolated location where approaching vehicle speeds could be high, vehicle-actuated speed signs and/or reduced speed limits could be used to reduce vehicle speeds. Substantial pedestrian activity is not expected, therefore shoulders would suffice for occasional pedestrian activity. Signage should be added to alert motorists of potential pedestrian activity. AASHTO recommends that shoulders be set at a minimum width of eight feet to provide ample pull-off space for a vehicle breakdown. For Abernathy Road, four-foot paved and four-foot unpaved shoulders will provide a perception of a narrower shoulder width. Vertical obstructions such as utility poles or decorative walls should be set back 20 feet from the edge of the travel lane.

The following plan and section views show how Phase I roadway improvements could be implemented on Abernathy Road.



Proposed Improvements along Abernathy Road adjacent to the Gomer School ATC



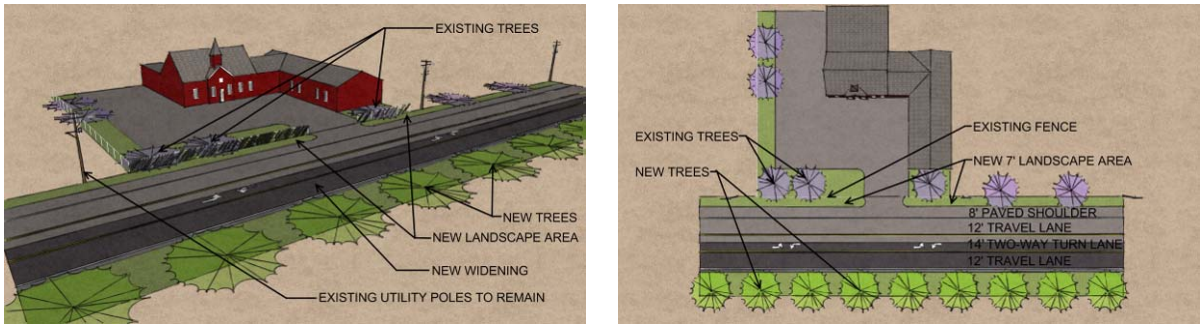
Section showing proposed improvements along Abernathy Road approaching the Gomer School ATC.

Phase I Improvements within Gomer School ATC

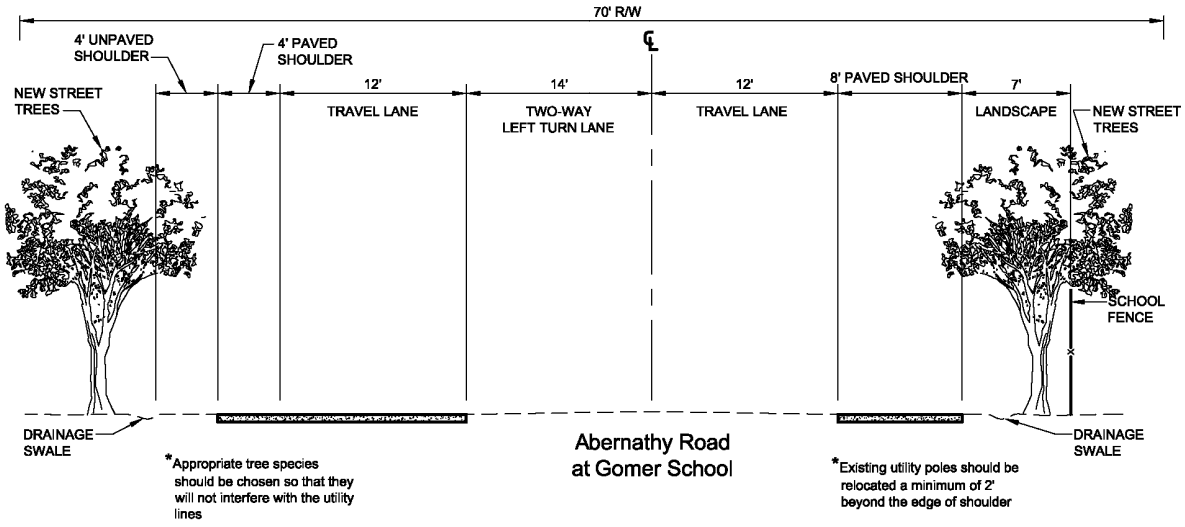
At the Gomer School ATC, Abernathy Road would be widened to provide a two-way left turn lane to allow safe entry/exit into and out of the center. The right-of-way would be widened to a minimum of 70 feet to accommodate new shoulders, trees, and other improvements. Street trees are proposed for both sides of Abernathy Road and shoulders would be paved and widened to eight feet on each side. The shoulders would provide some additional room for oversized agricultural equipment. However, the widened shoulders are not intended to provide alternate access for farm equipment. Since on-site parking is allowed, pedestrian activity would be focused on school grounds for the immediate future.

A new landscaped area should be constructed fronting the school to improve its appearance from the roadway. Due to the widening of the road, existing drainage swales would be relocated along the wider right-of-way. Pedestrian areas should be marked by crosswalks or a change in color or materials.

The following plan and section views show how Phase I roadway improvements could be implemented on Abernathy Road.



Proposed Improvements along Abernathy Road within the Gomer School ATC



Section showing proposed improvements along Abernathy Road at the Gomer School ATC.

MORRISON LANE

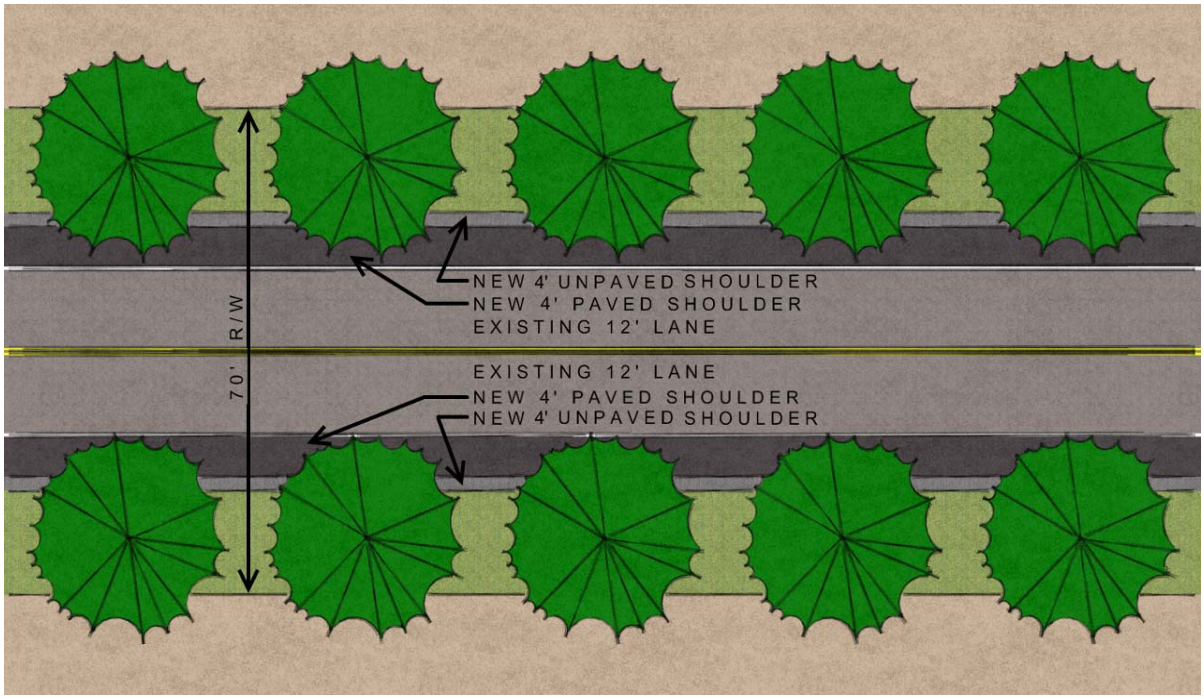
Phase I Improvements Approaching Morrison Lane ATC

Traffic control measures will decrease vehicle speeds along the approach to the Morrison Lane ATC, providing safe ingress and egress into and out of the center. One way of creating a sense of arrival is to change the character of the road by introducing regularly spaced street trees set back from the edge of road. For a road with a speed of 45 miles per hour or less trees should be set approximately 20-feet from the edge of the travel lane. Trees should line both sides of Suisun Valley Road, beginning at Suisun Creek and ending before the center, and beginning again after the center and continuing to Morrison Lane. These trees should be spaced 35 to 45-feet apart, depending upon the species selected. As these trees mature, they improve surrounding aesthetics and give drivers a visual perception of entering a tourist area. Transforming wide open terrain to a driver-perceived narrow road should induce drivers to slow down.

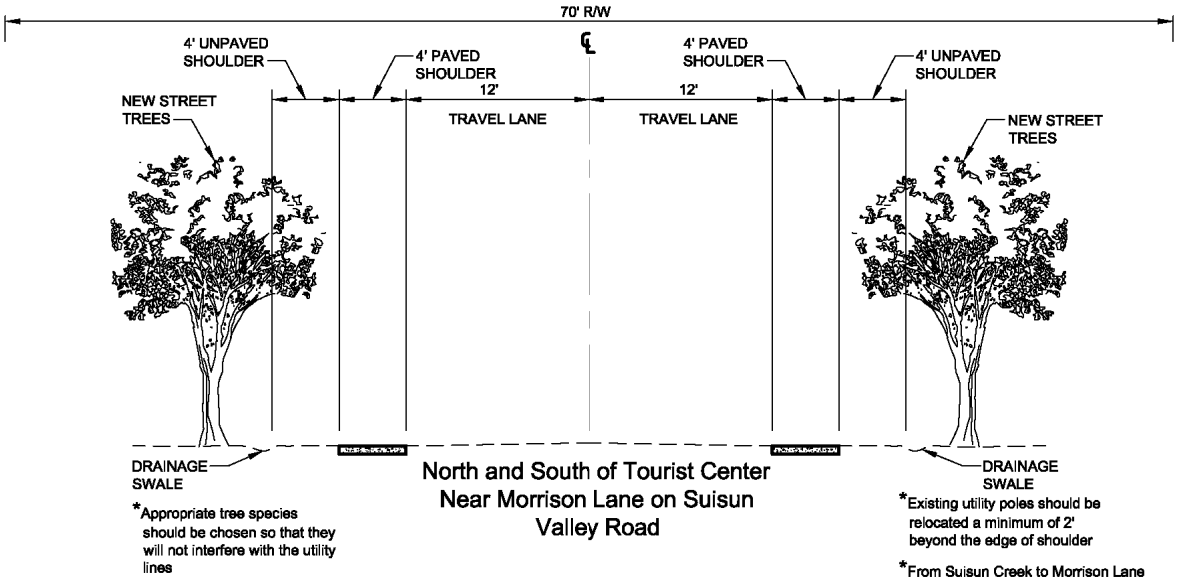
The right-of-way would be widened to a minimum of 70 feet to accommodate new shoulders, trees, and other improvements. Left turn pockets should be provided for driveways. High-visibility pedestrian crossings should be installed where the path of travel for tourists is apparent. Transverse pavement markings (e.g., chevron markings, optical bars) may also be used in conjunction with the tress to aid in slowing traffic. Transverse markings should be spaced to give drivers the perception they are speeding up, which in turn should increase speed awareness and cause them to slow down. The specific distance would be included in the plans and specifications for the roadway design, depending on the speed expected and the speed desired.

AASHTO recommends that shoulders be set at a minimum width of eight feet to provide ample pull-off width for vehicle breakdowns. For Suisun Valley Road, four-foot paved and four-foot unpaved shoulders will provide a perception of a narrower shoulder width. Vertical obstructions such as utility poles or decorative walls should be set back 20 feet from the edge of the travel lane. These shoulders would provide some additional maneuvering room for oversized agricultural equipment, but are not intended to provide an alternate access for farm equipment.

The following plan and section views show how Phase I roadway improvements could be implemented on Suisun Valley Road.



Proposed improvements along Suisun Valley Road adjacent to the Morrison Lane ATC

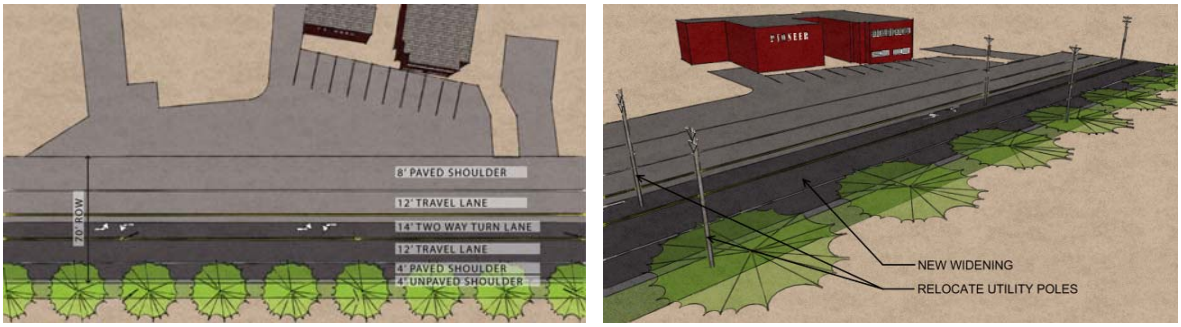


Section showing proposed improvements along Suisun Valley Road approaching the Morrison Lane ATC.

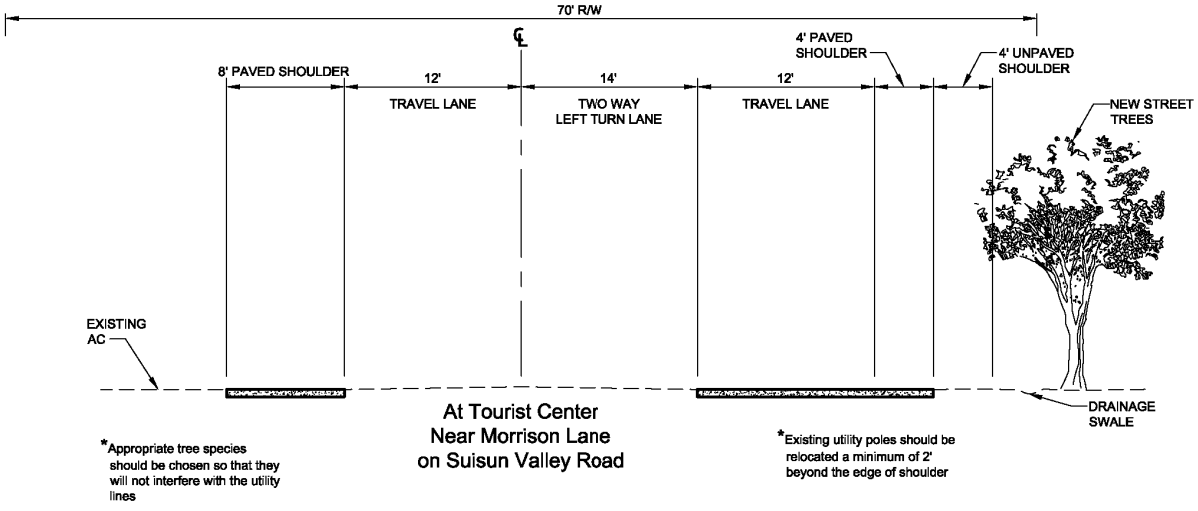
Phase I Improvements within Morrison Lane ATC

At the Morrison Lane ATC, Suisun Valley Road would be widened to provide a two-way left turn lane to allow safe entry/exit into and out of the center. The right-of-way would be widened to a minimum of 70 feet to accommodate new shoulders, trees, and other improvements. Street trees are proposed only for the east side of the road to provide adequate sight distance for vehicles leaving the center, and eight-foot shoulders are recommended. Since on-site parking is allowed within the ATC and the ATC does not extend across Suisun Valley Road, pedestrian activity would be limited to the parking lot area only. Due to the two-way left turn lane and shoulder widening, existing drainage swales would be relocated along the edge of the wider right-of-way.

The following plan and section views show how Phase I roadway improvements could be implemented on Suisun Valley Road.



Proposed Improvements along Suisun Valley Road within the Morrison Lane ATC



Section showing proposed improvements along Suisun Valley Road at the Morrison Lane ATC.

Proposed Phase II Improvements

Beyond improvements that directly benefit the ATCs, Suisun Valley roadways would also benefit from more general roadway repairs and enhancements that would improve the function and operation of each road. This would allow the Valley's "loop" roadway system to more effectively carry through traffic, while also providing improved access to properties. The following paragraphs define Phase II improvements to Suisun Valley roads.

Suisun Valley Road Phase II Improvements

Some segments of Suisun Valley Road have minimal shoulders and side slopes in excess of 2:1. In those areas, significant earthwork would be required to support widening the roadway to accommodate eight-foot shoulders. Side slopes should be appropriately designed and guardrails should be placed in these areas. Guardrails should generally be considered only on the outside of curves where there is a substantial drop. Utility poles that encroach upon the widened shoulder would also require relocation.

Rockville Road Phase II Improvements

Shoulders should be added and/or widened along portions of Rockville Road to accommodate the difference in elevation between the road and adjacent lands. Shoulders along Rockville Road should be eight feet wide: consisting of four feet of paved asphalt and four feet of unpaved shoulder. These shoulders would act as a pull-off area for vehicle break-downs. The widened shoulder would also provide additional room for wide farm vehicles.

Roadside safety should be a prime consideration in areas where there is an elevation difference between the road and the adjacent land. Adequate side slopes should be incorporated, and guardrails should be added where warranted.

Abernathy Road Phase II Improvements

Currently, Abernathy Road has no major obstacles preventing the placement and widening of paved shoulders. Adjacent land is relatively level, so increasing shoulder widths would require limited amounts of earthwork, aggregate base, and pavement. Above-grade utilities located within the shoulder reconstruction area would require relocation two feet beyond the new edge of shoulder. The ultimate cross-section for Abernathy Road would feature 12-foot travel lanes with eight-foot shoulders: four feet paved and four feet unpaved.

Mankas Corner Road Phase II Improvements

Shoulders along Mankas Corner Road should be eight feet wide: consisting of four feet of paved asphalt and four feet of unpaved shoulder. These shoulders would act as a bike lane, as well as a pull-off area for vehicle break-downs. The widened shoulder would also provide additional room for wide farm vehicles. The land adjacent to Mankas Corner Road is relatively level, so increasing roadway width would require a minimal amount of earthwork.

Proposed Phase III Improvements

Phase III improvements to Suisun Valley roads expand Phase II improvements to accommodate bicycle, pedestrian, and equestrian traffic. This would include signs, striping, and bridge widening to accommodate non-vehicular traffic.

Suisun Valley Road Phase III Improvements

Bridges that are too narrow to accommodate bicyclists and vehicles safely would be widened to allow effective sharing of the roadway for both vehicles and bicyclists. Shoulders would be striped to indicate bike paths and additional signs would be added.

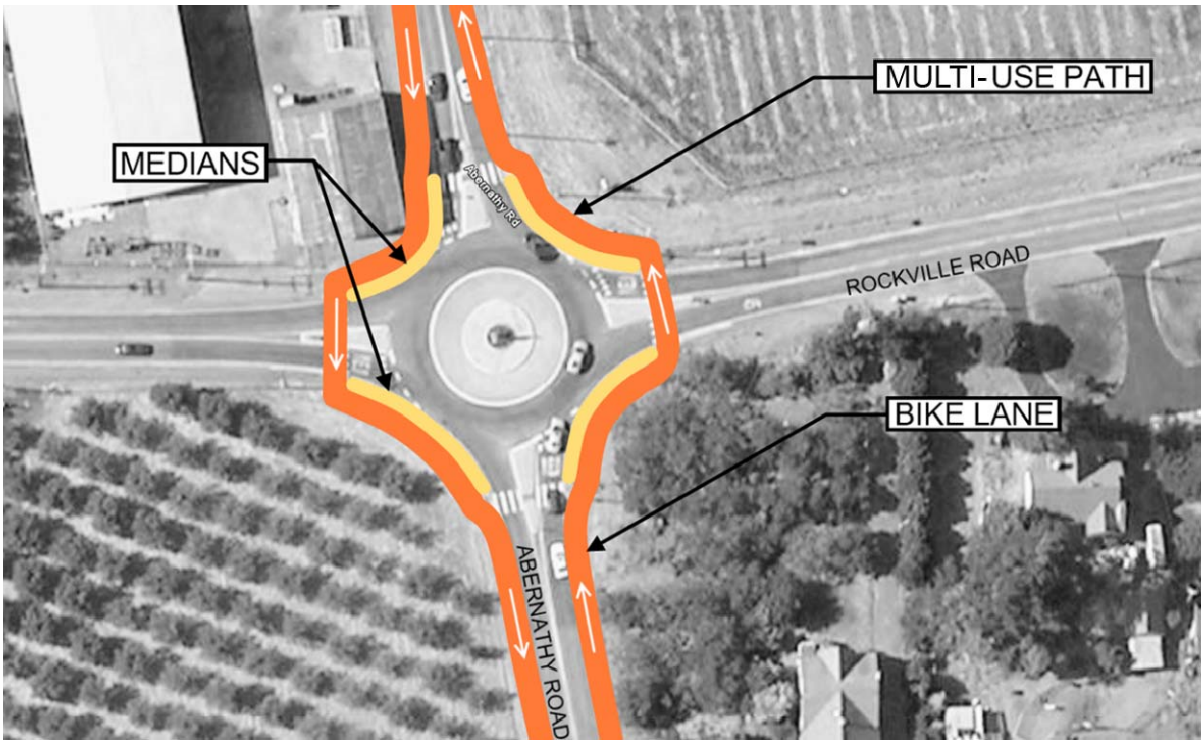
Rockville Road Phase III Improvements

Shoulders would be striped for bike lanes and additional signs would be added to indicate desired bicycle routes.

Abernathy Road Phase III Improvements

Assuming that bicycles become an important component of Abernathy Road traffic, special

treatment for bicycles approaching the roundabout at Abernathy and Rockville is recommended. This can be accomplished by creating a separate bike facility or multi-purpose path that diverts bikes around the roundabout. Bikes and pedestrians would cross the streets some distance back from the merge point of the roundabout and the intersecting streets. At these locations bikes and pedestrians would be more visible and vehicles would be traveling at slower speeds, affording gaps for non-vehicular traffic.



Proposed Phase III Improvements at the Abernathy Road/Rockville Road roundabout.

Future Phase Improvements

Approximately 1.25 miles of Suisun Valley Road and 0.75 miles of Rockville Road lie within FEMA Flood Zone A. Two portions of Mankas Corner Road lie within Zone A: a 0.60 mile segment between Suisun Valley Road and Clayton Road, and a 0.63 mile segment that between Ledgewood Road and Abernathy Road. To alleviate periodic flooding, upstream reservoirs or detention basins could be constructed to alleviate downstream flooding. Another possible solution is to raise the affected roadway segments one foot above the 100-year flood level. This would be a very costly solution and could result in additional flooding problems. Raising the roads is not a preferred solution, as it would require modifying the existing storm drain system because the elevated roads would act as dams.

Cost Considerations

Estimated costs to complete the Phase I, II, and III roadway improvements described above are provided in Appendix A: Roadway Cost Estimates. The basis for these cost estimates is per mile costs for the various components of proposed improvements.

The estimated cost to implement the proposed improvements per phase is as follows (costs are based upon 2009 unit prices):

- Phase I: $4.6 million

- Phase II: $39.6 million
- Phase III: $3.7 million

The North Connector carries a total improvement cost of $89.6 million. These costs are not included in the estimates above. Please refer to Appendix A for planning-level cost estimates and cost breakdowns for each improvement phase.

SUMMARY

Roadway improvements for the Valley's major roadways should be in character with the surrounding area and suitable to serve multiple modes of travel. Each improvement phase works toward achieving that goal. Phase I improvements support transformation of portions of Suisun Valley into ATCs. Phase II improvements widen shoulders and relocate utility poles along remaining portions of Valley roadways. Phase III improvements improve drainage facilities to alleviate periodic flooding along Abernathy Road, Suisun Valley Road, Mankas Corner Road, and Rockville Road. Together, these improvements will meet each road's future traffic volume demands and provide safe travel and access for both vehicles and bicyclists.