

**Table 1.0
Grade Crossing Enhancements
PVL – San Jacinto Branch Line**

No.	LOCATION	MILEPOST CPUC No. DOT No.	EXISTING DEVICE TYPE	Crossing Design	ADDITIONAL NOTES and ACTION
1	Citrus Avenue, Riverside County	MP 0.57 002X-0.6 027301Y	2-1R	<ol style="list-style-type: none"> 1. Install two standard No. 9 gates and flashing signal devices. 2. A second track will be added to the crossing by the project. Install approximately 72 track feet (T.F) of concrete grade crossing for the new track. 3. Extend crossing panels on existing track as required. 4. Fencing along RR ROW from crossing to 100' from intersection. 5. Install Access Control Gates. 6. Install raised medians with R8-8 (Do not stop on track), length to be coordinated with existing adjacent driveways. 7. New sidewalk on south west side therefore add SW across tracks only. 	<ol style="list-style-type: none"> 1. No sidewalk on N side. Panels are long enough if sidewalk is added later. Add SW on with side to join existing SW on west. Add active pedestrian gates due to limited visibility of trains around Citrus curve. 2. Determine R/W at NW corner and design to keep private property vehicles at NW corner from circumventing the proposed CPUC gate/flashers by use of K-rail. Propose relocated dwy to be outside rail ROW. 3. Design a 6" high AC dike/berm at NW corner and position the CPUC #9 6' back of dike face. Place K-rail to prevent pvt. property vehicles. 4. Locate ends of raised medians based on turning radius for the Caltrans STAA design vehicle- applicable to all grade crossings . 5. CPUC gates and flashers located per existing conditions. 6. FEMA has no flood map info.
2	Palmyrita Ave., City of Riverside	MP 1.00 002X-1.0 027302F	2- No. 9	<ol style="list-style-type: none"> 1. A second track will be added to the crossing by the project. Install approximately 72 T.F. concrete grade crossing for the new track. 2. Extend crossing panels on existing track as required. 3. Fencing along RR ROW from crossing to 100' from intersection 4. Install Access Control Gates. 5. Install two standard No. 9-A gates with cantilever flashing signals devices. 6. Install raised medians. 	<ol style="list-style-type: none"> 1. Put in raise median east of crossing for about 80' so as not to block driveway. (LJM 2/2/09) Raised median design should be verified with the City of Riverside. 2. Add sidewalk on south side due to Palmyrita Station. SCRRA decision tree indicates active pedestrian gates due to adjacency to Palmyrita Station. 3. Need plans from Riverside for construction in NW quadrant.
3	Columbia Avenue, City of Riverside	MP 1.24 002X-1.3 027303M	2-No. 1R	<ol style="list-style-type: none"> 1. Crossing is to be improved outside of the project with 2 (two) standard No. 9 gates and flashing signal devices. 2. EB gates to be relocated by project for Palmyrita Station track 3. A second track will be added to the crossing by the project. Install approximately 72 T.F. concrete grade crossing for the new track. 4. Street construction at on Columbia will result in improvements to these crossings by others separate from this project. The plans show the City's project as "existing" being built prior to the PVL project. 5. Fencing along RR ROW from crossing to 100' from intersection. 6. Access Control Gates conflict with Ped treatments therefore not provided. 7. Install raised medians at least 100 feet in length. 	<ol style="list-style-type: none"> 1. BNSF is moving gates out to match city widening to 4 lanes for a one track crossing. 2. Review profile and see coordinate with City/AECOM on profile and gate locations. 3. SCRRA decision tree indicates active pedestrian gates on north side due to adjacency to Palmyrita Station. 4. SCRRA decision tree indicates swing gates on south side due limited pedestrian activity.
4	Marlborough Ave., City of Riverside	MP 1.50 002X-1.5 027304U	2-No. 1R	<ol style="list-style-type: none"> 1. Crossing is to be improved outside of the project with 2 (two) standard No. 9 gates and flashing signal devices. 2. Fencing along RR ROW from crossing to 100' from intersection. 	<ol style="list-style-type: none"> 1. Sidewalk modifications to meet current SCRRA standards. 2. SCRRA decisions tree indicates no pedestrian gates. 3. Bike lane on Marlborough could indicated pedestrian gates but is not addressed in decision tree.
5	Spruce St., City of Riverside	MP 2.02 002X-2.02 027305B	2-No. 8	<ol style="list-style-type: none"> 1. Install 2 (two) standard No. 9 gates and flashing signal devices. 2. Install 72 T.F. concrete grade crossing panel. 3. Fencing along RR ROW from crossing to 100' from intersection. 4. Install Access Control Gates. 5. Install pedestrian gates and channelization. 	<ol style="list-style-type: none"> 1. Revising street to allow for raised medians as feasible. Cannot have 100' median on west. 2. Per Diagnostic Mtg, we are to replace the existing triangular open top drainage inlets-outlets adjacent to the curb on both sides of this grade crossing. To keep the crossing dry, a hydrology study is needed to determine the "Q" coming from the north to design adequate drain inlets. There are existing CBs on Spruce. Need to evaluate capacity. 3. Full ped treatments with ped gates on south side since this is a school route. Prohibit peds on north side of street as no continuous sidewalk.

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6	West Blaine/ Watkins Dr, City of Riverside.	MP 2.66 002X-2.7 027307P	5-No. 9A	<ol style="list-style-type: none"> 1. Install approximately 128 T.F. concrete grade crossing panels. 2. Modify existing medians to SCRRA standard length, width, and height, which will include relocation of existing gate arms in medians. 3. Install signs/paint on curb 'No Parking' on east side of crossing. 4. Maintain existing signal. 5. Fencing along RR ROW from crossing to 100' from intersection. 6. Install Access Control Gates. 7. Extend west median further east.. 8. Install pedestrian channelization and pedestrian gates according to SCRRA standards. Full pedestrian treatments on both sidewalks with ped gates due to school route. 	
7	Mt. Vernon Ave., City of Riverside	MP 3.41 002X-3.4 027308W	2-No. 9	<ol style="list-style-type: none"> 1. Install 64 T.F. concrete grade crossing panels. 2. Existing No. 9 gates to remain. 3. Fencing along RR ROW from crossing to 100' from intersection 4. Install Access Control Gates. 5. Install raised medians at least 100 feet in length (residential driveway permitting). 6. Install pedestrian gates (pathway, railings, ped gates) on north side due to school route. 7. No sidewalk on south side. 	
8 - C	Poarch Rd, Riverside County	MP 5.02 002X-5.0 027311E	1-R	<ol style="list-style-type: none"> 1. Recommend closure to regular vehicular traffic. 2. Provide locked entry gates for emergency vehicles only. 3. Fencing along RR ROW for 400'+ both sides of current crossing. 	
8 – O	Poarch Rd, Riverside County	“		<ol style="list-style-type: none"> 1. Opening Poarch Road to vehicular access would require significant lowering of the finished surface of Watkins Road and the Freeway on ramp and significant construction of Poarch Road. Since alternate access is available, this is included in this project. Refer to project memorandum for further discussion. 	
9	Box Springs- River Crest Dr., City of Riverside	MP 7.00 002X-7.0 909090S	4-No. 9	<ol style="list-style-type: none"> 1. Install 72 T.F. concrete crossing panels. 2. Bring medians to standard height and width. Extend medians to the intersections of River Crest Drive with Box Springs Boulevard and Fischer Road. 3. Existing No. 9 gates to remain. 4. Fencing along RR ROW from crossing to 100' from intersection. 5. Install Access Control Gates. 	<ol style="list-style-type: none"> 1. Coordinate with MOW proposed along Fischer Road.

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10	San Jacinto Ave., City of Perris	MP 18.05 002X-18.0 027338N	1-R	<ol style="list-style-type: none"> 1. Install two standard No. 9 gates and flashing signal devices. 2. Install 80 T.F. concrete grade crossing panels on new track and remove existing track and panels. 3. Install raised medians 4. Modify sidewalk to accommodate warning devices and pedestrian channelization with full pedestrian treatment since adjacent to station and senior center. 5. Interconnect with traffic signal at D Street intersection for railroad preemption of traffic signal (planned project). 6. Fencing along RR ROW from crossing to 100' from intersection 7. Install Access Control Gates 8. Revised profile as necessary to smooth "hump" crossing. AECOM lowered profile and is coordinating with JLP 2/2/09 	<ol style="list-style-type: none"> 1. City long range plan shows San Jacinto as E/W through route and significantly widen. City's plans for D and San Jacinto are not clear. West of crossing, San Jacinto ends at C Street. 2. Widening is not proposed by this project. 3. Meet and Coordinate with City of Perris regarding other private engineer traffic signal at D St. and railroad active warning devices.
11	W. 2 nd . St., City of Perris	MP 18.20 002X-18.2 027339V	1-R	<ol style="list-style-type: none"> 1. Crossing closed by City of Perris prior to project. 	NOTE: Road closure is required; street bisects the proposed station platform.
12	W. 4 th St. (SR 74) City of Perris	MP 18.34 002X-18.3 027340P	2-No. 9A	<ol style="list-style-type: none"> 1. Extend medians and reconstruct to SCRRA standard height and width. 2. Traffic Study needed to confirm signalization and interconnect design at South C and 4th Streets. 3. Relocate crossing gates 4. Install approximately 80 T.F. concrete grade crossing for new track and remove existing track and crossing panels. 5. Modify sidewalk to accommodate pedestrians and devices. 6. Fencing along RR ROW from crossing to 100' from intersection on south side of crossing. 7. Install Access Control Gates on south side of crossing 8. Pedestrian crossing signals, gates and swing gates since near Station. 	<ol style="list-style-type: none"> 1. No additional lanes required. Some shift of lanes to create space for medians. 2. Future OERM track is to be located west of new mainline. Moving median gates west of PVL tracks will reduce the length of the left turn pocket from westbound 4th. south to C Street to an in effective and essentially unusable length. When the OERM track is installed, this movement should be prohibited as a pocket cannot be provided. Because the terrain is generally level, the street profile would not be changed.
13	W. 5 th St., City of Perris	MP 18.42 002X-18.4 027341W	1-R	<p>This crossing was closed by the City. The abandoned 5th St. will be incorporated into the future station parking lot/facility.</p> <ol style="list-style-type: none"> 1. Fencing along RR ROW both sides of current crossing. 	<ol style="list-style-type: none"> 1. Street closed - no crossing. Official street closure process is necessary.
14	W. 6 th St., City of Perris	MP19.03 002X-19.0 027342D	1-R	<p>Revised per Meeting with City 6/25/08: 6th St. is to be closed according the City's Downtown General Plan. The abandoned street would be incorporated into the Downtown Perris Station facilities.</p> <ol style="list-style-type: none"> 1. Fencing along RR ROW both sides of current crossing. 	<ol style="list-style-type: none"> 2. Construct cul-de-sac on east side since access to back of adjacent buildings is still required. 3. On west side, block off the road near C Street but must allow access to one driveway.

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15	W. 7 th St., City of Perris	MP 19.10 002X-19.1 027343K	1-R	<p>The crossing at 7th St. to be upgraded in conjunction with the closures of 5th and 6th streets.</p> <p>If 7th Street remains one lane in each direction, crossing improvements will be:</p> <ol style="list-style-type: none"> 1. Install 2 (two) standard No. 9 gates and flashing signal devices. 2. Install raised medians at least 100 feet in length. 3. Install 56 T.F. concrete grade crossing panels for new track and extend existing panels as needed. 4. Reprofile 7th Street to match track profile including super elevation at crossing. <ol style="list-style-type: none"> 1. Fencing along RR ROW from crossing to all the way from 7th Street to 4th Street on both sides of track. 5. Install Access Control Gates. 	<ol style="list-style-type: none"> 1. No street widening. 2. Provide sidewalk on north side 3. Pedestrian swing gates per SCRRA decision tree. There is not a point in the decision tree which requires pedestrian gates. It would be consist with other crossing in downtown Perris, which all have pedestrian gates in addition to swing gates. To be conservative, PRE has included pedestrian gates in their costs. 4. Future OERM track is to be located west of new mainline. Moving median gates west of PVL can be accomplished at the time the track is installed. Because the terrain is generally level, the street profile would not be changed.
16	South D St., City of Perris	MP 19.17 002X-19.2 027347M	1-R	<ol style="list-style-type: none"> 1. Install two standard No. 9 gates and flashing signal devices. 2. Install raised medians at least 100 feet in length. 3. Install 64 T.F. concrete grade crossing panels for new track. 4. Reprofile South D Street to match track profile including superelevation at crossing (7 degree curve). <ol style="list-style-type: none"> 2. Fencing along RR ROW from crossing all the way from D Street to 7th Street on both sides of track. 5. Install Access Control Gates. 	<ol style="list-style-type: none"> 1. Install sidewalk on south side with pedestrian crossing. 2. Pedestrian gates per SCRRA decision tree since a medical facility is located at Commercial Street and D street and a wheel chair was observed in the site visit.
17	S. Perris St, City of Perris	MP 19.37 002X-19.4 027348U	1-R	<ol style="list-style-type: none"> 3. Install two standard No. 9 gates and flashing signal devices. 4. Install 80 T.F. concrete grade crossing panel 5. Raise power line (RR East). 6. State Street - Original recommendation was to close State Street and construct cul-de-sac. In lieu of this, it is proposed to construct directional raised median in conjunction with center raised median such that southbound traffic would be limited to right turns in and out. This would eliminate conflicts and queuing at the approach to the crossing without terminating State Street in a cul-de-sac. 7. Fencing along RR ROW from crossing to 100' from intersection south and all the way from S. Perris to D Street on both sides of track. 8. Install Access Control Gates. 9. Install raised medians at least 100 feet in length. 	<ol style="list-style-type: none"> 1. Maintain existing street widths except where required for crossing design and turning movements. 2. Construct additional sidewalk for pedestrian crossing on north side. Pedestrian gates per SCRRA decision tree as this is on an identified school route. 3. Widen right turn area from Case Road to NB South Perris Street. Raised median restricts turn radius so must compensate with widening.

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18	G St., City of Perris	MP 19.68 002X-19.7 027349B	1-R	<ol style="list-style-type: none"> 1. PROHIBIT left turns from southbound Case Road to G Street as this cannot be properly gated to prevent vehicles from entering track way and provide required turning clearances for large vehicles such as tractor trailers. Signage and raised median islands will physically prevent this movement. 2. Block off west side of Case where unpaved road enters intersection. 3. Install two standard No. 9 gates and flashing signal devices. 4. Install approximately 80 T.F. concrete grade crossing panels. 5. Modify grade crossing profile to eliminate hump and provide track drainage. 6. Widen roadway at crossing (for median and to meet existing pavement on north side LJM 2/2/09). 7. Install traffic signal at the adjacent intersection with Case Road and interconnect with railroad signal system. 8. A right turn pocket is needed on Case Road so that when the gates are down, traffic on Case Road may flow freely and not be blocked by a right turn vehicles. 	<p>FEMA OK, but south half of G St. is in the 100 year flood plain</p> <ol style="list-style-type: none"> 1. Lower track 4 inches to meet AASHTO guidelines to remove "hump" crossing. Revised lowering to 4". (LJM 2/2/09) <ol style="list-style-type: none"> a. Exist track at centerline G St, is 1425.3 <ol style="list-style-type: none"> i. 1425.3 – 30 inches = 1422.8 ii. 100 yr flood surface = 1422 which is below bottom of ballast = OK <p>Update 11/16/09 RECOMMEND PERPENDICULAR CROSSING. Realignment of G Street to create perpendicular crossing is feasible since City owns additional ROW adjacent to RCTC ROW. A corner of a vacant parcel may also be required for new T roadway. This design would allow all turn movement to and from G Street.</p>
19	East Ellis Ave, City of Perris	MP 19.87 002X-19.9 027350V	1-R	<ol style="list-style-type: none"> 1. PROHIBIT left turns from East Ellis to southbound Case Road as this cannot be properly gated to prevent vehicles from entering track way and provide required turning clearances for large vehicles such as tractor trailers. Signage and raised median islands will physically prevent this movement. 2. Block off west side of Case where unpaved road enters intersection. 3. Install two standard No. 9 gates and flashing signal devices. 4. Widen Case Road and East Ellis Avenue to accommodate raised median and truck turning radii. This results in significant widening of the Ellis across the RR to allow for trucks to make a right turn from Case Road to Ellis Avenue. 5. Construct 100' raised median on east side of crossing. 6. Construct raised channelization islands on west side of crossing. 7. Close off access from future Ellis Avenue on west side of Case Road as it is currently an unpaved street and access is available from Goetz Road. 8. Install traffic signal with pre-emption at Case Road and East Ellis Avenue as required for operation of rail gates. 	<p>FEMA Top of existing rail = 1418 100 year flood surface = 1422 50 " " = 1419 10 " " = 1417 Coordinate with JLP on track elevation at crossing</p> <p>Realignment of Ellis Avenue to create perpendicular crossing is not feasible without ROW acquisition therefore maintain existing angle. Future plans for widening should address skew angle and incorporate changes to alignment of Ellis Avenue at Case Road to create a perpendicular crossing.</p> <p>Update 11/16/09 RECOMMEND CLOSURE. City's General Plan calls for Ellis to be a truck route to I-215 with 6 lanes. At that time, the crossing design must address increasing number of through lanes on both Ellis and Case, turning movements of large trucks and angle of crossing. Current use of Ellis is limited to a 3 industrial businesses which can be accessed via Redlands.</p>
20 - A	Relocated Mapes Rd., City of Perris	New Crossing Location	N/A	<ol style="list-style-type: none"> 1. Design new crossing for Mapes adjacent to South Perris Station 2. Provide 4-#9 crossing gates for vehicular traffic 3. Provide pedestrian gates on station side only, no sidewalks on other side therefore no pedestrian treatments. 	<p>Update 11/16/09 RECOMMEND NO IMPROVEMENTS. Layover facility was redesign so that no trains in service or accessing layover cross Mapes Road.</p>

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No.	LOCATION	MILEPOST CPUC No. DOT No.	EXISTING DEVICE TYPE	Crossing Design	ADDITIONAL NOTES and ACTION
20 - B	Mapes Rd. City of Perris Original Location	MP 21.59 002X-21.6 027352J	2-No. 8	<ol style="list-style-type: none"> 1. Install two standard No. 9 gates and flashing signal devices. 2. Install 96 T.F. concrete grade crossing panel 3. Install raised medians at least 100 feet long. 4. Widen roadway to the south and improve curb return at the Case Road intersection. City of Perris proposes Mapes Rd improvements in conjunction with anticipated private development. 5. Install traffic signal at the intersection of Mapes and Case Road and interconnect with railroad signaling. 	