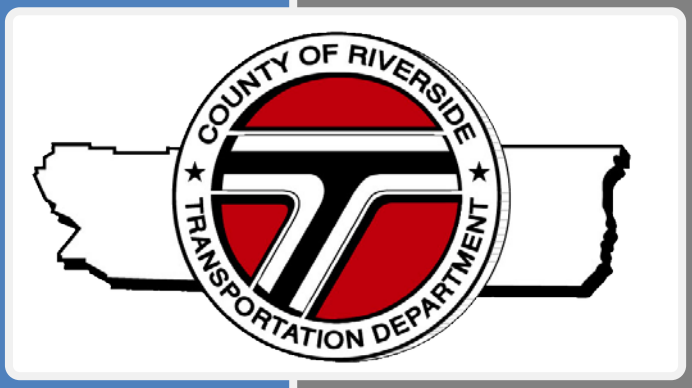

IMPROVEMENT PLAN CHECK POLICIES AND GUIDELINES

PLAN CHECK MISSION STATEMENT

To serve the land development community and general public with courteous, efficient and professional responsiveness to public and private road design and plan preparation issues in compliance with project conditions, County ordinances, and general engineering practice.

Alan D. French, P.E., P.L.S.
Senior Civil Engineer

For use in the
COUNTY OF RIVERSIDE

County Administrative Center
4080 Lemon Street
Riverside, CA 92501

December 2015

www.rctlma.org/trans/documents/pamphlets/plan_check_guide.pdf

DATE: December 2015

TO: Developers, Engineers, Architects, Land Surveyors and Contractors

FROM: Alan D. French, P.E., P.L.S.
Senior Civil Engineer

RE: Improvement Plan Check Policies and Guidelines

The *Improvement Plan Check Policies and Guidelines* is a document to help you process improvement plans through the Transportation Department. Any work within road dedications, in existing or proposed roads or in County right-of-way requires Transportation review. This document covers the process to get plans for that work reviewed and move the project to the next step, typically, construction. We want to get you through the process as fast as possible and in an efficient manner.

Most of your nontechnical questions such as the status of your project, who your plan checker is, bonds and agreement status, fees, etc., all such questions can be answered by our clerical staff at (951) 955-6527 or via the Internet on the Web site (http://www.rctlma.org/trans).

If you have submitted a case and it is in for plan checking, please contact the assigned plan checker directly for updates or questions.

If there are issues or you are not getting a response please contact me at (951) 955-3152 or afrench@rctlma.org.

Table of Contents

I. IMPROVEMENT PLAN SUBMITTALS

A. PRE-DESIGN CONFERENCE PROCEDURE

1. Purpose

   To provide the developer's project engineer with a forum to resolve questions about design policies, special design problems and details prior to the actual preparation or submittal of final plans for review and approval of projects within the county of Riverside.

2. Request for Pre-Design Meeting

   To schedule a pre-design meeting, please call the Plan Check Section at (951) 955-6527. The meeting participants must include the developer, his project engineer and/or his staff member(s) and the Plan Check Section personnel. This is a must for MS cases.

   MS cases require a pre-design meeting and signoff by Plan Check staff. Reasons for MS cases include multi-phase projects or off-site improvements or non-conditioned projects.

3. Alternative Design Proposal

   If the decisions from the pre-design meeting(s) are found to be unworkable, alternative designs may be presented at a subsequent meeting. The developer's project engineer may request additional meeting(s) until a satisfactory decision that is mutually agreeable is reached. Transportation may require a deposit to cover costs associated with the pre-design meeting(s).

   It shall be the developer's project engineer's responsibility to provide a written summary of decisions reached at the pre-design meeting(s) with the first submittal.

   The written summary should have the signature of the County representative and be submitted within 10 working days from the date of the meeting. The pre-design meeting shall be limited to one hour or as approved by the Transportation Department.

   If for any reason, a full, complete package cannot be submitted at the first submittal, an "At-Risk" process needs to be discussed and agreed to prior to the first submittal at which time an "At-Risk" letter will be required with the first submittal package.

4. Appeals

   If the developer's project engineer does not agree with the decisions made by the Plan Check Section during the pre-design meetings, the engineer may request a meeting with the engineering division manager of the Development Review/Plan Check Division of the Transportation Department.

5. Submittal

   As stated earlier, the pre-design meeting is limited to one hour or as approved by the Transportation Department, so additional costs incurred for additional staff time, calls and e-mails will require a preliminary submittal with a deposit to cover these costs.

B. PLAN CHECK APPLICATION AND FIRST SUBMITTAL REQUIREMENTS

Agreement for Payment of Costs of Application Processing

TO BE COMPLETED BY APPLICANT: This agreement is by and between the County of Riverside, hereafter "County", and _____hereafter "Applicant" and _____ " Property Owner".

Applicant name/firm and Property Owner name/firm must match on page 2, Section 4, item 1. for Property Owner, and item 2. for Applicant.
Applicant cannot be the engineer unless engineer is the owner of the project.

PROPERTY / PROJECT INFORMATION	Date:	Set ID: For County Use Only	IP# / ST#: For County Use Only
PARENT CASE # (Fast Track, TR, PM, PP, CUP, PUP, MS):	PROJECT NAME:		
DESCRIPTION (Map & Phase # / No. of Lots):			
LOCATION (Address and Cross Street Name(s)):	APN(s):		

Please designate who to contact to discuss the project.	☐ Applicant	☐ Engineer	☐ Property Owner

ENGINEERING FIRM (NAME AS IT APPEARS ON YOUR LETTERHEAD)	
ADDRESS	
CITY / STATE / ZIP CODE	
PHONE:	CONTACT PERSON: (Last Name, First)
FAX:	E-MAIL ADDRESS:

If your application is subject to Deposit–based Fee, the following applies

Section 1. Deposit-based Fees

Purpose: The Riverside County Board of Supervisors has adopted ordinances to collect "Deposit-based Fees" for the costs of reviewing certain applications for traffic studies, Transportation plan check reviews, inspections or permits. The Applicant is required to deposit funds to initiate staff review of an application. The initial deposit may be supplemented by additional deposits, based upon actual and projected labor costs for the permit. County departments draw against these deposited funds at the staff hourly rates adopted by the Board of Supervisors and actual time spent on the case. The Applicant and Property Owner are responsible for any supplemental deposits necessary to cover any costs which were not covered by the initial deposit.

Section 2. Applicant and Property Owner Responsibilities for Deposit-based Fee Applications

A. Applicant agrees to make an initial deposit in the amount as indicated by County ordinance, at the time this Agreement is signed and submitted with a complete application to the County. Applicant acknowledges that this is an initial deposit and additional funds may be needed to complete their case. The County will not pay interest on deposits. Applicant understands that any delays in making a subsequent deposit from the date of written notice requesting such additional deposit by County, may result in the stoppage of work.

B. Within 15 days of the service by mail of the County's written notice that the application permit deposit has been reduced to a balance of less than 20% of the initial deposit or that the deposit is otherwise insufficient to cover the expected costs to completion, the Applicant agrees to make an additional payment of an amount as determined by the County to replenish the deposit. Please note that the processing of the application, study, plan, inspection or permit may stop if the amount on deposit has been expended. The Applicant agrees to continue making such payments until the County is reimbursed for all costs related to this study, plan, inspection or permit. The County is entitled to recover its costs, including attorney's fees, in collecting unpaid accounts that would have been drawn on the deposit were it not depleted.

C. The Property Owner acknowledges that the Applicant is authorized to submit this agreement and related application(s) for traffic study review, plan check or permit on this property. The Property Owner also acknowledges that should the Applicant not reimburse the County for all costs related to this application or permit, the Property Owner shall become immediately liable for these costs which shall be paid within15 days of the service by mail of notice to said Property Owner by the County.
D. This Agreement shall only be executed by an authorized representative of the Applicant and the Property Owner. The person(s) executing this Agreement represents that he/she has the express authority to enter into this agreement on behalf of the Applicant and/or Property Owner.
E. This Agreement is not assignable without written consent by the County. The County will not consent to assignment of this Agreement until all outstanding costs have been paid by Applicant.
F. Deposit statements, requests for deposits or refunds shall be directed to Applicant at the address identified in Sec 4.

Section 3. **To ensure quality service, Applicant is responsible to provide one-week written notice to the County of Riverside Transportation Department, Development Review/Plan Check Division, 4080 Lemon Street, 8th Floor, Riverside, CA 92501, (951) 955-6527, if any of the information below changes.**

Section 4. Applicant and Owner Information

1. PROPERTY OWNER INFORMATION:

Property Owner Name (Firm name or individual):_____ Phone No.: _____
(As appears on Assessor rolls.) (Property Owner Name must match page 1.)
If Firm Name, list contact person: _____ Email: _____

Address: _____ Fax No.:_____
_____

2. _____ **APPLICANT INFORMATION:** **[Applicant is not the engineer but the individual who is responsible for paying all the processing fees for this project and subsequently entitled to refunds if any.]**

Applicant Name: _____ Phone No.: _____
(Applicant Name must match page 1.)
Firm Name: _____ Email: _____
Address *(if different from property owner)* _____ Fax No.:_____
_____

3. _____ **SIGNATURES:**

Signature of Applicant: _____ Date: _____
Print Name and Title: _____

Signature of Property Owner: _____ Date: _____
Print Name and Title: _____

Signature of the County of Riverside, by _____ Date: _____
Print Name and Title: _____

FOR COUNTY OF RIVERSIDE USE ONLY

Application or Permit (s)#:_____

Set #:_____IP#_____ ST# _____ Application Date:_____

B. (CONTINUED) FIRST SUBMITTAL REQUIREMENTS

THIS FORM MUST BE SUBMITTED WITH FIRST PLAN CHECK _____ (Submit All Applicable Items)

Project No: _____ Schedule: _____ (if applicable)

Project Description: _____

Check Box

1. We have prepared our plans and submittal in conformance with the "Improvement Plan Check Policies and Guidelines" dated _____. (The latest edition of the "Guidelines" may be obtained from the Transportation Department on the second floor or on the Web at: (www.rctlma.org/Portals/7/documents/pamphlets/plan_check_guide.pdf)

2. _____ 2 Sets Street and drainage plans. (Simultaneous submittal to Flood Control if conditioned.)

3. _____ 2 Sets Street cross-sections at 25' minimum intervals or as needed for any work joining or overlaying existing pavement.

4. _____ 2 Sets Water and sewer plans. (Simultaneous submittal to Water/Sewer District.)

5 _____ 2 Sets Signing and striping plans (required with first submittal) or traffic sign or signal and striping plans with street plans (rolled separately).

6 _____ 2 Sets Streetlight plan.

7. _____ 2 Sets Landscaping Plans. (Required by conditions with first submittal.) See Comprehensive Landscape Guidelines & Standards at www.rctlma.org/trans/land_dev_landscaping_guidelines.html. (Simultaneous submittal to the Landscape Maintenance District)

8. _____ 2 Sets Rough grading plans and erosion control plans. (Simultaneous submittal to the Building and Safety Department.)

9. _____ 2 Sets Final Parcel or Tract map. (Required on Parcel or Tract map cases.) (Simultaneous submittal to the Survey Division.)

10. _____ 1 Approved tentative map (TR & PM) or site plan (PP, CUP, PUP).

11. _____ 1 Approved Maintenance exhibit if within Valley Wide District.

12. _____ 1 Soils report (Required on Tract and Parcel maps.) including R-Value, and evaluation of the existing pavement and structural section for roads to be widened.

13. _____ 1 Construction Cost Estimate (on Trans forms with unit prices).

14. _____ 2 Final WQMP & Drainage report only if conditioned by Trans, if conditioned by Flood they will check.

15. _____ 1 Check in the amount of:

_____ Improvement Plan Check Fee(per the last page of the Cost Estimate)

16. ____ 1 Copy of special instructions and prior commitments.

17. ____ 1 Copy of the approved Conditions of Approval.

18. ____ 1 Copy of all adjacent or referenced plans used in the design and/or on plans.

19. _____ Statement of omissions in design and reasons therefore. (At-Risk letter may be required.)

20. _____ Check here if this project is related to a Parcel or Tract map.

21. _____ If this is a MS, provide meeting date: _____ (See Note E below.) and written acceptance from Plan Check Section.

22. _____ Are there any TIP or TUMF projects in the vicinity of your project? Y / N If Yes, contact Design Division engineer at (951) 955-6780 to coordinate street design. The TIP document is available at www.tlma.co.riverside.ca.us/trans/proj_tip.html

23. _____ Will you seek reimbursement from TUMF, CFD, JFA, or other? Y / N

NOTE:

A. Each approved unit of a phased tract shall be submitted on a separate and complete set of plans. It should be complete and able to stand alone. No combining of improvement plans of phases is allowed, except for grading plans, which can be combined for all the phases.

B. All storm drains 36" and less including catch basins, laterals, and all facilities to be maintained by the Transportation Department can be on the street plans using Transportation Department standard form sheets. Street and Storm Drain sheets and construction notes shall be numbered consecutively. Quantities shall be included on sheet 1 and on the construction cost worksheet.

C. Should there be any Flood Control facilities, then all storm drains including Transportation Department facilities shall be on a separate set of plans from the street plans using Flood Control standard form sheets but Transportation Department signature block must be added to them. Quantities of Transportation Department facilities shall be shown on the cover sheet of the street improvement plans and on the Flood Control cost worksheet. This is based on a MOU between Transportation and Flood Control dated June 13, 2008. The Plan Check Section reserves the right to reject the submitted plan package without performing any plan checks if any of the required plans or information items are missing.

D. No project shall be submitted and subsequently no project shall be accepted for plan check until the project has its conditions of approval approved by the Board of Supervisors and conditions status noted “INEFFECT”. If the project has a special need and the division engineer has agreed to accept the submittal on an “At-Risk” basis, the applicant shall provide a notarized “At-Risk” letter as outlined in Appendix A 27.

E. For all MS (non-conditioned) projects, design engineer must meet with County engineer before submitting plans.

I, the undersigned engineer, do verify that all the items necessary for this project and checked above are attached.

_____ _____

Signature Date

Civil Engineer's Stamp

_____

Name Printed or Typed

C. ELECTRONIC SUBMITTALS

- Electronic submittals are accepted after an initial meeting with the Plan Check Supervisor.
- All plans and reference material will be required as well as application and then a deposit once case is opened. Electronic payments can be by phone or at the cashier of any county office.
- See the appendix for the Online Plan Submittal Guidelines for the FTP site.
- A CD or Flash Drive is also an accepted electronic submittal option and can be submitted for up loading on the 8th floor of the County Administrative Center in Riverside or the Palm Desert office.
- Once the Plan Check is completed, the applicant and engineer will be invited to a session to view the comments. A PDF of the plan check comments can be e-mailed if requested or posted to the FTP site.
- When all comments have been addressed, the Plan Checker will request the final signed mylar for processing. (This step to be modified or eliminated as the electronic plan check process evolves).

D. IMPROVEMENT PLANS – PAPER RESUBMITTAL

- Submit two sets of corrected street, signal and all other plans previously submitted. If signal and/or striping plans are required, submit one additional set of street improvement plans. Always submit the red lined plans that were previously provided as well as an updated Construction Cost Worksheet. Submit directly to the Plan Check Section if the plans are being checked by County staff or to the County consultant doing the plan check. Also, submit two sets of the updated parcel or tract map.
- Upon the second plan check review, the plan checker shall call a meeting with the engineer and the owner/developer to work out any issues prior to continuing the plan check process. Also annexation for landscaping, signals, etc., needs to be applied for at this time prior to the continuation of the plan check.
- To check on the status of the street improvement plans go to www.tlma.co.riverside.ca.us/online/default.aspx and select the desired Transportation Department Related Queries option. When prompted type the IP number of your project and submit.
- Electronic Submittals – At this time we do not accept electronic re-submittals as it is difficult to review all the data required for subsequent submittals, however, for special issues or design questions, we can accept and do allow electronic submittals. If an exception is made, the electronic submittal must be forwarded to the assigned plan checker and the Plan Check Section supervisor.

NOTE: Prior to mylar approvals, the plan checker shall check the account balance to insure that there is a positive balance for the case. Any negative balance or additional money due for plan checking will be paid prior to plan approval. Inspection fees will be due for maps prior to recordation per Ordinance 671.

E. SUBMISSION OF PLANS FOR FINAL REVIEW AND APPROVAL

When the improvement plan checking is complete, the plan checker will ask the design engineer to submit the following as a complete package:

THIS FORM MUST BE SUBMITTED WITH THE FINAL REVIEW

Project NO: _____ IP NO: _____ Date: _____

Project Description: _____

Project Location: _____

Engineering Firm: _____

Contact Person: _____ Phone: _____

_____ 1. This checklist. Fill in each item with a check mark if included, "NA" if not applicable or "Note" with explanation of why item is not included along with the status.

_____ 2. The last set of check prints.

_____ 3. a. Originals of street improvement/drainage plans (County's copy) with no stick-ons and cross sections in 8.5" x 11" format in a 3-ring binder if not on plan sheets.

_____ b. One set of duplicate mylars (engineer's copy). If this second set is not submitted with originals and the engineer wants a duplicate set, he/she may have to wait up to 10 days after signature to obtain a scan, to allow time for County processing of mylars.

_____ c. One additional set of duplicate mylars if the project is in the Santa Rosa District or eastern Riverside county. (East of Cabazon)

_____ 4. a. Originals of water and sewer plans (Water District's copy), signed by all other agencies, except Elsinore Valley Municipal Water District (EVMWD). After signature the engineer shall pick up the original water plans, District copy, and return it to the Water District. If the engineer needs a duplicate copy, he can make it from this original set. (EVMWD will sign last per MOU. In this case both mylars are released after County signs for district's signature and one set is returned.)

_____ b. One set of duplicate mylars (County's copy).

_____ 5. Original signing and striping plan or traffic sign plan and/or signal plan. (Signal maintenance application to L&LMD required.)

_____ 6. Original streetlight plan.

_____ 7. Original for maintaining district and a duplicate mylar for County file of landscape/irrigation plans (County's copy) with signature and seal of landscape architect on 22"x34" standard sheets and maintaining agency per Comprehensive Landscape Guide.

_____ 8. Landscape Maintenance Agreement, signed and notarized with 8 1/2" x 11" exhibit or proof of application for annexation to a Landscape Maintenance District, i.e., CSA 143, JCSD, or Valley Wide

Parks, etc., must be provided prior to plan signature. (Plan signature by district will constitute acceptance.)

_____ 9. If the project proponent is required to construct improvements and/or a landscape median but is paying cash in lieu of constructing the landscape median, the money is due prior to plan signature. A copy of the receipt is required as well as a note on the landscape plan stating cash is being paid in lieu of constructing the landscape median.

_____ 10. a. One duplicate mylar (no sepia's accepted) of the grading plan (and erosion control plan if applicable) on 24" x 36" size sheets. The above mylars need to be wet stamped by Building and Safety if the Transportation Department did not issue a grading clearance.

_____ 11. A copy of the unrecorded final parcel or tract map.

_____ 12. Original mylar of Flood Control storm drain plans. (Omit if already signed by Transportation)

_____ 13. A copy of the Final Construction Cost Worksheet if bonding is not yet processed.

_____ 14. Submit the following, which are required to be sent by the plan checker to our Construction Inspection or Permits office with the signed plans:

_____ a. One final soils report on disc in PDF format.

_____ b. Signed and notarized letters of permission for grading on adjacent properties.

_____ c. One hydrology study and hydraulic analysis on disc in PDF format.

_____ d. WQMP approved by Flood Control or Transportation on disc in PDF format.

_____ 15. A copy of the Flood Control letter recommending approval and two - three copies of the approved WQMP to be distributed to the project file, to the Inspection office, and, if landscape is maintained by L&LMD, to the district.

_____ 16. A copy of recorded documents for all off-site easements and/or right-of-way, as applicable. (Recording information must be shown on street and storm drain plans.)

_____ 17. Balance due (if any) for Plan Check or Inspection deposit (inspection deposit required prior to mylar release or map clearance, whichever is first) $_____.

_____ 18. Submit two CDs with items from 14 above and striping and signal CADD files in original file format and PDF format. (Internally the signing and striping, and signal files will be distributed to the Traffic Division.) Label CD with project number, IP number and plans contained on CD.

NOTES:

ITEM #

_____ _____

_____ _____

_____ _____

_____ _____

Attach additional sheets if more space is needed.

E. REVISING APPROVED STREET PLANS AND CHECKING OUT ORIGINAL PLANS

1. If project is not in construction yet but there is an issue with the plans or in the field, a plan revision shall be done. (Not an As-Built)

    a. If a revision has to be made to an approved plan which has been signed by the County, the proposed revision should be made in red lines on a blueprint of the originally signed plan. The red-lined copy of the plans should then be submitted to the Transportation Department Plan Check Section. If the submittal is not associated with an active case, the red-lined plans should be submitted with an application and deposit for review and approval. Once the red-lined copy is approved, the engineer may check out the original plans by bringing in a signed reproducible plan or a print of an originally signed full size plan along with the approved redlines. The Transportation Department can then hold them while the originals are checked out to the engineer to make the revision. As an option, the Transportation Department can also make another set of reproducible plans, at the engineer's expense, to hold. Once the engineer revises the originals per the approved red-lined plans, the engineer should resubmit both the originals and the red-lined plans to the Plan Check Section for signature. Once the revised originals are signed, the applicant can pick up the revised originals to get blueprints made for the Permits Section or the Construction Office, returning the prints and originals to the Plan Check Section. The originals will be sent to Survey for rescanning and filing.

    b. Revisions to signed plans must be made by the original design engineer or firm. Should revisions be requested by another engineer who is not the design engineer or firm, the revising engineer has two options to follow:

        1. The revising engineer should contact the design engineer or firm to inform of the proposed revision and to get permission in writing to make the revisions and to check out the originals. Upon meeting this requirement, the revising engineer should then follow the above referenced procedure (see 1.a). The revising engineer is required to have a signature block signed, and wet stamp for that particular revision on each revised sheet.

        2. The revising engineer may process new plans showing all the existing drawings in dashed lines and labeling them as existing, and showing the revisions in solid lines. The revising engineer must then sign and seal these plans and process them to the Transportation Department for review and signature.

    c. Following the second option does not require the revising engineer to contact and get permission from the design engineer or firm.

    d. If the revisions to the sheet will be cluttered and unreadable or the existing plan is very old, it may be more desirable to replace the sheet and void out the old one, which will be considered at the request by the revising engineer. All voided sheets are to be kept in the set for history. If no plans have gone to

construction or have been distributed to other agencies, the original sheets may be discarded at the discretion of the plan checker.

2. If the project is under construction and a revision has to be made for any reason then the developer's construction engineer must redline the revision on the approved plan and submit it to the County construction engineer or inspector for their approval. Once approved by them, the plans will be given to the Plan Check Section, and the plan checker will contact the developer's construction engineer to have them check out the original mylars to revise. Once revised, the plan checker will verify the revisions on the mylars and recommend for signature. Once signed, plan checker will notify engineer to pick up mylars for printing. The new copies will be sent to the Construction office to follow up with their inspections.

3. Plan requirements for revisions to County mylars:

   a. Paper print redlines shall be made from the approved, signed set. Half size prints are acceptable if the changes are readable. If the revision is not associated with an active case, the red-lined plans should be submitted with an application and deposit for review and approval. See Section I.-B.

   b. Cloud the revisions that are to be made.

   c. Show notation and delta revision number in the revision block. Do not use more than one line as the description should be brief. If additional text is needed, show a clouded note elsewhere on the sheet.

   d. Do not erase, nor obliterate, any record data (single line through old data) or "x" out line work to be changed.

   e. Include sheet 1 (title sheet) as it carries a "catalog" of all revisions to a plan set. (Do not use "local" delta numbering on a sheet.)

      Example: Delta 1 on sheet 5 is the same Delta 1 on sheet 26, and shown on Title Sheet as Delta 1. Delta 2 might only be a change to sheet 17, and should be shown as Delta 2 on the title sheet. Deltas are time dependent and occur on specific dates.

   f. County plan checker will write "OK TO REVISE", sign and date on reviewed red-lined plans at which time the plans can be taken to Survey to check out original mylars, Survey counter (951) 955-6737. A replacement set of plans is required as a placeholder while the originals are checked out. Once approved, originals shall go back to the Survey counter for filing and the replacement set returned or discarded.

F. AS-BUILT PLANS

Upon completion of construction for any project, our construction inspection engineer and his inspector will require the developer/engineer to submit "As- Built" plans for them. The street, signal and/or striping plans are As-Built through the Transportation Department. Flood Control does their storm drain plans. The water and/or sewer districts will do their own plans, signal and striping require changes to be approved before construction (See Plan Revision Process.), landscape will be As-Built by whomever will be maintaining it and the streetlight plan is not for construction, so no As-Built is required. The grading plan will be done by Building and Safety.

1. On 2 prints of the approved plans, the engineer must redline any construction deviation from the approved plans and must be signed and sealed by the developer's construction engineer and labeled "As-Built." Each sheet needs to be stamped and signed even if there was no deviation, a blueprint copy still has to be labeled "As-Built" and signed by the developer's construction engineer.

If a permit project does not have a change to the plan and a Notice of Completion is issued, the Plan Check Section will process the As-Built internally. These plans will be given to our construction inspection engineer or the Transportation inspector. They will verify the "As-Built" plans and write on them "OK TO PROCESS", then send them to the Plan Check Section for processing. The Plan Check Section will contact the developer's construction engineer who signed these plans and ask him/her to revise the County original mylars per the red-lined "As- Built" plans. If the engineer doing the As-Built is not the original engineer or company, a notification is sent to the original engineer stating an As-Built is being performed for the improvements. The As-built engineer will need to add his/her block to the plans and note that they are signing for As-Builts only. Print only the changes to be noted on the plans. The words "As-Built" are not to be put in every revision block. Once the original mylars are revised they will be stamped "As- Built" and signed by the plan check engineer and sent to Survey to be scanned and re-filed. Permits or Inspection will be notified by the plan checker processing the plans. If right-of-way is required, the dedication information shall be filled in if not already on the plans. If the right-of-way is not recorded, the Notice of Completion and/or final occupancy will be withheld until recorded.

No Revision Required

1. Addition or relocation of a landscape pedestal
2. Relocating streetlight less than 20'
3. Adjusting residential driveways if not stationed on plan
4. Utility retaining wall around vaults in right-of-way ± 2' height

G. CONDOMINIUM PROJECTS

Typically a condominium project is a one lot Tract Map which includes air space plans depicting limits for sale. These will have frontage improvements along the project on the public street as conditioned. The interior street may or may not have conditions. If they are not conditioned by Transportation, no plans will be reviewed or required by Transportation. If the interior streets are conditioned by Transportation, street plans will be required and reviewed by Transportation. County standards shall apply as well as the section and alignments approved on the tentative map.

The plan checker shall review the CC&R document to insure maintenance of roads, landscape, WQMP, drainage facilities as required by the conditions of approval.

H. PROCEDURE FOR PROCESSING WATER AND SEWER PLANS

All developers, engineers, water/sewer districts must understand that the Transportation Department checks and approves all improvement plans for water/sewer lines and appurtenances in the public right-of-way. This

does not include lateral connections, minor line revisions and district constructed projects. If there is uncertainty on a particular project, contact the Transportation Department, Plan Check Section at (951) 955 – 6527 for information.

Please see Water Plan checklist and Sewer Plan checklist for specific plan items the County requires in addition to the water/sewer district requirements. We regulate the area within the right-of-way to ensure all utilities have room for their facilities as per Transportation Standard No. 817. Any deviation must be pre-approved. We also review size and location of surface features and depth below roadway. Design and location of these utilities MUST be per OUR standards, NOT the utility company's.

We review the quantities on the plans and the Construction Cost Worksheet for correctness and consistency with the plans. We do require and hold the bonds for these improvements.

After plan checking is complete, the design engineer submits original mylars, (signed by water/sewer district, and the Fire Department) for signature and one set of duplicate mylars for the County to keep. (See Final Submittal checklist). A set of prints will be transmitted to the Construction Inspection Office as reference. It will be the responsibility of the design engineer to pick up and return the original mylars to serving agency.

If there are changes in the field, all construction changes will be shown on the plans by the design engineer, and will be approved by the serving agency. Only those changes pertinent to surface facilities (manholes, fire hydrants, etc.) and major realignment of mains will require approval from the Transportation Department. Also, changes affecting these facilities will require a submittal. See "Revising Approved Street Plans" for procedures. If plan changes are not of the above nature, it will not be necessary to have the Transportation Department sign off on the changes. A replacement mylar is required for our records and needs to be provided to the Plan Check Section after District approval.

If an early signature (prior to signature with the street plans) of the water and sewer plans is allowed by Transportation, the total inspection fee including street portion, will be required at the time of signature.

I. ENCROACHMENT PERMITS

A. Our road system is divided into four categories:

1. County maintained roads.

   A. An encroachment permit **is required** for any type encroachment within a County maintained right-of-way.

   B. An encroachment permit **is required** for any tie-in to a County maintained right-of-way.

2. Vest Title roads (dedicated and accepted for public use, but not accepted for maintenance).

   A. An encroachment permit **is required** on vest title roads for the installation of public utilities and/or improvements, including laterals and service connections that are part of a conditioned project.

   B. An encroachment permit **is not required** on vest title roads that have no conditions for improvements, unless acceptance for maintenance is desired by the developer. If more than 50 CY of dirt are moved, a grading permit is required as directed by Ordinance 457 and Building and Safety.

   C. An encroachment permit **is not required** on vest title roads if the work is voluntary (no conditions for the improvements), unless acceptance for maintenance is desired by the developer. If 50 CY are moved, a grading permit is required.

3. Dedicated but not accepted for public use (still private property).

   A. An encroachment permit **is not required** for private roads, but if more than 50 CY are moved, a grading permit is required.

4. Private roads. A reservation, easement between owners but no dedications to the public.

   A. An encroachment permit **is not required** for private roads, but if more than 50 CY are moved, a grading permit is required for none conditioned work.

Work requiring inspection and permit only (No plan checking.):

1. Residential driveway approach
2. Water tap, sewer tap for residential use
3. District (capital improvement) jobs other than developer jobs (i.e.: water district installs 24” trunk line)
4. Dry utilities – power, television, natural gas

5. Driveway culverts

Work requiring plan check, permit and inspection:

1. Any conditioned project (TR, PM, PP, CUP, PUP)
2. Volunteer work as part of a conditioned project (MS)
3. Any change in drainage including under sidewalk drain, catch basin connection or storm drain installation
4. Change in type of streetlight (lumen/watt), change in location of streetlight more than 20', change in quantity of streetlight
5. Change to elevations/width/length/surface of road, curb & gutter, sidewalk, or other facility in road right of way
6. Any change to a traffic signal
7. Any change to signing/striping
8. Any plan change required for a conditioned project. This will require full submittal package including approved COA, planning exhibit, grading plan, application and Plan Check deposit.

B. An encroachment permit **is required** for any road that is part of a conditioned improvement and will be included into the maintained system upon completion typically a permit will not be issued on non-county maintained roads.

   a. Plans will be required to be checked by Transportation including a plan check deposit.

   b. Processing fee will be collected by the Permit Section.

   c. For parcel maps and tracts, the construction inspection will be handled by our Construction Inspection Section. Inspection fees will be collected by the Plan Check Section and they will open an IP account.

   d. For plot plans, miscellaneous cases, conditional uses, etc, the construction inspection will be handled by the Permit Section. Inspection fees will be collected by the Plan Check Section and they will open an IP account.

C. An encroachment permit **may be required** as directed by the governing body.

D. An encroachment permit **may be required** on special cases or as directed by the Transportation Permit engineer or Grading official.

When a permit is issued, inspection will be provided. If a permit is not required for a case it may still require inspection to verify field conditions.

J. COUNTY PLAN CHECKER'S REVIEW

1. Make sure plan check account has money to cover the immediate plan check.
2. Get the project file.
3. Review all pertinent documents in file, including any previous discussions, commitments or agreements, and tracking form stapled to the file.
4. Check TIP document. Are any roads listed and deposit for IP shown? If so, coordinate with Design group.
5. Check with Funding Programs if project in TUMF? If so, will applicant apply for reimbursement? If so, start agreement.
6. Read and get familiar with all the approved conditions of the approval including those conditions of other departments or agencies.

   P.S. Make sure that you are reading and using the latest and final approved conditions of approval.
7. Get the approved tentative map. Study it and get familiar with it and with all its design of geometry, slopes, limits of grading, etc. Check for off-site access roads and improvements. Review annexation conditions, look up project on LS jurisdiction map and let owner know where to start process per L&LMD spreadsheet.
8. Study the proposed grading plan and lay it on and/or compare it with the approved tentative map, making sure that there is no deviation in geometry, slopes, limits of grading, lot lines, etc. If any deviation is noticed, bring it immediately to your supervisor's attention for his evaluation and direction, and at which time he might decide to tell the engineer and/or the developer to go back to the Planning Department for their evaluation and written recommendation.
9. Proceed with your first plan check. If the design is incomplete, bring it back to your supervisor's attention at which time it might be decided to write "INCOMPLETE" on it and send it back to the engineer without any further plan check.

   For all permit cases: PP, CUP, PUP, and MS, ask if it is in anyway related to any Tract Map or Parcel Map. If it is, we need to know and add onto the plans both numbers, i.e., Permit and Map number. Index map needs to follow map requirements, general notes. Plan check needs to review COA's and Tentative Map. Also add a note on the plan "This Project is bonded and to be inspected by County Construction Inspection". Within project limits, frontage street work is required to centerline.

   If it is complete, do a complete and thorough first plan check, including checking the construction cost estimate. When all is done, send all to engineer and write that he should send back to you all your corrections and copies you used for your first plan check. Be sure to check the GIS for TIP County projects and if there is one, coordinate with Design Section.

10. In performing plan check, you must ensure that all conditions are met in one way or another or the intent satisfied especially the Transportation Department conditions of approval. No exception. Also review for safety, facility constructability and maintainability.

11. Should a road or section of road or other required improvements found not to be practical for construction at this time confer with your supervisor and if a decision is made to defer construction, then a cost estimate shall be prepared for the work, reviewed and approved and cash in lieu of construction shall be paid to the County and an agreement shall be executed to document the understanding. See Section IV-O for the Cash-In-Lieu procedures.

12. If there is existing AC within the project limits and the applicant is not removing it, a materials report and existing cross sections are required. The number of samples shall be sufficient to accurately represent the existing pavement. If the AC is in good condition and the crossfall acceptable it can remain.

13. If offsite grading is required, the notarized letter of permission must accompany the improvement mylars for signature. If offsite right-of-way or drainage easements are required, they must be signed by all owners and be recorded prior to signature of the street mylars and recording data show on the mylars.

14. For PP, CU, PU, and MS projects; you, the plan checker, must obtain the structural section from the Transportation Department Materials Lab. The developer may be required to provide a pavement and structural analysis of an existing road for cut and match work within the project boundary.

15. See section XIII for centerline profile study requirements. Approval must be checked fast and just making sure that what is prepared is feasible and fairly accurate, about 80% engineered, not necessarily completely engineered. Keep in mind that this is just a feasibility study. When done plan checking, a large note must be added on the cover sheet, stating "REVIEWED FOR CENTERLINE PROFILE STUDY AND SEEMS TO BE WORKABLE AND ACCEPTABLE FOR FUTURE ENGINEERING" "NOT FOR CONSTRUCTION".

16. Any landscaping proposed within County road rights-of-way must be submitted on County standard format sheets (24" x 36") with a standard title block, and submitted together with the street improvement plans for all development proposals. See the Comprehensive Landscape Guidelines & Standards for plan requirements at www.rctlma.org/trans/land_dev_landscaping_guidelines.html.

17. In second check, if you still find major problems and/or issues, call the engineer and the owner and have them come to meet with you and go over the issues to come to a resolution to a degree that you can check the plans or reject them until the first plan check comments are fixed so when plans come for third check, they are coming in for or near signature. Final accounting must be reviewed for final check and ensure the plan check account is in the positive, and inspection deposit plus balance due must be paid now, prior to signing plans. Also fees and securities report must be calculated if not done previously, and processed for bonding and agreements, if applicable. Also see Improvement Plan submittals section “C”.

Remember PP, CU, PU, MS, and voluntary cases with any road improvements valued over $50,000.00 or on a general plan road with lane closures will require bonding or as approved by the Transportation Department.

18. After plans are signed, purge the project file of items that are dealt with during the plan check process, and not require to be kept per records retention policy.

    A copy of the geology and soils report, as well as a complete copy of the conditions of approval and any other special instructions or notes of importance must be sent to the Permits or Construction Inspection office.

19. For schedule "H" maps that require minimum road improvements, you need to ask if there is any utilities being constructed with the map.

20. We only need to keep the "last clean set" of drawings. On the first review, it's clean set. Thereafter, it would be redlines that were previously addressed. All plans need to stay with the plan checker until plan approval. All paperwork, 11"x17", max. should be kept in the file.(This only applies to plan checking paper submittals, see Electronic Plan Checking for those submittals.

21. Every tract or parcel map conditioned for improvements needs to be bonded or the improvements built per Ordinance 460. An "MS" case used for a map or a series of maps will need to be bonded. Permit cases having construction costs over $50,000.00 or fronting a general plan road and affecting traffic needs to be bonded. Smaller permit jobs may be bonded at the department's discretion, see Section III for bonding.

22. Private streets required by conditions on a project are to be plan checked and inspected by Transportation. See Section III-F. For maps with HOAs plan checker shall review the CC&Rs to insure the HOA is responsible for maintaining the conditioned improvement, ie streets, storm drains, BMP facilities, etc. This shall be done prior to map clearance.

23. If the engineer can not comply with County standards, a fact sheet shall be submitted, reviewed, signed and filed for the project. The plan checker shall provide an example to the engineer and recommend the exception to the plan check supervisor.

24. Storm drain plans are checked by Flood Control if they condition the project to submit plans. If there is no Flood condition to submit plans, Transportation shall review and approve the drainage study, WQMP, and storm drain plans.

K. AT RISK PLAN CHECKING

If for any reason the first submittal is incomplete it will be rejected. If there are special issues and they have been discussed at the pre-design conference or subsequent meeting, a letter of agreement needs to be included with the submittal. If the items missing or items submitted are deficient, the owner may request the plan check to be done "At Risk" by providing a notarized letter. (See appendix for example)

II. CONSTRUCTION COST WORKSHEET AND PLAN CHECK FEE CALC SHEET

RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT
CONSTRUCTION COST WORKSHEET
AND PLAN CHECK DEPOSIT CALCULATION SHEET

PARCEL MAP OR TRACT MAP NO. _____ DATE: _____
PP, CU, PU, MS OR VL NO. _____ IP: _____

IMPROVEMENTS		FAITHFUL PERFORMANCE SECURITY (100% of Estimated Construction Costs)	MATERIAL & LABOR SECURITY (**50% of Estimated Construction Costs)
Street/Drainage	$ 0.00	$ 0.00	$ 0.00
*Flood Control	$ 0.00	$ 0.00	$ 0.00
Water _____ District Name	$ 0.00	$ 0.00	$ 0.00
Sewer _____ District Name	$ 0.00	$ 0.00	$ 0.00
Total	**0.00**	$ **0.00**	$ **0.00**
Warranty Retention (10%)		$ 0.00	

DESIGN ENGINEER'S CALCULATION OF IMPROVEMENT BONDING COSTS

Construction items and their quantities, as shown on the attached sheets, are accurate for the improvements required to construct the above project and the mathmatical extensions, using County's unit costs, are accurate for determining bonding costs

Above amounts do do not include additional 20% for recordation prior to having signed plans (Ordinance460, Section 10.3E).

_____ _____
Signature Date

_____ _____
Name Typed or printed RCE# Exp. Date

_____
Civil Engineer's Stamp

*Flood Control Construction Cost Estimate to be provided by Flood Control District. Provide a copy of Flood Control District letter stating cost estmate.

*** PLEASE READ INSTRUCTIONS BELOW ***
1. Quantities are to be taken from the Improvement Plans. Unit cost are to be as provided on "Riverside County Improvement Requirement Worksheet." 2. Show Performance Bond Amounts to the nearest $500.00. Material and Labor Bond Amounts are 50% of Performance Bond Amountss. **100% for Flood Control items. 3. For Construction items not covered by "Riverside County Improvement Requirements Worksheet", Design Engineer is to provide his opinion of construction cost and use that cost. If Riverside County Unit Costs are determined to be too low, in the opinion of the design engineer, the higher costs as provided by the Design Engineer should be used.

Const_Cost_Wrkshtw1%pcdep2015

UNIT COSTS 3/01/2015
FORMAT 3/01/2015

RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT
IMPROVEMENT REQUIREMENT WORKSHEET
STREET IMPROVEMENTS

QUANTITY	UNIT	ITEM	UNIT COST	AMOUNT
		ROADWAY EXCAVATION		
	C.Y.	1. Projects with Grading Plan Area x 0.50' (hinge point to hinge point)	$ 20.00	$ 0.00
		2. Projects without a Grading Plan Road area and side slopes to daylight Cut (c) = Fill (f) =		
	C.Y.	(a.) Excavate and Fill	$ 0.40	$ 0.00
	C.Y.	(b.) Excavate and Export	$ 1.10	$ 0.00
	C.Y.	(c.) Import and Fill	$ 2.80	$ 0.00
		If balance, provide (a.) only, either cut or fill If export, provide (a.)&(b.) a = fill, b = cut - fill If import, provide (a)&(c), a = cut, c = fill - cut (Unit costs for (a),(b), & (c) are 20% of actual costs to assure that work will be corrected to eliminate hazardous conditions.)		
	L.F.	Sawcut Exist. A.C. Pavement	$ 1.00	$ 0.00
	S.F.	Cold Plane A.C. Pavement	$ 2.25	$ 0.00
	S.Y.	Grinding A.C. , in place	$ 2.00	$ 0.00
	S.Y.	Remove A.C. Pavement	$ 1.45	$ 0.00
	L.F.	Remove Curb and Gutter	$ 18.00	$ 0.00
	L.F.	Remove A.C. Dike	$ 3.00	$ 0.00
	EA.	Relocate Mailbox	$ 250.00	$ 0.00
	L.F.	Remove Chain Link Fence	$ 7.50	$ 0.00
	L.F.	Remove Barricade	$ 10.00	$ 0.00
	TON	Asphalt Concrete (S.F.) (144 lbs/cu.ft)	$ 90.00	$ 0.00
	C.Y.	Agg Base Class II (116,103S.F.)	$ 50.00	$ 0.00
	Ton	Asphalt Emulsion (Fog Seal/Paint Binder) (1 ton = 240 gals) (116,103S.F.) apply at 0.05+0.03 = 0.08 gal/SY	$ 600.00	$ 0.00
	S.F.	AC overlay (min. 0.10') (SF)	$ 0.90	$ 0.00
	L.F.	Curb and Gutter (Type A-6)	$ 15.00	$ 0.00
	L.F.	Curb and Gutter (Type A-8)	$ 17.00	$ 0.00
	L.F.	Type "C" Curb	$ 12.00	$ 0.00
	L.F.	Type "D-1" Curb	$ 12.00	$ 0.00
	L.F.	Type "D" Curb	$ 15.00	$ 0.00
	L.F.	A.C. Dike (6")(incl. material & labor)	$ 10.00	$ 0.00
	L.F.	A.C. Dike (8")(incl. material & labor)	$ 15.00	$ 0.00
	S.F.	P.C.C. Cross Gutter and Spandrels	$ 10.00	$ 0.00
	S.F.	P.C.C. Sidewalk	$ 6.00	$ 0.00
	S.F.	P.C.C. Drive Approach	$ 8.00	$ 0.00
	S.F.	P.C.C. Dip Section Std. 307	$ 6.00	$ 0.00
	EA.	Handicapped Access Ramp	$ 2,000.00	$ 0.00
	C.Y.	Structural Reinforcement Concrete	$ 400.00	$ 0.00
	L.F.	Barricades	$ 100.00	$ 0.00
	L.F.	Metal Beam Guard Railing	$ 50.00	$ 0.00

UNIT COSTS 3/01/2015
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STREET IMPROVEMENTS cont'd

RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT
IMPROVEMENT REQUIREMENT WORKSHEET
STREET IMPROVEMENTS

QUANTITY	UNIT	ITEM	UNIT COST	AMOUNT
	L.F.	Utility Trench, one side (Edison, Telephone, Cable) (total length of Streets)	$ 10.00	$ 0.00
	L.F.	Chain Link Fence (6')	$ 80.00	$ 0.00
	L.F.	Relocate Fence	$ 12.00	$ 0.00
	EA.	Pipe Gate	$ 1,000.00	$ 0.00
	EA.	Relocate Power Pole	$ 10,000.00	$ 0.00
	EA.	Street Lights (including conduit)	$ 5,000.00	$ 0.00
	EA.	Concrete Bulkhead	$ 2,500.00	$ 0.00
	EA.	Slope Anchors for Pipes	$ 300.00	$ 0.00
	C.Y.	Cut Off Wall (Std 2')	$ 400.00	$ 0.00
	EA.	A. C. Overside Drain	$ 800.00	$ 0.00
	EA	Under Sidewalk Drain Std 309	$ 2,000.00	$ 0.00
	EA	Flat Outlet Drainage Structure Std 303	$ 2,000.00	$ 0.00
	EA	Curb Outlet Drainage Structure Std 308	$ 2,000.00	$ 0.00
	EA	Private Drainage Structure Std 310	$ 500.00	$ 0.00
	S.F.	Terrace Drain & Down Drain	$ 6.50	$ 0.00
	S.F.	Interceptor Drain	$ 6.50	$ 0.00
	C.Y.	R.C. Box Culvert	$ 400.00	$ 0.00
	C.Y.	Concrete Channel	$ 200.00	$ 0.00
	C.Y.	Rip Rap (1/4 Ton) Methob B	$ 40.00	$ 0.00
	C.Y.	Rip Rap (1/2 Ton) Methob B	$ 45.00	$ 0.00
	C.Y.	Rip Rap (1 Ton) Method B	$ 50.00	$ 0.00
	C.Y.	Rip Rap (2 Ton) Method B	$ 55.00	$ 0.00
	C.Y.	Grouted Rip Rap (1/4 Ton) Method B	$ 60.00	$ 0.00
	C.Y.	Grouted Rip Rap (1/2 Ton) Method B	$ 67.00	$ 0.00
	C.Y.	Grouted Rip Rap (1 Ton) Method B	$ 75.00	$ 0.00
	C.Y.	Grouted Rip Rap (2 Ton) Method B	$ 80.00	$ 0.00
	L.F.	18" R.C. P. Or 21" x 15" RCPA	$ 113.00	$ 0.00
	L.F.	24" R.C. P. Or 28" x 20" RCPA	$ 140.00	$ 0.00
	L.F.	30" R.C. P. Or 35" x 24" RCPA	$ 150.00	$ 0.00
	L.F.	36" R.C. P. Or 42" x 29" RCPA	$ 155.00	$ 0.00
	L.F.	42" R.C. P. Or 49" x 33" RCPA	$ 160.00	0.00
	L.F.	48" R.C. P. Or 57" x 38" RCPA	$ 165.00	0.00
	L.F.	54" R.C. P. Or 64" x 43" RCPA	$ 170.00	0.00
	L.F.	60" R.C. P. Or 71" x 47" RCPA	$ 175.00	0.00
	L.F.	18" C.S.P. HDPE Or Equal	$ 40.00	$ 0.00
	L.F.	24" C.S.P. HDPE Or Equal	$ 50.00	$ 0.00
	L.F.	30" C.S.P. HDPE Or Equal	$ 60.00	$ 0.00
	L.F.	36" C.S.P. HDPE Or Equal	$ 70.00	$ 0.00
	L.F.	42" C.S.P. HDPE Or Equal	$ 80.00	$ 0.00
	L.F.	48" C.S.P. HDPE Or Equal	$ 100.00	$ 0.00
	L.F.	54" C.S.P. HDPE Or Equal	$ 110.00	$ 0.00
	L.F.	60" C.S.P. HDPE Or Equal	$ 120.00	$ 0.00
	EA.	Catch Basin W=4'	$ 2,200.00	$ 0.00
	EA.	Catch Basin W=7'	$ 4,000.00	$ 0.00
	EA.	Catch Basin W=14'	$ 7,800.00	$ 0.00
	EA.	Catch Basin W=21'	$ 12,000.00	$ 0.00

UNIT COSTS 3/01/2015
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RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT
IMPROVEMENT REQUIREMENT WORKSHEET
STREET IMPROVEMENTS

QUANTITY	UNIT	ITEM	UNIT COST	AMOUNT
	EA.	Catch Basin W=28'	$ 15,000.00	$ 0.00
	EA.	Type IX Inlet	$ 2,500.00	$ 0.00
	EA.	Type X Inlet	$ 2,500.00	$ 0.00
	EA.	Junction Structure No. 1	$ 3,000.00	$ 0.00
	EA.	Junction Structure No. 2	$ 3,000.00	$ 0.00
	EA.	Junction Structure No. 6	$ 3,700.00	$ 0.00
	EA.	Transition Structure No. 1	$ 12,500.00	$ 0.00
	EA.	Transition Structure No. 2	$ 12,500.00	$ 0.00
	EA.	Transition Structure No. 3	$ 2,700.00	$ 0.00
	EA.	Manhole No. 1	$ 2,700.00	$ 0.00
	EA.	Manhole No. 2	$ 3,300.00	$ 0.00
	EA.	Manhole No. 3	$ 2,700.00	$ 0.00
	EA.	Manhole No. 4	$ 5,000.00	$ 0.00
	EA.	Adjust Water Valve to Grade (if no water plan)	$ 250.00	$ 0.00
	EA.	Adjust MH to Grade (if no sewer plan)	$ 600.00	$ 0.00
	EA.	Street Name Sign	$ 400.00	$ 0.00
				$ 0.00
				$ 0.00
				$ 0.00
				$ 0.00
				$ 0.00
		SIGNING, STRIPING AND SIGNALS		
	S.F	Remove Traffic Stripes and Paint Markings	$ 2.50	$
	EA.	Remove, Sign, Salvage	$ 100.00	$ 0.00
	EA.	Relocate Roadside Sign	$ 150.00	$ 0.00
	EA.	Street Name Sign	$ 400.00	$ 0.00
	EA.	Install Sign (Strap and Saddle Bracket Method)	$ 150.00	
-	EA.	Install Sign Mast Arm Hanger Method)	$ 150.00	$ 0.00
	EA.	Road Sign - One Post	$ 250.00	$ 0.00
	EA.	Road Sign - Two Post	$ 400.00	$ 0.00
	EA.	Object Marker - Modified Type "F" Delineator	$ 60.00	$ 0.00
	EA.	Delineator (Class 1 Type F)	$ 40.00	$ 0.00
	EA.	Delineator (Class 2)	$ 45.00	$ 0.00
	EA.	Pavement Marker, Reflective	$ 3.75	$ 0.00
	L.F.	Paint Traffic Stripe (2 Coats)	$ 0.38	$ 0.00
	L.F.	Remove Barricade	$ 10.00	$ 0.00
	L.F.	4" Thermoplastic Traffic Stripe	$ 0.50	$ 0.00
	L.F.	8" Thermoplastic Traffic Stripe	$ 1.40	$ 0.00
	S. F.	Thermoplastic Channelizing Limit Line and Pavement Marking	$ 2.25	$ 0.00
	S.F.	Thermoplastic Cross Walk and Pavement Marking	$ 4.00	$ 0.00
	EA	Signal and Lighting	150,000.00	$ 0.00
				$ 0.00
				$ 0.00
				$ 0.00
				$ 0.00
				$ 0.00

STREET IMPROVEMENTS cont'd

RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT
IMPROVEMENT REQUIREMENT WORKSHEET
STREET IMPROVEMENTS

QUANTITY	UNIT	ITEM	UNIT COST	AMOUNT
				$ 0.00
		LANDSCAPING		$
	S. F.	Maintenance Walk STD 113	$ 6.00	$ 0.00
	S. F.	Colored Stamped Concrete	$ 15.00	$ 0.00
	EA	Street Trees (15 Gallon)	$ 140.00	$ 0.00
	S. F.	Landscape and Irrigation	$ 5.00	$ 0.00
	C.Y.	Landscape Fill Material	$ 27.00	$ 0.00
	EA	Water Meter	$ 10,000.00	$ 0.00
	EA	Electric Meter	$ 10,000.00	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
	A.	**Subtotal**		$ **0.00**
	B.	Administrative Contingency (% x A)		$ 0.00
		NOTE: Use 25% for TR and PM Use 5% for PP, CU, PU, MS and VL Cases		
	C.	**Streets/Drainage Total (A + B)**		$ **0.00**
		BOND AMOUNT FOR RECORDATION PRIOR TO HAVING SIGNED PLAND (ORD.460, SEC. 10.3E)		
	D.	20% x C		$ 0.00
	E.	**Streets/Drainage Total (C + D)**		$ **0.00**

RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT
IMPROVEMENT REQUIREMENT WORKSHEET
WATER IMPROVEMENTS

QUANTITY	UNIT	ITEM	UNIT 13	AMOUNT
	L.F.	4" Waterline	$ 13.00	$ 0.00
	L.F.	6" Waterline	$ 16.00	$ 0.00
	L.F.	8" Waterline	$ 21.00	$ 0.00
	L.F.	10" Waterline	$ 27.00	$ 0.00
	L.F.	12" Waterline	$ 31.00	$ 0.00
	L.F.	18" Waterline	$ 40.00	$ 0.00
	EA.	4" Gate Valve	$ 650.00	$ 0.00
	EA.	6" Gate Valve	$ 800.00	$ 0.00
	EA.	8" Gate Valve	$ 850.00	$ 0.00
	EA.	10" Gate Valve	$ 1,050.00	$ 0.00
	EA.	12" Gate Valve	$ 1,250.00	$ 0.00
	EA.	Fire Hydrant (6") Super	$ 2,500.00	$ 0.00
	EA.	Fire Hydrant (6") Standard	$ 2,300.00	$ 0.00
	EA.	4" Misc. Fittings	$ 150.00	$ 0.00
	EA.	6" Misc. Fittings	$ 200.00	$ 0.00
	EA.	8" Misc. Fittings	$ 250.00	$ 0.00
	EA.	10" Misc. Fittings	$ 280.00	$ 0.00
	EA.	12" Misc. Fittings	$ 320.00	$ 0.00
	EA.	Blowoffs (4")	$ 1,600.00	$ 0.00
	EA.	Service Connections	$ 475.00	$ 0.00
	EA.	Adjust Water Valve to Grade	$ 200.00	$ 0.00
	EA.	Relocation of Blowoff	$ 1,000.00	$ 0.00
	EA.	Air and Vacuum Valve.	$ 1,850.00	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
	A.	**Subtotal**		$ **0.00**
	B.	Administrative Contingency (% x A)		$ 0.00
		NOTE: Use 25% for TR and PM Use 5% for PP, CU, PU, MS and VL Cases		
	C.	**Water Total (A + B)**		$ **0.00**
		BOND AMOUNT FOR RECORDATION PRIOR TO HAVING SIGNED PLAND (ORD.460, SEC. 10.3E)		
	D.	20% x C		$ 0.00
	E.	**Water Total (C + D)**		$ **0.00**

RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT
IMPROVEMENT REQUIREMENT WORKSHEET
SEWER IMPROVEMENTS

QUANTITY	UNIT	ITEM	UNIT COST	AMOUNT
	L.F.	4" V. C. P.	$ 15.00	$ 0.00
	L.F.	6" V. C. P.	$ 25.00	$ 0.00
	L.F.	8" V. C. P.	$ 30.00	$ 0.00
	L.F.	10" V. C. P.	$ 35.00	$ 0.00
	L.F.	12" V. C. P.	$ 40.00	$ 0.00
	EA.	Standard Manhole	$ 2,500.00	$ 0.00
	EA.	Drop Manhole	$ 4,000.00	$ 0.00
	EA.	Cleanouts	$ 500.00	$ 0.00
	EA.	Sewer Y's	$ 30.00	$ 0.00
	EA.	Chimneys	$ 400.00	$ 0.00
	EA.	Adjust M.H. to grade	$ 500.00	$ 0.00
	L.F.	Concrete Encasement	$ 35.00	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
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			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
			$	$ 0.00
	A.	**Subtotal**		$ **0.00**
	B.	Administrative Contingency (% x A)		$ 0.00
		NOTE: Use 25% for TR and PM Use 5% for PP, CU, PU, MS and VL Cases		
	C.	**Sewer Total (A + B)**		$ **0.00**
		BOND AMOUNT FOR RECORDATION PRIOR TO HAVING SIGNED PLAND (ORD.460, SEC. 10.3E)		
	D.	20% x C		$ 0.00
	E.	**Sewer Total (C + D)**		$ **0.00**

PLAN CHECK FEE CALCULATION SHEET

RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT

PLANCHECK DEPOSIT CALCULATION SHEET

PARCEL MAP OR TRACT NO. _____ SCH: _____ DATE: _____

PP, CU, PU, MS OR VL NO. _____

IMPROVEMENT COSTS (Including Contingencies)	
I. Streets/Drainage (Line C from Street Improvement Calculations)	$ 0.00
II. Water (Line C from Water Improvement Calculations)	$ 0.00
III. Sewer (Line C from Sewer Improvement Calculations)	$ 0.00
PLAN CHECK DEPOSIT CALCULATION	
A. Street/Drainage (CASE TYPE % x I FROM ABOVE) NOTE: CASE TYPE % IS 1% for TR & COMM PM, 6% for PM & 6.5% FOR ALL OTHERS -	$ 0.00
B. Water and Sewer (1% x II and III.) (Do not include for Tract or Comm Maps)	$ 0.00
C. Total Plan Check Deposit (A + B)	$ 0.00
SURCHARGE FEE CALCULATION	
D. Surcharge Fee (2% x C)	$ 0.00
E. Total Plan Check Deposit and Surcharge Fee	$ 0.00
MINIMUM PLAN CHECK DEPOSIT REQUIREMENTS	
Note: If Plan Check Deposit calculated in "Line E" is less than the minimum as	
shown below, then following deposit schedule will apply, otherwise pay the full deposit.	
For TR (Schedule. A, B, C, D) and PM (Schedule. E, F, G) - minimum $2,000	
For PM (Schedule H, I) - minimum $2,000.00	
For PP/CU/PU/MS/VL - minimum $2,000.00	
COMMENTS	

Const_Cost_Wrkshtw1%pcdep2015

UNIT COSTS 3/01/2015
FORMAT 3/01/2015

III. BONDS, MAP RECORDATION AND CLEARANCES

A. BONDS

Also see the Web site under Transportation, Land Development/Bonding for additional information (http://rctlma.org/trans/land_dev_bonding.html).

Any work related to a PP, CUP or MS case, within road right-of-way, which has an estimated construction cost of at least $50,000.00 or on a General Plan road, need a Road Closure Permit or affecting the travel way, must be bonded. All PM and TR cases irrespective of size requiring improvements must be bonded or the improvements built prior to map recordation per Ordinance 460. If the construction affects an existing County road, a bond may still be required as determined by the Transportation Department. A lien may be filed on the property to cover the improvements instead of a bond if there will not be any activity for a few years. The process is similar to a bond and is allowed by ordinance 460. The Transportation Department bonds for all improvements within the existing and future public right-of-way. Bond amounts are prepared by the design engineer on the County's Construction Cost Estimate and checked by the plan checker assigned to the job. (See Section II.) When the plan checker determines that the plans are "close enough" (so design and quantities of work will not change significantly at final signature), the project can be processed for bonding, typically after the 2nd plan check.

Bond Process Options include:

- 100% Bond — Sign Plans, Construct(For MS and Use cases requiring work on County maintained roads per above.)
- 100% Bond — Sign Plans, then Record Map
- 120% Bond (if allowed) — Record Map, then Sign Plans
- 10% Bond — Sign Plans, Construct, and then Record Map
- 100% Offsite Bond — Sign Plans, Build, then Record Map (When work on County maintained road required.)

(All bonded projects post 10% bond after construction for a 1-year period to guarantee materials and workmanship.)

(All maps post 10% bond even if Non County Maintained.)

The 120% level of bonding is allowed by County Ordinance, and is processed at the discretion of the Transportation Department. Reasonable justification and a standard format letter (see Appendix A5) are required to make the request for this type of bond.

All bond amounts must be based on the current Transportation unit costs and standard cost estimate worksheet.

Transportation inspection deposits are 3% of the construction costs for schedule A map, not to exceed $75,000.00, calculated at the 100% level of the construction cost estimate, irrespective of which level of bond is being posted for

the project. Such deposits are calculated at the same time the plan checker processes the bond values. The inspection deposit is required prior to map clearance to record. If a lien is being processed, the $12,000 deposit takes the place of the inspection amount.

Flood Control prepares their own cost estimate, and includes those facilities which are maintained by RCFC&WCD. Drainage facilities to be maintained by Transportation, appearing on Transportation and/or RCFC format sheets, are to be included in the applicant engineers estimate for the Transportation bond. An official letter from Flood Control, on RCFC letterhead and bearing the seal and signature of the RCFC, is required to process any bonding amount for Flood facilities. A cost estimate generated by the applicant engineer is not acceptable.

There are various sureties that are acceptable for covering required improvements including bonds, CDs naming the County of Riverside, letters of credit, cash or property liens. When the bond amount is $5,000 or less a cash bond is required. See Ordinance 460 Article XVII Sec 17.1.

The Fee and Security Worksheet prepared by the plan checker includes an amount for the Monument Security Bond from the County Surveyor's Office. This data must be generated by the map checker, and only applies to Tract Map and Parcel Map (except schedules E, F, G and H) cases.

The Fees and Security Worksheet is sent to the Washington Street yard by the plan checker, where the actual bonds/agreements are prepared. Once done the County will notify the developer to pick them up. When executed by the developer/owner and returned they are processed to County Counsel for legal review and approval. Upon approval they are sent to the map checker to be processed with the map.

Transportation holds bonds for Flood Control, water and sewer districts and only bonds for improvements within the county right-of-way. Bonds need to be in place prior to road closures.

You can check the status of the bonds at http://rctlma.org/Portals/7/documents/bond_status_report.pdf

B. STAND ALONE

Every project must "stand alone" and be so designed as if no other project ever constructs, this includes map phases. A project might be designed to rely on another tract to build certain necessary facilities. Projects, however, may go bankrupt, change owners, change construction schedule, or for other reasons become unreliable. The bond for one project cannot be used to cover the obligation of another project, even if it is the same facility, even if it is the same owner. For this reason, each project must "stand alone."

Each project is required to provide:

1) Approved plans (May be done by another engineer.).

2) Bond for *all* facilities needed to make project function and as dictated by the conditions of approval.

3) Recorded right-of-way, easements or off-site facilities.

Each project is responsible to connect to an existing, maintained facility. If the connection facility is existing but not maintained by a government agency (County, City, State, District), the facility must also be bonded by the project or as approved by the Transportation Department.

During construction, a bond may be reduced for partially completed work. By ordinance, each reduction is for 1/3 of the bond value.

Every project must "stand alone" as if no other project ever builds or records around it. Every project must provide its own:

- Bond for interior work
- Bond for off-site access work
- Recorded right-of-way, outside map
- Inspection fee
- Approved plans

1. Phases of a map may be owned by the same developer "today", but may be sold off to another developer that has a different schedule. Because phases may be bought and sold by others, each project must be self sufficient and "stand alone".
2. The bond for a project must match the exact tract number and phase of the map to be cleared. The bond of one phase cannot be used to pay off the obligation of another phase (i.e. the 29334 bond cannot be used for obligations in the 29334-2 map).
3. If an access road to a map might be built by another project, the applicant may provide two bonds on the same project: On-Site bond and Off-Site bond. If the other project builds the required access road, it is simpler to release the Off-Site bond as a package, rather than delay the process by reducing all-encompassing bond item by item, line by line.
4. Right-of-way for an access road to a map has to be provided by dedication by separate instrument, or by an adjacent map recording prior to this project. If the adjacent map is not yet recorded, or the separate instrument is not yet recorded, the project has no legal access and cannot be cleared to record.
5. Each project must fund its own inspection fees for On-Site and Off-Site work.
6. No project may refer to unapproved plans. If a project needs another road or other facility to be constructed to make the project function (road, water supply, downstream sewer), it may refer to plans already approved and on file at the County. If the plans by others are not yet approved, the project plans cannot be signed.
7. In the case of multiple phases of maps utilizing the same access road, the developer may elect to process an "MS" case to avoid multiple bonding of the same facility. The MS case would be a set

of street plans to serve the access needs of a series of maps or phases; the bond would name all of the tracts to be served, and the project would be bonded only once.

C. MULTIPLE BONDING

As each project must "stand alone", it is possible that the same facility needed to make several projects function would be bonded several times. As an example: a road that serves four different maps may have to be bonded four separate times, one for each map.

To avoid this, and reduce the cost of bond premium to the developer, the County will allow an "MS" case ("Miscellaneous"), which may be an engineer's drawing of the common facilities that serve multiple projects for the same owner. This would include, but is not limited to: street, storm drain, sewer, water, landscape, and streetlight. One bond can be generated for this "MS" case, and that bond will name on it all of the tracts that need the common facility to function.

On the improvement drawings for the tract, the title sheet is to show an alignment of the offsite "MS" project on the Index Map, reference for the MS and IP numbers, reference the recorded R/W, and provide a typical section of the offsite road that is to be built with the tract project.

D. FACILITIES BUILT BY OTHERS

Some projects may be designed to rely upon a road, sewer, and water or storm drain system that is currently being built by another project. The "downstream" facility may not yet be accepted for maintenance, even though it exists and is functioning.

In these cases, the Transportation Department may allow a reduced bond for the offsite work being completed by others. It is up to the Construction Inspection Office if and by how much a bond is to be reduced. For water, sewer and RCFC storm drains, the Transportation Department requires consent from the agency of jurisdiction to bond at the reduced level. Otherwise, the 100% level will be required.

E. CALTRANS FACILITIES

Caltrans (California Department of Transportation) has jurisdiction for work on state highways. For projects conditioned by the County of Riverside, a County bond must be posted, including work within state highway right-of-way. If the bond can name the county and the state, one bond may satisfy the requirements. If the bonding company will not allow naming both agencies, Caltrans may require the developer to *also* bond the same facility with the State, or any portion thereof. The County has neither jurisdiction nor control over the bonding requirements imposed by the State. The County requires a bond as a guarantee that the developer will meet the conditions of approval as approved by the Board of Supervisors. Also see Section IV L.

F. PRIVATE FACILITIES

Whether a facility will ultimately be accepted for maintenance by the County of Riverside, or will be privately maintained, the project proponent will need to post a bond with the County for conditioned projects. The bond guarantees construction of the facility irrespective of which agency ultimately provides maintenance.

G. MAP RECORDATION

In order for the Transportation Department to clear a map for recordation, the following items must be addressed:

1. 100% Bond level
    a. Plans signed
    b. Inspection deposit paid
    c. Bonds approved by County Counsel

2. 120% Bond Level
    a. Inspection deposit paid and any Plan Check deposit still due.
    b. Bonds approved by County Counsel
    c. Offsite R/W, easements and/or permission to grade obtained

3. 10% Bond Level
    a. Inspection deposit paid
    b. Bonds approved by County Counsel
    c. Notice of Completion issued by Inspection

Other items that must be addressed for map recordation may include Assessment District, offsite R/W recordation, offsite easement recordation, landscape annexation application, and other issues particular to each individual project.

The offsite right-of-way and offsite easements need to be cleared environmentally, in the same way as the project itself was cleared, as well as recorded prior to or concurrently with the map.

A request to clear the map must be made to the plan checker. If the project is checked by County staff they are the ones to actually clear the route and conditions in the computer system. If the plans were checked by a consultant plan checker, they will let the plan check supervisor know that the map can be cleared and the supervisor will assign in-house staff to clear this map in the computer system.

When developer wishes to have their map cleared to record from the Transportation Department, the following items must be verified:

- Improvement plans are signed*

- Bonds are approved by County Counsel
- Inspection deposit is paid
- RBBD/Assessment District COAs are noted “MET” or “DEFERRED”
- BMP, graffiti, signal, streetlight annexation COAs are noted “MET” or “DEFERRED”
- (*=Plans may be “close” to signature or if a 120% bond is posted)

1. Plan Check does not know the developers schedule for map clearance, therefore the engineer or developer needs to contact the plan checker when they believe they have met the criteria for map clearance to record. Some developers will wait several months after plan approval before seeking clearance on map recording.
2. Plan checker will then research the criteria listed above, and provide a response if the map can, or cannot, be cleared to record. If the street plans were checked by a consultant checker, they will notify the plan check supervisor to begin map clearance.
3. CFD, RBBD/Assessment District COAs are cleared by other staff. The plan checker will contact the staff member responsible for this clearance and request it be reviewed and cleared to satisfy COA. (CFD, RBBD and TUMF – (951) 955-0043, Assessment District by the Plan Checker.
4. Street Light Annexation COA is cleared by Plan Check based on the recommendation by others. This is to guarantee funding of the energy charges for the lights, annexation application, and other streetlight related functions. Plan Check will contact the party needed to request their recommendation for clearing these COA’s.
5. If development is not in CSA jurisdiction, then developer needs to apply for annexation to related maintenance district for all LLMD conditions and provide documentation by the district (i.e. JCSD, Valley wide, etc.) confirming annexation was applied for signal maintenance, graffiti abatement, streetlights, landscaping, and street sweeping. In some areas street sweeping is done by Burrtec or Waste Management Department, in this situation we need a letter from these entities, stating the streets are within their area. (CSD Annex – CSA Administrator (951) 955-6146, L&LMD Annex – L&LMD Administrator at (951) 955-6767)
6. County ordinance allows a developer to post a bond of 120% of the total construction cost on a project. With a 120% bond in place, the map can be recorded without the plans being signed. The plan checker must be convinced that the plans are “sufficiently close” to the final quantities to allow the 120% level bond. The developer is obligated to continue the plan check process after the map is cleared to record. The sample letter for requesting 120% bonding is provided in the Appendix.
7. All 50.TRANS (MAP RECORDATION) “DEFERRED” conditions of approval should be moved to the 80.TRANS or 90.TRANS (BUILDING PERMIT or OCCUPANCY) milestone. (The following conditions will be cleared as designated: 60.TRANS – Plan Checker, 80.TRANS, 90.TRANS and Permit Cases – Permits, and PM and TR maps – Construction Inspection.)

H. MAP CLEARANCE WITHOUT PLANS

There are some projects which do not require any improvements as a condition to record the map. Plan Check can clear such a map at the developer's request.

1. To clear such a project to record, the developer/engineer should submit a package of:
   - Final Map
   - Conditions of Approval (COA)
   - Tentative Map
   - Grading Plan (if available)
2. Projects may not require additional road improvements, however any road improvements that are volunteered by the applicant must go through plan review, obtain an encroachment permit, and pay inspection fees. This would include such right-of-way work as:
   - Curb, gutter, sidewalk, landscaping, street lights
3. If there are existing public-record plans that cover the area, it may be possible to revise a set of existing drawings rather than generate a whole new set of plans.

Clearance after construction

1. After project construction, the clearance should be requested through the inspector on the project. Typically any tract will be cleared by personnel at the yard office. (951) 955-6885.

   All other cases (not related or part of a map) will be cleared by the Permit office (951) 955-6790.

4. Bond release for unrecorded maps (withdrawn)
   - To release bonds, a letter requesting release is required to be sent to the Construction Office attention Hugh Smith. It will need to include case number, project number (if different), owner and engineer, as well as reason for request.
   - Once received, the Construction Office will contact Flood Control, water and/or sewer district to inquire about any facilities they may have and to get concurrence for bond release.
   - Also, Construction will contact Survey for the original executed agreements and notify them to place a hold on the case until bonds are resubmitted.
   - The account balances are checked and if all accounts are up to date, a hold is placed on them and bonds can be picked up at the office and a release is issued for the bonds.

IV. STREET IMPROVEMENT PLAN CHECKLIST

A. PREPARATION OF SHEETS

_____ 1. Plan and Profile will be drawn on 22" x 34" polyester base film using County Standard Title Block. (See Title Block Exhibit .)

_____ 2. All work must be clearly reproducible for microfilming. Special care shall be made to ensure that lettering density and background density is uniform on each sheet to ensure even contrast throughout the sheet. Mylars must be signed with “blue or black ink” only.

_____ 3. Minimum letter size shall be 0.12 inches in height due to scanning and minimum line weight shall be "0" (Leroy pen). Letter spacing should be no less than 1/4 of the letter height used. Cursive writing shall not be used except for signature. The basic plan and profile scale should be 1" = 40' horizontal and 1" = 4' vertical, or 8' vertical (for steep grades).

_____ 4. Self-adhesive or add-on labels commonly known as ‘sticky-backs’ and certificates are not acceptable on final plans.

_____ 5. Color shading shall not be used on plans. Cross hatch or dash lines only. No shading anywhere on plan set allowed because when scanned, the area is solid black.

_____ 6. Use details liberally. Too many arrows around a point or other congestion will cause light reflection in the microfilming process and make prints hard to read. Details, if possible, should be drawn on the same page to which they apply.

_____ 7. Place a sheet index in the lower right hand corner per Title Bock Exhibit.

_____ 8. Show the following note when cash is collected for future facilities that cannot be constructed at this time: Cash-In-Lieu Note: An amount of $ __(dollars)__ has been placed into account #20000-3130100000-230106 for the future construction of (facility type) located on (street name or location) . Receipt Number _____ dated _____.

_____ 9. Identify City/County jurisdiction (if applicable) and add Signature Blocks for both and a space for City Permit if required

_____ 10. Use Riverside County Standards (Ord 461), Riverside County Flood Standards or Caltrans Standards, any other standards or modifications to standards will need to be shown on the plans.

B. INDEX MAP

_____ 1. Shown on first sheet (Title Sheet).

_____ 2. Street names. Alpha designations okay for the first submittal, but names are required prior to mylars. Identify private streets (symbol/note) and show existing streets in the immediate vicinity.

_____ 3. Lot lines and numbers.

_____ 4. Direction of drainage flow in all streets.

_____ 5. Points of entry and exit of present watercourses with Q10 and Q100 referenced for them.

_____ 6. Locations of drainage structures, existing & proposed, with Q10 and Q100 referenced for them.

_____ 7. Adjacent developments (Tract Number or Map Book or Parcel Map Number or APN).

_____ 8. Show location of block walls in or adjacent to right-of way.

_____9. Street trees. (For quantity verification) Do not show on street plan sheets.

_____11. Streetlights. Must match Streetlight Plan. Do not show on street plans sheets. Show quantity in "Construction Notes and Quantity Estimate" on Title Sheet.

_____12. All drainage easements or other easements required by design. Show how obtained (Book and Page, etc.), excluding privately maintained easements.

_____13. Scale 1" = 200' or larger.

_____14. Show culverts, catch basins, cross-gutters and other drainage structures.

_____15. Show two independent access roads to the map boundary and alignments from County maintained roads and label including off-site right-of-way documents. (For Tract and Parcel maps only.)

_____ 16. Note on plan indicating maintenance of BMPs, add a date for agreement signed and date applied if L&LMD annexing.

____ 17. Use abbreviations as defined in Ordinance 461.

C. VICINITY MAP

_____ 1. Shown on first sheet with north arrow.

_____ 2. Show project site with circle or pointer in relation to streets and highways within a mile radius. A photocopy of Thomas Brothers Guide and/or any other street maps is not acceptable.

_____ 3. Identify Township _____, Range _____, Section _____, or provide a hypothetical T _____,

R _____, S _____ for Rancho areas.

D. TITLE BLOCK

_____ 1. Shown on all sheets in lower portion of the sheet. (See title block exhibit)

_____ 2. Case Number (C.U., P.U., P.P., P.M., or Tract) (See title block exhibit)

_____ 3. Registered engineer's number and expiration date in block provided.

_____ 4. Engineer's Seal shall be stamped or shown in block provided.

_____ 5. Date plans are prepared. Scale of plan.

_____ 6. Sheet Number: Sheet _____ of _____. No letter designations unless previously approved by Transportation.

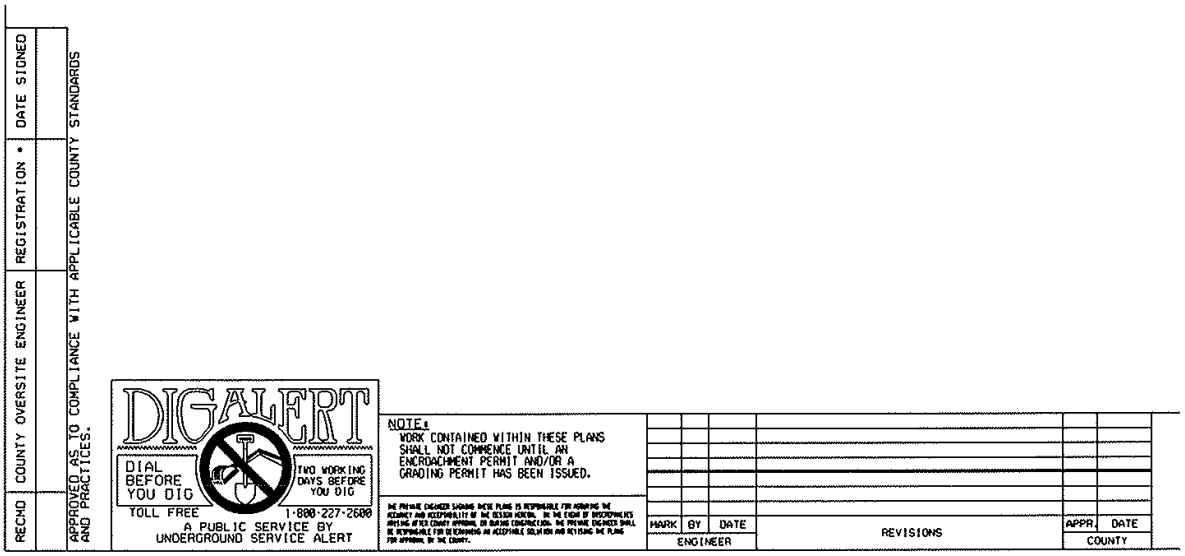
_____ 7. Engineer's address and phone number in block provided. Self-adhesive label is not acceptable.

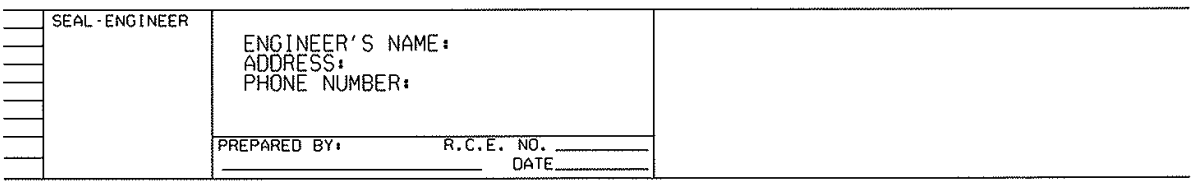
_____ 8. The tract or parcel map schedule per Ordinance 460 Article X, shall be noted as shown in title block exhibit.

_____9. Show benchmark description on first sheet and refer to first sheet on other sheets; refer to County Precise levels per the Map Preparation Manual or Federal USGS, Army Corps, Caltrans or Flood Control agency benchmarks if feasible. All referenced benchmarks shall be of a permanent nature and readily identified in the field. No temporary benchmarks shall be used. Include California coordinates for the monuments used.

_____10. If the roads are not to be maintained by the County, place "NOT COUNTY MAINTAINED ROADS" in large bold letters on the index map and plans above the title block, and place this note under the typical sections where applicable.

_____11. If the project is below sea level, rather than display negative elevations, make an adjustment to have positive elevations and note on plans.





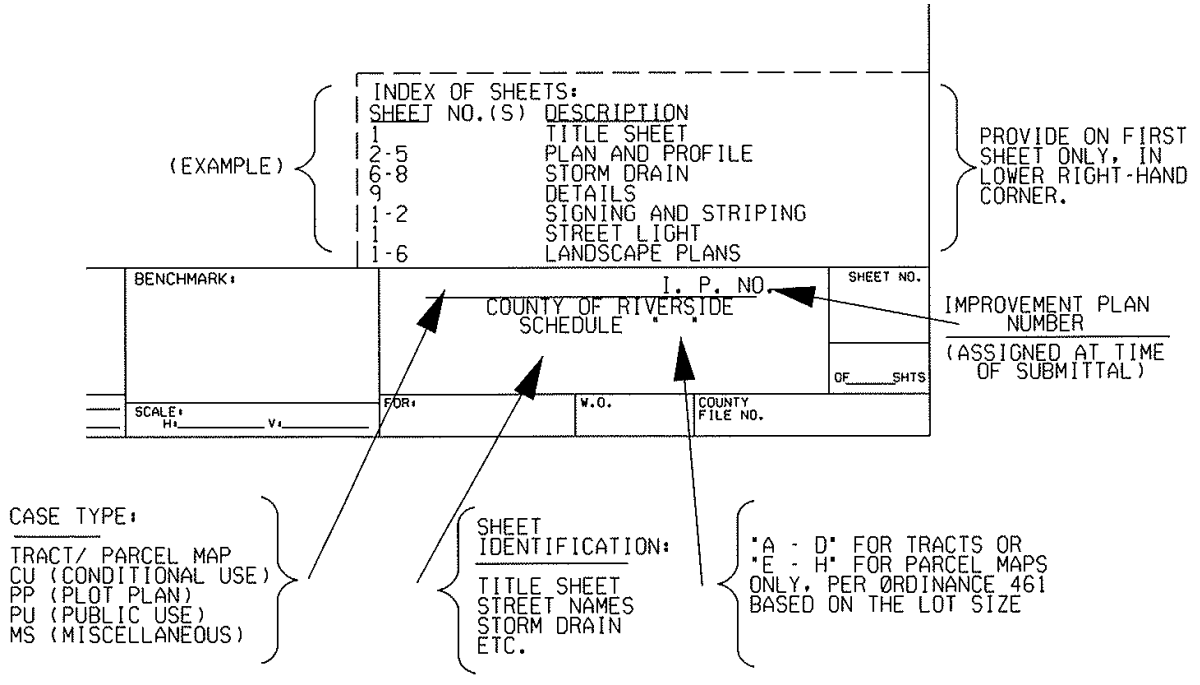


EXHIBIT "A"

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E. GENERAL NOTES

NOTE: Write down applicable notes only.

_____ 1. It shall be the responsibility of the developer/owner or contractor to apply to the Riverside County Transportation Department, Permit Section, for an Encroachment Permit for all work performed within public right-of-way, dedicated and accepted for public use; and to be responsible for satisfactory compliance for all current environmental regulations during the life of construction activities for this project. Additional studies and/or permits may be required.

_____ 2. The contractor/developer shall be responsible for the clearing of the work area, and relocation costs of all existing utilities. This includes undergrounding of existing overhead lines along the project frontage as required by the conditions of approval. Permitee must inform County of construction schedule at least 48 hours prior to beginning of construction.

Phone: (951) 955-6790 for Permit Cases (CUP, PUP, PP or Voluntary MS cases.), Cabazon and area west.

Phone: (951) 955-6885 for Parcel and Tract maps.

Phone: (760) 342-8267 for Permit Cases east of Cabazon.

_____ 3. The developer will install street name signs conforming to County Standard No. 1220 and 1221.

_____ 4. All work shall conform to the requirements of the Riverside County Transportation Department Improvement Standards and Specifications, latest edition, County Ordinance No. 461 and subsequent amendments.

_____ 5. It shall be the responsibility of the developer to notify the engineer to install street centerline monuments as required by Riverside County Ordinance No. 461. If construction centerline differs, provide a tie to existing centerline of right-of-way. Prior to road construction, survey monuments including centerline monuments, tie points, property corners and bench marks shall be referenced out and corner records filed with the County Surveyor pursuant to Section 8771 of the Business & Professional Code. Survey points destroyed during construction shall be reset, and a second corner record filed for those points prior to completion and acceptance of the improvements.

_____ 6. All underground facilities, with laterals, shall be in place prior to paving the street, including, but not limited to, the following: sewer, water, electric, gas, storm drains.

_____ 7. Curb depressions and driveway approaches will be installed and constructed according to County Standard No. 206 and/or No. 207, as directed in the field.

_____ 8. It shall be the responsibility of the contractor or developer to install and maintain all construction, regulatory, guide and warning signs within the project limits and its surroundings to provide safe passage for the traveling public and workers until the final completion and acceptance of the project by the County.

A traffic control plan must be submitted with approved street plan for review to the Permits Section or Inspection Section (for map cases) prior to obtaining an encroachment permit.

_____ 9. All street sections are tentative. Additional soil tests for Parcel and Tract maps shall be taken and may be taken for Permit cases by the County after rough grading to determine the exact street section requirements. Use Standard No. 401 if expansive soils are encountered.

_____10. Asphaltic Emulsion (Fog Seal) shall be applied not less than 14 days following placement of the asphalt surfacing. Fog Seal and Paint Binder shall be applied at a rate of 0.05 and 0.03 gallon per square yard respectively. Asphaltic emulsion shall conform to Section 37, 39 and 94 of the State Standard Specifications.

_____11. Prime coat is required prior to paving on all grades in excess of ten percent.

_____12. Install street trees in accordance with Ordinance No. 461 and the Comprehensive Landscaping Guidelines (choose three species and name them here).

_____13. Streetlights shall be installed in accordance with the approved street lighting plan.

_____14. As determined by the Transportation Director, the developer is responsible as a minimum for road improvements to centerline, and may be required to reconstruct existing pavement, including base, and matching overlay required to meet the structural standards for the current assigned traffic index.

_____15. Only landscaping consisting of grass and parkway trees may be installed within parkways on local residential streets without separate landscape plans. All other types of landscaping in these areas, and all landscaping on all other streets, shall require separate landscape plans. All landscaping encroachments shall conform to Riverside County Comprehensive Landscaping Guidelines dated October 2009.

_____16. Any private drainage facilities shown on these plans not part of this project are for information only. By signing these improvement plans, no review or approval of those private facilities is implied or intended by the Riverside County Transportation Department.

_____17. a. Construction projects must obtain a National Pollutant Discharge Elimination System (NPDES) permit. Owners/developers are required to file a Notice of Intent (NOI) with the State Water Resources Control Board (SWRCB), prepare a Storm Water Pollution Prevention Plan (SWPPP) and Monitoring Plan for the site.

b. Prior to any construction, the developer shall provide the County a copy of the NOI with a valid WDID number.

_____18. The developer shall be responsible for the installation of additional signs and markings not included in the signing and striping plan within the project areas, or on roadways adjacent to the project boundaries, upon the request of the Director of Transportation or his designee to improve traffic safety on the roads under the jurisdiction of the developer.

_____19. Existing storm drain pipes / culverts (whether to be connected to, extended, adjusted, drained to, or just in the project vicinity) must be repaired, and /or cleaned to make them functional and acceptable as directed by the Transportation Department.

_____20. It shall be the responsibility of the developer/contractor to apply to Riverside County Flood Control (RCFC) for permits when any storm drain pipe needs to be connected with a RCFC facility and add Permit # _____ on the plan.

_____ 21. It shall be the responsibility of the developer or contractor to apply to the City and or California Department of Transportation (Caltrans) for an Encroachment Permit for all work performed within their right-of-way.

_____22. For all driveway reconstruction beyond right-of-way, proof of driveway owner notification is required prior to construction.

F. CONSTRUCTION NOTES AND ESTIMATE OF QUANTITIES

Show “Construction Notes and Estimate of Quantities” on first sheet of improvement plans. Include quantities as part of construction notes. (See subsection H, Item 25, below) These quantities should match the quantities on the Construction Cost Worksheet (Section II), which is also used for bonding.

G. TYPICAL SECTION

_____ 1. Typical sections for all streets (refer to County Road Improvement Standard Sections).

_____ 2. Dimensions of right-of-way, pavement, and parkway. If existing right-of-way is wider than the standard and there is no condition requiring vacation, vacation will not be required.

_____ 3. Slopes to adjacent property lines.

_____ 4. Percent cross fall (include percent cross fall on existing pavement which can be a range) must be shown. (1.5% minimum required on proposed match up pavement.) Where it is demonstrated that the 2.5% maximum must be exceeded, the steeper cross slope will be used in a shoulder area, not in the driving lane. A maximum of 4% grade break may be allowed at a lane line.

_____ 5. Curb sections and types. Use 6" on road types up to and including Secondary. Use 8"on road types wider than Secondary. However, do not mix outboard curb heights on the same roadway. For median curb, use Type-D 8” curb irrespective of outboard curb height.

_____ 6. Saw cut edge, 0.10’ header cut and feather overlay (2' min.) where existing pavement is being cut. If Materials Lab allows the existing pavement to remain a leveling course may be required for undulating pavement surface.

_____ 7. Preliminary structure "R" Value for street section, per Soils Report.

_____ 8. Traffic Index, T.I. (See Standard No. 114).

_____ 9. Aggregate base thickness - calculated from preliminary "R" and T.I. values. (0.50' min.)

_____10. Asphalt concrete thickness - use T.I. value, per Ordinance 461 specifications, Section 8.07.

_____11. Access roads conditioned for project on General Plan roads need to be designed with T.I. 7.0 and alignment to a Collector Standard.(103)

_____12. Street names with suffix for both public and private streets.

_____13. Any pertinent easements, and owner/user of easements.

_____14. Supplemental typical sections required for different widths, structural sections, half streets, etc. From Sta_____ to Sta_____.

_____15. Location of pavement repair for utility installation on existing pavement parallel to street centerline must be a full lane width (minimum 12') per Standard 818.

_____16. Show and label future median, or other facility, which cannot be constructed at this time. (Also see "Cash-In-Lieu-Of-Construction" note for title sheet per Section A.)

_____ 17. Show and label joint utility trench in parkway per Standard No. 817.

_____ 18. See Appendix A 17 for structural section calculation.

_____ 19. If concrete is required at the project entrance a structural section and details are required. Color and patterns to be determined by the Director of the Transportation Department.

H. PLANS

_____ 1. North Arrow: Point up or to the right if possible.

_____ 2. Stationing should increase to the North or to the East. (Should a conflict occur with the North arrow direction, then stationing should increase from left to right.) For curved streets or existing streets, stationing may go in either direction. Do not use negative stationing.

_____ 3. Centerline stationing shown on plans.

_____ 4. Stationing and street names at intersections with equations (if any).

_____ 5. Stationing of all EC's, BC, PCC and PRCS, stationing of all BCRs and ECRs. (Following the Driving Direction making a right hand turn, closest to the curb line.) Do not use PC or PT designations.

_____ 6. Stationing of end of improvements.

_____ 7. Stationing of end of curb and gutter.

_____ 8. Scale and 4" graphic scale.

_____ 9. Names of all streets shown on sheet.

_____10. Show bearings of all streets on centerline, basis of bearing shown for permit cases. Street plan centerlines should match final map bearings and distances.

_____11. Curb return data (delta, tangent, radius, and length). Dimension street width include right-of-way, curb and flowline.

_____12. T.C. (or flow line) of all BCRs and ECRs.

_____13. Flow line elevations on cross gutter at the 2 flow line intersections and centerline crossing.

_____14. Centerline curve data; also short and long side of curbed sections.

_____15. Lot lines and lot numbers.

_____16. Note connections to existing improvements. Call out type of improvement material and size. All pavement joints to be perpendicular or parallel to centerline.

_____17. Show improvements to be constructed with solid lines. Existing or future improvements with dashed lines and label. Do not fade line work.

_____18. Tapers on pavement shall be minimum 2:1 for widening traffic on low speed roads; 35mph and lower 10:1 for merging traffic on low speed roads. For roads having a speed greater than 35mph, merging lanes or lane drops shall use Caltrans standard: Length (ft) = Design Speed (mph) x Distance Traffic Moves Laterally (ft). Pavement less than 500' in length is normally not considered a lane of traffic (lane will not be striped). If taper moves pavement closer to existing poles, mitigation will be required. (See Standard No. 820.)

_____19. Limits of different curb types and or dikes. Limits and length of transitions.

_____20. Label curb types, cross gutter and spandrels, and all structures. No cross gutters will be allowed to cross a secondary highway (Standard No. 94) or wider or any street mid- block.

_____21. Show detail views of all facilities that are non-County or non-State standard. Give all pertinent specification notes. Provide justification notes on the plans for all deviations from County standards, and provide a design exception per Sec I-J. #23.

_____22. Refer to County Road Improvement Standard number if applicable to structure or work.

_____23. Show all existing storm drains, facilities, and their sizes, if any, in dash, on street improvements plans. (70% ink) No shading of pavement allowed.

_____24. Show construction notes wherever necessary to clarify construction details. Construction notes for all items shall be placed on title sheet with quantities and must match items on the Cost Worksheet. Show only applicable construction notes on each plan sheet, without quantities. See Sec IV-F

_____25. Show existing pipe lines, weir boxes, mail boxes, irrigation systems, power poles with numbers, etc., in right-of-way and include notes as to their disposition if encroaching on proposed improvements. All existing overhead distribution lines are to be under grounded and should be noted on the plans as such

with the pole notation. For poles within 4' of EP, relocation or undergrounding is required per Standard 820. If the pole is outside of right-of-way joint-use agreement may be required. See Appendix for the procedure.

_____26. Notarized letters of permission are required for any grading on property that is beyond project boundary. See the appendix for grading/drainage letter. Easements may be required in lieu of the above letters if directed by the Transportation Department. Required easements must be recorded prior to plan signature or map recordation whichever occurs first. This note must be inked on the plan: "A notarized letter of permission accepting this slope construction and/or drainage is on file at Riverside County Transportation Department. Date of letter: _____" or if right-of-way is required, "Right-of-way recorded per instrument number _____ dated _____". The recording information is to be filled in at plan signature. If the plans are signed without recording information, it is the applicant's responsibility to ensure the right-of-way is recorded and the information is filled in when the plans are As-Built or Notice of Completion or final occupancy will be withheld until the right-of-way is recorded.

_____27. All required public drainage easements shall be a minimum of 20' wide or wider per appendix and shall be noted as to dedication and on-going maintenance. For non-County maintained drainage facilities, notarized letters of permission are required from property owners. Private easements may be less.

_____28. At intersections a minimum of 50' tangent from the flow line shall be provided before starting or ending a horizontal curve. All curves to be tangent, no "broken-back" alignments.

_____29. New street intersections shall be at 90 degrees and within 5' or more than 200' from an existing intersection. Five degrees shall be the maximum allowable skew. Trails are to cross all streets at intersections, no mid-block crossings allowed. Centerlines off sets are not allowed.

_____30. Show existing right-of-way and topography a minimum of 300 feet beyond the end of proposed improvements. Additional topography and right-of-way may be required; engineer should keep in mind sight distance, slope construction, and drainage concerns. Off-site right-of-way needs to be recorded prior to plan signature or as approved by Transportation.

_____31. Driveway approaches for residential use within cul-de-sac turn around areas and knuckle areas shall be shown on street plan when the lot frontage is less than 50 feet in width or for all commercial developments. Residential driveways should be minimum 5' away from BGR OR ECR on each side per Standard No. 208 and call out construction note and width per Standard No. 206 or No. 207.

_____32. All roads to be designed per Caltrans sight distance requirement. For off-site access roads on General Plan alignments, minimum design speed and T.I. should be per Standard No. 114.

_____33. Intersection sight distance shall be per Caltrans Highway Design Manual, Tables 201.1 and 405.1.A and fig 201.6 and 461 Standard No. 821.

_____34. A minimum of two points of monumentation on street centerline shall be shown and provided on PP, PUP, CUP and MS (Miscellaneous) projects. The monumentation shall include a description, and a reference to a recorded map for verification purposes. For projects that include recording documents,

i.e. map, deeds, easements, etc, no monuments need to be shown on street plans. All existing survey monuments are to be called out and protected or properly moved prior to construction per County Survey requirements, and provide state plan coordinates.

_____35. Per County Standard No. 212, A.C. dike is required where fill slopes are steeper than 4:1, material is susceptible to erosion, where roadway gradient exceeds 3%, or if a trail is in or near the parkway .

_____36. Contours shall be provided on the street plans for projects where no grading plan is required by Building and Safety as well as Grading Permit and cut/fill lines.

_____37. Dead end and stub streets longer than 150 feet from ECR/BCR require a paved fire turn-a-round within right-of-way or public easement per Standard 800 or as approved by the Transportation Department.

_____38. If the median or other improvements are not to be constructed, the following note shall be placed on the street plan and landscape plan cover sheet and applicable sheet to satisfy the median or other requirement. Cash-In-Lieu Note: An amount of $___(dollars)__has been placed in Account #20000-3130100000-230106 for the future construction of __(facility type)__ located on ____(street name or location)___ which is not feasible to build at this time. Receipt Number _____ dated _____.

A copy of the form (Appendix A 10) and cost estimate for future medians, including landscaping, shall be forwarded to the LLMD Coordinator in the Transportation Department for annexation.

_____39. Label right-of-way showing instrument number and date of recordation. If additional right -of-way is to be dedicated provide note and space for call out. Note to read “RIGHT-OF-WAY per instrument number _____dated _____”. Right-of-way to be recorded prior to plan signature unless allowed by Transportation.

_____40. Matchlines shall be chosen at “round” stations wherever possible or BC, EC, PRC, BCR, ECR (i.e.:45+00.00 not 44+97.62). Show matchline in plan and profile. Use the format: “Matchline Sta 45+00.00 See Sheet #4”

_____41. For “T” intersections of local roads, an access ramp shall be installed across the right hand return or as directed.

_____42. Need Caltrans or City permit number on plans if near or includes state right-of-way work. Caltrans to plan check, approve and inspect all work within State right-of-way.

_____43. Need RCFC permit number on plans if connecting to existing RCFC facility.

_____44. When project requires coordination with TIP it must be noted on the Plan Title Sheet and applicable sheet.

_____45. Show existing trees in or near the road and call out its disposition. For tree removals, environmental clearance will be required and can be at the planning stage with the project or a separate process.

I. PROFILE

_____ 1. Scale, horizontal and vertical.

_____ 2. Profile or centerline of existing and perimeter streets or ground line (dashed).

_____ 3. Finish centerline grade (heavy solid line).

_____ 4. Existing ground line at left and right property or improvement center line shall be shown if no on-site grading is proposed. For work within a project that has a grading plan, no existing ground line in the profile is required on curb lines, but may be shown at the applicant engineer's option. Ground line in profile view and roadside grading in plan view must be shown on any work outside the limits of the map boundary.

_____ 5. Finish top of curb grades, which will be a three-line profile with centerline(heavy solid lines).

_____ 6. Label all grade lines and profiles; show percent of grade on centerline and curb line.

_____ 7. Stations and elevations at beginning and end of improvements.

_____ 8. BVC, EVC, PRVC, PCVC, and P.I. stations with elevations. No grade brakes at the BVC, EVC, BCR or ECR. Do not show vertical curve data on plan view.

_____ 9. Length of vertical curve and elevations with circle every 25 feet on vertical curves. Refer to Caltrans fig. 201.4, and 201.5 for vertical curve length. 100' minimum unless approved by Transportation. Design speed may be labeled on the profile.

_____10. Extend profile beyond end of improvement on existing streets to justify grade (300 feet minimum). If new road intersects existing street, show profiles on existing street.

_____11. Elevation with circle and station on all grade breaks (identify with G.B. or V.P.I.) Design profiles shall not have consecutive grade breaks within 300'. Use tangents and vertical curves.

_____12. Indicate lengths of curb returns. Show to true scale. Show elevations at delta / 4.

_____13. Minimum fall around curb returns with no cross gutters, gutters around knuckles and cul-de-sacs shall be 1.0% minimum, however a 0.5% minimum is allowed with prior approval. A minimum of 2.0% cross fall is required from the center of a cul-de-sac to the gutter high point. A grade break up to 2% is allowed at the high point on the curb line of a cul-de-sac. A cross fall of 2% minimum is required for knuckles.

_____14. Plane method shall be used in curb return design. See appendix for worksheet.

_____15. Stationing at bottom of profile at 100' intervals.

_____16. Names and stationing at intersecting street points.

_____17. Drainage structures to scale in the profile and note critical F.L. elevations.

_____18. Show grade for cross gutters, show station and elevation at gutter lips and at flow line. The elevation between lip and F.L. is 0.16' and the elevation between the edge of gutter and F.L. is 0.13'. Mid-block cross gutters are not allowed. If they are pre-approved, then a minimum grade shall be 1.00%, however a minimum of 0.50% is allowed if pre-approved by Transportation.

_____19. Use vertical curves for all grade break differentials in excess of 0.50%, but do not create flat vertical curves where drainage is a problem, and do not design a series of consecutive grade breaks trying to follow existing pavement. Grade breaks should be avoided as much as possible and not used for convenience. Grade breaks should not be closer than 100' and the total grade breaks should not exceed 0.5%.

_____20. Show profile of all proposed ditched or piped drainage facilities and driveways to be reconstructed.

_____21. Design speed shall be determined from the Transportation Department Standard No. 114. The terrain types refer to the existing ground prior to construction.

_____22. Maximum street grade is 16% and the minimum is 0.50%. However, every effort should be exhausted to exceed the 0.50% and should it become absolutely necessary to use 0.50% then it may be permitted. If centerline grade is less than 1%, concrete curb and gutter will be required, no AC dike. Other grades may be allowed as approved by the Director of Transportation. Profile grade of the streets should coincide with the existing contour gradient of the property unless the existing profile does not meet current design standards and road classifications. In this case, the whole road width is to be reconstructed to meet the standards as directed by the Transportation Department.

_____23. Maximum grade for intersecting (minor) street at intersection is 5% for minimum tangent of 100' from flow line, or as approved by the Transportation Department. Vertical curves are allowed closer than 100' when the grades are less than 5% and/or are greater than -5%. To preserve the crown section as close to the intersecting street as possible use vertical curves to transition to the cross street.

_____24. Grades to be shown in percent.

_____25. Roads with A.C. Dike, single centerline profile grade is acceptable, no need for three line profile grades; but limits of cuts and fills should be shown on the plan, and more details should be provided at intersections.

_____26. Street cross sections required at 25' intervals (or as needed) for any work involving the joining or overlaying of existing pavement. Inverted sections are not allowed for match up widening, overlay or removal will be required. The outboard crossfall must be the same, or steeper, than the inboard crossfall. Keep range of crossfall between 1.5% and 2.5%. Show existing and proposed crossfall. If the existing pavement cannot be saved, sections will not be required.

_____27. Complete drawings of cross sections must be provided either on mylar sheets as part of the improvement plans or on 81/2" x 11" sheets in a binder as a supplement to the improvement plans and a note on the plans stating such. (Provide 2 copies)

J. DRAINAGE PLANS (SEPARATE OR WITH STREET SET)

Flood Control will review WQMP, storm drain plans and drainage reports for Transportation if a Flood facility, permit or master drainage plan is involved. If no Flood Control review is required, the following will be Transportation review criteria:

_____ *1.* See Improvement Plans, First Plan Check Submittal, Note B for storm drain formats. This can be with the street plans or a separate storm drain set.

_____ 2. Show culverts, catch basins, cross gutters and other drainage structures on the Index Map and Flow Chart located on the street plan title sheet.

_____ 3. Give specific locations i.e., stationing, of all drainage structures on the plan and profile sheets.

_____ 4. Show profile for all culverts, ditches, and channels with stations, lengths, invert elevations, V and Q100, Q100 hydraulic grade lines, maintenance entity if not Transportation or Flood Control. For on grade catch basins, the flow in the connector pipe is the flow intercepted by the catch basin in a 100-year event, not the Q100 in the street.

_____ 5. 2-foot minimum free board from the road centerline profile grade to the water surface is required in culvert design. Minimum culvert size is 18". Plastic pipe is allowed if all criteria is met. See appendix for requirements. Minimum storm drain mainline is 24" pipe.

_____ 6. Show right-of-way, roadway section, and existing ground profile grade for the entire length of culvert and beyond, utility crossings, etc., on the culvert profile cross section. Address any clearance problems. Do not place storm drain in parkway or under P.C.C. areas (i.e. sidewalks, cross cutters, handicapped ramps) unless approved by Transportation.

_____ 7. Show 100-year frequency headwater depth for culverts on sustained grades. Show 100 year and 10 year frequency headwater depth for sag grade.

_____ 8. Add note on storm drain plan: "When cover to finish grade is 2' or less, class C (420-C-2000) concrete backfill will be required from bottom of pipe to minimum depth over pipe to 4". For culverts, two-foot cover, minimum is required at hinge point / flow line from top of pavement to top of culvert (keep out of base). If cover is less, concrete saddle per Caltrans Spec Sec 19-3.062 or equal may be required. All pipes shall be backfilled per Caltrans spec section 19.

_____ 9. Specify standard and manufacturer for multi-plate structures.

_____10. Cast-In-Place Pipe may be used for storm drains, however, a letter from the soils engineer recommending the use of CIPP, and noting ground water, expansive soil and trench wall stability will be required. The hydraulic calculations should reflect the correct "n" and structural calculations will be required if the cover over the pipe is less than 3' or greater than shown in table 2.3 per ACI 346. See appendix for the requirements.

_____11. Metal pipe culverts shall be allowed only if per appendix and complying with the following:

	V100 fps	Minimum Gauge	Culverts with Polymeric Invert Coating
Heavy Abrasion	0-4	12 gauge	
	4-7.5	12 gauge	X
	>7.5	not allowed	
Medium Abrasion	0-7.5	14 gauge	
	7.5-12	12 gauge	X
	>12	not allowed	
Low Abrasion	0-10	14 gauge	
	10-16	12 gauge	X
	>16	not allowed	

_____12. Give size, length, and "D" strength for reinforced concrete pipe. "D" strength shall be per Caltrans Standard A62D for pipes placed within right-of-way, except for Area Drainage Master Plan Pipes (ADPP) that will be approved by the Flood Control District.

_____13. Bulking factor may be asked to consider on all culvert designs and per Riverside County Flood Control District requirements. Typically for natural watersheds.

_____14. For all County maintained pipe inlet or outlet flow line elevations that are 10' or greater below the centerline elevation, a 15' paved with 3” AC over compacted native access road, 15% max grade and 2% cross fall within an easement shall be provided to the inlet and/or the outlet as needed or as directed by the Transportation Department. Access road shall be paved within the right-of-way and include a driveway approach with a pipe swing gate, per RCFC standard M820, 20 feet from the curb line or out of parkway. Bollards are not allowed. A 70-foot diameter turn-a-round shall also be provided at the culvert end or equal. Note: Access road is paved over native soil up to headwall.

_____15. Riprap shall be provided at inlets for 1' minimum above the Q100 water surface elevation if it is above the top of the pipe.

_____16. Show rock riprap (1/4 ton minimum, if not grouted) or other erosion control methods. Give required thickness for rock riprap. 30 inches is minimum for 1/4-ton classification.

_____17. A minimum slope of 0.003 shall be provided on all storm drain pipes, and a minimum of 3 fps for 100-year flows shall also be provided. Location of storm drain lines shall be per Standard 817 and a minimum of 24” for main lines with laterals and 18” for laterals.

_____18. When velocity is > 20 fps, the following note should be added on storm drain plans:

> "The concrete coating on the inside of all reinforced concrete pipes must be increased to provide a minimum of 1-1/2" over the reinforcing when the design velocities exceed 20 feet per second. The concrete design strength in these reaches shall be f'c = 5,000 psi for velocities exceeding 20 feet per second and f'c = 6,000 psi for velocities exceeding 30 fps."

_____19. Reinforced concrete, “pipe anchors” are required on finish grade slopes steeper than 4:1. Anchors shall be placed at 10' vertical intervals and be constructed per RCFCD standard M821.

_____20. A secondary overflow facility to handle the surface Q100 to a basin in a sump shall be provided, such as a ditch, additional catch basin and independent lateral, routing, or as approved. If a ditch is used, it is not required to be lined, but must convey the Q100 flow when ponding is at the right-of-way elevation. The ditch should drain away from the sump to an acceptable facility, preferably a street. The ditch must be within an easement to allow flows over the property but will be maintained by the property owner. If Transportation agrees to maintain the area a separate lot dedicated to the public with dual fencing, should be considered.

_____21. 20 ft. minimum dedicated drainage easement shall be required for all drainage that perpetuates street drainage through private property; and it should be noted as to dedication and on-going maintenance of the surface and shall not be split by existing or proposed lot lines. Drainage easement widths shall be per Easement Table in Appendix. Slopes may encroach up to two feet onto the easement with Transportation permission; otherwise the easement shall be relatively flat and drivable for the length of the easement. Easements may be fenced, however a 16’ wide gate in front yard areas and an opening under the fence able to pass the Q100 is required. The property side may be fenced but not the lot side, unless on-going maintenance is set up. If there is a fence across the easement in the back of the lot, a catch basin or opening under the fence able to handle the Q100 safely without impeding the flows shall be provided. The easement should extend a minimum of 10’ from the end of County maintenance responsibility.

_____22. If a ditch is used to convey the overflow, a typical section shall be shown, including flow depth, Q and V, and who will maintain the ditch. For emergency overflow, consider natural lining as it will seldom be needed. If the velocity exceeds 6.0 fps a hard surface may be required.

_____23. When drainage patterns are substantially changed, drainage is concentrated or increased over historical drainage patterns and Q's, the developer shall obtain either a drainage easement or drainage acceptance letter as applicable. Public storm drains not in road R/W will require easements for pipe maintenance. All public drainage easements shall be per above.

_____24. Show centerline station of catch basin with "W" and "V" on storm drain and street plans. On profile, show F.L. and elevations of local depression of catch basins.

_____25. A manhole shall be provided at the BC or EC of horizontal curves in storm drains for maintenance access and every 400’ on storm drains.

_____26. For County maintained box culverts or storm drains, the minimum height of 6 feet may be required for maintenance purposes due to CALOSHA requirements and other heights may be allowed as approved by the Transportation Department. Also, the height to width ratio shall be per Caltrans Standard Plan D80.

_____27. For any unusual drainage facility that Transportation will maintain, a non-refundable cash payment for ten years of maintenance must be calculated and paid to Transportation prior to approval of the improvement plans with a completed agreement. See appendix for agreement or annexation into L&LMD may be required.

_____28. For storm drain inlets and outlets (excluding culverts unless warranted or required by Transportation), a grating device shall be used. As a safety consideration, use grating devices whenever the installation is in the vicinity of schools and/or residential area where children and/or animals might enter the drainage device. Such protection should be in the form of a fence, wall, grate or equivalent.

_____ 29. Install manhole on all locations when maintenance jurisdiction changes from County to City or HOA, to differentiate maintenance responsibility. HOA maintained facilities should stay out of right-of-way unless otherwise approved by Transportation Department.

_____ 30. No flow through catch basins are allowed. Connections directly to catch basins are prohibited from off-site sources except for cleaned water flows.

_____ 31. For under sidewalk flows use Standard 309 with a maximum opening of 34", or Standard 303, maximum opening width of 46" or Standard 308 maximum width 36" and all are for commercial/industrial drainage. Standard 310 is for single residential lot drainage.

K. FINAL MAP CHECKLIST

The Improvement Plan Checker needs to review the final map for the following:

1. Use correct, updated name for County Surveyor and Clerk of the Board.
2. Approval date and expiration date of the map.
3. Owner's statement dedicates storm drain/access easements, streets, landscapes, etc. to public if Transportation is to maintain. If privately maintained the easements should be reserved.
4. Board of Supervisors statement accepts (or does not accept) easements. Typically, if the facility is to be maintained by city, county or state government, it should be accepted.
5. Easements shown on map should indicate to whom the easement is being dedicated in the statements, and what it is for.
6. Flood Control easements are processed as follows:

   Easements dedicated on maps for Flood Control purposes cannot be accepted by the County of Riverside. The County cannot act on behalf of Riverside County Flood Control and Water Conservation District as the County and District are not the same entity.

Easements for RCFC may be dedicated to the Public, and shown as "not accepted" on the Board of Supervisor statement. After construction of the RCFC facility, Flood Control will request Transportation to process an acceptance of the easement, and will quitclaim the public's interest to Flood Control.

Format of an RCFC easement on a map:

"We hereby dedicate to the PUBLIC an easement over Lot(s) _____ for flood control purposes."

OR

"We hereby dedicate to the PUBLIC a (n) (_____-foot) (storm drain/flood control/retention basin/drainage access) easement(s) as shown hereon, for flood control purposes."

Examples: We hereby dedicate to the PUBLIC, a storm drain easement within Lot 52 and shown hereon, for flood control and maintenance purposes."

We hereby dedicate to the PUBLIC, a 20-foot drainage easement as shown hereon for flood control and maintenance purposes."

7. Centerline bearings & distances on final map need to match street plans.
8. Storm drain easements for Transportation need to be shown on one lot, not split on a lot line, and are to be accepted in the maintained road system.
9. Easements shall conform to the naming convention as called out in the Map Manual by Survey Division and is available on their website.
10. Retained lots are used for private dedications and maintenance.

L. CALTRANS RIGHT-OF-WAY PROCESSING

1. Caltrans Right-Of-Way

Some projects involve work within the state right-of-way, which is the jurisdiction of Caltrans. For projects which have conditions of approval (COA) written. Caltrans will review the plans, but Caltrans will not sign or stamp the plans. Instead, Caltrans will issue an encroachment permit number for the work within their jurisdiction.

For projects with work valued above $1,000,000 in Caltrans right-of-way, Caltrans sheets will be required.

If there are no Conditions of Approval, the County will not review the plans, only Caltrans will review.

For landscape and street lights, County will take the lead for plan checking within Caltrans right-of-way. (See Comprehensive Landscape Guidelines and Standards at www.rctlma.org/trans/Land-Development/Special-Assessment-Districts/Landscape-Guidelines-and-Standards.

2. Plan Review

It is the responsibility of the applicant to submit plans to both the County for its part and Caltrans simultaneous for review in its right-of-way. On the title sheet of the improvement plans, a note must appear showing:

Caltrans Permit Number _____

This number, issued by the state, must appear by the second plan check received by the County.

3. Caltrans Requirements

Prior to plan approval, C.O.A.'s and letters from Caltrans must be satisfied. Any change, deviation, waiver, addition or deletion of a Caltrans requirement must be done in writing with the signature of a Caltrans member authorized to allow the change. Verbal changes will not be honored, nor letters which are missing the Caltrans letterhead and/or signature.

4. Design Standards

All design items in Caltrans right-of-way shall apply Caltrans standards, unless specifically waived by Caltrans in writing.

Caltrans will review and require pavement sections, curb types and any signs and or striping. If there is a signal involved, it will be reviewed by the maintaining agency.

If the Caltrans standards cannot be adhered to for any reason, the applicant shall follow the Fact Sheet Procedure for obtaining Caltrans clearance.

M. SLOPE REQUIREMENTS FOR ROAD CONSTRUCTION (WHEN NO GRADING PLAN IS REQ'D)

1. When no grading plan is required, street improvement plans shall show existing contour lines on the plan view with sufficient width to show the entire limits of the grading. In addition, separate cross sections as developed in the design of the road(s) or as may be determined necessary by the Transportation Department shall be submitted. Cut and fill slopes shall conform to the 2013 California Building Code (CBC), Chapter 17, 18, and Appendix J. When slope heights exceed 30 feet and are steeper than 3:1, the limits of grading, as a minimum, needs to include terraces and interceptor drains as specified in the CBC Appendix J.
2. The improvement plans may need to be accompanied by a soil engineering report and an engineering geology report in conformance with CBC chapter 18, with their recommendations incorporated and on "R" value Also to be shown are details of terraces and area drainage with runoff served by each drain, watercourses, and rate of surface runoff for 10 year and 100 year storms (Q10, Q100). The quantities of grading and drainage structures shall be included on the Transportation Department Construction Cost Worksheet.
3. The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting and other measures. For further information, refer to the latest edition of the CBC, Chapter 18.

4. Slopes may be inspected by County inspectors and/or by County contracted inspectors. Professional inspections shall be provided, if required, by the civil engineer, soils engineer and the engineering geologist retained by the permittee.
5. Upon completion of work, final reports are required in conformance with CBC as well as notification of completion.
6. The National Pollutant Discharge Elimination System (NPDES) is a national program to control non-point source pollutants carried by storm water. The program is implemented and enforced by the State Water Resources Control Board (SWRCB). Flood Control conditions development projects and insures compliance with WQMP for projects connecting to, constructing or are a MDP facility all other projects will be reviewed by Transportation.
7. Notarized letters of permission are required for any grading on property that is beyond tract boundary. See the appendix for grading/drainage letter. Easements may be required in lieu of the above letters if directed by the Transportation Department. No permission is needed for work within existing accepted public dedications, unless private facilities will be altered, then owner notification will be required.

N. GRADING

Grading clearance requests come to Transportation from the engineer/developer/owner.

There are few scenarios of the request and each varies from project to project, or from case to case. If not already done, a review and determination of the WQMP shall be made at this time.

Here are some of the scenarios and how Transportation handles each for (Rough Grading)

1. For any active project that is going thru the plan check process with Transportation, a request could be made by the design engineer/developer.

   In this case the request should/would go directly to the Transportation plan check engineer who will look into it and allow or deny grading and if denied then with corrections. The plan checker should discuss with WQMP review staff to find out if it is being checked and what the status is.

2. For projects which have approved street plans but are not active.
   a. Grading plans with a BGR number come to Transportation from the applicant. Many of these involve grading request for one or two lots on an old parcel map.

      In this case Transportation reviews the grading plans and compares them with what has previously been approved and makes sure that if any grading is done within the R/W is done per the approved plans and provides access to the lots and will work today and in the future if that road is designed and built.

   b. If the grading plan has a BGR number and was for a previously approved tract, then Transportation compares this new grading plan with the previously approved one before the clearance is issued to Building and Safety.

3. For grading plans with a BGR number which Transportation receives and do not have an active IP case in plan check nor are improvements plans submitted yet for plan check, the engineer/developer would like to jump start the review; we typically deny grading. Improvement plans for a project which has approved conditions for street improvements must be submitted to Transportation for plan check; and after doing at least one complete and thorough plan check, the plan check engineer will clear and/or deny grading depending on the findings.

4. For grading plans with a BGR number which Transportation receives from an applicant and which they show some improvements within the road R/W, i.e. driveway construction, under sidewalk drains, adding a sidewalk or any improvements, we review the grading plan and if we find on file previously approved improvement plans, then we will require the engineer to check out our original mylars and revise them to show these proposed improvements before we clear the plan for grading, NOTE: For checking our original mylars to do the revision, see Section I part E in this handout on revising plans.

5. For Plot Plans, Public Use Cases and Conditional Use Cases.

   a. If they are active projects in plan check see case 1 above.

   b. If they have "IN EFFECT" conditions of approval for improvements but nothing has been submitted to Transportation for plan check and we receive grading plans with a BGR number, then we can review our file and compare the grading plan with the approved "Tentative" site plan on file and the conditions of approval are required prior to Building permit or prior to final inspection or occupancy then generally we allow on site grading, but no work is allowed in the road right-of-way.

   Work within road right-of-way MUST have approved plans and developer MUST get an encroachment permit. NOTE: If no improvements are required but there is some work to be done within the road right-of-way such as driveways, drains, laterals etc... Then we will ask the engineer to revise our existing improvement plans if any are available; if no existing plans are available then we will ask the engineer to give us a mylar copy of this grading plan which is showing the new improvements on it, and we will approve and/or stamp this mylar to allow construction of these improvements within the R/W and the developer MUST show these approved plans to our Permit Section and obtain an encroachment permit to do this work.

6. If a Mass Grading plan has a BGR number, we will review and generally clear it, if all is OK. Coordination with the WQMP checker is required to get an update before issuing any clearance.

7. We do not review, check or approve Precise Grading as it only deals with grading on the lot. If it affects the right-of-way or causes additional work not covered by rough grading then a review by Transportation will be required.

8. For Fire Department Turn-Around, see Fire Department handout. http://www.rvcfire.org.

GRADING PLAN PROCESSING:

Work flow for the Ultimate Road Right-of-Way (URW) is as follows. This process applies to all grading permits and, dwelling accessory permits that are locating structures in the "Ultimate Road Right-of-Way" (URW).

a. Applicant is sent to Land Use to start permit process.

b. Land Use Tech checks RCLIS and parcel shows up next to a General Plan Road.

c. Land Use Tech informs applicant that proposed construction is on a General Plan road.

d. Applicant is sent to Transportation Department, no permit number started.

e. Transportation makes applicant aware of options and set back requirements.

f. If applicant chooses **to comply.** Transportation then places a "notice" on the parcel in LMS and indicates location of URW on site plan and signs off on plan.

g. Land Use Tech checks for Transportation release on site plan, verifies set-backs and starts permit.

h. If applicant chooses **not to comply.** Transportation then places a, "notice", on the parcel in LMS and sends applicant back to Land Use with a letter indicating applicant's choice not to comply.

i. Land Use Tech takes letter, attaches it to the application and starts permit.

O. CASH IN-LIEU OF CONSTRUCTION PROCESSING

Cash-In-Lieu is a last resort process or determined at the tentative process. It is a way to satisfy the intent of the conditions while allowing the project to move forward.

1. The plan checker has to agree that the work on your project qualifies to deposit cash in lieu of construction.
2. The engineer prepares the cost estimate for future construction including future design, staking, inspection and administration to the satisfaction of the plan checker.
3. The plan checker approves the cost estimate. See appendix for estimate.
4. The Plan Check Supervisor processes the agreement already signed by the developer.
5. The agreement and check are processed beginning on the 8th floor.
6. Standard notation is then inked on the mylar of the street plans and they can be signed. An amount of $ (dollars) has been placed into account #20000-3130100000-230106 for the future construction of (facility type) located on (street name or location) which is not feasible to build at this time. Receipt Number dated _____.
7. On landscaping plans, show a note on the title sheet regarding the area of the future landscaping. "Future median landscape area = _____ SF." This allows for calculation of future landscape maintenance money by the agency of jurisdiction. See Comprehensive Landscape Guidelines for more information.

V. DRAINAGE

A. STORM DRAIN PLAN CHECKING PROCEDURES

For most developments Transportation will review the WQMP, drainage report and storm drain plans. If the project has a Flood condition requiring plan submittal and has facilities, Flood will maintain then they will review the drainage and WQMP for the project. If there is not a flood condition requiring plan submittal, Transportation will review and approve drainage report and storm drain plans.

When Flood Control is responsible for plan checking the drainage plans and calculations it includes all drainage facilities, including Flood Control non-maintained facilities.

The applicant is responsible to provide Transportation and Flood Control with street and storm drain plans. For projects with both Transportation and Flood Control facilities use Flood Control standard title block. For projects with Transportation facilities only, use the Transportation standard title block.

B. REPORT

A Drainage report is required for all developments in the County. It shall include a project description, project setting including discussion of existing and proposed conditions, any drainage issues related to the site, a summary of the findings or conclusions, offsite hydrology, onsite hydrology, hydraulic calculations and a hydrology map. Supporting materials must be included in the package, including all charts, tables, graphs and soil maps used to determine initial time of concentration, hydrologic values, and the like. Depending on the proposed facilities, the report may be reviewed and approved by Flood Control as well. If a bulking factor is required and is in dispute, a debris study will be required to justify the amount of bulking.

C. HYDROLOGY METHODS

For study areas less than 300 to 500 acres including offsite areas, use the Rational method. For larger areas and for routing drainage through detention or into retention basins, use the Synthetic Unit Hydrograph method. See Riverside County Flood Control Hydrology Manual for procedures and calculations.

D. HYDROLOGY CALCULATIONS

The Riverside County Flood Control Hydrology Manual has calculation worksheets that can be utilized for calculations. There are also a large variety of computer programs available for computing drainage runoff. The accepted programs are HEC-1 from the Hydraulic Engineering Center or authorized vendors, Rational or Synthetic Hydrograph from Advanced Engineering Software, or Rational, Synthetic Hydrograph, or Basin Routing from Civil Design. There may be others, please contact Flood Control Plan Check at (951) 955-1200 for verification. The analysis should include calculations of the existing and proposed conditions.

E. HYDRAULIC CALCULATIONS

All facilities that convey drainage must have calculations to support its use. The facilities include streets, culverts, storm drains, channels, catch basins, inlets, connector pipes, and others. Number and location of catch basins pipes and other drainage devices above the minimum requirement shall be at the discretion of the Transportation Department. When practical, intersections shall be designed to be dry.

All street section capacity calculations must be included using the Manning's equation. They should include depth, quantity, and velocity and can be hand or computer generated calculations. When streets are allowed to be used for drainage purposes, the 10-year frequency storm shall be contained below the tops of curbs (or dikes), and the 100-year frequency storm shall be contained within street right-of-way. If either of these criteria is exceeded, additional drainage facilities must be provided. (See Ordinance 460, Section 11.1 for additional information.) Use 6" curb max on road types including secondary and 8" curb max on road types wider than secondary. Allowable velocity within the street section shall be determined by the product of depth of flow in feet times velocity in FPS and must be less than or equal to 6. Concrete Dip Crossings shall not be allowed unless approved by Transportation. If allowed, Q100 exceeds 250 cfs and one all-weather route is provided, and all else is satisfied per Ordinance 460, Section 11.3, Concrete Dip Crossings may be allowed, with fire department approval. The maximum depth of water allowed over the roadway is 9 inches and the maximum velocity is 1.5 fps.

Culverts must include inlet or outlet control calculations per HEC-5, Hydraulic Design of Highway Culverts not just Manning's equation. Also provide structural calculations for the culvert if it falls within AASTO or Caltrans bridge criteria.

Storm drains require calculations of the hydraulic grade line that must be shown on the storm drain profile. This can be done using the worksheet in the Los Angeles County Flood Control Manual, Page G-1 or a computer program. Some of the accepted hydraulic programs are HEC-2 from the Hydraulic Engineering Center or authorized vendors, normal depth features of Hele from Advanced Engineering Software, or LA County WSPG, or Normal Depth Hydraulics from Civil Design. There may be others, please contact Flood Control Plan Check at (951) 955–1200 for verification. Also provide structural calculations for all pipes under the road way.

Open channels or open flow pipes can be sized with the Manning's equation. . In the Manning's Equation $Q=(1.485918/n)(A)(R^{2/3})(S^{1/2})$, [A=area, R=A/Pwet, S=CL Slope] the values of "n" shall be as follows: 0.013 for RCP; 0.014 for Cast In Place pipe; 0.014 for rectangular conc. channel; 0.015 for trapezoidal conc. channel; 0.015 for street sections; 0.020 for earth swales; 0.025 for CMP/CSP; 0.040 for grass.

Catch basins and inlets should be per Transportation Standards, not Flood Control, and sized per HEC-12, Drainage of Highway Pavements. Catch Basin sizing shall be calculated using the FHWA HEC 12 equations as follows: For on grade locations; $Lt=0.6 \times Q^{0.42} \times s^{0.3}[1/(n \times Sx)]^{0.6}$ for total length required. If length is excessive, also use $E=1-(1-L/Lt)^{1.8}$, acceptable efficiency is above 60%. For catch basins in a sump, use the weir equation if Q100 flow is below top of curb and the orifice equation for Q100 depths above top of curb. Grated catch basins are discouraged, but may be used on steep streets without debris. A minimum of 0.5 feet of free board is required in the catch basins for the Q100 flows. Acceptable lengths include 4', 7', 10', 14', 21', not to exceed 28'. Use multiple

catch basins if additional length is needed. Catch basins in series are not allowed unless approved by Transportation as an emergency overflow system; an emergency overflow route is required for some locations.

Connector pipes must be sized per LA County Hydraulic Manual section D. For on grade catch basins, the flow in the connector pipe is the flow intercepted by the catch basin in a 100-year event, not the Q100 in the street.

Any other facility being designed as part of the project must have support calculations. Note the reference and include tables, charts and other reference material if utilized.

F. HYDROLOGY MAP

All hydrology calculations must have a map. There may be multiple maps, one for existing and/or proposed development and for onsite and offsite areas.

_____ 1. Hydrology maps shall be clear, legible (0.12" minimum text height), and to a scale large enough for their intended purpose, or they will not be accepted. USGS maps shall be avoided, but if used, shall be enlarged. RCFC Topo maps shall be used if they exist for the project area.

_____2. The preferred sheet size is 24" x 36". A different size may be used provided it folds into 8" x 10" and fits into a pocket in the back of the report.

_____ 3. Show contours, proposed and existing slopes. Flown, Flood Control or other mapping may be used and should cover the onsite and offsite watershed.

_____ 4. Label all nodes, node elevations, area names and acreages, and flow directions, flow path lengths, all to match drainage report.

_____ 5. Show proposed and existing street layout include high points and sumps, lots and lot numbers, drainage facilities including catch basins, storm drains, culverts, ditches, basins, etc.

_____ 6. A legend, north arrow and scale, project number (tract, plot plan, parcel map), "IP" number, date and engineer's stamp. The applicant may include a vicinity map and other identifying information at their option

_____ 7. Show watershed boundary, sub area boundary, flow length, node elevations, flow path, areas, 10 year and 100 year flows at concentration or confluence points such as structures and project entrances and exits.

_____8. Show basins and provide volumes, inflow and outlet flows for the 10 and 100 year events at each structure.

VI. STATE PROGRAMS

A. CALTRANS FACILITIES

Caltrans (California Department of Transportation) has jurisdiction for work on state highways. For projects conditioned by the County of Riverside, a County bond must be posted, including work within state highway right-of-way. If the bond can name the county and the state, one bond may satisfy the requirements. If the bonding company will not allow naming both agencies, Caltrans may require the developer to *also* bond the same facility with the State, or any portion thereof. The County has neither jurisdiction nor control over the bonding requirements imposed by the State. The County requires a bond as a guarantee that the developer will meet the conditions of approval as approved by the Board of Supervisors. Also see Section IV L.

B. CALTRANS RIGHT-OF-WAY PROCESSING

1 Caltrans Right-Of-Way

Some projects involve work within the state right-of-way, which is the jurisdiction of Caltrans. For projects which have conditions of approval (COA) written. Caltrans will review the plans, but Caltrans will not sign or stamp the plans. Instead, Caltrans will issue an encroachment permit number for the work within their jurisdiction.

For projects with work valued above $1,000,000 in Caltrans right-of-way, Caltrans sheets will be required.

If there are no Conditions of Approval, the County will not review the plans, only Caltrans will review.

For landscape and street lights, County will take the lead for plan checking within Caltrans right-of-way. (See Comprehensive Landscape Guidelines and Standards at www.rctlma.org/trans/Land-Development/Special-Assessment-Districts/Landscape-Guidelines-and-Standards.

2. Plan Review

It is the responsibility of the applicant to submit plans to both the County for its part and Caltrans simultaneous for review in its right-of-way. On the title sheet of the improvement plans, a note must appear showing:

Caltrans Permit Number _____

This number, issued by the state, must appear by the second plan check received by the County.

3. Caltrans Requirements

Prior to plan approval, C.O.A.'s and letters from Caltrans must be satisfied. Any change, deviation, waiver, addition or deletion of a Caltrans requirement must be done in writing with the signature of a

Caltrans member authorized to allow the change. Verbal changes will not be honored, nor letters which are missing the Caltrans letterhead and/or signature.

4. Design Standards

All design items in Caltrans right-of-way shall apply Caltrans standards, unless specifically waived by Caltrans in writing.

Caltrans will review and require pavement sections, curb types and any signs and or striping. If there is a signal involved, it will be reviewed by the maintaining agency.

If the Caltrans standards cannot be adhered to for any reason, the applicant shall follow the Fact Sheet Procedure for obtaining Caltrans clearance.

C. NPDES

The NPDES facilities are required by the Water Quality Control Board, conditioned and plan checked by Transportation or when a MDP or Flood Control facility will be connected to constructed or maintained, Flood Control will review and condition for the WQMP and drainage improvements, check plans, and inspect construction. If no Flood Control facilities, permit or Master plan as part of the project then Transportation will review, condition and inspect the WQMP facilities. Plans with NPDES facilities will be approved by Transportation or Flood Control, when Flood reviews anything they issue a letter stating the conditions have been met, which allows Transportation to sign the street plans.

BMP Facilities Management Agreement:

- For private On-Site NPDES facilities, the Developer must execute an Agreement to maintain the BMP facilities. See Appendix. This may be executed by Transportation on behalf of TLMA.
- NPDES facilities (fossil filters in catch basins) when allowed within the road right of way must be maintained through L&LMD 89-1-consolidated. Also, Bio-swale maintenance is provided by the Landscape Maintenance District when allowed in road right-of-way and must be annexed.

As a general rule, no NPDES facilities are allowed within the road right-of-way. When geographical constraints do not facilitate on-site treatment of flows a coordination meeting is required to include: Transportation, owner and engineer so all can agree on treatment facility, location and maintenance.

When WQMP has been reviewed and is near approval by Transportation or Flood Control, the BMP Agreement is processed and executed by Transportation and a copy is to be provided for inclusion into the WQMP prior to its approval.

No underground treatment or storage devices are allowed in the road right-of-way.

All facilities proposed within right-of-way shall be annexed for maintenance unless approved by Transportation.

No closed water quality treatment facilities allowed in road right-of-way.

Exhibit WQ-1

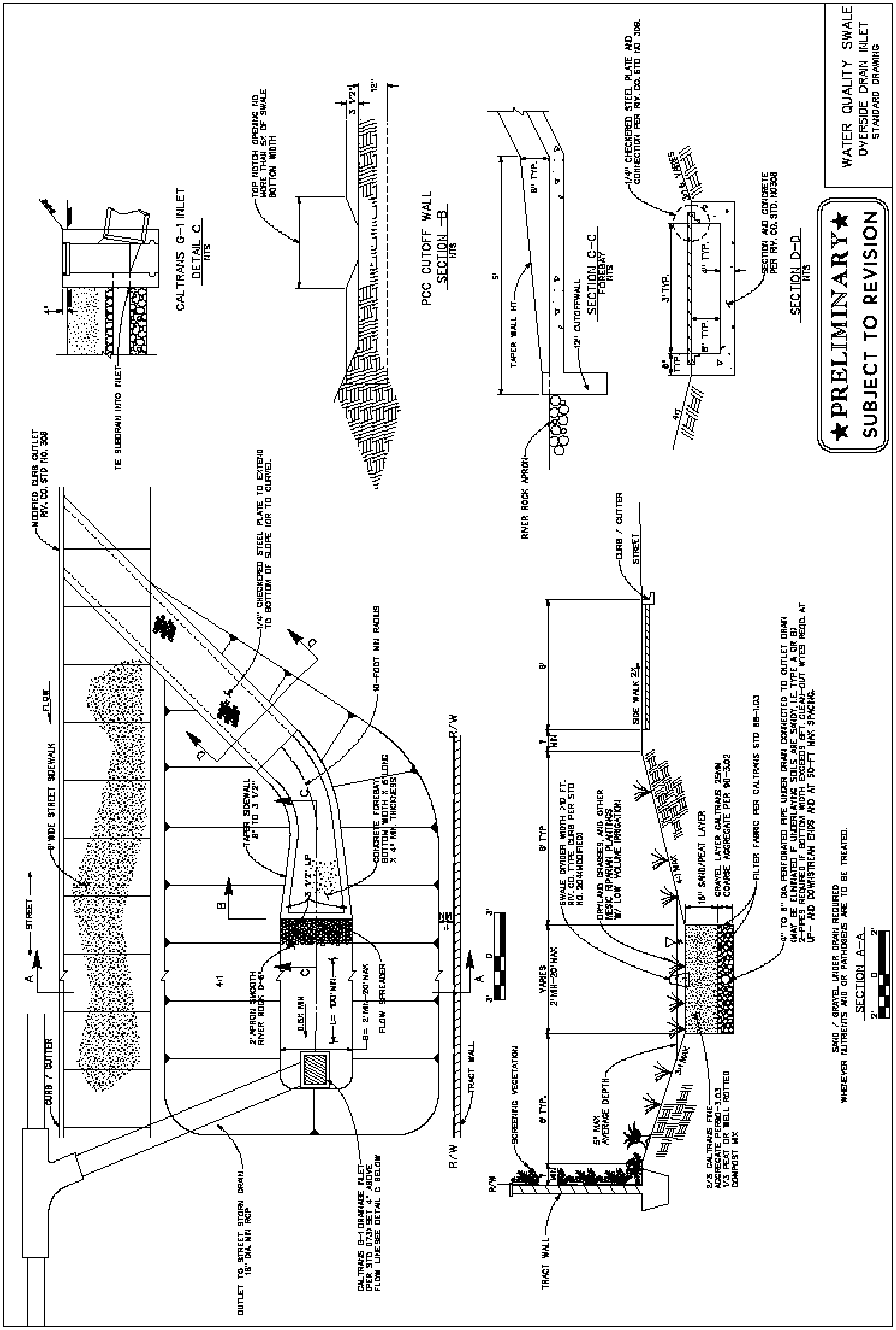
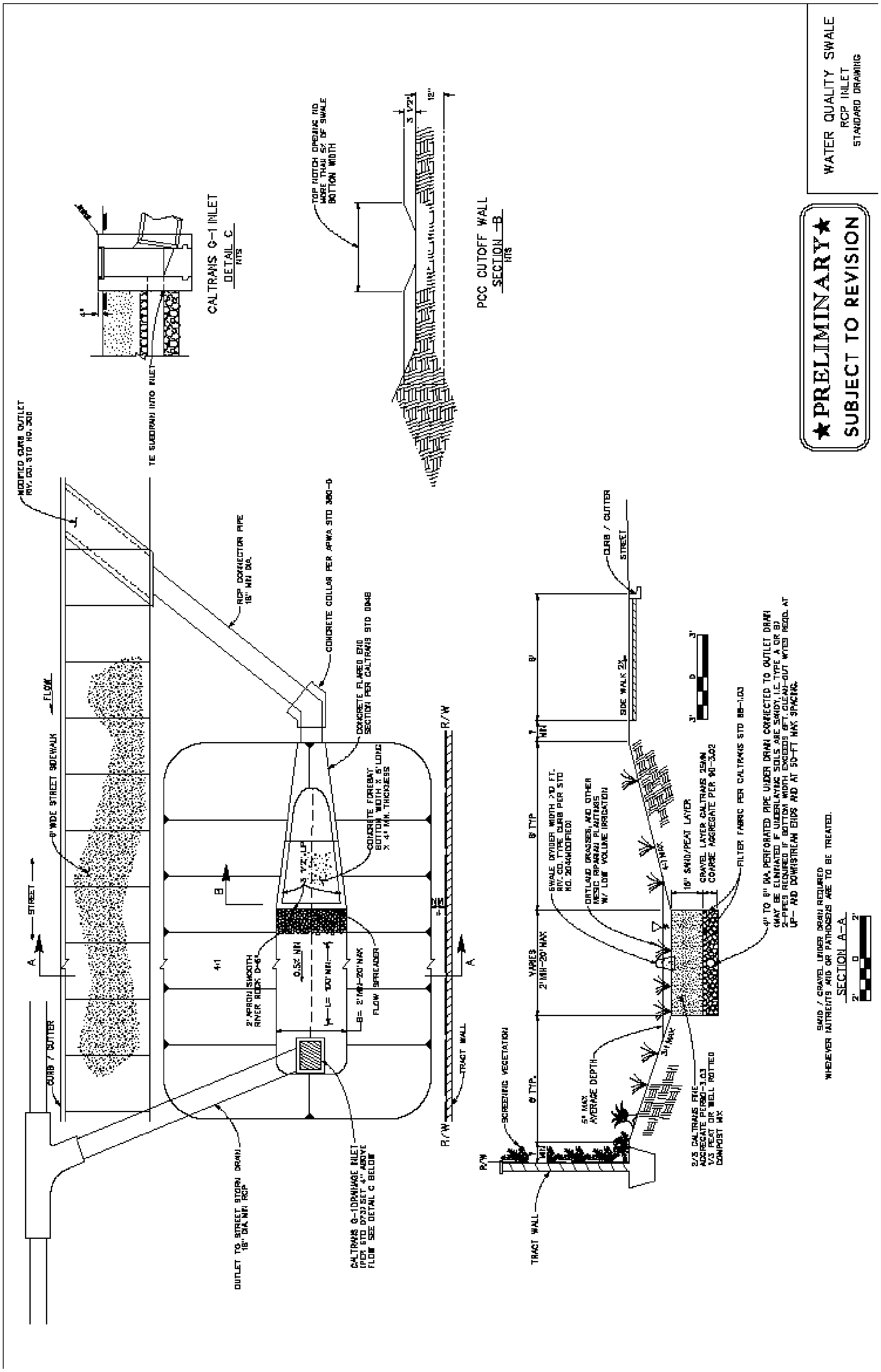

WATER QUALITY SWALE
OVERSIDE DRAIN INLET
STANDARD DRAWING
★PRELIMINARY★
SUBJECT TO REVISION
CALTRANS G-1 INLET
DETAIL C
PCC CUTOFF WALL
SECTION B
SECTION C-C
FOREBAY
SECTION D-D
SECTION A-A

Exhibit WQ-2


WATER QUALITY SWALE
RCP INLET
STANDARD DRAWING
★PRELIMINARY★
SUBJECT TO REVISION

VII. DESIGNING TO ACCOMMODATE PEDESTRIAN ACCESSIBILITY REQUIREMENTS

A. DISABILITY ACCESS LEGISLATION AND DESIGN STANDARDS

To prohibit discrimination on the basis of disability, the Federal government enacted the Rehabilitation Act of 1973 (Section 504) and the Americans with Disabilities Act of 1990 (ADA). The ADA requires that persons with disabilities be provided with an equal opportunity to benefit from government programs, services and activities. These programs include pedestrian access routes within public road rights-of-way that are constructed with public or private funds.

The United States Department of Justice (USDOJ) published the "2010 ADA Standards for Accessible Design" prepared by the United States Architectural and Transportation Barriers Compliance Board (US Access Board). Since pedestrian facilities in the public right-of-way can pose unique design challenges, the US Access Board has developed the draft "2011 Public Right Of Way Accessibility Guidelines" (PROWAG). The USDOJ and the Federal Highway Administration (FHWA) have accepted the use of the draft PROWAG for best design practices in the public right-of-way until the final PROWAG is ultimately adopted by the USDOJ. In addition, the State of California has adopted accessibility requirements in its "California Building Code" (CBC), "California Manual of Uniform Traffic Control Devices" (CAMUTCD), and "Caltrans Standard Plans" (CSP) that meet or exceed the 2010 ADA Standards. The County of Riverside requires the use of the latest PROWAG, CBC, CAMUTCD, and CSP for accessibility design in the public right-of-way. In addition, the County can and has established accessibility design requirements, as shown in Riverside County Ordinance No. 461 Standard Plans and Specifications, that may be more stringent than Federal or State requirements. Where Federal, State and/or County requirements do not match, the most stringent criteria will apply.

Attached in the Appendix are updated Riverside County Standard Drawings for Curb Ramps. These updates include the requirement for flatter design slopes (7.5% maximum ramp slope and 1.5% maximum sidewalk slope) to accommodate construction tolerances to ensure that ADA minimum/maximum requirements are met. All design must be made using the flatter slopes.

It is the responsibility of the engineer of record for the project to know and apply all Federal, State and County accessibility design criteria.

B. REQUIRED IMPROVEMENTS

The ADA specifies that when roads and/or sidewalks are *newly built* or *altered*, curb ramps must be installed where they are missing and upgraded to current standards where they are existing. According to a 2013 joint letter from the USDOJ and FHWA, altered improvements include, among other items, any type of pavement reconstruction or resurfacing, such as overlay (any depth), microsurfacing, and cape seal. (The only exceptions are slurry seal, chip seal and pothole filling, which are considered *maintenance*). The requirement for accessible improvements extends

to the full project frontage and may extend to the opposite sides of the street where the County determines that the project has created a nexus and need for accessibility improvements.

C. MINIMUM SIDEWALK WIDTH, OBSTACLES

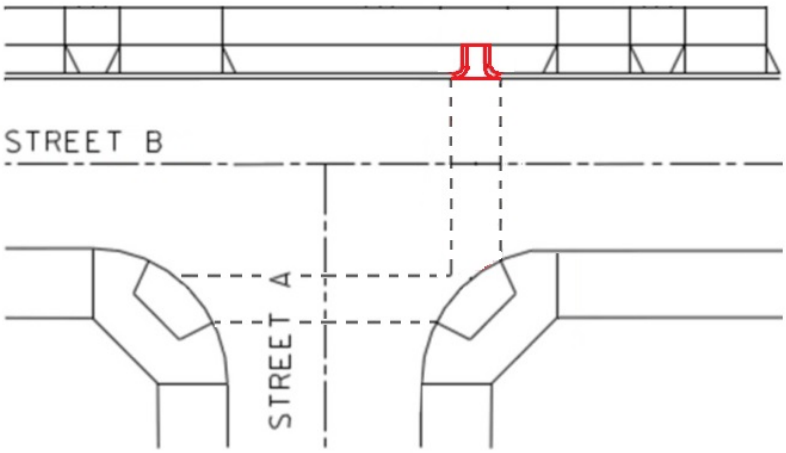
According to Federal and State requirements, the pedestrian access route is 48 inches minimum, 60 inches preferred. In cases where sidewalk is 48 inches wide, turnouts of 60 inches by 60 inches must be provided every 200 feet. The width of the top of curb is not included in the measurement of minimum sidewalk width. The minimum sidewalk width per County Ordinance No. 461 is 64 inches adjacent to back-of-curb or 60 inches not adjacent to back-of-curb. The County standard will supersede Federal and State minimums unless otherwise approved by the Director of Transportation.

Objects, such as street lights, utility poles, utility cabinets, fire hydrants, sign posts, signs, parking meters, trash receptacles, public telephones, mailboxes, newspaper stands, benches, transit shelters, kiosks, bicycle racks, planters, trees, street sculptures and opening doors, should be avoided in the pedestrian path of travel. Where obstacles exist, they must not reduce the minimum width of the pedestrian path of travel as determined by State and Federal standards. The current minimum width around obstacles, for short distances of 24 inches or less in the direction of travel, is 32 inches per Federal 2010 ADA Standards and 36 inches per State CBC. Since the most stringent requirement prevails, 36 inches is the minimum distance around an obstacle. As part of the development of the draft PROWAG, the Federal minimum width is proposed to be increased to 48 inches. If and when adopted, the 48 inch requirement would supersede all other Federal, State and County requirements. The use of any sidewalk width of less than 60 inches in new construction requires the prior approval of the Director of Transportation. It should be noted that for new construction with adequate right-of-way width, full sidewalk width of 60 inches should meander around obstacles such as street light poles, utility poles and multiple mail box units as is depicted on County Ordinance No. 461 Standards 400 and 812.

The cross slope of sidewalk perpendicular to the pedestrian access route, or in any direction within a landing, is 2% maximum. The longitudinal slope along the pedestrian access route parallel to a public street and within public right-of-way is allowed to equal the street grade. Where the pedestrian access route is not parallel to and within public right-of-way (such as sidewalk with meandering horizontal and vertical alignments), the longitudinal slope is 5% maximum.

D. PEDESTRIAN STREET CROSSINGS

In accordance with the California Vehicle Code, crosswalks *whether marked or not* are provided at all street intersections, including T-intersections. Therefore, curb ramps shall be provided at all intersection corners, including at least one curb ramp across from T-intersections as shown in County Standard No. 403 and as shown in the figure below. Marked crosswalks shall provide for a 10 foot minimum inside width and 12 foot minimum outside width, and a minimum of 4.0 feet clearance between the flow line of the diagonal curb ramp and the inside edge of the marked crosswalk.



RAMP LOCATION AT "T" INTERSECTION

The maximum *cross slope* of the pedestrian route of travel for *marked or unmarked* pedestrian street crossings in new construction is:

- 2% maximum for legs of an intersection with stop or yield control
- 5% maximum for legs of an intersection without stop, yield or green light signalization
- Allowed to equal the street grade for mid-block crossings

The maximum *longitudinal slope* along the pedestrian route of travel for *marked or unmarked* pedestrian street crossings in new construction is:

- 5% maximum

The clear width of pedestrian access routes within medians and pedestrian refuge islands shall be 5.0 feet minimum. Medians with short lengths should utilize curb cuts without the use of ramps. Detectable warning surfaces, 36 inches deep by the width of the pedestrian route, should be provided at the entry and exit of median islands that are 8.0 feet long or more. Detectable warning surfaces, 24 inches deep each, should be provided at the entry and exit of median islands that are between 8.0 and 6.0 feet long. No detectable warning surfaces should be placed where medians are less than 6.0 feet long.

E. CURB RAMPS

Curb ramps at intersection curb returns shall comply with County Ordinance No. 461 Standard 403 Case A. (Note: County Ordinance No. 461 Standard 403 Case B shall only be used with prior approval by the Director of Transportation). Curb ramps at T-intersections and mid-block crosswalks shall comply with County Ordinance No. 461 Standard 403 Case C or Case D.

General criteria for curb ramp design is shown below:

- ❒ Ramp width (not including flared sides) is 48 inches minimum.

- ❒ Ramp width with constraints on one or more side by a curb is 60 inches minimum.
- ❒ Ramp running slope is 7.5% maximum for design (8.33% maximum as-built construction)
- ❒ Pedestrian access route cross slope for ramps, landings and sidewalks is 1.5% maximum for design (2.00% maximum as-built construction). Note: the maximum cross slope applies to all locations along the pedestrian access route on sidewalks and ramps, including the bottom of the ramp along the street flow line.
- ❒ Flared sides are 10.0% maximum adjacent to the curb.
- ❒ Clear landing width at the top of a ramp is 48 inches by 48 inches minimum.
- ❒ Clear landing width at the bottom of a parallel curb ramp is 60 inches by 60 inches minimum.
- ❒ Transition of the ramp at the gutter flow line is flush (without a lip).
- ❒ Slope of the roadway from the gutter flow line to 4 feet into the roadway is 5% maximum.
- ❒ Ramp is located within the limits of a marked crosswalk.
- ❒ Detectable warning surface is the full width of the at-grade section at the entrance to a vehicular way with a 36 inches minimum depth.
- ❒ Maximum required length of a curb ramp is 15 feet.

Note: A 12 inch-wide grooved border is no longer a requirement of the CBC or 2010 ADA Standards.

To demonstrate compliance with accessibility standards, the design engineer shall provide a detail on the street improvement plans for each ramp for which the incoming street grade at one or both BCR/ECR is 5% or steeper. The detail shall show key design elevations, slopes and widths at 1"=10' scale.

F. STEEP TERRAIN

Sidewalks built on steep terrain make access difficult for people with mobility impairments. As discussed in the US Access Board's Section-by-Section Analysis of PROWAG Section R302.6:

> In new construction, where pedestrian access routes within sidewalks intersect at corners, the 2 percent maximum cross slope requirement will result in level corners (i.e., the slope at the corners will not exceed 2 percent in each direction of pedestrian travel). The level corners will provide a platform for providing level spaces for curb ramps and blended transitions, pedestrian street crossings, and accessible pedestrian signals and pedestrian pushbuttons.
>
> Where pedestrian street crossings with yield or stop control are provided at newly constructed tabled intersections, the tabling would be extended to the pedestrian street crossings to comply with the 2 percent maximum cross slope for pedestrian access routes within the pedestrian street crossings.

The FHWA discusses curb ramps on steep terrain in their publication "Designing Sidewalks and Trails for Access (Part II Section7.4.6)":

…In the past, some designers have decided not to provide curb ramps on steep sidewalks because of the erroneous assumption that individuals with mobility impairments could not travel on significant grades. However, even if the terrain is extremely steep, curb ramps should be provided so individuals using powered mobility devices (e.g., a scooter) or traveling with assistance will be able to access the sidewalk.

…

When addressing steep grades at an intersection, it is best to extend the level area of the intersection to include the curb ramp and the landing. Although this significantly increases the grade of the path leading toward or away from the intersection, it is recommended because it enables people to cross the roadway and transition from the roadway to the sidewalk on a level surface. If this segment of the sidewalk corridor is not level, the problems caused by steep terrain are often magnified…

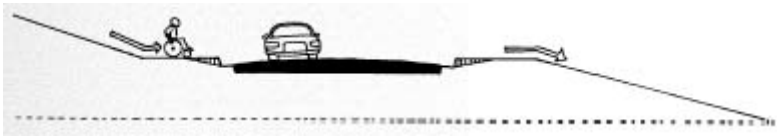


Figure 7-39. GOOD DESIGN: The level area of an intersection should be extended to include the curb ramps and the level landings above them.

In addition to providing well-designed curb ramps, extending the level area of the street intersection into the crosswalk areas will also ensure that the crosswalks are level. If the grade of the street slopes up or down, the slope of the street becomes a cross slope for pedestrians (in the crosswalk).

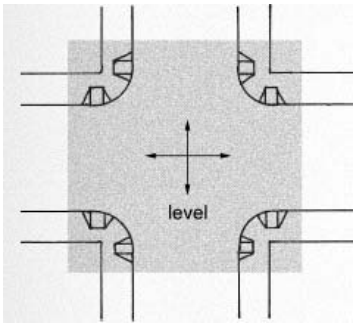


Figure 7-40. The shaded area represents the level portion of the intersection.

G. DESIGN EXCEPTIONS

The USDOJ has recognized that exceptions to the design standards are allowed when applying the standards may be technically infeasible, structurally impracticable, or threatens historically significant features of a qualified historic facility. Even for qualified exceptions, any portion of a facility that can be made accessible will need to be made accessible to the maximum extent feasible. Furthermore, if accommodating access for individuals with certain disabilities (e.g., those who use wheelchairs) would be technically infeasible, accessibility shall nonetheless be ensured to persons with other types of disabilities (e.g., those who use a walker or cane, or those who have sight, hearing or mental impairments). For instance, the requirement to install curb ramps will not be waived in steep terrain, because individuals using powered mobility devices (e.g., a scooter) or traveling with assistance will be able to access the sidewalk.

Any exception to Federal, State or County requirements must receive approval in writing from the Riverside County Director of Transportation in a Design Exception document prepared by the engineer of record for the project, prior to the approval of improvement plans.

While design engineers may encounter situations that are technically infeasible when tying into existing improvements, it is expected that all new streets be designed with full accessibility compliance without the opportunity for design exceptions. The design engineers should therefore apply all accessibility design criteria during the preparation of feasibility studies, conceptual drawings, tentative maps, and improvement plans prior to plan check submittal. Plans that do not meet full accessibility requirements, but which had the ability to meet full accessibility requirements if designed as such from the beginning, will not be granted a design exception and the project will need to be redesigned.

In the event that non-compliance is encountered during construction, it is the engineer of record's responsibility to provide a design solution, and the project owner's responsibility to re-construct improvements as necessary, such that full compliance is met. The County of Riverside will not accept improvements along public pedestrian routes that are non-compliant as it would leave the County exposed to civil rights litigation.

According to FHWA regarding cost:

> *Cost may not be a reason to fail to construct or delay constructing a new facility so that the facility is readily accessible to and useable by persons with disabilities under the ADAAG standards*.
> 28 CFR §35.151(a); see DOJ Technical Assistance Manual for Title II of the ADA, II-6.3100(3). (9-12-06)

VIII. TRAFFIC SIGNING AND STRIPING PLANS

A. INTRODUCTION

Traffic signing and striping plans are required for all General Plan Roads and any roadway that is 56-foot wide curb-to-curb (78' R/W) or wider. Transportation Department may require traffic signing and striping plans for smaller classification roadways or provide information in street plan if allowed by Transportation.

Traffic signing and striping plans shall be designed as a "stand alone" set of plans. Do not show existing topography, contours, or elevations on signing and striping plans unless such information is necessary to perform the work of the signing and striping portion of the project. No references and/or notes shall be directed to the street plans.

Since striping plans determine whether additional roadway improvements are needed to accommodate pavement and/or striping transitions, striping plans shall be submitted with the first street plan submittal to minimize changes to the street plans at later stages.

B. GENERAL REQUIREMENTS

1. All design shall conform to the latest edition of California Manual on Uniform Traffic Control Devices for Streets and Highways (CA MUTCD), Caltrans Standard Plans, Caltrans Standard Specifications, and Riverside County Standards.
2. Computer Aided Drafting and Design (CADD) shall be used to prepare all design plans. Upon completion and final approval of the plans, the County shall be furnished with MicroStation files of the designs.
3. Each final plan shall be printed on a 24" x 36" sheet of polyester base film (Mylar) using County Standard Title Block (title block exhibit.) Self-adhesive or stick-on labels and certificates shall not be used. Final plans shall be signed & stamped by the Registered Civil or Traffic Engineer responsible for the preparation of the design.
4. Minimum lettering size used for the plans shall be 0.12 inch in height.
5. The title sheet of the "stand alone" plan set shall include but not limited to the following information:
    a. Project Title, project number and IP number.
    b. Vicinity Map with North Arrow -

       Project shall be shown in relation to major streets and highways within mile radius of project. A larger area shall be used if no major roads exist within that distance. Thomas Brothers Guide and/or any other commercial street map is not acceptable.
    c. Section, Township and Range (to be shown below the vicinity map)
    d. General notes

e. A complete list of Construction notes. The quantities must show on the Construction Cost Estimate.

f. Quantity Estimates, numbered with units and matching the Construction Cost Estimate.

g. List of symbols and abbreviations used on the project

h. Sheet index, if more than one sheet is needed.

6. Each design plan shall include but not limited to the following information:

   a. North arrow, drawing scale and 4" bar scale. North Arrow shall be oriented up or to the right on all plans.

   b. Tract number and parcel map number of adjacent developments.

   c. Curbs and gutters, dikes, edge of pavements, right-of-ways and labeled as such.

   d. Jurisdictional boundaries with respective jurisdictions labeled on each side of the boundary lines.

   e. Street names of all streets shown with appropriate street suffixes (Ave, Blvd, Rd, etc.) All private streets, driveways, and any road not maintained by the County shall be identified on plans.

   f. Record centerlines, survey centerlines and/or construction centerlines with stations at 100-foot intervals. Centerline stationing shall correspond with street improvement plan centerline stationing and shall increase from South-to-North or West-to-East. When a conflict occurs, stationing shall start from left to right.

   g. Roadway and right-of-way dimensions.

   h. Applicable construction notes. Indicate the entity performing each item of work by labeling each construction note with either "by Contractor" or "by County". The contractor quantities must show on the Construction Cost Estimate.

   i. All installations and removals shall be specified on plans with construction note numbers and types.

7. Any project that involves existing or proposed school frontage shall implement school zone signing and striping per CA MUTCD. County Traffic Engineer shall be consulted as work may affect school zone diagram or suggested route to school. Plans shall clearly show the school property line, the name of the school, school driveway(s) with entrance and exit markings, and school bus loading zone.

8. Plans shall show any existing or proposed parking restrictions using appropriate signs and markings. County Traffic Engineer shall be consulted in order to determine the needs for any parking restrictions.

9. Access roads will receive centerline striping if they are curvilinear. Straight access roads may need no striping depending on plan check comments. The advisory speed limit sign, W13-1, if required shall show "Speed to be determined in field" on the plans. Route turns must have arrow signs, W1-6; W1-1 or W1-2 with W13-1 (advisory speed sign) shall be added if approach is over 500'.

10. Stop sign control requirements:

a. At a tee intersection of two Local roads, no Stop control is required.

b. At a cross intersection of two Local roads, Stop signs shall be placed on one road to designate the other as the “through road”.

c. At a tee or cross intersection of a Local road and a Collector or above, Stop sign shall be placed on the Local road to designate the Collector or above as the “through road”.

d. All-Way Stop Control -

1. All way stop control is governed by Board of Supervisors Policy G-8. All-way-stop-control is not recommended if the criterion for Policy G-8 is not met unless the field conditions the county traffic engineer deem necessary.

2. All-way-stop-control may be placed at an intersection that is within 500 meter (1500 feet) of school property line. The location would also need to be identified as a walking path to school.

e. Pavement Marking -

1. 12” white limit line (or crosswalk) and “Stop” pavement legend shall be installed with the stop sign where the cross street is already striped or will be striped as part of the project.

2. Where the existing crossroad is not striped, and will not be striped as part of this project, only a “Stop” sign is required.

3. A “stop” sign and limit line, without stop stencil is used where additional emphasis is needed, based on field review.

11. 25 mph speed limit sign, R2-1(25), shall be installed at the entrance roads to residential tracts under the following conditions:
    a. The residential tract is a Schedule “A”, “B” and “D” tracts.
    b. Entrance road connects to a road having a right of way width of at least 100 feet.
    c. Entrance road qualifies as “Residence District” per California Vehicle Code definition.

12. A “No Outlet” sign, W14-2, shall be placed at entrance to a stub street that is over 500' in length, or where the end of the street is not visible from the intersection, or road network from which there is no exit in the newly constructed tract streets.

13. No RVs and Trailers parking sign in accordance with Riverside County Ordnance 413 shall be installed at all entrance roads to residential tracts.

C. DESIGN REQUIREMENTS

1. Traffic signing and striping plans shall use 1"=40' scale minimum. 1"=20’ or 1"=10’ scale shall be used when additional clarity is required.

2. Centerline and/or lane stripes are required for general plan roads, any roadway that is 56-foot wide curb-to-curb or wider, and any roadway required by the Transportation Department. Pavement less than 500' in length is normally not considered a lane of traffic (lane will not be striped).
3. Show widths of travel lanes at limit line, intersection, and at begin and end of taper.
4. Show centerline stations at begin and end of tapering stripes, and taper ratio adjacent to tapered stripes. Use taper rates to the nearest whole number.
5. Show distances between painted edge line and edge of pavement.
6. Show distances between centerlines and curbs, edge of pavements, and right-of-way.
7. Show existing traffic control devices, pavement markings, and striping up to 300’ beyond the project limits or as determined by the Transportation Department with thin line weight and solid line style.
8. Dimension existing and proposed sign and pavement marking locations to the nearest cross street centerline or use centerline station.
9. Show existing striping to be removed with thin line weight and short dashed line style. Do not fade line work.
10. Show new signing and striping with thick line weight and solid line style.
11. Total quantities of sandblasting and grinding in square feet shall be shown on the plans.
12. Pavement taper formula:
    a. For low speed roads, (design speed 25 mph or less) tapers on pavement shall be minimum of 2:1 for widening traffic and 10:1 for merging traffic.
    b. For roads having a design speed greater than 25 mph, taper length for merging lanes or lane drops shall follow Caltrans standard:

       $$\text{Taper Length (ft)} = \frac{\text{Design Speed (mph)} \times \text{Distance Traffic Moves Laterally (ft)}}{}$$
13. Striping taper formula:

    $$\text{Taper Length (ft)} = \frac{\text{Posted Speed (mph)} \times \text{Distance Traffic Moves Laterally (ft)}}{}$$

    Taper ratio = Taper Length (ft) : Distance Traffic Moves Laterally (ft)
14. Lane drop signing and marking shall be installed per Figure 3B-12 (CA) of CA MUTCD.
15. Type “F” (white) reflector posts shall be installed at all merging lanes or lane drops at 25’ intervals. Minimum of 3 reflectors shall be installed.
16. Minimum left-turn pocket length, lane width, and pocket transition length at general plan highway crossing for Secondary Highway or above shall be per County Ordinance 461.
17. Minimum left-turn pocket length at minor crossing is 100', but may be extended to 150' or 200’ for facilities that generate higher frequency of left turn movements and/or truck traffic. Standard transition for left turn

pocket shall be 120'. A 90' transition may be allowed where conditions do not allow for the standard length, and must follow the Fact Sheet Process for a substandard installation. Two-way left-turn lane is to be painted where a road has multiple access points; otherwise a painted median is acceptable.

D. GENERAL SIGNING AND STRIPING NOTES

The following general notes shall be shown on the title sheet:

1. All material and work shall conform to the latest edition of County of Riverside Standard Plans, Caltrans Standard Plans and Standard Specifications, and California Manual on Uniform Traffic Control Devices.
2. All traffic stripes, pavement markings, and signs shall be reflectorized and in standard size. All striping and marking details shall match Caltrans Standard Plans details. Stencils for pavement marking shall match Caltrans Standard Plans.
3. The Contractor shall remove all conflicting stripes, pavement markings, and raised pavement markers in accordance with the plans and as directed by the Engineer. Word or symbol pavement markings shall be removed by sandblasting or grinding a rectangular area covering the whole marking.
4. All crosswalks shall have 10 feet in between the 12-inch white or yellow stripes.
5. All double yellow stripes shall have 3-inch painted black line separating the yellow stripes.
6. The Contractor shall furnish and install all traffic stripes, raised pavement markers (RPMs), pavement markings, and signs in accordance with the plans and as directed by the Engineer.
7. All pavement markings including crosswalks, limit lines, and stop bars shall be applied with thermoplastic material. All other traffic stripes shall be painted in two coats.
8. All RPMs shall be installed within seven working days of roadway striping. All existing RPMs within the project area shall be replaced in kind or removed in accordance with the plans, or as directed by the Engineer.
9. The Contractor shall install standard size sign panel on 2” square perforated steel tube post with two piece anchor and sleeve, fastened with 3/8” rivets with stainless steel washers, unless otherwise noted. The exact location of all signs shall be determined in the field by the Engineer.
10. The Contractor shall remove signs in accordance with the plans and as directed by the Engineer. The Contractor shall deliver removed signs to the County Yard or as directed by the Engineer.
11. The Contractor shall submit a traffic signal timing sheet to the County for review and approval prior to the beginning of construction of any new or modified traffic signal. The timing sheet will meet all requirements per the latest California MUTCD, Part 4 “Highway Traffic Signals”.
12. The Contractor shall replace all signing and striping within project limits damaged or altered by the project, as determined by the County engineer.

Exhibit SS-1

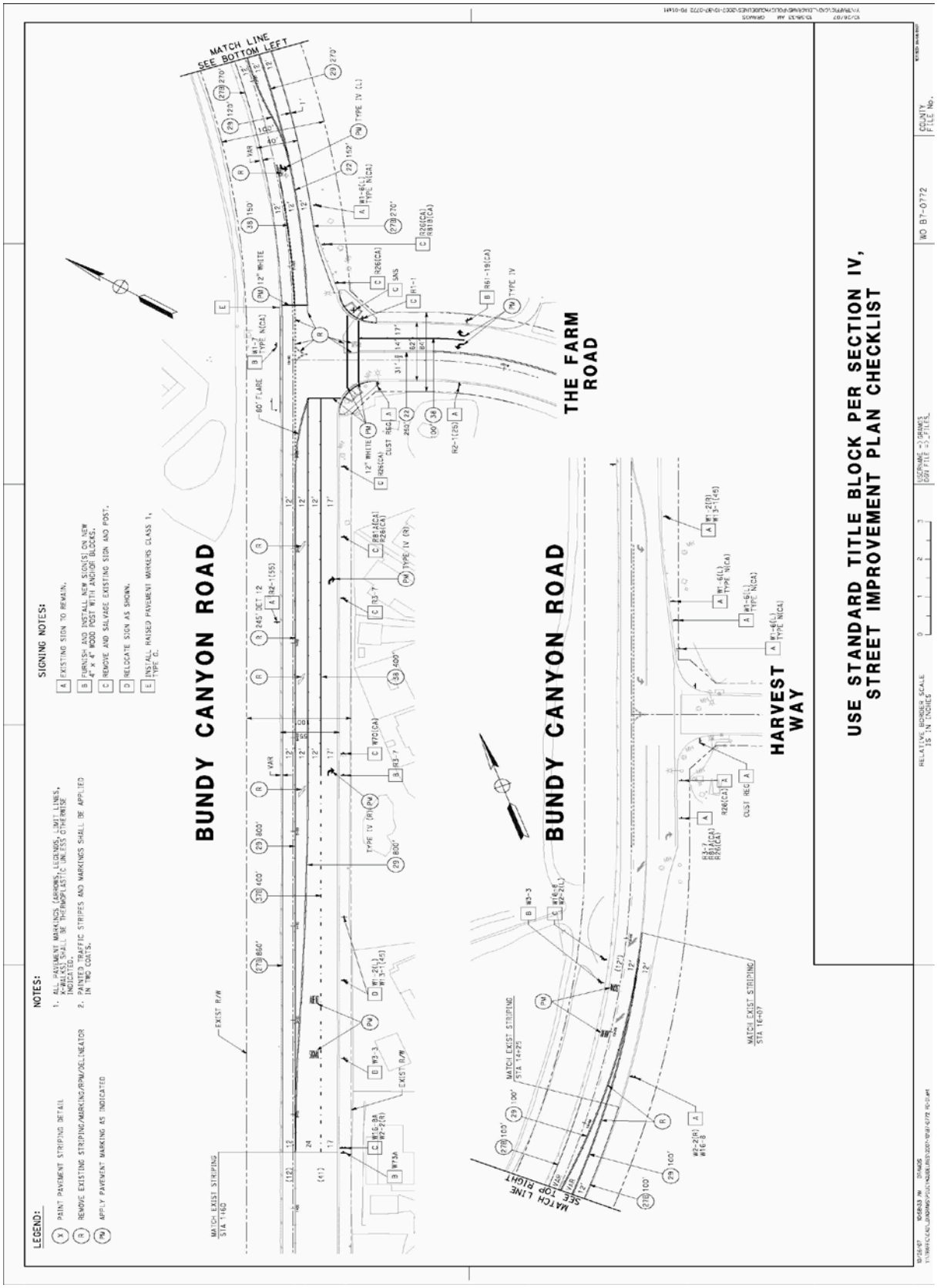

LEGEND:
NOTES:
SIGNING NOTES:
BUNDY CANYON ROAD
THE FARM ROAD
HARVEST WAY
USE STANDARD TITLE BLOCK PER SECTION IV,
STREET IMPROVEMENT PLAN CHECKLIST
WO B7-0772

Exhibit SS-2

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT

PREFERED MICROSTATION
LEVELS, COLORS AND PLOTTED LINE WEIGHTS

TO BE USED FOR ALL DRAWINGS
ELECTRONICALLY SUBMITTED TO THE COUNTY

	COLOR	WEIGHT
LEVEL 1		
TITLE BLOCK	RED	.70mm
EXISTING STREET IMPROVEMENTS	WHITE	.25mm
RIGHT-OF-WAY LINES	RED	.70mm
LEVEL 2		
CONDUCTOR SCHEDULE	BLUE	.35mm
POLE SCHEDULE	BLUE	.35mm
PHASE DIAGRAM	BLUE	.35mm
SENSOR TABLE	BLUE	.35mm
LEVEL 3		
ALL NEW SIGNAL EQUIPMENT	GREEN	.50mm
NEW CONDUIT	GREEN	.50mm
NEW DETECTOR LOOPS	GREEN	.50mm
LEVEL 4		
EXISTING STRIPING, SIGNING AND MARKINGS	BLUE	.35mm
LEVEL 5		
PROPOSED STRIPING, SIGNING AND MARKINGS	GREEN	.35mm
LEVEL 6		
ALL UTILITIES	WHITE	.25mm
LEVEL 7		
TEXT	BLUE	.35mm
DIMENSIONS	BLUE	.35mm
SPECIFIC DETAILS (NORTH ARROW, USA ALERT)	GREEN	.50mm
LEVEL 8		
PROPOSED STREET IMPROVEMENTS	GREEN	.50mm
LEVEL 9		
CENTERLINES	WHITE	.25mm
LEVEL 10		
AREAS FILLED WITH HATCHED LINES	WHITE	.25mm
LEVEL 11		
AREAS CONAING HATCHED LINES	GREEN	.50mm
LEVEL 12		
EXISTING SIGNAL EQUIPMENT	WHITE	.25mm

IX. TRAFFIC SIGNING PLAN

A. INTRODUCTION

A Traffic Signing Plan is required for all projects. The purpose of this plan is to show where signs shall be placed throughout the project and for sign inventory.

Traffic Signing Plan shall be designed as a "stand alone" plan. Do not show existing topography, contours, or elevations on signing and striping plans unless such information is necessary to perform the work of the signing portion of the project. No references and/or notes shall be directed to the street plans.

If the project requires striping plans, then the first sheet (title sheet) of the striping plan set can be used provided it contains the required information.

B. GENERAL REQUIREMENTS

See subsection B. General Requirements under Section VIII, Traffic Signing and Striping Plan.

C. DESIGN REQUIREMENTS

1. Traffic Signing plan shall use 1"=100' scale minimum. Applicant may use different scale when additional clarity or project size dictates. The larger scale may be acceptable if the project only requires a traffic sign plan. If that is the case, a single sheet showing the whole site with sign locations is acceptable.
2. Show and label all existing traffic control devices and markings up to project limits or as determined by the Transportation Department.
3. Dimension all existing and proposed sign and pavement marking locations to the nearest cross street centerline or use centerline station. Show an image of all signs to be installed with MUTCD code.
4. No striping is to be shown on traffic signing plans other than limit lines and stop legends.

D. GENERAL NOTES

The following general notes shall be shown on the title sheet:

1. All material and work shall conform to the latest edition of County of Riverside Standard Plans, Caltrans Standard Plans and Standard Specifications, and California Manual on Uniform Traffic Control Devices.
2. The Contractor shall notify Underground Service Alert, (800) 227-2600, and all concerned utility companies at least two working days in advance of excavation.
3. All signs shall be reflectorized and in standard sizes. Street name sign shall conform to County Std 815 and 816.

4. All pavement markings and signs shall be reflectorized and in standard sizes. All marking details shall match Caltrans Standard Plans details. Stencils for pavement marking shall match Caltrans Standard Plans.
5. All crosswalks shall have 10 feet in between the 12-inch white or yellow stripes.
6. All pavement markings including crosswalks, limit lines, and stop bars shall be applied with thermoplastic material. All other traffic stripes shall be painted in two coats.
7. The contractor shall install standard size sign panel on 2" x 2" square perforated steel tube post with two piece anchor and sleeve, fastened with 3/8" rivets with stainless steel washers, unless otherwise noted. The exact location of all signs shall be determined in the field by the Engineer.
8. The contractor shall remove signs in accordance with the plans and as directed by the engineer. The contractor shall deliver removed signs to the County Yard or as directed by the engineer.
9. The contractor shall layout (cat-track) the proposed signing, striping and pavement markings in accordance with the plans and obtain the Engineer's approval prior to actual installation.
10. The contractor shall coordinate all signing and striping works through engineer prior to opening new roadways and/or existing roadways to new signing and striping in accordance with the plans.

X. TRAFFIC SIGNAL PLAN

A. INTRODUCTION

Traffic signal and striping plans are required for new traffic signal installations and/or traffic signal modifications. Traffic safety, capacity, delay, and fuel efficiency are some of the elements that shall be considered when designing a traffic signal plan.

Traffic signal plans can be part of the signing and striping plan set or “stand alone” set of plans. Do not show existing topography, contours, or elevations on signal plans unless such information is necessary to perform traffic signal work. No references and/or notes shall be directed to the street improvement plans. Each signal needs to be on a separate set of plans.

It is understood that each traffic signal project has its unique characteristics. Design criteria provided here is to be used as a general design guideline only. Good traffic engineering judgment shall be called upon to provide an integrated traffic signal design. Following these guidelines will help expedite the plan check process.

B. GENERAL REQUIREMENTS

See subsection B. General Requirements under Section VIII, Traffic Signing and Striping Plan.

C. DESIGN REQUIREMENTS

1. Traffic Signal plan shall use 1"=20' scale. 1"=10’ scale shall be used when additional clarity is required.

2. Signal Plan Number (SG-xxxx)
   Contact your respective County Development Review Plan Checker for signal plan number to be shown on each design plan, as well as the address for the electrical meter.

3. **Lines and Symbols**

   Line weights, line style, symbols, construction notes, and abbreviations used on all plans shall follow Caltrans Standard Plans A10C, A10D, ES-1A, ES-1B and ES-1C, or as directed by the Transportation Department.

4. **Intersection Base Map**
   The plan shall clearly show existing, proposed, and ultimate roadway geometrics with the major street horizontal on the plan if feasible. Including but not limited to the following and labeled as such:

   a. Curb and gutter
   b. Asphalt berm and dike
   c. Edge of pavement
   d. Driveways
   e. Sidewalk and access ramps

f. Right-of-way and maintenance easement
g. Drainage facilities
h. Underground and above ground utilities
i. Traffic control devices, markings, and striping

5. **Access Ramps**

Access ramps shall be installed per County of Riverside Standard No. 403 wherever crosswalks or pedestrian signals are proposed.

Where standard access ramp cannot be installed, a modified version that met American with Disabilities Act requirements shall be used and shown, and detailed on the street improvement plans.

6. **Right-of-way**

It is necessary to show right-of-ways (ROW) in order to determine whether additional ROW is required to construct the traffic signal. Evidence of ROW shall consist of recorded maps or legal instruments of property transfer. If additional ROW is required, dedication from the developer shall be processed concurrently with the improvement plans. If additional ROW required is offsite on private property, the developer is required to obtain the necessary ROW from the property owner and process a separate dedication concurrently with the improvement plans.

7. **Maintenance/Construction Easement**

Maintenance easement for traffic control device installed on project site has to be identified on plans and dedicated by the developer. If maintenance and/or construction easement required is offsite on private property, the developer is required to obtain the necessary easement from the property owner. Easement dedication shall be processed concurrently with the improvement plans. Owner shall apply for and annex all new or modified signals conditioned for the project into L&LMD for signal maintenance.

8. **Dimensions**

Distance of advance detectors and flashing beacons from limit lines shall be shown on the plans. When a separate striping plan is not required, complete dimensioning shall be shown. This includes road and lane widths, right-of-way, turn lane storage lengths, striping taper lengths, and distance of signs and markings.

If a separate signing and striping plan is required it shall be prepared per Section VIII, Traffic Signing and Striping Plan of this document, except in those situations where minimal striping changes are required, or as determined by the Transportation Department.

9. **Traffic Signal Poles**

Traffic signal poles designed for 100 MPH wind loading shall be used. Wherever possible, traffic signal poles that will accommodate the ultimate condition shall be installed.

Pole height shall be 30 feet for standards with luminaire.

Type 1A poles shall be spun aluminum except tapered steel Type 1A poles shall be used in high wind areas or when a five-section signal head will be mounted on top.

Poles shall be placed within five feet from the crosswalk or the extension thereof. If this minimum distance cannot be maintained, pedestrian push button posts shall be installed at locations per Figure 4E-2 of CA MUTCD.

Median mounted poles shall not be permitted except for unusual design requirements.

Show pole and equipment schedule, and pole location diagram on plans. Poles shall be placed at least 3' from the curb face.

10. **Mast Arms**

The mast arm length will vary depending on the number, location, and configuration of signal heads to be installed. Wherever possible, the ultimate mast arm shall be installed.

Tenon mounts shall be provided and dimensioned ("F" distance) for any anticipated future signal heads. Unused tenons shall be covered in a waterproof, durable and removable manner.

11. **Traffic Signal Heads**

A minimum of two indications shall be provided for each phase including overlap phases.

Near right heads shall be installed for all Secondary Highways or above, when the distance from the limit line to the related far side mast arm exceeds 120 feet, or as directed by the Transportation Department.

On road curves, visibility of the signal heads for approaching vehicles shall be checked. Additional signal head indication shall be installed at the near left signal pole to mitigate visibility issue.

Signal section housing, backplates and visors shall be metal. Signal section housing for 12" indications shall be used. Backplates shall be louvered. Visors shall be the tunnel type. Terminal compartments shall be provided for all side and top mounted heads.

Programmed visibility (PV) head shall be used only when approved or directed by the Transportation Department. The PV head for protected left-turn phase shall be placed 2' into the extension of the left run lane.

All vehicle indications shall be 12" light emitting diode (LED) signal modules.

Provide a signal head detail on plans if it is not a regular 3-section ball or arrow signal head.

12. **Luminaires**

Luminaires shall be full cut-off flat glass fixtures utilizing 120 Volt, 200-Watt high-pressure sodium vapor bulb or LED as directed by Transportation Department. Lighting calculations are required to insure appropriate lighting levels for crosswalks.

Luminaire mast arms shall be 15 feet unless otherwise noted. Straight luminaire mast arm if required shall be per County Standard No. 1202.

Luminaires shall be placed at each far right approach. Locations shall be coordinated with the street light plans (See Section XI, Street Light Procedure of this document).

Existing street lights which conflict with the traffic signal luminaire shall be identified on the signal and/or street light plans and labeled "To be removed by SCE or serving utility." Arrangements for removal shall be coordinated between the construction inspector and the serving utility.

13. **Internally Illuminated Street Name Signs**

Internally illuminated street name signs (IISNS) shall be LED IISNS per County Specifications.

The IISNS shall be mounted on a 10' straight mast arm that clamps onto signal pole per County Standard No. 1200.

Street addresses and road name suffixes (Ave, St, etc.) shall not be included on IISNS.

Street name legend shall use ClearView or Series E font with 8" upper and 6" lower case, for example, "Van Buren."

14. **Photo-Electric Controls**

Photo-electric control shall be Dual Type V for luminaries and internally illuminated street name signs that conforms to the County Standard No. 1202.

15. **Pedestrian Signal Heads**

Pedestrian signal heads shall be metal type with a polycarbonate eggcrate or Z-crate screen (Type 2). The pedestrian signal face shall utilize a light emitting diode (LED) module.

Far side pedestrian signal heads shall be placed on the same pole as the associated signal head unless otherwise directed.

Near side pedestrian signal heads shall be placed on the Type 1A pole unless otherwise directed.

16. **Push Buttons**

All push buttons shall be Type B, constructed of high density thermoplastic and utilize solid-state Piezo switch technology. Button shall be yellow, outer body color shall be black.

Pedestrian Push Buttons (PPB) shall be ADA compliant and mounted on the traffic signal poles. PPB's shall not be placed further than five feet from the associated crosswalk. PPB posts shall be installed when signal poles cannot be installed within five feet of the associated crosswalk.

Equestrian Push Buttons (EPB) shall be installed per County of Riverside general plan designated equestrian trails crossing at a proposed traffic signal location. EPB shall be mounted six feet above finish sidewalk grade and wired with corresponding PPB.

Bicycle Push Buttons (BPB) shall be installed per County of Riverside general plan designated bike lanes at a proposed traffic signal location. BPB's shall be mounted four feet above finish sidewalk grade and wired with corresponding PPB.

17. **Pull boxes**

No. 5 pull box (PB) shall be installed unless directed otherwise.

No. 6 PB shall be installed when three or more conduits are installed in the PB.

No. 6E PB (No. 6 PB with extension) shall be installed adjacent to the controller assembly.

No. 5T or 6T traffic bearing type PB shall be installed in unimproved areas not protected by curb or dike.

A PB shall be installed within five feet of each traffic signal and lighting pole but not within one foot of access ramp.

A dedicated PB shall be installed for the left turn lane loops.

Maximum spacing between pull boxes shall be 500 feet.

PB lid for No. 6 PB shall be Christy's Fibrelyte lid or equivalent.

18. **Conduit and Conductors**

All traffic signal conduits shall be rigid galvanized steel.

Non-metal conduit shall not be permitted except for utility service as required by the serving utility company.

All new traffic signal installations shall utilize 12-signal conductor cables (SCC) for vehicle and pedestrian signal runs and 3-SCC for pedestrian push button runs.

Signal modifications may utilize individual conductors if multiple conductors were used.

Conduit sizes shall be determined based on 26% maximum fill for multiple conductors and 40% maximum fill for signal conductor cable.

The following table shows the minimum conduit sizes for the various applications:

Interconnect Only	- 2"
Detector Lead Cable Only	- 1 1/2"
Street Crossings	- 3"
Controller to No. 6E Pull Box	- 2-3.5"
Power Service	- 3"
All Other	- 2"

In numbering conduit runs, it is preferred to label run one furthest from the controller, rise in number to the "home-run" into the controller, and continue to rise from the controller to the last conduit run.

Provide conductor schedule on design plan.

19. **Detectors**

Detector phasing input shall be assigned per County Standard No. 1203 or 1204.

Detector used shall be video detection per County Specifications or as directed by Transportation Department. Video detection cameras shall be mounted on luminaire mast arms for both advance and presence detections, or on signal mast arms with 6' extension for presence detection only. If advance detection zone is more than 300' from the camera, a second camera mounted on a nearside pole or advance loop detectors shall be installed.

Where the loop detectors will be installed, the existing asphalt concrete must be free from cracks or ruts. If such a condition exists, the existing asphalt concrete and possibly the existing aggregate base material shall be removed and replaced. Location, dimensions, and quantities of asphalt concrete work shall clearly show on the plans. A signal modification plan is required for all changes in loops.

Loop detector's configuration shall be Type E per Caltrans Standard ES-5B.

Loop detectors' spacing shall be per County Standard No. 1201.

20. **Power Source**

The power source shall clearly show on the plans. It shall be the Design Engineer's responsibility to obtain the power location from the serving utility company and provide written documentation to the County during the plan check process.

120/240 Volt dual meter service is required. Both traffic signal and luminaires will have its own meter.

Circuit breakers shall be installed per the current County Specifications.

A three-inch conduit with pull rope shall be designated between the service point and the service equipment enclosure per the serving utility company's requirements.

A ten-foot service conduit riser shall be designated for utility pole service points.

For signal modification projects that relocate service a new service shall be required and the old one to be salvaged.

21. **Service Equipment Enclosure**

The service equipment enclosure shall be Type III-CF per the Caltrans Standard Plans and County Specifications.

It shall be the Design Engineer's responsibility to obtain a service address for the service pedestal.

Service address shall be provided on the traffic signal plan and included on the service equipment enclosure. Contact GIS Department of the County at (951) 955-8156 for an address. The County will apply for service once the address is finalized.

Location of the service equipment enclosure shall be the curb return area closest to the service point unless otherwise required. A minimum of 15 feet shall be maintained between the controller and the service equipment enclosure. A minimum of ten feet shall be maintained between the service equipment enclosure and the power source.

22. **Controller Assembly**

Controller shall be Model 170E controller per County Specifications.

The controller cabinet shall be Type 332, finished with an anodic coating, and the foundation shall extend 4 inches above finish grade. Portland cement concrete sidewalk shall be constructed in front of the controller cabinet per Caltrans detail ES-4B and shown on the street improvement plans.

Controller assemblies shall be installed in the appropriate location per the following guidelines:

a. Close to the power source.

b. Not obstructing existing or proposed landscaped corner cutback areas or decorative entry monuments.

c. Easy access for maintenance personnel with adequate visibility of vehicular movements.

d. Avoid poor drainage/flooding areas.

e. Avoid collision hazards.

f. Avoid obstructing pedestrian/handicap access movement.

23. **GPS Time Source**

A GPS time source/clock shall be installed per County Specifications or as directed by the Transportation Department.

24. **Battery Backup System**

An external mounted Battery Backup system shall be installed per County Specifications or as directed by the Transportation Department.

25. **Phase Diagram**

N.E.M.A. dual-ring type phase diagram shall be shown on traffic signal plan.

Phasing on major street shall be phase two and phase six, and on minor street shall be phase four and phase eight unless otherwise required by the Transportation Department.

For coordination purposes, phasing shall be consistent with existing traffic signals that are within a 1/2-mile radius.

26. **Emergency Vehicle Pre-emption**

Emergency Vehicle Pre-emption (EVP) cable and detector shall be installed for each approach or as directed by the Transportation Department. EVP phase selectors shall be installed in the controller cabinet.

EVP detector mounting detail shall follow County Standard No. 1202.

EVP detector cable shall be indicated in the conductor schedule.

27. **Signal Interconnect**

A separate 2" conduit and No. 5 pull boxes for the signal interconnect only shall be installed between controller assemblies within 1/2-mile radius. Minimum conduit bend radius or sweep shall be 36". All conduit bends shall be galvanized factory bends for rigid steel conduits.

Interconnect cable shall be a minimum of six pair #20 AWG copper conductor per Rural Electrification Administration Specification PE-22 or as directed.

28. **Flashing Beacons**

Flashing beacons with appropriate signing shall be installed when one or more of the following conditions exist as stated in section 4K.102 of CA MUTCD or as directed by the Transportation Department:

a. At an isolated traffic signal on either a conventional highway or on an expressway in a rural area.

b. The first traffic signal approaching an urban area.

c. Any traffic signal with limited approach visibility.

d. In geographical areas where seasonal conditions; such as, heavy fog, heavy rainfall, and sand storms limit visibility.

On undivided two lane roadways, flashing beacon installations shall be Type 1 with a W3-3 symbol sign per Caltrans Standard Plan ES-7J.

On divided roadways, two Type 1 standards with a W3-3 symbol sign may be installed. One standard will be installed in the median and the other will be installed off the right shoulder.

A Type 9 cantilever flashing beacon per Caltrans Standard Plans ES-7K and ES-7L is the preferred installation for multi-lane roads. The Type 9 flashing beacon shall be installed with fluorescent lighting fixtures and a W3-3 symbol sign.

The standard distance from the flashing beacon to the limit line shall be 750 feet and shall be dimensioned on the plans.

If curved street limits sight of signal head, adjustment or additional heads may be required.

29. **Street Improvements**

No street improvements shall be shown on the traffic signal plans. See street improvement plans for all civil work required.

A construction traffic control plan for the street improvements may be required if one or more of the following situations occurs:

a. The complexity of the street improvements jeopardizes safety for the construction workers and the traveling public.

b. The roadway geometrics pose confusion for the traveling public.

c. The length of time the traveling public will be exposed to the temporary construction exceeds one month.

d. If required by County or other affected agency for any reasons.

If extensive roadway or drainage improvements are a part of the project, plan and profile street improvement plans shall be prepared. Street improvements shall be constructed per the County of Riverside and the State of California Standard Plans and Standard Specifications (See Street Improvement Plan Checklist section of this document for preparation of plans).

Median islands shall provide for WB-50, 60-foot minimum truck turning radius unless otherwise required.

Portland cement concrete sidewalk shall be provided for pedestrian landing pads as shown on the street improvement plans.

30. **Utilities**

It is the Design Engineer's responsibility to contact all utility companies/agencies to obtain existing and proposed overhead and underground facilities. This information shall be shown clearly and accurately on the plans.

The Design Engineer shall identify conflicts between existing utilities and proposed traffic signal equipment on the plans during the design process. The Design Engineer shall provide written documentation for an appropriate solution to the conflicts shall be coordinated with the serving utility company prior to finalizing the design.

Developer shall be responsible for utility clearance for the required traffic signal(s) for development projects.

Traffic signal equipment and overhead power lines shall have minimum 10’ radial clearance or more depended upon the power lines’ voltage and the serving utility agency.

D. GENERAL NOTES

The following general notes shall be shown on the title sheet:

1. All material and work shall conform to the latest edition of County of Riverside Standard Plans, Caltrans Standard Plans and Standard Specifications, and California Manual on Uniform Traffic Control Devices.

2. The Contractor shall notify Underground Service Alert, (800) 227-2600, and all concerned utility companies at least two working days in advance of excavation.

   Locations of all underground utilities are approximate. The Contractor shall determine the exact locations and verify all conditions on the job site prior to commencing work. The Contractor is fully responsible for all damages occurred due to failure to locate and preserve all underground utilities. Hand dig as needed or as directed by the Engineer until clear of obstructions.

3. The Contractor shall be responsible for any clean up on County right-of-way affected by Contractor's work. The Contractor shall keep County right-of-way clean of debris, with dust and other nuisances being controlled at all times. Method of street cleaning shall be dry sweeping of all paved areas. There shall be no stockpiling of construction materials within the County right-of-way without the permission of the Engineer.

4. Existing privately owned improvements on public right-of-way shall be protected or replaced.

5. See Caltrans Standard Plan ES-1A, ES-1B, and ES-1C for symbols and abbreviation legends.

6. The Contractor shall furnish and install all traffic signal equipments, signs, and striping in accordance with the plans and special provisions. All signs shall be reflectorized and standard size unless otherwise noted.

7. Controller cabinet and service cabinet shall be placed at a minimum of 15 feet apart.

8. Electrical conduit shall be placed at a minimum of 2 feet from telephone conduit.

9. All pull boxes size shall be No. 5 unless otherwise noted or approved by the Engineer. Pull boxes in unimproved areas not protected by curb and gutter shall be traffic bearing type. Maximum spacing between pull boxes shall be 500 feet.

10. All conduits shall be 2-inch rigid galvanized steel conduit unless otherwise noted. All conduits placed under paving shall be installed without open cutting.

11. Detector loops shall be placed per County of Riverside Standard Plan No. 1201 and centered within the driving lane unless otherwise noted. Striping layout (Cat-Tracking) shall be approved by the County prior to detector loop installation. All loop detector configurations shall be Type "E" per Standard Plan ES-5B. All curb terminations shall be Type "A" per Standard Plan ES-5D. Detector loop wires shall be tested and approved prior to filling sawcuts.

12. All cables and conductors shall be continuous with a minimum of 6 feet of slack inside each pull box unless otherwise noted. 20 feet of signal interconnect cable slack shall be provided inside the controller cabinet.

13. Traffic signal interconnect cable (SIC) shall be 6-pair, AWG #20 cable unless otherwise noted. Traffic signal interconnect conduit shall have a minimum factory conduit bend radius of 36 inch.

14. All combination pedestrian and vehicle signal indications including PV heads shall utilize light emitting diode (LED) signal modules. All vehicle signal section and indications shall be 12 inch.

15. All signal housings, visors, and backplates shall be metal. Vehicle signal housing shall be provided with louvered backplate. A tunnel visor shall be provided for each signal face.
16. All unused tenons shall be capped in a waterproof method as directed by the Engineer.
17. All equipment locations shall be approved by the Engineer prior to final placement.
18. Plan signature is good for 1 year, additional plan review is required if no construction began by then.

E. ENGINEER'S ESTIMATE

A complete engineer's estimate of construction quantities and costs shall be furnished. If the signal is part of a development with street improvements, the total signal costs should also be shown on the Construction Cost Worksheet for the street improvements as a single line item with a lump sum amount or with separate line items required for the project.

F. ENVIRONMENTAL CLEARANCE

Environmental clearance shall be obtained for all traffic signal projects. Project conditions shall initiate environmental clearance procedures through the Planning Department.

Exhibit TS-1

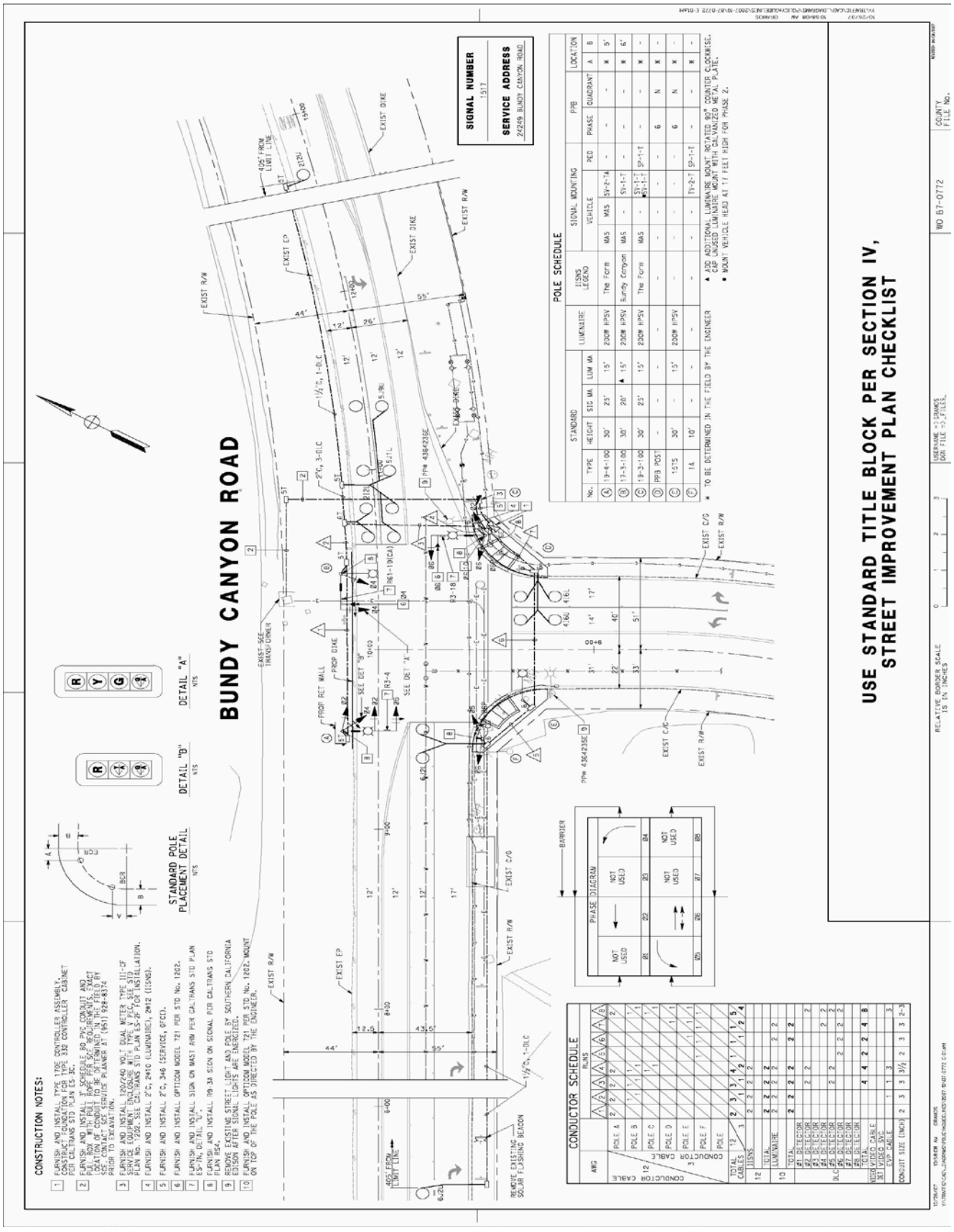

BUNDY CANYON ROAD
USE STANDARD TITLE BLOCK PER SECTION IV,
STREET IMPROVEMENT PLAN CHECKLIST
SIGNAL NUMBER
1517
SERVICE ADDRESS
24249 BUNDY CANYON ROAD
CONSTRUCTION NOTES:
POLE SCHEDULE
CONDUCTOR SCHEDULE
PHASE DIAGRAM
STANDARD POLE PLACEMENT DETAIL
DETAIL "A"
DETAIL "B"
WD 67-0772

Exhibit TS-2

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT

PREFERED MICROSTATION
LEVELS, COLORS AND PLOTTED LINE WEIGHTS

TO BE USED FOR ALL DRAWINGS
ELECTRONICALLY SUBMITTED TO THE COUNTY

	COLOR	WEIGHT
LEVEL 1		
TITLE BLOCK	RED	.70mm
EXISTING STREET IMPROVEMENTS	WHITE	.25mm
RIGHT-OF-WAY LINES	RED	.70mm
LEVEL 2		
CONDUCTOR SCHEDULE	BLUE	.35mm
POLE SCHEDULE	BLUE	.35mm
PHASE DIAGRAM	BLUE	.35mm
SENSOR TABLE	BLUE	.35mm
LEVEL 3		
ALL NEW SIGNAL EQUIPMENT	GREEN	.50mm
NEW CONDUIT	GREEN	.50mm
NEW DETECTOR LOOPS	GREEN	.50mm
LEVEL 4		
EXISTING STRIPING, SIGNING AND MARKINGS	BLUE	.35mm
LEVEL 5		
PROPOSED STRIPING, SIGNING AND MARKINGS	GREEN	.35mm
LEVEL 6		
ALL UTILITIES	WHITE	.25mm
LEVEL 7		
TEXT	BLUE	.35mm
DIMENSIONS	BLUE	.35mm
SPECIFIC DETAILS (NORTH ARROW, USA ALERT)	GREEN	.50mm
LEVEL 8		
PROPOSED STREET IMPROVEMENTS	GREEN	.50mm
LEVEL 9		
CENTERLINES	WHITE	.25mm
LEVEL 10		
AREAS FILLED WITH HATCHED LINES	WHITE	.25mm
LEVEL 11		
AREAS CONAING HATCHED LINES	GREEN	.50mm
LEVEL 12		
EXISTING SIGNAL EQUIPMENT	WHITE	.25mm

XI. STREET LIGHT PROCEDURES

This section was prepared to assist those whose projects require the installation of street lights within the County of Riverside. A separate street light plan, typically on one sheet is required and shall be submitted with the street improvement plans as part of the submittal package, multiple sheets may be used if approved by Transportation. The design engineer shall locate the street lights on the plan and provide the required information per “Plan Submittal” below prior to submittal. Street light plans may be signed ahead of the rest of the improvement plans, but only after a complete first submittal is reviewed.

The Transportation Department, Development Plan Check Section’s head is responsible for the approval of street light types and locations on Riverside County maintained roads. A procedure has been established for the Transportation Department to check and approve street light layouts for developments see section “C” of this chapter. When submitting plans included with the street improvement package, see Improvement Plan Submittals chapter for number of prints and this chapter section ”A” for plan requirements.

Street lighting plans are generally returned to the submitter of the plans with the street and other plans as a plan checked package. The street light plan review process may consist of a field review. See this chapter section “B” for the particulars. The Street Light Authorization Form needs to be filled out by the Transportation or CSA administrator and taken to SCE or IID with the approved plans for processing.

A. PLAN SUBMITTAL

Plan Standards:

1. 22"x34" using standard County title block. (See Title Block Exhibit)
2. Minimum scale 1"=100 and a single sheet index map type plan
3. North arrow (up or to right if possible)
4. Project boundaries, or map limits. Use heavy dark line & label
5. Vicinity map with Township, Range, Section (A photocopy of Thomas Guide book is not acceptable)
6. Right of Way lines (label “proposed” and “existing”)
7. Centerlines, including stations (100' foot intervals) will be shown on plans, and will correspond with centerline stationing shown on street improvement plans.
8. Dimensions to centerline, curb lines, right of way lines.
9. Minimum lettering size is 0.12"
10. Show “Street Light Plan”, project and “IP” number in standard title block. (See Title Block Exhibit)
11. No adhesive-backed (“sticky back”) material on final mylar

12. Plans are to be signed & stamped by the applicant engineer (Civil or Traffic)
13. Show existing street lights within project limits, and 300' beyond. Street light layouts shall apply only to one tract number, parcel map number, or project number. Show “future” street lights in a reasonable placement format to demonstrate that this design will work both now, and when future development occurs. Label signalized intersections.
14. Multiple projects shall not be shown on one street lighting layout plan as each project is assessed for its own lights based on this plan
15. Lot Lines and Lot Numbers
16. Show street light locations with stations or dimensions from road curves or property lines
17. Show the quantities of each type of street light used including wattage and lumens with a project total. The wattage and lumens is based on road width and distant from Mt Palomar. The project total must match the number on the Construction Cost Worksheet.
18. Avoid placing lights on the tract boundary. This can create problems for assessments and funding of maintenance/energy charges if the light is partially in one tract and partially in another. Show the number of street lights for each tract on the legend and for MS cases call out which street light goes to which tract.
19. At intersections, a minimum of one light is required at the far right return. If the project is conditioned for a signal and there is an existing street light at the intersection the plan has to call for its removal.
20. If any street lights will be installed much later, they need to be shown and called out for assessment only.
21. Street light plan is not for construction, but only for location. Do not show/call out conduits, pull boxes, etc.

General Notes (show on street light plan):

1. All work shall conform to the most current requirements of the County of Riverside Transportation Department, Improvement Standards and Specifications, County Ordinance No. 461 and subsequent amendments.
2. It shall be the responsibility of the developer or contractor to apply for an encroachment permit for work performed within County right-of-way.
3. The contractor shall contact Underground Service Alert at (800) 227-2600 at least 48 hours prior to any excavation. The contractor accepts all responsibility for any and all damages to existing utilities.
4. This project is / is not within 30 miles of Mt Palomar. (Determine with APN and County GIS via internet)
5. SCE / IID Service planner _____, Work order number _____

   (Please determine if the project is in SCE, IID or other service area). (See map on website)
6. Energy charges paid by _____ (LLMD, CSA, EDA, OTHER).

B. DESIGN LAYOUT

The streetlight plan review process consists of an office review of plans and may require a field review. Office review involves coordinating streetlight layouts of adjacent and prior approved projects with the active project. A field review of the project site is conducted by County staff to verify existing power pole locations, existing streetlights and other relevant information. This may not be required if adequate information is given on the plan and is verifiable from the office.

It is recommended to the designer to begin their layout by placing lights at intersection far-right-returns. Once the intersections are lit, fill in the lighting between them using a spacing as close to 200' as practical.

1. Streetlights shall be installed at all intersections, knuckles, cul-de-sacs and at a minimum of one streetlight staggered for each 200 linear feet of roadway, plus or minus 20 feet. Lights shall be placed in alternating fashion "staggered" so that the distance on one side of the street is 400' between lights.
2. Streetlights shall be placed at lot lines when within 20' of spacing requirement, call out stations.
3. At intersections without traffic signals, streetlights should be placed near the curb return at a far right approach. On tee intersections, only one light is required. On 4-leg intersections: Where two local streets intersect, only one light is required; where a local street intersects a General Plan road, two lights are required on the General Plan road. If new signals are required as part of the improvements, the streetlights shall be coordinated with the signal and lighting plans. (See Signal Design Criteria chapter of this document). Existing lights within 50' of a signal needs to be removed.
4. Luminaries shall be high-pressure sodium type, unless the project is located within a 30-mile radius of Mount Palomar Observatory. If the project is located within this 30 mile radius, the luminaries shall be low-pressure sodium type; as required by Board Resolution No. 84-77.
5. Street lighting shall be designed and installed in accordance with the Street Light Specification Chart found in Specification Section 22 of Ordinance 461 and Ordinance 460 Article XIII.
6. Electroliers: Unless otherwise specifically permitted by the Director of Transportation, luminaire standards shall be in accordance with the following:
   (a) Ornamental concrete type shall be considered as the standard street lighting pole type per Riverside County Transportation Standard 1000 or 1001.
   (b) Ornamental concrete type or fiberglass type where a six-foot mast arm is permitted by County standard.
   (c) Spun aluminum type shall be considered as the standard in the Imperial Irrigation District.
   (d) Other street lighting pole types may be used if mutually agreed upon by the Director of Transportation and the serving utility.
7. All installation, ownership, service, liability and maintenance shall be the responsibility of the serving utility company and shall be so defined in the Service Agreement.

8. Roadway lighting shall be required on all County of Riverside Expressway classification roadways in accordance with the County design criteria and the following:

   (a) At-Grade intersections
   (b) Grade separations of expressways with other public roadways, railways, pedestrian walkways, and with other public or private facilities.
   (c) Acceleration and deceleration ramps and lanes.
   (d) Auxiliary lanes.

   The above described requirements shall apply to County designated expressway classification roadways with access openings at spacing not less than the intersection intervals designated in Standard No. 114 of Ordinance 461. Said roadway shall be provided with physical controlled access barriers such as fences and block walls. In the absence of such physical access barriers, or if the access intervals are less than that set forth in Standard 114, the roadway shall not be considered as an expressway for the purposes of street lighting, and street lighting shall therefore be installed at 200 foot spacing in accordance with the requirements of the County's Transportation Department and this section.

9. Street lights shall be placed at the beginning of the cul-de-sac, as approaching the bulb in a vehicle, not in the turn – a - round portion. Light placement may be either left or right side approaching the bulb, consistent with spacing and layout design. Do not place a street light at the end of the cul-de-sac.

10. The "first light" back from an intersection shall be placed 100' from the intersection on intersecting street only if the intersection street is lit. Regular 200' staggered spacing should be used thereafter. If the intersection is signalized, start 200' from intersection, and if not lit use 200' from far right return.

11. Dark Sky: If the project is located in the area approved by the Board of Supervisors or Planning Commission and designated as "Dark Sky" street lights should be installed per Standard at intersections, end of cul-de-sac and knuckles only.

12. Decorative street lights: Transportation Department will allow only such decorative lights previously approved by Planning and /or Transportation Department and serving utility company.

C. PLAN PROCESSING

1. Once the Plan Check Development Section has approved the street light layout, the applicant shall be responsible for making blue lines of the approved plan and submitting them to the CSA Administrator at the Economic Development Agency for residential developments and Transportation Administrator for commercial projects for review and processing. The project will be approved as a whole. The CSA Administrator will determine if the residential project is in an existing CSA / CSD or if annexation is required. **Please contact the CSA Administrator at (951) 955-6652 or Transportation Administrator (951) 955-6829 for direction.**

2. Approved street light plans are submitted to Southern California Edison or Imperial Irrigation District with a Street Light Authorization Form obtained from the Transportation or CSA Administraitor , which ever is

processing the annexation, to obtain a work order number, an “AI” number, and planner’s name. This is to be written on the plan at note 5.

3. If annexation is required, the applicant must provide the total gross acreage and pay State Board of Equalization fees based on that acreage to the CSA Administrator before signoff to LAFCO will be provided. One (1) copy of the approved layout is to be taken by the applicant for submission to the Riverside County Local Agency Formation Commission (LAFCO) to supplement the filing of an application for annexation into a County Service Area (CSA) or Community Services District (CSD).

4. Alternately, the approved street light plan shall be submitted to the CSA Administrator or CSD if the project is within an existing one. The applicant then pays CSA Administration an advanced energy fee deposit based on the amount needed to fund the street light energy charges for the time being until the property is placed on the County Tax Rolls. The project must be in a CSA, or annexation recorded by LAFCO, by December 31 of the prior year in order for the project to be placed on the County tax rolls for the following fiscal year. For example, the annexation must be recorded by December 31, 2010, in order to be included in the fiscal year 2011-12 tax assessments.

5. Upon filing the application with LAFCO, one copy of the approved street lighting plan is to be taken to the serving utility company for the preparation of the construction plans. The serving utility company will prepare their electrical service plans, to include street lights, in accordance with the Transportation Department’s approved street light layout plan.

6. The serving utility company shall submit three (3) copies of their construction plan with an Application for Encroachment Permit to the County Transportation Department Permit Section for operation and maintenance of the proposed street light system. The developer is also required to secure a separate encroachment permit for the installation of the electrical facilities.

7. The developer or engineer will then submit three (3) prints of the utility company’s construction plan plus a copy of county’s approved street light plan to the County Transportation Department Permit Section for Application for Encroachment Permit to provide for the trenching excavation and installation of conduits, cables, and street lights.

8. The County Transportation Department Permit Section will compare the serving utility plan with the street light layout plans. The County Transportation Department Permit Section verifies that the utility company’s construction plans include street lights at locations as shown on the approved street light layout plan.

1. The approved construction and street light plans at the County Transportation Department Permit Section will be used to complete both permit application procedures.

2. For cash-in lieu lights, they will be included for the annexation , but not assessed until the lights are installed.

D. PROCEDURES FOR INSTALLATION

The following procedures are typical for the installation of street lights in Riverside County.

1. After obtaining encroachment permits from the Permits Section, the developer provides any trenching to the street light locations.
2. The Transportation Department's construction and permit inspectors inspect street light installations to determine that the street lights have been installed in conformance with Ordinance 461 and the approved street light layout.
3. At the time, a Notice of Completion is issued for the development. The developer shall provide a copy of the Notice of Completion to the CSA Administrative Office.
4. The utility company energized the street lights.
5. If there is a balance remaining in the energy charge deposit when energized, upon request, the CSA Administration will refund any amounts due to the developer at the beginning of the new fiscal year.

In the Imperial Irrigation District, prior to energizing the lights please submit the following items;

A. An authorization letter, which indicates the number, size, type, luminaries and location of lights.

B. A map of the locations with direction each streetlight is facing.

A. All streetlights must have hand hole cover plates and covers secured at the base of poles.

B. The grout at the base of the pole must be filled in after pole is set and plumbed.

C. The voltage to supply the street lights must be 120.

D. A second letter indicating when the street lights were installed and an "As built" plan, which shows the feed of the streetlights.

E. LAFCO APPLICATION

The LAFCO application is necessary in order for the street light energy charges to be paid through community funding. The developer is responsible for the cost of the fixtures, the installation of the conduit, and a deposit for advanced energy charges. At such time as the project is annexed into a CSA (through the application to LAFCO and placed on the County tax rolls) the energy charges are assumed by that CSA at its earliest opportunity allowed by its governing rules and regulations, and the remaining portion of the deposit is returned to the developer.

In the West Riverside area, the function of LAFCO and CSA functions are performed by either Jurupa Community Services District or Rubidoux Community Services District, depending on the development location.

Please contact the appropriate agency for applications and information:

AGENCY	**JURISDICTION**
Local Agency Formation Commission	Riverside easterly to Blythe

County of Riverside
1485 Spruce Street, Suite J
Riverside, CA 92507-2445
(951) 369-0631 - Fax (951) 369-8479

Jurupa Community Services District — Pedley and Glen Avon areas
8621 Jurupa Road
Riverside, CA 92509
(951) 685-7434 - Fax (951) 685-1153

Rubidoux Community Services District — Rubidoux
3590 Rubidoux Boulevard
Riverside, CA 92509
(951) 684-7580 - Fax (951) 369-4061

NOTE: LAFCO staff will direct developers/engineers to the appropriate C.S.D. or C.S.A. as requested.

F. OWNERSHIP OF STREET LIGHTS

On public streets in the unincorporated portion of Riverside County, most street lights are installed, owned and maintained by the utility purveyor. In Riverside County, there are two utility companies:

1. The Southern California Edison Company
2. The Imperial Irrigation District

The Transportation Department's functions are as follows:

1. To specify the location and type of street lights to be installed.
    1. To impose the requirement for street lighting for developments through the Development Conditions of Approval.

Utility companies' addresses are as follows:

Southern California Edison Company
San Jacinto Valley District
26100 Menifee Road
Menifee, CA 92585
(951) 928-8245

Southern California Edison Company
Ontario District
1351 East Francis Street
Ontario, CA 91761
(951) 930-8491

Southern California Edison Company
Palm Springs District
36-100 Cathedral Canyon Drive
Cathedral City, CA 92334
(760) 202-4286

Southern California Edison Company
Blythe District
505 West 14th Avenue
Blythe, CA 92225
(760) 922-9158

Southern California Edison Company
Foothill District
P.O. Box 788
Rialto, CA 92376
(951) 357-6226

Imperial Irrigation District
P.O. Box 1080
8160 Avenue 58
La Quinta, CA 92253
(760) 398-585

G. REQUEST FOR STREET LIGHTS ON EXISTING COUNTY MAINTAINED ROADS

(Not related to land development)

There is essentially three ways that streetlights can be installed on County of Riverside maintained roads. The primary concern regarding street light installations is funding for the installation and ongoing energy charges for the streetlight.

1. The County of Riverside, Transportation Department can fund the installation and energy charges for safety lights at locations that meet the Board of Supervisors' Policy Number G-12 relating to safety lighting. A copy of Policy Number G-12 is in the appendix.
2. Street lights that are within a residential development and a County Service Areas (CSA) may be funded by special assessment. A CSA is a designated geographical area within which property owners are assessed parcel fees for services requested, and approved by the County of Riverside Board of Supervisors. If you have questions regarding a CSA, please contact the CSA Administrator of the Riverside County Administrative Office at (951) 955-6697. Alternately, street lights within a Community Service District may be funded by a special assessment. (See section "F" for jurisdictions).
3. An additional method of funding a streetlight is for an individual, business or homeowners association to directly set up an account with the utility company.

If a streetlight is to be installed on a County of Riverside maintained road, approval of the installation by the County Transportation Department Permit Section is required.

To acquire approval by the County Transportation Department Permit Section for the installation of a privately funded streetlight, the following procedures shall be followed:

1. The individual shall contact the service planner at the appropriate utility company.
2. The individual shall request the service planner to sketch a map of the proposed street light locations. The map shall include the street light locations, work order number and utility pole number (if applicable).
3. The service planner shall send a formal request along with four copies of the map (8.5" x 11") to County Transportation Department Permit Section. The plan will be reviewed and the permit issued.

H. LOW PRESSURE SODIUM STREET LIGHTING

In order to mitigate the adverse effects that stray roadway light has on the use of the Mount Palomar Observatory, the Riverside County Board of Supervisors has ordered that all new lights within thirty miles of the Mount Palomar Observatory be of the low-pressure sodium type.

Exhibit SL-1

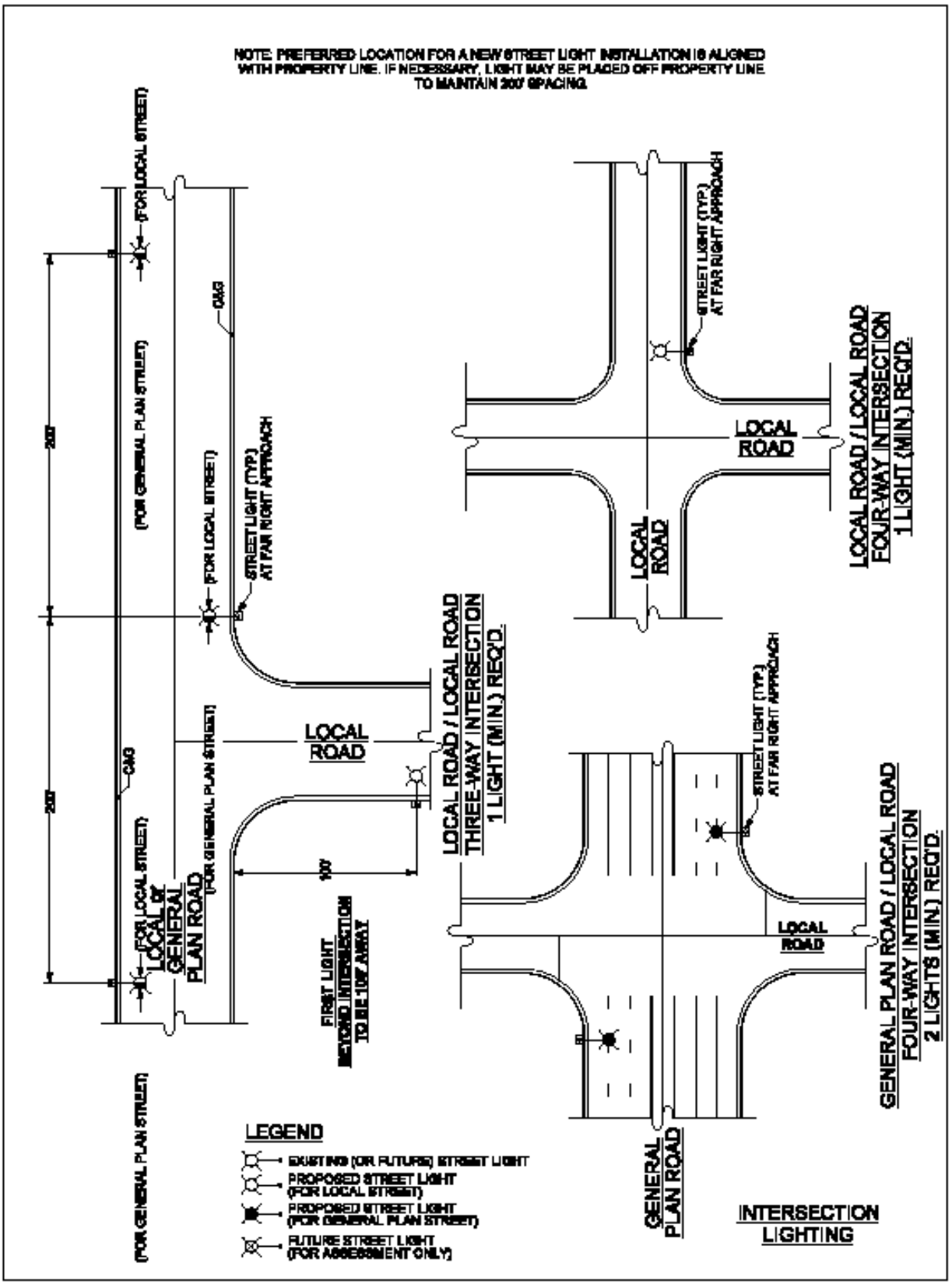
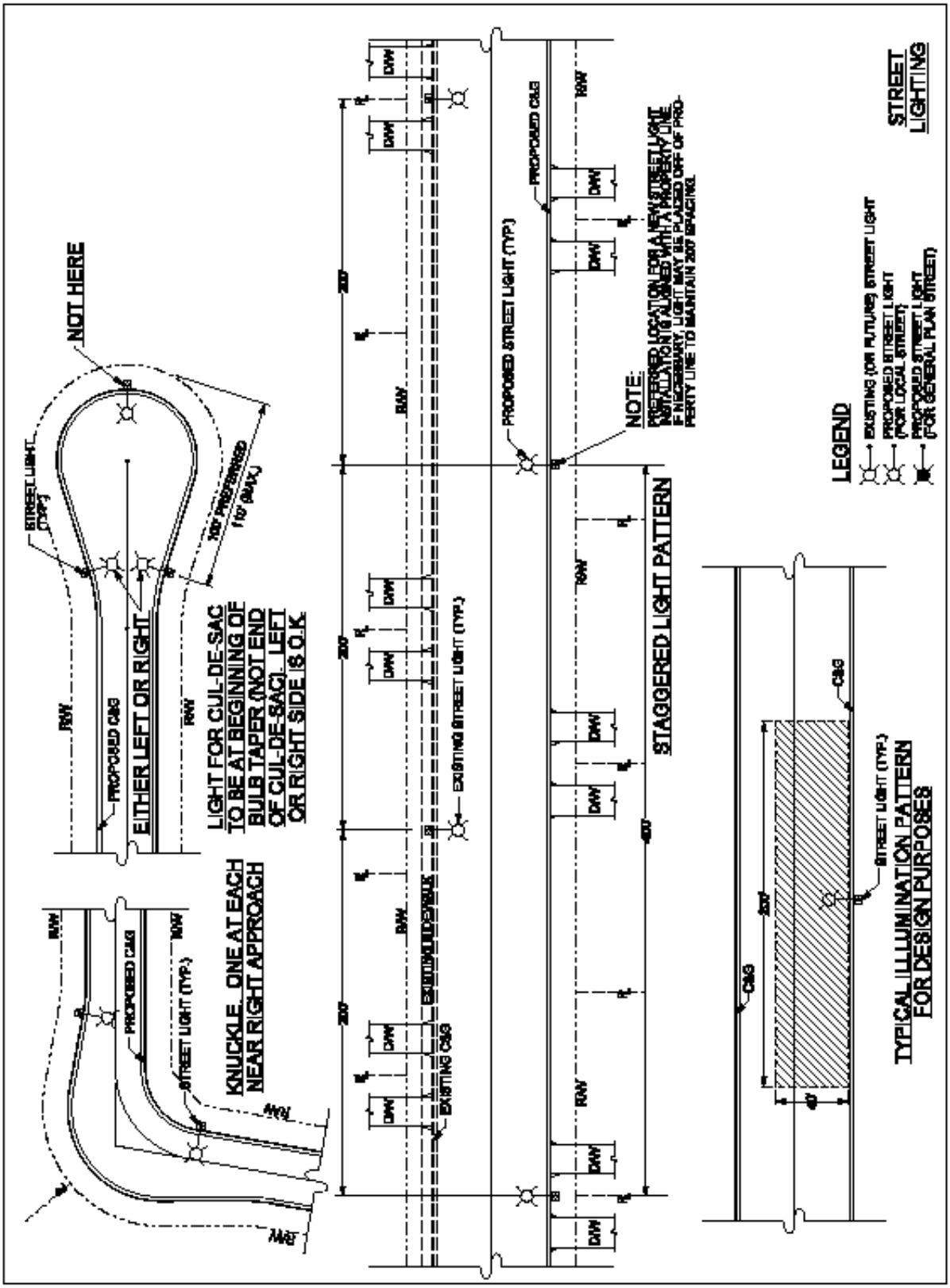

NOTE: PREFERRED LOCATION FOR A NEW STREET LIGHT INSTALLATION IS ALIGNED WITH PROPERTY LINE. IF NECESSARY, LIGHT MAY BE PLACED OFF PROPERTY LINE TO MAINTAIN 200' SPACING.
(FOR LOCAL STREET)
(FOR GENERAL PLAN STREET)
CMU
(FOR LOCAL STREET)
STREET LIGHT (TYP.) AT FAR RIGHT APPROACH
200'
200'
LOCAL ROAD
LOCAL ROAD / LOCAL ROAD THREE-WAY INTERSECTION 1 LIGHT (MIN.) REQ'D.
(FOR LOCAL STREET)
LOCAL OR GENERAL PLAN ROAD
(FOR GENERAL PLAN STREET)
100'
FIRST LIGHT BEYOND INTERSECTION TO BE 100' AWAY
(FOR GENERAL PLAN STREET)
LOCAL ROAD
LOCAL ROAD
LOCAL ROAD / LOCAL ROAD FOUR-WAY INTERSECTION 1 LIGHT (MIN.) REQ'D.
STREET LIGHT (TYP.) AT FAR RIGHT APPROACH
STREET LIGHT (TYP.) AT FAR RIGHT APPROACH
LOCAL ROAD
GENERAL PLAN ROAD / LOCAL ROAD FOUR-WAY INTERSECTION 2 LIGHTS (MIN.) REQ'D.
GENERAL PLAN ROAD
LEGEND
EXISTING (OR FUTURE) STREET LIGHT
PROPOSED STREET LIGHT (FOR LOCAL STREET)
PROPOSED STREET LIGHT (FOR GENERAL PLAN STREET)
FUTURE STREET LIGHT (FOR ASSESSMENT ONLY)
INTERSECTION LIGHTING

Exhibit SL-2


STREET LIGHTING
LEGEND
EXISTING (OR FUTURE) STREET LIGHT
PROPOSED STREET LIGHT (FOR LOCAL STREET)
PROPOSED STREET LIGHT (FOR GENERAL PLAN STREET)
NOTE:
PREFERRED LOCATION FOR A NEW STREET LIGHT IS AT INTERSECTIONS WHERE POSSIBLE. IF NECESSARY, LIGHT MAY BE PLACED OFF OF PROPERTY LINE TO MAINTAIN 200' SPACING.
PROPOSED STREET LIGHT (TYP.)
PROPOSED C&G
EXISTING STREET LIGHT (TYP.)
EXISTING C&G
STAGGERED LIGHT PATTERN
TYPICAL ILLUMINATION PATTERN FOR DESIGN PURPOSES
STREET LIGHT (TYP.)
NOT HERE
EITHER LEFT OR RIGHT
LIGHT FOR CUL-DE-SAC TO BE AT BEGINNING OF BULB TAPER (NOT END OF CUL-DE-SAC). LEFT OR RIGHT SIDE IS O.K.
KNUCKLE - ONE AT EACH NEAR RIGHT APPROACH

XII. WATER PLAN CHECK LIST

A. PREPARATION OF SHEETS

Plans must be 24" x 36" polyester base film (mylar or equal, no sepia mylar) using Water District Title Block or if not applicable, use the County Standard Title Block per Title Block Exhibit of this document.

_____1. Originals must be signed by engineer that prepared the plan, Water Company or district representative, County Fire Marshall, or Division of Forestry. (For EVMWD, all sign first)

_____2. The waterline location shall be per Standard No. 817. If not able to comply with Standard 817, a justification note should be added to the plan as approved by Transportation.

_____3. A typical section shall be required to show the location of the water line and all other utilities existing or proposed including the joint utility trench. (Similar to standard 817)

_____4. A Vicinity Map showing streets within a half-mile radius. Identify the Section, Township and Range the project is located in.

_____5. Add signature block for water district and fire department on street improvement plans (For “Hot Taps” and laterals for PUP, PP and CUP, where no work on main lines) As well as construction notes and stations/locations.

B. GENERAL NOTES AND REQUIREMENTS

Show on first sheet.

_____1. Specification and construction notes required by Water Company or District.

_____2. All materials, testing and inspection of pipe shall be in conformity with the requirements of Riverside County, the American Water Works Association (AWWA), and district standards.

_____3. Type of pipe used and diameter.

_____4. Failure to meet any of the requirements of Riverside County, the (AWWA) specifications and district will be cause for rejection.

_____5. Separation requirements between water and sewer lines shall conform to State Health Code Standard. (Old County Standard 609 no longer used)

_____6. Index map with sheet layout and numbering.

_____7. Trench repair per County Standard 818

_____8. Get an Encroachment Permit from Transportation. Permit number is 951-955-6790.

C. PLANS

_____ 1. Legend.

_____ 2. Scale and 4" graphic scale.

_____ 3. Label type and size of pipe used.

_____ 4. Label size of all fittings used.

_____ 5. Location of fire hydrants (per Standard No. 400 or water district standard). Show a detail of the placement of the blue reflective marker.

_____ 6. Connections to existing waterlines.

_____ 7. When waterlines cross other utilities, such as sewer, storm drains, or other obstructions, the outside pipe elevations shall be shown to indicate the available clearances. Also in profile when required.

_____ 8. Underground 4" Blow-Off air vacuum, etc. should be located in the parkway behind the sidewalk. Installation within a County maintained paved surface shall not be allowed.

_____ 9. Show laterals and dimensions or stations or a typical lot layout.

_____10. Owner/Contractor shall be responsible for replacement/relocation of all survey monuments within the project per Land Surveyor Act.

D. PROFILE

*NOTE: At the direction of the water purveyor, profile for water lines may be required or may be omitted. If they are omitted, a general note should be added to all water plans, stating, "Normal minimum cover shall be 3.0' per County Standard Number 817".

_____ 1. Scale, horizontal and vertical.

_____ 2. Profile of centerline of existing and proposed streets or existing ground line dashed; in which water line is to be constructed.

_____ 3. Profile of waterline. (See *NOTE above.)

_____ 4. Stationing at bottom of pipe at crossings of other utilities.

E. ESTIMATE OF MATERIALS

Estimate of quantities must be shown on first sheet and match the Construction Cost Worksheet for the project.

F. FIRE DEPARTMENT APPROVAL BLOCK

On title sheet of water plans, provide the following block, if fire hydrants are proposed:

RIVERSIDE COUNTY
FIRE DEPARTMENT

APPROVED BY: _____

DATE: _____

XIII. SEWER PLAN CHECK LIST

A. PREPARATION OF SHEETS

Plans must be 24" x 36" tracing cloth or polyester base film (mylar or equal, no sepia mylar) using Sewer District Title Block or if not applicable, use the County Standard Title Block per Title Block Exhibit of this document.

_____ 1. Originals must be signed by the engineer whom prepared the plans, sewer company district representative (EVMWD to sign last)

_____ 2. Sewer line location shall be per Standard No. 817 if deviating from Standard 817 a note to be added to the plan as approved by Transportation.

_____ 3. A typical section shall be required to show the location of the sewer line and all other utilities, existing or proposed including the joint utility trench. (Similar to standard 817)

_____ 4. A Vicinity Map showing streets within a mile radius. Identify the Section, Township and Range the project is located in.

B. GENERAL NOTES AND REQUIREMENTS

Show on first sheet.

_____ 1. Specification and construction notes required by Sewer Company or District.

_____ 2. Type of sewer pipe used and diameter.

_____ 3. All materials used and installation shall conform to Riverside County Standards and Specifications Ordinance 461.

_____ 4. Separation requirements between sewer and water lines shall conform to State Health Code Standards. (Old County Standard 609 no longer used)

_____ 5. Sewer laterals shall be installed according to County Standards No. 600 and 601 or serving agency.

_____ 6. Index map with sheet layout and numbers.

_____ 7. Trench repair per Standard 818.

_____8. Owner/Contractor shall be responsible for replacement/relocation or all survey monuments within the project area per Land Surveyor Act.

C. PLANS

_____ 1. Label size of pipe used.

_____ 2. Scale and 4" graphic scale.

_____ 3. Label manholes and cleanouts and include stationing and/or dimensions from centerlines.

_____ 4. Show all laterals.

_____ 5. Area for disposal (if applicable).

_____ 6. When sewer lines cross other utilities, storm drains, or other obstructions, the outside pipe elevations should be shown to indicate the available clearances.

_____ 7. Show sewer line dimension to street centerline.

_____ 8. Show encasement position and length with stationing.

D. PROFILE

_____ 1. Scale, horizontal and vertical.

_____ 2. Profile of proposed sewer with slopes.

_____ 3. Profile of centerline of existing and perimeter streets or ground line dashed; in which sewer line is to be constructed.

_____ 4. Finish centerline grade as a thin, solid line and labeled.

_____ 5. Stationing at bottom of profile.

_____ 6. Profile of waterline and slopes with encasement limits.

_____ 7. Manholes with stations and elevations at centerline of manhole.

E. ESTIMATE OF MATERIALS

Estimate of quantities must be shown on first sheet and match the Construction Cost Worksheet for the project.

XIV. CENTERLINE PROFILE STUDY

A. PROCESS

Centerline Profile Study plan check should be quick and just making sure that what is prepared is feasible and fairly accurate; about 70% engineered drawing. This is just a feasibility study for right-of-way dedication and future construction parameters. The requirement for a centerline profile study also applies to projects in the De Luz and Tenaja Community Services Districts and private streets.

Since the word "shall" was used, instead of "may," in Ordinance Number 460, Section 10.13,A.2.a (Schedule H) and Section 10.14,A.1 (Schedule I), the Transportation Department cannot waive the centerline profile study requirement without one of the below three procedures being met.

NOTE: FOR ALL SCHEDULE "H" (5 acres and larger) and SCHEDULE "I" PARCEL MAPS, a note shall be placed in the lower right hand corner of the tentative map disclosing which ONE of the three choices the applicant has chosen to follow for the "CENTERLINE PROFILE STUDY" requirements as listed below. This note MUST be on the blue line copy at the time the tentative map is submitted for the Land Development Committee (LDC) Review process.

The purpose of a "Centerline Profile Study" is to demonstrate that a proposed road alignment is constructible within the parameters for horizontal and vertical alignments as adopted in Ordinances 460 and 461, and that the proposed construction will not cause unwarranted environmental damage.

One of the following three procedural paths shall be taken to fulfill the centerline profile study requirement:

1. Prepare and submit to the Transportation Department, at the first Land Development Committee meeting, a separate centerline profile study, as a plan and profile designed per county standards and per Subsection “B”.
2. At the Director's Hearing, a request must be made in writing, signed by a registered engineer, requesting an exemption to the centerline profile study, in accordance with Article III, Section 3.1.C. of Ordinance 460, stating facts why the requirement is redundant and why its elimination is not detrimental to the health, safety or welfare of the public, and is not inherently damaging to the environment or other property in the vicinity.
3. Defer the centerline profile study to improvement plan check submittal and have approval processed through improvement plan check as one of the conditions of approval for recordation.

B. PREPARATION OF SHEETS

1. Use the standard title block per Title Block Exhibit. On the cover or first sheet a large note must be written stating "REVIEWED FOR CENTERLINE PROFILE STUDY AND SEEMS TO BE WORKABLE AND ACCEPTABLE FOR FUTURE ENGINEERING. NOT FOR CONSTRUCTION."
2. Use our standard sheets of plan and profile (24" x 36").
3. Hand drafting or CADD is acceptable as long as it is on a mylar and reproducible and can be scanned.
4. Show Index map with township, range and section and the roads with a mile radius.
5. All lettering must be legible and a minimum of 0.12" high. No cursive writing.
6. Scale: Horizontal 1" = 80' Maximum.
   Vertical 1" = 8' Maximum.
7. 5' contour intervals or more.
8. Show typical section. Width must be per Ordinance 460 Section 10.13 and conditions.
9. Show limits of cut and fill slopes. If slope is beyond right-of-way, show a slope easement to cover area needed for future cut or fill.
10. Show complete topography on plan and extend it 300' beyond property line. Show stationing and north arrow.
11. Show all watercourses with an "intelligent" hydrology estimate of Q100. Submit these "intelligent" hydrology calculations and assumptions.
12. Show all drainage facilities, any culverts required and their calculated sizes. Provide a profile of the culvert with elevations, 100 year flow, velocity and HGL. Right-of-way should be a minimum of 10' beyond and on each side for maintenance.
13. If culvert length exceeds right-of-way, an easement shall be shown for the length estimated beyond right-of-way, plus ten feet and dedicated on the map to whomever the roads are dedicated. If an easement is outside of the map boundary, it shall be shown graphically on the plans and final map for future dedication.
14. On profile show and label the existing centerline profile in dash line and the proposed centerline in heavy solid line. Show stationing and elevations. Show vertical curves, grades, BVC, EVC and PI only, intermediate points not required.
15. Minimum design speed is per Standard 114 for paved roads and not less than 25 mph for base and grade roads.
16. Plans must be prepared, signed and stamped by a licensed civil engineer in California.
17. One set of mylars are needed for approval and our records for future reference. Applicant may submit 2 sets, 1 for County record and 1 copy for engineer.

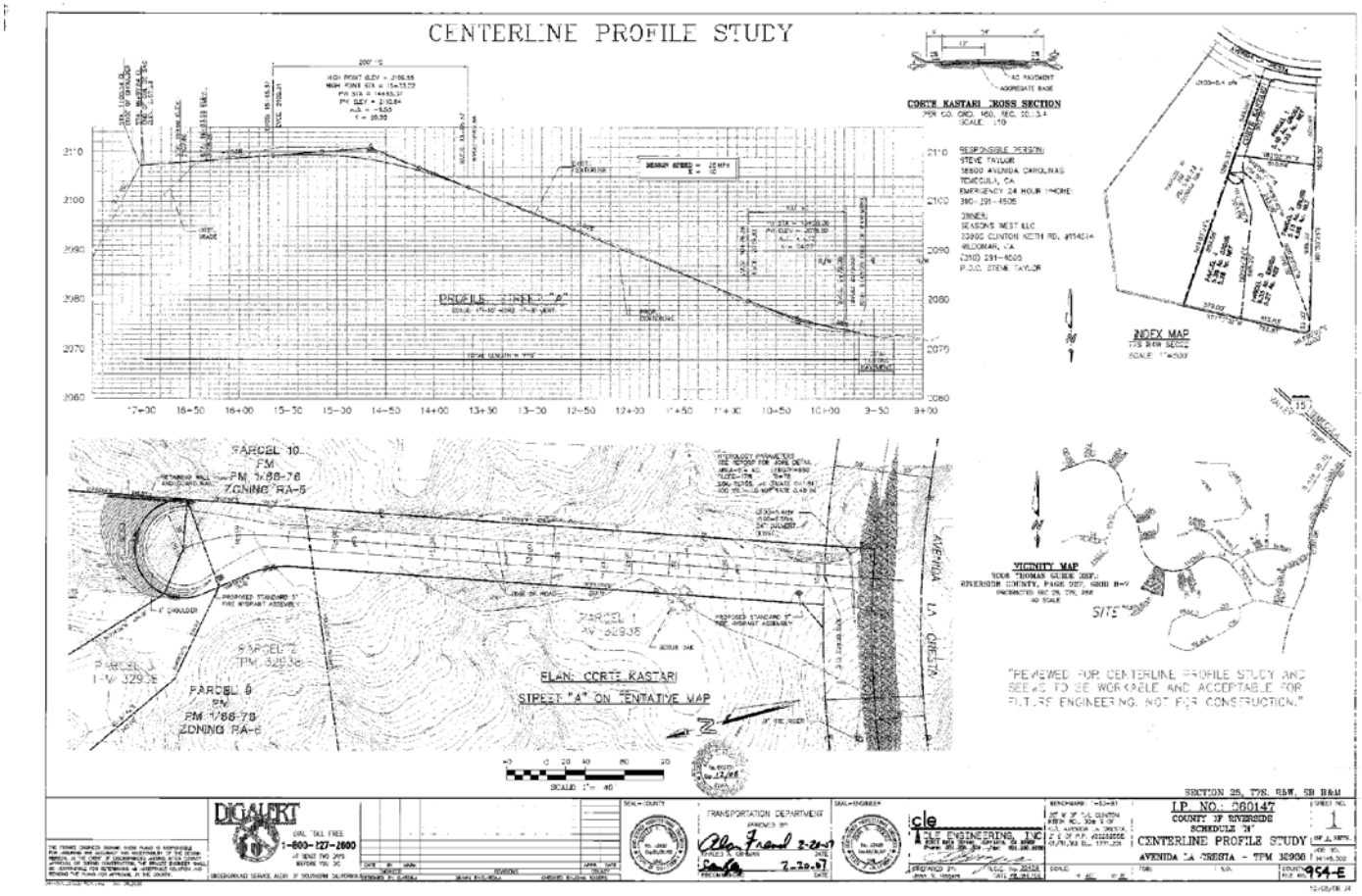
18. Show location of street name/stop sign if project located on a corner.

19. Show plan and profiles of all existing paved roads and note inadequate horizontal or vertical sight problems if any and show possible remedies.

20. If a waterline or other utility will be installed, submit copies of the plans with the profile study so it can all be checked at one time

NOTE: No General Notes are required.
No Construction Notes are required.
No Estimate of Quantities is required.

Exhibit CP-1



XV. PROJECT CLOSURE

For projects that do not require construction, or the required improvements are built or the applicant does not want to proceed with the project, a request to close the IP account shall be sent to the Transportation Department, attention Plan Check Section, the letter should state the case number, IP number, applicant and engineer, and reason for closure. Plan check staff will review and respond to the applicant on the request and if granted, update the project status to withdrawn or “complete”, whichever applies, which closes out the “IP” case. The accounting program will close out the account 45 days from the “completed” or “withdrawn” status date. If the case has a positive balance, then a check is issued and sent out within an additional 2 weeks. If the case has a negative balance, a request for additional funds will be sent out and the case remains open until the deposit is made. Once the case has a positive balance, it is closed as stated before.

APPENDIX

PLANE METHOD CURB RETURN DESIGN

ONLY APPLICABLE FOR STREET GRADES LESS THAN 5%

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

Plan Method Curb	IP Number:		Project No:	
Return Design	Checked By:		Date:	
	Approved By:		Sheet No:	

CURB RETURN ELEVATION DATA

PI 1
A
B
G1
G2

CURB RETURN CURVE DATA

△ in degrees
RADIUS
L
T

ELEVATION AT M.O.C

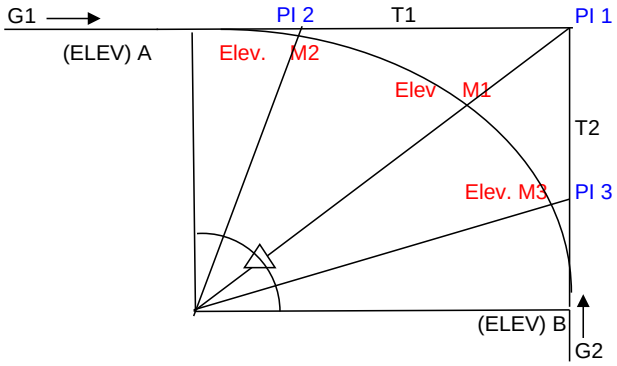
C1 = 1/2 (A+B)
a1 = (PI 1) - C1
R1 = COS1/2△ (1+COS 1/2 △)
M1 = C1+(R1*A1)

ELEVATION AT 1/4 POINT

T2 = (RADIUS)*(TAN 1/4△)
PI 2 = A+(T2*G1)
C2 = 1/2 (A+M1)
a2 = PI2-C2
R2 = COS1/4△/(1+COS 1/4 △)
M2 = C2+(R2*a2)

ELEVATION AT 1/4 POINT

PI 3 = B+[T2*(-G2)]
C3 = 1/2(B+M1]
a3 = (PI 3) - C3
M3 = C3+(R2*a3)



RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT

MINIMUM STORM DRAIN EASEMENT TABLE

	(Sloped)						(Shored)								
Diameter	2'	3'	4'	5'	6'	7'	8'	9'	10'	12'	14'	16'	18'	22'	24'
18"	20'	20'	20'	20'	20'	20'	20'	20'	20'	22'	22'	24'	25'	28'	28'
21"	20'	20'	20'	20'	20'	20'	20'	20'	20'	22'	24'	24'	25'	28'	28'
24"	20'	20'	20'	20'	20'	20'	20'	20'	22'	22'	24'	24'	25'	28'	30'
27"	20'	20'	20'	20'	20'	20'	20'	22'	22'	22'	24'	25'	26'	28'	30'
30"	20'	20'	20'	20'	20'	20'	20'	22'	22'	24'	24'	25'	26'	28'	30'
33"	20'	20'	20'	20'	20'	20'	22'	22'	22'	24'	24'	26'	28'	30'	30'
36"	20'	20'	20'	20'	20'	22'	22'	22'	22'	24'	24'	26'	28'	30'	30'
39"	20'	20'	20'	20'	22'	22'	22'	22'	24'	24'	25'	26'	28'	30'	32'
42"	20'	20'	20'	22'	22'	22'	22'	24'	24'	24'	26'	28'	28'	30'	32'
45"	20'	20'	20'	22'	22'	22'	24'	24'	24'	25'	26'	28'	28'	30'	32'
48"	20'	20'	20'	22'	22'	22'	24'	24'	24'	25'	26'	28'	28'	32'	32'
51"	20'	20'	20'	22'	22'	24'	24'	24'	25'	26'	28'	28'	30'	32'	32'
54"	20'	20'	22'	22'	24'	24'	24'	25'	25'	26'	28'	28'	30'	32'	32'
57"	20'	20'	22'	24'	24'	24'	25'	25'	26'	26'	28'	30'	30'	32'	34'
60"	20'	20'	24'	24'	24'	24'	25'	25'	26'	28'	28'	30'	30'	32'	34'
63"	20'	20'	24'	24'	24'	24'	25'	26	26'	28'	28'	30'	30'	34'	34'
66"	20'	20'	24'	24'	24'	25'	25'	26'	28'	28'	30'	30'	32'	34'	34'
69"	20'	20'	24'	24'	25'	25'	26'	26'	28'	28'	30'	30'	32'	34'	35'
72"	20'	24'	24'	25'	25'	26'	26'	28'	28'	28'	30'	32'	32'	34'	35'
75"	24'	24'	24'	25'	26'	26'	28'	28'	28'	30'	30'	32'	32'	34'	35'
78"	24'	24'	25'	25'	26'	26'	28'	28'	28'	30'	30'	32'	32'	35'	36'
81"	24'	25'	25'	26'	26'	28'	28'	28'	28'	30'	32'	32'	34'	35'	36'
84"	25'	25'	26'	26'	28'	28'	28'	28'	30'	30'	32'	32'	34'	35'	36'
90"	25'	26'	26'	28'	28'	28'	30'	30'	30'	32'	32'	34'	34'	36'	38'
96"	26'	28'	28'	28'	28'	30'	30'	30'	30'	32'	34'	34'	35'	38'	38'
102"	28'	28'	28'	28'	30'	30'	30'	32'	32'	32'	34'	34'	36'	38'	40'
108"	28'	28'	30'	30'	30'	30'	32'	32'	32'	34'	34'	35'	36'	38'	40'
120"	28'	30'	30'	30'	30'	30'	32'	32'	34'	35'	36'	38'	38'	40'	42'

RECORDING PRIOR TO HAVING SIGNED IMPROVEMENT PLANS

(DEVELOPER LETTERHEAD)

Date_____

Mr. Alan D. French, P.E., P.L.S.

Transportation Department
County of Riverside
4080 Lemon Street
Riverside, CA 92501

RE: Request for recordation prior to having signed plans
Project No._____ IP No._____
Location_____

Dear Mr. French:

We are the developers of the above project and we request to record this map prior to having signed improvement plans by posting a bond in the amount of 120% (including Flood Control, if applicable) as allowed by Ordinance 460 Section 10.3 E.

Improvement plans are going through the plan check process and they are at a stage where the design concept and quantities are acceptable. The plan checker for this project is _____. We commit to continue the plan check process to final approval and signature.

We understand also that if any offsite easements or dedications are required they will be obtained and recorded prior to and/or concurrent with map recordation and the inspection deposit is required prior to recordation.

Our urgent reason and justification for this request is_____

_____.

A copy of this letter is sent to the Water and Sewer District /Agency and the Landscape Maintenance District (if applicable) listed below requesting their clearance. Once we receive their clearance, we will transmit this clearance and the final 120% cost estimate to process for bonding. When the bonds are approved by County Council, at that time Transportation Department will clear the map to record.

The Water and Sewer District / Agency could sign their clearance on the attached, or if the water and sewer plans are signed by them, that will suffice as clearance.

Plans for all facilities to be annexed by LLMD need to have been plan checked one time.

Sincerely,

_____

Developer' s Name (Printed)

_____ _____

Signature Date

cc: Coachella Valley Water District, if applicable
Water District
Sewer District
Flood Control District
Fire Department
Environmental Health
Landscape and Lighting Maintenance District
Valley Wide

[ ] Clearance

[ ] Objection because _____.

_____ _____

District / Agency Name (Printed)

_____ _____

Signature Date

RIGHT OF ENTRY/PERMISSION TO GRADE

I/We, _____, the undersigned, hereby state that I/We am/are the legal owners (s) of the property located at _____, (property address)

within Section _____, Township _____, Range _____, having the legal description of _____

_____

_____

_____ and/or assessor's parcel number of _____.

I/We also state that I/we have seen and received a copy of the construction drawings for _____ _____, which propose construction on said property consisting of:

1) Roadway grading cut and fill slopes (and graded/concrete swales, if any); and,

2) Drainage improvements including culverts, rip rap and related grading.

The proposed construction has been shown on the construction drawings, dated _____ and it was explained to me/us.

I/We hereby give my/our consent and permission for the right of entry onto the above-identified property to perform the above stated construction.

This permission shall continue in force only until the above-described work has been completed and a Notice of Completion is issued on this project. It is expressly understood that upon completion of the work, this Right of Entry is terminated and said property will be left in a neat and orderly condition.

I/We hereby give my/our consent also that I/we will not at any time block or divert any drainage into or out of the proposed drainage facility as shown on the plans.

I/We hereby indemnify and hold harmless the County from claims or liabilities arising out of actions from this agreement.

Signed: _____ Date: _____

_____

_____

(Affix notary)

AGREEMENT FOR MAINTENANCE OF PARKWAYS (ICI)
FOR INDIVIDUAL COMMERCIAL/INDUSTRIAL PROPERTIES

Case Number _____

IP Number _____

_____, ("OWNER")
and the COUNTY OF RIVERSIDE ("COUNTY") enter into the following agreement.

RECITALS

_____ is the owner and developer of that property tentatively designated and named the _____, which is more particularly described in Exhibit "A" attached hereto; and which has the following legal description:

_____

_____

_____

_____

WHEREAS, certain parkways belonging to the County are located contiguous to or within said property, which parkways are solely and more particularly described in Exhibit "A" attached hereto ("Parkways"); and

WHEREAS, the OWNER desires to improve such Parkways as a method of enhancing the value of the property; and

WHEREAS, the OWNER and the COUNTY wish to establish an agreement respecting the permanent maintenance of such Parkways;

THEREFORE, upon the mutual promises of the parties and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows:

1. Duties of the OWNER. _____ _____ shall improve the Parkways by landscaping the Parkways in a clean and attractive manner and shall install an irrigation system for the purposes of watering such Parkways. The OWNER shall obtain the approval of the Director of Transportation of the landscaping plan and the irrigation system prior to installation thereof. Following the completion of the installation of the landscaping and the installation of the irrigation system, OWNER shall maintain the Parkways in a clean and attractive condition. The costs and expenses involved in the installation of the landscaping and irrigation system and the

costs and expenses of maintaining the Parkways shall be borne entirely by OWNER with no cost or expense to the COUNTY.

2. Liability for Negligence. OWNER agrees to indemnify, defend and save the COUNTY, its authorized agents, officers, representative and employees, harmless from and against any and all penalties, liabilities or loss resulting from claims or court action and arising out of any accident, loss or damage to persons or property happening or occurring as a proximate result of any work undertaken pursuant to this Agreement, including any allegation that the landscaping caused, or contributed to causing, death or injury to person or property.

3. Covenant to Cooperate. OWNER covenants that it shall cooperate with the COUNTY should COUNTY determine that it is necessary, at a later time, to perform any work in the Parkways. This covenant of cooperation includes but is not limited to removing or relocating, at COUNTY option, all or part of the landscaping and/or the irrigation system for the purpose of accommodating the construction.

4. County Ordinance No. 461. _____ and the COUNTY acknowledge that County Ordinance No. 461, as amended from time to time (the "Ordinance") has been promulgated by the COUNTY and that such Ordinance creates certain restrictions and responsibilities upon those seeking an encroachment permit. The parties hereby incorporate the terms and provisions of such Ordinance by this reference herein the same as if set forth in its entirety. _____ shall obtain all permits required by Ordinance No. 499 prior to commencing any work within the right of way.

5. Amendments. Any amendments to this Agreement shall be made only by the written approval of both of the parties hereto.

6. California Law. It is the intention of the parties that the laws of the State of California govern the validity of this Agreement, the construction of its terms and the interpretation of the rights and duties of the parties.

7. Parties in Interest. Each and all of the covenants, terms, provisions, and agreements herein contained shall be binding upon and inure to the benefit of the heirs, executors, administrators, successors, and assigns of the respective parties hereto.

8. Integrated Agreement. This agreement constitutes the entire understanding and agreement between the parties hereto with respect to the subject matter hereof, and there are no agreements, undertakings, restrictions, or warranties among the parties other than those set forth herein and herein provided for.

DATED: _____,

COUNTY OF RIVERSIDE

TRANSPORTATION DEPARTMENT

_____

Alan D. French, P.E., P.L.S.

For Director of Transportation

_____

Company/Corporation/Partnership (Name)

_____

Print Name (Developer/Representative)

_____

Print Title of Signee

_____

DATE

_____

ATTEST

_____

NAME

_____

Date

DATE: _____

RECORD OWNERS (MUST BE NOTARIZED)

BY _____

_____

CASH-IN LIEU-OF-CONSTRUCTION AGREEMENT

AND TRACKING SHEET

Developer Name: _____ Date: _____

Address: _____

_____

Project Number:

Tract: _____ Parcel Map: _____

Plot Plan: _____ Public Use: _____

Conditional Use: _____ Miscellaneous: _____

* Type of Improvement:

☐ 1. Raised Median and Median Landscaping including _____

☐ 2. Road Improvements including _____

☐ 3. Other Improvements _____

* Please check applicable improvements cash is for and list major items.

Street Name cash is for _____

Limits along street cash is for: Sta / Cross Street _____to Sta / Cross Street _____

Road Width _____ (Ft) Median Width _____ (Ft) Per Exhibit

IP Number: _____ Account: # 20000-3130100000-230106 Speed Key – 313010-R38

Amount: $_____

AGREEMENT

___ _____ hereby makes a payment to the County of Riverside in the amount of $_____ and agrees that this money is provided as Cash-In-Lieu-Of-Construction to meet the obligation of Project _____ per the approved Conditions of Approval. This agreement is provided, as the required facility is not yet feasible to be constructed. It is further agreed that the County reserves the right to spend this money for any similar improvements on a County-wide basis, and that at the point of feasibility for this required facility to be built, the County will use these funds on the designated construction.

Developer Signature: _____County Signature: _____

Name: _____Receipt Number: _____Dated: _____

Title:_____Receipt Description: _____

Cc: Ledia Hunter (for work order number)

Mary Acuna

File

CASH-IN-LIEU OF CONSTRUCTION WORKSHEET

For Future Medians Only, use the Construction Worksheet for all other items.

QTY	UNIT	ITEM	UNIT COST	AMOUNT
	LF	A-8 curb	$12.00	
	SF	Maintenance Walk Std. 113	$4.00	
	SY	Remove AC pavement	$0.60	
	SF	Landscape & Irrigation	$3.50	
	SF	Colored Stamped Concrete	$10.00	
	LF	Saw cut exist AC pavement	$1.00	
	SF	Full Depth AC (2' beyond lip)	$6.50	
	LF	Water Meter (a)	$1.30	
	LF	Electric Meter (b)	$2.00	
	CYD	Landscape Fill Material (c)	$27.00	
	EA	Street Trees (15 gal)	$100.00	
			Sub	
		Inspection (3%)		
			Sub	
		Survey & staking (3%)		
			Sub	
		Design (15%)		
			Sub	
		Contingencies (20%)		
			TOTAL	

(a) $7,000 meter one per mile
(b) $10,000 meter one per mile
(c) 9'x1'x2' = 18 cuft

CAST-IN-PLACE STORM DRAIN PIPE REQUIREMENTS

1. Revised hydraulic calculations, reflecting 0.014 for the pipe roughness.
2. Soils report addressing the feasibility of using Cast-in-place pipe including:
   - Trench wall stability
   - Existence of groundwater
   - Existence of expansive soils
   - Recommendation for using cast-in-place pipe
3. Structural calculations are only required if the fill over the pipe is less than three feet or greater than the recommended height from table 2.3 in the ACI 346-90.
4. Also see the cast-in-place design standards by Riverside County Flood Control for additional information and construction specifications.
5. A note on the cover sheet of the plans stating that the pipe shall be inspected and certified by a qualified inspector. A certification shall be give to Construction Inspection on the quality of the finished pipe. Video inspection may be required by Construction Inspection.

ASPHALT CONCRETE THICKNESS
GRAVEL EQUIVALENT METHOD
(Revision 2006)

Project Number: _____ Date: _____

Traffic Index (TI) 5.5 Street Name: _____

1 Thickness of AC Required

Aggregate Base " R " Value (Default)	78
GE for AC (GE=0.0032*TI(100-R)	0.39
IF TI GREATER OR EQUAL 6.5 ADD 0.20 SAFETY FACTOR	0.2
TOTAL GE FOR ASPHALT CONCRETE	0.59

GRAVEL FACTOR (GE) FOR AC:

TI	GF	MIN AC
5.0 & BELOW	2.5	0.25'
5.5 TO 6.0	2.32	0.25', 0.25'
6.5 TO 7.0	2.14	0.30', 0.33
7.5 TO8.0	2.01	0.36', 0.39
8.5 TO 9.0	1.89	0.43',0.46
9.5 TO 10.0	1.79	0.49',0.51
10.5 TO 11.0	1.71	0.55',0.57
11.5 TO 12.0	1.64	0.62',0.64

GF = 2.32

THICKNESS AC=(GE/GF) = 0.25 AC

(USE MIN THICKNESS PER SPECIFICATIONS SECTION 8.07 OF ORDINANCE 461

Note: If it is less than min. use min thickness

= 0 AC

2 Thickness of Aggregate Base Required

SOIL " R " Value	50	
GE for AB (GE=0.0032*TI(100-R)	0.88	
Deduct GE furnished by AC		
GF(AC) x AC Thickness	(0.59)	0.00
Net GE required for AB	0.29	0.88
GF for Aggregate Base (Default)	1.11	
Thickness of AB required (GE/GF) =	0.26	0.79

Use (0.50' minimum) if your answer is less than minimum

Y:\Plan Check\Policies&Guidelines\AC & AB Thickness R

PLASTIC/METAL PIPE / CORRUGATED HDPE REQUIREMENT APPLICATION MATRIX

1. Culverts only, no connections to catch basins and no alignments parallel to centerline; should be single line crossing under roadway.

2. Must have six feet of cover or more, shallow pipe tends to get cut up by others. If less than 6' a concrete blanket is required per APWA Standard 225-0

3. Thickness per IV-J.

4. Allowable materials are HDPE, PVC and Steel.

5. All pipe to be smooth interior and ribbed or corrugated exterior.

6. Structural calculations for required strength shall be provided.

7. Standard specifications for pipe material, installation, and testing are per Ordinance 461.

CORRUGATED HDPE APPLICATION MATRIX

APPLICATION	Minimum Cover (ft) [1,2]	Maximum Cover (ft) [1]	Emedment Material	Compaction Level (% RC)	Compaction Equipment	Joint Type	Post Installation Inspection	Compaction Testing	Radius Curves	High Ground Water	Design Service Life (years)
NEW DEVELOPMENT											
TRANSPORTATION											
INSIDE ROW – NO TRAFFIC	6	20	N	95	M	WT	TV	Y	Y	Y	100
INSIDE ROW – TRAFFIC	6	20	R	95	M	WT	M	Y	Y	Y	100
OUTSIDE ROW – NO TRAFFIC	6	20	N	95	M	WT	V	Y	Y	N	100
OUTSIDE ROW – TRAFFIC	6	20	R/S	95	M	WT	V	Y	Y	Y	100

1 = Based on Caltrans Design Manual Section 850
2 = Minimum cover under traffic loading is defined as from top of pipe to bottom of flexible pavement and/or from top of pipe to top of rigid pavement.
3 = Minimum 4" concrete CAP per APWA Standard 225-0 required for less than 6' cover.

ST = Silt tight

V = Visual Inspection
TV = CCTV Inspection
M = Mandrel to 7.5% Based ID

Y = Yes
N = No

CASH PAYMENT FOR DRAINAGE FACILITIES MAINTENANCE

Agreement & Tracking Sheet

Developer Name & Address: _____ Date: _____

_____

_____

Project Number:

Tract: _____ Parcel Map:_____

Plot Plan: _____ Public Use: _____

Conditional Use: _____ Miscellaneous: _____

Type of Facility: _____

IP Number: _____ Account #: 20000-3130100000-230106 Speed Key 313010-R38

Amount: _____$_____

Agreement

_____hereby makes a payment to the County of Riverside in the amount of $_____ (typically 2% of construction and a $5,000.00 minimum) and agrees that this money is provided as cash payment for drainage facilities maintenance to meet the obligation of the Project _____ per the approved Conditions Of Approval. It is further agreed that the County reserves the right to spend this money for any similar facilities maintenance on a County-wide basis.

Developer Signature: _____ Title: _____

Print Name: _____

County Signature: _____

Receipt Number: _____Dated: _____

cc: Ledia Hunter (for work order number)

Mary Acuna

File

Recorded at the request of:
COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT

THIS INSTRUMENT IS FOR THE BENEFIT OF THE COUNTY OF RIVERSIDE AND ENTITLED TO BE RECORDED WITHOUT FEE.(GOV. CODE 6103)

RETURN TO:
RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT. **STOP NO. 1080**
4080 LEMON STREET
RIVERSIDE, CA 92501

COVENANT AND AGREEMENT REGARDING WATER QUALITY MANAGEMENT PLAN BMP, CONSENT TO INSPECT, MAINTENANCE AND INDEMNIFICATION

APN:_____ **PROJECT No.**_____ **IP No.**_____

OWNER(S): _____

PROPERTY ADDRESS: _____

LEGAL DESCRIPTION:_____

_____

_____

THIS AGREEMENT is made and entered into in Riverside County, California, this _____ day of _____ Year_____, by and between_____, (hereinafter referred to as "Covenantor" or “Owner”) and the COUNTY OF RIVERSIDE via its Department of Transportation, a political subdivision of the State of California (hereinafter referred to as "County").

RECITALS

WHEREAS, the Covenantor owns real property ("Property") in the County of Riverside, State of California, more specifically described in Exhibit “A” and depicted in

Exhibit "B", each of these exhibits is attached, and incorporated herein by this reference;

WHEREAS, the County is the owner of interests in that certain real property within the unincorporated area of the County of Riverside, State of California, containing storm drains, pipelines, and related appurtenances constituting the County's municipal separate storm sewer system (the County's "MS4");

WHEREAS, Covenantor intends to develop, improve, and/or use the Property in such a way that approval by the County for such development, improvement, and/or use is required pursuant to applicable laws;

WHEREAS, As a condition for said approval by the County, County required Covenantor, and Covenantor desires to, restrict the use of the Property according to the conditions, covenants, equitable servitudes, and restrictions contained herein for the express benefit of the County's MS4, which include requirements that the Property incorporate post construction on-site stormwater quality control measures;

WHEREAS, the Covenantor/Owner has chosen to install one or more _____, hereinafter referred to as "Device", as the on-site control measure to minimize pollutants in urban runoff;

WHEREAS, said Device has been installed in accordance with plans and specifications accepted by the County;

WHEREAS, said Device, with installation on private property and draining only private property, is a private facility with all maintenance or replacement, therefore, the sole responsibility of the Covenantor/Owner in accordance with the terms of this Agreement;

WHEREAS, the Covenantor/Owner is aware that periodic and continuous maintenance, including, but not necessarily limited to, filter material replacement and sediment removal, is required to assure peak performance of Device and that, furthermore, such maintenance activity will require compliance with all Local, State, or Federal laws and regulations, including those pertaining; to confined space and waste disposal methods, in effect at the time such maintenance occurs;

NOW THEREFORE, incorporating the foregoing Recitals and in consideration of the covenants and conditions contained herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and expressly for the benefit of, and to bind, their sucessors in interest, the parties hereto agree as follows:

1. Covenantor/Owner hereby provides the County or County's designee complete access to the Device and its immediate vicinity and such access onto the property to

permit access to the devise at any time, upon twenty-four *(24)* hour advance notice in writing, of any duration for the purpose of inspection, sampling and testing of the Device. County shall make every effort at all times to minimize or avoid interference with Owner's use of the Property.

2. Covenantor/Owner shall use its best efforts diligently to maintain the Device in a manner assuring peak performance at all times. All reasonable precautions shall be exercised by Owner and Owner's representative or contractor in the removal and extraction of material(s) from the Device and the ultimate disposal of the material(s) in a manner consistent with all relevant laws and regulations in effect at the time. As may be requested from time to time by the County / Regional Water Quality Control Board (RWQCB), the Owner shall provide the RWQCB with documentation identifying the material(s) removed, the quantity, and disposal destination.

3. In the event Covenantor/Owner, or its successors or assigns, fails to accomplish the necessary maintenance contemplated by this Agreement, within five (5) days of being given written notice by the County, the County is hereby authorized to cause any maintenance necessary to be done and charge the entire cost and expense to the Owner or Owner's successors or assigns, including administrative costs and interest thereon at the maximum rate authorized by the Civil Code from the date of notice of expense until paid in full.

4. The County may require the Covenantor/Owner to post security in a form and for a time period satisfactory to the County to guarantee the performance of the obligations stated herein. Should the Owner fail to perform the obligations under this Agreement, the County may, in the case of a cash deposit, certificate of deposit or letter of credit, act for the Owner using the proceeds from it, or in the case of a surety bond, require the sureties to perform the obligations of the Agreement.

5. The County may, but shall not be obligated to, enforce this Agreement by a proceeding at law or in equity against any person or persons violating or attempting to violate any condition, covenant, equitable servitude, or restriction provided for herein, either to restrain such violation or to recover damages.

6. This Agreement constitutes the entire agreement and understanding between the parties with respect to the subject matter of this Agreement and supersedes all prior or contemporaneous agreements and understandings with respect to the subject matter hereof, whether oral or written.

7. If any part of this Agreement is declared by a final decision of a court of competent jurisdiction to be invalid for any reason, such shall not affect the validity of the rest of the Agreement. The other parts of this Agreement shall remain in effect as if this Agreement had been executed without the invalid parts(s). The parties declare

that they intend and desire that the remaining parts of this Agreement continue to be effective without any part(s) that have been declared invalid.

8. This Agreement may be executed in counterparts, each of which so executed shall, irrespective of the date of its execution and delivery, be deemed an orginal, and all such counterparts together shall constitute one and the same instrument.

9. This Agreement shall be recorded in the Office of the Recorder of Riverside County, California and shall constitute notice to all successors and assigns of the title to said Property of the obligation herein set forth.

10. In the event of legal action occasioned by any default or action of the Covenantor/Owner, or its successors or assigns, then the Covenantor/Owner and its successors or assigns agree(s) to pay all costs incurred by the County in enforcing the terms of this Agreement, including reasonable attorney's fees and costs, and that the same shall become a part of the lien against said Property.

11. Covenantor/Owner agrees to indemnify, defend, and hold harmless the County, its elected officers, employees, agents, and contractors from and against any and all liability, expense, including costs and reasonable legal fees, and claims of damage of any nature whatsoever including, but not limited to, death, bodily injury, personal injury, or property damage arising from or connected with the County inspection of the Property except where such liability, expense, or claim for damage results from the sole negligence or willful misconduct of the County.

12. It is the intent of the parties hereto that burdens and benefits herein undertaken shall constitute covenants that run with said Property and constitute a lien thereon against.

13. The obligations herein undertaken shall be binding upon the heirs, successors, executors, administrators and assigns of the parties hereto and any other present or future interest holders or estate holders in the property. The term "Owner" shall include not only the present Owner, but also its heirs, successors in interest and in title to the property, executors, administrators, and assigns. Owner shall notify any successor to title of all or part of the Property about the existence of this Agreement. Owner shall provide such notice prior to such successor obtaining an interest in all or part of the Property. Owner shall provide a copy of such notice to the County at the same time such notice is provided to the successor.

14. Time is of the essence in the performance of this Agreement.

/ / /
/ / /
/ / /

15. Any notice to a party required or called for in this Agreement shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two *(72)* hours after deposit in the U.S. Mail, whichever is earlier. A party may change a notice address only by providing written notice thereof to the other party.

COVENANTOR/OWNER:

COUNTY:

Riverside County Department of Transportation
Attn: Transportation Assistant Director
4080 Lemon Street
Riverside, CA

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT

_____ _____
Patricia Romo Date
Assistant Director of Transportation

_____ _____
(Attest) Date

COVENANTOR/OWNER

_____
Company/Corporation/Partnership

_____
(Print Title)

DATE: _____

RECORD OWNERS (MUST BE NOTARIZED)

EXHIBIT STANDARDS

BMP EXHIBIT “A” STANDARDS

1. Use the legal description of the parcel as shown on the tentative exhibit. If not available, use the one in the most current title report.

2. As a backup, if the project is a map the description of the future lot may be included for reference

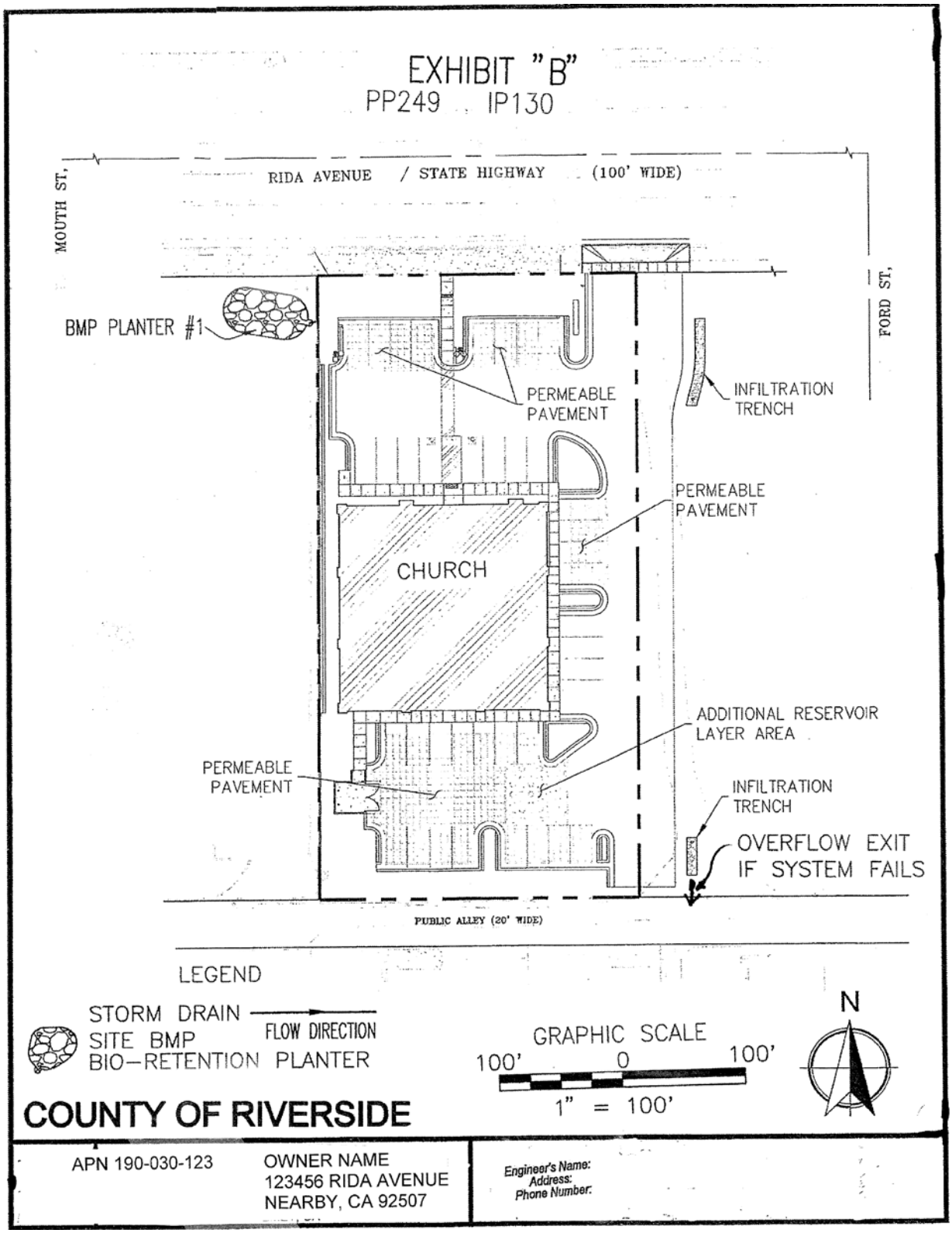
BMP EXHIBIT “B” STANDARDS

1. 0.12” minimum lettering
2. Sheet size must be 8.5” x 11”
3. Show Street names, north arrow
4. Indicate point of flow exit into street if basin system fails
5. Indicate Q100 of flow exit into street
6. Indicate direction of flow exit into street
7. Indicate by notation and/or show nearest downstream drainage facility (catch basin, culvert, riser, etc)
8. Show “Exhibit A”, IP and project number (TR, PM, PUP, PP etc)
9. Title block, signature block, engineer seals, USA note is not necessary on Exhibit
10. Show scale used for drawing, provide 4” graphic scale

LANDSCAPE EXHIBIT “B” STANDARDS

1. 0.12” minimum lettering
2. Sheet size must be 8.5” x 11”
3. Show street names, north arrow
4. Show “Exhibit A”, IP and project number (TR, PM, PUP, PP etc)
5. Title block, signature block, engineer seals, USA note is not necessary on Exhibit
6. Show scale used for drawing, provide 4” graphic scale

BMP EXHIBIT B EXAMPLE



Joint Use Agreements

Purpose:

A Joint Use Agreement (JUA) is an agreement concept utilized by the Southern California Edison Company.

The basic purpose of the agreement is to perpetuate the superior rights of the Edison Company when a public works project requires that Edison Company facilities (usually power poles) be relocated from an easement position to a franchise position.

Procedures:

1. Determine if the Edison Company does actually have superior property rights with respect to the Edison Company's facilities, which must be relocated.

a. Require that evidence be submitted as evidence of Edison's prior rights. A written claim letter by the Edison Company is also a good idea to ensure that the owner communicates their claim of prior and superior rights accurately.

b. An exhibit should be prepared to assist the Survey Division in reviewing the claim of prior rights. The exhibit should show the location of the facilities to be relocated and existing right of way. For County projects, this usually consists of the County's preliminary plans, with the locations of the facilities highlighted.

In the case of a development project, the developer's engineer should be required to submit a more detailed exhibit which shows the location of the facilities to be relocated, existing and proposed right of way, the Edison Company easement(s), and dedication dates with instrument numbers.

c. Submit request to the Survey Division for review of the claim of prior rights. It should never be assumed that the Edison Company is correct in their claim. The Survey Division will review the claim, and provide a written opinion, with copies of supporting documents.

2. Respond to the Edison Company appropriately

a. If we disagree with the claim, send Edison Company a letter including supporting documents and the Survey Division memo.

b. If we agree with the claim, and it is necessary for the facilities to be relocated from Edison easement onto road right of way (franchise), it is appropriate to initiate the Joint Use Agreement procedures.

3. Prepare Legal Description and Plat of Joint Use Area

The Joint Use Agreement will reference a legal description and plat of the "Joint Use Area" This must be prepared by either Survey or the Developer's surveyor or engineer, as appropriate. The Joint Use Area legal and plat must show the area of the public right of way where the Edison Company's facilities are to be installed, and the width of the original easement. Typical width is 30 feet. The Joint Use Area legal and plat must be reviewed and approved by both Edison and County for appropriateness.

4. Prepare and execute Joint Use Agreement

a. The Edison Company will prepare the actual agreement, using their standard language, which has previously been reviewed by County Counsel. Each specific agreement will, of course, have to be approved as to legal form by County Counsel.

b. Upon receipt of the agreement from the Edison Company, the agreement is submitted to County Counsel and the Board of Supervisors for approval.

c. An original, fully executed agreement must be returned to the Edison Company.

LOSS OF PRIORITY (FAST TRACT) STATUS

Developer: _____

Plan Checker: _____

Date of First Plan Check: _____

Date of "Top Priority Status" Letter Approval: _____

The improvement plan package for TR/MS/PP/CUP _____ IP _____

was checked for the second time by our Plan Checker _____

on _____ . Subsequently, the package was reviewed by

_____ of our Senior Staff on _____ .

The second plan submittal has been found to be inadequate for "Top Priority" Status for the below-listed reasons. This project has lost its "Top Priority" Status and will now be checked in date-order among all other Plan Check projects.

Reason for Loss of "Top Priority" Status

Plans missing that are required for COA's and/or first plan check:

_____ Street Plans for _____

_____ Storm Drain Plan/Profile

_____ Sewer/Water Plan

_____ Streetlight Plan

_____ Landscape Plan

_____ Signing/Striping Plan

_____ Signal Plan

_____ Grading Plan

_____ Final Map

_____ Approved COA's

Items not addressed and/or ignored from first plan check:

_____ Emergency Overflow at sump location

_____ Legals/Plats for offsite dedications

_____ Reference Plans

_____ Reference Recording Data on plan

_____ Hydrology flows on plan

_____ Notarized Letter of Permission to work on private property

_____ Show existing top/grades/elevations outside project limits

_____ Design speed on short vertical curves

_____ Grades steeper than 2% in parkway

_____ Identify symbols/devices/topography on plan

Project Parts that are missing and/or incomplete:

_____ Missing County Benchmark

_____ Storm Drain missing/incomplete hydraulic/construction data

_____ Missing street profile/elevations/grades

_____ Design Exception for substandard installation

_____ Incomplete data on typical sections and/or incorrect typical sections

_____ Missing CL Bearing Data

_____ Missing stationing on BCR/ECR, or _____

_____ Missing cash-in-lieu notation/estimate/agreement/plan view

_____ Show 300’ beyond construction in plan/profile

All meetings need to include owner.

MISCELLANEOUS CASE MEETING AND LETTER AGREEMENT

Date: _____ Developer Name: _____

Project Streets: _____

County Area: _____

The Developer has met with Transportation Engineering Staff to discuss a miscellaneous project as described above. This project will be used for:

_____ Multiple Map development (Common facility)

_____ School Site (Name of School: _____)

_____ EDA Project

_____ Joint Jurisdiction (JPA, City, Indian Reservation, Caltrans)

_____ Voluntary Improvements

First submittal shall include (circle): street, sewer/water, landscape, streetlight, grading, signal, final map, and a copy of this signed letter.

This project may be accepted for plan checking if submitted within six months from the above date.

_____
Engineering Staff

EMINENT DOMAIN PROCEDURE (CONDEMNATION)

The following Eminent Domain procedure shall only apply to a project which is conditioned to construct certain improvements where that condition is approved by the Board of Supervisors and the implementation of the condition would require the developer of the project to acquire right-of-way and/or an easement from an adjacent property owner. In such cases, it is the responsibility and obligation of the developer to prepare the legals and plats of the required right-of-way and/or easements and to negotiate in good faith with the adjacent property owner in every reasonable way possible to obtain the needed right-of-way and/or easement.

All negotiations and attempts must be documented in writing. Should all efforts fail, then the developer can request in writing that the County initiate the eminent domain process. The developer must provide with his letter of request three complete packages of the documentations of his attempt as well as a copy of an appraisal of the property required to be acquired. The appraisal must be done by a qualified appraiser chosen from a list of appraisers obtained from Facilities Management Department (951-955-4800).

During the plan check process the developer/engineer must provide legals and plats for the required right-of-way and/or easement to the plan check engineer and the survey division.

Following the receipt from the developer of the letter requesting condemnation and the three complete packages of documentation, the plan check engineer will review all documents and verify prior to plan check approval that the requested condemnation is the only feasible solution.

The County Engineer in charge of Plan Check Section shall provide to the Board of Supervisor of the District in which the project is located a copy of all condemnation request documentation, a written justification for the proposed condemnation, and a request that the Board member review and provide direction on whether or not to proceed with the condemnation.

Once the Board member gives us his/her direction to proceed, the plan check engineer shall send a letter to County Counsel with a complete package requesting them to proceed with condemnation.

County Counsel may elect to involve Facilities Management Department to review the case and to attempt negotiations with the property owner. At the same time, County Counsel will send an agreement to the developer for his execution and a letter requiring the developer to deposit $10,000 with County Counsel as payment for their processing of the request, and an additional deposit of 150% of the appraised value of the property to be condemned for use in acquiring the property.

Sometimes the issue would be settled at this stage and the property will be acquired. If not, then County Counsel will prepare and send a request to the Board of Supervisors to allow proceeding with condemnation.

Upon Board of Supervisors approval of County Counsel's request, the final map may be permitted to record if everything else that is needed for recordation is complete and done. There is no need to wait until the actual acquisition is completed to allow the map to record.

AT RISK LETTER EXAMPLE

(DEVELOPER LETTERHEAD)

Date_____

Mr. Alan D. French, P.E., P.L.S.

Transportation Department
County of Riverside
4080 Lemon Street 8th Floor
Riverside, CA 92501

RE: Request for At-Risk submittal prior to having (a complete package), (approved conditions) or other reason

Project No._____ IP No._____

Location_____

Dear Mr. French:

We are the developer(s) of the above project and we met with _____ from your section and discussed submitting improvement plans prior to having _____ (list deficiency). As allowed by the meeting we are submitting the improvement package except for _____.

We acknowledge that submitting the improvement plans at this time may cause additional plan checks and incur additional costs for plan checking due to the missing or incomplete data. We commit to continue the plan check process to final approval and signature as well as additional plan checks and costs should they occur.

We also understand that project approval will be withheld until deficiency is satisfied.

Sincerely,

_____

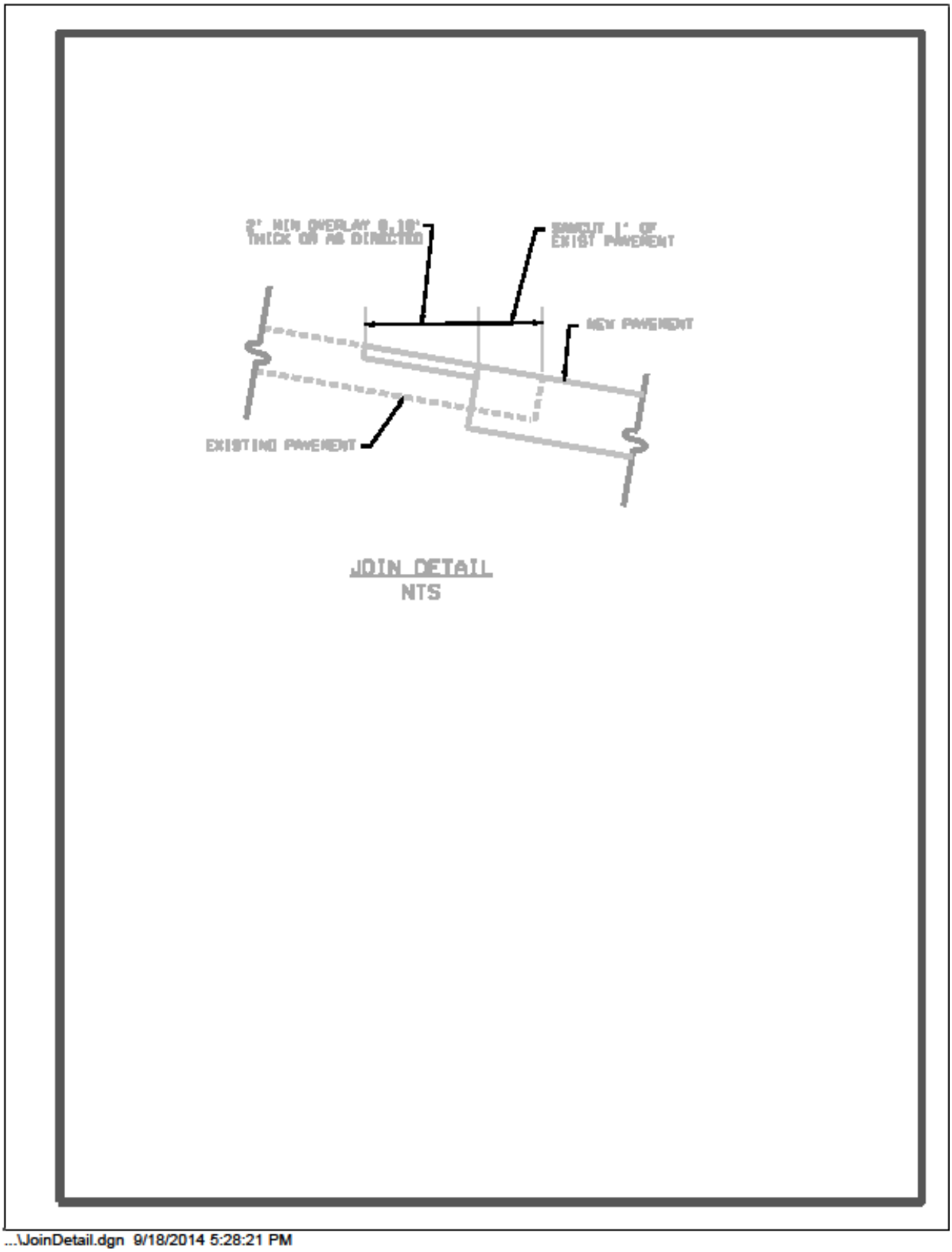
Owner/Developer's Name (Printed) Applicant

_____ _____

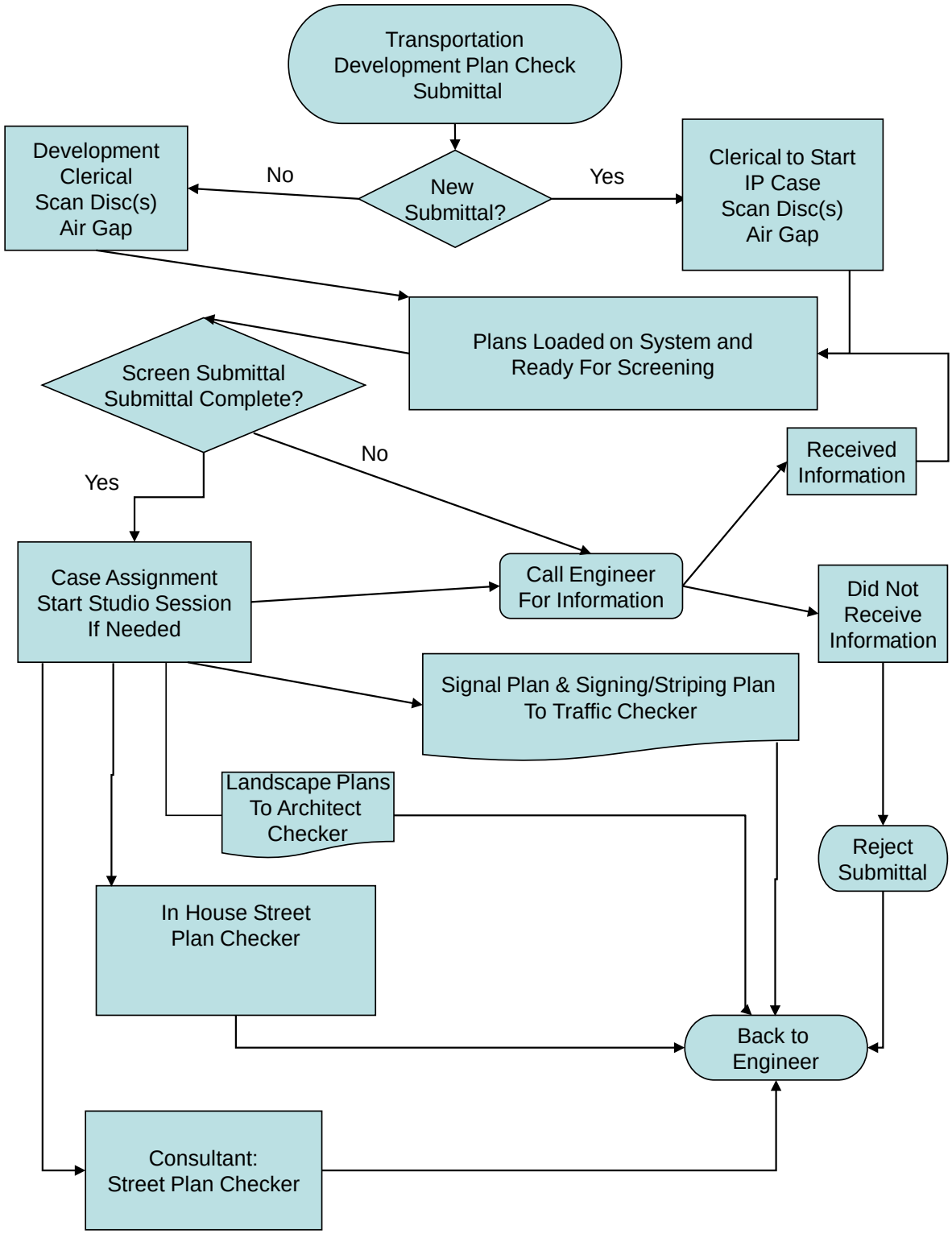
Signature Date

cc: Developer
File
Notarization is required.

JOIN DETAIL


2" MIN OVERLAY @ 18" THICK OR AS DIRECTED
SAWCUT 1" OF EXIST PAVEMENT
NEW PAVEMENT
EXISTING PAVEMENT
JOIN DETAIL
NTS
...\JoinDetail.dgn 9/18/2014 5:28:21 PM

DEVELOPMENT PLAN CHECK PROCEDURE FLOW CHART



CUSTOMER SERVICE QUESTIONNAIRE

Dear Customer,

Our goal is to provide the best service possible after your visit, e-mail or phone call, please take a few minutes to complete this questionnaire. Your comments will enable us to see how we are doing overall and improve any areas which may need improvement. When filled out, deposit in comment box on the 8th floor at the County Administrative Center, 4080 Lemon Street, Riverside, 92501.

PLEASE TELL US HOW WE'RE DOING				
INSIDE THE OFFICE	**EXCELLENT**	**VERY GOOD**	**GOOD**	**POOR**
Staff courteous and helpful				
Staff quick and efficient				
Explanations and instructions clear				
TELEPHONE ANSWERING				
Timely response				
Receiving information or answers				
PLAN CHECK				
Checker courteous and helpful				
Pre-submittal meeting set and held in a timely manner				
Checker had frequent contact				
Checker able to answer questions and deal with issues				
OVERALL PERFORMANCE				
What would you say is our overall performance?				
Is there a staff person you would like to commend?	STAFF'S NAME:			
COMMENTS:				
NAME (Optional)	BUSINESS PHONE NUMBER ( )		DATE	