CITY OF ESCONDIDO

ENGINEERING SERVICES, TRAFFIC SECTION

TRAFFIC SIGNAL DESIGN / PLAN-CHECK CHECKLIST

I.) BASE DRAWING
A.) Orientation: Prefer north up or to right.
B.) Existing & Proposed Improvements
   1.) Centerline, curb line, R/W, & median geometry
   2.) Curb return, ramp (G-27), back of / adjacent sidewalk, & driveway geometry
   3.) Median noses (especially @ 2xLTPs), limit lines, striping
   4.) Existing SIGNAL & LIGHTING EQUIPMENT
   5.) Location of all underground utilities based on mark-outs and field surveying.

UTILITY INFORMATION
A.) Based on facility maps from SDG&E, AT&T, & Cox CATV. COPY CITY and record drawings, mark-out of utilities and field surveying.
B.) Consultant letter to Ali Ghashghaee (public) or Area Planner (private) for SDG&E service point, & call / field meet Bob Kates for AT&T service point, if required (ONLY if hard-wire extremely impractical)

II.) PHASING
A.) Provide protected lefts UNLESS # lefts / conflicting throughs are low, and there are no visibility obstructions.
B.) 8-box phase diagram & typical notes (“…time concurrently…”).

III.) SIGNING AND STRIPING PLAN
A.) Separate sheet(s) justified? For large jobs, consider part of P-drawing.
B.) Ramps, crosswalks / limit lines, lanes shown correctly (Need Ped. Barr. + R49?)
C.) Left turn maneuverability, ESPECIALLY 2xLTP; improving ONE left turn path requires pulling back TWO limit lines
D.) Number / width / assignment of lanes
   1.) Double lefts? Provide delineation through intersection
   1.) Eliminate offsets, avoid / mitigate substandard radii, provide for bikes
E.) Transitions to existing; WS or WS/60
F.) Lane drops per Figure 3B-12(CA) of California MUTCD
G.) Caltrans detail designations, call-out removals (Schedule?), Gen. Notes

IV.) PRELIMINARY POLE & SIGNAL FACE LOCATIONS
A.) Foundation completely within R/W
B.) Pole centered max. 5 ft. from extended crosswalk line
C.) Maintain min. 4 ft. path per ADA from corner of base plate to back of sidewalk or min. 5 ft. from corner of base plate to face of curb
D.) CONFLICTS: O/H utilities, U/G utilities, existing signal equipment
E.) Mast arm length, loading case
   1.) If left turn phasing in future, use larger pole & interim-length (custom) SMAs
   2.) “T”, “Offset-T” or split-side-street; consider use of 4-sec. (MAS-4B)+3arrow
F.) ADVANCE & LIMITLINE SIGNAL VISIBILITY per Sec. 4D-15 of MUTCD & California Supplement; add heads?
G.) EVPE detector positioning (vs. approach curvature?)
H.) Check ped head visibility vs. vehicle queue
I.) Check LIGHTING PATTERN of both streets; new / relocated LS2s?

V.) CONTROLLER & METER PEDESTAL PLACEMENT
A.) Minimize vulnerability of controller; prefer minor-street.
B.) SDG&E dictates MP location BUT try to adjust /minimize vulnerability
C.) Once MP (& TSP?) approved, assign address(es) @ Bldg. Dept.

VI.) FIELD MARK-OUT & POT-HOLING
A.) As soon as utility file info and pole /cabinet locations & types are on plan,
   1.) Ask call USA / DigAlert for mark-out
   2.) Pot-hole potential conflict areas
   3.) Adjust pole locations / consider “squat” foundations for Type 1A poles

VII.) LIMIT LINE DETECTION: - - USE VIDEO DETECTION unless impractical.
A.) 4 ea. Type E (6’ diameter) loops in each lane, 16’ center-to-center. E’s @ limit line shall have 4 windings.
B.) Type Q (3’ x 6’ unless wide lane) for bike lanes; separate DLC
C.) Also want separate DLC for; LT pockets, mandatory-right-turn lanes (delay input), multiline advance loops being used as counting detectors

VIII.) ADVANCE & INTERMEDIATE DETECTION
A.) Use higher of speed limit or approach 85th. Deceleration = 10 ft./sec.2. Increase for downgrade. Use calculation sheet.
B.) Intermediate detection for all but the slowest approaches, @ ½ way.

IX.) CONSTRUCTABILITY REVIEW, PAVEMENT REPAIR
A.) Once loop locations added, send plans to Field Engineer (Bud Oliveira) for constructability review, including pavement condition in loop areas.

X.) CONDUIT
A.) Try to make the wider street the open end of “U”
B.) Generally, 2” is minimum. 3” = min. for street crossings.
C.) Avoid half-inch sizes. Avoid 4” in street (vs. rock wheel trench width).
D.) Telco wants THEIR OWN 1” for TSP to controller. SP to MP 2”, sometimes 3”.
E.) Co-trench 2” + pull rope for future hard-wire interconnect if another signal or future candidate is within 1,200’.
XI.) PULL BOXES
A.) If # conduits = 5 or less, use #5. Otherwise, use #6. (DLC only? #3 1/2 OK)
B.) HRPB always #6e (with extension).

XII.) POLE AND EQUIPMENT SCHEDULE
A.) Include columns for everything on pole: location, station & offset, type, signal
   MA (including ultimate?), luminaire MA, luminaire type, vehicle signals (MA vs.
   SV; list bracket type & phase), ped sigs (phase & hardware), PPB (Phase, side,
   arrow direction), EVPE (phase), turn-reg. Sign, RSNS, “Remarks” (PEC)
B.) Controller Note; location, equipment, BBU
C.) Meter Pedestal Note; location, equipment, service address
D.) Special notes; custom brackets, high-mount signals, audible ped signals, pole
   painting, salvaged / relocated equipment (const. notes).

XIII.) METER PED. WIRING DIAGRAM - - - Add circuits if required for mid-block
        lighting, irrigation controller power (separate meter), other unusual features.

XIV.) CONDUIT & CONDUCTOR SCHEDULE
A.) Required rows: cables 3-conductor / 12-conductor (typically 2 ea. / 3 ea. per
    pole), #14 for PEC & future APS clock, #12 only if exist. IISNS, #10 for
    luminaires, #8 for remote luminaires and/or irrigation controller, #6 MP to
    controller, BDLC, EV-DLC, video detection? (Power + coax)
B.) Try for 26% but be flexible to preserve 3” or 2x3” for crossings. Accommodate
    future poles, phases, lanes (loops), irritrollers, RxR pre-empt, etc.

XV.) GENERAL NOTES; CONSTRUCTION NOTES, NORTH ARROW, SCALE
    including Bar Scale, DECLARATION OF RESPONSIBLE CHARGE
XVI.) SPECIAL DWGS (squat 1A footing), SPECIAL PROVISIONS, COST ESTIMATE