

IMPROVEMENT PLANS PREPARATION GUIDELINE

A. GENERAL REQUIREMENTS:

1. Improvement plans shall be prepared by a registered civil engineer and shall be accurate engineering drawings which are technically correct and complete and shall show in detail all improvements required to be constructed or installed, including grading, unless such grading is covered by a separate grading plan.
2. Plan review process is outlined in detail by a separate handout and is available at the public counter.
3. Street design must conform to City's published "Roads Design Criteria Guidelines." When approval of a portion of the plans is required by another agency, the engineer of work shall obtain such other signatures upon the original plan prior to requesting formal approval by the City Engineer.
4. When it has been determined that the improvement plans are complete, technically correct, and in accord with the final map or parcel map, and all required signatures obtained, the improvement plans will be approved by the City Engineer.
5. The subdivider shall not commence construction or installation of improvements shown upon the plan, prior to approval of the plans, except as permitted under separate Grading Permit, or Encroachment Permit.

B. FORMAT:

1. GENERAL:

- a. Improvement plans shall be drawn upon the standard City of Corona "D" Sheets (24" x 36") available with or without profile at the public counter.
- b. Improvement plans shall be accurately drawn using black ink on mylar using lettering of a minimum height of 1/8".
- c. The title block of each sheet shall contain the subdivision number and location, the type of improvement shown on that sheet, such as sewer, street, drainage, etc., and the location or extent of such improvements. Do not refer to street stations.
- d. The engineer of record is to sign and wet seal each sheet of the plan.
- e. Sheets shall be numbered consecutively. Each sheet shall also show the total number of sheets in the plan.

- f. Drawing numbers will be assigned by the Engineering Division.
 - g. Map scales shall be shown graphically and numerically.
 - h. Bench mark description shall be shown on each sheet on the plans. Only City published (at public counter) are acceptable.
2. COVER SHEET: A cover sheet is required for each improvement plan reflecting the following:
- a. The tract/parcel in bold print at the top center of the cover sheet. DPR number and any other planning action on the upper left-hand corner.
 - b. A vicinity map with north arrow.
 - c. A key map with north arrow, drawn to a scale of 1" = 200' depicting the development, including roads, street light and fire hydrant locations, overall sewer plan, overall drainage plan; the area of improvement covered by each sheet, street names, lot numbers, phases, traffic indexes, length of each street and the curb length of each street.
 - d. Construction notes, quantity estimates, legend, general notes, and paving notes used in the drawing set.
3. Details Sheet (s) shall contain the following:
- a. A typical cross-section of each street. The typical section shall indicate structural section to conform to the paving note. It shall also show roadway widths, right-of-way widths, exiting edge of pavements (if any), cross fall, side slopes, shoulders, curbs, gutters, sidewalks, medians, seal coat applications, overlays and relationship of centerline grade to top of curb grade.
 - b. Specific cross sections and details of plans and special structures.
 - c. Other agencies' standard drawings (referenced and modified as necessary).
 - d. Continued items from the cover sheet (if needed).
4. PLAN AND PROFILE SHEETS. The plan and profile sheets of the improvement plans shall show sufficient detail of all proposed improvements and facilities to facilitate proper construction and inspections.
- a. General:

- (1) Graphical and numerical scales shall be shown on both plan and profile. Scales shall also be shown for all details.
- (2) Horizontal scale for plan and profile shall be the same, preferably 1" = 40'.
- (3) Vertical scale for profile shall be either 1" = 2' or 1" = 4' unless more than one profile break will occur per plan sheet; then a scale of 1" = 40'.
- (4) Each sheet shall show a north arrow pointing left, right or up (above horizontal).
- (5) Stationing shall be from left to right.
All stationing shall refer to centerline of street unless otherwise noted and shall read from left to right, and run upstation from south to north or west to east. No negative stationing is allowed.
 - (a) Right end of one sheet joins left end of next sheet.
 - (b) Stationing has preference over north arrow.
 - (c) All streets to have continuous stationing.
 - (d) When continuing a street with existing stations use the existing stationing, rather than starting new stationing.
- (6) When plan or profile must be continued on another sheet, the drawing on each sheet shall be extended beyond the match line at least 50 feet (scaled), if necessary to facilitate plan reading.
- (7) All existing underground utilities or facilities (sewer, water, gas, drainage) shall be shown, labeled, and dimensioned on both the plan and profile.
- (8) new non-City utility systems to be constructed, along with subdivision improvements, are not to be shown on improvement plans.
- (9) Street, sewer, water and storm drain designs shall be shown on the same sheet.
- (10) Where drainage systems are complex and extend beyond the street right-of-way, they shall be shown on separate sheets depicting the complete system with the other existing or proposed improvements shown in the background.

- (11) In any instance where any portions of a driveway apron fall within five feet of a curb inlet or outlet, the driveway apron shall be shown on both the plan and profile views.
 - (12) Catch basins and manholes shall be numbered on both plan and profile sheets.
- b. Plan View. The plan shall be plotted to scale and should generally depict the following:
- (1) Existing right-of-way, property lines, phases and improvements, in or adjacent to area to be improved.
 - (2) New right-of-way, property lines, phases and lot numbers of area being improved.
 - (3) Streets.
 - (a) Centerline shown by symbol. The centerline shall be stationed at 100' intervals (show "tick marks"), and B. C.'s and E. C.'s shall be stationed.
 - (b) Street names shown within each street.
 - (c) Curb return curve data, and street stationing at the beginning and end of each curb return shall be shown. Show also flow lines elevations as indicated on profile.
 - (d) That portion of the street to be paved or overlaid shall be shaded.
 - (e) Curbs and berms with dimension from face of curb to centerline of street. When on curvilinear alignment show curb data of face of curb.
 - (f) Cross gutters, driveways, railroad crossings.
 - (g) Sidewalks with dimensions showing width and location.
 - (4) Street light locations and stations, conduits pull boxes and service points.
 - (5) Fire hydrant locations and stations.
 - (6) Show drainage facilities to include size, length, grade, material, encasement and special bedding requirements. Drainage facilities in streets shall be located by street stationing and dimensions from centerline of street. Unless facilities are to be constructed in accordance with Standard Drawings, details,

cross-sections, and typical sections shall be show. Show flow line elevations of cross gutters on plan view at the intersections of gutter lines and at the street centerline.

- (7) Show drainage, sewer, and pedestrian easements. Detail location of facility within easements, width of easement and relationship of easement to nearby or adjacent lot lines.
 - (8) Sewer mains and manholes shall be shown and stationed.
 - (9) Water systems
 - (10) Existing irrigation lines and facilities and proposed relocations or modifications.
 - (11) Horizontal control data to accompany street and curb lines, sewer mains and storm drain mains and laterals.
 - (12) Construction notes applicable on each sheet.
 - (13) Existing topography and proposed grading (unless grading is covered by a separate grading plan).
 - (14) Bench mark.
 - (15) Cross gutters. The use of cross gutters, except at local street intersections, is not allowed. Storm drain systems shall be configured to intercept low flows at street intersections.
 - (16) Driveways
 - (a) The City Engineer shall approve location and width of commercial and industrial driveways for each individual project.
 - (b) Driveways shall be constructed in accordance with the City Standard Plan.
- c. Profile View. The profile view shall normally be directly above the plan view and shall generally depict the following:
- (1) Streets shall be shown by three profiles, one for centerline and one for each curb. Curbs will be labeled right or left.
 - (2) The original ground profile at centerline and curb lines shall be shown.
 - (3) When widening an existing street, the existing centerline, edge of pavement and new curb profiles shall be shown. In addition,

the existing ground line shall be plotted where the new curb line will be located.

- (4) Percent grade shall be shown for all straight grades, on all profiles.
- (5) Stations and elevations shall be shown at a maximum of 100 foot stations, at match lines, curb returns, points on vertical curves, street intersections, breaks in grade, joins, transitions, catch basins, local depressions, and at any other location necessary for clarification of plans or construction of improvements.
- (6) The centerline and curb line profiles for cul-de-sac streets shall terminate at a common point on the outer perimeter of the curb line of the cul-de-sac. This common point may be the high point, the low point, a point at the beginning of a curb inlet, etc. The centerline profile shall be drawn to the center of the cul-de-sac to said common point. Arc lengths and tangent lengths on curb lines shall be clearly indicated on both plan view and profile portion of plans.
- (7) Vertical curves shall be clearly indicated to show:
 - (a) Length of vertical curve.
 - (b) Tangent grades.
 - (c) Stations and elevations for tangent and curve at B. V.C., E. V. C., and at a maximum of 25-foot stationing.
 - (d) Vertical curves shall have the following minimum lengths:
 - (1) Local streets – 50 feet.
 - (2) Collectors – 100 feet.
 - (3) Arterials – 200 feet.
 - Stopping and passing sight distances shall be in conformance with the Caltrans Highway Design Manual.
 - Check for flat spots at high and low points of vertical curves. Minimum flow line grade of 0.4% shall be kept.

- (8) Curb return profiles shall be shown with elevations shown for top of curb and flow line at P. C. R.'s and quarter points. Show percent grade of tangents at each end of curb return.
- (9) Show size, type, percent grade and length between manholes on proposed sewers. Show elevations at manhole rims, manhole flow lines and vertical curves as specified above. Show sewer profile on same sheet as sewer plan.
- (10) Culvert and storm drain profiles shall be shown and labeled. Where possible, culvert profiles shall be shown on same sheet as the culvert plan. Show existing ground line, finish ground lines, percent grade of flow line, inlet and outlet elevations of the pipes, curb inlets and cleanouts and size, class of pipe.
- (11) Top of curb elevators shall be given at both ends of catch basins and at centerline of the box. Centerline stations shall be of the box. Centerline stations shall be given at each location that top of curb is indicated.
- (12) Label identical points when grade line is broken.
- (13) Plan and Profile should extend 150' to 200' from the project boundary, to match with the existing finished surface elevations.
- (14) Pavement
 - (a) Structural section and pavement types shall be as recommended in the soils report and approved by the City Engineer.
 - (b) The minimum acceptable structural section shall comply with the City design policy.
 - (c) Expansive soils will require additional design consideration.
 - (d) Show Traffic Index (T. I.) under Typical Section.
Residential T. I. = 5.5, collector T. I. = 8
Secondary T. I. = 10