Section 1 - **Streets**

General

Street surface improvements shall include barricades, bikeways, bridges, bollards, curb, curb & gutter, driveways, pavement, curb ramps, sidewalk, survey monuments and tunnels. These improvements shall be installed in accordance with the approved improvement plans, these Standards and the latest edition of The State of California Department of Transportation Standard Specifications hereinafter referred to as the Caltrans Standard Specifications latest edition and as specified by the City Engineer. No Street shall be cut, nor any public improvement disturbed until the Developer/Contractor has obtained an encroachment permit from, and/or entered into a subdivision agreement with the City.

Connection to Existing Improvements

Connection to existing surface improvements require that the following conditions be met:

A. Existing Stub Street Connection

The Developer shall be responsible for removing and reconstructing a portion of the existing roadway to make a satisfactory connection, as required by the City Engineer.

B. Street Widening

When widening to complete a partial street along a development project, the Developer shall be responsible for saw cutting and removing a narrow strip along the outside portion of the pavement to provide a clean and stable pavement section for constructing against. The width from centerline shall be shown on the approved plans or as determined in the field, and verified by the City Engineer. Following construction of the adjacent curb and gutter, paving shall not commence until the City's Construction Inspector is satisfied that the cross grade between the existing pavement edge and the new gutter lip conforms to or approaches the City's required 2% cross grade. 3% is the maximum cross grade allowed, unless shown on the approved plans.

C. Sawcutting

When sawcutting within the street for trenching or other purposes,Contractor shall grind 1-1/2 inches of pavement between the lane lines (from lanestripe to lane stripe). Upon completion of the sawcutting and/or trenching work, where the sawcutting occurs between the curb and gutter and nearest lane stripe (including bike lanes), the same 1-1/2 grind shall be required. Contractor shall place a Petromat fabric or approved equal by the City and overlay from lane stripeto lane stripe, or curb to lane stripe and restripe or replace any delineators removedd during the grind.

Street Classes and Design Widths

For purposes of geometric andstructural design of all new public streets, streets shall be classified according to the following requirements, and the appropriate Standard Drawings. Under certain circumstances, particularly within the infill areas of the City where curb and gutter vary, changes to the standards can be made at the discretion of the City Engineer.

A. 20-Foot Street (Alley)

A Street depressed in the center with a right-of-way and surface width of 20 feet. See Standard Drawing ST-15.

B. Residential Streets

Where residential streets serve Low Density Residential (LDR) and Medium Density Residential (MDR) subdivisions, and some High Density Residential (HDR) the following standards apply.

Minor Residential with Attached Sidewalks: A residential street servicing 100 or fewer lots shall be classified as a minor residential street. Minor residential streets shall have a right of way of 50 feet, and back or curb to back of curb width of 39 feet. See Standard Drawing ST-01.

Collector/Industrial – Attached Sidewalks: A Street serving an industrial/commercial subdivision or a residential subdivision along which no home frontage is allowed shall be classified as a collector/industrial street. Collector/industrial streets with two drive lanes and one center turn lane shall have a right-of-way width of 62 feet, and back-of-curb to back-of-curb width of 51 feet. Collector/industrial streets with two drive lanes only shall have a right-of-way width of 50 feet, and back-of-curb to back-of-curb width of 39 feet. Additional right-of-way and pavement shall be providedat intersections for deceleration lanes, bus turnouts, and turn lanes, as specifiedby the City Engineer. See Standard Drawing ST-02.

Collector/Industrial – Detached Sidewalks: A Street serving an industrial/commercial subdivision or a residential subdivision along which no home frontage is allowed shall be classified as a collector/industrial street. Collector/industrial streets with two drive lanes and one center turn lane shall have a right-of-way width of 52 feet, and back-of-curb to back-of-curb width of 52 feet. On each side of the right of way is a 12.5' PUE/TCE. Additional right-of-way and pavement shall be providedat intersections for deceleration lanes, bus turnouts, and turn lanes, as specifiedby the City Engineer. See Standard Drawing ST-03.

Minor Arterial with Onstreet Parking: Those roads specified in the City's Capital Improvement Program as requiring a four-lane roadway shall be classified as minor arterials. Minor arterial shall have a right-of-way width of 80 feet and back-of-curb to back-of-curb width of 67 feet and shall provide a center 2-way left lane or raised landscape median as specified by the City Engineer. Additional right-of-way and/or pavement may be required for bus turnouts and at intersections and driveways for acceleration lanes, deceleration lanes, and multiple left turn lanes, as specifiedby the City Engineer. See Standard Drawing ST-04.

Arterial with No Parking: Those roads specified in the City's Capital Improvement Program as requiring a four-lane roadway shall be classified as minor arterials.Minor arterial shall have a right-of-way width of 80 feet and back-of-curb to back-of-curb width of 69 feet and shall provide a center 2-way left lane or raised landscape median as specified by the City Engineer. Additional right-of-way and/or pavement may be required for bus turnouts and at intersections and driveways for acceleration lanes, deceleration lanes, and multiple left turn lanes, as specifiedby the City Engineer. See Standard Drawing ST-04.

Cul-de-Sac /Offset Cul-de-sac: The length of cul-de-sac streets as measured from the centerline of the intersecting street to the center of the bulb, shall not exceed 500 feet, without the approval of the City Engineer. In the case of stub streets associated with phased development, the combined street lengths as measured from the dead-end to the nearest through street shall be in accordance with the requirements for cul-de-sacs. Stub streets shall be terminated with a temporary bulb. See Standard Drawing ST-05 and ST-06.

Standard Elbow: The standard elbow can be used on Industrial type streets with a radius of 60 feet. See Standard Drawing ST-07.

Right -of-Way-Width

Right-of-way widths shall be in accordance with these standards for the street classification under consideration or as determined by the City Engineer. In no instance, without approval of the City Engineer, shall a street have a right-of-way width that is less than the street of which it is a continuation. Right-of-way requirements for widening at intersections shall be as specified by the City Engineer.

Building setbacks, landscaping requirements, and parking requirements shall be based on the ultimate right-of-way, regardless of the location of public street improvements.

A minimum 10-foot public utility easement (P.U.E.) shall be dedicated adjacent to minor residential streets and arterials and shall include traffic control appurtenances. Additional easement for sewer, water, storm drainage, landscaping, fencing, and all other public utilities shall be provided as required by the utility companies, these Construction Standards, and as specified by the City Engineer.

A minimum 12.5-foot public utility easement (P.U.E.) shall be dedicated adjacent to all collector/industrial streets and shall include traffic control appurtenances. Additional easement for sewer, water, storm drainage, landscaping, fencing, and all other public utilities shall be provided as required by the utility companies, these Construction Standards, and as specified by the City Engineer.

Along the frontage of collector and arterial roadways, the right-of-way dedication shall include the landscape corridor adjacent to parcels zoned single-family residential (SFR).

Roadway Signage and Striping

Signing and striping shall conform to the latest edition of the California Manual of Uniform Traffic Control Devices, (CMUTCD), unless modified by these standards, or in writing by the City Engineer.

Structural Section

All pavement sections shall be designed on the basis of the resistance R-value as determined in accordance with the State of California, Department of Transportation design method and appropriate traffic indices (TI). If the subgrade has an “R” value of 10 or less, a geotextile fabric or other approved product shall be installed on subgrade prior to placement of AB or ASB material. In addition, theCity Engineer may require the installation of edge drains in soils where the “R” value of the subgrade is 10 or less. The Geotechnical Engineer may submit for treatment of the subgrade material, with lime or cement or other approved productif suitable soils exist. This may be considered in lieu of geotextile fabric and base material with approval of the City Engineer. The resulting structural section shall be no less than City Standard Detail ST-20.

Curb and Gutter Requirements

Curb and/or gutter are required adjacent to all public and private streets. All sidewalk, curb and gutter shall be constructed of minor concrete conforming to the “Minor Concrete” section of

the most recent Caltrans specifications. Curb and gutter transitions shall be according to Caltrans Standard Drawing ST-09.

A. Type A4 Rolled Curb and Gutter

Type A4 rolled curb and gutter shall only be installed in residential areas on local streets which do not have existing vertical curb and gutter. Installation of rolled curb and gutter on streets which have existing vertical curb and gutter will require approval from the City Engineer. See Standard Drawing ST-08.

B. Type A1 Vertical Curb

Type A1 vertical curb shall be installed where there is no existing gutter, or no proposed gutter due to extenuating design constraints. See Standard Drawing ST-08.

C. Type A2 Vertical Curb and Gutter

Type A2 vertical curb and gutter shall be installed adjacent to all multiple residential, industrial/commercial developments, school and park sites, poured monolithically with sidewalk or as specified by the City Engineer. See Standard Drawing ST-08.

D. Type A3 Vertical Curb

Type A3 vertical curb shall be installed when curb needs to be superimposed on existing pavement adjacent to all multiple residential, industrial/commercial developments, school and park sites, or as specified by the City Engineer. See Standard Drawing ST-08.

E. Valley Gutter

Valley Gutter may be used for alleys and parking lots. Valley Gutters shall not be used in either public or private streets.

Sidewalk Requirements

Sidewalks shall be constructed adjacent to all public streets. All sidewalks shall be Minor Concrete as specified in “Minor Concrete” section of the most recent Caltrans specifications. All sidewalks shall have a minimum thickness of six (6) inches on native soil, at 95% relative compaction, or four (4) inches thick with four (4) inches of AB at 95% relative compaction, and shall meet the following requirements:

A. Width

The required minimum width of sidewalks shall be as listed in Table 1-1 . The width of the curb shall not be considered as included in the width of the sidewalk. The minimum sidewalk width is 4 feet.

Table 1-1 Sidewalk Width

Street Type	Sidewalk Width (feet)
Minor Residential with Attached Sidewalk	5
Collector/Industrial with Attached/Detached Sidewalk	5
Minor Arterial with On street Parking	6
Arterial with No Parking	5

B. Slopes

Gutter Pan cross slope shall not exceed 5% maximum in front of a curb ramp access. Sidewalks shall not exceed a maximum cross slope of 2% or a minimum of 1% unless otherwise approved by the City Engineer.

C. Curb Returns

Curb returns shall be constructed on a curve having a radius equal to that shown in Table 1-2:

Table 1-2 Curb Returns

Street Type	Minimum Curb Return Radius (feet)
All residential street intersections	30
Cul-de-sac	40
Arterial Streets	30
Collector/Industrial Streets	30

D. Pedestrian Curb Ramps

Pedestrian curb ramps shall be provided at all intersections and driveways with attached sidewalk. All curb ramps shall conform to the requirements of these standards and the most current Caltrans standards and accessibility standards. It is the design engineer's responsibility to ensure that the intersection slopes designated on the improvement plans allow for the construction of pedestrian curb ramps that meet the above criteria.

At "T" intersection located at signalized intersections, ramps shall be constructed in the appropriate position on the side of the through street,directly opposite the ramps at the curb return of the "T" intersecting street. Such ramps are not required on the side of the through street on residential streets unless the distance to the next available street crossing is greater than 500 feet.

Roadway Profile Standards

The following standards shall apply tothe design of roadway profiles.

A. Grades

The minimum centerline (longitudinal) grades on new streets and gutter flow lines shall be 0.25 percent. The minimum grade of guttersections constructed along existing streets shall be 0.20 percent. The maximum street slope shall be per Table 1-3:

Table 1-3 Grades

Street Type	Maximum Grade
Arterial Streets	8%
Collector Streets	10%
Minor Streets	15%

B. Cross Slopes

Standard cross slopes shall be 2.0 percent on all roadways. Certain roadways may require super elevations as directed by the City Engineer. Cross slopes on widened existing streets shall be a minimum of 1.5 percent and maximum of 3.0 percent. Where a street constructed with a superelevation is to be widened, the cross slope shall be as specified by the City Engineer.

C. Vertical Curves

The minimum allowable vertical curve length at the intersection of two grades shall be 50 feet; however, vertical curves may be omitted where the algebraic difference in grades does not exceed 2.0 percent. When vertical curves are required, they shall provide for adequate sight distance based on the minimum design speeds specified in Table 1-4. The vertical curve data shall be computed and shown on the plans and shall call out the tangent gradient length of curve, the elevations and stationing points of thebeginning of vertical curve (BVC), end of vertical curve (EVC), PI, high and lowpoints and along 25 foot intervals.

Intersections

Street centerlines shall intersect one another at an angle as near to a right angle as is possible by tangents not less than 100 feet in length. In unusual circumstances the City Engineer may waive this requirement. Refer to Standard Drawings for required rights-of-way, pavement, taper lengths, etc. for intersections involving minor and major arterials.

At intersections, where two streets intersect, the centerline grade of the major street shall have a maximum centerline (longitudinal) grade of 2.0 percent for a minimum distance of 40 feet measured from the curb line of the intersecting street,except in unusually rough terrain, as determined by the City Engineer. The centerline of the minor street shall meet the crown slope at the projected lip of gutter. Crown slope may be reduced to 1.0 percent within the intersection if necessary.

Offset Intersections

The following requirements apply to all offset intersections. Any variation to these requirements shall be subject to the approvalof the City Engineer. **Distances are measured from centerline to centerline.**

1. Residential streets intersecting another residential street from opposite sides shall have their centerlines meet, or the offset between intersections shall be aminimum of 150 feet.
2. Minor and primary residential streets intersecting collector streets from opposite sides shall have their centerlines meet or the offset between the intersections shall be a minimum of 200 feet.
3. Minor and primary residential streets, and collector/industrial streets intersecting minor or arterial streets from opposite sides, shall have their centerlines. This condition shall not apply where a raised center median is provided on the major street separating conflicting turning movements.
4. Intersections between two arterials shall have their centerlines meet, or the offset between the intersections shall be a minimum of 1320 feet.

Elbow Intersections

Use of expanded corners shall be limited to projected low volume residential, commercial and industrial streets and conditions where conformance to minimum horizontal length of centerline radius is not practical, and shall be subject to approval of the City Engineer.

Design Speed Sight Distances

A. Stopping Sight Distance

The minimum stopping sight distance over any segment of roadway shall be designed for the vehicle speeds listed in Table 1-4 unless specific approval for a lesser design speed is received from the City Engineer. Minimum stopping sight distance shall be consistent with that specified in the latest edition of Caltrans Highway Design Manual. The design stopping sight distance requirement is based on 3.5-foot height of eye and a 6-inch height of object.

Table 1-4 Stopping Sight Distances

Street Type	Roadway Design Speed (mph)	Required Stopping Sight Distance (feet)
Minor Residential	30	200
Collector/Industrial	45	360
Minor Arterial with Onstreet Parking	55	500
Arterial with No Parking	60	580

B. Sight Distances for Cars Entering Side Streets or Driveways via LeftTurn in

The design of left turns from public and private roadways entering streets and driveways shall provide minimum sight distance in accordance with Table 1-5 (single family residential exempt).

Table 1-5 Entering Cars Sight Distance

Street Type	Required Sight Distance (feet)
Collector/Industrial	410
Minor Arterial with Onstreet Parking	530
Arterial with No Parking	695

Sight Distance is based on a 3.5 foot height at the location of the driver and a 3.5 foot object height in the center of the approaching lane of the major road. The left turn driver measurement is taken 4 feet from the left edge of the turn lane at the projected edge of the curb return (as shown above). If the major road is a multi-lane road, the controlling measurement for sight distance shall be based on the approach lane that is the worst case scenario.

C. Corner Sight Distances for Cars Exiting at Intersections and Driveways

The design of all public streets, private streets, and major non- residential driveways shall provide minimum sight distance in accordance with the following requirements. Design speeds and the corresponding minimum required corner sight distance shall be as specified In Table 1-6. Minimum corner sight distance shall be consistent with that specified in the latest edition of Caltrans Highway Design Manual.

Table 1-6

Street Type	Corner Sight Distance Design Speed (mph)	Required Corner Sight Distance (feet)
Minor Residential	30	330
Collector/Industrial	45	495
Minor Arterial with Onstreet Parking	55	605
Arterial with No Parking	60	660

Setback for the driver of the vehicle on the crossroad shall be a minimum of 10’ from the edge of travel way plus the shoulder width of the major road, but not less than 15 feet as shown above. Line of sight for corner sight distance is to be determined from a 3.5 foot height at the location of the driver of the vehicle on theminor road to a 4.25 foot object height in the center of the approaching lane of the major road. (Highway Design Manual). If the roadway being entered is a multi-lane road, the controlling measurement for sight distance shall be based on the approach lane that is the worst case scenario.

Driveways

When driveways are abandoned or relocated, the driveway section shall be removed and replaced with curb, gutter, and sidewalk conformingto these standards at no cost to the CIty. Parking is restricted within the throat depth of all driveways.

All new driveways shall conform to the following requirements and Standard Details ST-13, and ST-14:

A. Widths and Locations

Single Family Residential and Duplex Driveways shall have a minimum bottom width of 12 feet, exclusive of the transition to full curb height at both ends. The maximum width shall provide for a bottom width of 24 feet, exclusive of the transition to full curb height at both ends.

The minimum width for all other driveways shall provide for the safe efficient and economical movement of traffic and shall be approximately 24 feet, exclusive of the transition to full curb height at both ends.

The maximum width of all commercial driveways shall be 35 feet, exclusive of the transition to full curb height at both ends, except this may be increased by the City Engineer where necessary to provide safe, efficient, and economical movement of traffic.

In the case of a driveway located adjacent to an alley, if approved by the City Engineer, the driveway apron may be combined with the alley but the total combined width shall not exceed 40 feet.

The driveway width may be modified by the City Engineer to facilitate turning movements where curb lanes are used.

The minimum length of full curb height between a driveway and a side property line shall be 3 feet. The minimum length of full height curb between driveways on adjacent lots shall be 6 feet unless specific approval is given by the City Engineer. No driveway shall be located closer than 6 feet from an existing or future alley entrance except as provided elsewhere in these standards. Where two or more driveways are constructed on the same lot, the minimum length of full height curb between driveways shall be 24 feet. Where practical to provide parking, the total length of full height curb between driveways shall be in multiples of 22 feet.

No driveway shall be located closer than five feet from a fire hydrant, traffic signal, street light, utility pole, or guy wire.

B. Slopes and Grading

The maximum grade for all driveways shall be limited to 12.5%, and 8% is desirable for commercial driveways. Sidewalk cross grade through the entire driveway shall be 1% minimum, 2% maximum.

Construction Staking

Construction staking shall be provided by the Developer for all surface improvements. Such staking shall provide the station and offset, as well as the cut to the nearest hundredth (0.01) of a foot. Stakes shall be provided at a minimum of every 50 feet in tangent sections and every 25 feet in curved sections. Monuments shall have straddle ties placed.

Cut sheets for the appropriate phase of work shall be on-site and shall be furnished to the City's Construction Inspector upon request.

The engineer's California Registered land surveyor shall stake the grades and location for the top and bottomof slope for all curb ramps.

Developer Responsibility for Improvements to Streets

The following requirements apply to private development project adjacent toexisting and proposed streets.

The Developer shall be responsible for upgrading streets within and adjacent to the developer's project where the pavement section of an existing street doesnot meet the structural section and/or the centerline grade and alignment requirements specified in these Construction Standards for those streets.

Where the design centerline grade is to be higher than the existing, the Developer shall extend the overlay beyond the centerline of the street and shallneatly conform to the existing surface grade on the other side. The Developer shall also be responsible for overlaying any low areas where the new pavementis proposed to meet the existing pavement to maintain a uniform cross slope.

When making a connection to an existing stub street, the Developer shall be responsible for removing and reconstructing up to a maximum of twenty feet of the existing roadway to make a satisfactory connection as required by the City Engineer.

When widening to complete an existing partial street along a development project, or when removing existing curb and gutter, the Developer shall be responsible for saw cutting and removing a narrow strip along the outside portion of the pavement to provide a clean and stable pavement section for constructing against. Grinding of existing pavement (1½-inch minimum) shallbe made to the next nearest edge of lane line. The width to be removed shall bedetermined by the City Engineer. In the case of curb and gutter removal, minimum width of pavement cut shall be 2 feet.

All temporary approaches to existing roadways required as a result of the development shall be at the Developer's expense. The temporary approaches shall be paved with the structural section to be determined individually for each situation.

The Developer shall be responsible for relocating existing traffic signals and streetlights, and installing new traffic signals and street lights as necessary for new street and driveway locations. The Developer shall also be responsible for relocating existing traffic signals and street lights as necessary for the installation of new curbs or new curbs and sidewalks at locations where there are no existing curbs or curbs and sidewalks, or, where existing improvementsdo not meet current standards. Traffic signals must remain operational duringall construction within signalized intersections.

The Developer is required to provide frontage improvements along existing and proposed roadways at the Developer's expense. Frontage improvements include, but are not limited to, sidewalk, curb and gutter, center median, 18 feetpavement width, additional pavement width beyond the 18–feet for intersection widening (including acceleration and deceleration lanes, bus turnouts, widening for dual left turns, etc.), drainage system, landscaping, soundwalls, street lighting, roadway signing and striping, and all utilities (including traffic signal interconnect if applicable). For minor residential, primary residential, collector and industrial streets, the Developer shall providethe full right-of-way improvement.

For development within the "infill" areas of the City, the level of improvementsto public streets adjacent to the development site shall be determined on a project specific basis at the discretion of the City Engineer.

The Developer shall be responsible for all drainage facilities (bridges, pipes, culverts, and appurtenances) crossing new streets within or adjacent to the project.

The Developer shall be responsible for all necessary modifications within the public right-of-way and the project site to comply with state and federal standards for access for disabled, including but not limited to sidewalk ramps.

Street Names and Signage

Street names shall be proposed by the Developer and shall be shown on the tentative map when submitted. These names shall be subject to approval by the City Council. No duplication of names already in use or previous proposed or sound alike names will be permitted. Street name signs shall be furnished and installed by the Developer. The requirements for location of signs do not apply to signalized intersections since signals will have their own street name signs. Street signs shall conform to Standard detail MS-02.

Survey Monuments and Benchmarks

The consulting engineer or land surveyor shall place survey monuments at the following locations:

1. At the intersection of street centerlines.
2. At the beginning and end of curves on the street centerline.
3. At the center of all cul-de-sacs and elbow points.
4. At the subdivision boundary corners and at such other locations so as to enable any lot or portion of the improvements to be retraced or located, as directed by the City Engineer.

The above-described monuments shall be as follows:

All monuments shall not be less substantial than ¾ inch diameter iron pipe of 5/8 inch diameter streel reinforcing bar, 18 inches long with a brass tag or plastic cap bearing the registration number of the engineer or surveyor who set the monument and shall be subject to inspection and approval by the City Engineer. “Permanent” monuments shall be set in concrete, and shall conform to Standard Detail MS-03. Before street improvements are accepted all monuments disturbed by the improvements shall be reset.

In making the survey for a subdivision, the consulting engineer or surveyor shall set “permanent” monuments at all angle and curve points on the exterior boundaries of the subdivision, in all street intersections, at all angle points of street lines, and at all points of curvature, both simple and compound, of street lines. “Permanent” monuments at street intersections and at angle and curved points of street line shall be set on street centerlines, unless otherwise directed by the City Engineer, provided however that the “permanent” monuments need not be set at intervals of less than 400 feet.

There shall be one or more permanent benchmarks for each subdivision, of a type approved by the City Engineer and referred to the City Datum, set at each street intersection in the curb return or other location approved by the City Engineer. The benchmark shall be a brass disc two inches +/- in diameter, set in concrete.

Installation

A. Subgrade for Sidewalk and Curb Ramps, Curb and Gutter, Driveways and Asphalt Concrete Paving

Subgrade shall be processed to 95% relative compaction, minimum 6 inches plus, and shall be tested and certified by a geotechnical engineer, licensed in California. Written certification shall be provided to the City prior to the placement of concrete (and aggregate base or aggregate subbasefor asphalt concrete). For meandering sidewalks, Class II aggregate base may be substituted for native subgrade at the Contractor’s discretion and shall be processed to 95 % relative compaction.

Additionally, subgrade stability for curb, gutter and sidewalk and asphalt concrete pavement shall be load tested by proof rolling with a loaded, minimum 3,000 gallon water truck (or equipment of equivalent weight as approved by the City) in the presence of the City, the Geotechnical Engineer and the Contractor. The proof roll test shall be repeated following corrective measures. Prior to placement of aggregate base, deflection in the subgrade shall

be eliminated. Placement of aggregate base shall not commence without the approval of the City.

Sidewalk subgrade exposed upon removal of existing sidewalk shall remainintact unless it is determined by the City's Construction Inspector to be unstable. In this event, it shall be processed per the preceding paragraphs.

Deflecting, unstable areas shall be corrected per the recommendation of theGeotechnical Engineer and upon the approval of the City's Construction Inspector prior to placement of aggregate base, or concrete curb, gutter andsidewalk.

B. Aggregate Base and Subbase

Roadway aggregate base and subbase, lime/cement treated base and sidewalk, curb and gutter shall not be placed until the following items of construction within the City street right-of-way and Public Utility Easement (PUE) are completed:

1. Installation of underground sewer and water systems and testing or televising, and approval.

2. Completion of testing for the presence of bacteria and the water system tie-in shall not be requirements for the approval of commencement of surface improvement construction. However, the water main tie-in shall be completed prior to asphalt concrete paving. The Contractor shall schedule operations such that the curb, gutter and sidewalk pour shall not be conducted on the same day as the water tie-in.

3. Installation and mandrelling of the non-rigid underground storm drain pipe and approval of same by the City's Construction Inspector.

4. Installation of electric, natural gas, telephone, traffic signal (including interconnect) and cable TV, including mandrelling and testing of all conduits, installation of 4x4 markers a minimum of 2 feet high, painted red,buried at the crossing ends (if conduit ends do not extend up from finish grade). This includes all dry utility crossing and longitudinal trenches.

5. Backfill and compaction testing of all trenches related to the above and approval of same by the City's Construction Inspector.

All aggregate base and subbase (AB and ASB) shall be installed per provisions in the most recent edition of Caltrans Standard Specifications. AB and ASB shall be compacted to 95% relative compaction. An oil seal is not required on the AB surface. If required by the City's Construction Inspector, AB and ASB shall be tested for compaction and approved by geotechnical engineer, licensed in California. It shall be proof rolled if requested by the City's Construction Inspector. Written certification of compliance to these requirements shall be provided to the City's Construction Inspector.

Aggregate base shall be installed as a base for asphalt concrete paving where specified on the approved plans including over lime and fly ash or cement treatment is used to stabilize the ASB.

Where lone valley gutters are placed within the City pavement as in an alley, the aggregate base section for the gutter shall extend to the same depth as the aggregate base section for the adjacent asphalt concrete pavement.

Prior to paving, deflection in the compacted AB shall be eliminated. Paving shall not commence without the approval of the City's Construction Inspector.

Lime/fly ash or other stabilizers may be permitted for subbase stabilization as recommended by the geotechnical engineer and shall not be used as a substitute for structural section components. The City, following addition and processing of lime/fly ash or cement shall require mandrelling of all non-rigid and shallow rigid underground utilities at the discretion of the City's Construction Inspector. All utility systems shall be cleaned as appropriate. In the event a dig up and repair is required following lime/cement treatment of ASB; the entire excavation shall be backfilled with either 2-sack cement slurry, or dry native material compacted and conforming to these Standards. Subgrade stability for roadway and/or concrete curb, gutter & sidewalk shall be reload tested by proof rolling with a loaded 3,000 gallon water truck and approved by the City Construction Inspector prior to the placement of aggregate base.

C. Concrete

All concrete curbs, curb & gutters, sidewalks, curb ramps, driveways,bus stop pads and turnouts shall be installed per provisions the Caltrans Standard Specifications, and the Standard Details including the following provisions:

1. All residential and commercial sidewalks shall be either 6" thick, or 4" thick with 4" of compacted aggregate base.

2. All commercial driveways, round a bout centers and bus turnouts shall be 8" thick with number 4 grade 60 rebar on 18-inch centers each way. Rebar shall be set on 3 inch concrete dobies/rebar supports at three foot maximum spacing each way. The dobies shall include wire ties. Base for commercial driveways may be processed native subgrade or ¾ inch aggregate base compacted to 95% relative compaction.

3. Concrete shall not be placed or finished in the rain. It shall be the Contractor's responsibility to schedule construction operations accordingly. All gutters shall be flow tested with water during the pour to assure proper drainage. Following concrete finishing, no water shall pond in the gutter pan. All concrete surfaces shall be completed with a medium broom finish unlessotherwise specified. A heavy broom finish is not allowed. A concrete finish not conforming to the Caltrans Standard Specifications with regard to blemishes and alignment tolerances shall be cause for rejection of the work. No stamps advertising construction companies or other private concerns shall be placed in the concrete. A detectable warning (truncated dome) panel shall be placed at the back of curb line, immediately behind the curb and gutter, centered in the openingto the street (regardless of slope) at every curb ramp (And shall not be sized as shown on the Case C ramp on Caltrans Revised Standard Plan RSP A88A). At minimum, the panel shall consist of a one piece, 4 foot by 3 foot panel but shall be sized according to the path of travel dimension. The long-dimensions of the panel shall be along the face of curb. The top, flat, dome panel surface (excluding the domes) shall be placed flush with the adjacent top of concrete surface. Any runoff water standing behind the curb, on the panel, or concrete voids under the panel, shall be cause for replacement of the panel.

Tool Joints

Tool joints and score marks shall be placed through the sidewalk, curb and gutter section at the following intervals for the sidewalk widths indicated. All tool joints shall be a minimum 2 inches. There shall be no expansion joint material used in the City right-of-way.

The purpose of the tool joint is to separate the aggregate and controlcracking. During concrete finishing, after placement of a minimum 2 inch deep tool joint, the joint shall be redressed/finished with a 3/8 inch joint tool.

All tool joints shall conform to Caltrans Standard Specifications for Joints. The use of sawcutting in lieu of deep tool joints is not acceptable.

Monolithic Sidewalk, Curb & Gutter

All adjoining sidewalk, curb and gutter shall be poured monolithically.

Curb and Gutter Installation in Existing Street

In an existing street, a minimum width of 24 inches of existing asphalt concrete paving shall be removed outside the proposed gutter lip and the lip poured against a form board. The resulting patch between the gutter lip and the existing pavement shall be six inches thick minimum, or the thickness of the existing pavement, whichever is greater. The AC patch shall be placed within two weeks of the conclusion of the concrete pour.

The minimum waiting period for pavement patching is three days from the date of placement or, the length of time needed for the concrete to reach 80% of its required ultimate strength, whichever is more. The gutter may be placed against the existing pavement if the City's Construction Inspector determines the pavement edge is flawless. In this case, the gutter lip shall not be edged and shall be poured ¼ inch below the existing pavement.

Curb Ramps, General

All curb ramps shall conform to the most recent edition of Caltrans Standard Specifications.

Curb, Gutter and Sidewalk Patching

A professional concrete mason shall apply the patch. The patch shall be flush with the existing concrete and a similar finish shall be maintained. The City's Construction Inspector shall determine if the damage to the concrete warrants patching. Generally, any conspicuous damage shall be patched.

Dowelling New Concrete to Existing

When pouring combinations of sidewalk or curb and gutter contiguous to existing, the existing concrete vertical face shall be doweled three feet on center with 16 inch long, grade 60, #4 rebar penetrating four inches into the existing curb, four inches below top of curb. The dowel hole shall be 5/8-inch diameter at a slight angle horizontally. The penetrating portion of the dowel and the entire cleaned vertical surface of the adjoining existing concrete shall be 95% coated with two-part epoxy. All abutting sidewalk shall be doweled mid-section with two dowels for four through six-foot wide sidewalk and three dowels for wider sidewalk. Abutting curb and gutter ends shall be doweled twice, 18 inches apart, centered on the curb and gutter section. See Section 71-5 (Materials) for epoxy.

Where the street side of the meandering sidewalk meets the back of Curb at less than a 90 degree angle, the return to the back of curb shall be a minimum 18 inch radius or 18 inch space shall be provided between the front face of sidewalk and the back of curb.

Replaced sections shall be removed back to score marks, expansion joints or deep tool joints; or at the discretion of the City's Construction Inspector.

If the existing edge is damaged during removal, the concrete shall be sawcut again at the City's Construction Inspector's discretion.

Sidewalk, Curb and Gutter Replacement

Where sidewalk and/or curb and gutter is being replaced, the maximum length of sidewalk that may be replaced non-monolithically (without the attached curb and gutter) is 20 feet. If more than 20 feet is damaged continuous, the total sidewalk, curb and gutter section shall be removed and replaced monolithically. Where sidewalk, curb and gutter or curb ramps and driveways with sidewalk, curb and gutter as portions thereof are replaced, all replacement shall conform to the latest Construction Standards.

Damaged Gutter Lip

Gutter lip damaged during the grading and rocking operation shall be patched or replaced.

Any spall extending more than one inch into the gutter pan from the vertical face of the gutter lip shall be patched at a minimum.

Concrete and Asphalt Concrete Saw Cutting

Residual from sawcutting shall be removed by vacuum method and disposed of conforming to local environmental and State Stormwater Pollution Prevention Plan requirements. The down stream drain inlet shall be protected. In no case shall the residual be allowed to enter the storm drain system. The above-specified cleanup shall be the responsibility of the contractor.

D. Asphalt Concrete Paving

All asphalt concrete (AC) paving shall be Hot Mix Asphalt (HMA) unless approved by the City Engineer and Public Works Director and installed per the most current adopted provisions in the most recent Caltrans Standard Specifications, except as amended by these Standards.

No paving shall occur until all underground work is completed, tested and subgrade and/or aggregate base and/or lime and fly ash or cement treated base have been accepted by the City.

Mix Design

The Contractor shall provide the asphalt concrete mix design to the Director of Development Services at least ten (10) working days prior to the start of the work on the project for review and approval. The mix design must be approved prior to commencement of work.

The asphalt concrete mix design shall indicate the following:

1. Complete aggregate grading with the percentage of aggregate passing each sieve size.
2. Percent air voids for each percentage of asphalt binder used in the mix design determination.

3. Stability – Per MS-2 Asphalt Mix Design Methods per Sections 3 and 8. Mis design requires Hamburg Wheel (AASHTO T 324) and Moisture Susceptibility (AASHTO T 283) once per project or every 10K tons.
4. Maximum theoretical density for each percentage of asphalt binder used in the mix design determination.
5. Compacted unit weight for each percentage of asphalt binder used in the mix design determination.
6. Percent asphalt binder recommended. (Optimum bitumen content, OBC).

The amount of asphalt binder (OBC) to be mixed with the aggregate for asphalt concrete will be recommended by the material supplier and approved by the City Inspector based on data from California Test Method CTM 367 provided by the Contractor. CTM 309 shall be used for determination of the theoretical maximum specific gravity at each asphalt binder content. However, the ratio for asphalt binder to the dry weight of aggregate shall be limited to 4 to 7 percent.

The actual asphalt cement content may vary up to 0.5% plus/minus form the target optimum bitumen content (OBC). For Job Mix Formula, -0.3 to +0.5 %.

Spreading and Compactions

Equipment shall conform to the most recent edition of Caltrans Standard specifications.

All spreading and compacting construction activities shall conform to the most recent edition of the Caltrans Standard Specifications.

Miscellaneous

The Contractor shall schedule paving operations such that at the end of each work shift, each layer of asphalt concrete is placed on all contiguous lanes and shoulders of a traveled way to be opened to public traffic.

At the end of each work shift, the distance between the ends of the layers of asphalt concrete on adjacent lanes shall not be greater than 10 feet nor less than 5 feet. A drop-off of more than 0.15-foot will not be allowed at any time between adjacent lanes open to public traffic.

Additional asphalt concrete shall be placed along the transverse edge at the end of each lane and along the exposed longitudinal edges between adjacent lanes, hand raked, and compacted to form temporary conforms. Kraft paper, or other approved bond breaker, may be placed under the conform tapers to facilitate the removal of the taper when paving operations resume.

Additional asphalt concrete surfacing material shall be place along the edge of the surfacing at private drives, hand raked, if necessary, and compacted to form smooth tapered conforms.

Longitudinal joints in successive pavement lifts shall be offset from lift to lift a minimum of one foot. The surface pass seam shall be located on the lane line. Where extruded concrete curb is removed for pavement widening, Contractor shall grind 1-1/2” of pavement between the nearest lane line and the existing curb and gutter line (including bike lanes). Following placement of the asphalt concrete base lift within the widening section, and 1-1/2” below

the new gutter lip, Contractor to replace Petromat fabric or approved equal in grounded area, place asphalt concrete overlay, and restripe and/or replace any delineators removed during the grind.

Prior to permanent patching in a pavement removal area, fresh cut- back (temporary pavement) in a minimum thickness of two (2) inches shall be placed as a driving surface.

Whether the surface material is fog sealed or cutback or slurry, the Contractor shall be tenacious in maintaining the surface in a condition and to a grade comparable to the permanent patch. No other materials are allowed as temporary pavement. Placement of steel plates over fresh slurry may be employed per Section 21-2, I. 5. of these Standards.

The temporary surface shall be flush with the surrounding pavement and shall accommodate a smooth drive across it.

Sand and dirt shall not be allowed to accumulate on the slurry surface and adjacent street. It shall be swept daily if necessary.

Utility boxes in asphalt concrete, off-street paths shall include a 12- inch x 12 inch, concrete collar “minor concrete” conforming to the most recent edition of Caltrans Standard Specifications. The top of the collar shall be three inches below the surrounding pavement and the area shall be patch-paved with asphalt concrete as with manholes, water valves and monuments in the street way.

If a bucket or tank or diesel fuel is carried on the paver for the purpose of cleaning rakes and shovels, a container of grease sweep or equivalent absorbent material shall also be carried on the paver. All diesel spills shall be promptly cleaned up.

Existing Pavement

1. Cut lines made on existing pavement, both longitudinally and transversely, for the placing of new structural section shall be straight and smooth.

2. Edge grinding (Cold Planning) shall be required where existing asphalt is to be overlayed. The edge grind shall match the depth of the asphalt concrete overlay along the length of the gutter lip and abutting pavement where the asphalt concrete pavement is proposed to conform to the existing pavement.

3. Existing pavements to be overlayed with asphalt concrete shall include the installation of pavement reinforcing fabric in accordance with Section 88, Materials of the Caltrans Standard Specifications at the discretion of the City’s Construction Inspector.

4. Existing AC surfaces to remain shall be cut in a straight line parallel to the street centerline, and the exposed edge shall be tracked with SS1H emulsion or equivalent prior to paving. For moratorium defined streets, CRAFCO Pavement Adhesive, “Qwik Seal” or approved equal shall be used per manufacturer recommendations. The exposed base material shall be graded and re-compacted per these Construction Standards prior to paving. Graded and re-compacted areas shall be approved by the City’s Construction Inspector prior to paving.

5. Where an excavation in the public right of way is backfilled with two-sack cement slurry per these Construction Standards, the slurry may be brought to the top of the trench until permanent patching. Where rock-saw utility trenching is necessary

in the bottom lift of asphalt concrete and prior to placement of top lift of asphalt concrete, the rock saw trench shall be covered with Glasgrid product (8512, with 100X200 KN tensile strength) or approved equal, at the manufacturers recommendations prior to the placement of top lift of asphalt.

- If the width of existing pavement between the gutter lip and excavated patch/pave area is three (3) feet or less, all existing pavement between the patch/pave area and the gutter lip shall be removed or milled 0.15 feet in depth, and patched conforming to the adjacent patch/pave area requirements.

Materials

A. Aggregate Base and Subbase

All aggregate base and subbase (AB and ASB) materials shall be Class 2 as specified on the approved improvement plans and shall conform the most recent edition of the Caltrans Standard Specifications.

Recycled asphalt concrete material may be used as AB or ASB provided the Contractor supplies the City written documentation and certification that the material meets the State's Class 2 specifications prior to placement.

B. Concrete

All Concrete curbs, gutters, driveways, island paving, sidewalks, curb ramps, driveways, island and colored concrete, and shall be constructed of minor concrete conforming to the most recent edition of Caltrans Standard Specifications The cementitious material content of concrete must be a least 463 lb./cu yd. for constructing minor concrete as listed above. The aggregate size may range from 3/8" to 1 inch. However, if 3/8" maximum size aggregate is used, cementitious material content must be a least 505 lb./cu yd,

All other minor concrete for extruded or slip-form curb construction, retaining wall footings, utility box collars, rock wheel backfill, and miscellaneous footings, shall be constructed of minor concrete conforming to the provisions in the most recent Caltrans Standard Specifications, material content must be a least 505 lb./cu yd.

C. Asphalt Concrete

Shall comply with the most current adopted edition of Caltrans Standard Specifications and as modified herewith. The requirements provided within these provisions shall supersede State Specifications where conflicts or other disparities exist.

Asphalt binder shall be performance grade 64-10 paving asphalt conforming to the most recent edition of the Caltrans Standard Specifications.

Asphalt concrete for alley's residential and collector roadways shall be Type A, ½-inch Maximum Medium Gradation, conforming to the requirements of most recent edition of Caltrans Standard Specifications.

Reclaimed Asphalt Pavement (RAP) up to 15% of aggregate blend may be substituted as part of the virgin aggregate for hot mixed asphalt and shall meet the State's quality specifications. RAP not permitted in OGFC or RHMA-G.

Asphalt concrete shall be hot plant mixed and shall be furnished from the plant at a temperature not to exceed 325 degrees F.

D. Lime/Fly Ash or Cement treated Subbase

On a case-by-case basis, lime/fly ash or cement treated subbase may be an acceptable substitute for placement of compacted aggregate base material. Prior to plan approval, the Developer shall submit to the City Engineer for review and approval, a proposal for lime/fly ash or cement treatment sections and compaction procedures, accompanied by recommendations from a California licensed, geotechnical engineer. In no case shall asphalt concrete be placed directly on lime/fly or cement treated bases.

E. Truncated Domes

Truncated dome panels shall be of vitrified polymer composite construction, embedded type, or (surface applied for retrofit applications) manufactured by Armor Tile Tactile Systems, Buffalo, New York, ADA Solutions, N. Billerica, MA, or approved equal. The dimensions and interval of the truncated domes within the panel shall conform to Caltrans Standard Plan RNSP A88 and Division of the State Architect Accessibility Reference Manual, Figure No. 31-23A. The orientation of the dome pattern for all panels shall be parallel with the panel edges.

Section 2 - **SIGNAGE AND STRIPING**

General

This section governs the design, installation, modification, and maintenance of all traffic signage, pavement striping, and pavement markings within the public right-of-way and on private property where such improvements are required as a condition of development approval.

All signage and striping shall be designed and installed to provide clear, consistent, and enforceable traffic control that promotes public safety for motorists, bicyclists, and pedestrians.

Governing Standards

All signage and striping shall conform to the following, in order of precedence:

1. Approved improvement plans and traffic control plans
2. City of Gridley Design and Construction Standards and Standard Details
3. Latest edition of the California Manual on Uniform Traffic Control Devices (CA MUTCD)
4. Caltrans Standard Specifications and Standard Plans

Where conflicts occur, the more restrictive requirement shall apply, as determined by the City Engineer.

Permanent Signage

Permanent regulatory, warning, and guide signs shall be installed only at locations approved by the City Engineer.

Classification of Permanent Traffic Signs

Permanent traffic signs shall be classified into the following categories:

1. Regulatory Signs
2. Warning Signs
3. Guide Signs

Each category has specific requirements for shape, color, legend, and application.

Regulatory Signs

Regulatory signs inform road users of traffic laws, regulations, and requirements that must be obeyed. These signs are enforceable by law.

Shape and Color Requirements

Regulatory signs shall conform to the following MUTCD-required shapes and colors:

- **STOP**: Octagonal shape, red background, white legend and border
- **YIELD**: Downward-pointing triangular shape, red and white background, red legend
- **SPEED LIMIT**: Rectangular shape, white background, black legend and border
- **DO NOT ENTER**: Rectangular shape, red background, white legend
- **ONE WAY**: Rectangular shape, black background, white legend
- **NO PARKING / NO STOPPING / NO STANDING**: Rectangular shape, white background, red legend and border

No deviations from these shapes or colors shall be permitted unless approved in writing by the City Engineer.

Legend and Design

Regulatory sign legends shall use standard MUTCD-approved wording, symbols, and abbreviations. Custom legends or non-standard wording are prohibited.

Minimum letter sizes shall comply with CA MUTCD requirements based on roadway classification and posted speed.

Warning Signs

Warning signs alert road users to potentially hazardous or unexpected roadway conditions that may not be readily apparent.

Shape and Color Requirements

Warning signs shall conform to the following MUTCD-required shapes and colors:

- **General Warning Signs**: Diamond shape, yellow background, black legend and border
- **Pedestrian and Bicycle Warning Signs**: Diamond or rectangular shape, fluorescent yellow-green background, black legend
- **School Zone Signs**: Pentagon shape or rectangular supplemental signs, fluorescent yellow-green background, black legend
- **Advisory Speed Signs**: Rectangular shape, yellow background, black legend

Warning signs shall be installed only where engineering judgment indicates a need. Excessive or unnecessary warning signage is discouraged, as it reduces overall effectiveness.

Advisory speed signs shall be supported by roadway design speed, field conditions, or an engineering study, as approved by the City Engineer.

Guide Signs

Guide signs provide route, destination, and location information to assist road users.

Shape and Color Requirements

Guide signs shall conform to the following MUTCD-required shapes and colors:

- **Street Name Signs**: Rectangular shape, green background, white legend
- **Route Markers**: Shapes and colors as specified by CA MUTCD for state, county, or local routes
- **Destination and Wayfinding Signs**: Rectangular shape, green or blue background, white legend

Letter height, font, spacing, and contrast shall comply with CA MUTCD requirements.

Retroreflectivity

All permanent traffic signs shall be retroreflective and shall maintain minimum nighttime visibility in accordance with CA MUTCD requirements.

Signs that no longer meet minimum retroreflectivity standards due to age, damage, or fading shall be replaced.

Mounting Height and Lateral Offset

Permanent traffic signs shall be installed at mounting heights and lateral offsets consistent with CA MUTCD requirements.

- In areas with curb and sidewalk, the bottom of the sign shall be a minimum of seven (7) feet above the sidewalk surface.
- In areas without curb or sidewalk, the bottom of the sign shall be a minimum of five (5) feet above the near edge of traveled way.

Exact placement shall be determined based on visibility, sight distance, and field conditions, subject to approval by the City Engineer.

Location and Approval

Permanent traffic sign locations shall be shown on approved improvement plans or approved in writing by the City Engineer.

Signs shall not obstruct sight distance, pedestrian access, or accessibility features, and shall not conflict with other traffic control devices.

Installation Timing

Permanent traffic signs shall be installed after roadway geometry, curb, gutter, and sidewalk construction are complete and prior to final acceptance, unless otherwise approved by the City Engineer.

Temporary signage shall be used during construction until permanent signs are installed.

Ownership and Maintenance

Upon acceptance by the City, permanent traffic signage shall become the property of the City of Gridley and shall be maintained by the City unless otherwise specified.

Prohibited Signs

The following are prohibited within the public right-of-way unless otherwise approved by the City Engineer:

- Non-MUTCD compliant signs
- Decorative or novelty signs intended to regulate traffic
- Private signs attempting to control public traffic
- Signs with non-standard colors, shapes, or legends

Street name signs shall be furnished and installed by the Developer and shall be subject to review and approval by the City prior to installation. Duplicate, confusing, or nonstandard sign legends shall not be permitted.

Temporary and Construction Signage

Temporary signage shall be provided to warn roadway users of construction activities, detours, lane closures, and changed roadway conditions.

Temporary signs shall be retroreflective, properly mounted, and maintained in a clean and legible condition. Signs shall be removed immediately when no longer applicable.

Removal, Relocation, and Replacement

Existing signage impacted by construction shall be protected, temporarily relocated, or replaced as required by the City Engineer. Any sign damaged, removed, or rendered illegible as a result of construction shall be replaced at the Contractor’s expense prior to project acceptance.

Pavement Striping and Markings

All pavement striping and markings shall conform to CA MUTCD requirements, Caltrans specifications, and City Standard Details.

Striping materials may include traffic paint, thermoplastic, or other City-approved materials. Reflective glass beads or equivalent shall be applied to all markings to provide nighttime visibility.

Temporary Striping

Temporary striping shall be installed whenever permanent striping is removed or obscured during construction. Temporary striping shall provide clear lane guidance and shall remain in place until permanent striping is installed.

Permanent Striping

Permanent striping shall be installed only after final paving operations are complete and approved by the City.

Removal of Existing Striping

Conflicting or obsolete striping and pavement markings shall be removed by grinding or other approved methods that do not damage the pavement surface.

Section 3 - **LIGHTING AND TRAFFIC**

General

This section governs the design, installation, modification, and acceptance of street lighting, traffic signal electrical systems, and associated appurtenances within the public right-of-way.

All traffic systems and electrical improvements shall be submitted to the City Engineer for review and approval prior to construction.

Governing Standards

Lighting and electrical systems shall conform to the following, as applicable:

1. City of Gridley Design and Construction Standards and Standard Details
2. Approved improvement plans
3. Latest edition of the California Electrical Code
4. Caltrans Standard Specifications and Standard Plans
5. CA MUTCD (for signal-related installations)
6. Applicable utility provider requirements

Where conflicts occur, the more restrictive requirement shall apply as determined by the City Engineer.

Street Lighting Requirements

Street lighting shall be provided along public streets as required by the City Engineer based on street classification, safety considerations, and consistency with existing City lighting systems.

Lighting design shall address illumination levels, uniformity ratios, glare control, energy efficiency, and maintenance access. Pole types, luminaires, mounting heights, and spacing shall be consistent with City standards unless otherwise approved.

Electrical Systems

All electrical work shall be performed by licensed electricians in accordance with applicable codes.
Electrical improvements may include, but are not limited to:

- Underground conduits
- Pull boxes and vaults
- Foundations
- Conductors and wiring
- Grounding systems

All electrical systems shall be inspected and tested prior to acceptance by the City.

Traffic Signal Systems

Traffic signal installations, modifications, or relocations shall require approval by the City Engineer.

Signals shall remain operational during construction unless a planned outage is approved. Temporary signal operation or alternate traffic control may be required to maintain traffic flow and safety.

Acceptance

Lighting and traffic electrical systems shall not be energized or placed into permanent operation until all inspections, testing, and documentation have been completed and approved by the City.

Section 4 - **TRAFFIC IMPACT STUDIES**

Purpose

Traffic Impact Studies (TIS) evaluate the effects of proposed development on the City's transportation system and identify mitigation measures necessary to maintain safe and efficient operations.

Applicability

A Traffic Impact Study shall be required for development projects that may generate traffic volumes, patterns, or operational impacts exceeding thresholds established by the City Engineer.

The City Engineer may waive or modify study requirements for projects with minimal traffic impacts or require supplemental analysis for projects with unique characteristics.

Study Preparation

Traffic Impact Studies shall be prepared by a licensed traffic engineer experienced in traffic analysis and transportation planning.

Study Content

Traffic Impact Studies shall include, at a minimum:

- Description of the proposed development
- Existing traffic conditions
- Project-generated traffic
- Future traffic conditions with and without the project
- Intersection and roadway level of service analysis
- Multimodal impacts including pedestrian, bicycle, and transit considerations
- Safety analysis and collision history where applicable
- Identification of required mitigation measures

Mitigation Measures

Mitigation measures identified in an approved Traffic Impact Study shall be implemented by the Developer as conditions of project approval.

Mitigation may include, but is not limited to:

- Intersection improvements
- Traffic signal modifications
- Additional traffic lanes or turn pockets
- Access modifications

- Transportation demand management measures
- Fair-share contributions toward off-site improvements

Updates and Revisions

Traffic Impact Studies may be required to be updated if project scope, phasing, or surrounding conditions change prior to construction or occupancy.

Acceptance

Approval of a Traffic Impact Study does not relieve the Developer of responsibility to implement all required mitigation measures or comply with applicable City standards.