## Plan Preparation

Striping design plans are required for any installation that involves left-turn channelization, or lane lines, barrier lines or centerlines involving convergences, divergences, tapers, curves not parallel to curb lines or offsets. Striping plans identify all other traffic control devices.

Striping plans generally shall be prepared by the Geometric Design staff for projects involving City streets. Exceptions are as follows:

- Plans prepared by consultants for private entities as part of the B-Permit process;
- Plans prepared by consultants pursuant to an agreement with a governmental agency;
- Plans prepared by employees of another governmental agency; and
- Projects for which the Bureau Head or higher authority has approved plan preparation by a non-governmental entity.

## Plan Approval

All striping design plans prepared for locations under the jurisdiction of the City of Los Angeles shall be signed as follows:

- By the Section Head of the Geometric Design Section unless that person is absent;
- By the Division Head of the Design Division unless that person is absent; and
- By the Bureau Head responsible for the Design Division, unless that person has delegated approval authority to the Division Head.

Striping design plans submitted by another governmental agency for locations partially under the jurisdiction of the City of Los Angeles shall require the signature of the Bureau Head responsible for the Design Division, or the Division Head if approval authority has been so delegated.

The practice of traffic engineering requires that striping design plans be signed and stamped by Civil Engineers registered in the State of California. Accordingly, the final approval authority for plans prepared by the Department shall be so registered and shall sign and stamp said plans. Consultants or other persons preparing or submitting striping design plans to the Department shall be so registered and shall sign and stamp said plans.

Consultants submitting plans shall meet two other requirements. First, they must have a Business License in the City of Los Angeles. Second, they must indicate on the plan that the plan has been reviewed by a person who is either registered as a Traffic Engineer in the State of California or who has a Professional Traffic Operations Engineer Certificate issued by the Institute of Transportation Engineers.

Striping Plan Implementation

Approved striping plans are to be implemented as shown in the table below:

| Initiation of Project | Installation By |
|---|---|
| Department-Initiated | LADOT Field Forces |
| Street Resurfacing | LADOT Field Forces |
| B-Permits (Developers) | B-Permit Contractor |
| City Contracts & CIP | City Contractor |
| Non-City Public Agency | Their Contractor or by LADOT Field Forces, per an approved agreement |

For work otherwise performed by LADOT field forces, elements, such as sandblasting pavement message installation, etc. may be contracted out at LADOT's discretion. For work by contractors on City Streets, LADOT and the Bureau of Contract Administration must inspect and approve the striping.

In all cases, the final thermoplastic striping may not be installed until LADOT confirms that the markout is consistent with the signed plan.

Plan Format

All plans of the Geometric Design Section shall be prepared in the latest version of AutoCAD, as menu-enhanced for use by LADOT, except for those plans exempted by the Bureau Head for emergency purposes. Right-of-way, roadway and lane widths shall be shown at separate cross-sections wherever the dimensions change. All right-of-way and roadway curve radii shall be dimensioned. All striping tapers, tangents, and curve radii (if not parallel to curb) shall be dimensioned. Roadway features, striping and other traffic control devices shall be layered to reflect "existing," "to-be-removed" and "to-be-added" conditions for each stage of construction, using specified line thickness and spacing. Plans shall be on mylar, 24 inches high by 36 inches wide and 3.0 mils (0.003 inch) thick, with a specified border, title block and signature block. The scale shall be one inch equals 40 feet.

Up to three minor oversights may be manually corrected on the mylar copy of an AutoCAD plan sheet if the change also has been made on the electronic copy.

Plan Review

Striping plans are to adhere to the California Manual on Uniform Traffic Control Devices, the California Vehicle Code, LADOT Standard Plans and text herein. In using these sources, optional or "may" conditions are to be determined using engineering judgment. Recommended or "should" conditions are to be incorporated, unless there is a compelling reason to deviate. Mandatory or "shall" conditions are to be followed without exception.

In preparing or reviewing striping and channelization plans the Geometric Design Section shall be responsible for ensuring that plans adhere to the above, while incorporating critical information and concerns communicated by District Operations or other units of the Department. In considering all input, the plan shall represent the Geometric Design Section's best recommendation and should add value. Design and operational issues should be coordinated at the Associate III, Section Head or Division Head levels, if necessary, for resolution. After a full discussion of any issues, the operational preference of District Operations generally should prevail if it is consistent with design principles and the Manual of Policies and Procedures.

Plans more than two years old prior to installation should be newly reviewed for any change in field conditions; appropriateness of the proposed striping design previously approved; and application of current design standards. Where changes are necessary, a superseding plan or revision shall be prepared.

If it is found to be necessary to install striping not in conformance with the plan, then an AutoCAD modification should be requested immediately by District Operations for preparation by the Geometric Design Section. The Geometric Design Section shall give preparation of the modification its highest priority if it agrees with the change. The modification shall be "rushed" for signature. However, no final striping shall be installed (i.e., beyond the markout stage) unless it is in conformance with the approved (signed) modification plan.

Plan Coordination

The Geometric Design Section shall be responsible for ensuring that the traffic signal plan is coordinated and compatible with curb, sidewalk and curb ramp features, as well as signal operation and phasing.

In this regard, the plan shall be routed to other involved units of the Department, as necessary, including the Signal Design Section and the appropriate LADOT District Office. LADOT District Office concurrence is required for any discretionary operational changes or new installations. Their concurrence shall be indicated by showing the person's initials along with the date in the title box. If the in-progress plan shows significant or operational changes, then it requires rerouting to affected Department units for concurrence with a new date shown on the plan.

Special Projects

The Geometric Design Section is responsible for understanding how the improvements shown on an individual plan or set of plans contribute to larger projects to which they are integral, such as major developments projects. This knowledge ultimately will lead to improved design decisions. If it is not directly submitted, the Geometric Design Section is responsible for seeking the information.

Complex Designs

Complex, unusual, novel or trial designs or methods of operation for major projects should be discussed and reviewed by senior management staff before proceeding forward. This procedure will help to ensure that new designs are properly scoped, well developed and not problematic.

Plan Processing

All plans and related documentation submitted for LADOT review by consultants or other agencies, shall be submitted to the Plan Processing Control Desk of the Design Division which will route the plans to the appropriate project engineer.

Plans involving striping and signing submitted by Caltrans or another agency that are part of a larger joint project, shall be submitted first to the Interagency Coordination Section for evaluation. If suitable for further review, the Interagency Coordination Section shall subsequently submit them to the Plan Processing Desk or brief the design staff and/or Department management, as appropriate.

The Geometric Design Section shall seek from consultants submitting plans justification for any operational changes proposed in the plan. Proposed operational changes shall be justified by realistically projected traffic volumes associated with the immediate phase of land development

or re-development and yet should anticipate the operational needs for ultimate build-out of the final phase of related land development. Proposed operational changes shall not unduly compromise traffic safety or pedestrian circulation.

Plans that are being submitted for approval by consultants shall include two mylar originals and a compact disk. One of the mylar originals is to be returned to the consultant after plan approval. The Geometric Design Section shall check to see that the contents of the compact disk submitted by the consultant are consistent with those on the mylar plan, and that any minor oversights that have been manually corrected on the mylar copy of an AutoCAD plan have been incorporated on the electronic file prior to further processing of the plan.

After the plan is approved, the electronic file immediately shall be modified by the Geometric Design Section to show in printed form the names, initials and dates of all persons who were part of the design approval and submittal.

As-Built Plans

As-Built plans are an important part of the record of field conditions as of a certain date. Striping plans shall timely record the dates for “Mark-out Completed”. The electronic files of said plans shall timely be revised to show the same information.

Geometric Design Plan Files

All signed and “As-Built” Geometric Design plans (mylars and electronic files) shall be stored in the Geometric Design Section as the City's official record. Superseded "As Built" plans shall be sent to LADOT Records for placement in the archival file.

Filed plans shall not be removed from the file except for brief reference or copying. If prolonged reference to a plan is needed then a photocopy or print copy shall be made.

Geometric Design Plan Distribution

One copy of all signed plans are to be distributed to the appropriate LADOT District Office. In addition, three copies are to be given to the Field Coordination Section for projects involving street resurfacing.

Striping Fundamentals

The primary function of striping and channelization is to delineate as clearly as possible the intended operation and desired travel paths.

Materials used for channelization include:

- Raised curb or berm for medians and islands;
- Raised ceramic and reflective pavement markers;
- Delineator posts;
- Painted striping;
- Permanent and detour grade pavement marking tape; and
- Alkyd-based thermoplastic striping;

Raised median islands can be used to prohibit left turns, separate opposing flows and provide landscaping opportunities. However, at signalized intersections they sometimes can create negatively offset left turns with restricted visibility. In some cases they should be partially removed at signalized intersections, as discussed in S-497.0.

Raised ceramic pavement markers may be selectively used where striping requires excessive maintenance. Raised reflective pavement markers may be selectively used where modern street lighting does not exist.

Flexible delineator posts can be used to delineate the edge of roadway that lacks conventional curbs and modern street lighting.

Painted striping is the most common form of pavement delineation in most jurisdictions. However, it requires frequent maintenance.

Permanent pavement marking tape may be used to replace short sections of striping that have been removed due to minor street excavations. Detour grade pavement marking tape may be used to cover existing striping and to delineate detour striping for periods of six months or less. It is easily installed and removed.

Alkyd-based thermoplastic striping is the primary form of pavement delineation in the City of Los Angeles and has a five to ten year service life. However, a primer is required to ensure adhesion on Portland cement concrete surfaces.

See Table 1, "Application of Striping and Marking Components," which summarizes the use of each type of traffic stripe.

Striping on Narrow or Lower Volume Streets

Striping generally is not necessary on low volume local streets. On collector streets a skip centerline should be provided, as width permits. (See Lane Widths).

A double yellow-centerline should be provided instead of a skip centerline, as follows:

- Where horizontal or vertical alignment limits sight distance below that which is appropriate for the design speed.
- Within 50 to 200 feet of a Stop sign, traffic signal or marked crosswalk.
- Within 50 to 200 feet of a taper and along the length of the taper.

A double yellow centerline or partial passing centerline shall be provided instead of a skip centerline where two or more lanes are striped in one direction, with one lane in the other direction.

Where a partial passing centerline is used, the skip yellow stripe shall be for the direction with one lane.

On streets with two or more lanes in each direction a double yellow centerline, raised median island or left turn channelization shall be provided.

Left-Turn Channelization

Left-turn channelization is the single most effective tool for improving operation and reducing accidents, such as rear-end, side-swipe, head-on and left-turn types. It is delineated by the two-way left-turn lane, the (unidirectional) left-turn pocket and the striped median. Generally, it is desirable for all arterial streets to operate with at least two lanes in each direction and left-turn channelization (five-lane operation). Where continuous channelization is not feasible due to width restrictions, every effort should be made to install left-turn pockets at signalized intersections, or alternatively, to restrict left turns. Generally, a five-lane operation has been shown to operate more smoothly than a six-lane operation without channelization, where the width permits. A three-

lane operation has been shown to operate more smoothly than a two-lane off peak/four lane peak operation with fronting development, where the width permits.

The designer of striping and channelization needs to consider the benefits above when a street is being reviewed for striping improvements. In addition, the designer needs to carefully consider the trade-offs between the appropriate and achievable lengths of left turn pockets at intersections versus those for two-way left-turn lanes (2WLTL) to serve mid-block driveways.
All left-turn lanes at intersections should be "shadowed," so that the departure side of a mandatory left-turn lane is a left-turn lane in the opposite direction, a striped median or a raised median.

Where 2WLT's are being considered in a hillside area or on a street with steep grades or sharp crest or sag vertical curvature, the sight distance should be field checked to ensure that opposing motorists can see each other. If there is any doubt, civil engineering profiles and vertical sight distance formulas should be used for verification. If sight distance is inadequate then a striped median shall be used instead of a 2WLTL.

Generally, the following minimum storage lengths of fully shadowed left-turn channelization should be utilized:

| | |
|---|---|
| Two Way Left Turn Lane (2WLTL): | 30 feet |
| Collector Street at non-signalized intersection: | 40 feet |
| Collector Street at signalized intersection: | 60 feet |
| Arterial Street at non-signalized intersection: | 40 feet |
| Arterial Street at signalized Collector Street: | 60 feet |
| Arterial Street at signalized Arterial Street: | 100 feet |

Where these storage lengths are not feasible, traffic often can spillover into the number one through lane. In these instances, left turn restrictions rather than left-turn lanes should be considered.

Multiple left-turn lanes require special design considerations at standard intersections (i.e. two-way streets, four legs and right angle alignment). They present unique challenges to the ability of left-turn motorists to see opposing through traffic and pedestrians in the receptive leg of the intersection. Accordingly, dual left-turn lanes at standard intersections shall have protected left-turn phasing. A left-through lane adjacent to a left turn lane presents the same challenges. In addition, this operation can result in lane blockage as left-turn motorists wait for gaps in opposing traffic. Accordingly, the entire approach shall be phased separately from that for opposing traffic. In addition, this operation should be phased separately from that for pedestrians.

Applications of left-turn channelization are shown in S-401.0, S-401.1 and S-414.4. Visibility requirements for motorists in left-turn lanes are shown in S-497.0.

Right-Turn Channelization

All right-turn lanes should be "shadowed" on the far-side of intersections. Shadowing for a right turn lane includes an undelineated curb lane, reduced roadway width, a raised island, or a striped island on the departure side. A receptive through lane on the far side of an intersection directly opposite a right-turn only lane can result in confusion and or misuse of the turn lane.

Physical gores for divergences or right turn lanes should be preceded by painted gores which, in turn, should be preceded by barrier lines. In trap lane situations, the barrier line is preceded by lane drop striping which is, in turn, preceded by standard lane lines. This hierarchy of striping helps to alert motorists of changing conditions.

Multiple right turn lanes require special design considerations. Dual right-turn lanes and right plus right-through lanes present challenges to the ability of motorists to see pedestrians in the receptive leg of the intersection. Accordingly, they should be phased separately from that for pedestrians or evaluated as to necessity.

Channelized right turns having raised triangular islands, which separate them from adjacent lanes under traffic signal control, can have several types of control. Generally, they are controlled by R1-2 (Yield) signs. However, where the approach speeds are 10 miles per hour or below, visibility is restricted or pedestrian volume is high, R1-1 (Stop) sign control is used. Where there is sufficient longitudinal distance for acceleration a W4-1 (Merge) sign is posted on the receptive leg of the intersection and a W11-2 and W16-7p (Pedestrian Crossing) sign is posted at the diagonal marked crosswalk near the middle of the raised island. Where the channelized right turn forms a continuous added lane on the receptive leg of the intersection a W4-3 (Added Lane) sign is posted along with a W11-2 and W16-7p sign as described above. W4-2 (Lane Drop) signs are not used for channelized right turns. The alternative types of control shall not be mixed. See S-494.0 & S-494.1 for specific details.

Lane Widths

Lane widths are measured from the center of a striped line to the center of an adjacent striped line and from the center of a striped line to the curb (flow line). Generally, all raised islands should have edge line striping and all arterial streets lacking standard curb should have edge line striping.

The City of Los Angeles generally observes various published Federal and State guidelines regarding geometric designs for streets and roadways, such that the applications of such guidelines must also conform to the City's Mobility Plan and City-adopted context-sensitive guidelines. As such, the following table illustrates the practice of the Los Angeles Department of Transportation.

Standard Lane Widths

| Application | Desirable | Minimum |
|---|---|---|
| Left Edge Line Raised Center Median | 1' from curb | 1' from curb |
| Right Edge Line w/o Curb | 1' from pvmt edge | 1' from pvmt edge |
| Interior Thru Lane- 35mph & Below | 10' | 9' |
| Interior Thru Lane - 40 mph & Above | 10' - 11' | 10' |

Standard Lane Widths (cont'd)

| Application | Desirable | Minimum |
|---|---|---|
| Interior Thru Lane - High truck/bus volume | 11' | 10' |
| Interior Thru Lane- Adj. to Bike Lane | 11' | 10.5' |
| Left Turn Lane | 10' | 9' |
| 2-Way Turn Lane | 10' | 9' |
| Curb Lane-No Parking | 11' - 13' | 10' |
| Curb Lane w/Parking | 18'- 20' | 18' |
| Curb Lane w/Parking & Residential Local/Collector Streets 25mph or less | 18' | 17' |
| Curb Lane w/ Parking & Continuous Edge Line | 18' - 20' | 17' (7'+10') |
| Curb Bike Lane | 6' - 7' with gutter<br>5' - 6' no gutter | 5' with gutter<br>4' no gutter |
| Bike Lane w/Parking & Continuous Edge Line | 14' - 15' | 12' |
| Interior Bike Lane | 6' | 4' |
| Bus Lane | 12' | 10' |

Intersection Striping

Striping generally is discontinuous through intersections. However, multiple turn lanes, curves, tapers or offsets at or near intersections require supplemental delineation in order to reduce the probability of side swipe or head-on accidents. Continuous (unbroken) striping through intersections generally is not used for this purpose, as it would eliminate an important clue relating to intersection presence. Accordingly, short lengths of broken lines, known as "cat-tracks" are used within intersections, where additional delineation is needed. See S-405.0 for specific details.

Marked Crosswalks

Marked crosswalks shall be installed where:

- Pedestrians are allowed to cross at signalized intersections
- A pedestrian crossing is necessary, but a legal un-marked crosswalk does not otherwise exist, as per Section 275(a) of the Vehicle Code.

They may be installed at locations satisfying Section 275(a) of the Vehicle Code where:

- Pedestrian crossings are frequent and the warning devices associated with the marked crosswalk will so advise motorists.
- It is desired to advise pedestrians of a preferred crossing; or
- It is desired to channelize pedestrians to a single crossing.

Marked Crosswalks shall be aligned so that they meet two criteria:

- There is a buffer zone between the edge of the marked crosswalk and the adjacent lane of parallel traffic. Acceptable buffer zones include all-day parking lanes, right-turn lanes, curb lanes of 14 feet or greater, or, with narrower curb lanes, a 2-foot set back from the curb line extended.
- The area between the middle of the curb return and the point of intersection of the crosswalk lines is not so great so as to inadvertently invite pedestrians to wait in the street.

See S-490.0 for specific details on aligning crosswalks.

Marked crosswalks across uncontrolled approaches should be installed with discretion. Because some pedestrians may be over-confident that motorists will yield to them, a full complement of traffic controls is necessary to advise motorists of the marked crosswalk. S-481.0 is used for this situation and shows advance and intersectional signing and pavement messages. Most importantly, it requires approach red curb necessary for motorists to see pedestrians entering the roadway from a safe stopping distance.

Continental-style markings enhance the visibility of marked crosswalks and they shall be used at uncontrolled approaches on arterial and high-volume collector streets and at all midblock crossing locations, unless the crosswalk has a stamped thermoplastic pattern.

Also see S-493.0 regarding crosswalk locations.

Curves

Curves in the roadway can present special challenges to motorists, which in turn may require special traffic control devices. Where the design speed of the curve is greater than the speed limit and street lighting is provided then curve warning signing is not necessary. Otherwise, it should be provided. Where the design speed of the curve is less than the speed limit then the curve warning signs should be supplemented with advisory speed (W13-1) signs. Curves with a central angle of 90 degrees or more should be posted with W1-1a orW1-2a signs.

The table below can be used as a guide to determine the approximate design speeds and appropriate warning signing for curves:

| Approximate Design Speed | Centerline Radius | Curve Warning Signs |
|---|---|---|
| 15 mi/hr | 50 feet | W1-1 or W1-3 |
| 20 | 150 | " |
| 25 | 250 | " |
| 30 | 400 | " |
| 35 | 600 | W1-2 or W1-4 |
| 40 | 800 | " |
| 45 | 1,000 | " |
| 50 | 1,400 | " |
| 55 | 1,800 | " |

In addition to the above signing, other curve-related signs may be required. For curves where the difference between the design speed and speed limit is 10 miles per hour or greater W1-6 or W1-8 signing should be considered. W1-6 signs should be used for relatively short lengths of curve and should be installed singly facing head-on traffic. W1-8 signs should be used to emphasize longer curves and ideally should be spaced so that a minimum of three are in view throughout the curve. See S-501.0 for application of W1-8 signs.

Curves at intersections may require intersection striping as per S-405.0 and protected left-turn phasing as per S-497.0.

Transitions

Angle-point tapers are the most common method for implementing a transition. However, the curve-tangent-curve (C-T-C) method provides a smoother transition and, in some cases, provides a shorter length of transition than does tapering. On arterial streets the curve radii should be provided as shown above. In addition, the minimum length of the C-T-C tangent should be two seconds of travel time at the design speed. However, it shall not be less than 50 feet. Compound tapers shall not be used.

Where a non-arterial street has a jogged alignment at a traffic signalized intersection reverse curve cat-tracking should be provided as per S-100.0. A tangent may be deleted in this situation.

Posted speed limits and their associated minimum taper rates are shown below. The taper rates shown reflect a speed that is 5 mph above the posted speed limit. Generally, a higher five-unit increment such as 25 to 1, 30 to 1, etc. should be used, unless there would be a significant adverse impact to curb parking spaces.

| Posted Speed Limit, mph | Minimum Taper Rate |
|---|---|
| 25 | 15 to 1 |
| 30 | 20.5 to 1 |
| 35 | 26.7 to 1 |
| 40 | 45 to 1 |
| 45 | 50 to 1 |
| 50 | 55 to 1 |
| 55 | 60 to 1 |

Bikeways

Where feasible, bikeways are installed to provide a network to encourage use. Users tend to fall into four categories: recreational users, school children, college students and commuters. Many of the City's bikeways are located near recreational parks and playgrounds, areas of scenic beauty, schools and colleges and efforts are underway to develop a broader network.

Bikeways fall into three following categories:

Class 1 bikeways are off-street paths, which can be used by bicyclists and pedestrians, and usually are found in recreational areas where right-of-way is available. These tend to include parks, beach areas, and flood control channels.

Class 2 bikeways are on-street bike lanes. They are appropriate along arterial streets where it is believed that a potential user demand exists, where the street is sufficiently wide to allow the addition of bike lanes and where a policy decision has been made that bike lanes are a higher priority than any future addition of vehicle lanes.

Class 3 bikeways are signed routes with no separate lanes. They are appropriate along low volume residential and collector streets where there is inadequate width for separate bike lanes. They sometimes may be appropriate along short segments of higher volume arterial streets where they provide continuity to longer reaches of bike lanes and bike paths.

Lane Additions

Short lengths of added through lanes generally are not advisable because they must terminate abruptly, resulting in weaving sections which can compromise the safety and capacity of the adjacent lane. Thus, they should not be developed for lengths less than one-half mile. In such cases, right-turn lanes may provide a better operation.

Generally, on two-way streets added through lanes should be designed to start on the right side of the street and there should be only one lane added per block. On one-way streets added through lanes may be designed to start on the right or left side of the street, but there should be only one lane added per side per block.

Where right-turn-only lanes that are less than 18 feet wide are added, they should be preceded by 80 feet of red curb so as to allow unobstructed entry into the lane. Where there would be significant adverse impact to curb parking availability then no less than 40 feet of red curb shall be used.

Lane Reductions

Lanes are reduced by lane dropping or by mandatory turns or divergences. Both methods require a sufficient length of unobstructed downstream reception width to allow the motorist to understand the situation, seek a gap in the adjacent lane and transition from the discontinued lane to the adjacent lane, as per S-485.0 and S-491.0. Note that S-485.0 shows a series of posted warning signs and pavement arrows, while S-491.0 also shows a series of posted signs and "elephant track" striping in order to meet this objective. Mandatory turn lanes that are necessary for lane reductions should terminate at signalized arterial intersections and not at local or collector streets.

When a bottleneck restriction is being eliminated the designer should evaluate the striping for one-half mile in each direction. This evaluation will help to determine if lane reductions were necessitated by the bottleneck restriction and if the lane reduction can be eliminated, thus resulting in a consistent number of lanes.

Pavement Messages and Symbols

The size and shape of pavement message and symbols shall be consistent with those shown in the California Manual on Uniform Traffic Control Devices.

Where Stop sign control is utilized for the through and left-turn lanes on arterial and high volume collector streets "Stop" pavement messages should be installed at the limit lines and advance Stop Ahead" pavement messages and signing should be installed on the approaches to supplement R1-1 and W3-1 signing.

"Wait Here" pavement messages should be installed in conjunction with the limit lines where:

- the stopping point is not at the marked crosswalk;
- pedestrian crossings are prohibited and the speed limit is 45 miles-per-hour or greater; or
- pedestrian crossings are prohibited and the intersection has an unusual alignment, such as a skew.

Pavement arrows are installed at the beginning of turn and optional turn lanes. They also are installed mid-length in long turn lanes. See S-456.0 for specific details.

"Keep Clear" pavement messages supplement regulatory signs, such as R8-8, R10-7 and R10-6 signs. Otherwise, they are advisory and unenforceable. Some applications are shown in S-493.0.

Angle Parking

Angle parking is parking that is not parallel to the curb and is considered where the number of curb parking spaces is inadequate. Motorists using angle parking spaces must exercise additional caution when backing out, as compared with parallel curb spaces, due to limited sight distance. For this reason, they are acceptable on residential and collector streets because speeds are relatively low and motorists tend to expect local access interruptions. However, on higher speed arterial streets sight distance may be inadequate with conventional angle parking design and a backing vehicle tends to be an unexpected condition. Accordingly, angle parking is permissible on arterial streets only where there is sufficient receptive room to accommodate the backing vehicle without crossing into a lane.

On-street angle parking dimensions use off-street parking lot dimensions, as established in the Municipal Code. See S-440.0 for the dimensions associated with angle parking. The dimensions assume a 2-foot overhang beyond the curb. In addition, they provide a buffer area between the back of vehicle and the lane, so as to accommodate rear vehicle loading.

Angle parking requires additional red curb on the approaches to Stop signs, as indicated in S-481.0.

Narrowed Roadways

Roadways that suddenly narrow can present a surprise situation for unfamiliar motorists. A combination of special striping and sign is used to advise of this condition, as shown in S-444.0.

Exclusive Bus Lanes

Exclusive bus lanes are relatively rare and tend to be confined to the Central Business District. Special striping, pavement markings and signing helps alert unfamiliar motorists to their exclusive use. See S-487.0.

Speed Humps

Speed humps can be considered for use on non-arterial streets which experience speeding problems. They encourage motorists to drive slower and/or to use alternate arterial streets for through travel. Distinctive markings and signing are used to advise motorists of this special roadway feature. They are shown in S-483.0.

Signalized Jogged Intersections

The design of signalized jogged intersections is one of the most complex tasks in traffic engineering. Motorists can face the following challenges from one or more of the four approaches to a signalized jogged intersection:

- Pedestrians might not be seen early-on.
- Opposing vehicles might not be seen early-on.
- Opposing left turns interlock.
- A reverse turn maneuver versus a single turn cannot readily be distinguished.
- Motorists must determine if there is one versus two intersections and how to respond at each.

These challenges can be mitigated by providing a full complement of controls and applying them in a uniform manner. S-100.0 shows the options available for a variety of conditions. A primary consideration is whether or not to provide interior limit lines, so as to create two intersections. If the internal storage is 40 feet or more then interior limit lines are to be provided. A second consideration is whether or not to provide exclusive or semi-exclusive phasing for the jogged approaches, due to the challenges resulting from the physical separation. If opposing motorists are separated by more than 20 degrees, then some type of exclusive phasing is to be provided. Finally, a third consideration is whether the streets are offset to the left or offset to the right of each other. Offset-left locations may require slot clearance and protected left-turn phasing. Offset-right locations may require special treatment to overcome left-turn interlock. The striping, signal phasing and placement of signal heads is determined from the above considerations and the specific geometry of the intersection.

Freeway Guide Signs

Freeway guide signs generally fall into two categories - "lane assignment" and "action".

Due to the various types of on-ramp configurations, some freeways can be entered from the right lane while others can be entered from the left lane. Accordingly, multi-lane streets having access to freeways shall be posted with "lane assignment" signs. "Action" freeway guide signs are an essential follow-up to "lane assignment" signs.

Generally, overhead signing is the most effective means of communicating freeway access to motorists. Roadside guide signing on the right or in a raised median can be used where overhead signing is not immediately feasible. However, roadside guide signing has limited area for text and may require more signs for communicating lane assignment. See S-476.1 which shows the maximum sign area that may be installed for various postings.

The various formats for freeway guide signing are shown in S-418.5 and S-418.6.

Overhead Guide Signs

Overhead guide signs provide a high degree of visibility to forewarn and direct motorists on multilane approaches of access or lane assignment conditions that generally cannot be anticipated. Conditions include:

- Divergent arterial roadways
- Skewed arterial approaches
- Unshadowed left-turn lanes
- Arterial grade separations, including freeways
- Bus and/or carpool lanes
- Street name or sign route changes
- End of one-way operation

These situations are illustrated in S-418.6.

Street Name Signs

In the City of Los Angeles street name signs shall be posted at all intersections on the near right of each approach. The format is shown in S-438.0. The various applications are shown in S-221.3. At signalized intersections supplemental large street name signs are to be posted as per S-486.0.

One-Way Signs

At signalized intersections with one-way streets the large supplemental street name signs are to be further supplemented with large R6-1 (One-Way) signs as shown in S- 473.0.

End of Roadway

W31 (CA) (End) signs and OM4-3 signs should be used at the termini of streets lacking cul-de-sac designs and on streets with cul-de-sac designs, where the frontage of the cul-de-sac is not fully developed. See S-446.0.

At the beginning of the block preceding the terminus a W14-1 (Dead End) sign should be posted. In addition, striping, if any, should be terminated 100 feet or more in advance to provide another clue as to its discontinuity.

Roadway Objects

Non-yielding fixed objects within the roadway should be avoided wherever feasible, so as to provide a forgiving roadway environment. However, where not feasible nonyielding fixed objects should be provided with impact attenuators.

Landscaping

Trees within the public right-of-way should be located so that the visibility of traffic signs and traffic signals is not impaired when the trees mature.

New roadside trees shall not be planted within 50 feet of the approach to a Stop sign or signalized intersection nor within 25 feet of the departure from such an intersection.

Landscaped islands should be considered only on straight roadway alignments, or large radius curves. The minimum median width for islands with trees or other fixed objects shall be 7 feet (6-foot planting space). The island curb shall be designed to provide a striped centerline or edge line at least one-foot from the curb, with a preferred offset of two feet. The island ends shall be rounded, with a half circle curve not less than 2 feet in radius. The minimum length of an individual island should be 100 feet.

Plantings on islands should be limited to a maximum mature height of 3 feet wherever driver visibility is required, particularly near traffic signals or other traffic controls. Trees, monument signs or other streetscape features should be located no closer than 50 feet from the nose of the median island, if it is near an intersection. Planted trees should be centered between the two sides of the island.

City Limit and Community District/Name Signs

S-502.0 shows the standard format for City Limit ("City of Los Angeles") and Community Name/District signs. In some cases, neighborhood groups may desire distinctive, unique signing. Specifications and guidelines are shown for these signs in S-502.0. The Department will allow these signs to be posted in accordance with the provisions in S-502.0 and a Street Use Permit. However, due to their unique nature and the multitude of designs, the Department will not inventory nor maintain them.

**Table 1**
**Application of Striping and Pavement Markings**

| Striping/Marking Component | Application | Reference to California MUTCD |
|---|---|---|
| Skip Centerline | Allows passing of opposing traffic on two lane streets. | Figure 3A-101 (CA), Detail 1 and Figure 3B-1, a |
| Partial Passing Centerline | Allows passing of opposing traffic generally on two-lane streets from one direction only. | Figure 3A-103 (CA), Detail 15 and Figure 3B-3, a |
| Double Yellow Centerline | Prohibits passing of opposing traffic, but allows crossing. | Figure 3A-104 (CA), Detail 21 and Figure 3B-2, a |
| Striped Median | Striping that separates opposing traffic flows and prohibits passing and crossing. Internal separation must be at least two feet for enforcement. | Figure 3A-107 (CA), Detail 28 and Figure 3B-4 |
| Two-Way Left-Turn Lane (2WLTL) | Provides midblock left-turn storage. May be used at non-signalized intersections to provide storage for both intersectional left turns and nearby driveways from the other direction. | Figure 3A-108 (CA), Detail 31 and Figure 3B-7 (CA) |
| Left Edge Line | Delineates the left edge of roadway or median and is parallel to the edge of roadway. | Figure 3A-105 (CA), Detail 24 |
| Left Channelization Line | Delineates left edge of travel path where it is not parallel to the edge of roadway. | Figure 3A-104 (CA), Detail 21 |
| Cigar Nose | Delineates a tapered striped median at "T" intersection crossings. It is commonly used where the left-turn radius from the stem roadway of the "T" is less than 70 feet or where it is not necessary to provide left-turn storage into driveways near the top of the "T" via a 2WLTL. | Figure 3B-2, b |
| Reversal | Identifies and provides the reverse curve travel path into a unidirectional left-turn lane or a 2WLTL. | Figure 3B-2, b |
| Left Edge Cross Hatch | Provides emphasis in striped medians or between the left edge of roadway and Left Channelization Line or Left Edge Line, at least 5 feet in width. Also, it clarifies that the area is not part of the traveled way. Is aligned at 45 degrees diagonally forward with respect to the direction of travel. | Figures 3B-5 |
| Reversible Lane Marking | Delineates a lane that is reversed in directional flow during various times of the day. | Figure 3B-6 |
| Lane Line | Separates concurrent through lanes. | Figure 3A-102 (CA), Detail 8 |
| Barrier Line | Separates turn lanes from through lanes or other turn lanes. | Figure 3A-112 (CA), Detail 38A |
| Right Edge Line | Delineates the right edge of roadway and is parallel to the edge of roadway. | Figure 3A-106 (CA), Detail 27B |
| Right Channelization Line | Delineates right edge of travel path where it is not parallel to the edge or roadway. | Figure 3A-112 (CA), Detail 38A |

**Table 1 - Application of Striping and Pavement Markings (Cont'd)**

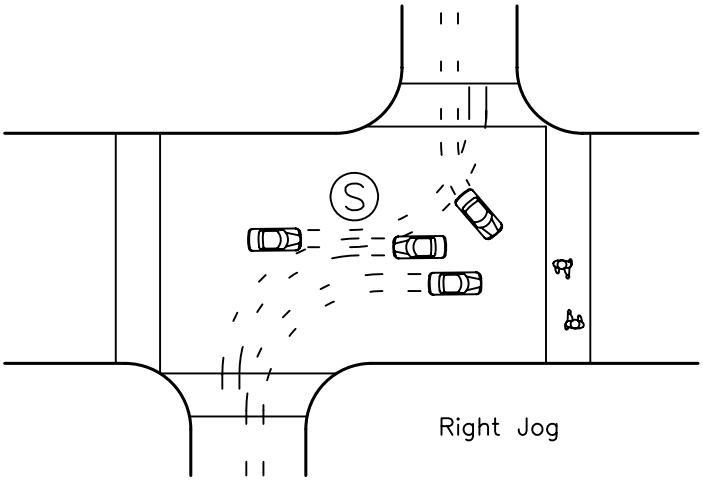
| | | |
|---|---|---|
| Striped Island | Physically separates converging or diverging traffic flows and prohibits vehicular crossing. Internal separation must be at least 2 feet for enforcement. | Figure 3B-8 (CA), 3B-9 (CA), 3B-12 and 3B-15 |
| Lane Drop Line or "Elephant Track" | Transition striping for an entrapped-turn lane or an advance turn lane. See S-491.0. | Figure 3A-111 (CA), Detail 37B and Figure 3B-11 (CA) |
| Bike Lane Line | Separates the travel path between bicycles and motor vehicles. The Bike Lane Line is broken at least 96' upstream of the intersection in order to identify where right turning motor vehicles may cross the bicycle lane. | Figure 3A-112 (CA) Details 39 and 39A, and Figure 9C-6 |
| Right Edge Cross-Hatch | Provides emphasis in striped islands or between the right edge of roadway and Right Channelization Line or Right Edge Line, at least 5-feet in width. Also, it clarifies that the area is not part of the traveled way. Is aligned at 45 degrees diagonally forward with respect to the direction of travel. See S-444.0 and 485.0 | (Not Shown) |
| Chevron | Provides emphasis within a striped island or a gore area at least 5 feet in width where concurrent traffic travels on either side. See S-493.0, Sheets 5 and 6 of 7. | Figure 3B-12 and 3B-15, c |
| Hook (Wrap) and Bar | Used at the downstream end of a Barrier Line for a Trap Turn Lane, where the adjacent lane is a through lane. Where the adjacent lane is a concurrent turn lane the Bar is not used. See S-491.0 and S-405.0. | Figure 3B-13, d |
| Crosswalk (Marked) | Emphasizes the legal crosswalk at signalized intersections, indicates a preferred legal crosswalk at non-signalized intersections, and identifies a legal marked crosswalk where no legal unmarked crosswalk exists. Parallel lines, 12" wide generally are 15 feet or 10 feet apart, with minimum width of 10 feet. See S-490.0 and S-493.0. | Figure 3B-17 |
| Crosswalk (Marked), Ladder Style | Used at uncontrolled crossings on arterial streets, high volume collector streets and midblock crossings with 2-foot-wide run markings. See S-481.0. | (Figure 3B-19 (CA) |
| Crosswalk (Marked), Continental | Used at uncontrolled crossings on arterial streets, high volume collector streets and midblock crossings with 2-foot-wide run markings. See S-481.0. | Figure 3B-19 |
| Limit Line | Indicates the stopping point at Stop signs and traffic signals without crosswalks. Is 12 inches wide. See S-493.0. | Figure 3B-23 (CA) |

| Table 1 - Application of Striping and Pavement Markings (Cont'd) | | |
|---|---|---|
| Yield Line | A layout of triangular markings which indicates the point at which to yield in conjunction with a Yield sign. | Figure 3B-16 (CA) and Figure 3B-17 (CA) |
| Railroad Stop Line | Indicates the stopping point adjacent to railroad crossings. | Figure 8B-7 (CA) |
| Turn Arrow | Emphasizes a mandatory turn lane or optional turn lane not otherwise permitted. It must be accompanied by complementary regulatory signs in order to be enforceable, except for conventional right-turn or left-turn pocket lanes. See S-456.0. | Figures 3B-24 (CA), Types IV, VII and VIII arrows |
| Intersection Strip or "Cat Track" | Clarifies travel paths within intersections for multiple turns, or a curved or tapered travel path. Applicable to Double Yellow Centerlines, Barrier Lines, Lane Lines and Bike Lanes. See S-405-0. | Figure 3A-112 (CA), Details 40 and 41 |
| Speed Hump Marking | Emphasizes a speed hump. See S-483.0. | Figure 3B-29 |
| Advanced Speed Hump Markings | Provides advanced warning to drivers of an upcoming speed hump. | Figure 3B-31 |
| Parking Stall Marking | Identifies parallel curb parking spaces in parking meter zones and when there is high turnover. It provides orderly and efficient use of available curb space. See S-404.1. | Figure 3B-21 (CA) |
| Diagonal Parking Stall Markings | Used in special situations where there is a high demand for curb parking and additional spaces can be provided by diagonal stalls. See S-440.0. | (Not Shown) |
| Lane Drop Arrow | Identifies the discontinuation of a through lane at a mid-block location. See S-485.0. | Figure 3B-24 (CA), Types VI arrow and Figure 3B-14 (CA), Sheet 1 of 3 |

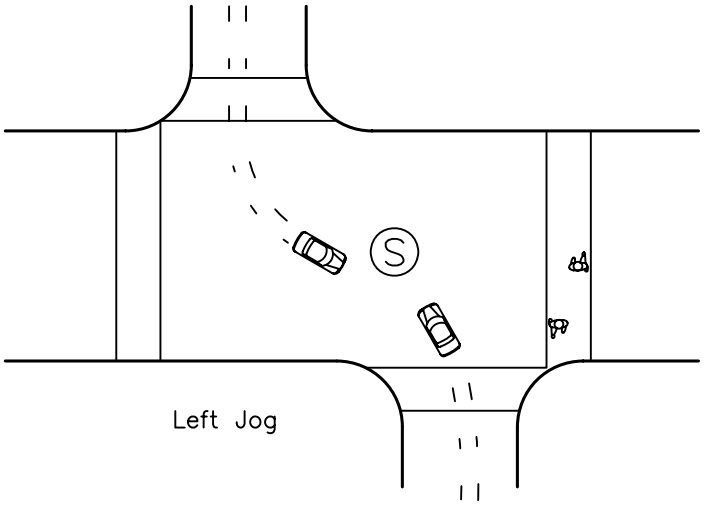
## Appendix of Standard Drawings

| Drawing No. | Title | Sheets | Date |
|---|---|---|---|
| S-100.0 | Operation and Design of Signalized Jogged Intersections | 12 | 06-24-10 |
| S-221.3 | Street Name Sign Posting | 4 | 01-21-05 |
| S-401.0 | Typical Major Highway Striping Treatments | 5 | 02-24-06 |
| S-401.1 | Typical Secondary Highway Striping Treatments | 2 | 11-18-99 |
| S-404.1 | On-Street Parallel Parking Stalls | 1 | 08-05-00 |
| S-404.2 | On-Street Motorcycle Parking Stalls | 3 | 12-03-20 |
| S-404.3 | Shared Mobility Parking (SMP) Zones On-Street and Sidewalk | 3 | 11-07-19 |
| S-405.0 | Intersection Striping | 2 | 07-29-09 |
| S-410.4.1 | Parking Meter Post Installation Dirt or Asphalt Setting | 1 | 12-03-20 |
| S-410.4.2 | Parking Meter Post Installation Concrete Setting | 1 | 12-03-20 |
| S-410.4.3 | Parking Meter Post Installation on Concrete Bridge | 1 | 12-03-20 |
| S-414.4 | Left Turn and Median Channelization Pavement Markings | 7 | 02-13-06 |
| S-418.5 | Roadside Freeway Guide Signing | 9 | 07-27-10 |
| S-418.6 | Overhead Guide Signing | 16 | 07-27-10 |
| S-436.0 | RXR Advance Marking | 1 | 05-08-08 |
| S-438.0 | Street Name Signs | 9 | 07-21-10 |
| S-440.0 | On-Street Angle Parking Stalls | 2 | 09-18-20 |
| S-444.0 | Narrowed Roadway Delineation (Without Lane Drop) | 1 | 09-20-05 |
| S-446.0 | Sign Posting for Street Termini | 1 | 01-21-05 |
| s-452.0 | Sign Post Installation | 1 | 07-03-08 |
| S-454.2 | Pedestrian Barricade | 1 | 07-20-06 |
| S-456.0 | Typical Placement of Pavement Turn Arrows | 1 | 03-03-05 |
| S-473.0 | One-Way Arrow Mastarm Mounted | 1 | 02-22-89 |
| S-476.1 | Post Detail for Large Roadside Signs | 1 | 07-03-08 |
| S-481.0 | Traffic Controls for Marked Crosswalks on Uncontrolled Approaches | 4 | 02-20-20 |
| S-481.1 | Continental Crosswalks on Controlled Approaches | 1 | 11-28-12 |
| S-483.0 | Speed Hump | 4 | 06-27-07 |
| S-483.1 | Raised Crosswalks | 3 | 02-20-20 |
| S-485.0 | Lane Reduction | 1 | 11-17-09 |
| S-486.0 | Mastarm Mounted Street Name Signs | 2 | 03-04-05 |
| S-487.0 | Exclusive Bus Lane Pavement Markings | 1 | 11-15-01 |
| S-490.0 | Crosswalk Alignment | 2 | 10-03-05 |
| S-491.0 | Advance Turn Lanes | 1 | 02-13-06 |
| S-493.0 | Location of Limit Lines and Crosswalks | 7 | 07-24-09 |
| S-494.0 | Channelized Right Turns | 5 | 02-13-06 |
| S-494.1 | Channelized Right Turns with Raised Crosswalks | 2 | 02-20-20 |
| S-497.0 | Restricted Sight Distance Criteria for Protected Left-Turn Phasing | 7 | 12-26-00 |
| S-498.0 | Pavement Marking – PATH | 1 | 01-30-98 |
| S-499.0 | Guide Sign With Logo | 1 | 01-21-05 |
| S-500.0 | Pavement Marking _ STOP (for bike paths) | 1 | 07-18-00 |
| S-501.0 | Supplemental Curve Warning Signing | 2 | 10-04-05 |
| S-502.0 | Community and Neighborhood Signs | 2 | 02-12-02 |
| S-506.0 | Commemorative Signs | 1 | 08-21-00 |
| S-507.0 | Pavement Marking (left turn arrow for bike path) | 1 | 07-10-01 |
| S-508.0 | Neighborhood Watch Signs | 1 | 11-04-09 |
| S-509.0 | Pavement Marking - HUMPS | 1 | 07-13-04 |
| S-510.0 | No Parking Anytime Sign | 1 | 10-06-05 |
| S-511.0 | Street Cleaning Sign | 1 | 01-29-07 |

| Drawing No. | Title | Sheets | Date |
|---|---|---|---|
| S-512.0 | Red Flag Days - No Parking Sign | 1 | 07-21-10 |
| S-513.0 | No Parking - Unhitched Trailers Signs | 1 | 01-29-07 |
| S-514.0 | Oversize Vehicles No Parking Sign | 1 | 08-20-10 |
| S-515.0 | Tow Away No Stopping Peak Period Sign | 4 | 07-21-10 |
| S-517.0 | Typical Pavement Marking Installations | 1 | 12-11-08 |
| S-518.0 | Typical Street Closure for Farmers' Market | 1 | 11-17-09 |
| S-519.0 | Typical Street Closure for Neighborhood Block Party | 1 | 12-10-09 |
| S-520.0 | Council District Field Office Signs | 1 | 02-04-10 |
| S-521.0 | Tow Away No Stopping In This Area Sign | 1 | 07-21-10 |
| S-522.0 | Tow Away No Stopping Any Time Sign | 1 | 07-21-10 |
| S-523.0 | Bus Bulbs | 4 | 02-20-20 |
| S-524.0 | Mini-Roundabouts and Neighborhood Traffic Circles | 4 | 02-20-20 |
| S-525.0 | Crossing Islands | 5 | 02-20-20 |
| S-526.0 | Truck Aprons | 1 | 02-20-20 |
| S-527.0 | Curb Extensions | 3 | 02-20-20 |




- Pedestrians might not be seen early–on by right–turning motorists.
- Opposing vehicles might not be seen early–on.
- Opposing arterial left turns might interlock.




- Pedestrians might not be seen early–on by left–turning motorists.
- Opposing vehicles might not be seen early–on.
- Opposing left turns interlock.
- Difficult to determine if motorist is making a left turn or jogged through move.
- So–called opposing moves momentarily can be positioned at approximatly right angles to each other.

## Operational Challenges for the Minor Street Approaches to Signalized Jogged Intersections

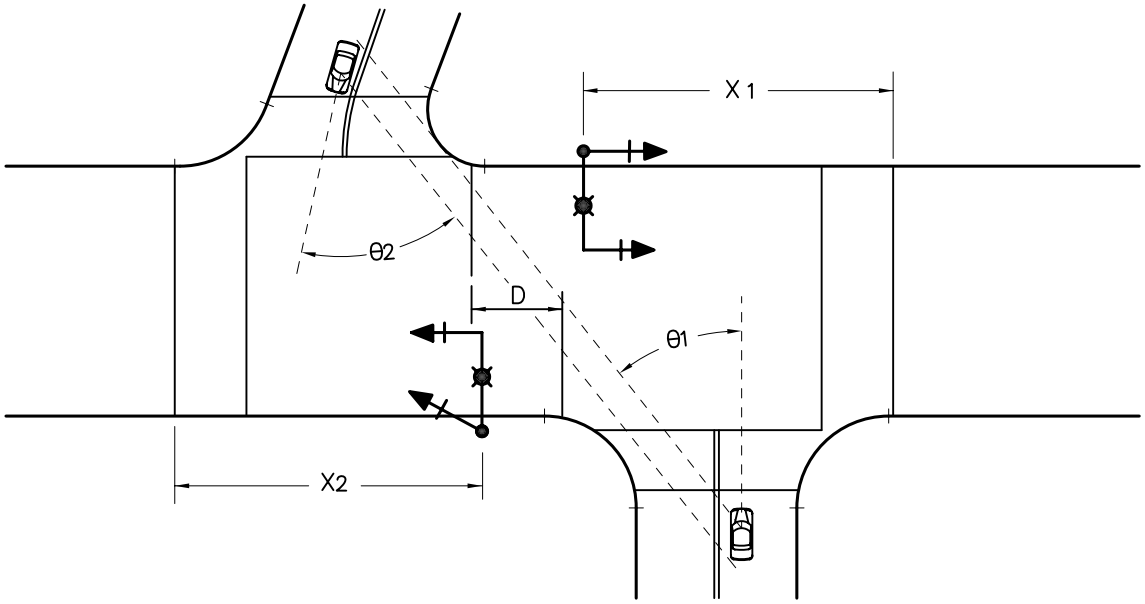
To select the most appropriate design for minimizing the above challenges see Sheet 2.

| | | | |
|---|---|---|---|
| DWN | EC | 6–10–10 | Title: Operation and Design of Signalized jogged Intersections (1/12) |
| CKD | | | |
| T. E. | | | |
| Sr. T. E. | | | CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION |
| Pr. T. E. | | | |
| Approved June 24, 2010 for John E. Fisher Rita L. Robinson, General Manager | | | Drawing No. S–100.0 |

$\theta_1$ & $\theta_2$ = angle between motorist looking straight ahead and back of opposing vehicle

$X_1$ & $X_2$ = Distance along arterial from the crosswalk line or limit line to the signal pole or BCR at the far side of the first intersecting leg.

D = Internal storage distance between real or hypothetical interior limit lines. For minor offset D may be a small or negative number.




To select the most appropriate design:

1) Determine if there is a Left Jog or a Right Jog
   See Sheets 3, 5, 7, 9, 10 and 11 for left jogged intersections and Sheets 4, 6, 8 and 12 for right jogged intersections.

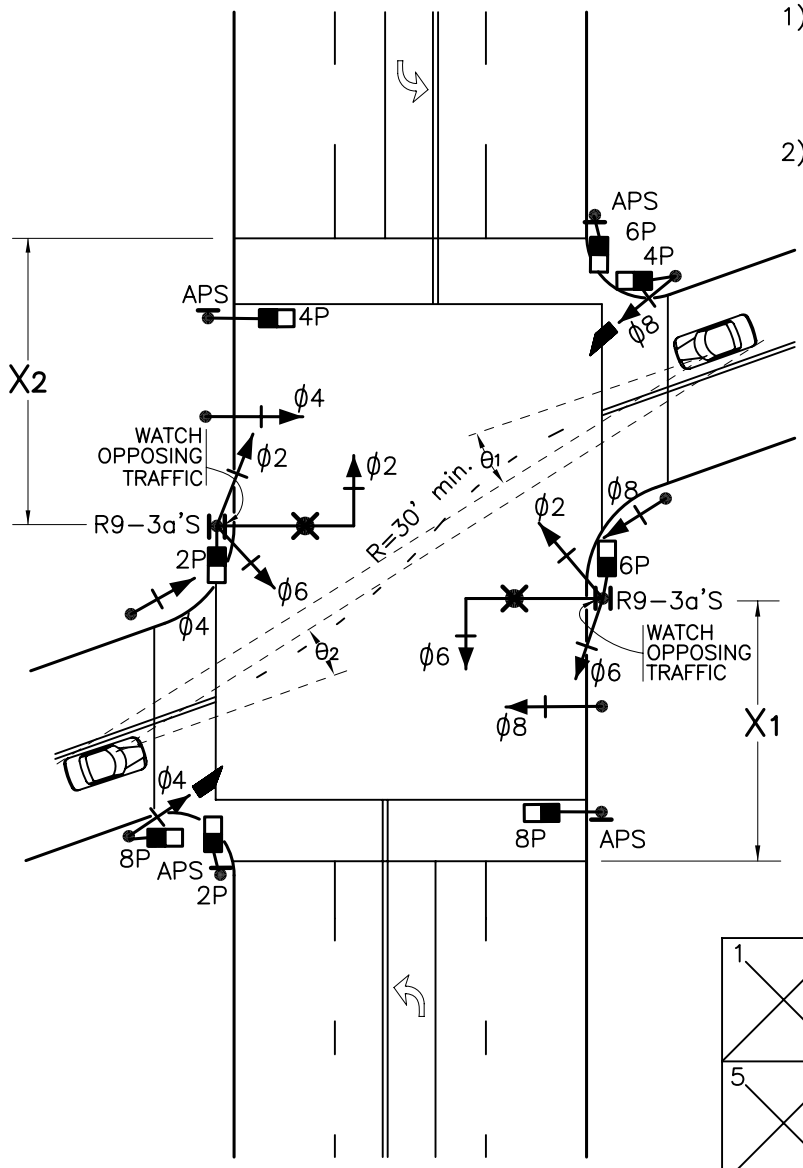
2) Determine D
   If D≥40' then interior limit lines are required. If D<40' then the jog is operated as a single intersection. See Sheets 10, 11 and 12 for intersections with interior limit lines and Sheets 3 through 9 for single intersection operation.

3) Determine $\theta_1$ and $\theta_2$
   If $\theta_1$ or $\theta_2$ is >20° and D<40' then some form of opposed phasing is required for the minor street. See Sheets 7 through 9 for situations requiring opposed phasing. See Sheets 3 through 6 for situations for which concurrent phasing is adequate. Note that for Sheets 4 and 6 opposed phasing is required if diagonal crosswalks are not feasible, due to the unexpected presence of pedestrians crossing the path of right–turning motorists.

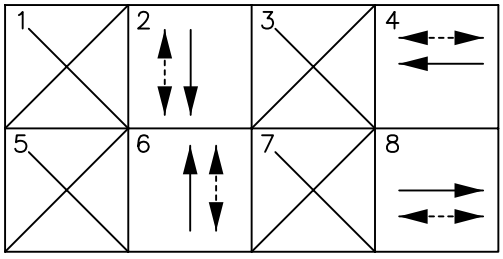
4) Determine $X_1$ and $X_2$
   If $X_1$ and $X_2$≥50' and D<40' then only internal mastarms are to be used on the arterial street. If $X_1$ and X <50' then only external mastarms are to be used on the arterial street. See Sheets 3, 4, 7, and 8 for internal mastarm designs and Sheets 5, 6 and 9 for external mastarm designs.

Note:
The drawings on Sheets 3 through 12 are not intended to show the required safety lighting design. Final lighting designs may not include the depicted mastarm lighting and and likely will include other lighting locations not shown.

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Operation and Design of<br>Signalized jogged Intersections (2/12) | Drawing No.<br>S-100.0 |
|---|---|---|

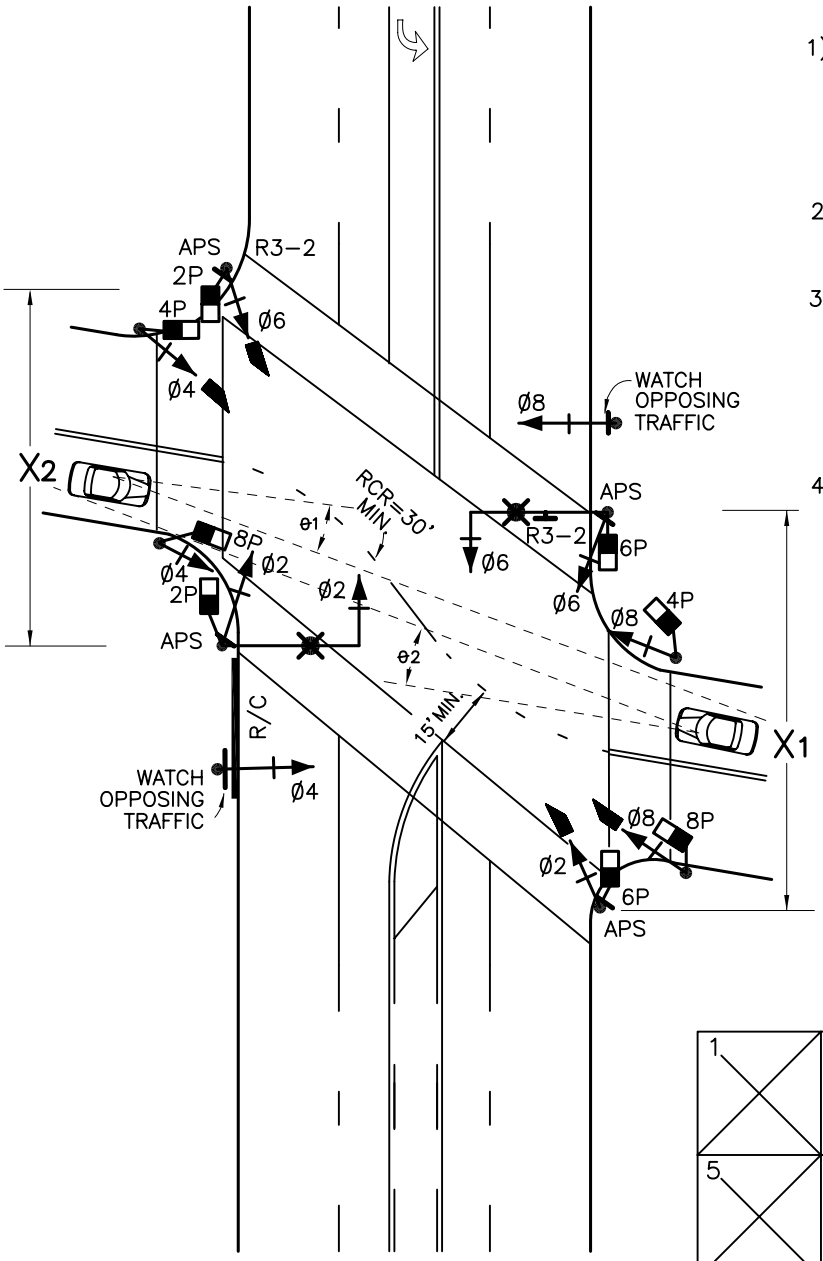



1) Install where:
   a) D<40'; and
   b) $\theta_1$ and $\theta_2 \leq 20°$ ; and
   c) $X_1$ and $X_2 \geq 50'$
2) The beveled visors shown should be installed only where cross-traffic motorists would see 50% or more of the lens area of a far-side signal as they wait at the limit line. PV heads should be used if beveled visors would not be adequate.

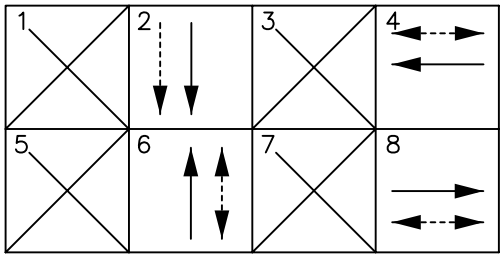



Left jogged Intersection
Internal Mastarms

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: Operation and Design of Signalized jogged Intersections (3/12) | Drawing No. S-100.0 |
|---|---|---|



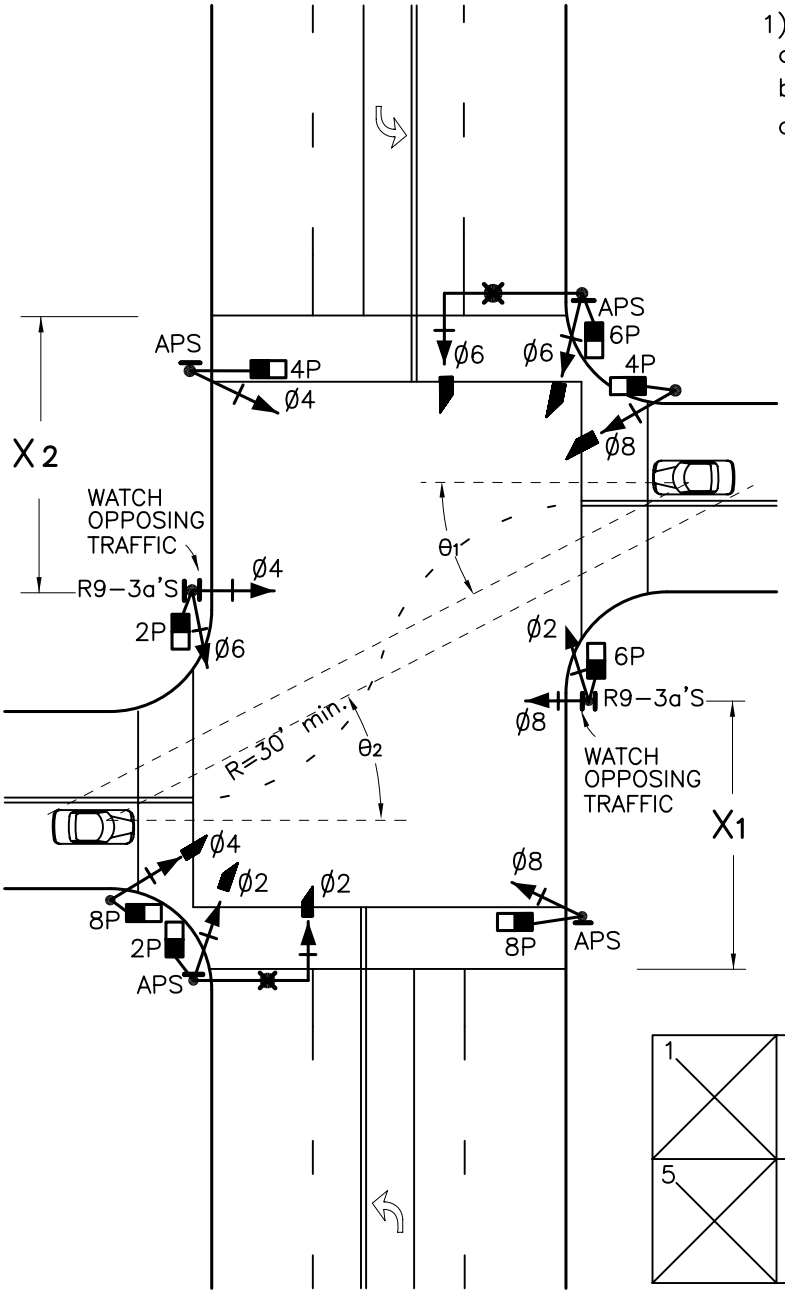

1) Install where:
   a) D<40'; and
   b) $\theta_1$ and $\theta_2$ $\leq$20° ; and
   c) $X_1$ and $X_2$ $\geq$50' ; and
   d) Diagonal crosswalks are feasible
2) Where diagonal crosswalks are not feasible, use opposed phasing, as shown on Sheet 8.
3) The treatment to allow arterial left turns in one direction and prohibited in the other direction is an operational option. For other typical left turn operations on the arterial street see Sheets 6 and 8.
4) The beveled visors shown should be installed only where cross–traffic motorists would see 50% or more of the lens area of a far–side signal as they wait at the limit line. PV heads should be used if beveled visors would not be adequate.

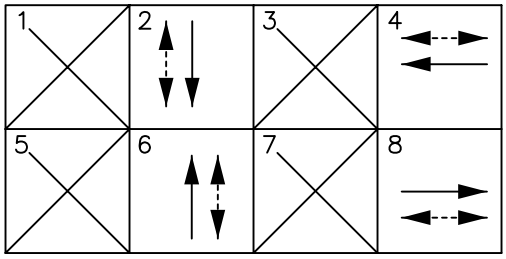



Right jogged Intersection
Prohibited Left Turn

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Operation and Design of<br>Signalized jogged Intersections (4/12) | Drawing No.<br>S-100.0 |
|---|---|---|

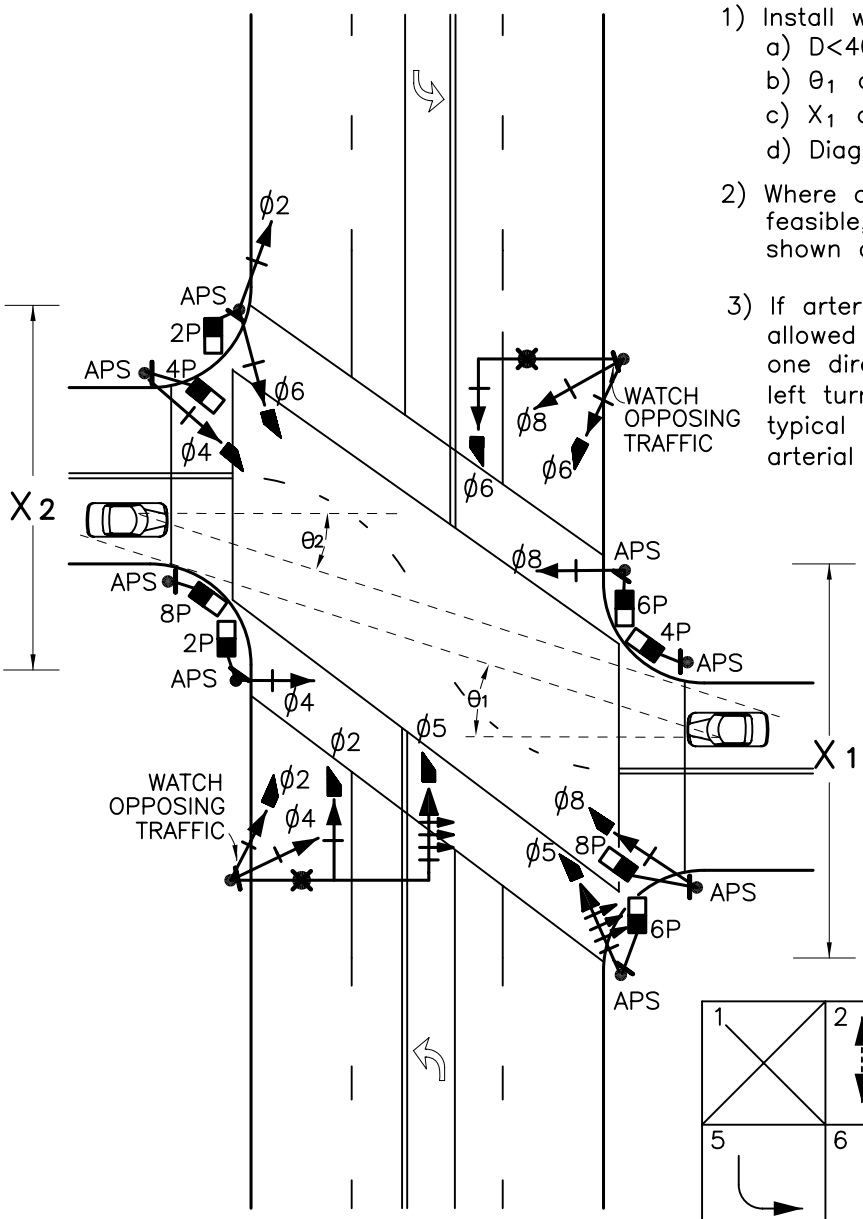
1) Install where:
a) D<40'; and
b) $\theta_1$ and $\theta_2$ $\leq$20° ; and
c) $X_1$ and $X_2$ <50'




Left jogged Intersection
External Mastarms

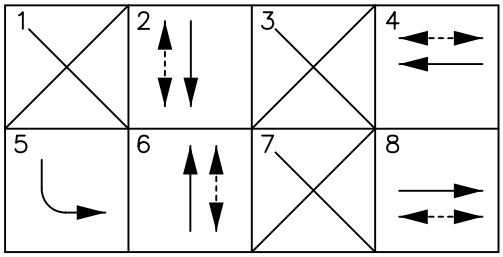
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Operation and Design of<br>Signalized jogged Intersections (5/12) | Drawing No.<br>S-100.0 |
|---|---|---|




1) Install where:
   a) D<40'; and
   b) $\theta_1$ and $\theta_2 \leq 20°$ ; and
   c) $X_1$ and $X_2$ <50' ; and
   d) Diagonal crosswalks are feasible

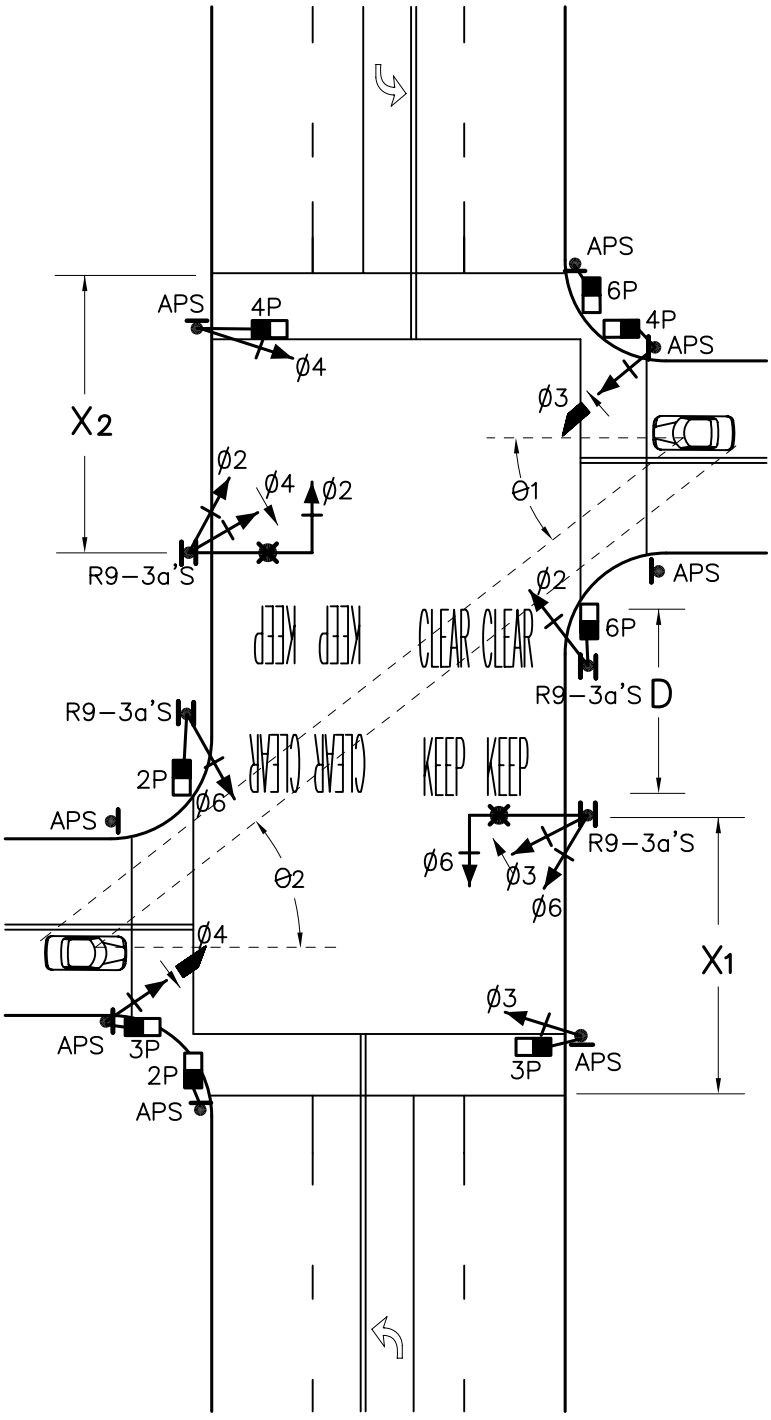
2) Where diagonal crosswalks are not feasible, use opposed phasing, as shown on Sheet 8.

3) If arterial left turns are to be allowed in both directions, at least one direction shall have protected left turns, as shown. For other typical left turn options on the arterial street see Sheets 4 and 8.



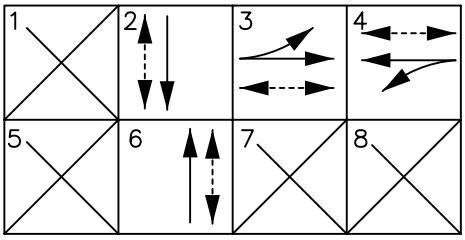

Right jogged Intersection
Protected Left Turn

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Operation and Design of<br>Signalized jogged Intersections (6/12) | Drawing No.<br>S-100.0 |
|---|---|---|

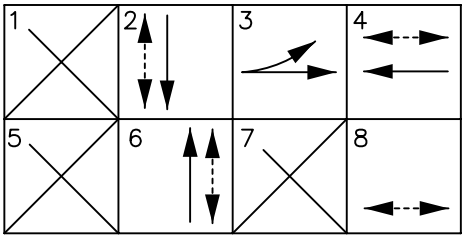



Left jogged Intersection
Internal Mastarms/Opposed Phasing

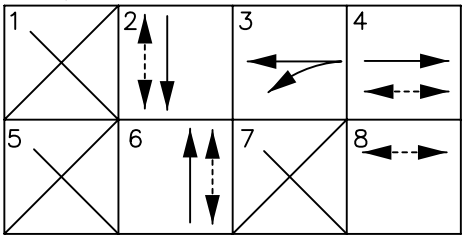
1) Install where:
   a) D<40'; and
   b) $\theta_1$ or $\theta_2$ >20°
2) The alternate signal phasing schemes shown below, with corresponding signal head modifications (not shown), should be used only where the intersection would be operating near capacity with the more conventional opposed phasing. Generally, the alternate phasing would be necessary where pedestrian calls occur on most cycles. Where used, the lighter volume side street approach should have the left arrow indications. If one or both of the crosswalks across the arterial street can be eliminated, then the intersection operation can have more efficient phasing than shown.
3) Where D≥20', "KEEP CLEAR" pavement markings should be installed between the cross street legs, as shown.



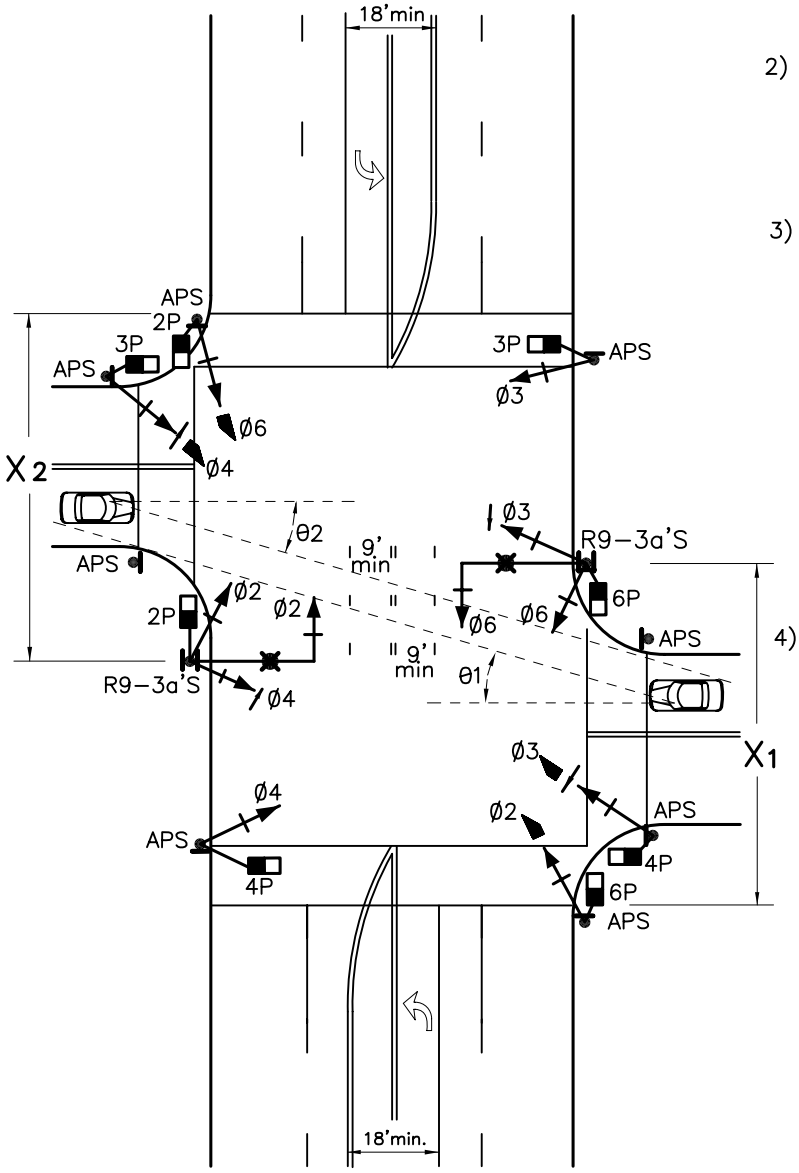

Alternate 1




Alternate 2

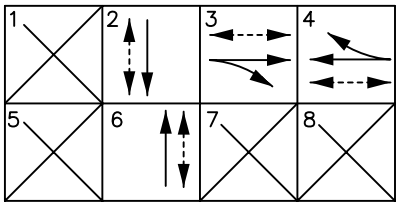



| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Operation and Design of<br>Signalized jogged Intersections (7/12) | Drawing No.<br>S-100.0 |
|---|---|---|

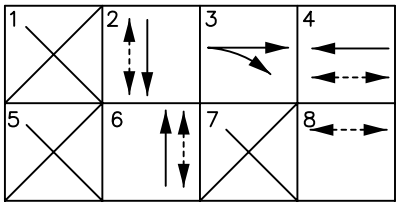



**Right Jogged Intersection**
**Internal Mastarms**
**Opposed Phasing**

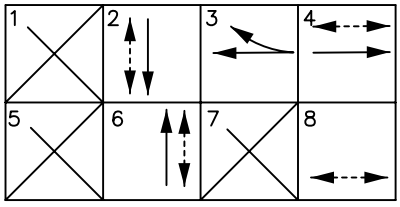
1) Install where:
   a) D<40'; and
   b) $\theta_1$ or $\theta_2$>20°
   c) $X_1$ and $X_2 \geq 50'$
2) The arterial, cat-tracked side-by-side left-turn lanes, as shown, are possible only where the painted median channelization is at least 18' wide. For other typical left turn options on the arterial street see Sheets 4 and 6.
3) The alternate signal phasing schemes shown below with corresponding signal head modifications should be used only where the intersection would be operating near capacity with the more conventional opposed phasing. Generally, the alternate phasing would be necessary where pedestrian calls occur on most cycles. Where used, the lighter volume side street approach should have the right arrow indications. If one or both of the crosswalks across the arterial street can be eliminated, then the intersection operation can have more efficient phasing than shown.
4) Where D≥20' "KEEP CLEAR" pavement markings should be installed between the cross street legs, as shown in Sheet 7.




Alternate 1

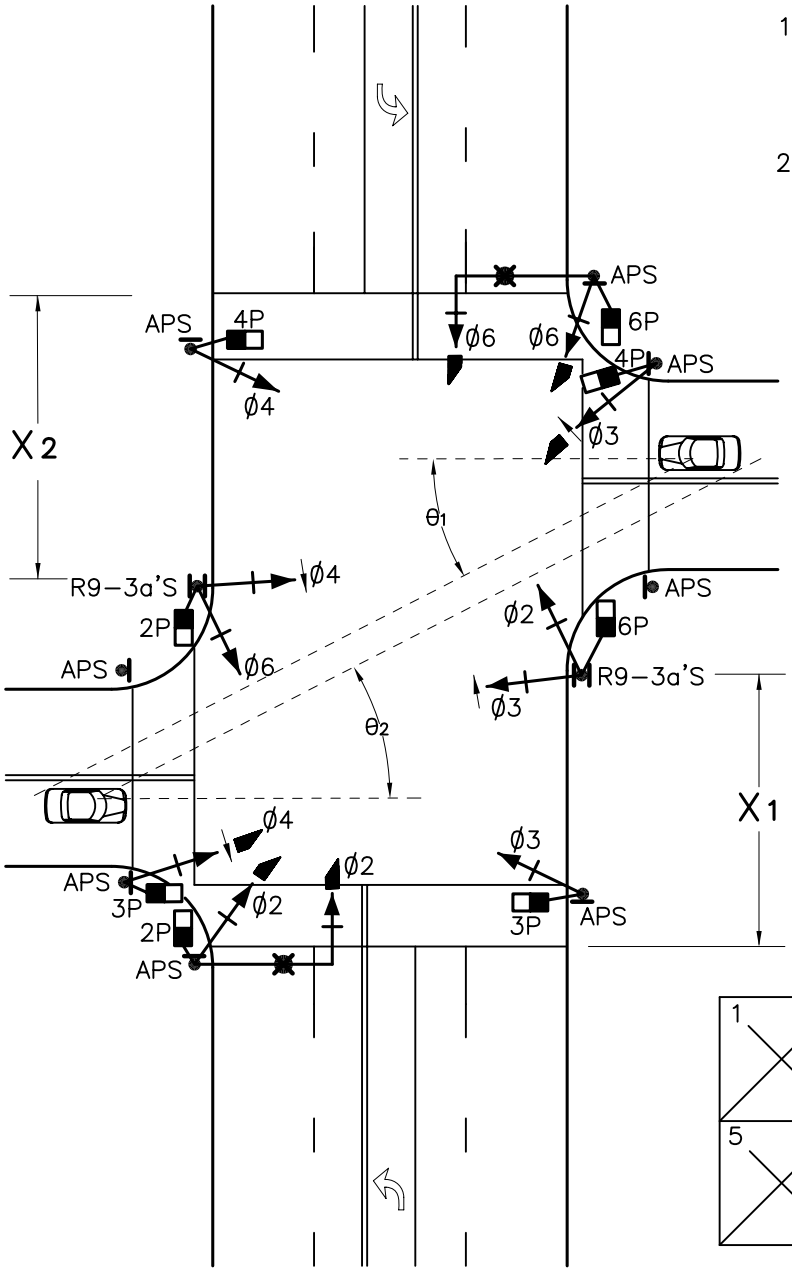


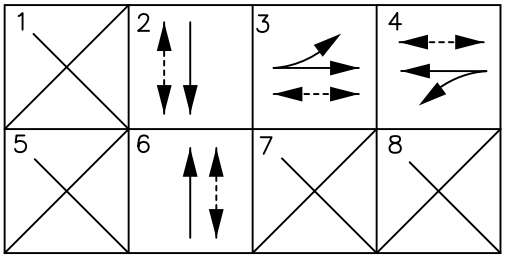

Alternate 2




| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Operation and Design of<br>Signalized jogged Intersections (8/12) | Drawing No.<br>S-100.0 |
|---|---|---|

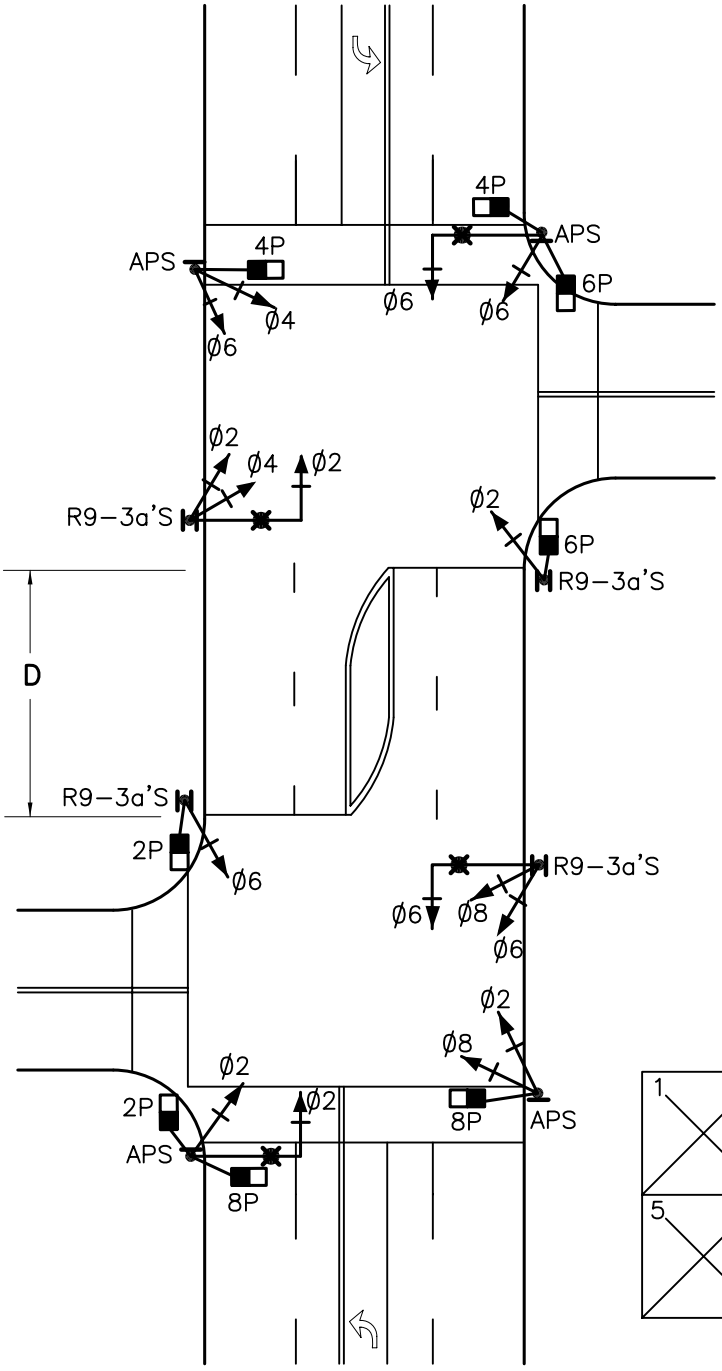
1) Install where:
   a) D<40'; and
   b) $\theta_1$ or $\theta_2$ >20° ; and
   c) $X_1$ and $X_2$ <50'
2) See Sheet 7 for alternate signal phasing schemes.



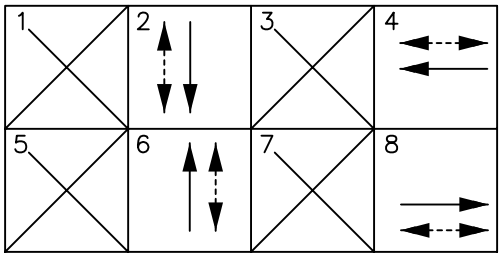




Left jogged Intersection
External Mastarms/Opposed Phasing

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Operation and Design of<br>Signalized jogged Intersections (9/12) | Drawing No.<br>S-100.0 |
|---|---|---|

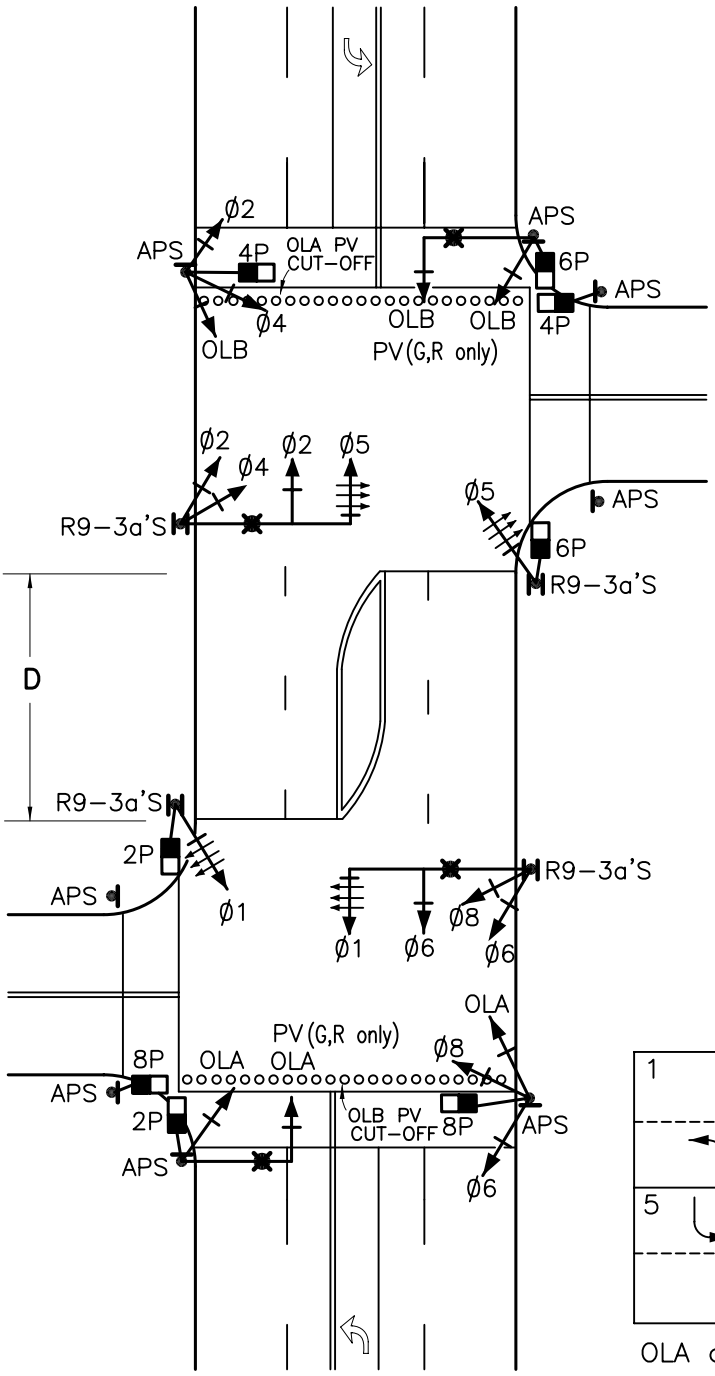



Install where D≥40'




Left jogged Intersection
Interior Limit Lines

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Operation and Design of<br>Signalized jogged Intersections (10/12) | Drawing No.<br>S-100.0 |
|---|---|---|

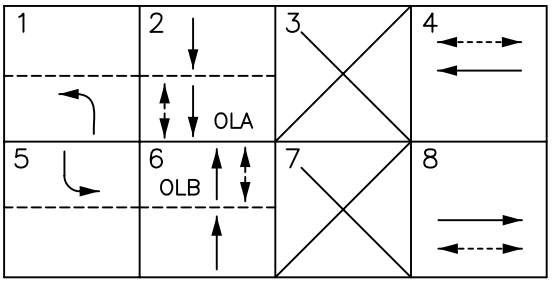



Left jogged Intersection
Interior Limit Lines
Slot Clearance

Install where:

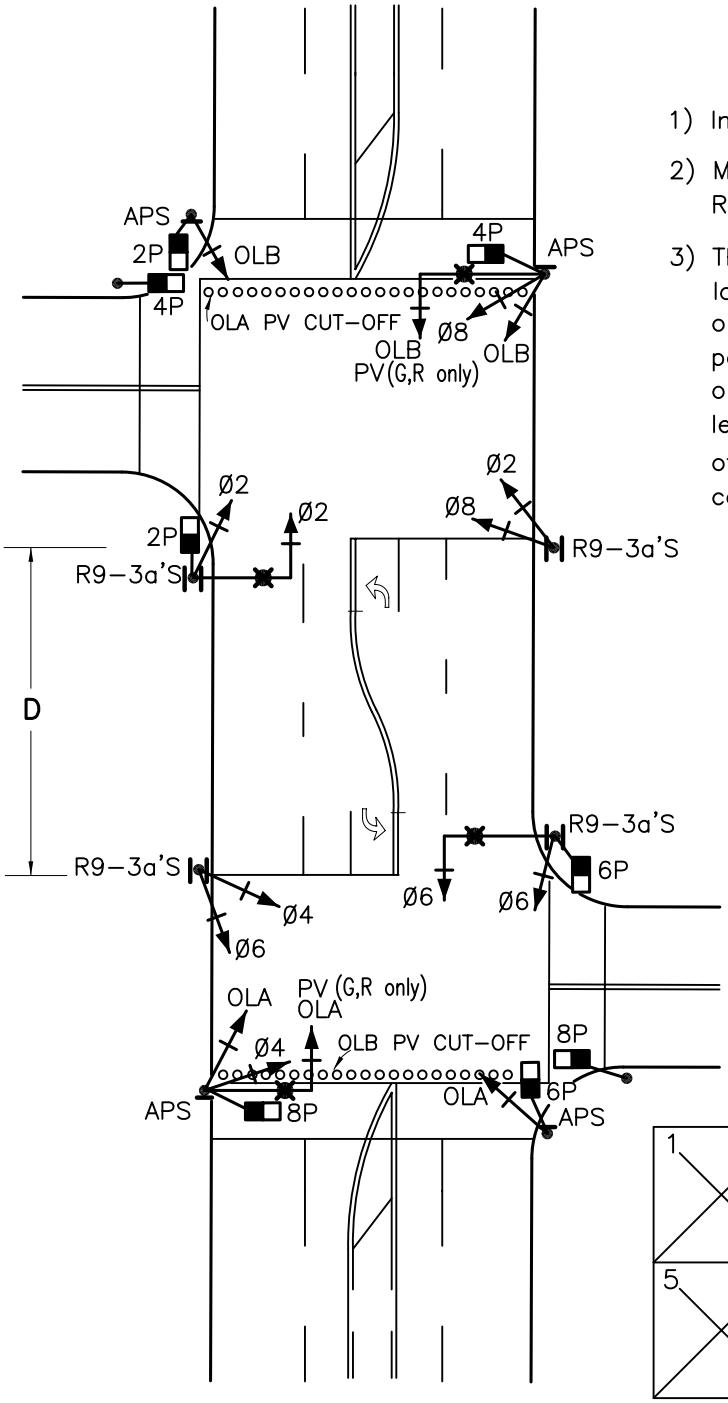
a) 40'≤D≤200' and

b) There have been 4 or more Right Angle accidents or 4 or more Left Turn accidents in a recent 12 month period at one of the intersections involving vehicles departing from the interior limit line.



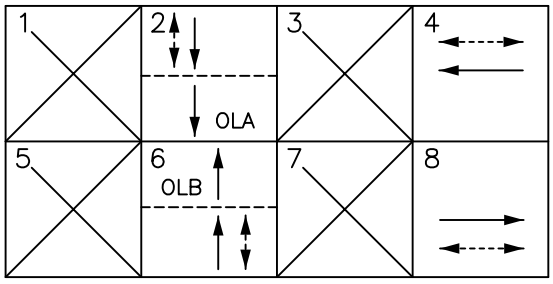

OLA and OLB include slot clearance

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: Operation and Design of Signalized jogged Intersections (11/12) | Drawing No. S-100.0 |
|---|---|---|



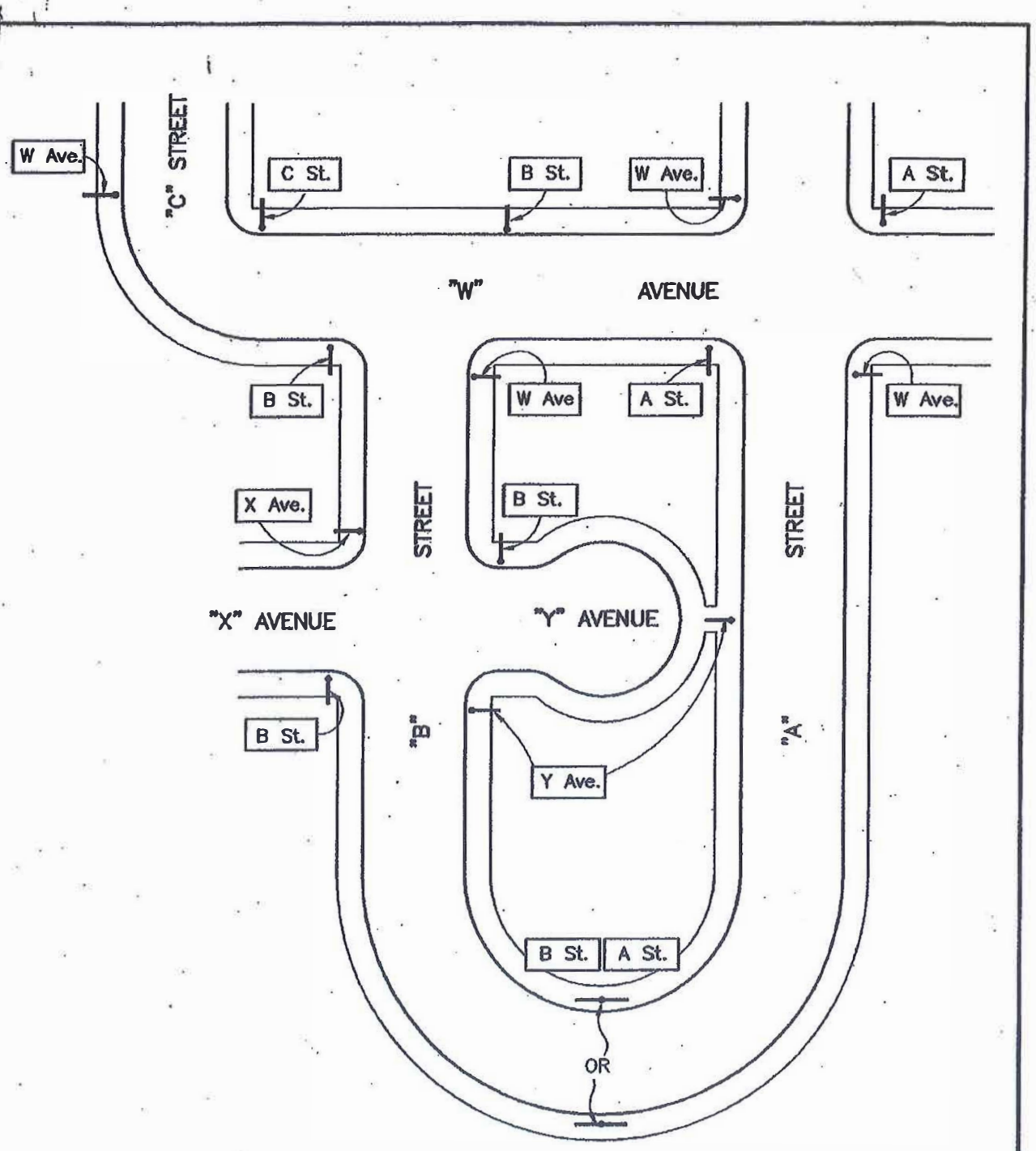

Right jogged Intersection
Interior Limit Lines

1) Install where 40'≤D≤200'
2) Mask only the Green and Red lenses of the PV heads.
3) The back-to-back left-turn lanes, as shown, are possible only where D≥70'. Where not possible, a left-turn lane in one direction, possibly with a left-turn restriction in the other direction, should be considered.




OLA and OLB include slot clearance

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Operation and Design of<br>Signalized jogged Intersections (12/12) | Drawing No.<br>S-100.0 |
|---|---|---|




Note:

1. All signs shall be posted as close to the near-right B.C. or the extension of the near left as is practical.
2. Post sign in advance of obstructions where encountered.
3. Existing sign posts and/or electroliers shall be used to post street name signs wherever practical.
4. Two parallel roadways with different street names (for example, Huntington Drive North and Huntington Drive) shall be treated as two different streets for sign posting purposes.

APPROVED January 21, 2005

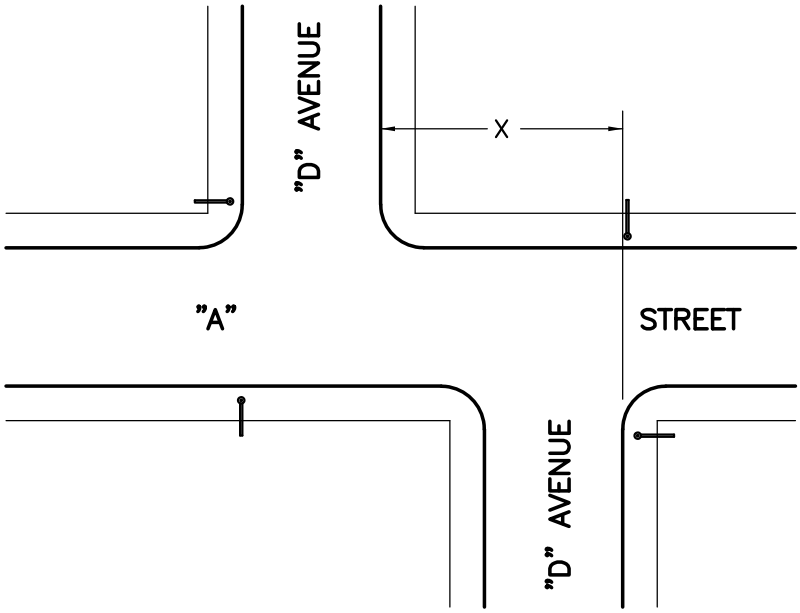
John E. Fisher

for Wayne K. Tanda, General Manager

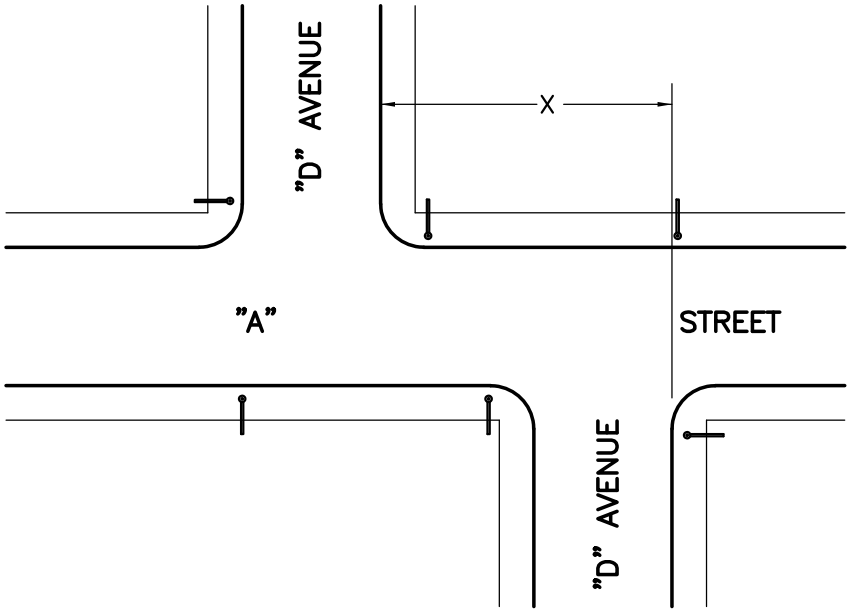
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

STREET NAME SIGN POSTING 1/4

| CKD. | SR. T.E. | PR. T.E. TJ |
|---|---|---|
| DWN. M.T. | T.E. | S-221.3 |

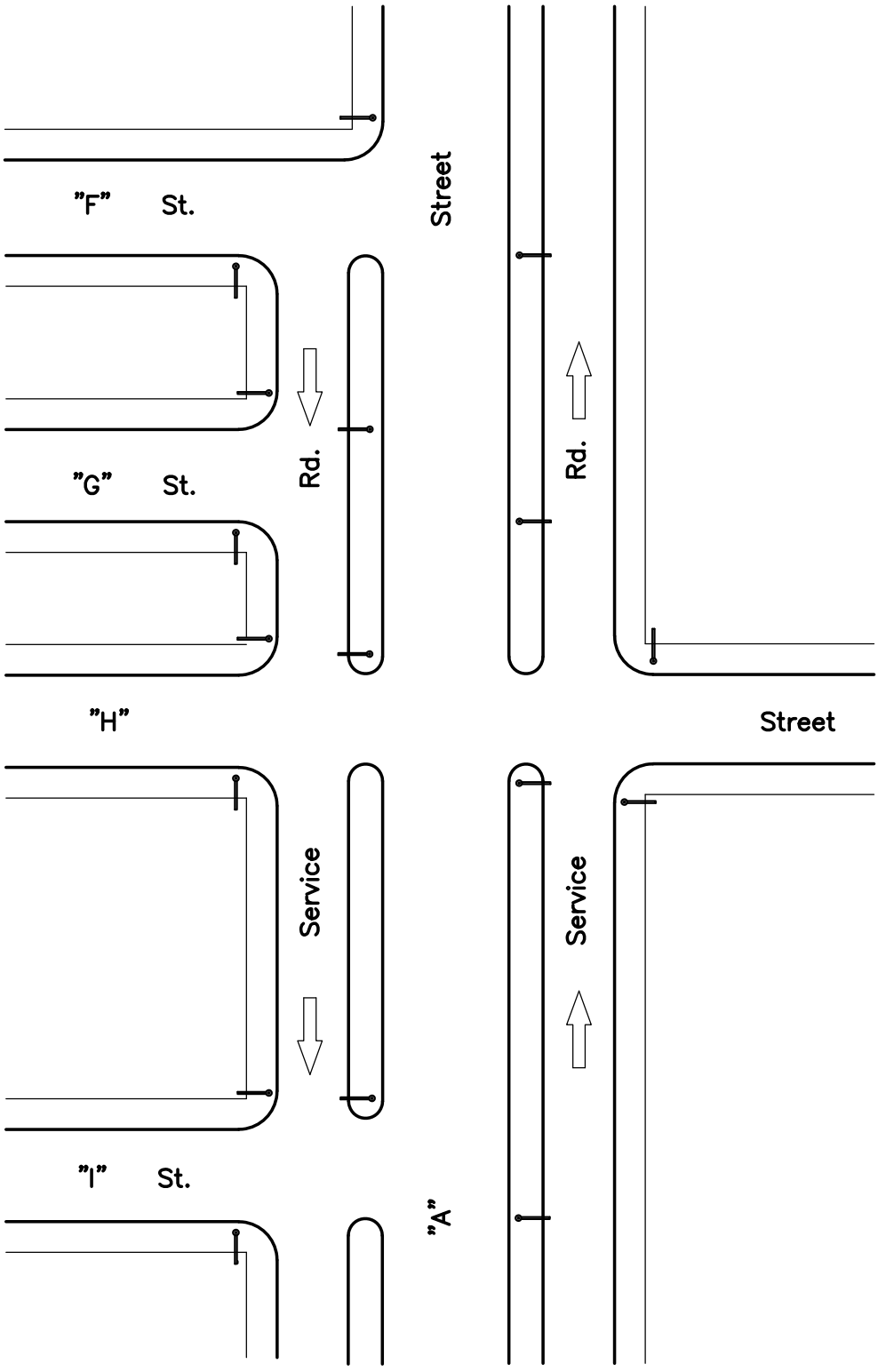



When X is less than 100'

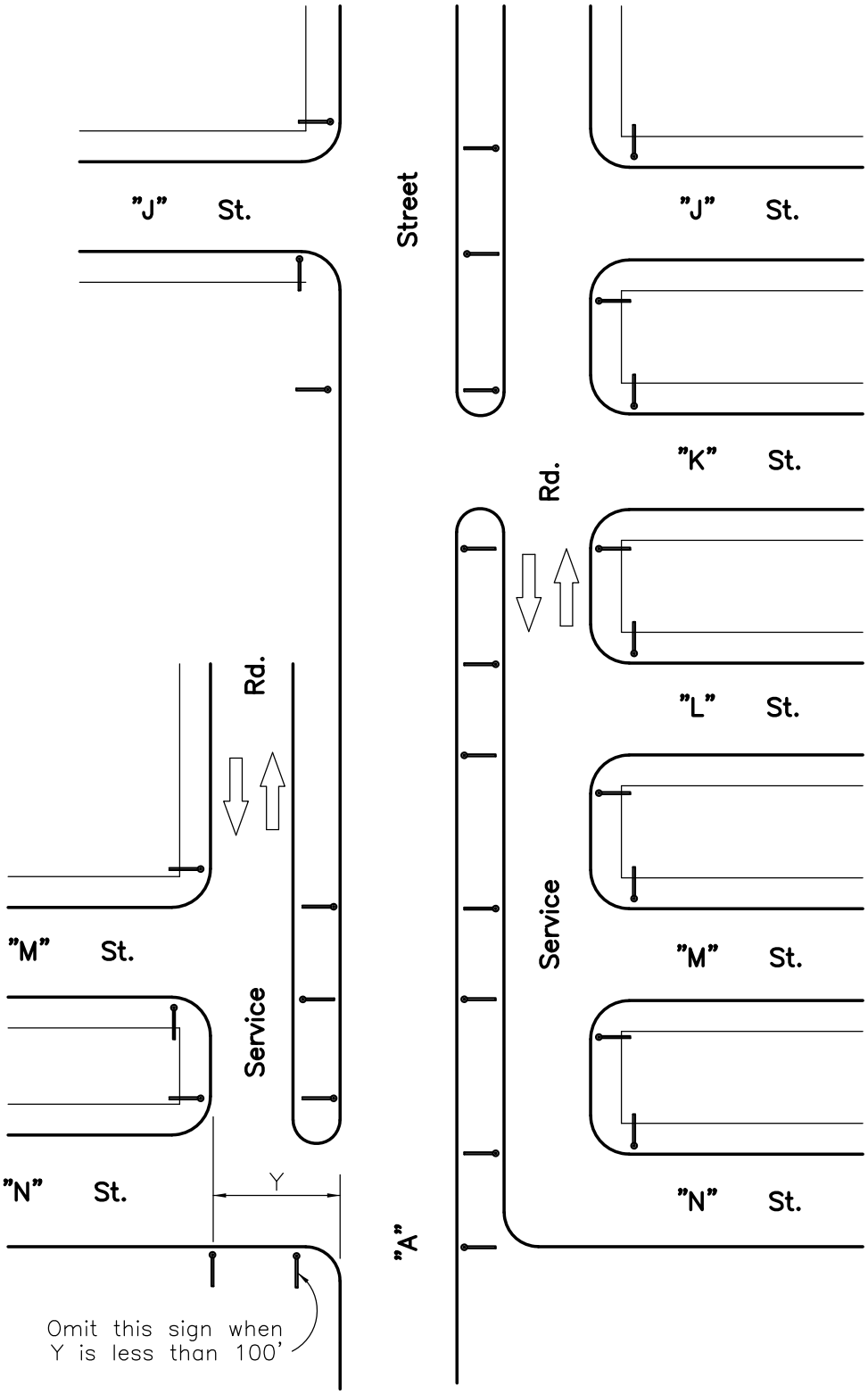



When X is 100' or Greater

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>STREET NAME SIGN POSTING | Drawing No.<br>S-221.3 | 2<br>4 |
|---|---|---|---|



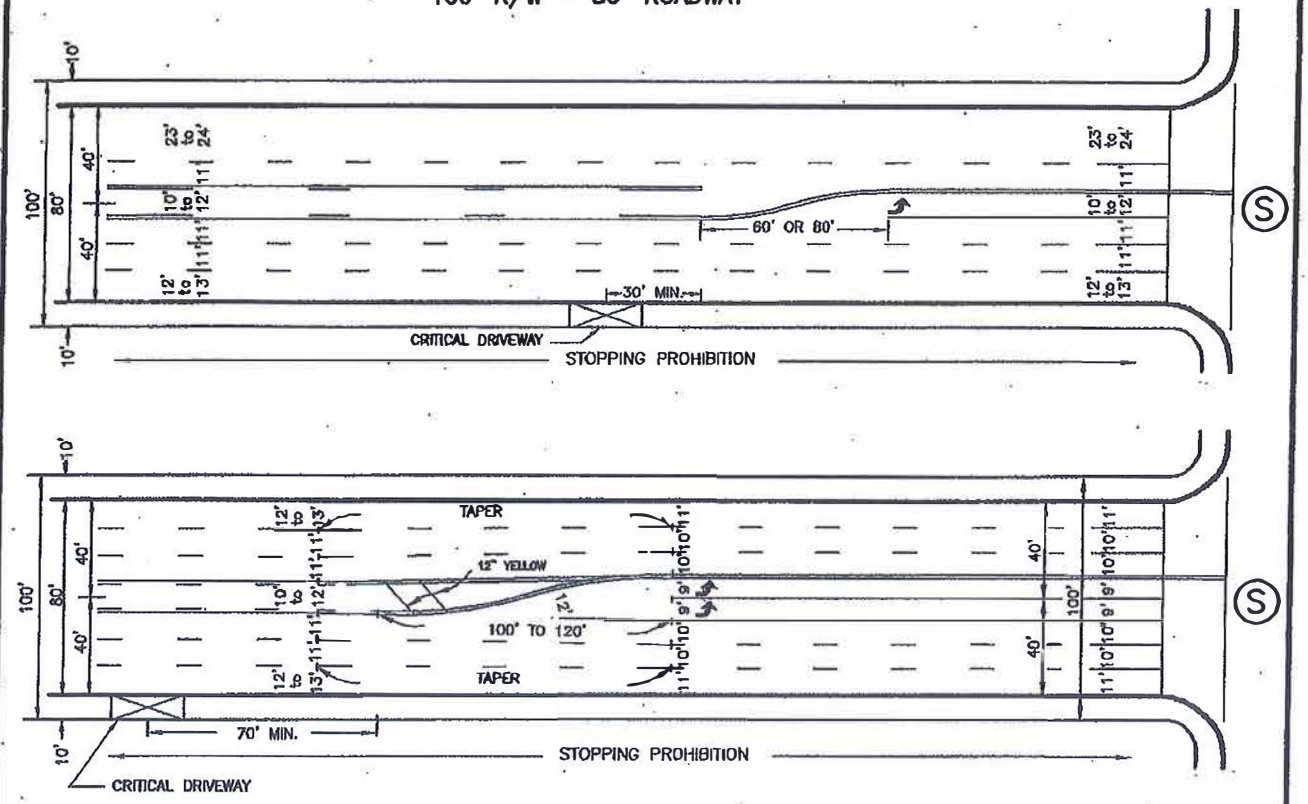

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>STREET NAME SIGN POSTING | Drawing No.<br>S–221.3 | 3<br>4 |
|---|---|---|---|




| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>STREET NAME SIGN POSTING | Drawing No.<br>S–221.3 | 4<br>4 |
|---|---|---|---|

# MAJOR HIGHWAYS (PRIOR TO 11-10-99)

## 100' R/W – 80' ROADWAY




## NOTES:

1. SELECTION OF LENGTH OF LEFT TURN POCKET LANE DEPENDS ON DEMAND, SPACING BETWEEN INTERSECTIONS AND LOCATION OF CRITICAL DRIVEWAYS TO BE SERVED BY TWO-WAY LEFT TURN LANES (2WLTL). THE DESIRABLE LENGTH AT SIGNALIZED INTERSECTIONS IS AT LEAST 40' OF STORAGE PER VEHICLE PER SIGNAL CYCLE AVERAGED DURING THE PEAK HOUR. HOWEVER, THIS DESIRABLE LENGTH OFTEN MAY NOT BE FEASIBLE. MINIMUM LENGTHS AT SIGNALIZED INTERSECTIONS ON HIGHWAYS WITH CONTINUOUS MEDIAN CHANNELIZATION ARE:
   - 100' AT MAJOR HIGHWAYS
   - 100' AT SECONDARY HIGHWAYS
   - 60' AT COLLECTOR STREETS
   - 40' AT LOCAL STREETS

   MINIMUM POCKET LENGTHS FOR MAJOR HIGHWAYS WITHOUT CONTINUOUS MEDIAN CHANNELIZATION MAY BE LESS THAN THE ABOVE, DEPENDING ON TURNING VOLUMES AND PARKING IMPACTS.
2. IN GENERAL, 10' WIDE LEFT TURN CHANNELIZATION SHOULD BE USED. HOWEVER A 12-FOOT MEDIAN SHOULD BE USED IF LARGE VEHICLES ARE A SIGNIFICANT PORTION OF TURNING VEHICLES.
3. UTILIZE 60' REVERSALS FOR POSTED SPEED LIMITS OF 35 MPH AND LESS, AND 80' REVERSALS FOR POSTED SPEED LIMITS OF 40 MPH AND GREATER. A 40' MINIMUM REVERSAL MAY BE USED IN EXCEPTIONAL SITUATIONS FOR CRITICAL DRIVEWAYS.
4. SELECTION OF AN OPEN-ENDED ( AS SHOWN IN FIRST DRAWING) VERSUS CLOSED ENDED (AS SHOWN IN SECOND DRAWING) 2WLTL IS DEPENDENT, IN PART, ON THE PROXIMITY OF A CRITICAL DRIVEWAY TO BE SERVED BY A 2WLTL. MINIMUM DISTANCES TO CRITICAL DRIVEWAYS ARE SHOWN.
5. THE PAINTED REVERSAL FOR A SINGLE LEFT TURN LANE MAY BE ELIMINATED AT A SIGNALIZED INTERSECTION ON A SELECTIVE BASIS IF SPILLOVER IS RECURRENT AND IF IT IS NOT FEASIBLE TO LENGTHEN THE LEFT-TURN POCKET.
6. FOR NEW RAISED MEDIAN INSTALLATIONS, THE WIDTH OF THE ISLAND SHOULD BE LIMITED TO 8' TO ALLOW WIDER ADJACENT THROUGH LANES.
7. THE 4' WIDE ISLAND ADJACENT TO THE LEFT TURN LANE SHOULD BE REMOVED, WHERE FEASIBLE, SO AS TO AVOID LEFT TURN LANE OFFSETS WHICH REDUCE LEFT TURN DRIVER VISIBILITY OF APPROACHING THROUGH VEHICLES. WHERE AN ISLAND ADJACENT TO THE LEFT-TURN LANE IS PROPOSED, OR IS TO BE RETAINED, PROTECTED LEFT-TURN PHASING SHALL BE CONSIDERED. SEE STANDARD PLAN S-497.0.
8. THIRD THROUGH LANES SHOULD BE INSTALLED WHEN CONDITIONS SO JUSTIFY. RIGHT TURN ONLY LANES MAY BE INSTALLED INSTEAD OF THE THIRD THROUGH LANE, AS APPROPRIATE.
9. BIKE LANES WITH ALL DAY PARKING MAY BE INSTALLED IN PLACE OF A CURB LANE OR RIGHT TURN LANE WHERE THE WIDTH IS 13' OR GREATER (OR 12' IN SELECTED CASES).

APPROVED February 24, 2006

John E. Fisher

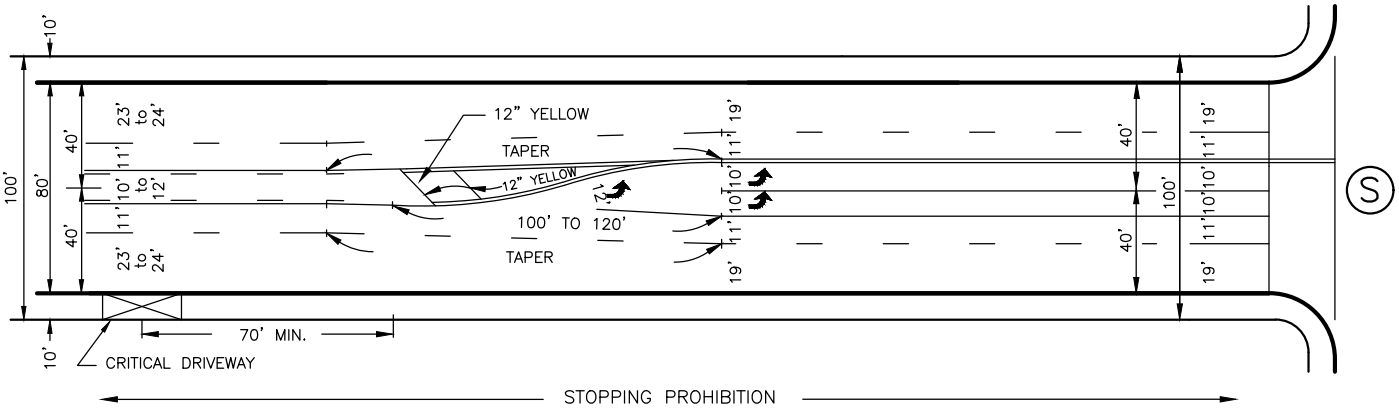
for Frances T. Banerjee, Interim General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| TYPICAL MAJOR HIGHWAY STRIPING TREATMENTS | | 1/5 |
|---|---|---|
| CKD. | SR. T.E. | PR. T.E. SS |
| DWN. M.T. | T.E. T.C. | S-401.0 |

# MAJOR HIGHWAYS (PRIOR TO 11–10–99)

## 100' R/W – 80' ROADWAY

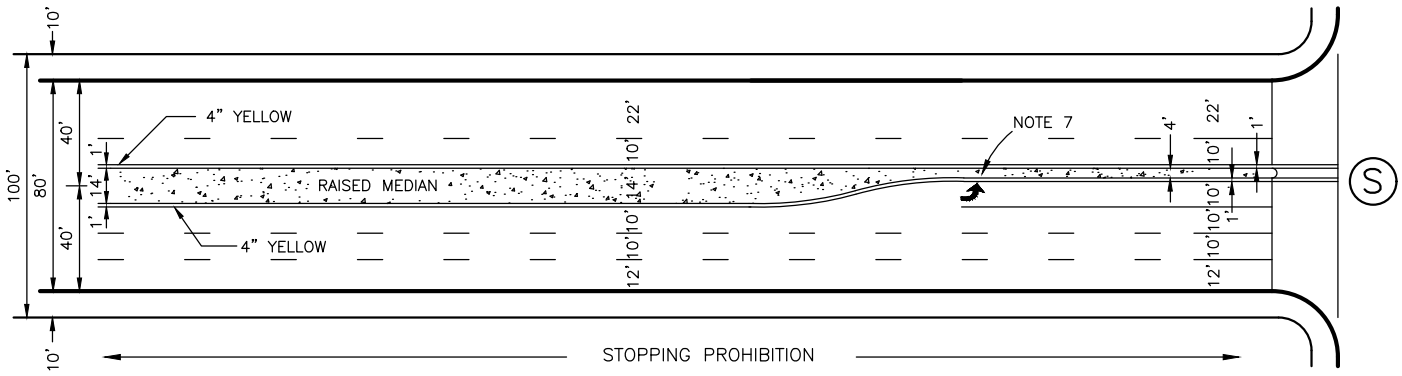


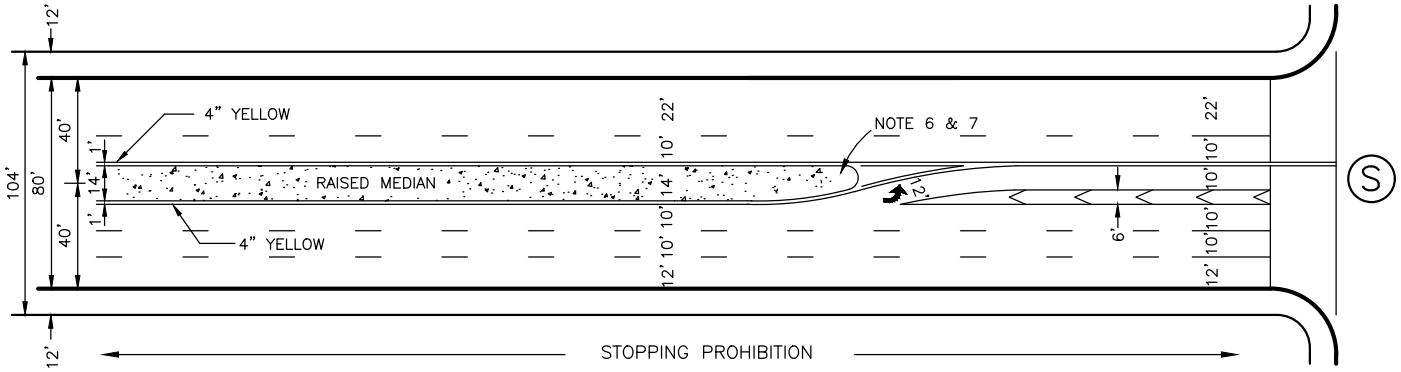


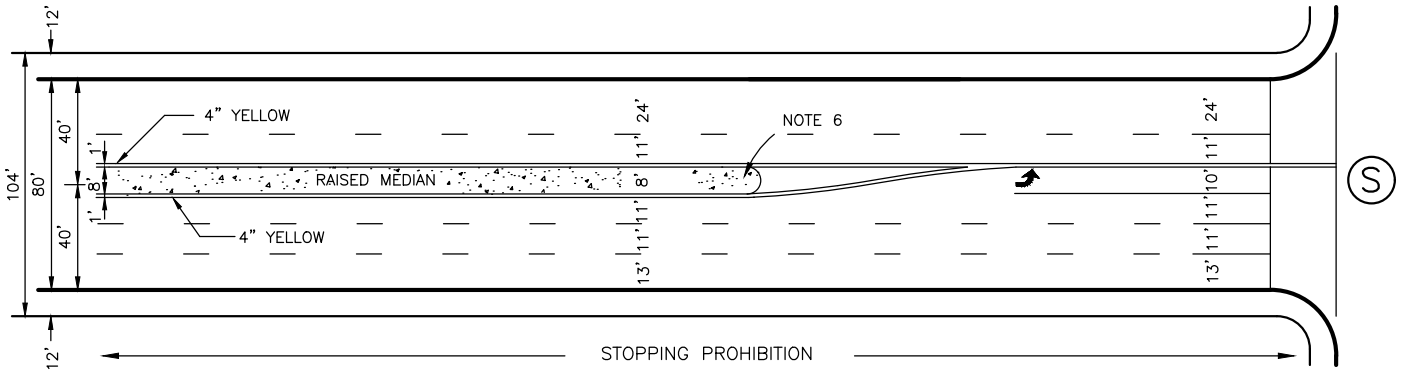
| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | TYPICAL MAJOR HIGHWAY<br>STRIPING TREATMENTS | Drawing No.<br>S–401.0 | 2/5 |
|---|---|---|---|

## MAJOR HIGHWAYS (PRIOR TO 11–10–99)

100' R/W – 80' ROADWAY



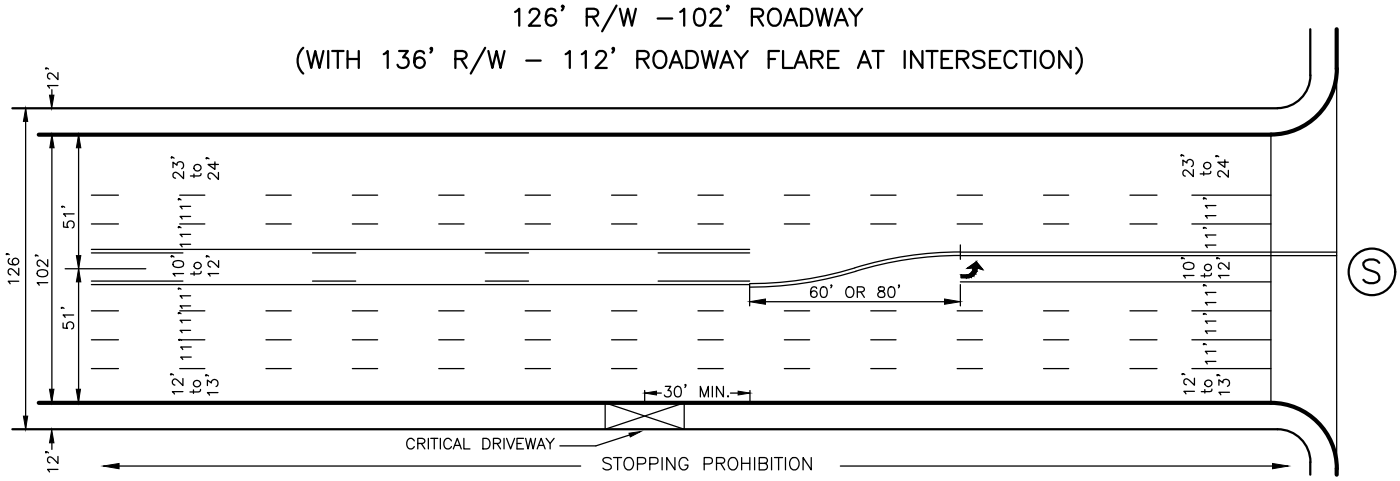

SEE SHEET 1 FOR NOTES

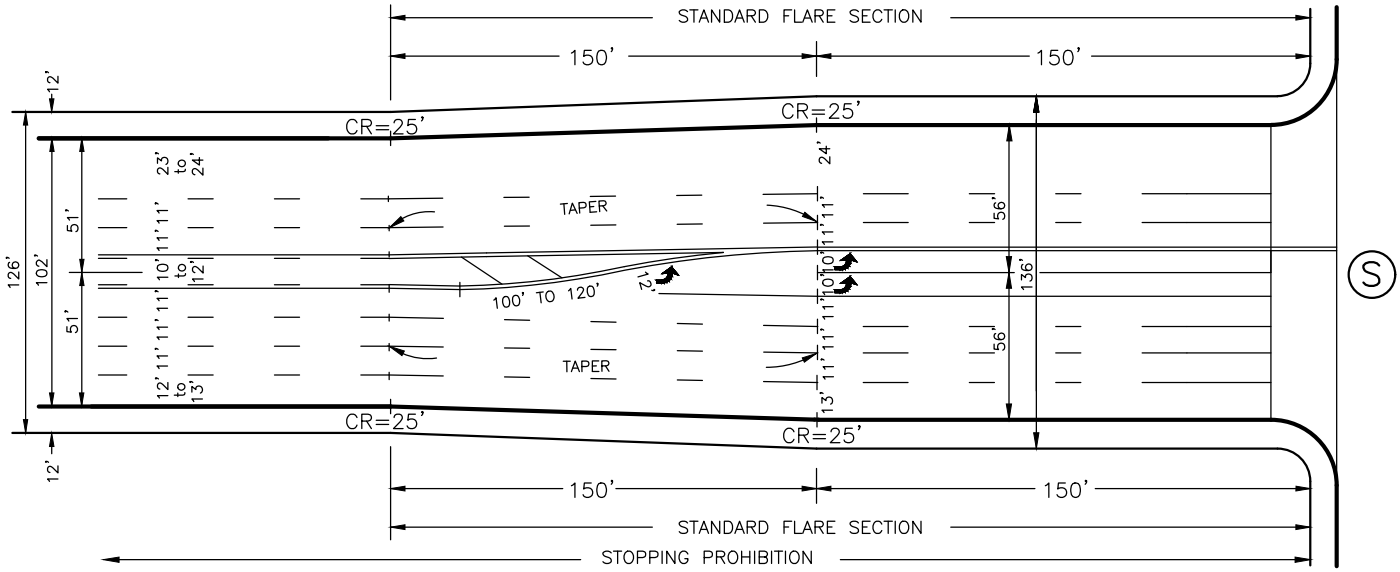
| | | | |
|---|---|---|---|
| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | TYPICAL MAJOR HIGHWAY<br>STRIPING TREATMENTS | Drawing No.<br>S–401.0 | 3<br>5 |

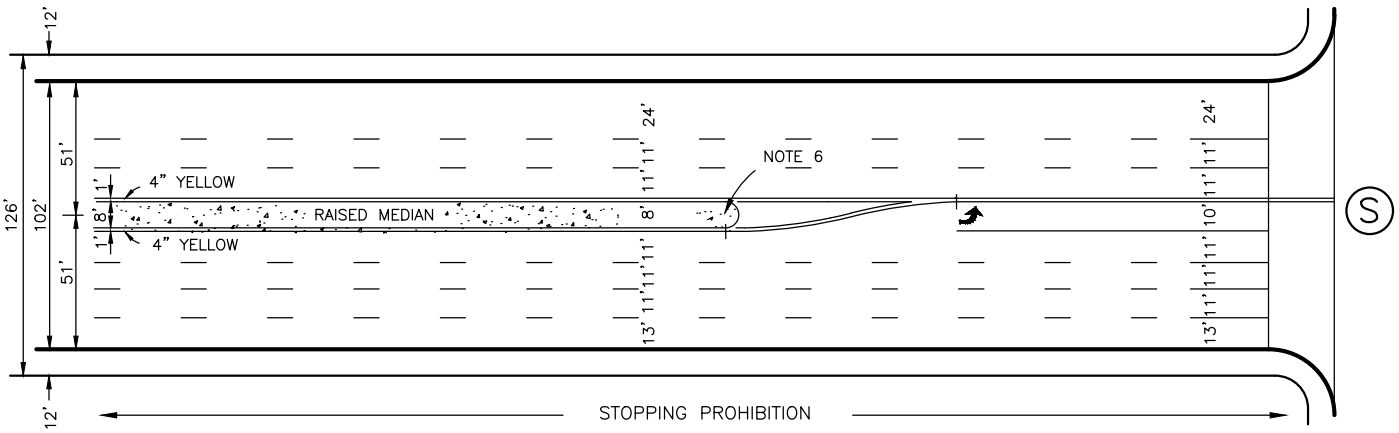
# MAJOR HIGHWAY – CLASS I

126' R/W –102' ROADWAY

(WITH 136' R/W – 112' ROADWAY FLARE AT INTERSECTION)



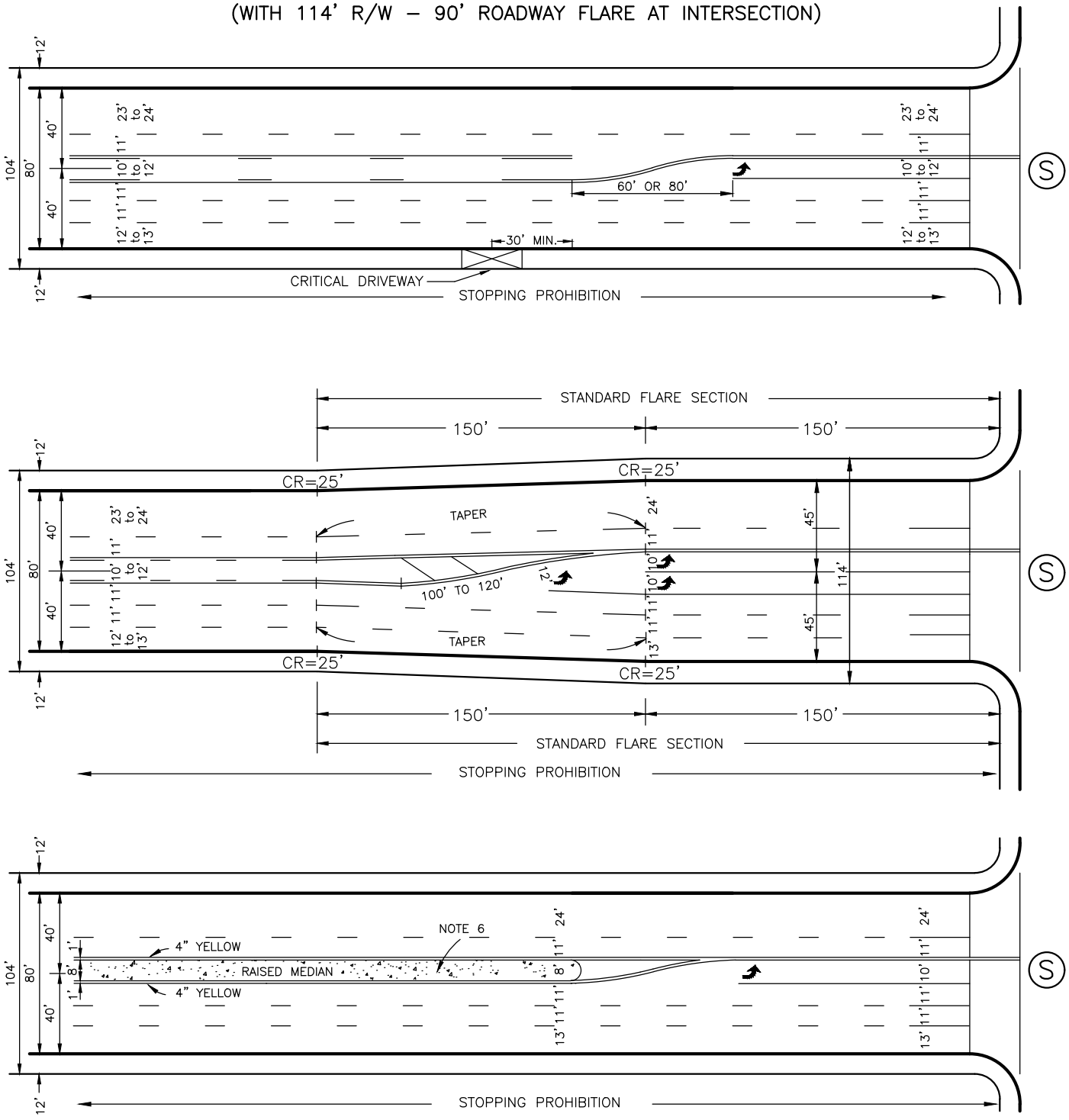

SEE SHEET 1 FOR NOTES

| | | | |
|---|---|---|---|
| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | TYPICAL MAJOR HIGHWAY<br>STRIPING TREATMENTS | Drawing No.<br>S–401.0 | 4<br>5 |

# MAJOR HIGHWAY – CLASS II

104' R/W – 80' ROADWAY

(WITH 114' R/W – 90' ROADWAY FLARE AT INTERSECTION)



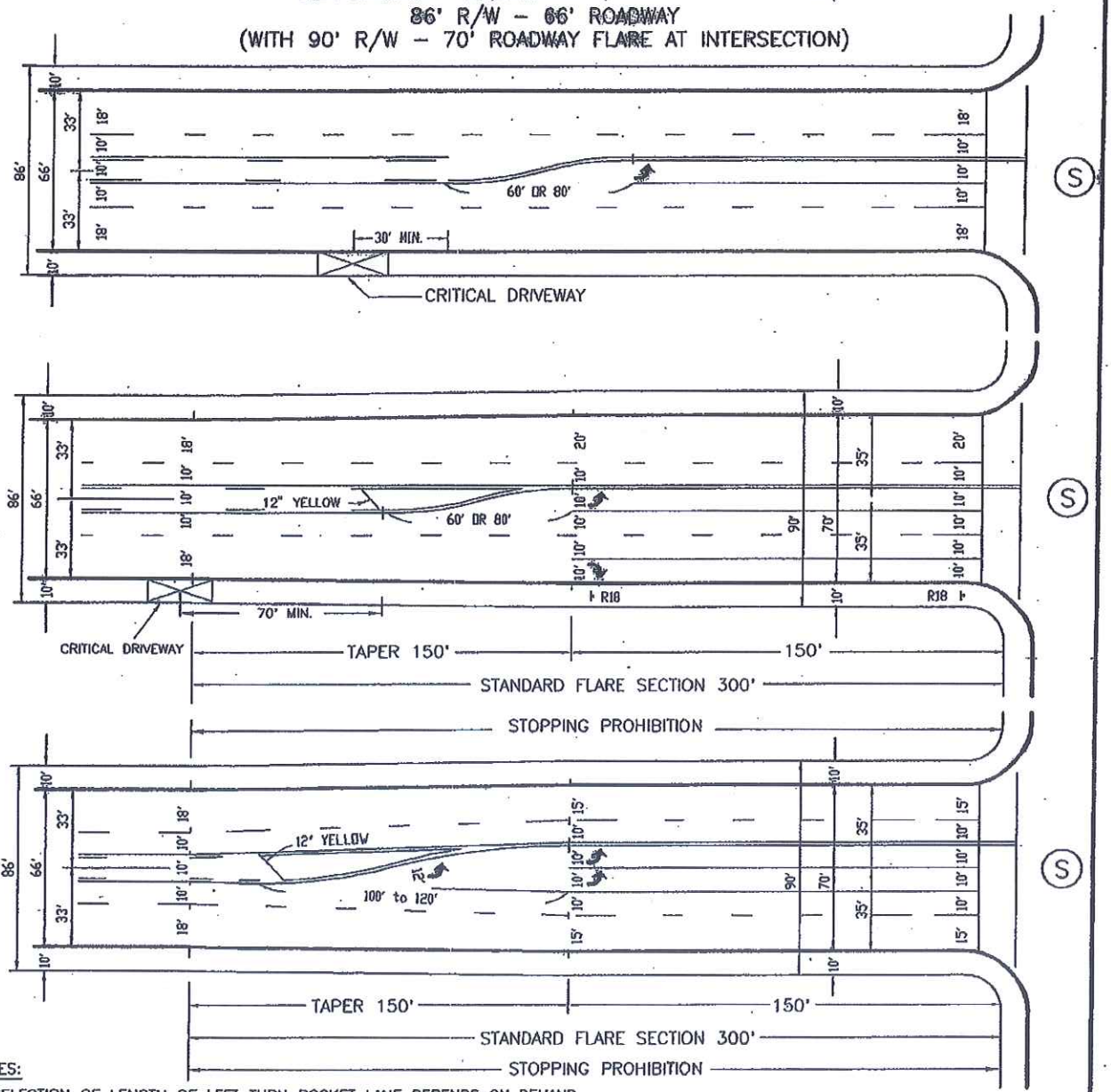

SEE SHEET 1 FOR NOTES

| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | TYPICAL MAJOR HIGHWAY<br>STRIPING TREATMENTS | Drawing No.<br>S–401.0 | 5<br>5 |
|---|---|---|---|

# SECONDARY HIGHWAYS (PRIOR TO 11-10-99)

## 86' R/W - 66' ROADWAY

## (WITH 90' R/W - 70' ROADWAY FLARE AT INTERSECTION)




NOTES:

1. SELECTION OF LENGTH OF LEFT TURN POCKET LANE DEPENDS ON DEMAND, SPACING BETWEEN INTERSECTIONS AND LOCATION OF CRITICAL DRIVEWAYS TO BE SERVED BY TWO-WAY LEFT TURN LANES (2WLTL). THE DESIRABLE LENGTH AT SIGNALIZED INTERSECTIONS IS AT LEAST 40' OF STORAGE PER VEHICLE PER SIGNAL CYCLE AVERAGED DURING THE PEAK HOUR. HOWEVER, THIS DESIRABLE LENGTH OFTEN MAY NOT BE FEASIBLE. MINIMUM LENGTHS AT SIGNALIZED INTERSECTIONS ON HIGHWAYS WITH CONTINUOUS MEDIAN CHANNELIZATION ARE:
   - 100' AT MAJOR HIGHWAYS
   - 100' AT SECONDARY HIGHWAYS
   - 60' AT COLLECTOR STREETS
   - 40' AT LOCAL STREETS

   MINIMUM POCKET LENGTHS FOR SECONDARY HIGHWAYS WITHOUT CONTINUOUS MEDIAN CHANNELIZATION MAY BE LESS, DEPENDING ON TURNING VOLUMES AND PARKING IMPACTS.
2. UTILIZE 60' REVERSALS FOR POSTED SPEED LIMITS OF 35 MPH AND LESS, AND 80' REVERSALS FOR POSTED SPEED LIMITS OF 40 MPH AND GREATER. A 40' MINIMUM REVERSAL MAY BE USED IN EXCEPTIONAL SITUATIONS FOR CRITICAL DRIVEWAYS.
3. SELECTION OF AN OPEN-ENDED ( AS SHOWN IN TOP DRAWING) VERSUS CLOSED ENDED (AS SHOWN IN MIDDLE DRAWING) 2WLTL IS DEPENDENT, IN PART, ON THE PROXIMITY OF A CRITICAL DRIVEWAY TO BE SERVED BY A 2WLTL. MINIMUM DISTANCES TO CRITICAL DRIVEWAYS ARE SHOWN.
4. THE PAINTED REVERSAL FOR A SINGLE LEFT TURN LANE MAY BE ELIMINATED AT A SIGNALIZED INTERSECTION ON A SELECTIVE BASIS IF SPILLOVER IS RECURRENT AND IF IT IS NOT FEASIBLE TO LENGTHEN THE LEFT-TURN POCKET.

APPROVED 11 / 18 / 1999

Frances Banerjee

Frances T. Banerjee, General Manager

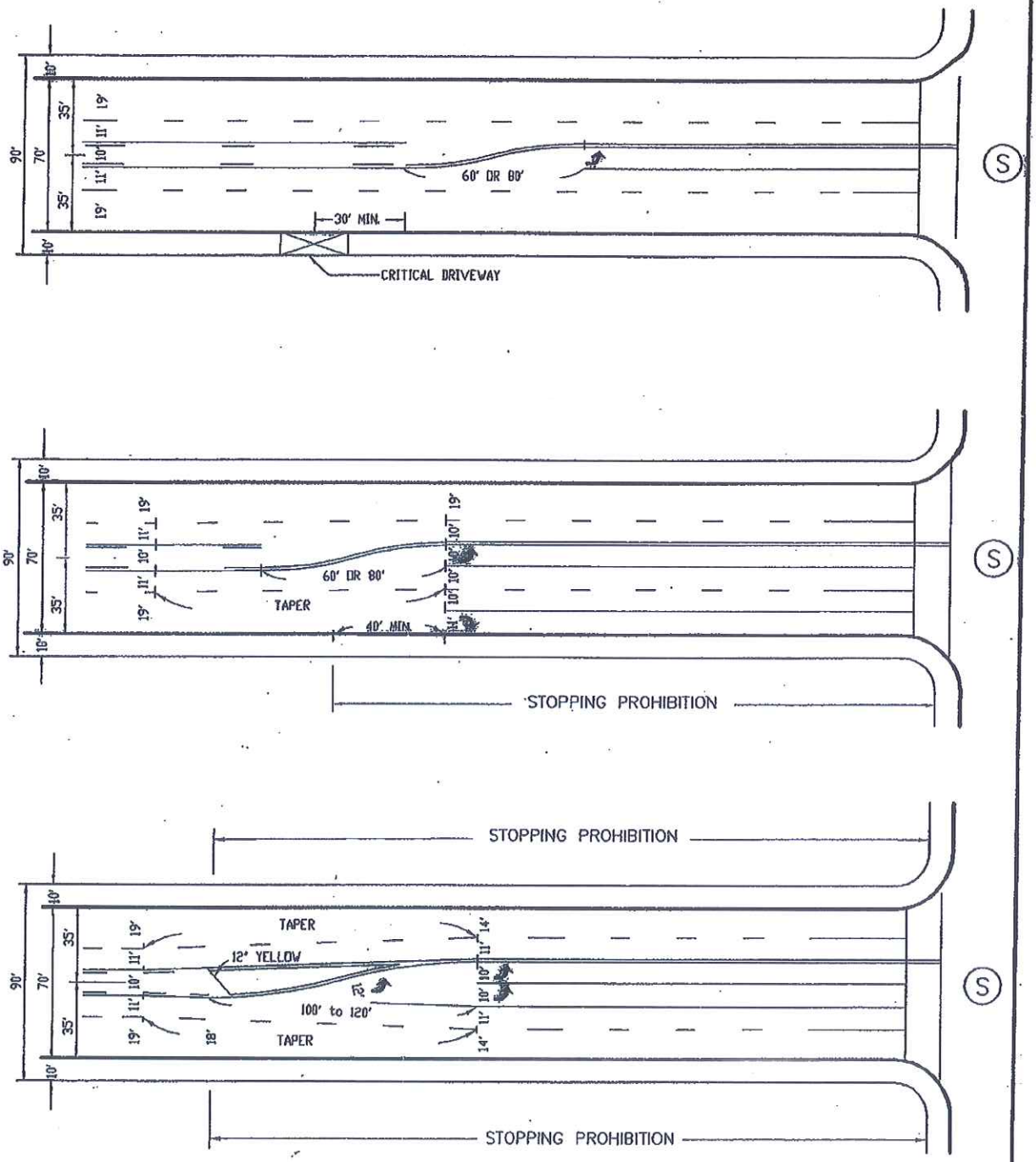
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

TYPICAL SECONDARY HIGHWAY STRIPING TREATMENTS 1/2

| CKD. | SR. T.E. TJ | PR. T.E. 60 |
|---|---|---|
| DWN. M.T. | T.E. | S-401.1 |

# SECONDARY HIGHWAYS

## 90' R/W – 70' ROADWAY




SEE SHEET 1 FOR NOTES

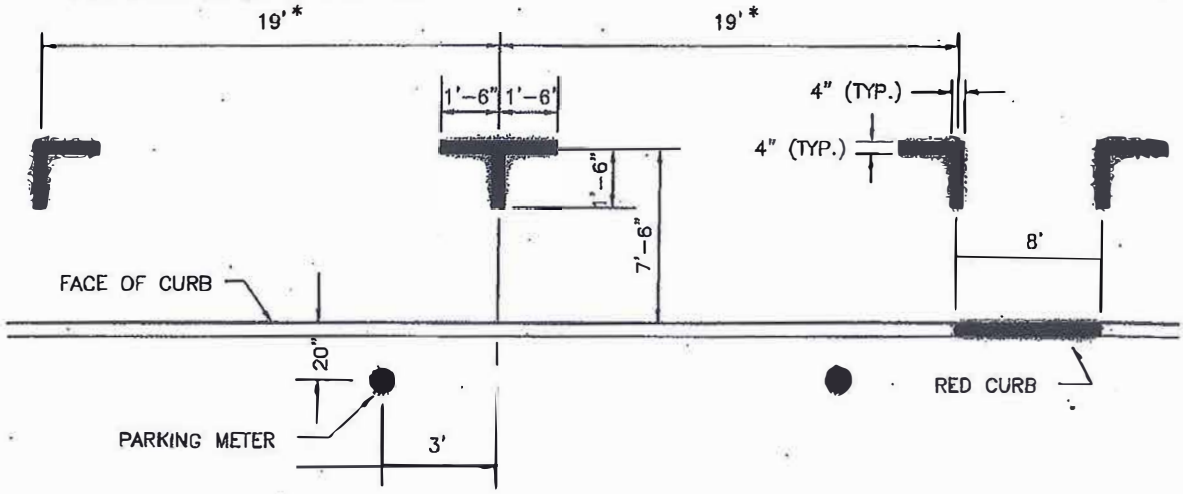
| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Drawing No. TYPICAL SECONDARY HIGHWAY STRIPING TREATMENTS | Drawing No. S-401.1 | 2/2 |
|---|---|---|---|

## WITHOUT BIKE LANE

DRAWING NOT TO SCALE

* 18' MAY BE USED ON THE FIRST AND LAST STALL IN A BLOCK

DIRECTION OF VEHICULAR TRAVEL ⇨

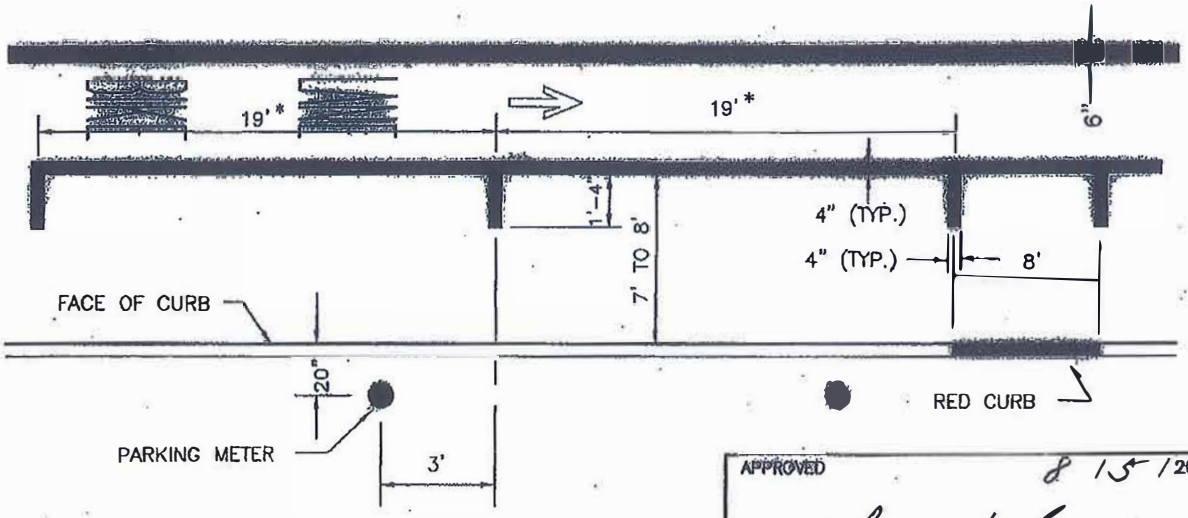



## WITH BIKE LANE

DRAWING NOT TO SCALE

* 18' MAY BE USED ON THE FIRST AND LAST STALL IN A BLOCK

DIRECTION OF VEHICULAR TRAVEL ⇨




APPROVED 8/15/2000

Frances T. Banerjee, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

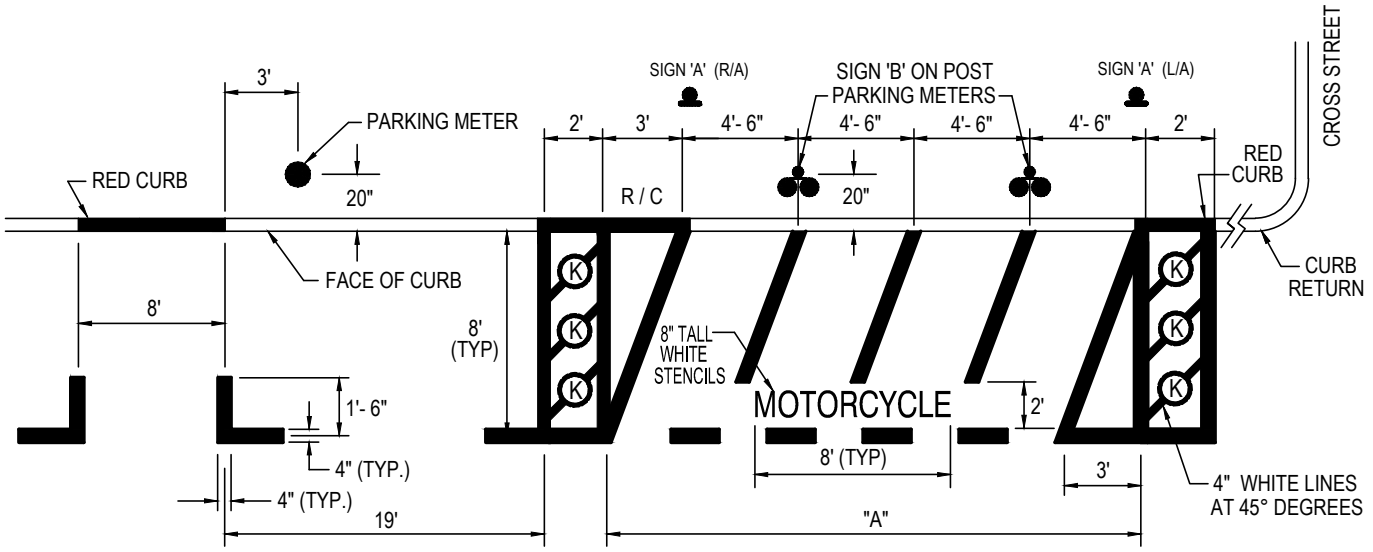
ON-STREET
PARALLEL PARKING STALLS

1/1

| CKD. | SR. T.E. TLJ | PR. T.E. GO |
|---|---|---|
| DWN. M.T. | T.E. | S-404.1 |

## WITHOUT BIKE LANE

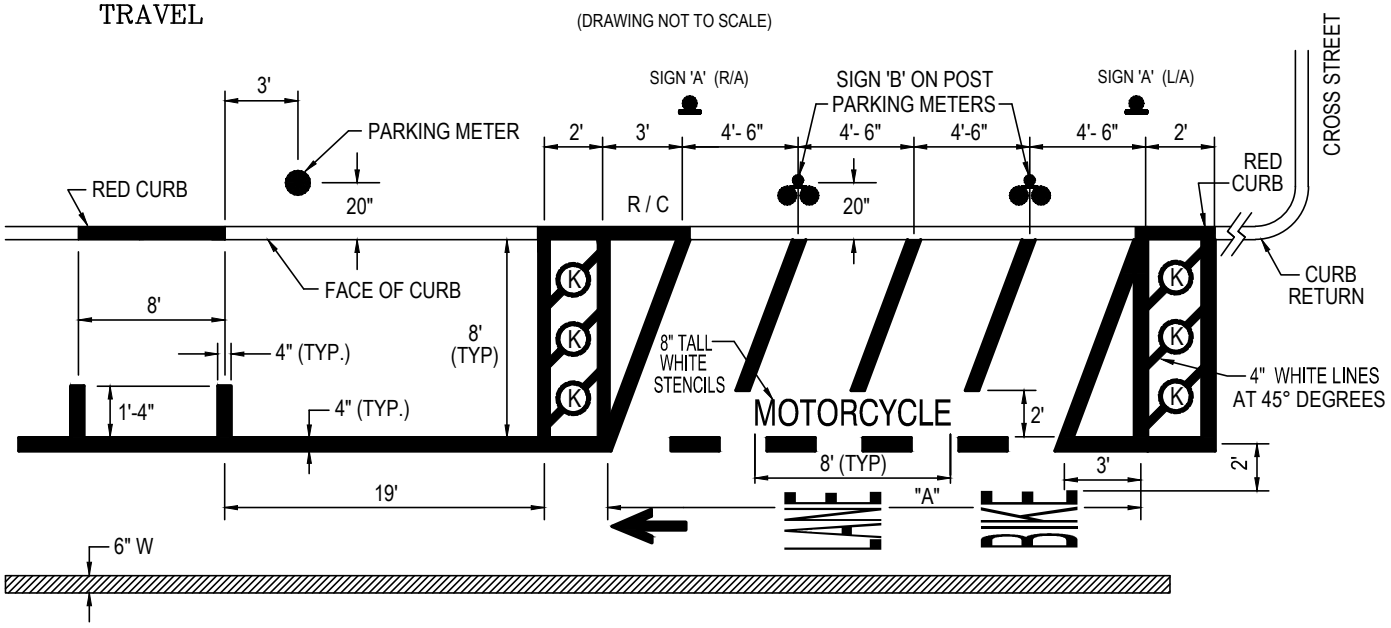
(DRAWING NOT TO SCALE)




DIRECTION OF VEHICULAR TRAVEL

## WITH BIKE LANE

(DRAWING NOT TO SCALE)




LEGEND:

- = RED CURB
- = 6" WHITE MARKING
- = 4" WHITE MARKING

(K) = K71 bollards or candlestick delineators (Optional) may be installed at locations not affected by street cleaning operations. Space at equal distance on center within the box from the curb to the 4" white lines.


R32F (CA)

SIGN 'A'

(R/A) Right Arrow


R32F (CA)

SIGN 'A'

(L/A) Left Arrow


SIGN 'B'

(6" x 8" min)

MOTORCYCLE STALL LAYOUT

| STALLS | "A" |
|---|---|
| 2 | 12' |
| 3 | 16.5' |
| 4 | 21' |
| 5 | 25.5' |
| 6 | 30' |

APPROVED 12/03/20

for Seleta J. Reynolds, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

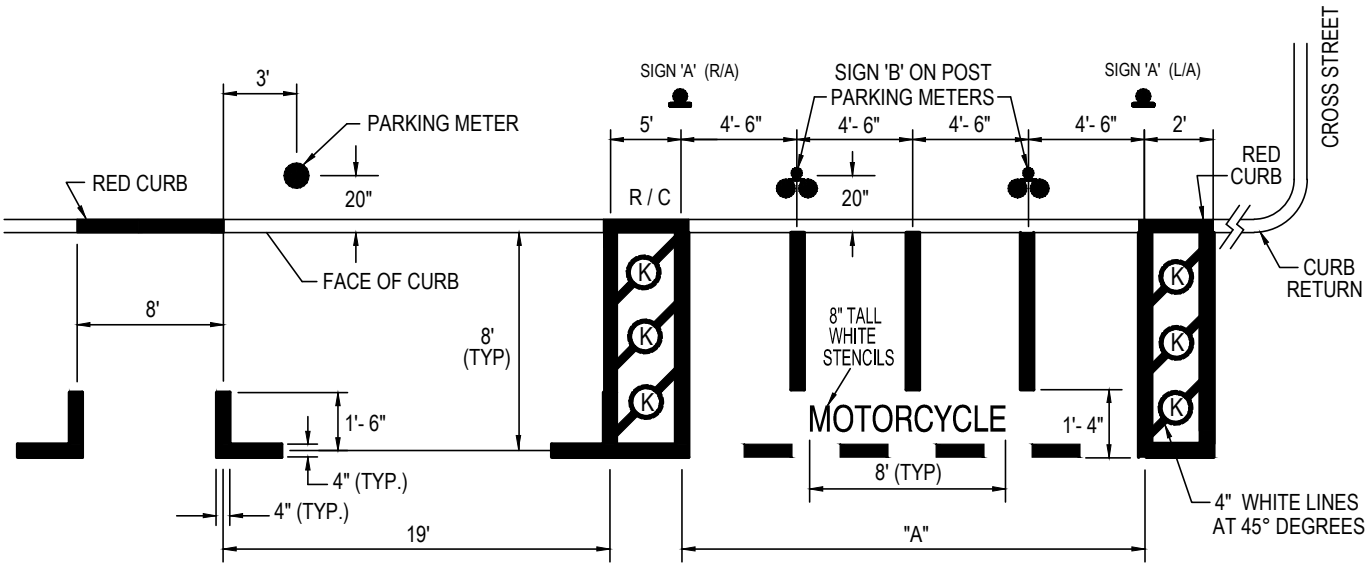
# ON–STREET MOTORCYCLE PARKING STALLS

1 / 3

| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| RWL | JDH | KH |
| DWN. | T.E. | |
| EH | RWL | S–404.2 |

## WITHOUT BIKE LANE

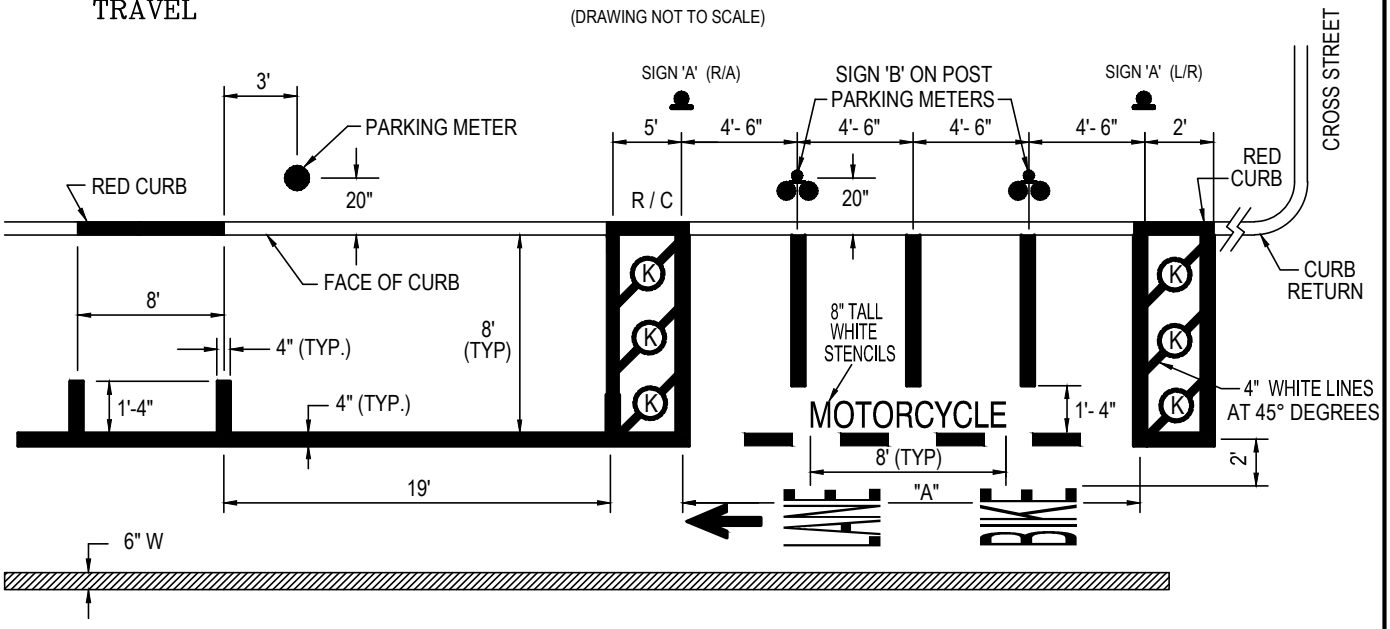
(DRAWING NOT TO SCALE)




DIRECTION OF VEHICULAR TRAVEL

## WITH BIKE LANE

(DRAWING NOT TO SCALE)





R32F (CA)

SIGN 'A'
(R/A) Right Arrow


R32F (CA)

SIGN 'A'
(L/A) Left Arrow


SIGN 'B'
(6" x 8" min)

MOTORCYCLE STALL LAYOUT

| STALLS | "A" |
|---|---|
| 2 | 9' |
| 3 | 13.5' |
| 4 | 18' |
| 5 | 22.5' |
| 6 | 27' |

(K) = K71 bollards or candlestick delineators (Optional) may be installed at locations not affected by street cleaning operations. Space at equal distance on center within the box from the curb to the 4" white lines.

LEGEND:

= RED CURB

= 6" WHITE MARKING

= 4" WHITE MARKING

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | ON–STREET<br>MOTORCYCLE PARKING STALLS | Drawing No.<br>S–404.2 | 2<br>3 |
|---|---|---|---|

## A. INSTALLATION NOTES:

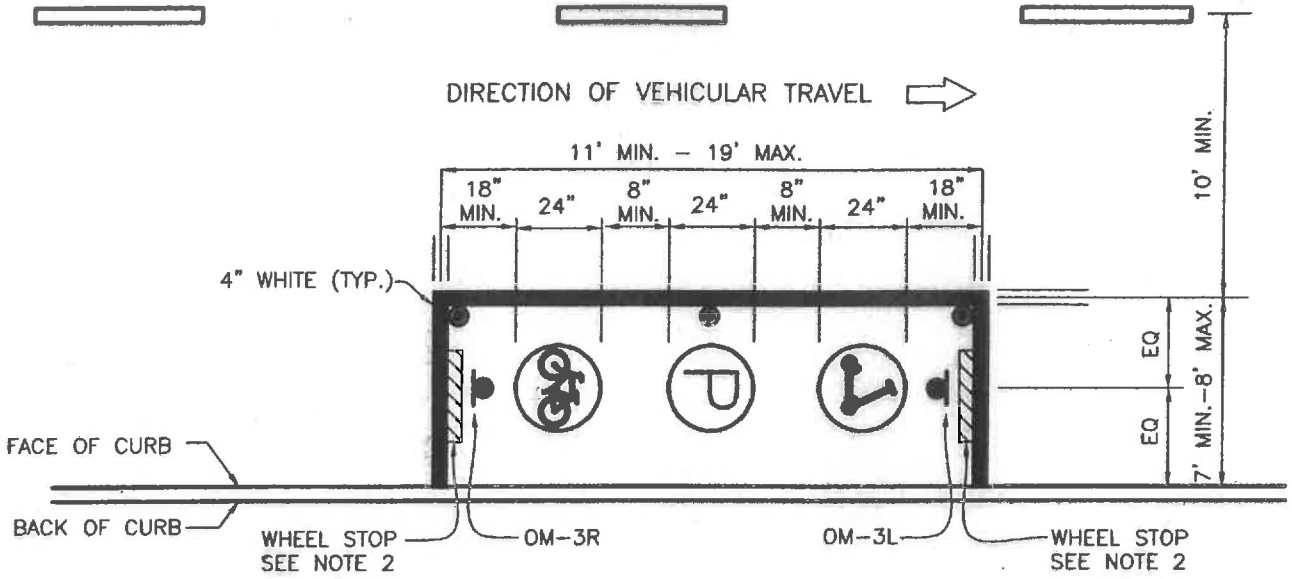
1. Parking meters may be replaced with a Pay Station Kiosk, and space numbering at the curb of each stall.
2. All parking stall lines and edge lines shall be in Alkyd-based Thermoplastic in accordance with the current LADOT specifications.
3. "MOTORCYCLE" pavement messages shall be in paint in accordance with the current LADOT specifications.
4. Motorcycle stalls should be installed at the beginning and/or at the end of the block, adjacent to the required intersection red curb.
5. Motorcycle stalls shall not be considered on severe slope. Angled stalls are preferred for ease of access, unless noted otherwise per engineering recommendation. Existing road condition and other factors will determine which style (angled vs. perpendicular) stall will be installed.
6. (K) = K71 bollards or candlestick delineators (Optional) may be installed at locations not affected by street cleaning operations. Space at equal distance on the center within the box from the curb to the 4" white lines.
7. There shall be at least one set of motorcycle stalls and no more than three sets connected in parallel at each installation. Each set consists of two motorcycle stalls.
8. Motorcycle stall marking may also be used in non-metered spaces. Notes #2 through #6 above apply.
9. Two meter heads shall be installed on a yoke on one single meter post for each set of metered motorcycle stalls.

## B. MOTORCYCLE PARKING STALLS (MPS): (See Note A-5)

1. Parking meter heads, posts and signs shall be removed or adjusted as needed if MPS are installed in a parking meter zone.
2. Rubberized wheel-stops may be used in between the MPS zones and an on-street parking space to supplement bollards and /or delineators.
3. Minimum clearance from the top of a driveway to a MPS zone shall be 6'.
4. Minimum clearance from a fire hydrant to a MPS zone shall be 15'.
5. Minimum clearance from a parallel or perpendicular vehicle parking space shall be at least 5' as measured at the curb and at least 10' minimum clearance from an angle vehicle parking space.
6. MPS zones shall not be considered adjacent to any commercial loading zone or any bus zones.
7. MPS zones shall not be installed within any minimum required intersection red curb.
8. Signs similar to R32F(CA) with arrow, in the MUTCD (CA) can be installed in lieu at the beginning and at the end of the MPS zone.

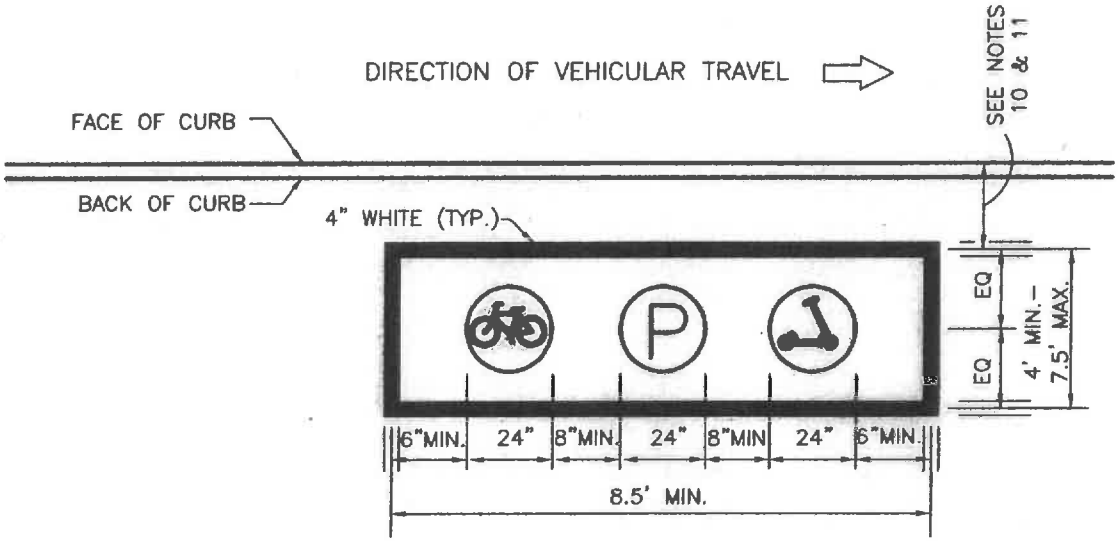
## C. MISCELLANEOUS

1. All pavement markings shall be skid-resistant.




## SHARED MOBILITY PARKING: ON-STREET

DRAWING NOT TO SCALE




## SHARED MOBILITY PARKING: SIDEWALK

DRAWING NOT TO SCALE

## LEGEND

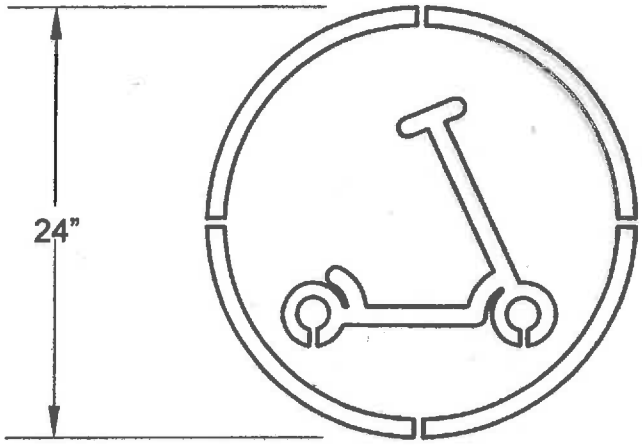
- ● FLEXIBLE BOLLARD SIGN
- SIGN POST
- WHEEL STOP, RUBBERIZED (6"Wx48"Lx4"H)

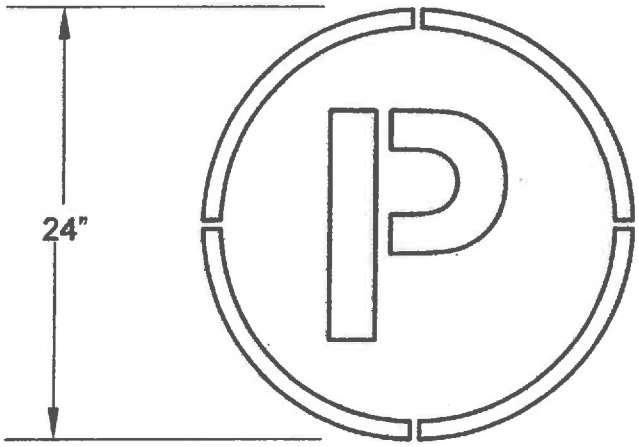
APPROVED 11/07/19

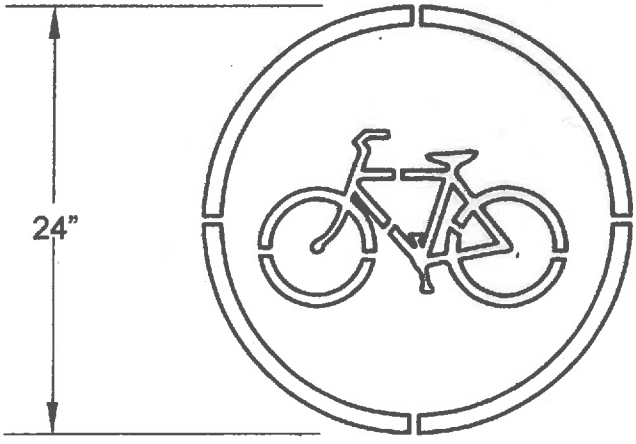
for SELETA J. REYNOLDS, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| SHARED MOBILITY PARKING (SMP) ZONES ON-STREET AND SIDEWALK | | 1/3 |
|---|---|---|
| CKD. | SR. T.E. JV | PR. T.E. BS |
| DWN. NO | T.E. MN | S-404.3 |




NOT TO SCALE

APPROVED 11/07/19

SELETA J. REYNOLDS, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| | | |
|---|---|---|
| SHARED MOBILITY PARKING (SMP) ZONES ON-STREET AND SIDEWALK | | 2/3 |
| CKD. | SR. T.E. JV | PR. T.E. BS |
| DWN. NO | T.E. MN | S-404.3 |

NOTES:

## SHARED MOBILITY PARKING: ON-STREET

1. PARKING METER HEADS, POSTS AND SIGNS SHALL BE REMOVED OR ADJUSTED AS NEEDED IF SHARED MOBILITY PARKING (SMP) IS INSTALLED IN A PARKING METER ZONE.
2. RUBBERIZED WHEEL STOPS SHALL BE USED AT THE ENDS OF THE SMP ZONES IF LOCATED NEXT TO ON-STREET PARKING.
3. MINIMUM CLEARANCE FROM THE TOP OF DRIVEWAY SHALL BE 5'.
4. MINIMUM CLEARANCE FROM A FIRE HYDRANT SHALL BE 15'.
5. SMP ZONES SHALL REMAIN CLEAR OF BUS ZONES.
6. SMP ZONES SHALL NOT BE INSTALLED IN PEAK HOUR LANES, RED CURB ZONES, OR IN PARKING RESTRICTED AREAS (i.e. TOW-AWAY NO STOPPING ANY TIME "T.A.N.S.A.T.", NO PARKING ANY TIME "N.P.A.T.", ETC.)
7. MINIMUM CLEARANCE FROM TWO OR MORE CONSECUTIVE PARKING SPACES SHALL BE 5'.
8. SMP ZONES SHALL NOT BE INSTALLED WITHIN 30' OF A LIMIT LINE AT A TRAFFIC SIGNAL OR WITHIN 25' OF A "STOP" OR "YIELD" SIGN.

## SHARED MOBILITY PARKING: SIDEWALK

9. A MINIMUM OF 5' OF UNOBSTRUCTED SIDEWALK MUST BE MAINTAINED FOR A PEDESTRIAN PATHWAY.
10. WHERE THERE IS NO PARKING ON THE ADJACENT STREET, PROVIDE:
    A. MINIMUM CLEARANCE OF 1'-6" FROM THE FACE OF CURB TO THE EDGE OF THE SMP ZONE.
11. WHERE THERE IS PARKING ON THE ADJACENT STREET, PROVIDE:
    A. MINIMUM CLEARANCE OF 3' FROM THE FACE OF CURB TO THE EDGE OF THE SMP ZONE.
    B. MINIMUM CLEARANCE OF 4' FROM THE FACE OF CURB TO THE EDGE OF THE SMP ZONE IF THE ADJACENT PARKING IS A LOADING ZONE OR DISABLED PARKING SPACE.
    C. MINIMUM CLEARANCE OF 4' OF UNOBSTRUCTED PATHWAY AT THE ENDS OF THE SMP ZONE.
12. MINIMUM CLEARANCE OF 5' FROM THE MARKED CROSSWALK LINE OR TOP OF CURB RAMP.
13. MINIMUM CLEARANCE OF 5' FROM THE TOP OF DRIVEWAY.
14. MINIMUM CLEARANCE FROM A FIRE HYDRANT SHALL BE 15'.
15. SMP ZONES SHALL REMAIN CLEAR OF BUS LOADING AND UNLOADING ZONES.
16. SMP ZONES SHALL NOT:
    A. BLOCK ACCESS TO BUILDING ENTRANCES OR EXITS.
    B. OBSTRUCT UTILITY ACCESSES SUCH AS MANHOLES, PULLBOXES, STREET LIGHT POLES, POWER POLES, ETC.
    C. OBSTRUCT THE USE OF SIDEWALK FURNITURE SUCH AS BENCHES, NEWSSTANDS, MAILBOXES, BUS SHELTERS, ETC.

## MISCELLANEOUS

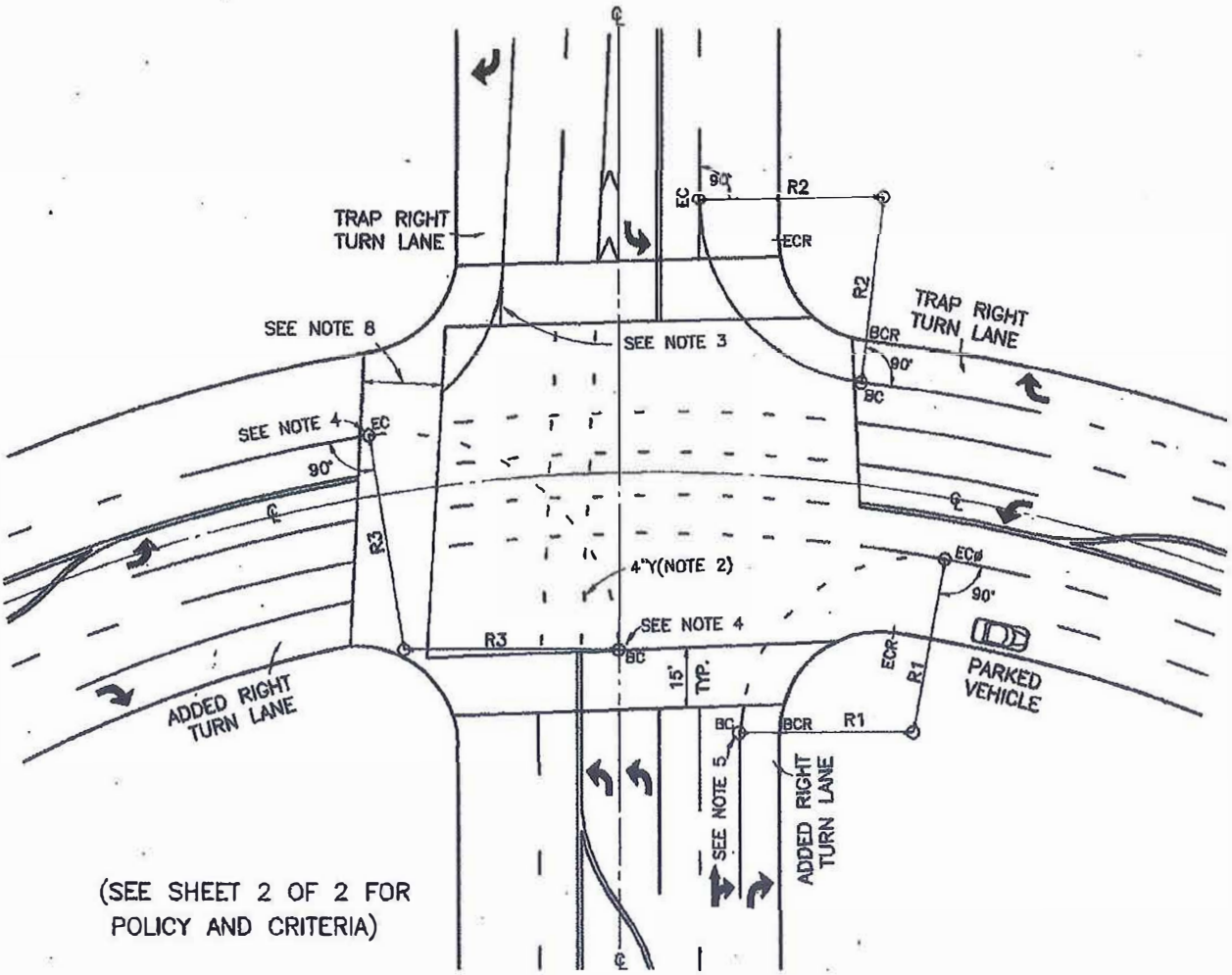
17. ALL PAVEMENT MARKINGS SHALL BE SKID-RESISTANT.

APPROVED 11/07/19

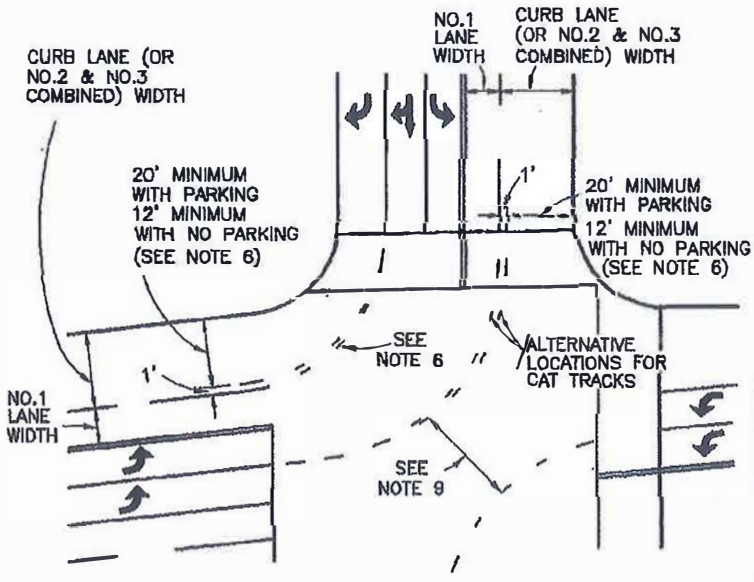
SELETA J. REYNOLDS, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| SHARED MOBILITY PARKING (SMP) ZONES ON-STREET AND SIDEWALK | | 3/3 |
|---|---|---|
| CKD. | SR. T.E. JV | PR. T.E. BS |
| DWN. NO | T.E. MN | S-404.3 |




(SEE SHEET 2 OF 2 FOR POLICY AND CRITERIA)




SPECIAL DOUBLE TURN DETAIL

Approved July 29, 2009
John E. Fisher
for Rita L. Robinson, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

# INTERSECTION STRIPING

1/2

| T.E. | Sr. T.E. | Pr. T.E. |
|---|---|---|
| TC | JW | SS |
| DWN MT 7-28-09 | CKD | Dwg. No. S-405.0 |

# POLICY AND CRITERIA

## GENERAL

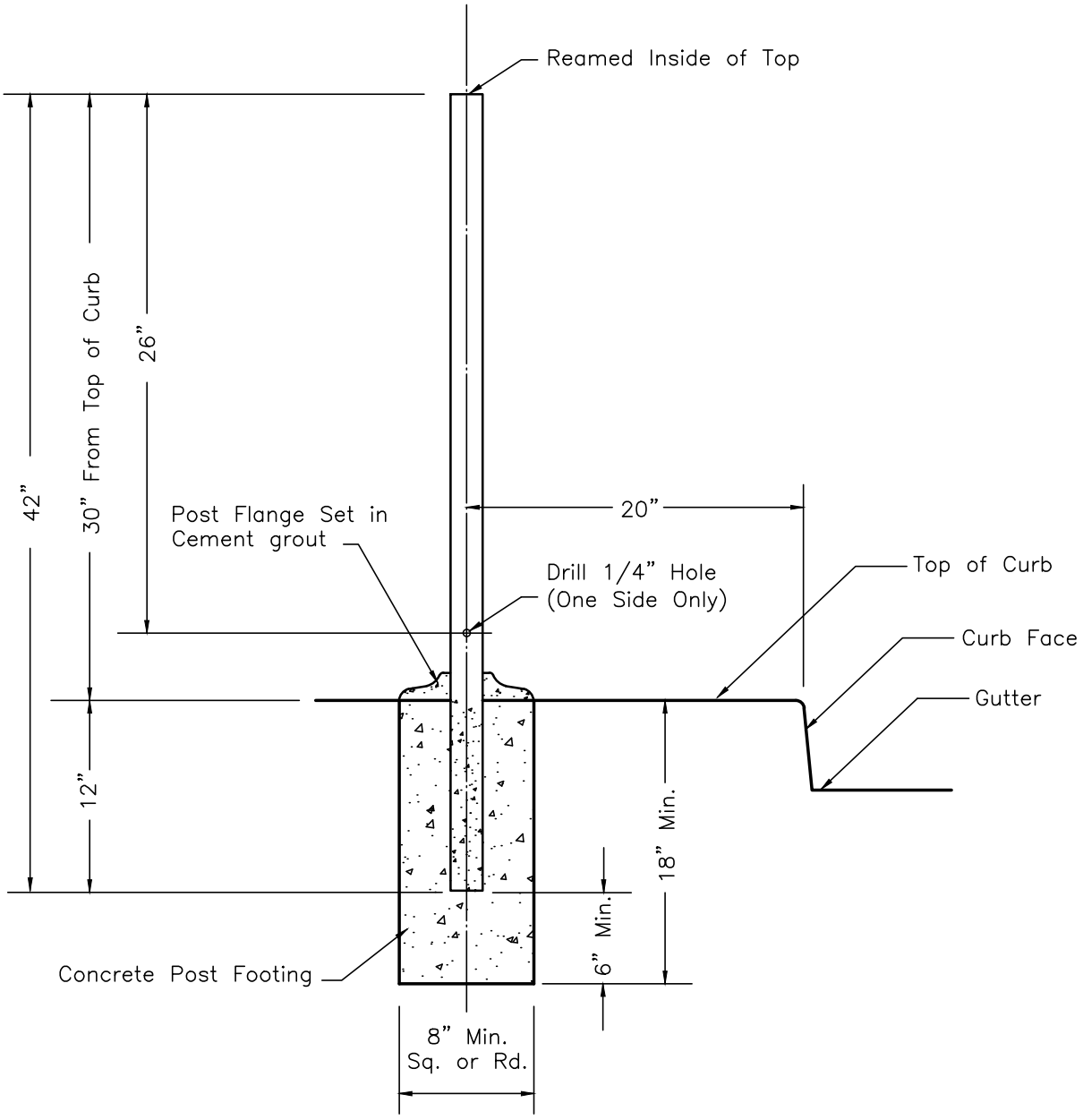
1. DOTTED INTERSECTION STRIPING, MORE COMMONLY KNOWN AS "CAT TRACKS" SHALL BE USED FOR ALL MULTIPLE TURNS AND UNDER SPECIAL CONDITIONS FOR LONGITUDINAL STRIPING, AS SHOWN IN NOTE 11.
2. CAT TRACKS ARE 4" IN WIDTH AND SHOULD BE APPROXIMATELY ONE FOOT IN LENGTH, 7' CENTER TO CENTER (CA MUTCD DETAIL 40 AND 41). THEY SHALL BE THE SAME COLOR AS THE STRIPE THEY EXTEND, EXCEPT THAT CAT TRACKS CONNECTING TO DOUBLE YELLOW LINES SHALL BE 4" YELLOW.
3. SOLID INTERSECTION STRIPING SHOULD BE INSTALLED FOR SINGLE OR DOUBLE RIGHT TURNS WHERE ONE OF THE LANES IS A TRAP LANE (SEE S-491.0). TRAP LANES SHALL BE SEPERATED FROM ADJACENT THROUGH LANES BY A LONGTUDINAL LINE.

## MULTIPLE TURNS

4. THE BEGINNING-OF-CURVE OF CAT TRACKS FOR LEFT TURNS SHALL BE TANGENT TO THE BARRIER LINE OR ITS PROLONGATION AT OR DOWNSTREAM OF THE INTERIOR CROSSWALK LINE. THE END-OF-CURVE SHALL BE PARALLEL TO THE RECEIVING LANE LINE OR ITS PROLONGATION AT OR UPSTREAM OF THE EXTERIOR CROSSWALK LINE AND LOCATED AS DESCRIBED IN NOTE 8.
5. THE BEGINNING-OF-CURVE OF CAT TRACKS FOR RIGHT TURNS SHOULD BE AT THE RADIAL EXTENSION OF THE BEGINNING OF THE CURB RETURN AND TANGENT TO THE BARRIER LINE. WHERE THE CURB LANE WIDTH IS SUFFICIENTLY WIDE TO ALLOW A LARGER CURVE FOR THE CAT TRACK THAN ONE BEGINNING AS DESCRIBED ABOVE, IN ORDER TO PROVIDE AN IMPROVED TRAVEL PATH, THE BEGINNING OF CURVE MAY BEGIN UPSTREAM OF THE BCR. WHEN THE BARRIER LINE AT THE BEGINNING-OF-CURVE IS NOT PARALLEL TO THE CURB, THE CURVE SHALL BE TANGENT TO THE BARRIER LINE OR ITS PROLONGATION. THE BEGINNING OF CURVE SHOULD BE POSITIONED TO MAINTAIN A MINIMUM WIDTH AT THE CURB RETURN EQUAL TO THE APPROACH WIDTH, OR 12 FEET, WHICHEVER IS SMALLER. THE PORTION OF CURVE UPSTREAM OF THE EXTERIOR CROSSWALK LINE SHALL BE A SOLID STRIPE. THE END-OF-CURVE SHALL BE PARALLEL TO THE RECEIVING LANE LINE AND LOCATED AS DESCRIBED IN NOTE 8.
6. THE CAT TRACK LINE MAY BE OFFSET 1 FOOT FROM THE RECEIVING LANE LINE, TO PROVIDE A WIDER RECEPTION WIDTH FOR THE NUMBER ONE TURN LANE WHEN: 1) THE NO.1 RECEIVING LANE IS LESS THAN 11 FEET; AND 2) THE CURB LANE WIDTH (OR THE COMBINED NO.2 AND NO.3 LANE WIDTHS) EQUALS OR EXCEEDS 21 FEET WITH PARKING, OR 13 FEET WITH PARKING PROHIBITED. WHEN THE OFFSET CRITERIA ARE MET, THE RECEPTION WIDTH FOR THE NUMBER ONE LANE (LANE WIDTH PLUS OFFSET) SHOULD BE 12 FEET WHERE POSSIBLE AND THE DIMENSION BETWEEN THE CAT TRACK AND CURB SHALL EQUAL OR EXCEED 20 FEET WITH PARKING, OR 12 FEET WITH PARKING PROHIBITED.
7. INTERSECTION STRIPING FOR MULTIPLE TURNS GENERALLY SHOULD DIRECT MOTORISTS TO NON-CURB LANES WHENEVER POSSIBLE, SINCE THEY MAY BE BLOCKED BY PARKED VEHICLES AND THE RADIUS WOULD BE SMALLER THAN NECESSARY.
8. FOR MULTIPLE LEFT TURNS, WHERE THERE IS NO RAISED MEDIAN SEPARATING THE OPPOSING TRAFFIC ON THE RECEIVING END, THE CROSSWALK ON THE RECEIVING END SHOULD BE AT LEAST 20 FEET AND THE DOUBLE YELLOW CENTER LINE THROUGH THAT CROSSWALK MAY BE DELETED. WHERE THERE IS A MEDIAN ISLAND, THE CROSSWALK ON THE RECEIVING END SHOULD BE 15 FEET.
9. WHERE THE DISTANCE BETWEEN CAT TRACKS FOR MULTIPLE LEFT-TURNS IN OPPOSITE DIRECTIONS IS LESS THAN 30 FEET, LEAD-LAG LEFT-TURN OR OPPOSED SIGNAL PHASING SHALL BE USED.

## LONGITUDINAL STRIPING

10. WHEREVER FEASIBLE, THE NEED FOR LONGITUDINAL CAT TRACKS SHOULD BE AVOIDED BY DESIGNING TRAVEL PATHS THROUGH THE INTERSECTION PARALLEL TO RAISED MEDIANS OR CURB LINES.
11. SPECIAL CONDITIONS WHERE LONGITUDINAL CAT TRACKS WITHIN THE INTERSECTION ARE REQUIRED INCLUDE:
    A. WHERE THE OFFSET IN STRIPING THROUGH THE INTERSECTION IS MORE THAN 2 FEET.
    B. WHERE OPPOSING LEFT TURN LANES ARE OFFSET TO THE RIGHT OF EACH OTHER.
    C. WHERE THE STRIPING HAS A TAPER OR A CURVE THAT BEGINS WITHIN 50 FEET OF THE APPROACH TO AN INTERSECTION.
    D. WHERE A TAPER OR CURVE ENDS WITHIN 20 FEET OF THE INTERSECTION.
    E. WHERE THE DESIGN SPEED ASSOCIATED WITH THE RADIUS OF CURVATURE OF THE TRAVEL PATH THROUGH THE INTERSECTION EQUALS OR IS LESS THAN THE APPLICABLE SPEED LIMIT.
    F. AT INTERSECTIONS WITH SHARP CREST VERTICAL CURVATURE WHERE THE DEPARTURE STRIPING IS NOT CONTINUOUSLY VISIBLE TO APPROACHING MOTORISTS.




SPECIFICATION FOR POST

Steel pipe, Standard weight, 2" X 42" Long, ASTM–A120–63T. new and unused, hot dipped galvanized, top reamed.

NOTES

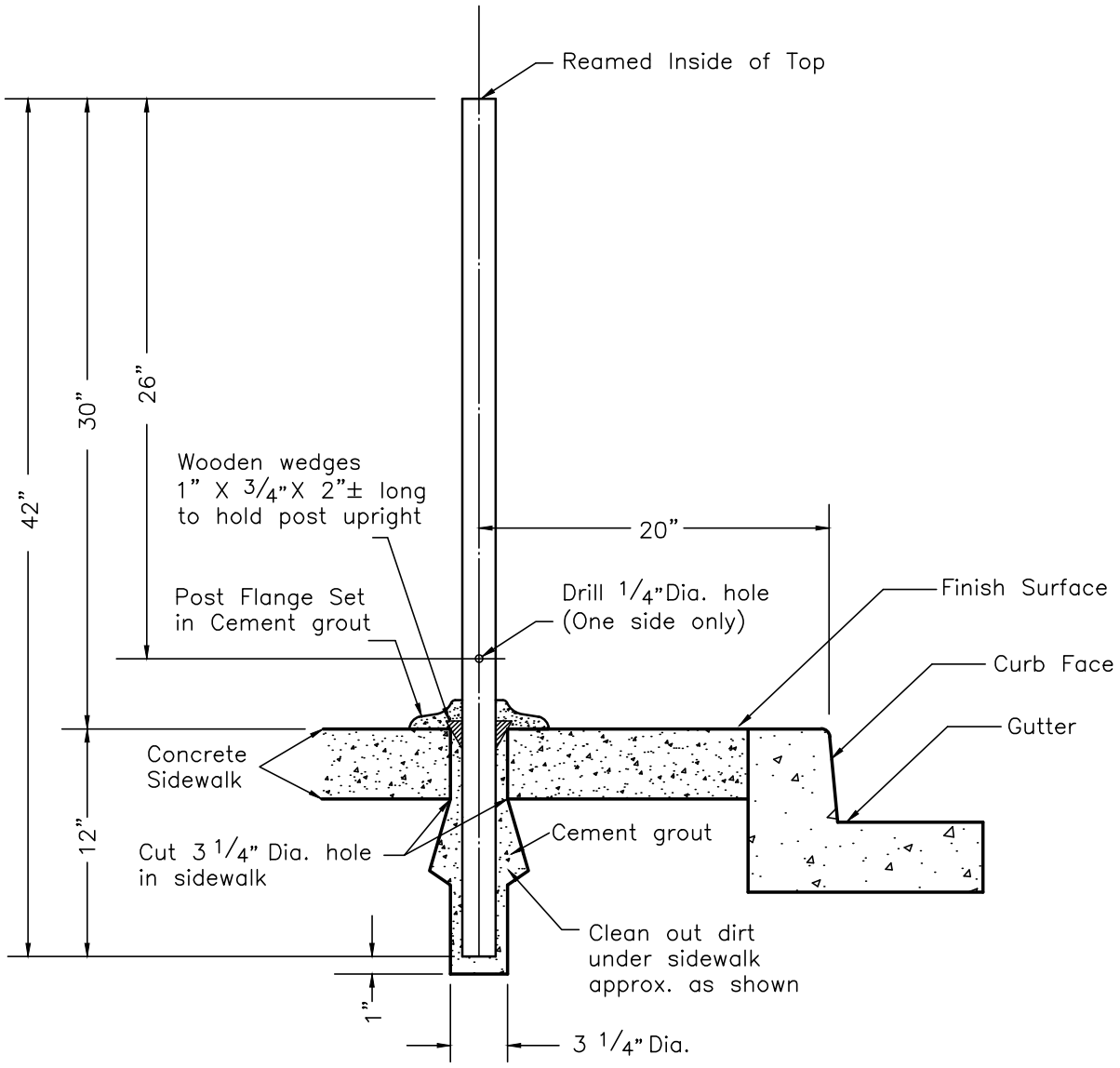
1. Concrete to be CLASS 560 C–3250
2. Post to be level straight.
3. Area to be left clean.
4. Cement grout– 1(cement) : 21/2 (sand)

APPROVED 12 / 03 / 2020

for Seleta J. Reynolds, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| Parking Meter Post Installation Dirt or Asphalt Setting | | 1 / 1 |
|---|---|---|
| CKD. RWL | SR. T.E. JDH | PR. T.E. KH |
| DWN. EH | T.E. RWL | S–410.4.1 |




SPECIFICATION FOR POST

Steel pipe, Standard weight, 2" X 42" Long, ASTM–A120–63T. new and unused, hot dipped galvanized, top reamed.

NOTES

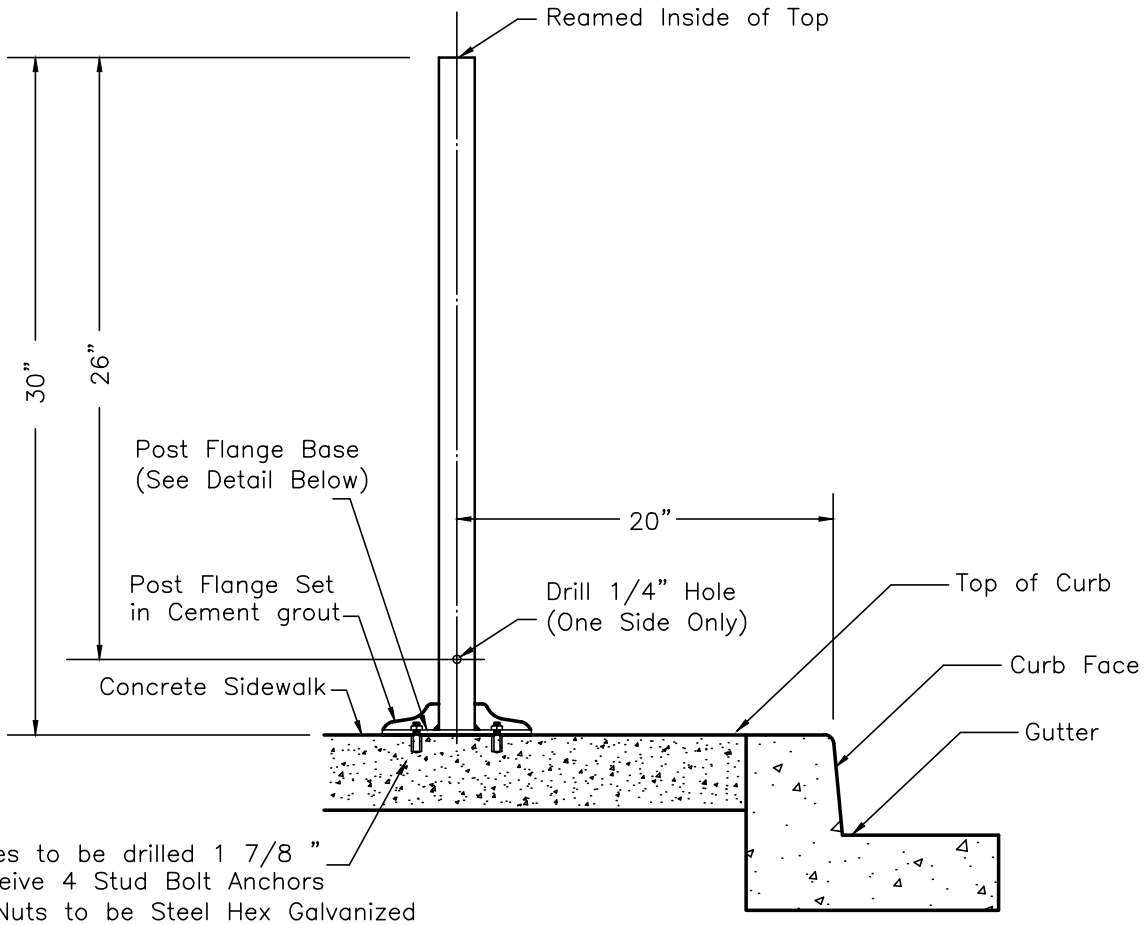
1. Post to be level straight.
2. Area to be left clean.
3. Cement grout– 1(cement) : 2 1/2 (sand)

APPROVED 12 / 03 / 2020

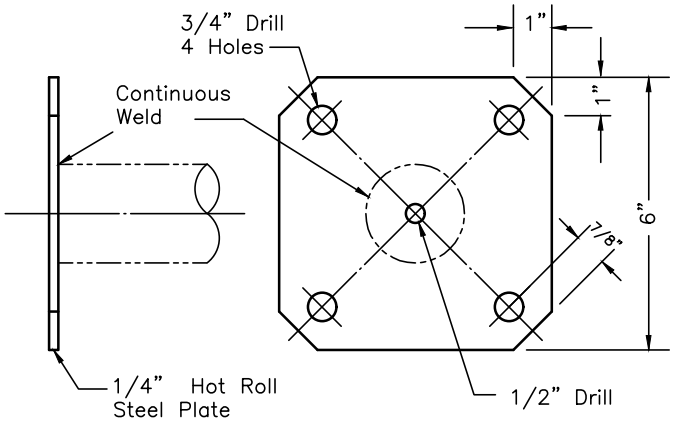
for Seleta J. Reynolds, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| Parking Meter Post Installation Concrete Setting | | 1 / 1 |
|---|---|---|
| CKD. RWL | SR. T.E. JDH | PR. T.E. KH |
| DWN. EH | T.E. RWL | S–410.4.2 |




4–1/2" holes to be drilled 1 7/8 " deep to receive 4 Stud Bolt Anchors 1/2" X 3" Nuts to be Steel Hex Galvanized 1/2" washers to be Flat Steel Galvanized Washers may be used under base as shims for leveling. 30" unthreaded post welded onto the Flange.




DETAIL: Post Flange Base

SPECIFICATION FOR POST

Steel pipe, Standard weight, 2" X 30" Long, ASTM–A120–63T. new and unused, hot dipped galvanized, top reamed.

Cement grout– 1(cement) : 2 1/2 (sand)

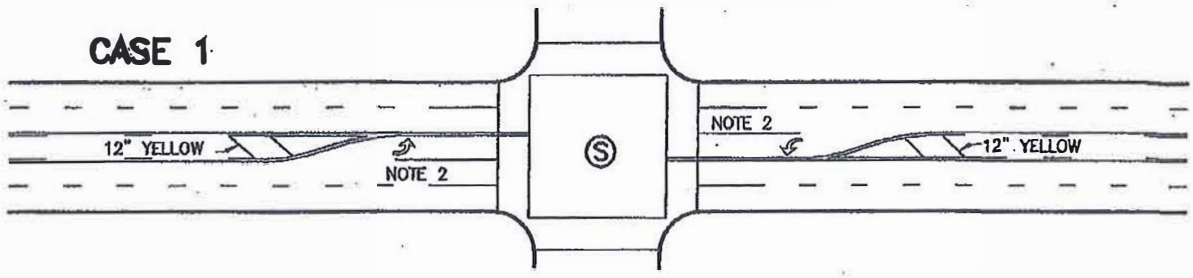
APPROVED 12 / 03 / 2020

for Seleta J. Reynolds, General Manager

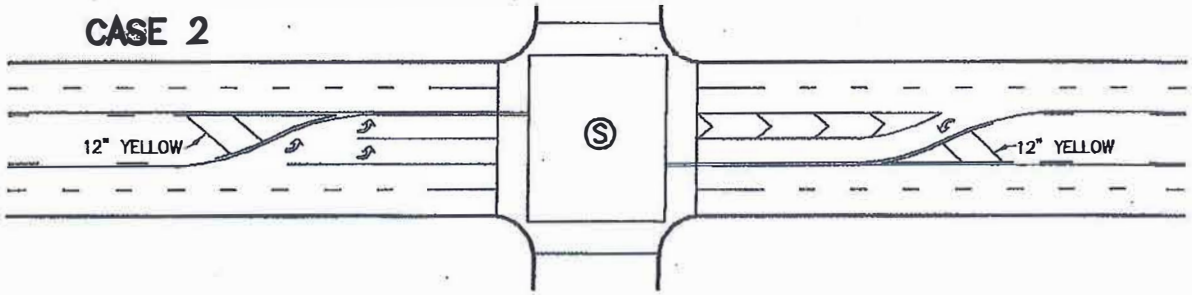
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| Parking Meter Post Installation On Concrete Bridge | | 1 / 1 |
|---|---|---|
| CKD. RWL | SR. T.E. JDH | PR. T.E. KH |
| DWN. EH | T.E. RWL | S–410.4.3 |

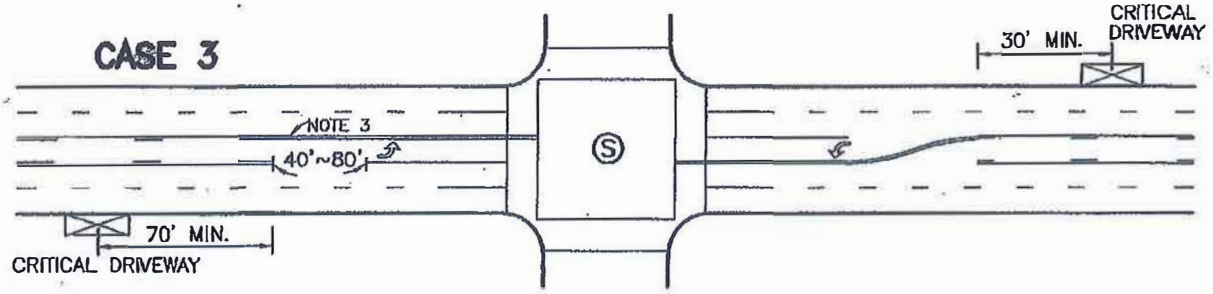
## CASE 1



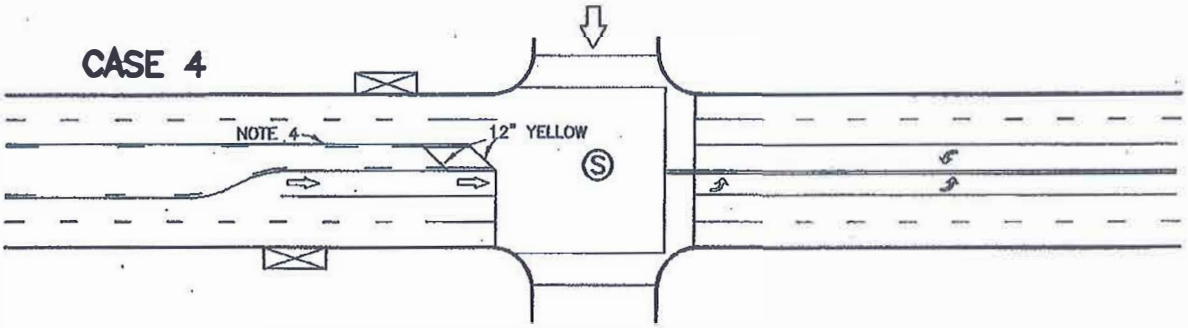

## CASE 2




## CASE 3




## CASE 4




APPROVED February 13, 2006

John E. Fisher

for Frances T. Banerjee, Interim General Manager

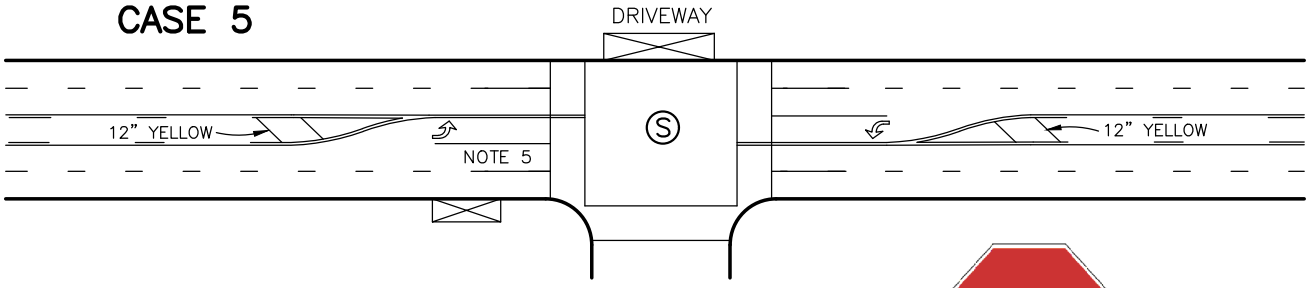
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

LEFT TURN AND
MEDIAN CHANNELIZATION
PAVEMENT MARKINGS

1/7

| | | |
|---|---|---|
| CKD. | SR. T.E. | PR. T.E. BB |
| DWN. M.T. | T.E. | S-414.4 |

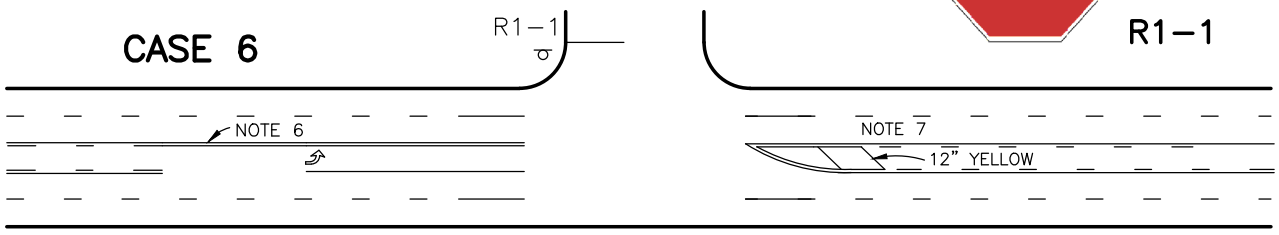
## CASE 5



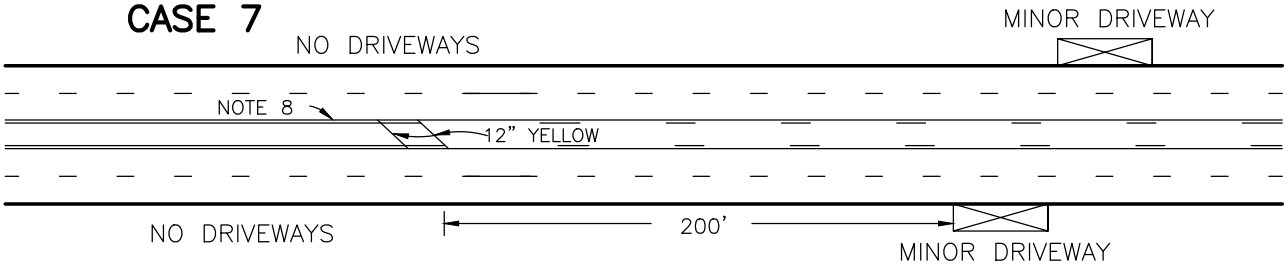

MAJOR OR STREET TYPE DRIVEWAY


R1-1

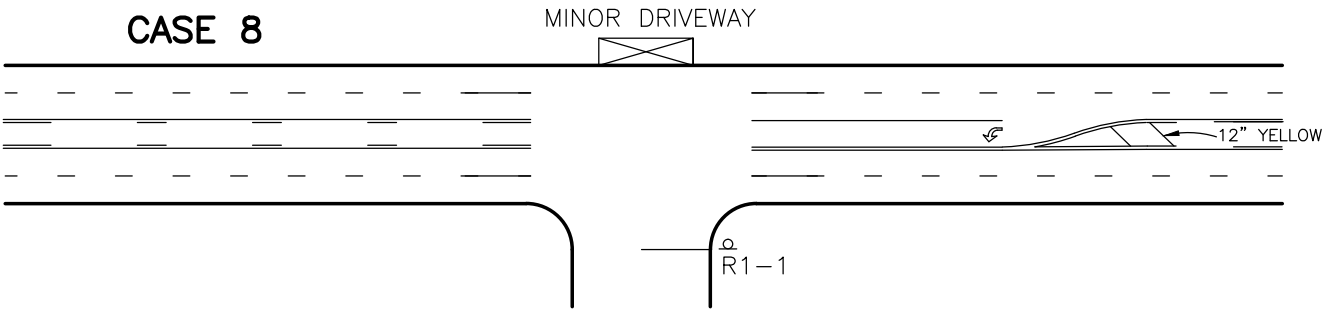
## CASE 6




## CASE 7




## CASE 8

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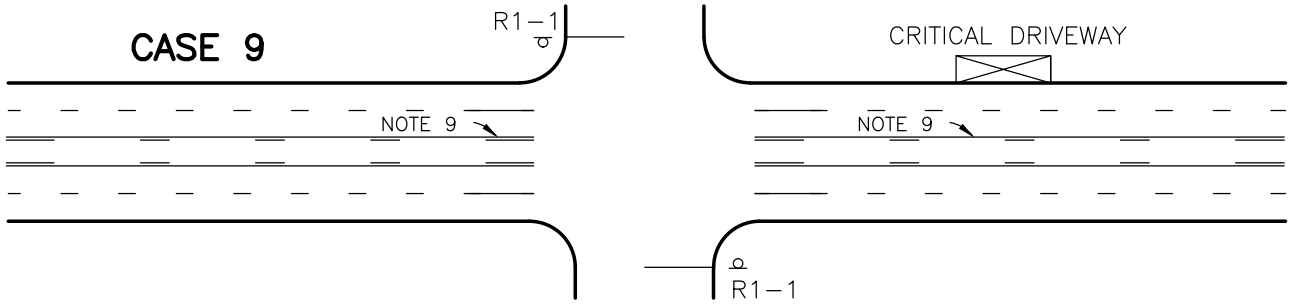
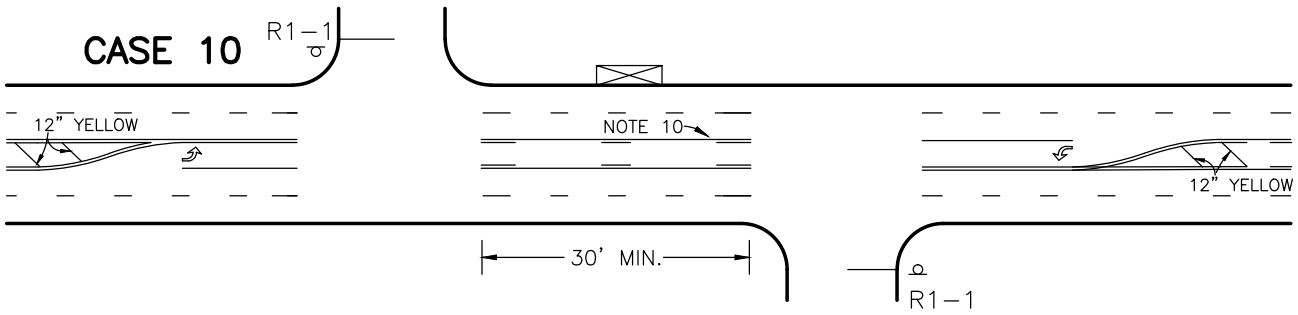
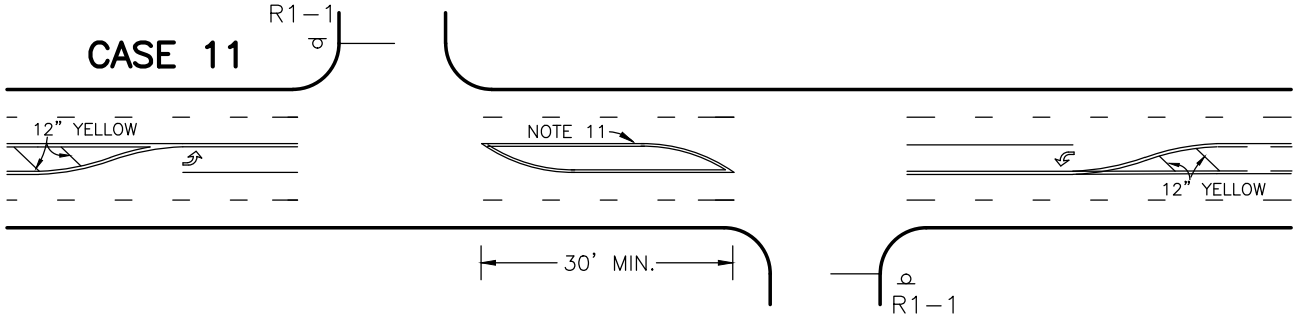



| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>LEFT TURN AND<br>MEDIAN CHANNELIZATION<br>PAVEMENT MARKINGS | Drawing No.<br>S-414.4 | 2<br>7 |
|---|---|---|---|

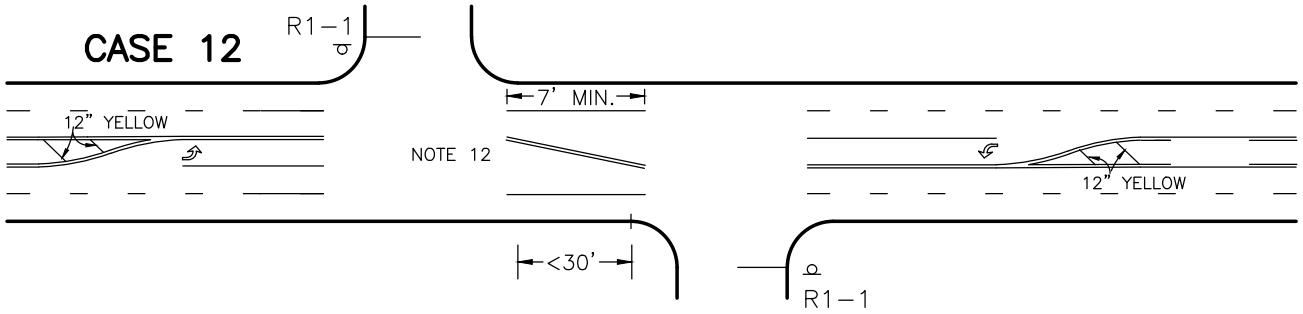
## CASE 10



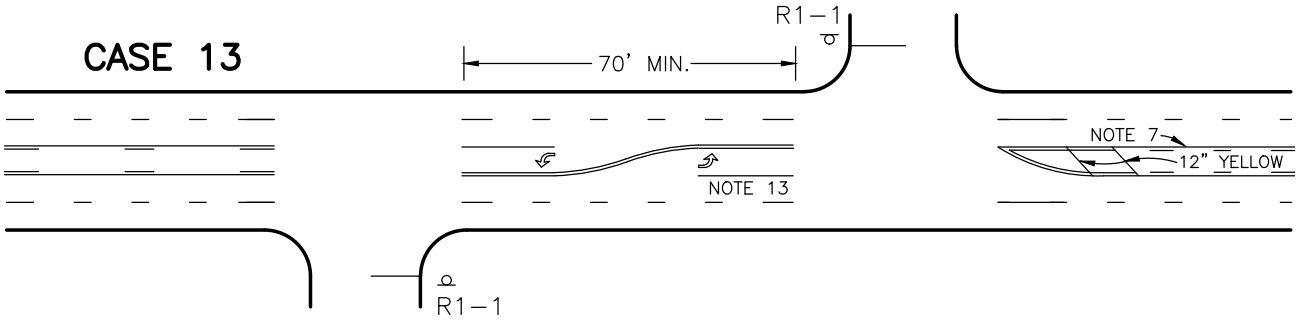

## CASE 11




## CASE 12

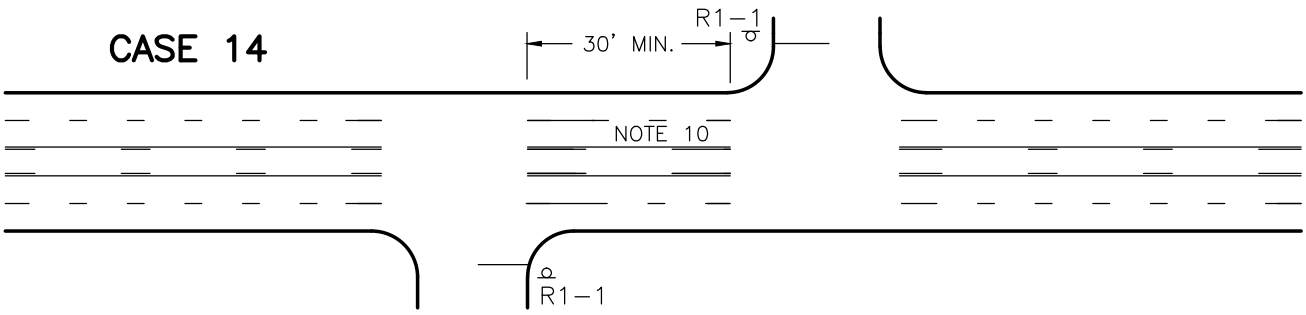



## CASE 13




| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | Title<br>LEFT TURN AND<br>MEDIAN CHANNELIZATION<br>PAVEMENT MARKINGS | Drawing No.<br>S-414.4 | 3<br>7 |
|---|---|---|---|

## CASE 14

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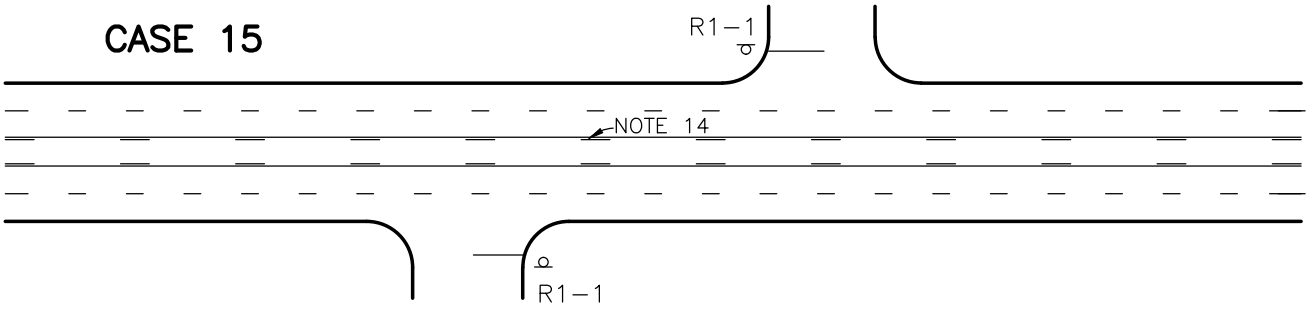


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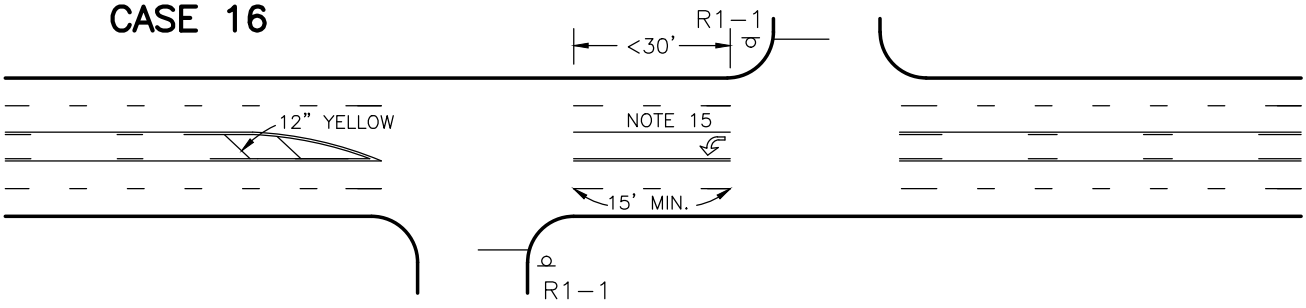


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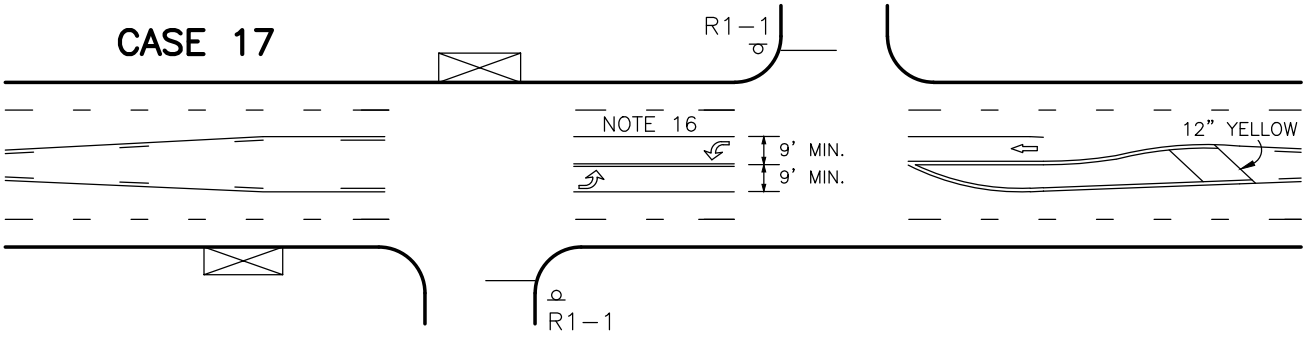
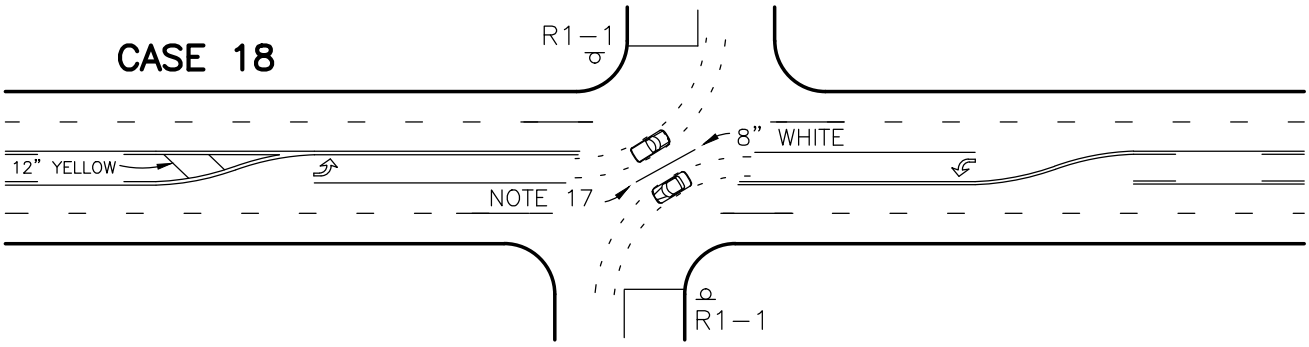



| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | Title<br>LEFT TURN AND<br>MEDIAN CHANNELIZATION<br>PAVEMENT MARKINGS | Drawing No.<br>S-414.4 | 4<br>7 |
|---|---|---|---|

## CASE 18

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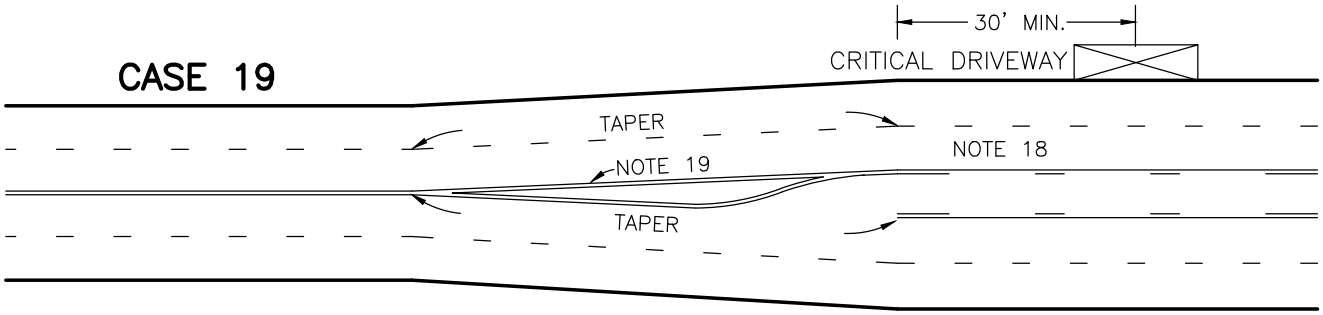


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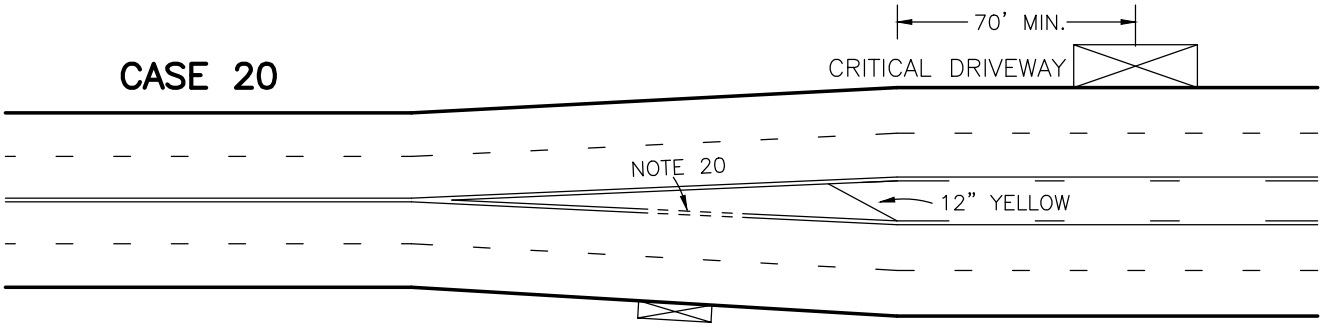


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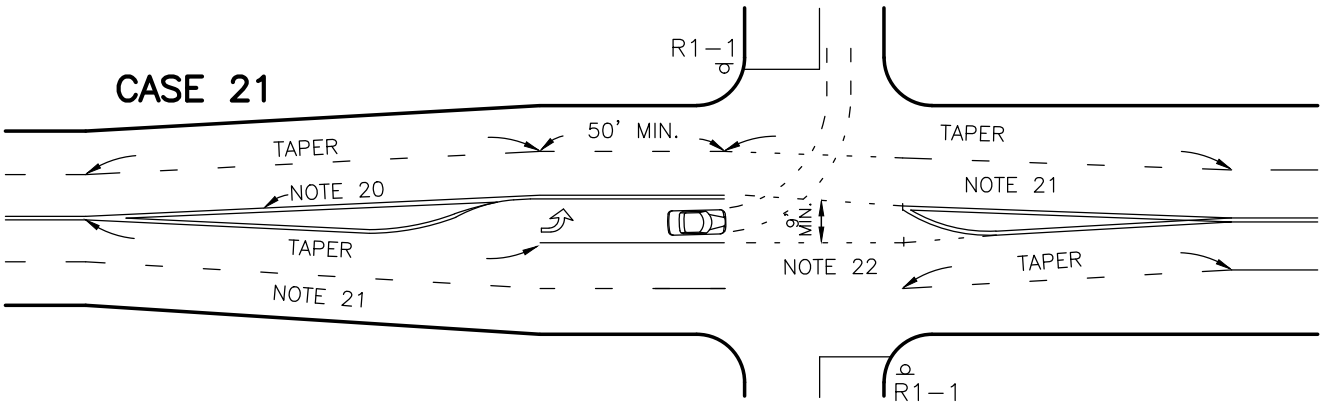
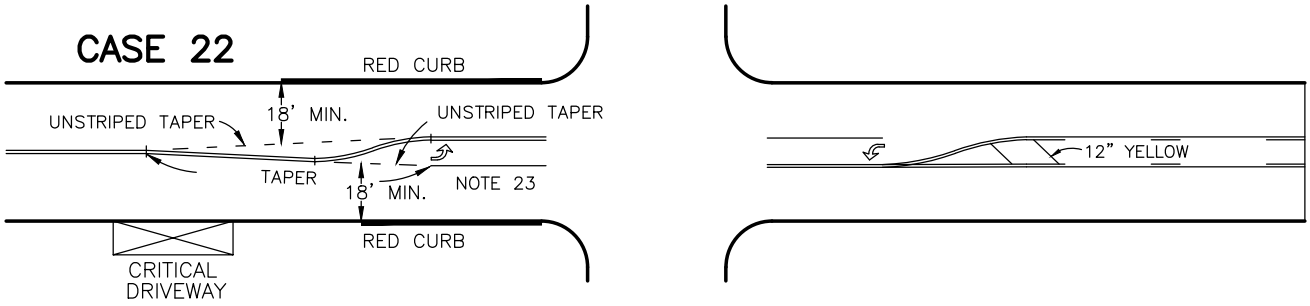



| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | Title<br>LEFT TURN AND<br>MEDIAN CHANNELIZATION<br>PAVEMENT MARKINGS | Drawing No.<br>S-414.4 | 5<br>7 |
|---|---|---|---|

## CASE 22

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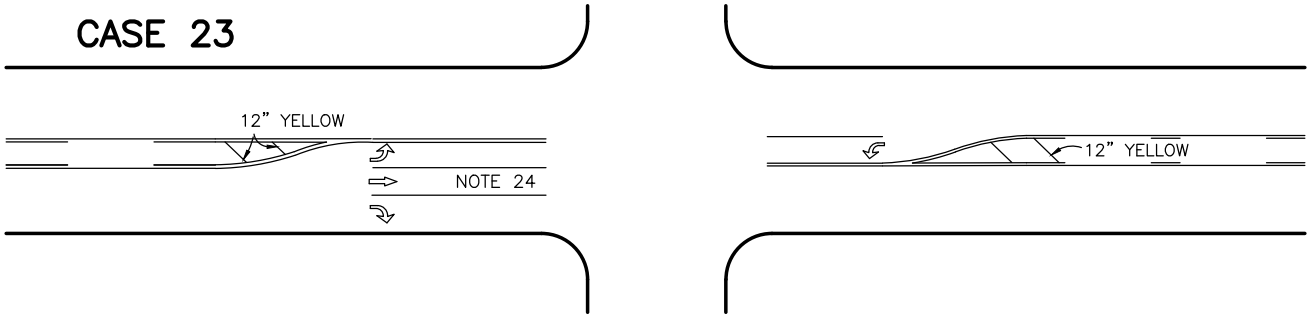


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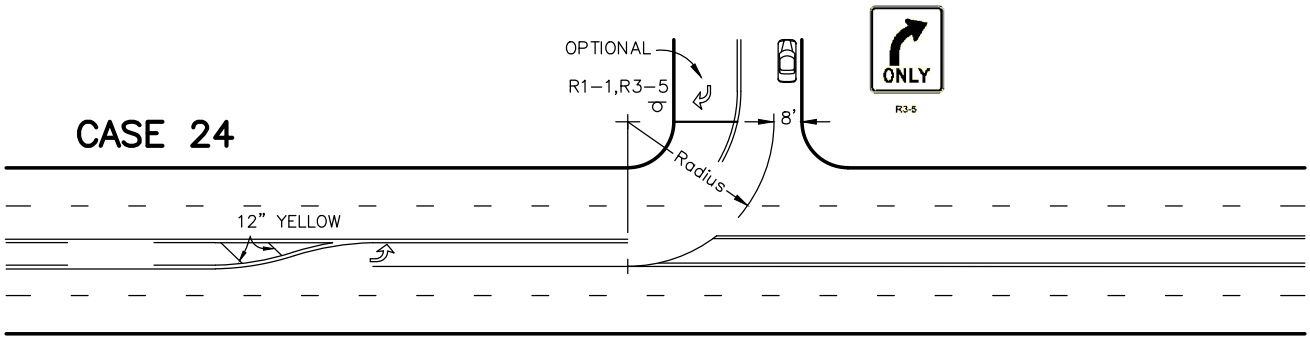
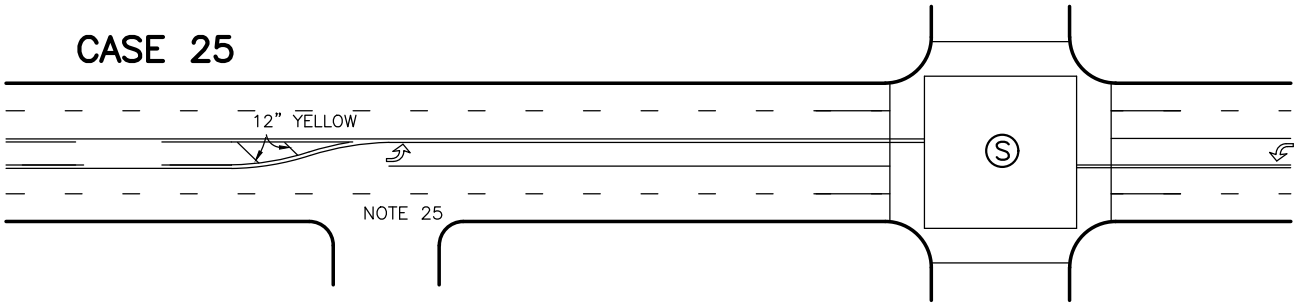



## CASE 25




| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | Title<br>LEFT TURN AND<br>MEDIAN CHANNELIZATION<br>PAVEMENT MARKINGS | Drawing No.<br>S–414.4 | 6<br>7 |
|---|---|---|---|

## Notes

1. Refer to S–491.0 for channelization associated with advance left–turn lanes.
2. Refer to S–401.0 Notes 1–5 regarding left turn lane details on the approach to signalized intersections.
3. At a signalized approach the reversal may be deleted and the double yellow line extended as shown only if: 1) the minimum length of the left turn lane is provided per S–401.0; 2) spillover is recurrent; 3) there is a 2WLTL upstream of the left–turn; or 4) an operational decision has been made to provide left–turn storage into a critical driveway.
4. A 2WLTL may be installed adjacent to an advance left turn lane (serving only the through move along the adjacent reach) but shall not be installed adjacent to a unidirectional left turn lane.
5. Signalized driveways should be served with a left–turn pocket lane. Where the driveway within the intersection is not signalized, a 2WLTL may be considered.
6. The reversal of a striped left–turn lane may be deleted at an unsignalized intersection. Where additional storage is desired the lane should be lengthened or replaced by a 2WLTL.
7. The 2WLTL may be extended and the curved median closure (cigar nose) eliminated where it is desired to provide a refuge for vehicles turning left from a driveway or street.
8. A painted median should be striped where the nearest driveway is more than 200 feet away or where it is not desired to provide U–turn capability for motorists to park at the curb.
9. A 2WLTL may be used instead of a left–turn pocket lane where an operational decision has been made to provide left–turn storage into a critical driveway, or where it is desired to provide refuge for vehicles turning left from a driveway or street.
10. The absolute minimum length of a 2WLTL under constrained conditions is 30 feet (6 feet of interior stripe, 18 feet of gap and 6 feet of interior stripe)
11. This is an option to Case 10 where there are no driveways.
12. For interior distances less than 30 feet install at least 7 feet of lane line striping and a diagonal double yellow stripe for guidance.
13. The absolute minimum length for a left–turn lane reversal is 40 feet. Thus, the minimum length for back–to–back left–turn lanes is 70 feet (15 feet of storage, 40 feet of reversal and 15 feet of storage).
14. Use to maximize 2WLTL storage or where the striping of the 30 foot minimum length of a 2WLTL is not possible between the offset cross streets and it is desired to provide 2WLTL storage at the cross streets.
15. Case 16 striping may be used if an operation decision has been made to maximize left turn storage for one of the legs of a jogged intersection, while on the other hand sacrificing left turn storage for the other leg. The minimum length of the left turn pocket is 15 feet. Consideration should be given to prohibiting left turns from the leg without a pocket.
16. The minimum width for each side–by–side left–turn lane is 9 feet and the minimum length is 15 feet .
17. The 8 inch white diagonal line is reserved for jogged intersections with minor offsets where the opposing left turn paths do not overlap. Assume a single radius for each vehicular path.
18. Use Case 19 to provide storage into a critical driveway as discussed in S–401.0, Note 4.
19. The tapered double yellow line may be partially or completely deleted where it is desired to accommodate left–turns to or from a driveway within the reach of the taper.
20. One of the tapered double yellow lines may be broken where it is desired to accommodate left turns to or from a driveway within the reach of the taper.
21. Tapers in different directions shall be separated by a 50 feet minimum tangent parallel to the edge of roadway. Adjacent tapers in the same direction should be avoided and replaced by a longer single taper, curve or curve–tangent–curve.
22. All left turn lanes are to be shadowed from opposing traffic with a left–turn lane or (painted or raised) median on the opposite leg. The minimum width of shadow at the receptive center line is 9 feet, unless a protected left turn phase is provided.
23. When the tapered double yellow line is deleted as per Note 20 an 18 feet minimum curb lane width to the unstriped taper shall be provided where curb stopping is allowed.
24. A through pavement marking arrow should be provided where a single through lane lies adjacent to left–turn and right–turn lanes.
25. Striping may be extended across an unsignalized intersection where it is desired to provide continuous storage on the approach to a signalized intersection downstream. Consideration should be given to prohibiting lefts into and out of the cross street.

. General Notes: See Sheet 2

. Arrow Styles: See Sheet 3

. Shield Sizes: See Sheet 3

. Interchange Examples: See Sheet 4

. Sign Formats: See Sheet 5~9

Approved July 27, 2010
John E. Fisher
Rita L. Robinson, General Manager

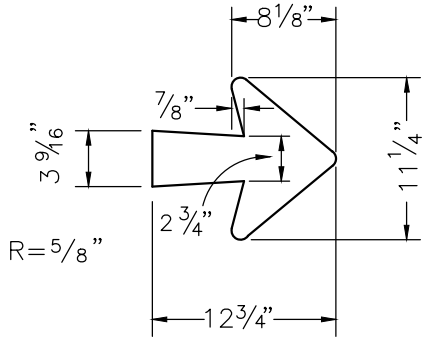
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| Roadside Freeway Guide Signing | | 1/9 |
|---|---|---|
| T. E. TC | Sr. T. E. | Pr. T. E. |
| DWN MT 7-26-10 | CKD | Dwg. No. S-418.5 |

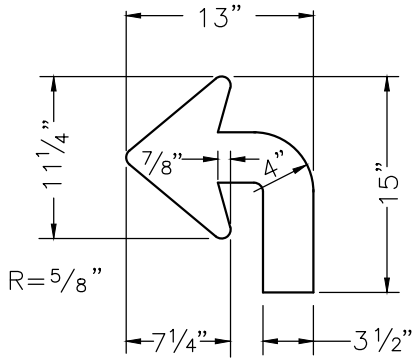
# General Notes

1. See S–418.6 regarding the use of overhead versus roadside freeway guide signs. Use roadside freeway guide signing where access to the freeway is provided only by the right lane, where overhead signing may not be feasible or as interim signing until overhead signing can be installed.
2. See S–476.1 regarding mounting of roadside freeway guide signing. 4'X8', 5'X6', 4'x6' and 3'x8' signs require dual posts, while 3'x6' signs may be installed on an electrolier or single post. Signs up to 10 sq–ft may be installed on steel electroliers within concrete sidewalks.
3. Lane Assignment freeway guide signs on multilane cross streets that have access to freeways are required per Section 2D.45 of the California MUTCD. Where roadside signs are to be used apply the appropriate formats as shown in signs B, C, F, G, I, L, R, S, W and X.
4. Action freeway guide signs are an essential follow–up to Lane Assignment freeway guide signs for assisting motorists in accessing the desired directions to freeways. Where roadside signs are to be used apply the appropriate formats as shown in Signs D, H, J, K, M, N, O, P, T, U, Y and Z. They should be placed 100' to 200' in advance of the turn. See Note 9.
5. Advance freeway guide signs are necessary in advance of a pair of roadside Lane Assignment freeway guide signs in order to advise motorists early–on that both directions of the freeway are accessible. See the appropriate formats in Signs A, E, Q and V.
6. Freeway names are to be used only on the Advance sign or Lane Assignment sign (if an Advance sign is not appropriate) only where the on–ramps are within one mile of a freeway–to–freeway interchange, as shown in Signs A and E.
7. Where a long freeway name does not fit within the 8' wide format, as shown in Sign A, then Series C upper and lower case letters may be used. Where the freeway name and the word "Fwy" can fit on the first line then the freeway shield shall be shown alone on the second line.
8. The first capital letter of the cardinal direction is larger so as to provide improved recognition.
9. The dual direction Action freeway guide sign format as shown in Signs D and H versus the split directional formats as shown in Signs J, K, M, O, T, U, Y and Z is to be used only when physical contraints preclude effective placement of split signs.
10. The text on each line is to be centered.

# Horizontal, Vertical and Diagonal Arrows

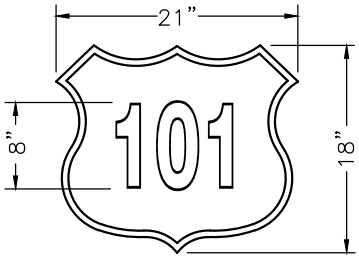


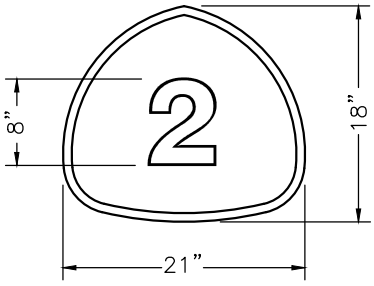

One Line



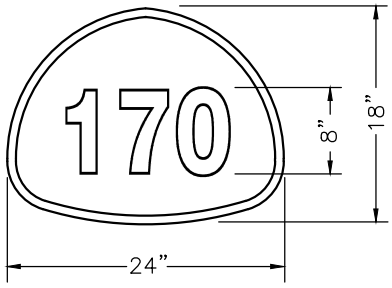

Advance

# Shields

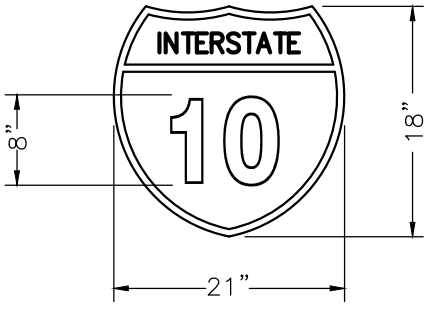



1 or 2 digits




3 digits

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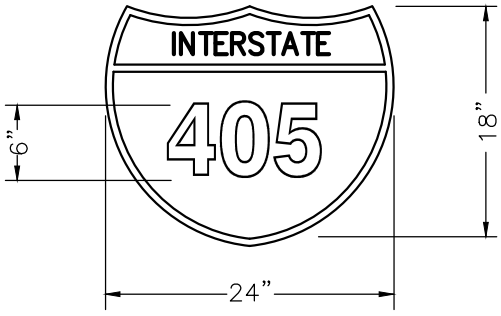
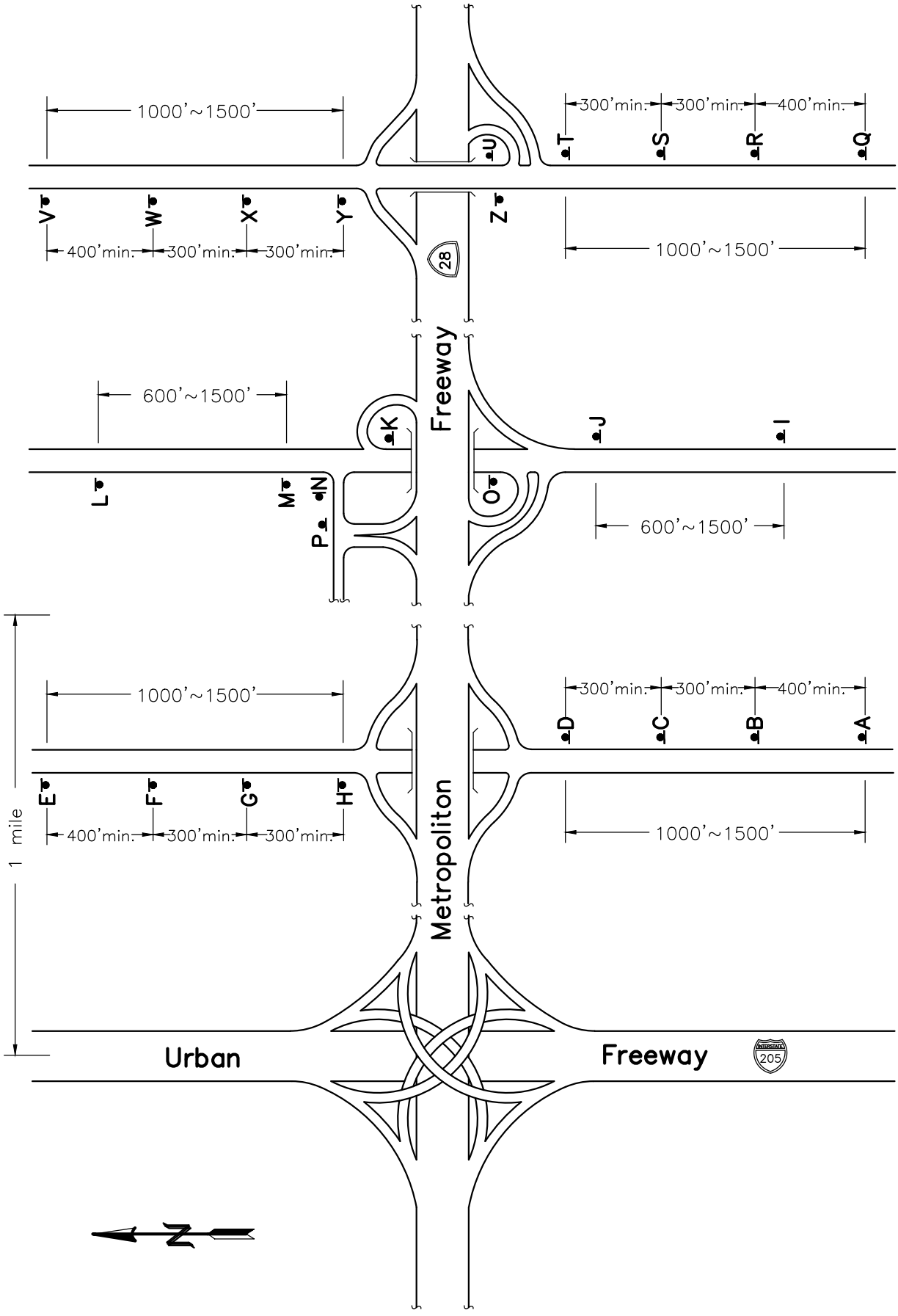
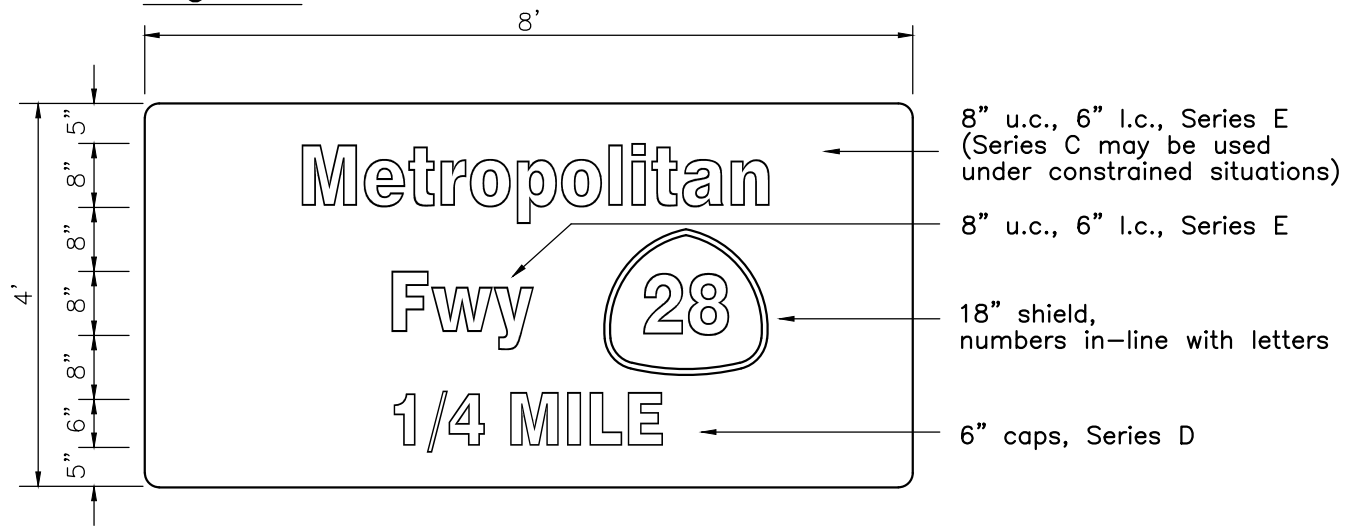



3 digits

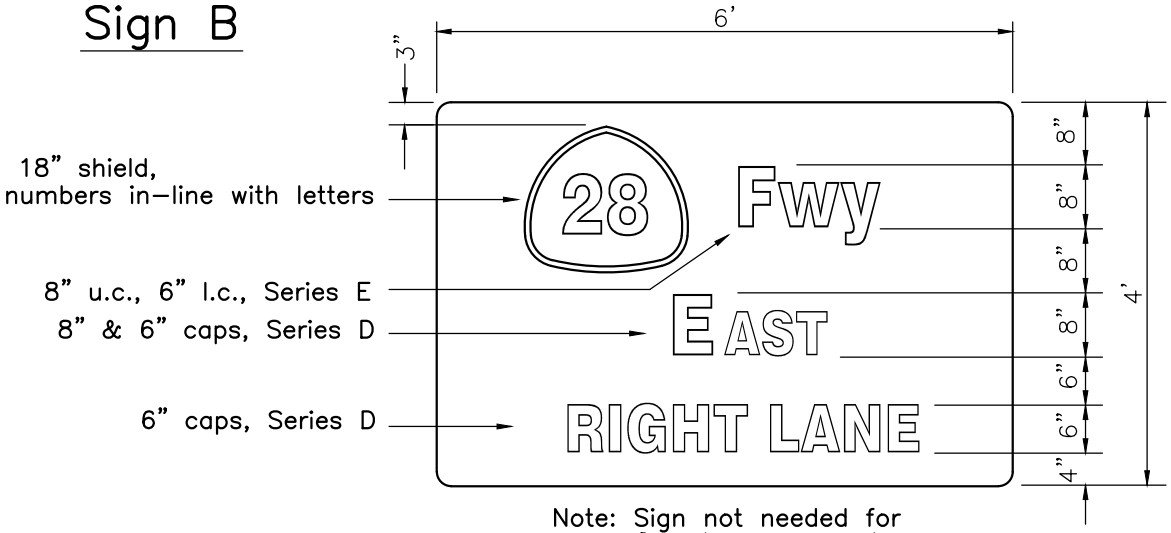



| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Roadside Freeway<br>Guide Signing | Drawing No.<br>S–418.5 | 4<br>9 |
|---|---|---|---|

## Sign A

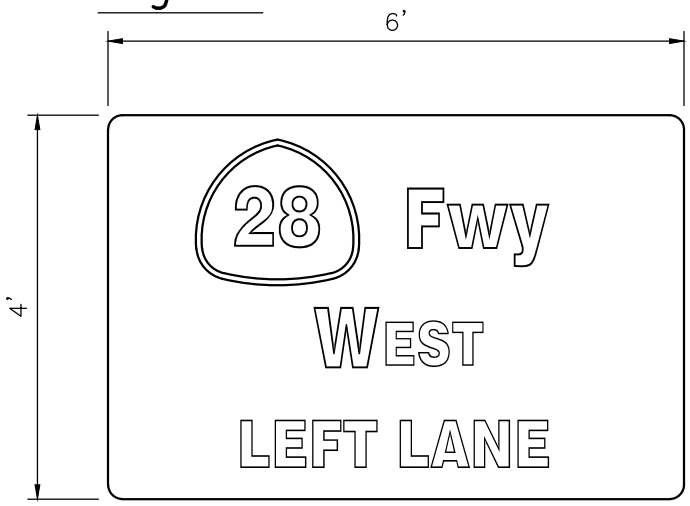



## Sign B




Note: Sign not needed for
One-lane approach

## Sign C




See details and note for Sign B

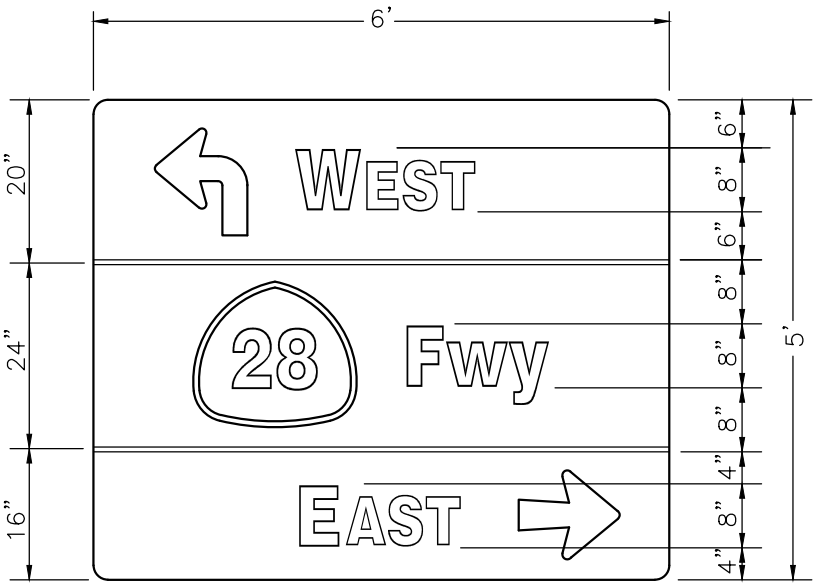
## Sign D

13"x15" Advance Arrow
vertically centered

8" & 6" caps, Series D
1¼" dividing line, typical

18" shield,
numbers in–line with letters
8" u.c., 6" l.c., Series E

8" & 6" caps, Series D
12¾"x11¼" One Line
Arrow, vertically centered




## Sign E

See Sign A

## Sign F

Same as Sign B, except that 'EAST" becomes "WEST"

## Sign G

Same as Sign C, except that 'WEST" becomes "EAST"

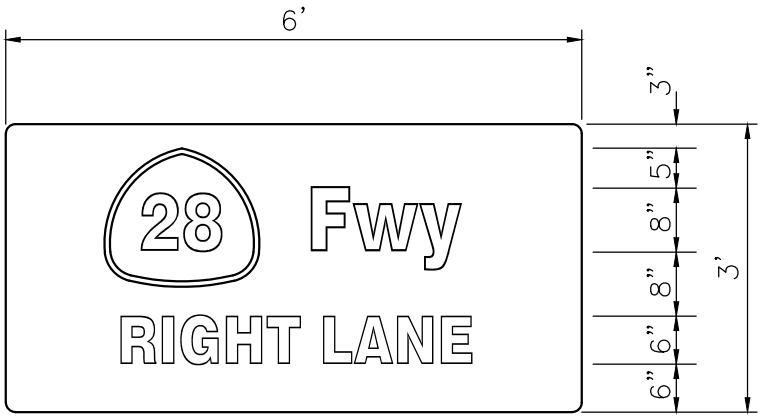
## Sign H

Same as Sign D, except that 'EAST" becomes "WEST" and vice versa

## Sign I

18" shield,
numbers in–line with letters
8" u.c., 6" l.c., Series E

6" caps, Series D

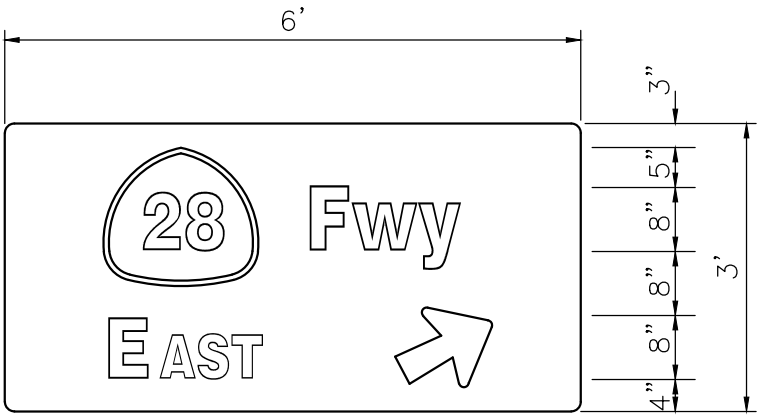



Note: For one–lane approaches
See Sign Q

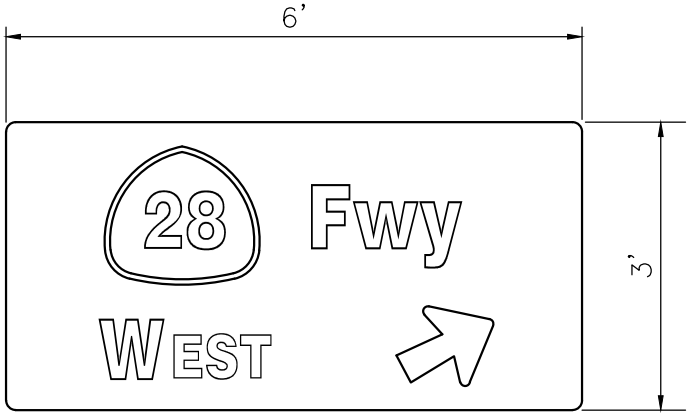
## Sign J

18" shield,
numbers in–line with letters
8" u.c., 6" l.c., Series E

8" & 6" caps, Series D
12 3/4 x 11 1/4" One Line Arrow




## Sign K




See details for Sign J

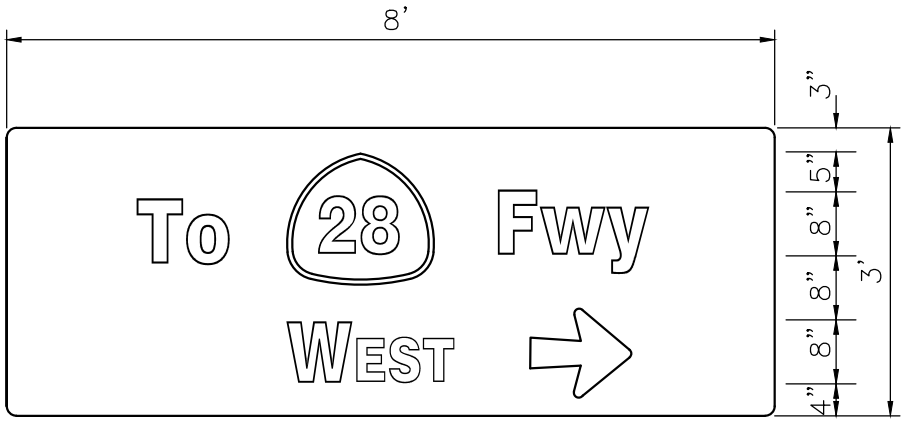
## Sign L

See Sign I

## Sign M

18" shield,
numbers in–line with letters
8" u.c., 6" l.c., Series E

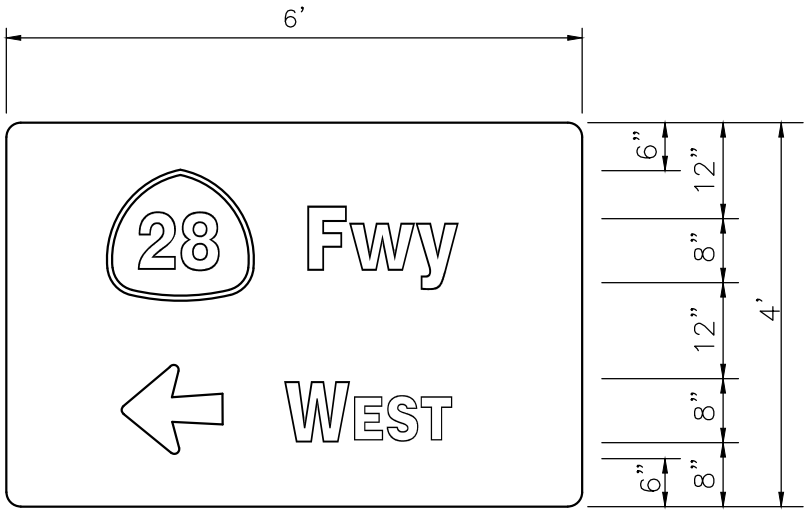
8" & 6" caps, Series D
12 ¾"x11 ¼" One Line Arrow




## Sign N

18" shield,
numbers in–line with letters
8" u.c., 6" l.c., Series E

8" & 6" caps, Series D
12 ¾"x11 ¼" One Line Arrow



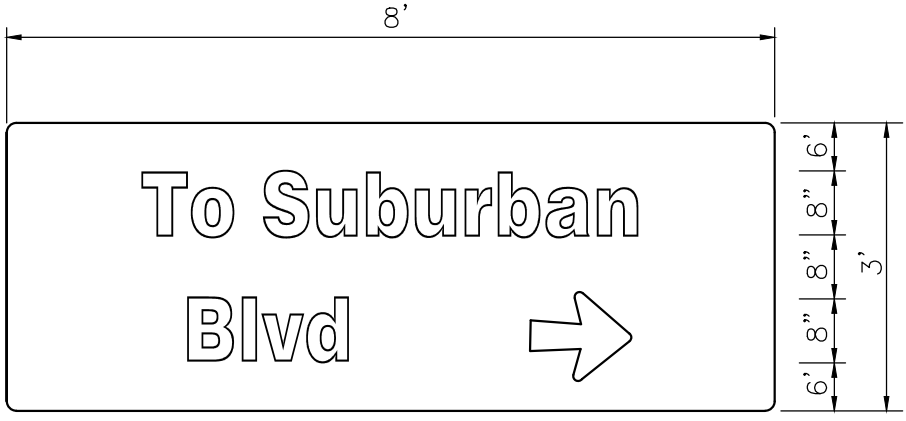

## Sign O

See Sign J

## Sign P

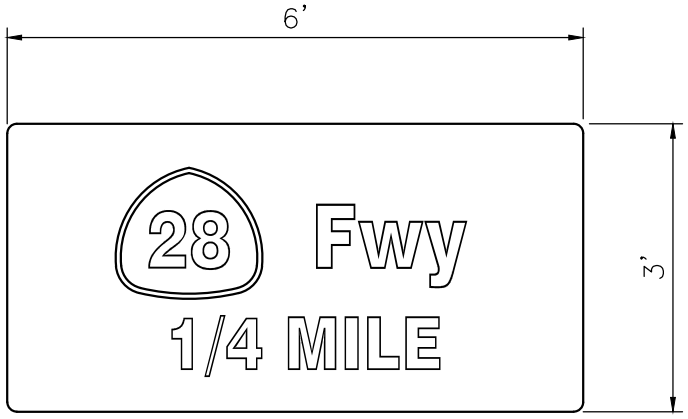
8" u.c., 6" l.c., Series E
(Series C may be used under constrained situations)

12 ¾"x11 ¼" One Line Arrow



## Sign Q

See Details for Sign I




## Sign R

See Sign B

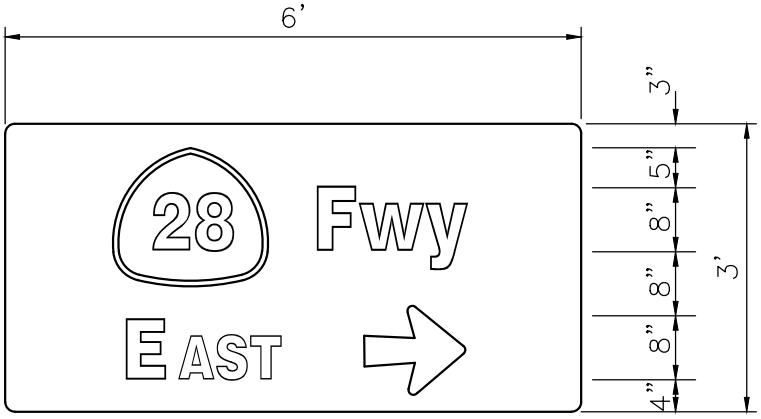
## Sign S

See Sign C

## Sign T

18" shield,
number in-line with letters
8" u.c., 6" l.c., Series E

8" & 6" caps, Series D
12 3/4" x 11 1/4" One Line Arrow




## Sign U

See Sign N

## Sign V

See Sign Q

## Sign W

Same as Sign B, except "EAST" becomes "WEST"

## Sign X

Same as Sign C, except "WEST" becomes "EAST"

## Sign Y

Same as Sign T, except "EAST" becomes "WEST"

## Sign Z

Same as Sign N, except "WEST" becomes "EAST"

- Applications of Overhead Guide Signs: See Sheet 2
- Overhead Sign Format Details: See Sheet 3
- Arrow Styles and Specifications: See Sheet 4
- Route Shield Sizes: See Sheet 5
- W 61 Signs: See Sheet 5
- Roadway Examples: See Sheets 6 & 7
- Sign Formats: See Sheets 8~14
- Application Notes: See Sheets 15 & 16

| | | |
|---|---|---|
| Approved July 23, 2010 John E. Fisher<br>Rita L. Robinson, General Manager | | |
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
| Overhead Guide Signing | | 1/16 |
| T.E. TC | Sr. T.E. | Pr. T.E. |
| DWN MT 7-27-10 | CKD | Dwg. No. S-418.6 |

## APPLICATION OF OVERHEAD GUIDE SIGNS

### General

These signs are desirable to provide a high degree of visibility to forewarn and direct motorists on multi–lane approaches of roadway access or lane assignment conditions that generally cannot be anticipated. Situations where overhead signs generally should be provided include:

- Divergent arterial roadways
- Skewed arterial approaches
- Unshadowed left–turn lanes
- Arterial grade separations, especially those which involve freeways
- Priority lanes, such as bus and/or carpool lanes
- Street name changes
- End of one–way operation

While overhead signing should be used for the above situations, extenuating circumstances occasionally may suggest on alternative. Accordingly, roadside signing shall be used in the above situations where overhead signing is not used.

### Divergent Arterial Roadways

Overhead signs are desirable because motorists cannot otherwise anticipate lane assignment and street name changes at the divergence. Where the intersecting street is not an arterial street and no lanes are entrapped onto it then overhead signing is not required. Also, where one of the arterial roadways has no change in horizontal alignment nor name and has no lanes that are entrapped onto the intersecting arterial roadway then no divergence exists and thus overhead signing is not required. See Signs A and B with related notes.

### Skewed Arterial Approaches

Overhead signs are desirable because the deviation from right angles formed between the intersection legs can result in lane assignment ambiguity. See Signs C and D with related notes.

### Unshadowed Left–Turn Lanes

Overhead signs are desirable on two–way streets so that motorists will readily recognize that the lane is entrapped and that there may be opposing traffic in the lane downstream. If there is a raised median then ground–mounted signing in the median may be adequate. See Signs B, C and D that display R3–5 signs with related notes and Signs S and U.

### Arterial Grade Separations

Overhead signs are desirable because motorists cannot otherwise anticipate whether the connecting ramp figuration is on the left or right of the arterial approach. "Action" overhead signs show the immediate left–turn or divergent move necessary for access to the grade–separated facility. If there is a raised median then ground–mounted signing in the median may be adequate. "Action" overhead signs are not necessary for right turns or right–divergent moves, since "Lane Assignment"signs will direct motorists to the right lane(s) from where they can readily read roadside signing. See Signs E, F, G, H, H–Alternate, I, I–Alternate with related notes. "Lane Assignment" signs forewarn motorists as to which lanes of a multi–lane approach provide on–ramp access. Section 2D.45 of the California MUTCD requires "Lane Assignment" signs on multi–lane approaches to freeways. See Signs J, K, L, M and N with related notes.

### Priority Lanes

Overhead signs are desirable for this rare regulatory condition which cannot otherwise be anticipated. See Signs O, P and Q with related notes.

### Street Name Changes

Overhead signs are desirable at selected non–divergent locations and major junctions to advise motorists of the change in route name. selected locations would be near regionally–significant activity centers. See Sign R.

### End of One–Way Operation

Overhead signs are desirable so that motorists in the opposing direction (on the two–way leg of the intersection) may readily recognize that they must turn left and/or right. See Signs S, T and U.

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | | |
|---|---|---|
| OVERHEAD GUIDE SIGNING | | 2/16 |
| CKD. | SR. T.E. | PR. T.E. |
| DWN. M.T. | T.E. | S–418.6 |

# OVERHEAD SIGN FORMAT DETAILS

## Legend Size

The minimum size of letters on overhead signs is 8 inches upper case and 6 inches lower case. On streets with three or more approach lanes or with a posted speed limit of 40 miles per hour or greater 10.67 inch upper case and 8 inch lower case letters should be used.

Series E letter widths should be used, but in constrained situations Series C letter widths may be used.

Supplemental or clarifying wording on regulatory and guide signs (such as "ONTO BEVERLY DR", "200 FT" or "3 OR MORE") shall be 6 inch series D capital letters and numbers.

Lane Assignment wording ("RIGHT LANE", etc) shall be 6 inch Series D capital letters.

Cardinal directions shall have the first letter (N, S, E, W) larger so as to improve cardinal recognition. Where the general legend is 10.67 inches upper case and 8 inches lower case the cordinal direction should have 10 inch and 8 inch Series D letters. Where the general legend is 8 inches upper case and 6 inches lower case the cardinal direction should have 8 inch and 6 inch Series D letters.

The size of horizontal and vertical spacing should be equal to the height of the upper case letter. In constrained formats a minimum of one–half of these dimensions may be used. Division and border lines should be 1–1/2 inches wide.

See Sheets 4 and 5 for the sizes of arrows, route shields, and W61B(CA) and W61F(CA) signs.

## Sign Size

The size of the sign is governed by the size of its elements. Sign software programs should be used to determine overall sign size.

## Sign Structure

Fabrication of the sign from laminated, honeycomb panels using aluminum framing is shown in S–45.0. Cantilevered sign supports are shown in S92.2, S92.3, S98.0 and Plans S40N, S40P and S40Q of the State of California, Standard Plans.

## Sign Retroreflectivity Material

White Legend: Diamond (DG III) or Type VIII
Black Legend: Non–reflective Vinyl
Red legend: EC Film
Green Background: Type III
White Background: Type III
Yellow Background: Type III

All signs are to have match component UV/Anti Graffiti film.

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
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| OVERHEAD GUIDE SIGNING | | 3/16 |
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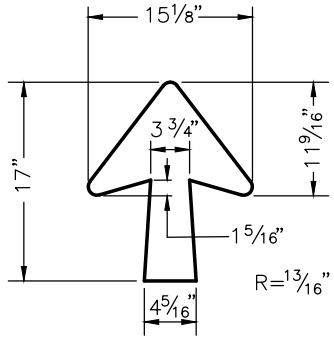
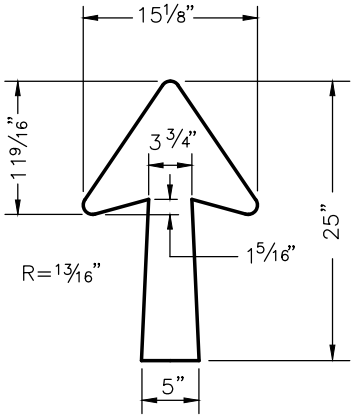
| DWN. M.T. | T.E. | S–418.6 |

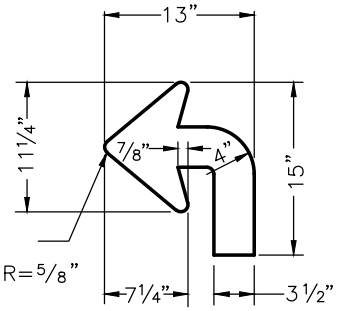
# Arrow Styles & Specifications



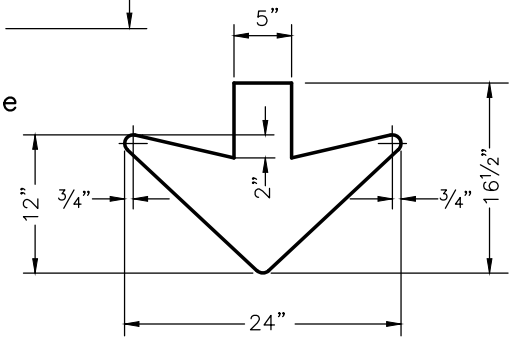

One Line




Two Line

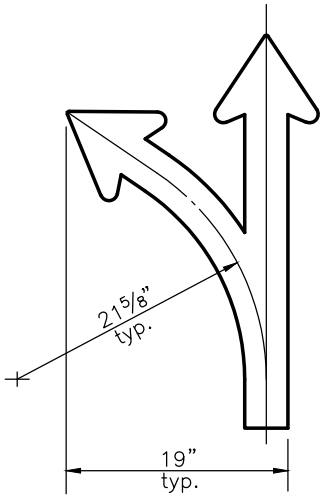


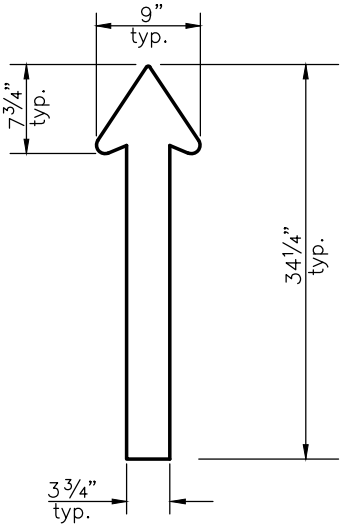

Advance Arrow

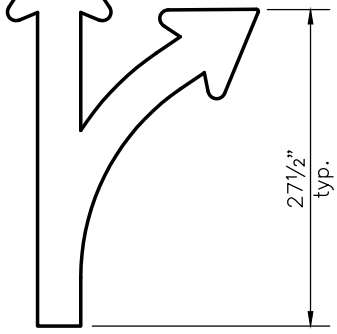


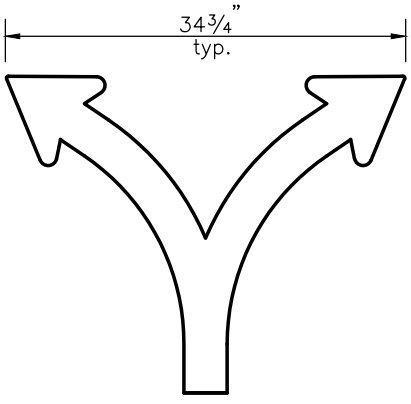

Down Vertical Arrow

## Diagrammatic Arrows



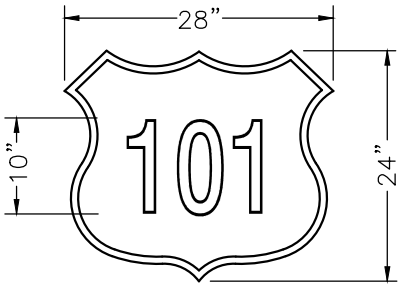



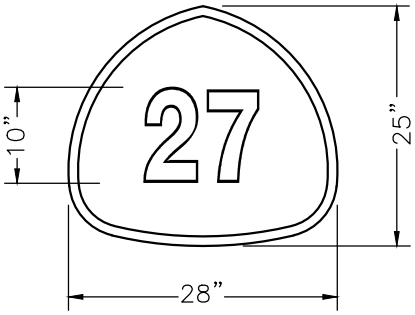



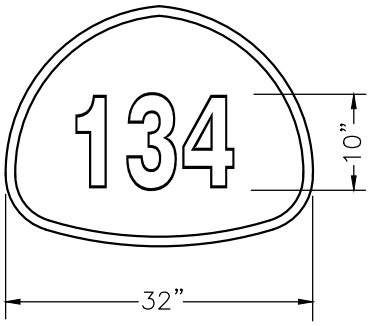

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
|---|---|---|
| OVERHEAD GUIDE SIGNING | | 4/16 |
| CKD. | SR. T.E. | PR. T.E. |
| DWN. M.T. | T.E. | S–418.6 |

## Route Shield Sizes

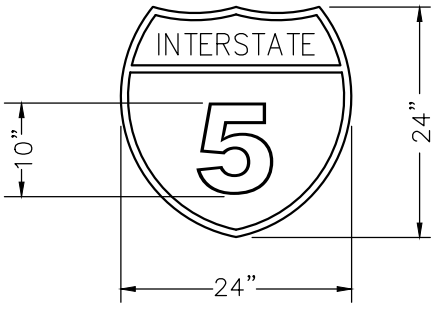


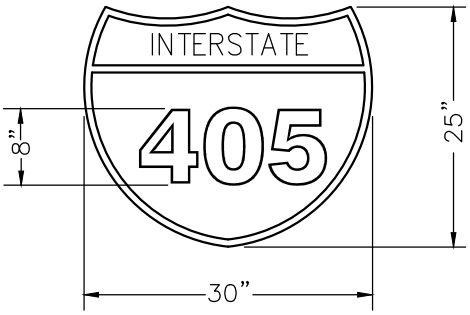

1 or 2 digits




3 digits

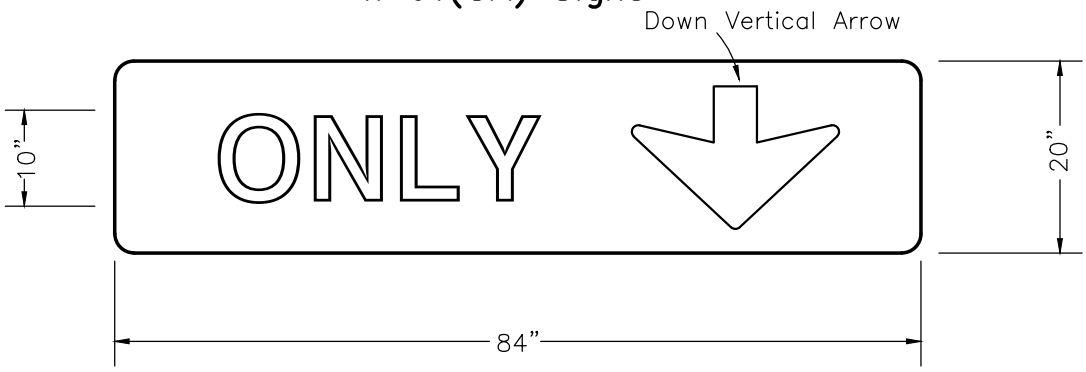



1 or 2 digits




3 digits

## W 61(CA) Signs



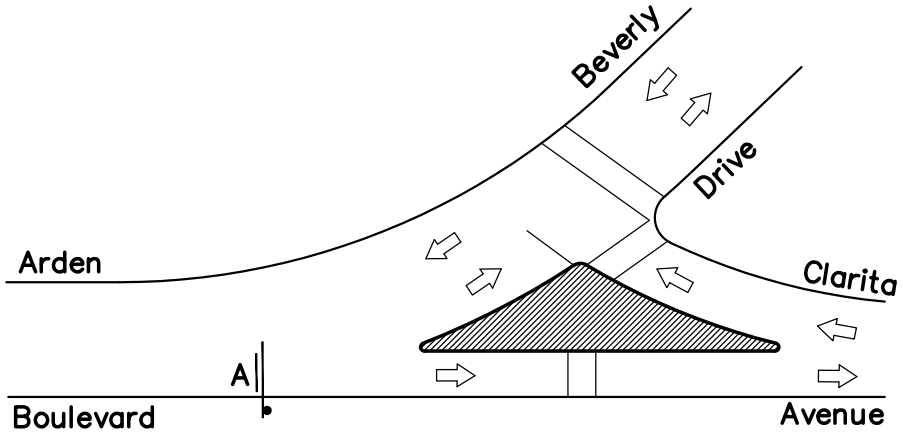

Yellow or White Background as per Note 4

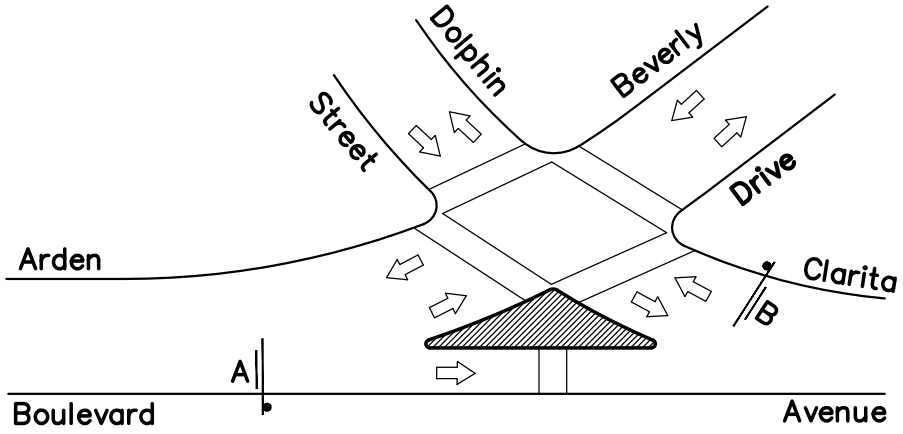
W61F(CA)

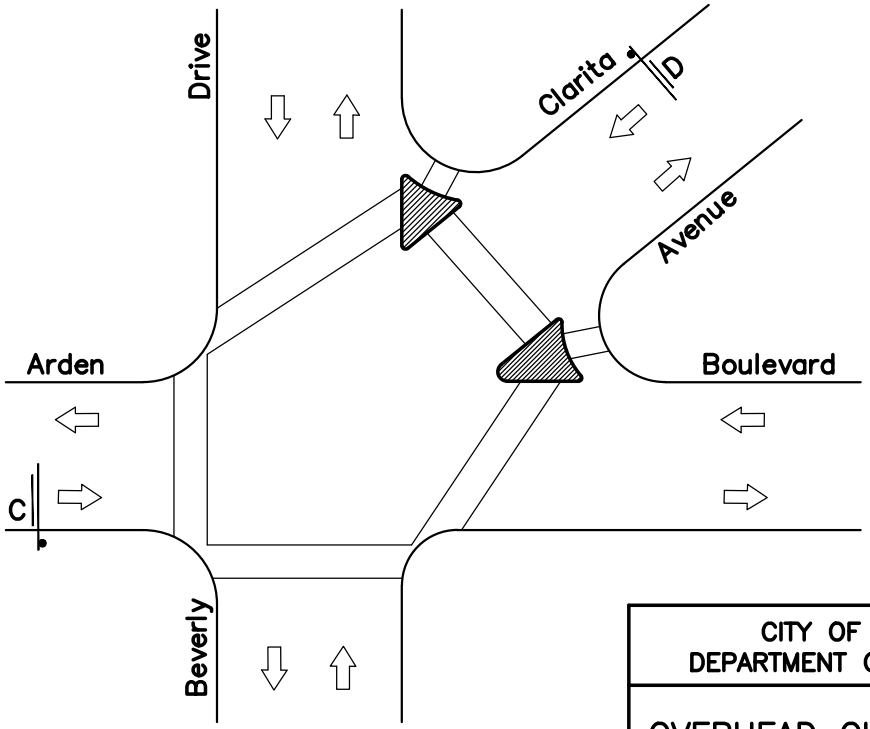

Yellow or White Background as per Note 4

W61B(CA)

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | | |
|---|---|---|
| OVERHEAD GUIDE SIGNING | | 5/16 |
| CKD. | SR. T.E. | PR. T.E. |
| DWN. M.T. | T.E. | S–418.6 |



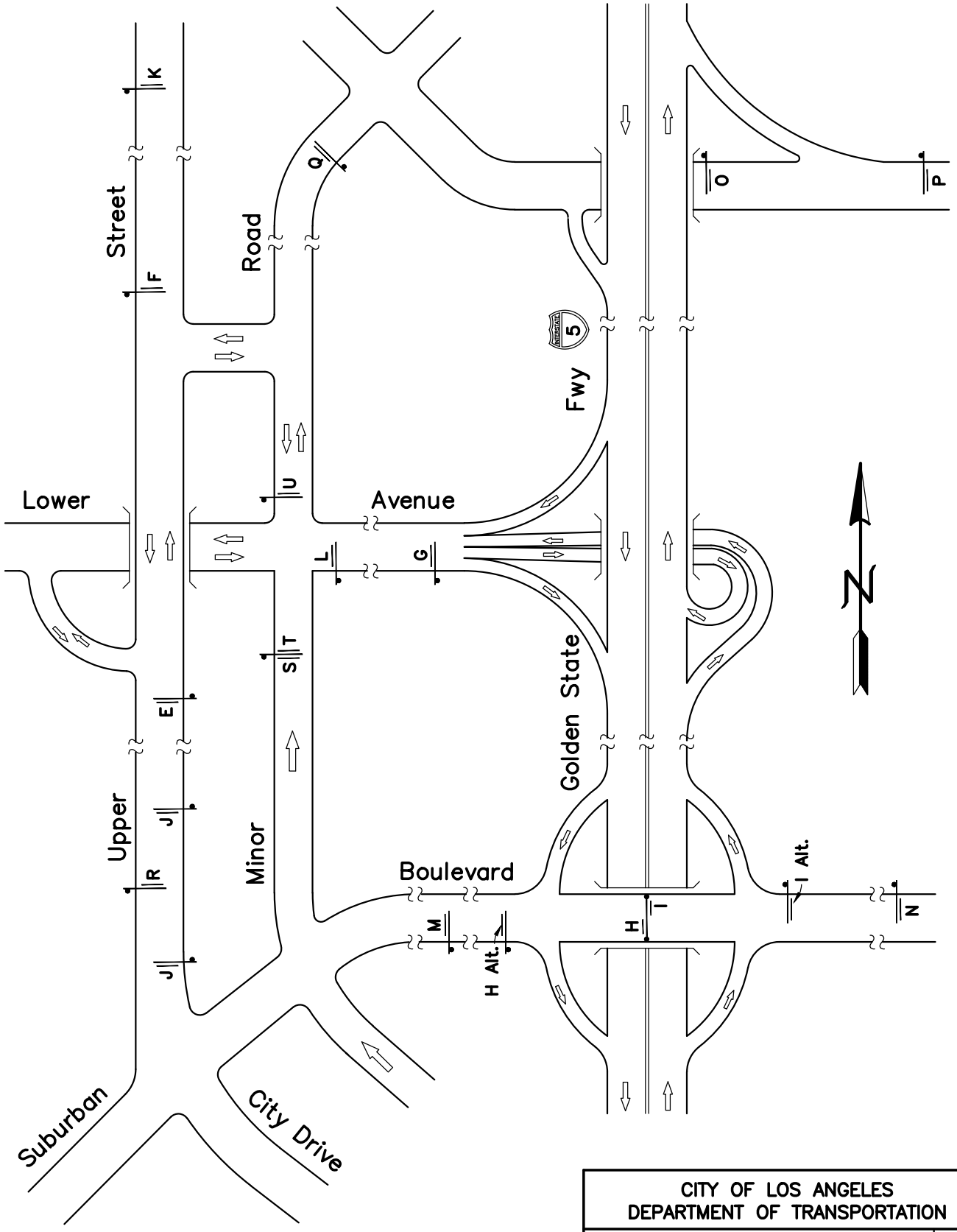




CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

OVERHEAD GUIDE SIGNING 6/16

| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| DWN. M.T. | T.E. | S–418.6 |

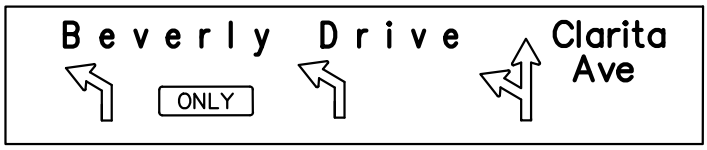



CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

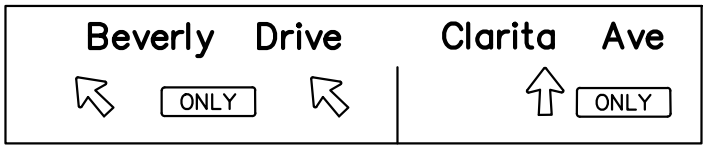
OVERHEAD GUIDE SIGNING 7/16

| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| DWN. M.T. | T.E. | S–418.6 |

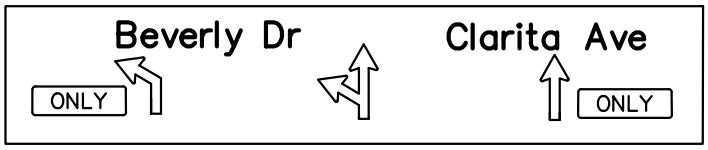
## Sign A (3 approach lanes shown)



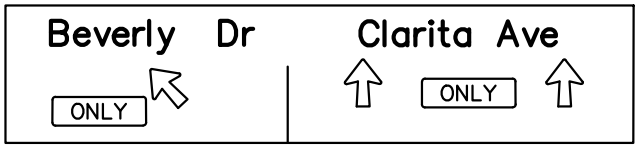

See Notes 1~5
Diagrammatic Arrows shown due to optional lane, as per Note 3.




See Notes 1~5
Two–Line vertical and diagonal shown since optional lanes are not involved, as per Note 3.



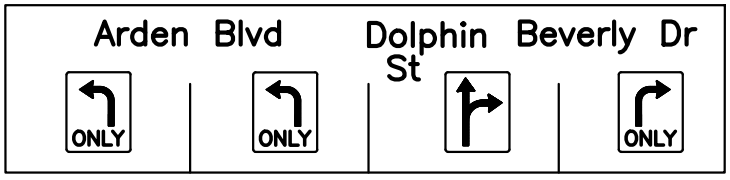

See Notes 1~5
Diagrammatic Arrows



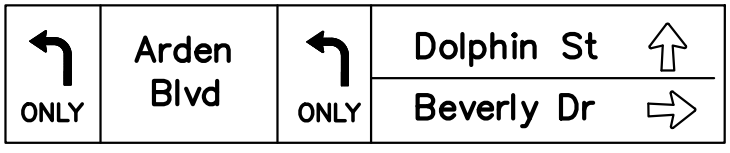

See Notes 1~5
Two–Line Arrows

## Sign B (3 and 4 approach lanes shown)


See Note 6
One–Line Arrows




See Note 7
R3–5 and R3–6 shown, as per Note 7.




See Notes 6 and 7
One–Line Arrows

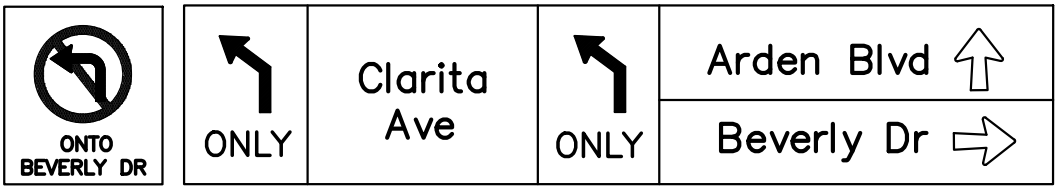
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

OVERHEAD GUIDE SIGNING 8/16

| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| DWN. M.T. | T.E. | S–418.6 |

## Sign C (2 and more approach lanes shown)


See Notes 6 and 8
One–Line Arrows



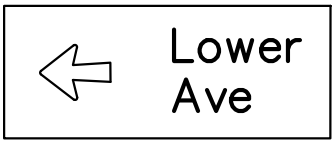

See Notes
6, 7, 8
and 9
One–Line
Arrows

## Sign D (3 approach lanes shown)


See Notes 7 and 9


See Notes 7 and 9

## Sign E




See Notes 6
One–Line Arrow


See Notes 6 and 7

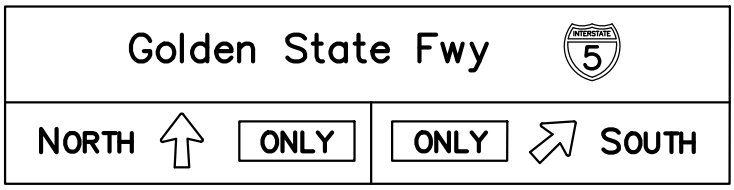
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
|---|---|---|
| OVERHEAD GUIDE SIGNING | | 9/16 |
| CKD. | SR. T.E. | PR. T.E. |
| DWN. M.T. | T.E. | S–418.6 |

## Sign F

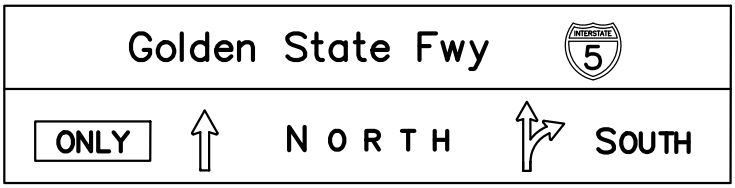

See Notes 6 and 10
One–Line Arrow


See Notes 6, 7 and 10

## Sign G (2 approach lanes shown)




See Notes 2, 3, 4,
5 and 11
Two–line Arrows

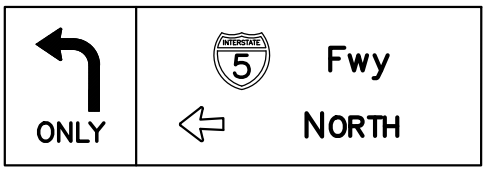



See Notes 2, 3, 4,
5 and 11
Diagrammatic Arrows


See notes 2, 3, 4,
5 and 11
Diagrammatic Arrows

## Sign H

See Notes 6 and 11
One–Line Arrow




See Notes 7 and 11
One–Line Arrow

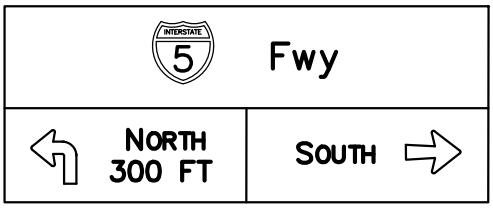

See Notes 7 and 11

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

OVERHEAD GUIDE SIGNING 10/16

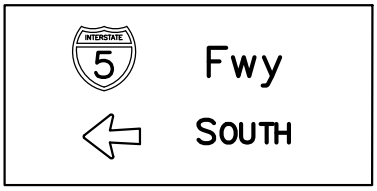
| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| DWN. M.T. | T.E. | S–418.6 |

## Sign H Alternate

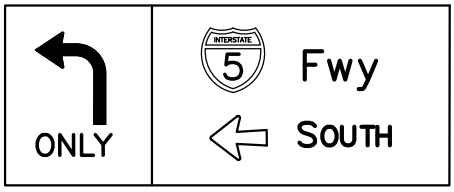



See Notes 11 and 12
Advance Arrow and One–Line Arrow

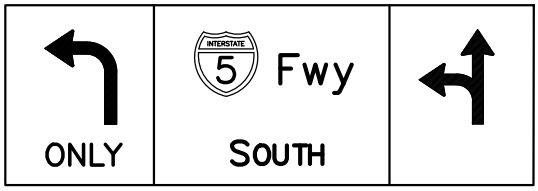
## Sign I




See Notes 6 and 11
One–Line Arrow

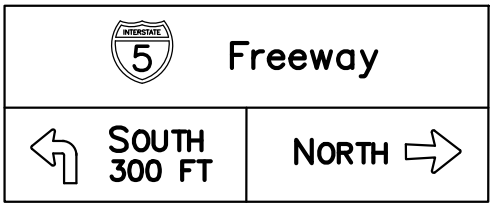



See Notes 7 and 11
One–Line Arrow




See Notes 7 and 11

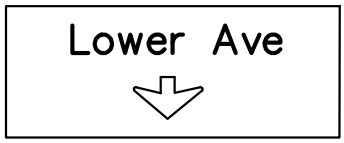
## Sign I Alternate



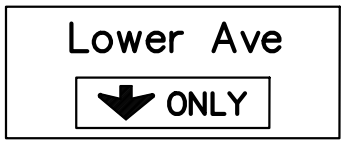

See Notes 11 and 12
Advance Arrow and One–Line Arrow

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
|---|---|---|
| OVERHEAD GUIDE SIGNING | | 11/16 |
| CKD. | SR. T.E. | PR. T.E. |
| DWN. M.T. | T.E. | S–418.6 |

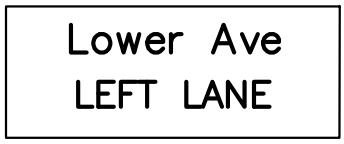
## Sign J



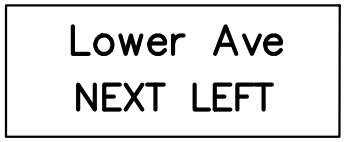

See Notes 13 and 14
Down Vertical Arrow



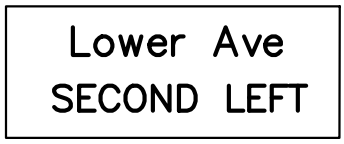

See Notes 13 and 14
Down Vertical Arrow for W61F sign,
as per Note 14




See Notes 13 and 14

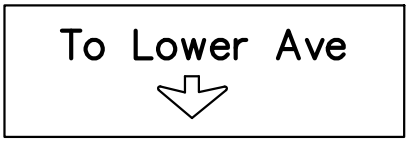



See Notes 13, 14 and 15

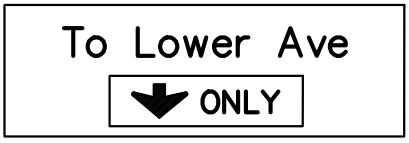



See Notes 13, 14 and 15

## Sign K

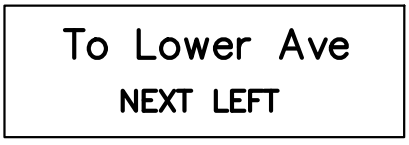



See Notes 10, 13 and 14
Down Vertical Arrow

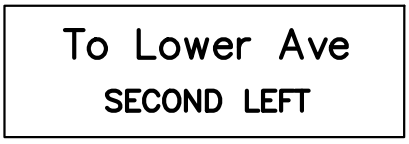



See Notes 10, 13, 14 and 15
Down Vertical Arrow


See Notes 10, 13 and 14




See Notes 10,
13 and 14



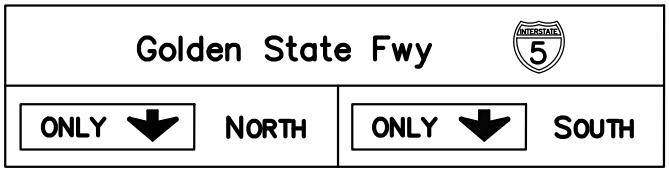

See Notes 10,
13 and 14

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

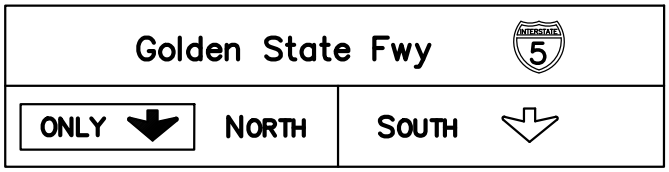
OVERHEAD GUIDE SIGNING 12/16

| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| DWN. M.T. | T.E. | S–418.6 |

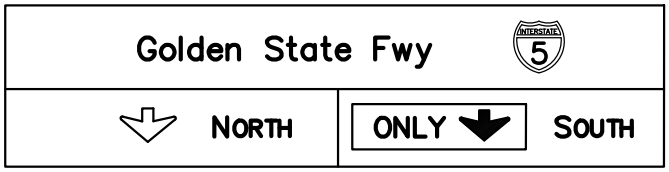
## Sign L (2 approach lanes shown)




See Notes 11, 13, 14 and 15

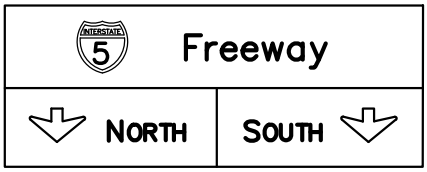



See Notes 11, 13, 14 and 15

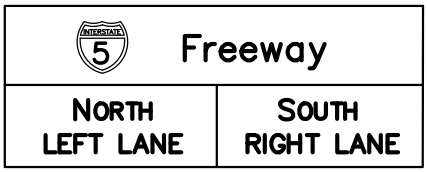



See Notes 11, 13, 14 and 15

## Sign M (2 approach lanes shown)

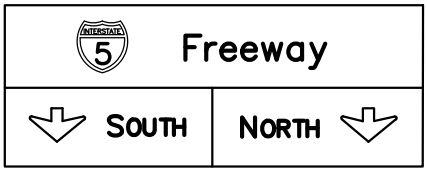



See Notes 11, 13 and 14

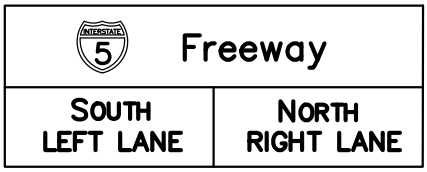



See Notes 11, 13 and 14

## Sign N (2 approach lanes shown)




See Notes 11, 13 and 14




See Notes 11, 13 and 14

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

OVERHEAD GUIDE SIGNING 13/16

| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| DWN. M.T. | T.E. | S–418.6 |

## Sign O


See Notes 7, 11, 12, 16, 17 and 18

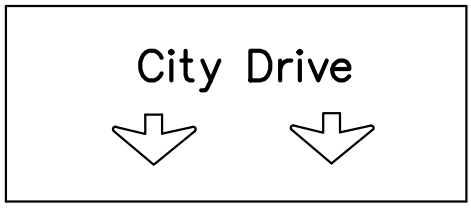
## Sign P


See Notes 3, 5, 11, 16, 17 and 18

## Sign Q

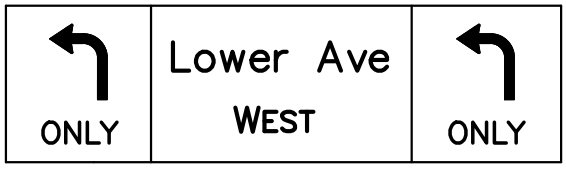

See Notes 7, 12, 17 and 18

## Sign R




Vertical Down Arrow

## Sign S (2 approach lanes shown)




## Sign T


## Sign U (2 approach lanes shown)


CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

OVERHEAD GUIDE SIGNING 14/16

| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| DWN. M.T. | T.E. | S–418.6 |

## Application Notes

1. At roadway divergences show all arterial street destinations, including those where the street name does not change. This is necessary because sometimes the street name continues on the left leg, sometimes on the right leg and sometimes diverges into two different names.

2. At roadway divergences with two or more approach lanes, utilize elephant track striping as per S–491.0.

3. At roadway divergences use Two–Line Vertical and Diagonal Arrows (with flared tails) over each applicable lane where optional lanes are not involved. However, where optional lanes are involved use Diagrammatic (non–flared) Arrows over each applicable lane in order to better convey the optional lane use.

4. Use the black on yellow "W 61B(CA)" plates to forewarn of the entrapped lane or divergence ahead. However, where the point of divergence is less than 200 feet downstream from the overhead sign, use R3–5 and R3–6 signs to regulate lane assignment.

5. Position arrows as close as practical over the middle of the applicable lanes and position the applicable arterial street destinations preferably above or immediately adjacent to appropriate arrow heads, as space permits. Vertical lines may be shown to distinguish lane groups.

6. Use the single or stacked line destination format in advance of intersections where entrapped turn lanes are not involved. List street and destination names in the following vertical order from the top, associated with the following directional one–line arrows: diagonal–vertical left, horizontal left, diagonal down left, vertical, diagonal–vertical right, horizontal right, and diagonal down right. Show left arrows to the left of the legends and vertical and right arrows to the right of the legends. Show vertical arrows to the left of the legends when the other destinations have right arrows, and to the right when the other destinations have left arrows.

7. At intersections where unshadowed (entrapped) turn lanes or interior optional lanes are involved use R3–5 and R3–6 signs positioned as close as practical over the middle of the applicable lanes.

8. Use the customized R3–2 sign where protected–only phasing is provided for one but not both of the possible left turns, such as the diagonal left–turn but not the sharper left–turn shown.

9. On the diagonal approach of a five–legged intersection the striping can be designed so that the through move is directed to either the right leg or left leg. The combination of striping and overhead signing should be coordinated to clarify and reinforce the intended operation. The first case shows two lanes directed to westbound Arden Boulevard, while the second shows two lanes directed to southbound Beverly Boulevard. Note that some secondary destinations requiring more than a ninety degree turn from an optional lane are not shown, due to space limitations.

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
|---|---|---|
| OVERHEAD GUIDE SIGNING | | 15/16 |
| CKD. | SR. T.E. | PR. T.E. |
| DWN. M.T. | T.E. | S–418.6 |

10. Where the destination roadway must be accessed via another named roadway the name should be preceded with the word, "To". Ground mounted trailblazer signs should be provided to direct motorist in advance of every decision point enroute to the destination roadway.

11. Where a freeway on–ramp is within one mile of a freeway–to–freeway interchange, the full freeway name should be shown followed by the appropriate route shield and number. However, in constrained situations the full freeway name may be deleted. In all other situations the appropriate route shield and number followed by the word, "Fwy" or "Freeway" is sufficient.

12. Use the Advance Arrow and "XXX FT" legends where there is an intervening roadway 100 feet or less upstream of the overhead sign.

13. Lane Assignment signs should be provided 600 to 1300 feet upstream of turns or divergences associated with grade separations.

14. For Lane Assignment signs use the Down Vertical Arrow format where there is an entrapped turn lane or where it is possible to position arrows over each of the applicable lanes. They should be placed as close as practical over the middle of each lane. Where this is not possible use the "LEFT (RIGHT) LANE" or "NEXT LEFT (RIGHT)" format. The "NEXT LEFT (RIGHT)" message may be used only where there is no intervening intersection. The "SECOND LEFT (RIGHT)" message may be used instead of "NEXT LEFT (RIGHT)"where there is close spacing between intersections.

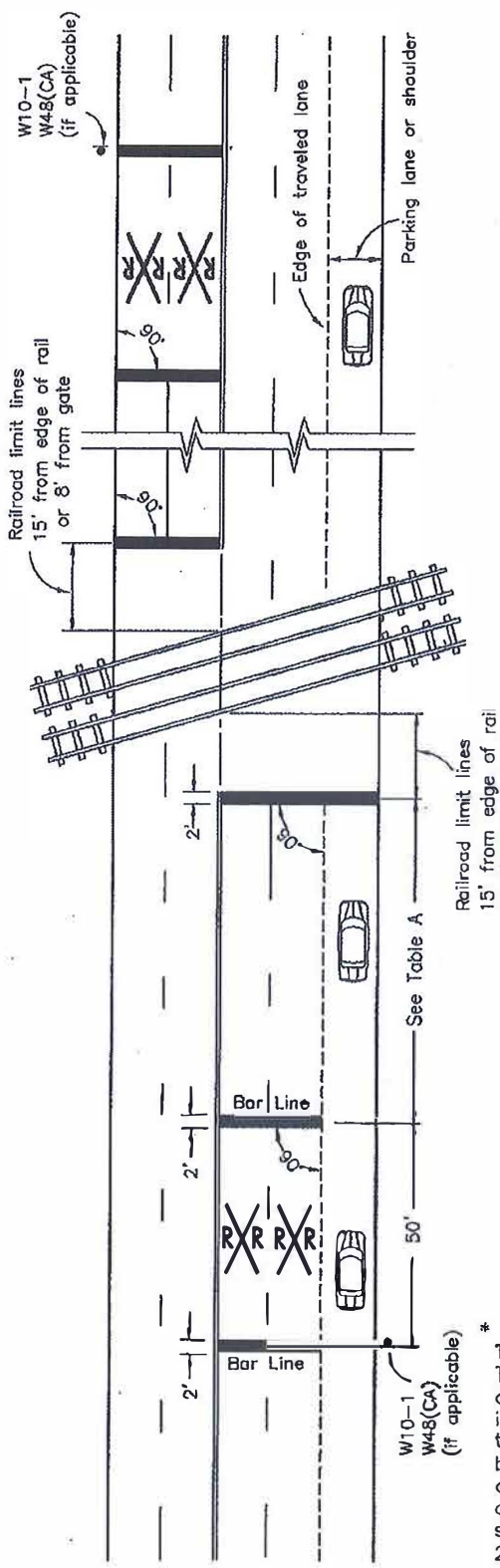
15. The black–on–yellow "W61F(CA)" sign is used for advance warning of a trap lane, per S–491.0.

16. The sign panel pertaining to the bus and carpool lane shall have a black legend on a white background and the diamond shall be white legend on a black background.

17. See S–487.0 for exclusive bus lane striping.

18. For exclusive lanes where two–person carpools are allowed it is not necessary to identify the required vehicle occupancy. Other required occupancies shall be identified with and below the diamond symbol.

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
|---|---|---|
| OVERHEAD GUIDE SIGNING | | 16/16 |
| CKD. | SR. T.E. | PR. T.E. |
| DWN. M.T. | T.E. | S–418.6 |





W10-1


W48(CA)

Install if two or more tracks

15' from edge of rail or 8' from gate. For angled crossings of 60° or greater, install as shown to left.

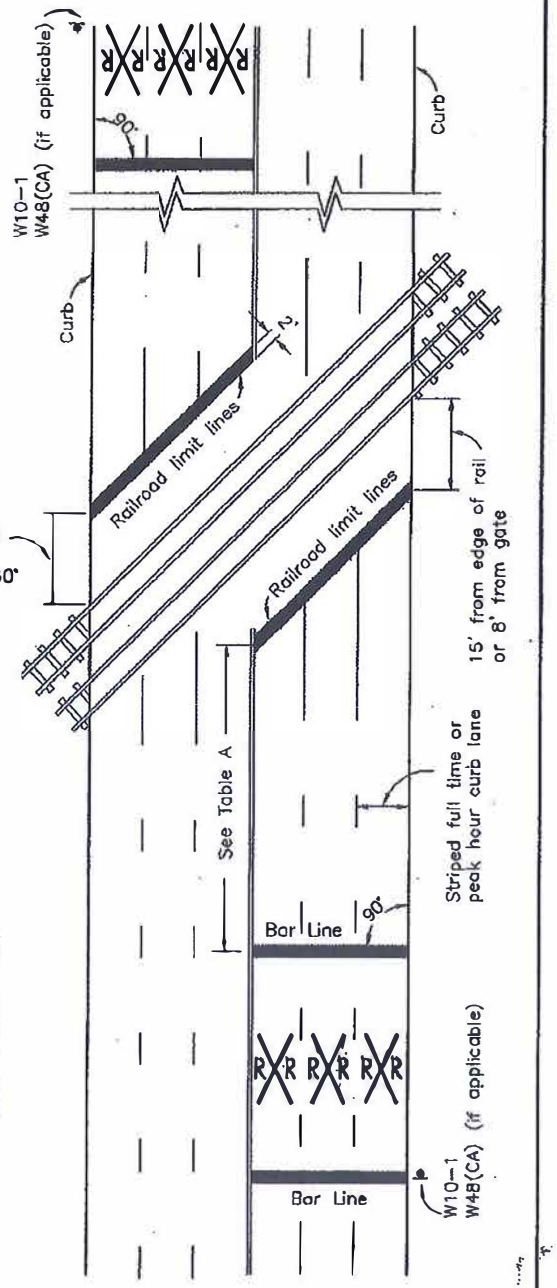



Table A *

| Posted Speed (MPH) | Distance (feet) |
|---|---|
| 25 | 50 |
| 30 | 50 |
| 35 | 125 |
| 40 | 175 |
| 45 | 250 |
| 50 | 325 |
| 55 | 400 |

* The distances shown in Table A are approximate only. Dimensions of field installations may exceed the figures in the table by up to 100 feet in order to adjust to field conditions. Distances shown are from Table 2C-4 (MUTCD) using condition B and posted speed plus 5 mph.

APPROVED May 8, 2008

for John E. Fisher
Rita L. Robinson, General Manager

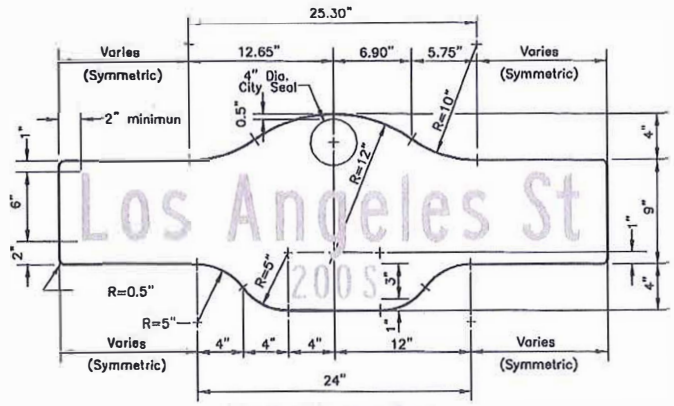
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

RXR ADVANCE MARKING

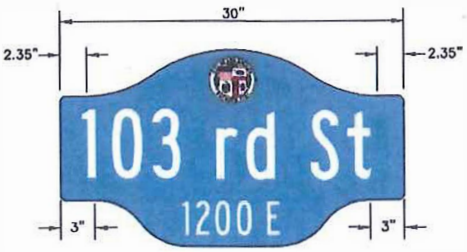
1/1

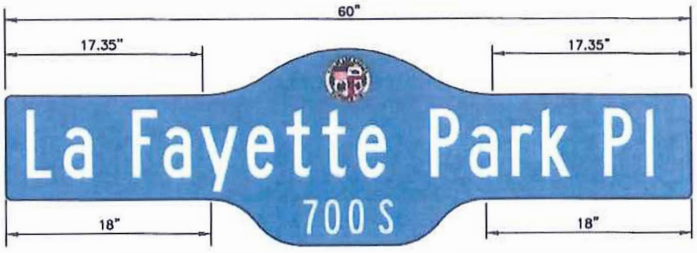
| CKD. | SR. T.E. JW | PR. T.E. 88 |
|---|---|---|
| DWN. M.T./S.A. | T.E. TC | S-436.0 |

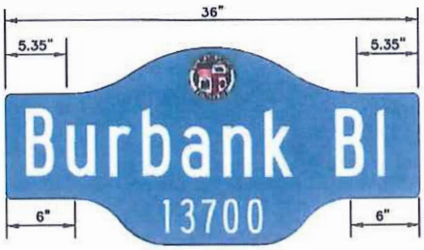
# Type A -One Line

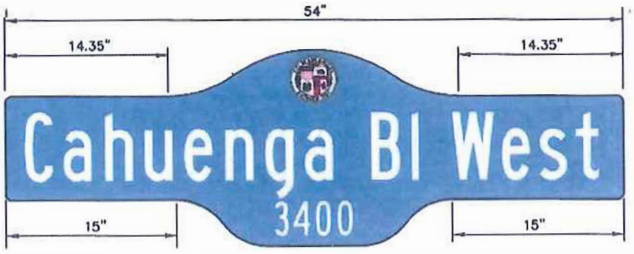


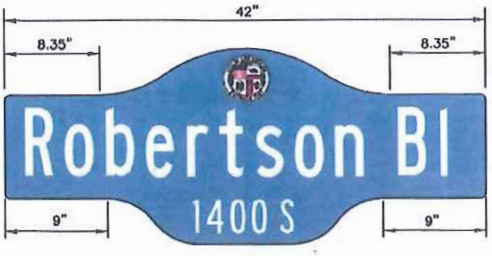

Typical Dimensions





Approved July 21, 2010

*John L. Fisher*

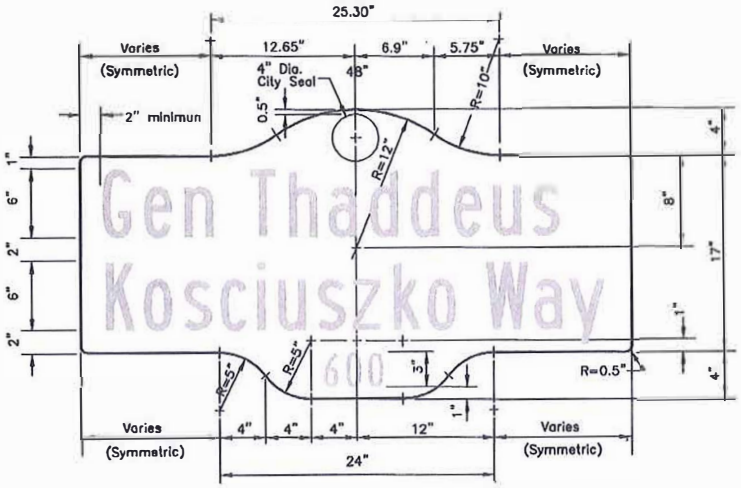
for Rita L. Robinson, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

Street Name Signs 1/9

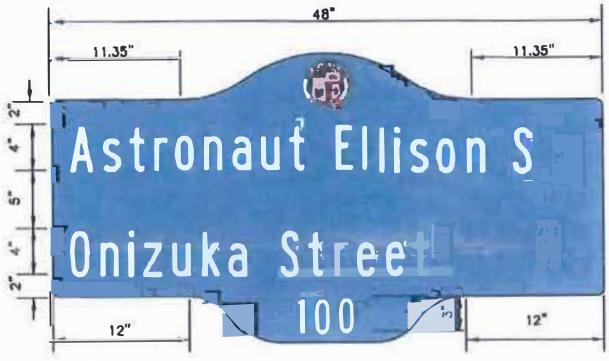
| T. E. | Sr. T. E. | Pr. T. E. |
|---|---|---|
| TC | | |
| DWN MT 6-15-10 | CKD | Dwg. No. S-438.0 |

# Type A -Two Line




Typical Dimensions

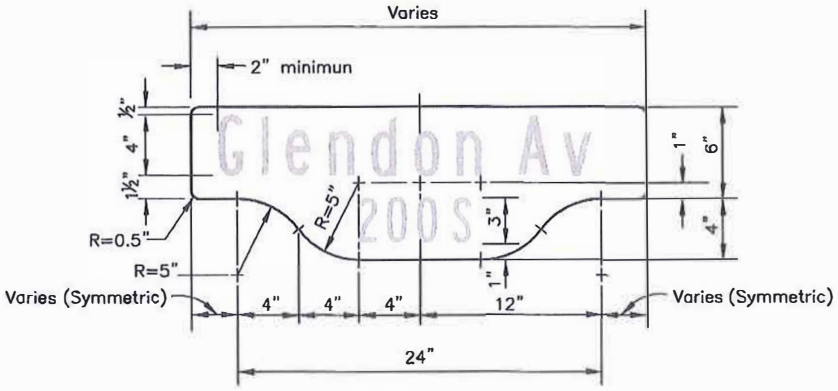



* See the end statement for Note 9. 4" upper case and 3" lower case letters are required so that the message can fit on the largest sign.

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Street Name Signs | Drawing No.<br>S-438.0 | 2/9 |
|---|---|---|---|

# Type B




Typical Dimensions







| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Street Name Signs | Drawing No.<br>S-438.0 | 3/9 |
|---|---|---|---|

## Notes:

1. Signs shall have Diamond Grade or Type VIII retro-reflective white lettering and numbers on a standard blue Type IV retro-reflective background with match component UV/Anti-Graffiti film. For Type A signs, all colors shall be provided in the official 4" diameter City Seal. Signs shall be provided with a 10-year replacement warranty against wear, delamination or fading. An LADOT-approved vendor shall be used for fabrication.

2. The sign blade material shall be 1/8 inch thick aluminum stock.

3. Letters and numbers shall be Highway Series B, with at least one stroke width between letters (45% spacing). For Type A signs, the initial upper case letters shall be 6" and the lower case letters shall be 4.5", expect as discussed in Note 9. For Type B signs, the initial upper case letters shall be 4" and the lower case letters shall be 3". Intermediate (non-first) words such as "of", "the" "el", "la", "los", "las", "de" and "del" shall have all lower case letters. The block number and upper case letter representing the cardinal address direction, if any, shall be 3". The space between words shall be same width as an upper case letter "O". The legend shall appear on both sides of the aluminum blade. The street name text shall be left justified starting a minimun of 2" from left edge of sign. The legend may be centered.

4. Numbered streets shall be indicated by Arabic numerals and not letters. Where the number appears before the title (such as 3 rd Street or 4 th Avenue) the number shall be followed by an ordinal abbreviation, "st", "nd", "rd" or "th", at the same level, with a space between them. However, where the number appears after the title (such as Avenue 19), an ordinal abbreviation shall not be used. The space shall be the same width as an uppercase letter "O".

5. The block number shall be followed by an upper case letter representing the cardinal direction, only where the named street has address numbers in another direction (such as for Sepulveda Boulevard, Vermont Avenue, Olympic Boulevard, 3rd Street, etc.) within the City of Los Angeles or an adjacent city. The space between the block number and the upper case letter representing the cardinal direction shall be the same width as upper case "O".

6. Where the named street is a private street or driveway, the block number shall be replaced by "PVT" in 3" upper case letters.

7. Apostrophes shall be used, where appropriate. Accent and tilde markings shall be provided for non-English words and names, where appropriate. A lower case " i " or " j " shall be dotted.

8. The Bureau of Engineering is the source for street names. If a private street or driveway requires a name, due to signalization or some other reason, the Bureau of Engineering must process the naming proposal.

9. The following street name abbreviations shall be used, except where using the unabbreviated word would not require an increase in sign length (such as "B Street"). Periods shall not be used after abbreviations.

| | | | |
|---|---|---|---|
| Alley | (No abbreviation) | Junior (as part of a name) | Jr |
| Avenida | (No abbreviation) | Lane | (No abbreviation) |
| Avenue (end word) | Av | Mount | Mt |
| Avenue (first word) | (No abbreviation) | Park | (No abbreviation) |
| Boulevard | Bl | Parkway | Pkwy |
| Calle | (No abbreviation) | Paseo | (No abbreviation) |
| Canyon (other than first word) | Cyn | Place | Pl |
| Canyon (first word) | (No abbreviation) | Plaza | (No abbreviation) |
| Circle (end word) | Cir | Road | Rd |
| Circle (other than end word) | (No abbreviation) | Saint | St |
| Court (end word) | Ct | Senior (as part of a name) | Sr |
| Court (other than end word) | (No abbreviation) | Street | St |
| Drive | Dr | Square | Sq |
| Driveway | Drwy | Terrace | (No abbreviation) |
| Eastway | Eway | Trail | (No abbreviation) |
| Expressway | Expwy | Walk | (No abbreviation) |
| General (when used as a title) | Gen | Way | (No abbreviation) |
| Heights | Hgts | Westway | Wway |
| Highway | Hwy | | |

In addition, cardinal direction names may be abbreviated to "N", "S", "E" or "W", only where the unabbrevaited word would require the sign length to exceed 60". For Example, use "Huntington Dr S" (abbreviated) and "Cahuenga Bl East" (unabbreviated).

10. The blade length should be determined using the table below:

| Text Including Interral Spaces | Blade Length for Type A-One Line Signs | Blade Length for Type B Signs |
|---|---|---|
| 9 or less | 30" | 30" |
| 10 | 36" | 30" |
| 11, 12 | 42" | 30" |
| 13, 14 | 48" | 36" |
| 15, 16 | 54" | 36" |
| 17, 18 | 60" | 42" |
| 19, 20 | * | 48" |
| 21, 22 | * | 54" |
| 23, 24 | * | 54" |
| 25, 26 | * | 60" |

* Longer street names for Type A signs shall use two-line blades. The width of the two-line blade shall be based on the text of the longer line. The maximum length of a two-line blade shall be 48 inches. Where the text of the longer line of a two-line blade exceeds 14 characters, 4" upper case and 3" lower case letters may be used.

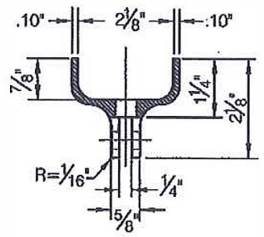
11. Type A and Type B signs that are 30" or 36" long shall be side-mounted only, as shown on sheets 6 and 7. Type A and Type B signs that are 42" and longer shall be side-mounted with vertical support, as shown on sheets 8 and 9. Minor deviations in the sign brackets shown are permissible only with the prior written approval of LADOT.

12. When provided for initial installation, replacement or maintenance, Type A signs shall be used at intersections when at least one approach is a designated Major, Secondary or Collector Street. When provided for initial installation, replacement or maintenance, Type B signs shall be used at intersections where all approaches are designated Local Streets.

13. Street name signs shall be provided on the near-right side of each leg of a primary street at the named crossing street, flagged in the direction of the sidewalk or parkway, unless it is physically infeasible. If so, an alternate location shall be provided. If the named closs street does not intersect the primary street, due to a separation island, an additional near right sign shall be provided on the island. For unusual situations, see S-221.3.

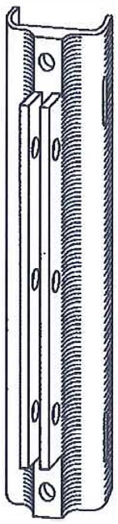
# Bracket Specifications

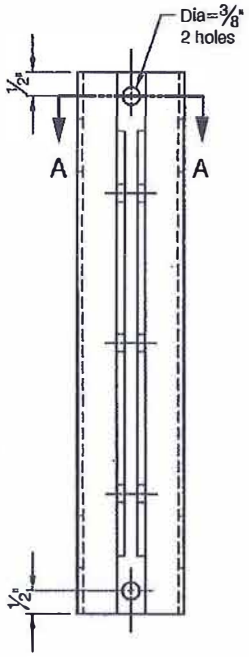
For Type A-One-Line and Type B Signs
30" and 36" long

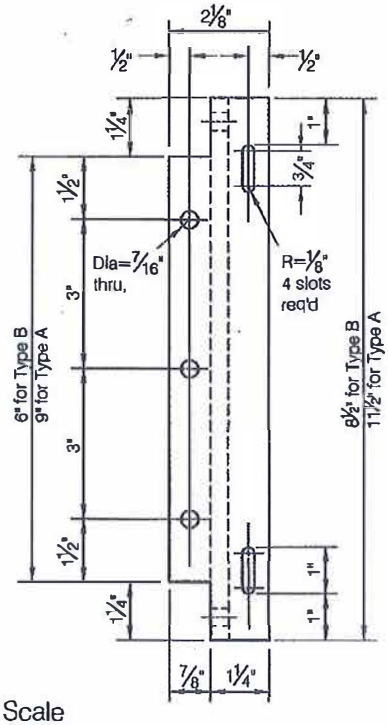



Material for bracket to be extruded Aluminum Alloy 6063-T6

Section A-A





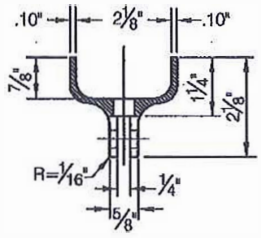




Not to Scale

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Street Name Signs | Drawing No.<br>S-438.0 | 6/9 |
|---|---|---|---|

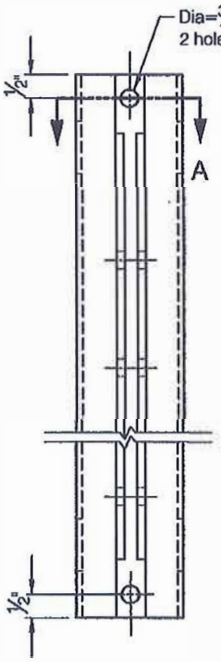
# Bracket Specifications

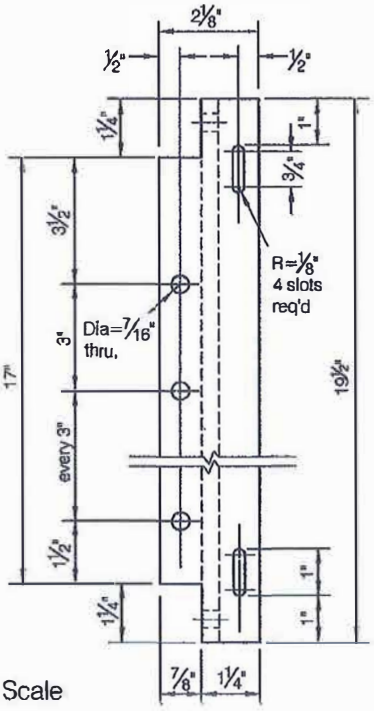
For Type A-Two-Line Signs
30" and 36" long




Material for bracket
to be extruded
Aluminum Alloy
6063-T6

Section A-A



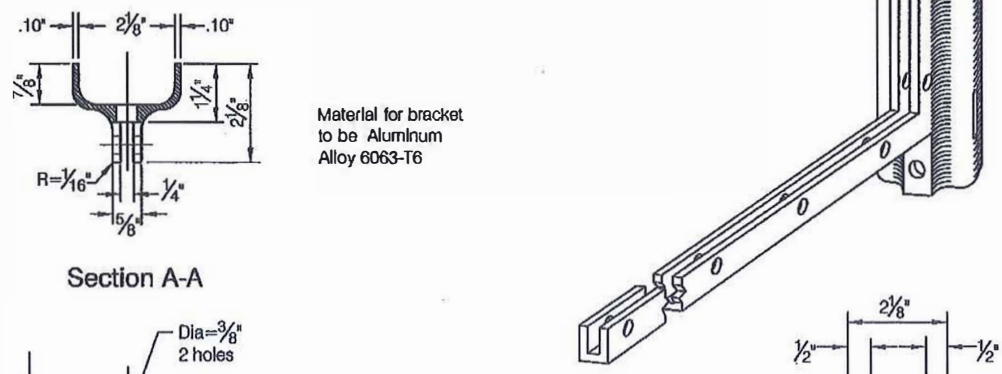




Not to Scale

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Street Name Signs | Drawing No.<br>S-438.0 | 7/9 |
|---|---|---|---|

# Bracket Specifications

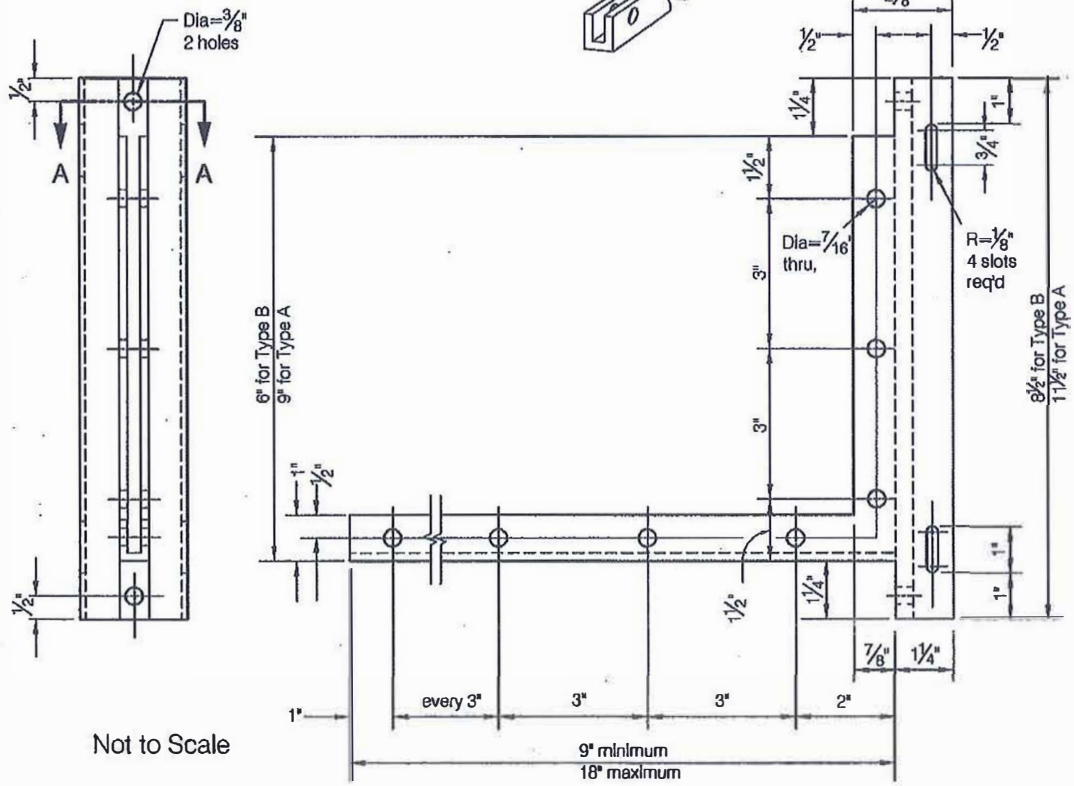
## For Type A-One-Line and Type B Signs 42" and longer






Material for bracket to be Aluminum Alloy 6063-T6

Section A-A

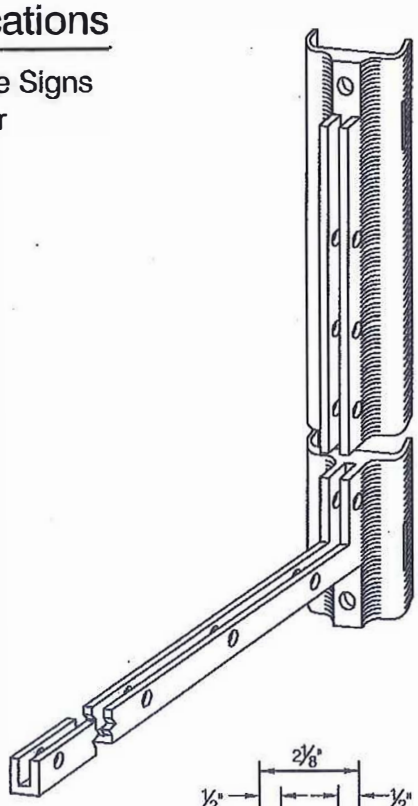


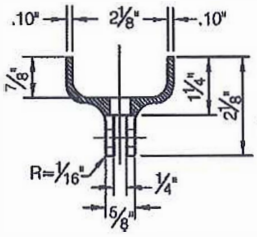

Not to Scale

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: Street Name Signs | Drawing No. S-438.0 | 8/9 |
|---|---|---|---|

# Bracket Specifications

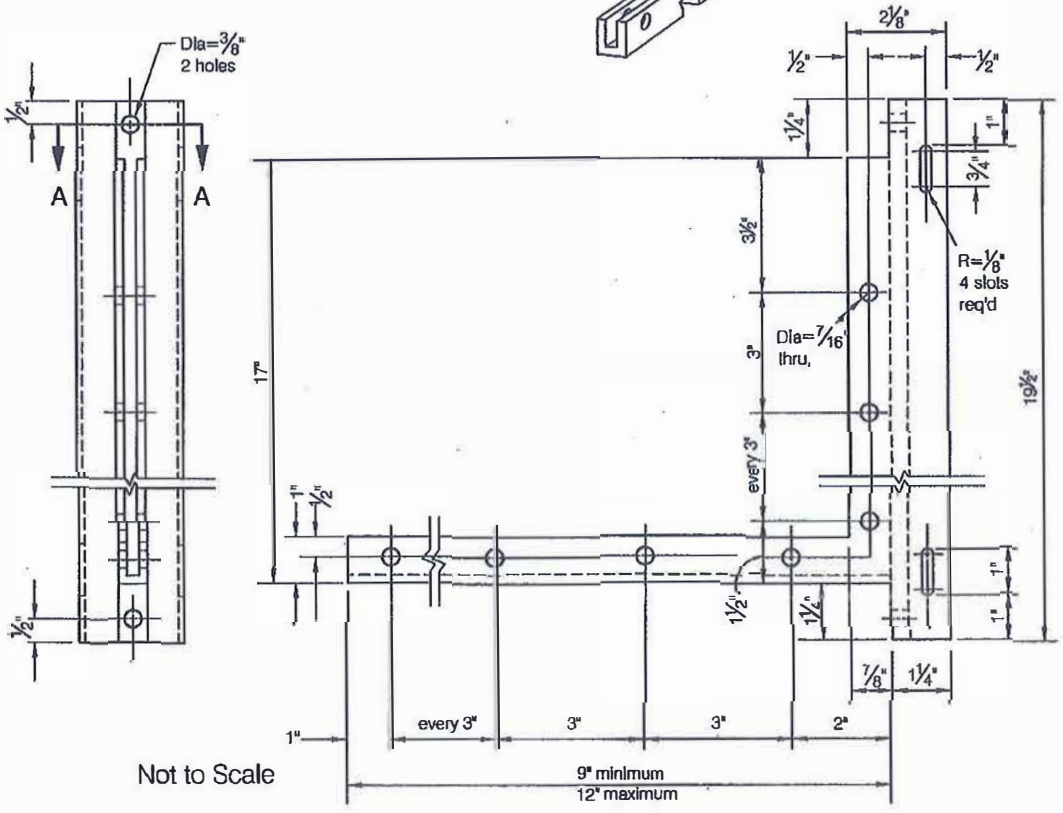
For Type A -Two-Line Signs
42" and longer





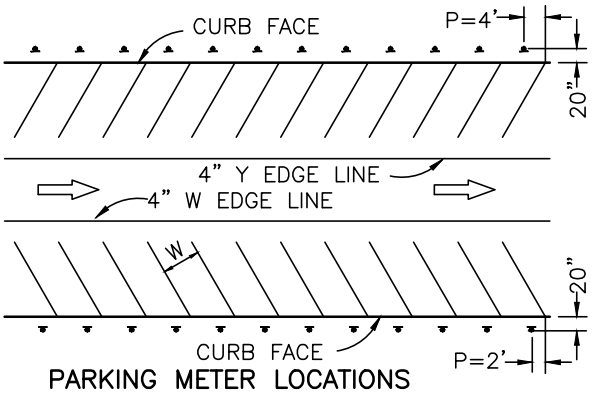

Section A-A

Material for bracket
to Aluminum Alloy
6063-T6



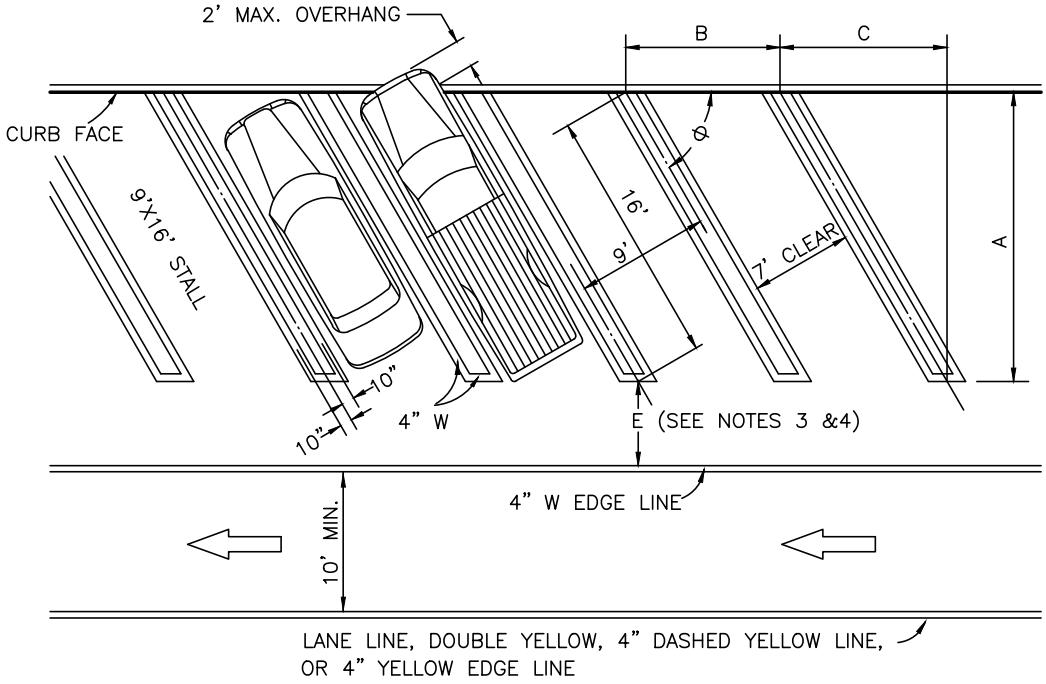

Not to Scale

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Street Name Signs | Drawing No.<br>S-438.0 | 9/9 |
|---|---|---|---|




PARKING METER LOCATIONS

| Θ | A | B | C | E |
|---|---|---|---|---|
| 37.5° | 16.9' | 14.8' | 22' | 11' |
| 45° | 17.7' | 12.7' | 17.7' | 11.1' |
| 50° | 18.0' | 11.75' | 15.1' | 12' |
| 52.5° | 18.2' | 11.3' | 13.9' | 13.1' |
| 60° | 18.4' | 10.4' | 10.6' | 15.1' |
| 67.5° | 18.2' | 9.7' | 7.5' | 17.3' |
| 75° | 17.8' | 9.3' | 4.8' | 19.7' |




## NOTES

1. ALL PARKING STALL LINES AND EDGE LINES SHALL BE IN ALKYD–BASED THERMOPLASTIC.
2. CALCULATIONS BASED ON, BUT NOT LIMITED TO L.A.M.C., SECTION 12.21, UTILIZING, 9'X16' STALL SIZE. LARGE VEHICLES REQUIRING THE 18–FOOT DIMENSION ARE EXPECTED TO OVERHANG THE CURB, AS SHOWN. STALL DESIGN ABOVE REQUIRES 2–FOOT OVERHANG FOR 18–FOOT VEHICLE.
3. ON LOCAL STREETS, COLLECTOR STREETS, AND THOSE ARTERIAL STREETS WHICH FUNCTION AS COLLECTOR STREETS (SEE 4, BELOW), THE "E" DIMENSION SHALL BE 4' MINIMUM WHERE THE PARKING ANGLE IS GREATER THAN 45 DEGREES. ON THOSE LOCAL AND COLLECTOR STREETS WITH ANGLE PARKING 45 DEGREES OR LESS, THE "E" DIMENSION MAY BE REDUCED TO A MINIMUM OF 2 FEET. THE 4' DIMENSION IS PREFERRED, HOWEVER, AND SHOULD BE PROVIDED IF THE ROADWAY WIDTH PERMITS.
4. ON ARTERIAL HIGHWAYS, THE "E" DIMENSIONS SHOWN IN THE ABOVE TABLE SHALL BE CONSIDERED REQUIRED MINIMUMS. THIS IS INTENDED TO PROVIDE FOR MANEUVERS TO AND FROM THE PARKING STALL WITHOUT OBSTRUCTING TRAFFIC MOVEMENT IN THE ADJACENT TRAVELED LANE. ARTERIAL STREETS ARE DESIGNATED IN COMMINUTY PLANS. A DESIGNATED ARTERIAL STREET MAY, FOR THE PURPOSES OF THIS STANDARD PLAN BE CONSIDERED AS A COLLECTOR STREET IF THE DAILY VOLUME IS LESS THAN 10,000 VEHICLES, OR THE STRIPING PROVIDES FOR ONLY ONE THROUGH LANE IN EACH DIRECTION.

APPROVED 9/18/2020

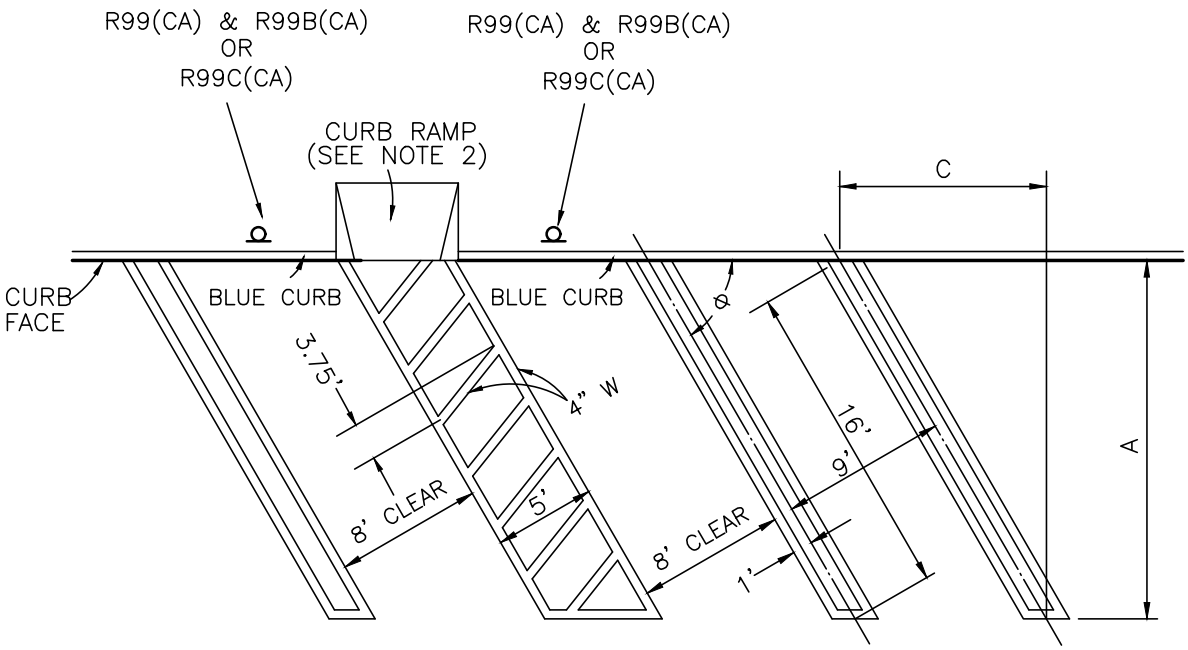
for Seleta J. Reynolds, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

# ON–STREET ANGLE PARKING STALLS

1/2

| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| NO | JV | |
| DWN. NO | T.E. MN | S–440.0 |




HANDICAP/DISABLED PARKING SPACES

## NOTES

1. ALL PARKING STALL LINES AND EDGE LINES SHALL BE IN ALKYD–BASED THERMOPLASTIC.
2. MAXIMUM SLOPE 1:12
3. OTHER REQUIRED DIMENSIONS SHOWN ON PAGE 1.

R99(CA)

R99B (CA)

R99C (CA)

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | ON–STREET<br>ANGLE PARKING STALLS | Drawing No.<br>S–440.0 | 2<br>2 |
|---|---|---|---|

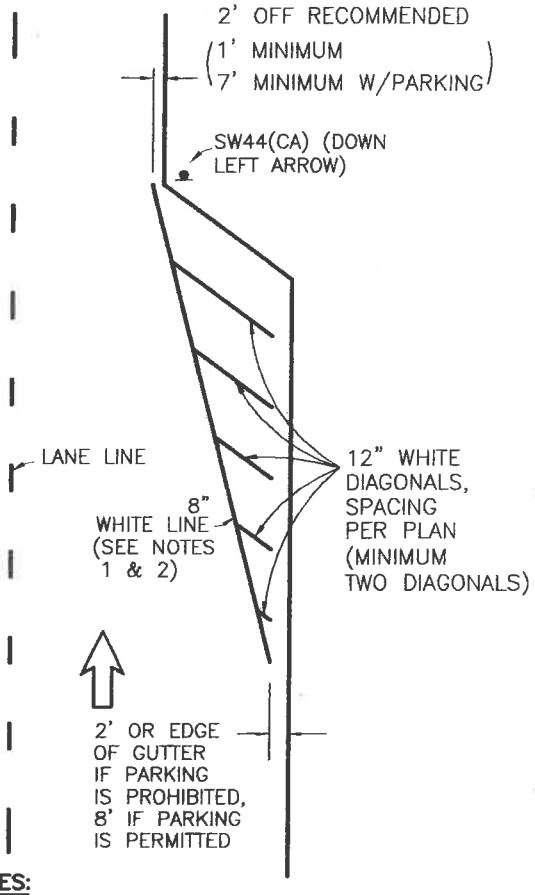
## ON-STREET ANGLE PARKING STALLS - SUPPLEMENT TO S-440.0

The following table should be used as a guide to determine the feasibility and numbers of spaces that may be installed with the installation on-street angle parking stalls. DOT Standard Plan S-440.0 should be reviewed to determine other restrictions and requirements.

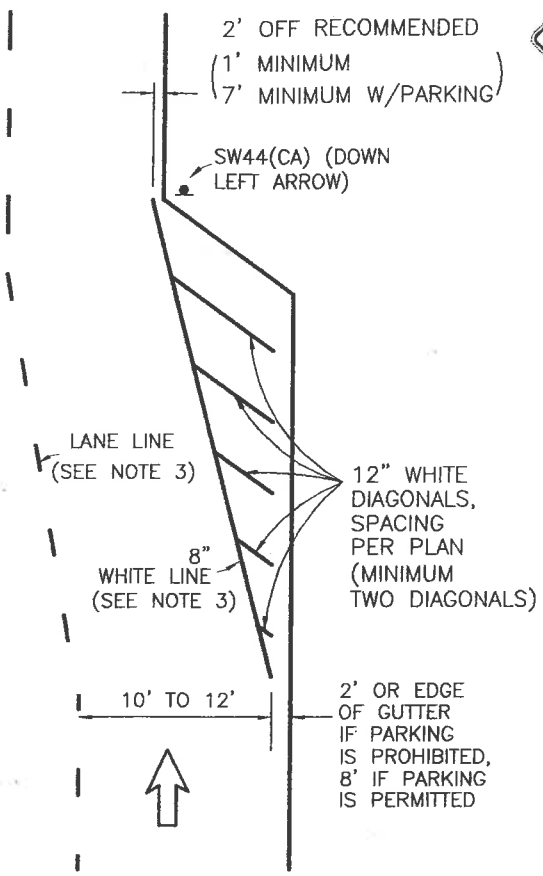
| Number of spaces | Continuous linear footage between driveways, fire hydrants, etc. | | | | | | |
|---|---|---|---|---|---|---|---|
| | 37.5° | 45° | 50° | 52.5° | 60° | 67.5° | 75° |
| 1 | 36.8 | 30.4 | 26.9 | 25.2 | 21.0 | 17.2 | 14.1 |
| 2 | 51.6 | 43.1 | 38.6 | 36.5 | 31.4 | 26.9 | 23.4 |
| 3 | 66.4 | 55.8 | 50.4 | 47.8 | 41.8 | 36.6 | 32.7 |
| 4 | 81.2 | 68.5 | 62.1 | 59.1 | 52.2 | 46.3 | 42.0 |
| 5 | 96.0 | 81.2 | 73.9 | 70.4 | 62.6 | 56.0 | 51.3 |
| 6 | 110.8 | 93.9 | 85.6 | 81.7 | 73.0 | 65.7 | 60.6 |
| 7 | 125.6 | 106.6 | 97.4 | 93.0 | 83.4 | 75.4 | 69.9 |
| 8 | 140.4 | 119.3 | 109.1 | 104.3 | 93.8 | 85.1 | 79.2 |
| 9 | 155.2 | 132.0 | 120.9 | 115.6 | 104.2 | 94.8 | 88.5 |
| 10 | 170.0 | 144.7 | 132.6 | 126.9 | 114.6 | 104.5 | 97.8 |
| Each additional space (+B) | +14.8 | +12.7 | +11.75 | +11.3 | +10.4 | +9.7 | +9.3 |
| | | | | | | | |
| Min. (E) for local/ collector streets | 2 | 2 | 4 | 4 | 4.1 | 6.3 | 8.7 |
| Min. cross-section | 16.9<br>2<br>10<br>18 | 17.7<br>2<br>10<br>18 | 18<br>4<br>10<br>18 | 18.2<br>4<br>10<br>18 | 18.4<br>4.1<br>11<br>18 | 18.2<br>6.3<br>11<br>18 | 17.8<br>8.7<br>11<br>18 |
| Min. roadway width | 46.9 | 47.7 | 50.0 | 50.2 | 51.5 | 53.5 | 55.5 |

The minimum cross-section assumes angle parking on one side, parallel parking on other, with one lane in each direction. Minimum E and adjacent lane width have been determined based upon design requirement that a vehicle backing out of angle parking space does not back over the double yellow centerline.

## CASE 1




## CASE 2




**SW44(CA)**

**NOTES:**

1. FOR CASE 1 THE 8" CHANNELIZING LINE SHOULD BE INSTALLED WHERE;
   A) DOWNSTREAM LANE WIDTH IS LESS THAN 13' (LANE LINE TO EDGE LINE) WITH PARKING PROHIBITED; OR
   B) DOWNSTREAM LANE WIDTH IS LESS THAN 20' (LANE LINE TO EDGE OF ROADWAY) WITH PARKING PERMITTED; OR C) THE CHANGE IN ROADWAY WIDTH IS 6' OR GREATER.
2. FOR CASE 1 THE 8" WHITE EDGELINE SHOULD BE A MINIMUM OF 100 FEET IN LENGTH WHERE CONDITIONS PERMIT, TO PROVIDE ADEQUATE VISIBILITY FOR APPROACHING MOTORISTS. TAPER RATES IN CASE 1 SHOULD BE 5:1 OR GREATER.
3. FOR CASE 2 THE LANE LINE AND 8" CHANNELIZING LINE MAY BE TRANSITIONED USING THE APPROPRIATE MINIMUM TAPER RATE FROM TABLE 1 OR BY APPROPRIATE CURVE–TANGENT–CURVE DESIGN.
4. FOR NARROWED ROADWAY DELINEATION WITH A LANE DROP SEE S–485.0.
5. FOR CASE 1 AND CASE 2, THE ADDITION OF 12" WHITE DIAGONALS SHOULD BE INSTALLED TO EMPHASIZE THAT LARGE PAVEMENT AREAS ARE NOT INTENDED AS PART OF THE TRAVELLED ROADWAY.
6. TAPER RATES SHOWN IN TABLE 1 ARE BASED ON POSTED SPEED PLUS 5 MPH. WHERE THE 85% SPEED (CRITICAL SPEED) ON THE APPROACH IS DETERMINED TO BE EQUAL TO THE POSTED SPEED, THE TABLE NUMBERS FOR THE NEXT LOWER SPEED INCREMENT MAY BE USED.

TABLE 1

| SPEED LIMIT (MPH) | TAPER RATE (PREFERRED) |
|---|---|
| 25 | 15 : 1 |
| 30 | 20.5 : 1 |
| 35 | 26.7 : 1 |
| 40 | 45 : 1 |
| 45 | 50 : 1 |
| 50 | 55 : 1 |
| 55 | 60 : 1 |

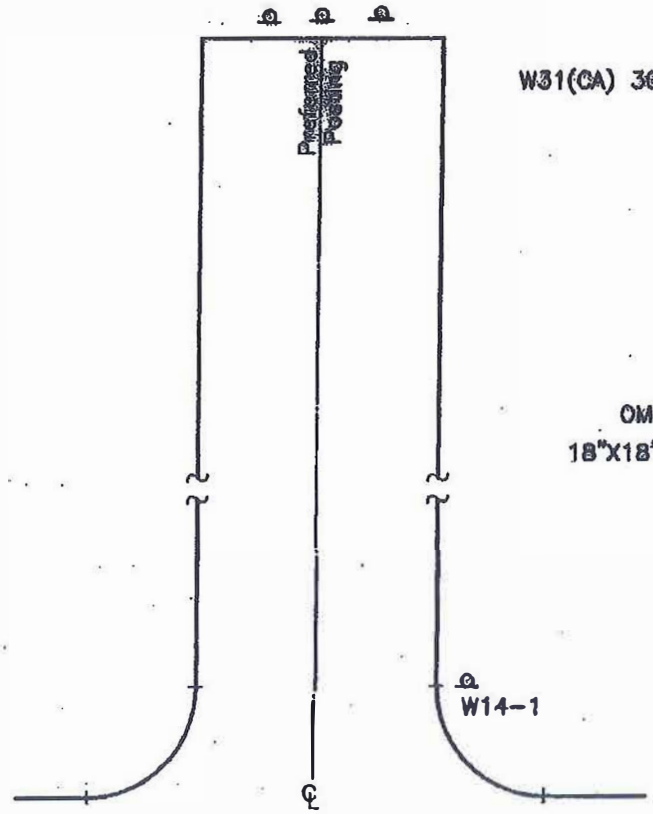
APPROVED September 29, 2005

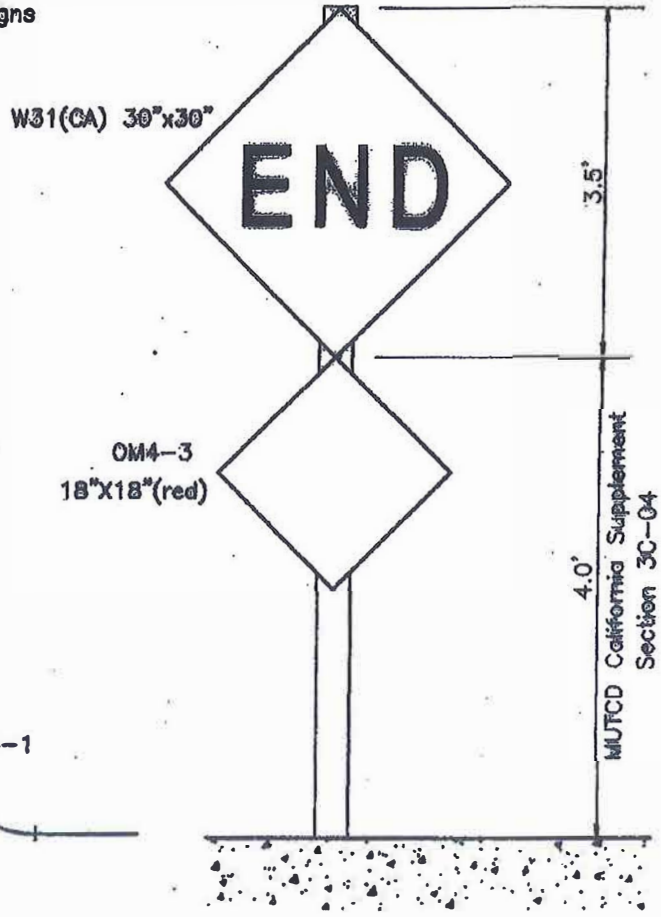
John E. Fisher for Wayne K. Tanda, General Manager

**CITY OF LOS ANGELES**
DEPARTMENT OF TRANSPORTATION

| NARROWED ROADWAY DELINEATION (WITHOUT LANE DROP) | | 1/1 |
|---|---|---|
| CKD. | SR. T.E. | PR. T.E. |
| DWN. MT | T.E. | S–444.0 |

W31(CA) and Type OM4-3 Signs




Notes:

1. W31(CA) and OM4-3 signs shall be posted at street termini as in a, and b. below:
   a. Without cul-de-sac designs.
   b. With cul-de-sac designs where the frontage of the cul-de-sac is not fully developed.
2. Where installed, the number of signs should be posted as shown below. However, they may deviate as much as 10' from the standard location in order to utilize existing street light standards or existing sign posts or to avoid driveways or utility installations.

| Number of Postings | Street Width |
|---|---|
| 1 | 44' or less |
| 2 | 45'~59' |
| 3 | 60' or greater |


W14-1

APPROVED January 21, 2005

John E. Fisher

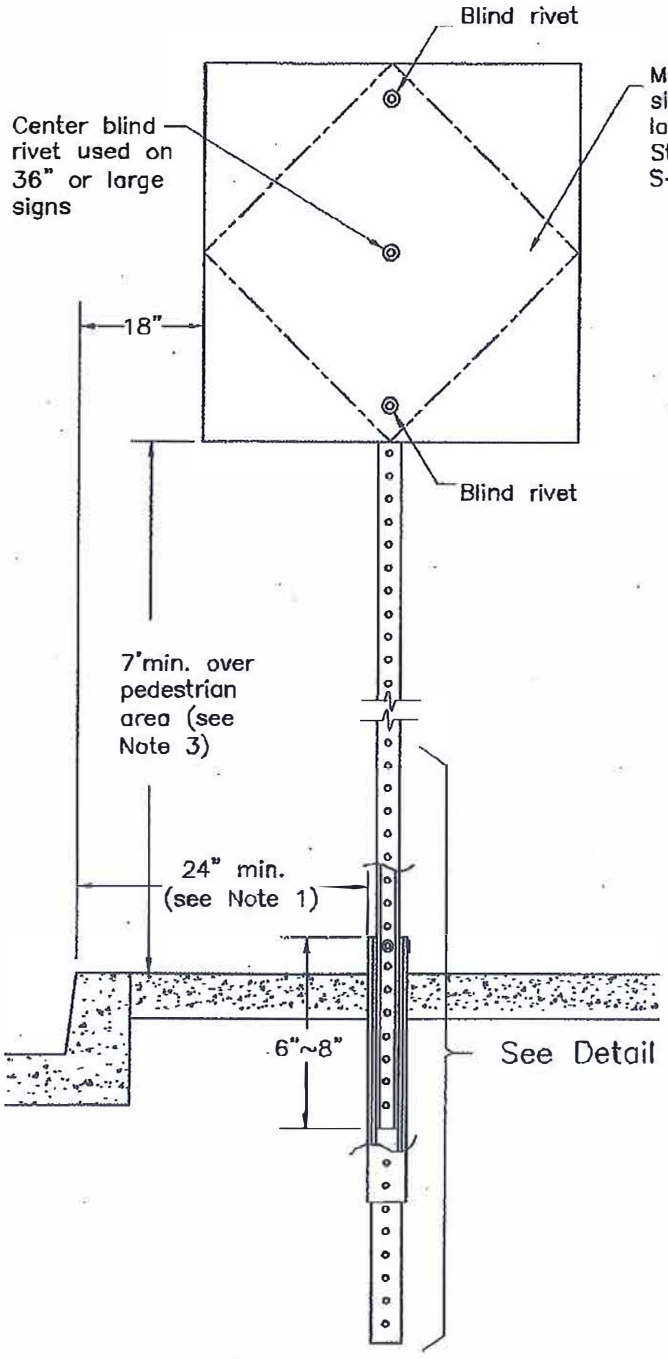
for Wayne K. Tanda, General Manager

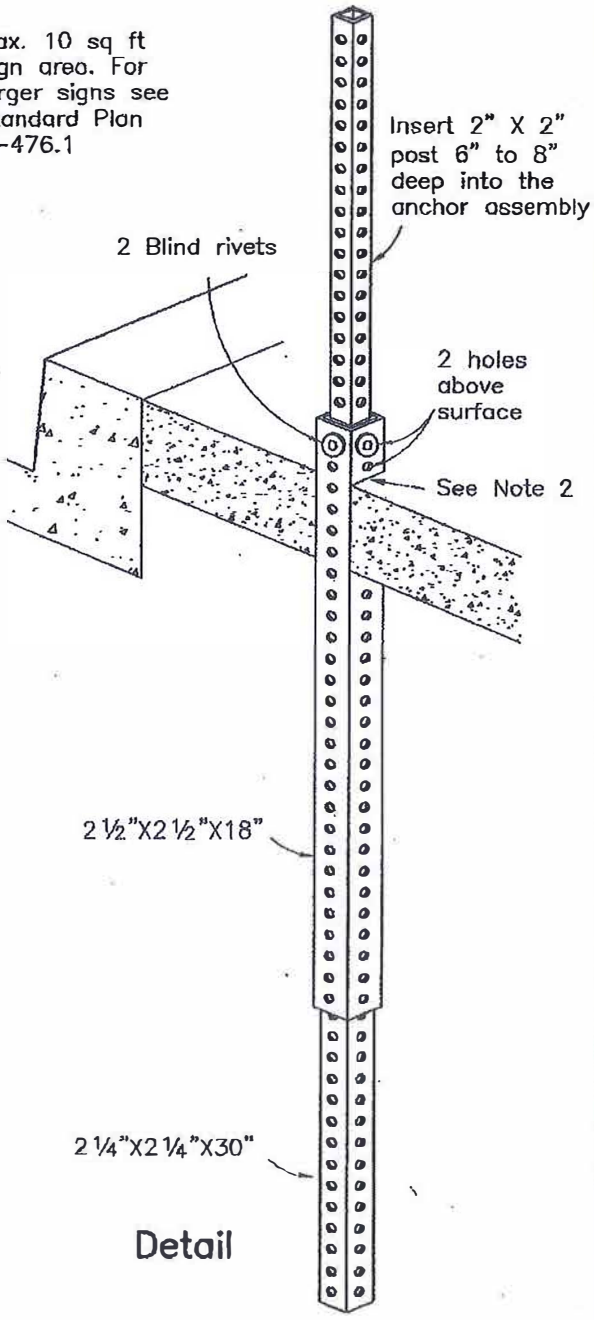
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

Sign Posting
For Street Termini

1/1

| CKD. | SR. T.E. | PR. T.E. T.J. |
|---|---|---|
| DWN. M.T. | T.E. T.C. | S-446.0 |




Detail

Note:

1. 30" typical for parking signs. 36" typical for warning and regulatory signs.

2. Posts for parking signs to be installed at 45° angle to curb. Posts for warning and regulatory signs to be installed at 90° angle to curb.

3. 9'6" minimum for street name signs; 7'6" typical for parking signs; 4' typical for W31(CA), W1-6, and W1-7; 4' typical to top of sign for W1-8, W12-1, OM1-3, and OM4-3.

APPROVED July 3, 2008

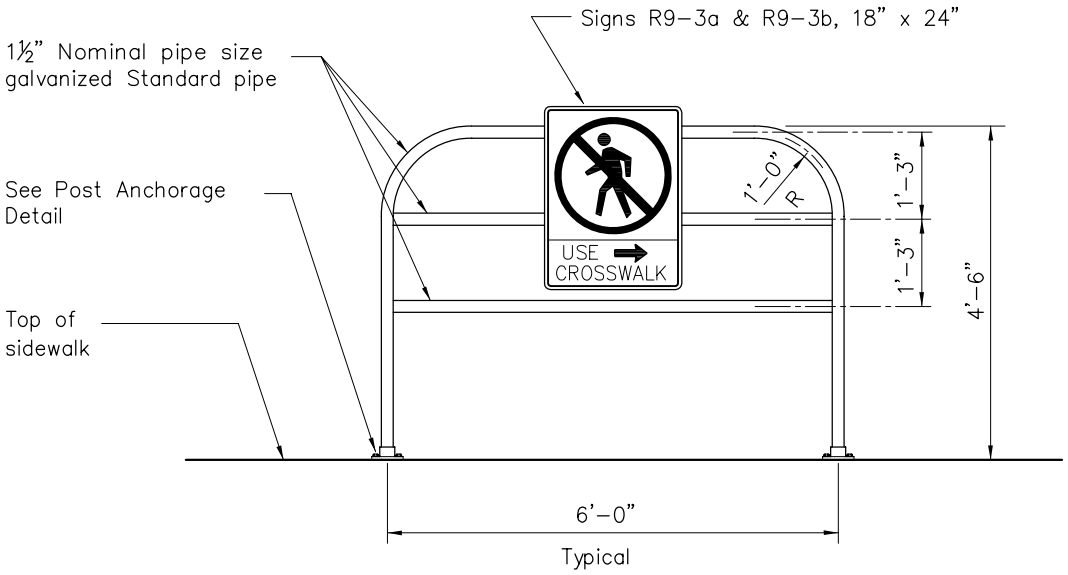
John E. Fraher

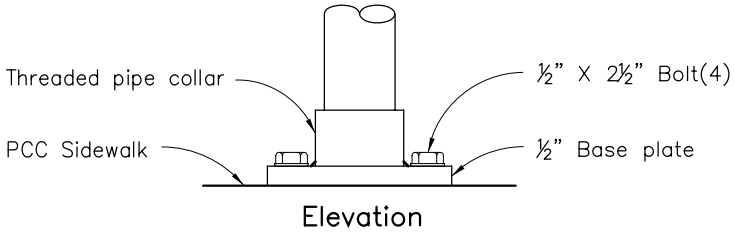
for Rita L. Robinson, General Manager

**CITY OF LOS ANGELES**
DEPARTMENT OF TRANSPORTATION

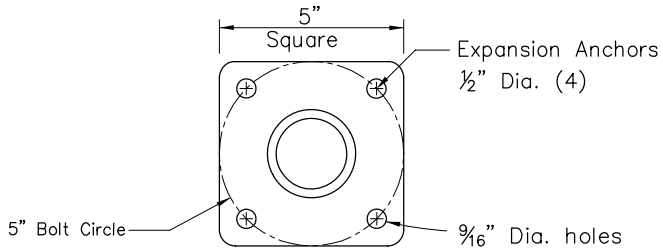
**SIGN POST INSTALLATION** 1/1

| CKD. | SR. T.E. JW | PR. T.E. SS |
|---|---|---|
| DWN. MT 06-30-08 | T.E. TC | S-452.0 |




Elevation




Plan

**Post Anchorage Detail**

Notes:

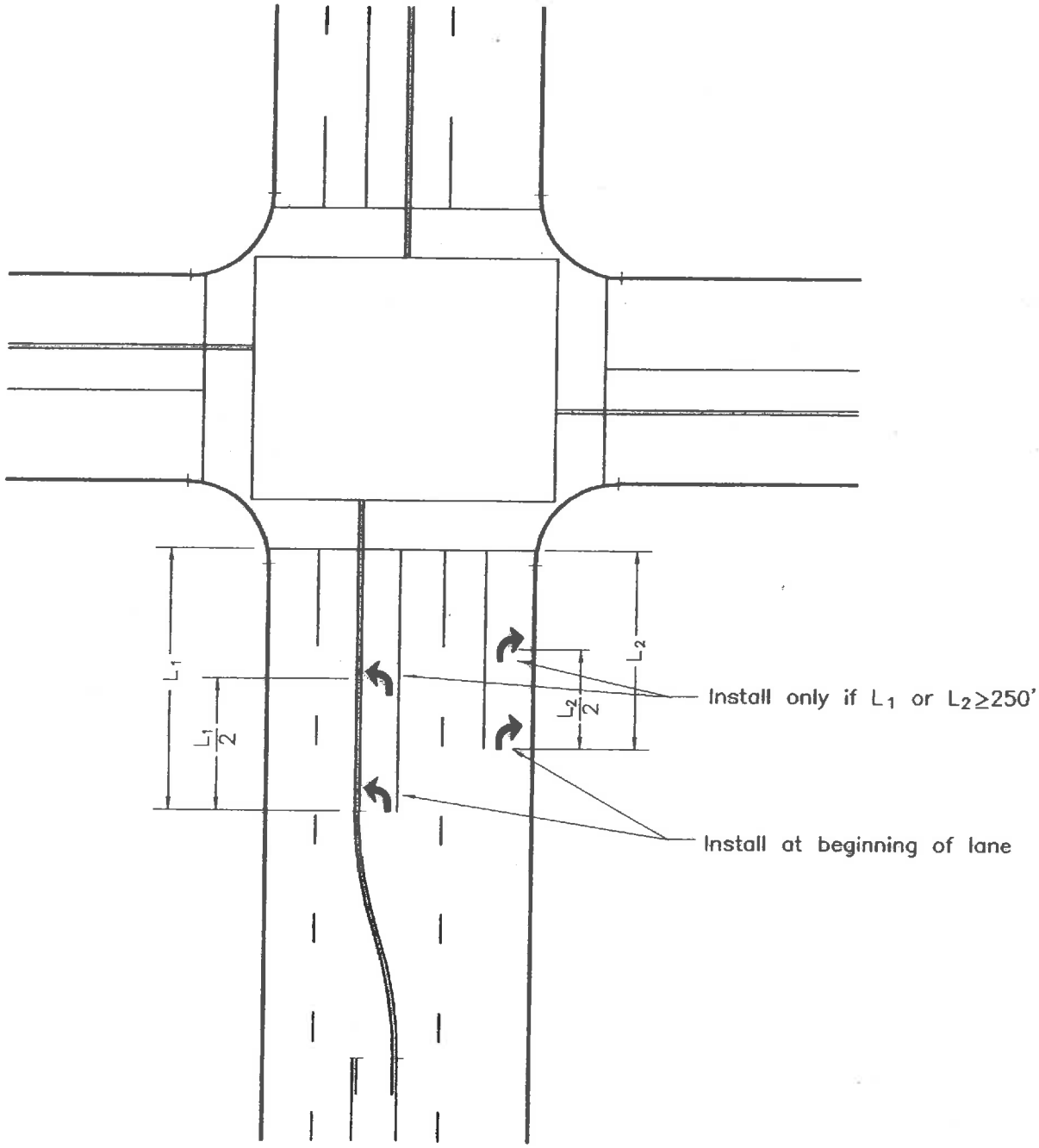
1. Pipe post to be set 1'–6" back from face of curb unless otherwise specified.
2. For minimum pipe diameters and wall thickness refer to ASTM A6M.
3. Use left, right or double arrow on sign as needed.

| | | | |
|---|---|---|---|
| DWN | MT | 05-03-06 | Title: Pedestrian Barricade |
| CKD | | | |
| T. E. | | | |
| Sr. T. E. | | | CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION |
| Pr. T. E. | SS | 06-26-08 | |

Approved June 26, 2008

for Rita L. Robinson, General Manager

Drawing No. S-454.2




APPROVED March 13 2006

John E. Fisher

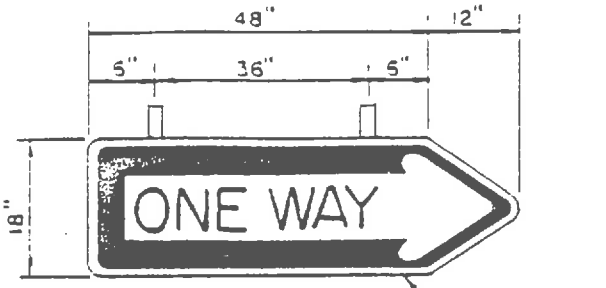
for Wayne K. Tanda, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

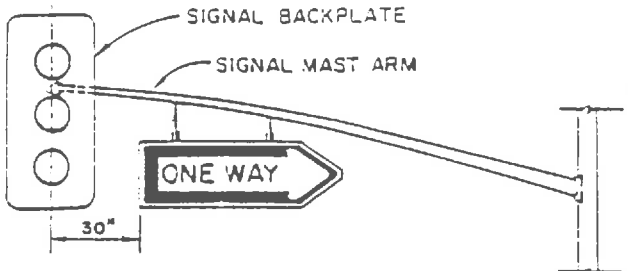
# Typical Placement of Pavement Turn Arrows

1/1

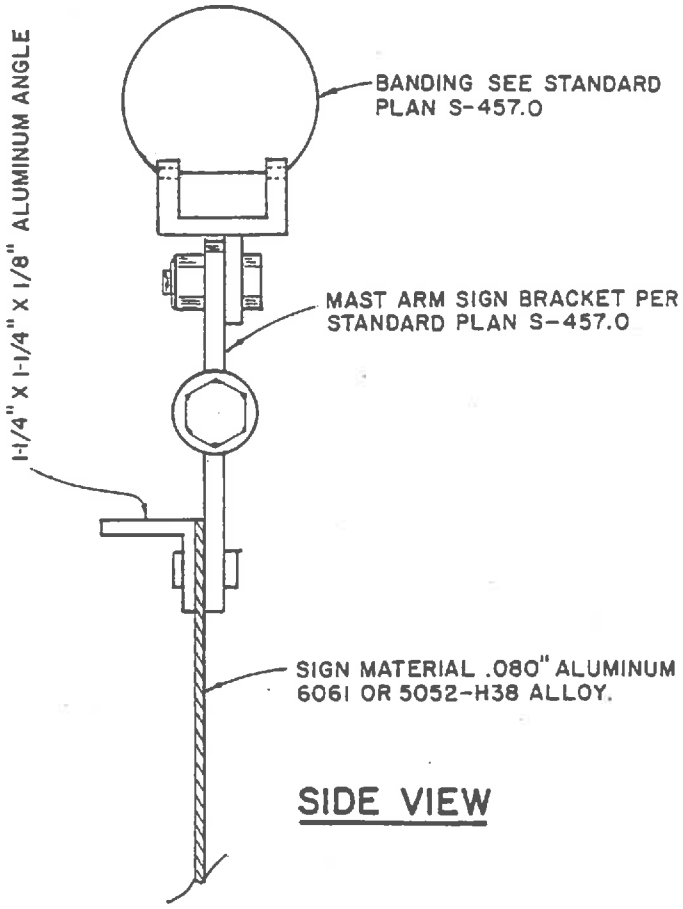
| CKD. | SR. T.E. | PR. T.E. TLJ |
|---|---|---|
| DWN. M.T. | T.E. TC | S-456.0 |



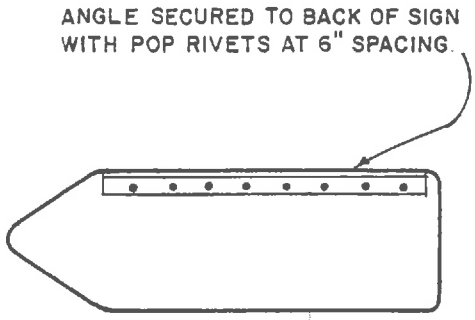

FRONT VIEW




MAST ARM INSTALLATION




SIDE VIEW




REAR VIEW

NOTES:

1. SIGN FACE SHALL BE DIAMOND GRADE REFLECTIVE MATERIAL. LETTERS SHALL BE 8" SERIES "D" CAPS. SIGN FACE MAY BE APPLIED TO THE FRONT OR FRONT AND BACK OF SIGN AS SPECIFIED.

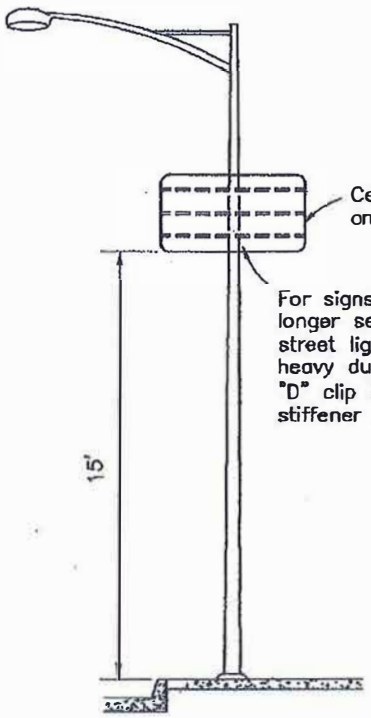
APPROVED 2/22/89
S. E. Rowe
GENERAL MANAGER

ONE-WAY ARROW
MAST ARM MOUNTED

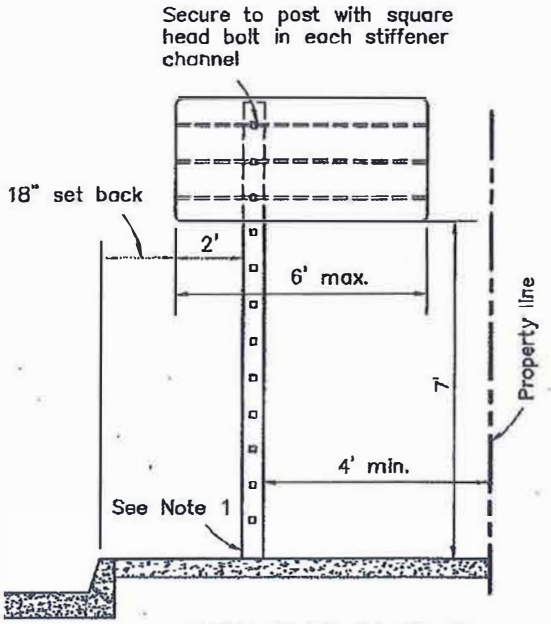
1/1

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION
S. E. ROWE, General Manager

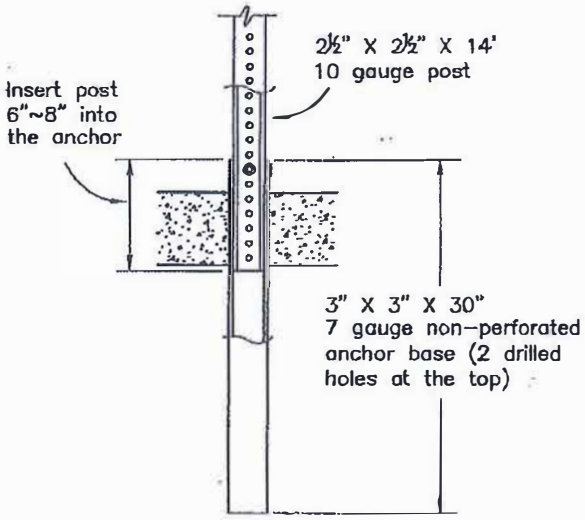
| DWN. | T.E. | PR. T.E. |
|---|---|---|
| CKD. | SR. T.E. | S-473.0 |



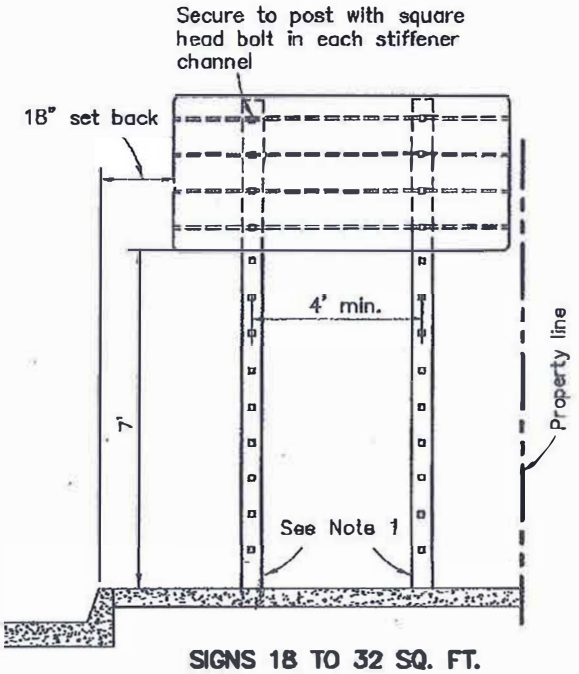

SIGNS TO 10 SQ. FT.




SIGNS 10 TO 18 SQ. FT.




DETAIL




SIGNS 18 TO 32 SQ. FT.

NOTES:

1. See Detail for square tube sign post installation.
2. Sign stiffener system and hardware per standard plan S-476.0.
3. Signs greater than 32 sq.ft. should be placed on a cantilever standard.
4. Sign may not extend beyond property line.
5. Large roadside mountings on electroliers are permitted only when the poles are steel and embedded in concrete sidewalks.

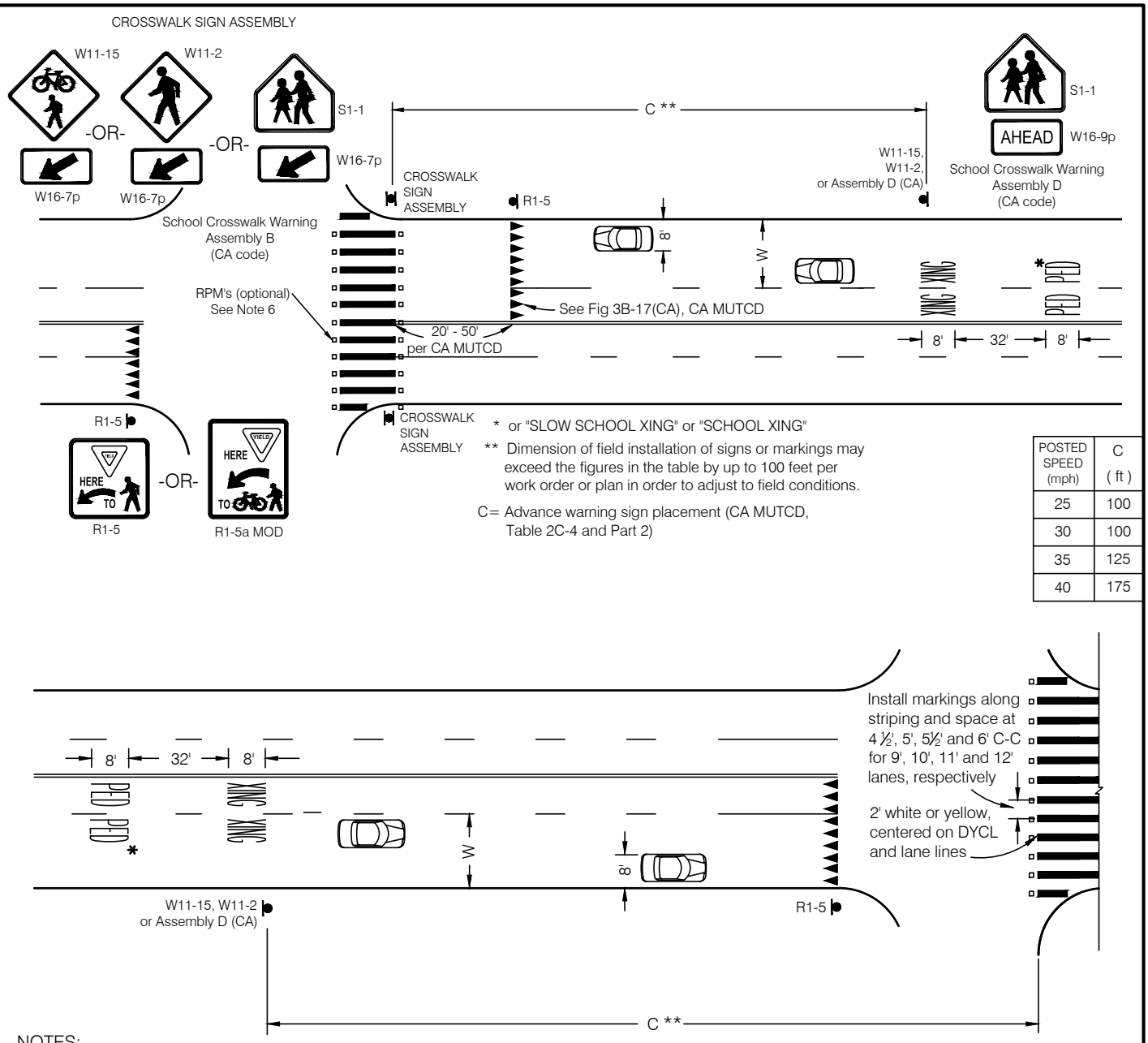
APPROVED July 3, 2008

John E. Fisher

for Rita L. Robinson, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| Posting Detail for Large Roadside Signs | | 1/1 |
|---|---|---|
| CKD. | SR. T.E. JW | PR. T.E. SS |
| DWN. MT 05-30-08 | T.E. TC | S-476.1 |




| POSTED SPEED (mph) | C ( ft ) |
|---|---|
| 25 | 100 |
| 30 | 100 |
| 35 | 125 |
| 40 | 175 |




NOTES:

1. IMPLEMENTATION
   This standard plan applies to new installations and reinstallations of marked crosswalks and to marked crosswalks determined to be retained as a result of a study on multi-lane facilities. Use of signs shall be in coordination with all other controls shown on this plan.
2. SIGN POSTING AT CROSSWALK
   Crosswalk Sign Assembly signs shall be posted and should be positioned within ten feet of the crosswalk. These signs generally shall be posted back-to-back so that one sign is on the right and the other on the left. If a raised median with a width 6' or greater exists, the left sign shall be in the median. These signs should be 36" X 36". The W16-9p or W16-7p plates shall be 36" wide. All signs shall be fluorescent yellow-green.
3. ADVANCE SIGN POSTING
   Advance Pedestrian Crossing W11-15, W11-2 signs, or Assembly D (CA) signs shall be posted as shown and shall be fluorescent yellow-green. R1-5 signs shall be posted and positioned within ten feet of the yield limit line. These locations may be adjusted to accommodate field conditions. All signs should be 36" X 36".
4. PAVEMENT MARKINGS
   "PED XING" or "SCHOOL XING" pavement markings shall be installed as shown except the yellow "SLOW SCHOOL XING" pavement markings shall be installed in advance of uncontrolled yellow school crosswalks. If the crosswalk spacing is less than 500 feet, only one set of pavement markings is required in advance of the first crosswalk.
5. MIDBLOCK CROSSWALKS
   This standard plan also applies at uncontrolled approaches to midblock crosswalks.
6. RAISED PAVEMENT MARKIGNS (RPM)
   Install RPMs one each side of crosswalk bar facing approach lanes. Two-way clear (white) or two-way amber (yellow) per CALTRANS standards and specifications may be installed corresponding to the crosswalk color

APPROVED

for Seleta J. Reynolds, General Manager

CITY OF LOS ANGELES
**DEPARTMENT OF TRANSPORTATION**

TRAFFIC CONTROLS FOR MARKED CROSSWALKS ON UNCONTROLLED APPROACHES

1/4

| CKD. NO | SR. T.E. JV | PR. T.E. |
|---|---|---|
| DWN. MT/EM | T.E. NO | S-481.0 |

| W ( ft ) | POSTED SPEED (mph) | | | |
|---|---|---|---|---|
| | 25 | 30 | 35 | 40 |
| | CALCULATED A DISTANCES (ft) | | | |
| 18 | 56 | 71 | 88 | 107 |
| 19 | 51 | 65 | 81 | 98 |
| 20 | 47 | 60 | 74 | 90 |
| 21 | 44 | 56 | 69 | 84 |
| 22 | 41 | 52 | 65 | 78 |
| 23 | 38 | 49 | 61 | 74 |
| 24 | 36 | 46 | 57 | 69 |

A=4B / (W-7)=Curb stopping prohibition necessary for motorist to see a pedestrian at a point 4' into the roadway. LADOT practice is to install 50 feet of red curb on arterial approaches to side streets, measured from the side street curb line prolongation. Install this minimum dimension whenever the calculated A distance results in a lesser dimension. (See Note 1 )

B=Safe stopping distance=1.47 VT + 1.075 $V^2/a$

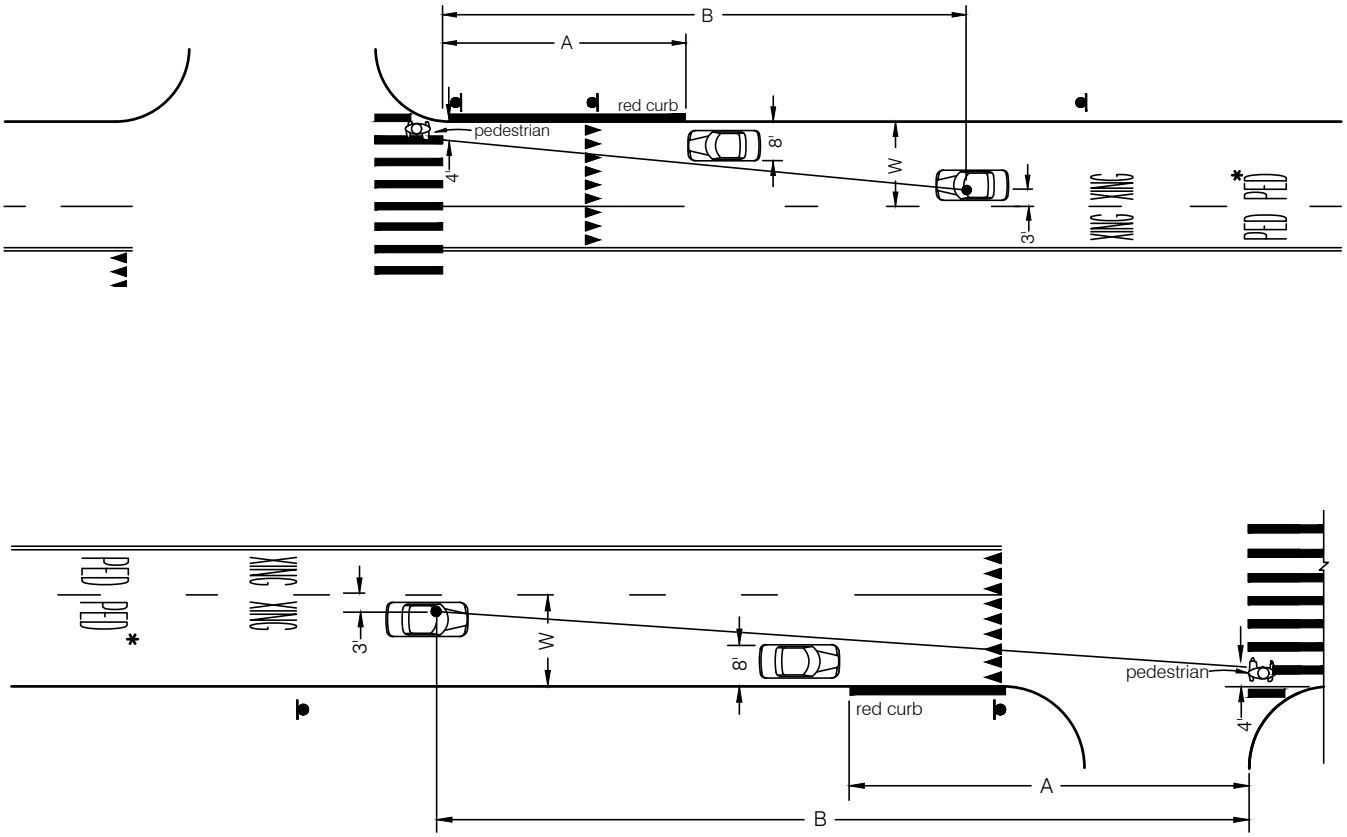
V=Posted speed + 5mph (Chart listings calculated on posted speed + 5mph)

T=Perception - Reaction time of 1.5 seconds (Driver previously alerted with advance sign and pavement markings)

a=Deceleration rate=11.2 ft /$s^2$ (ASSHTO Policy on Geometric Design of Highways & Streets, Stopping Sight Distance)

W=Curb lane width (Driver is assumed to be 3' from lane line)

| POSTED SPEED (mph) | B ( ft ) |
|---|---|
| 25 | 153 |
| 30 | 195 |
| 35 | 242 |
| 40 | 294 |




NOTES:

1. ONE-WAY STREETS
   Because one-way streets place drivers closer to the curb on the left side of the roadway, use A=4B/(W-11) for left side pedestrian approach. This distance is not shown above.

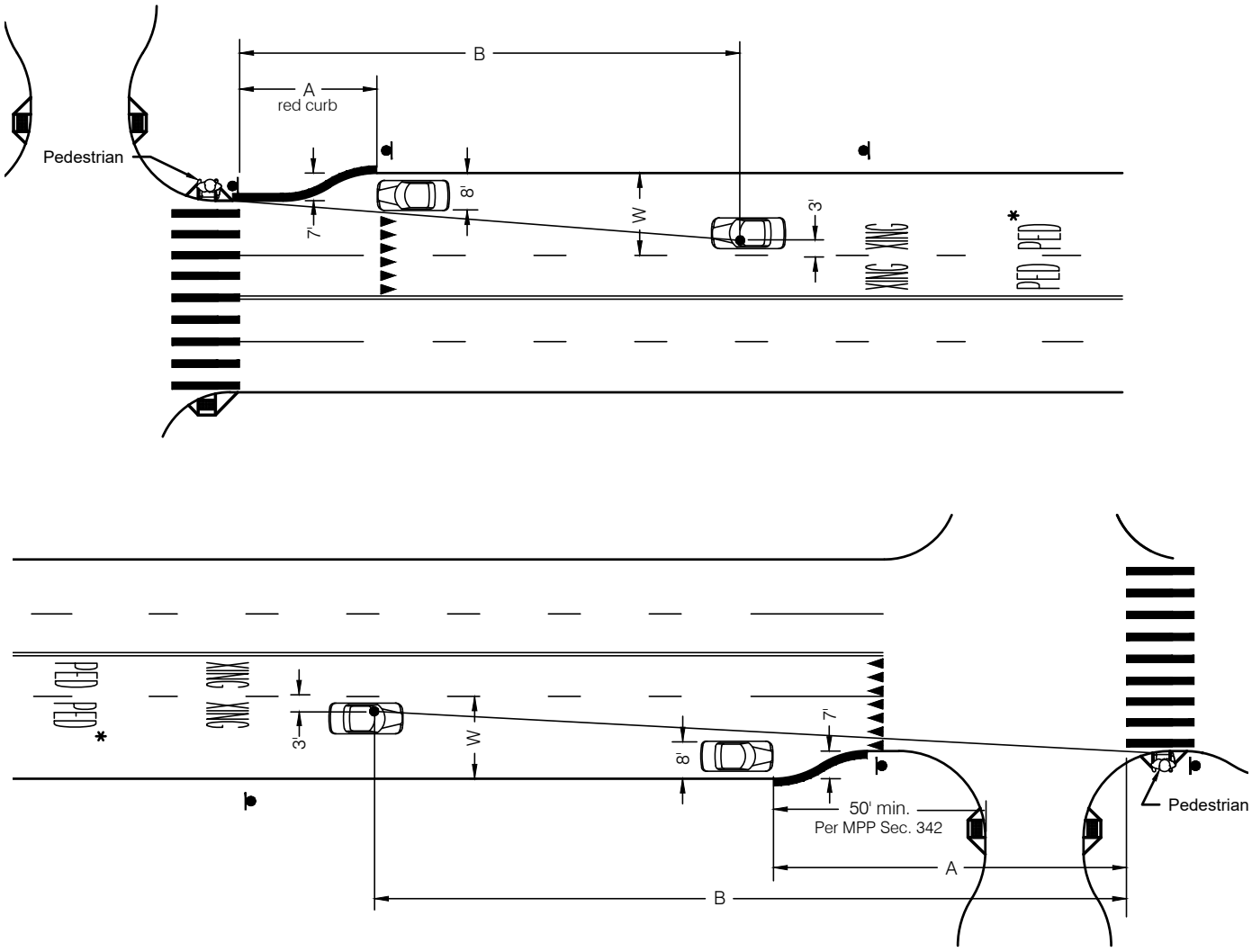
2. SIGNS
   See Sheet 1 for appropriate signs.

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>RED CURB FOR SIGHT DISTANCE<br>TO PEDESTRIAN CROSSINGS | Drawing No.<br>S-481.0 | 2<br>4 |
|---|---|---|---|

| W ( ft ) | POSTED SPEED (mph) | | | |
|---|---|---|---|---|
| | 25 | 30 | 35 | 40 |
| | CALCULATED A DISTANCES (ft) | | | |
| 18 | 19 | 24 | 30 | 37 |
| 19 | 17 | 22 | 27 | 33 |
| 20 | 15 | 20 | 24 | 29 |
| 21 | 14 | 18 | 22 | 27 |
| 22 | 13 | 16 | 20 | 25 |
| 23 | 12 | 15 | 19 | 23 |
| 24 | 11 | 14 | 17 | 21 |

A=B/(W-10) = Curb stopping prohibition necessary for a motorist to see a pedestrian at the curbline of the curb extension. This formula assumes that the curb extension is 7' wide compared to the 8' wide parking lane.

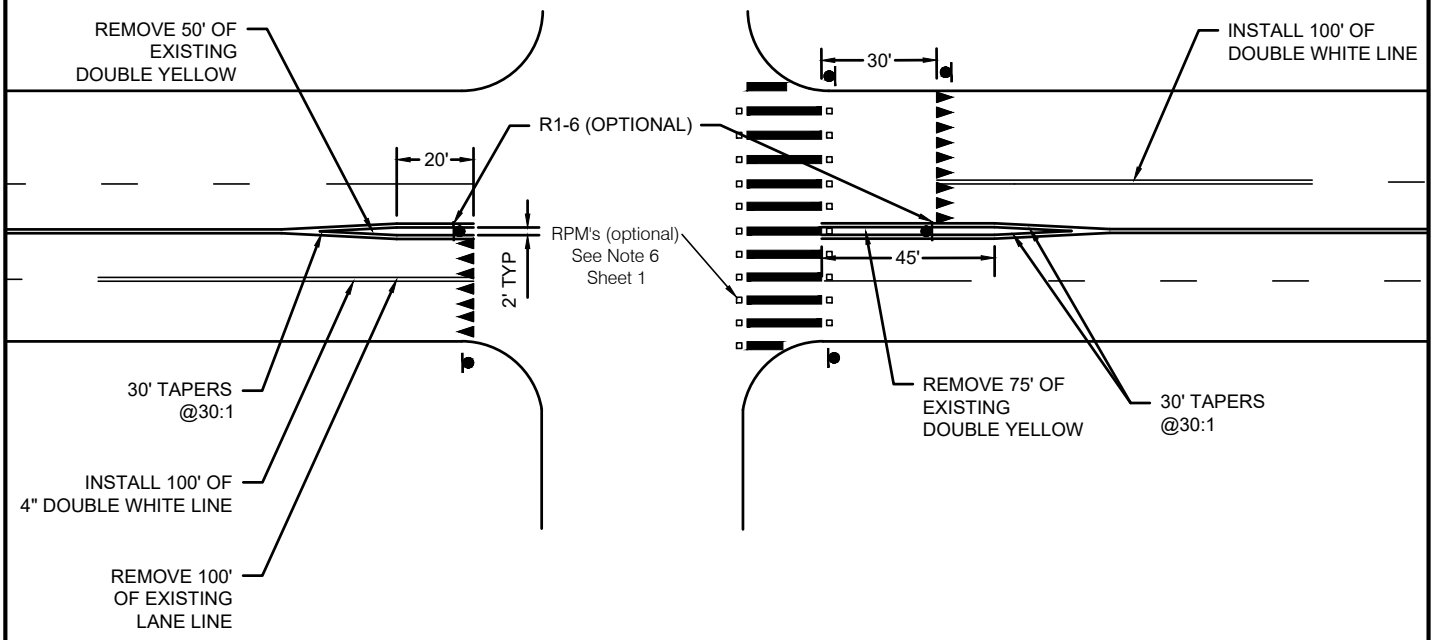
| POSTED SPEED (mph) | B ( ft ) |
|---|---|
| 25 | 153 |
| 30 | 195 |
| 35 | 242 |
| 40 | 294 |




NOTES:

1. SIGNS
   See Sheet 1 for appropriate signs.

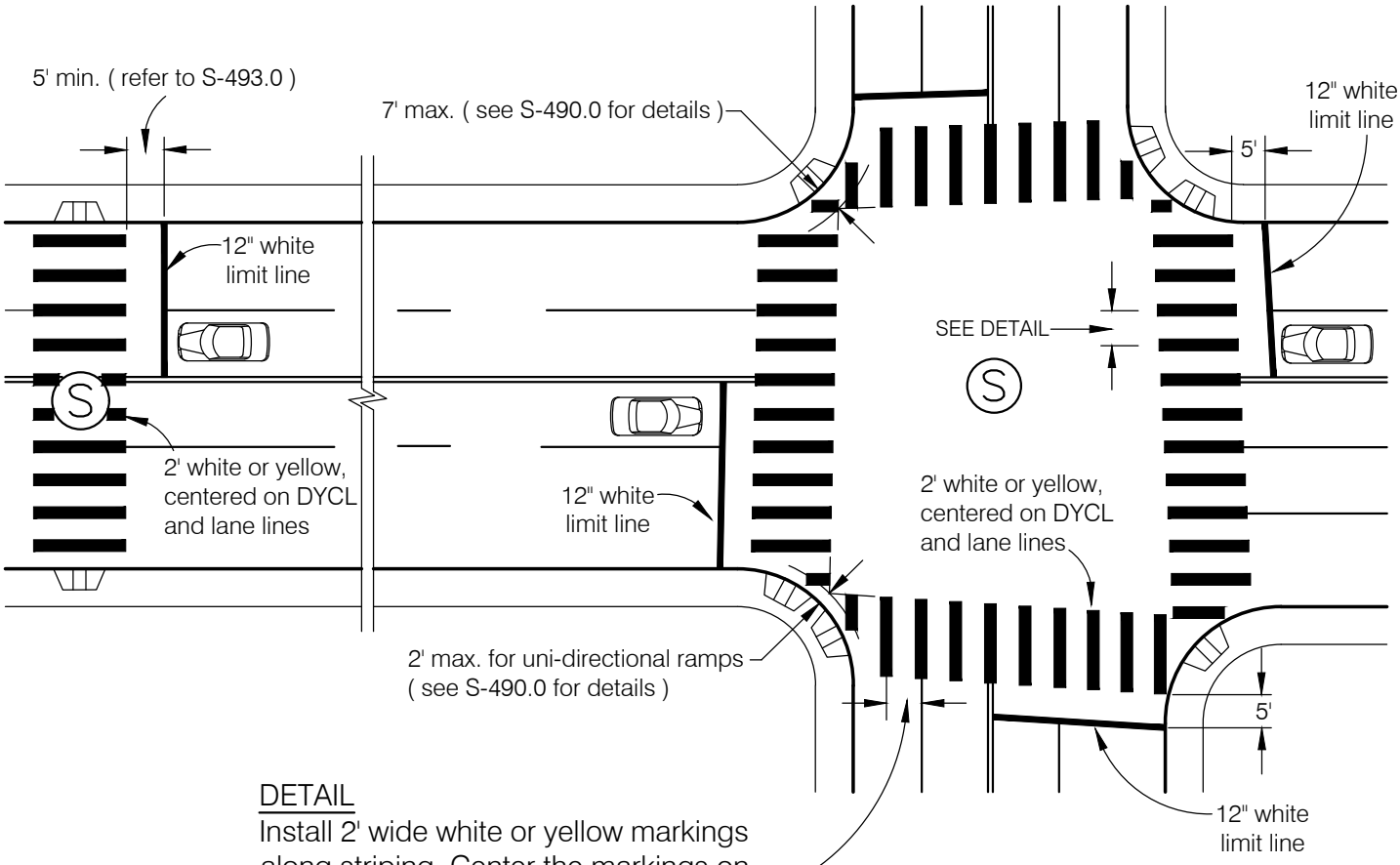
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title RED CURB FOR SIGHT DISTANCE TO PEDESTRIAN CROSSINGS WITH CURB EXTENSION | Drawing No.<br>S-481.0 | 3/4 |
|---|---|---|---|




NOTES:

1. SIGNS
   See Sheet 1 for appropriate signs.

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title CENTERLINE WIDENING (TYPICAL)<br>AT INTERSECTIONS | Drawing No.<br>S–481.0 | 4<br>4 |
|---|---|---|---|




DETAIL

Install 2' wide white or yellow markings along striping. Center the markings on DYCL and lane lines. Add markings according to chart below:

| Lane Width (ft) | Spacing on center (ft) |
|---|---|
| 9' | 4.5' |
| 10' | 5.0' |
| 11' | 5.5' |
| 12' | 6.0' |

Marking should be installed such that wheels straddle the crosswalk markings.

NOTES:

1. IMPLEMENTATION
   This standard plan applies to installations in accordance with MPP Section 344 for Continental Crosswalks for new and reinstallations of marked crosswalks on signalized and stop-controlled approaches.
2. CROSSWALK WIDTH
   Typical crosswalk widths are 15 feet but may vary according to site conditions. Continental markings shall be installed within existing dimensions unless otherwise indicated on a signed plan.
3. MIDBLOCK CROSSWALKS
   This standard plan also applies at controlled midblock approaches in accordance with S-493.0 - Location of Limit Lines and Crosswalks.
4. CONFLICT BETWEEN SIGNED PLAN AND STANDARD PLAN
   Should conflicts arise between this Standard Plan and a signed signal or geometric plan with their associated markings, (e.g., "cat tracks," extension of the DYCL, etc.), the signed plan shall take precedent.
5. RETROFITTING AND RESURFACING
   Refer to MPP Section 344 for retrofitting and resurfacing.

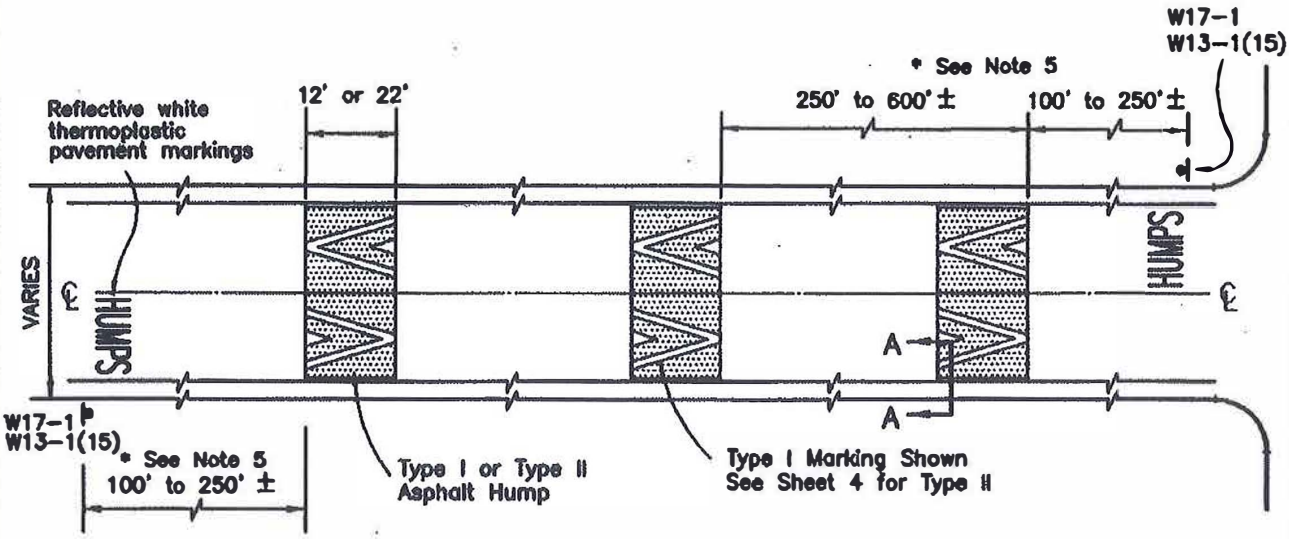
Approved

Seleta J. Reynolds, General Manager

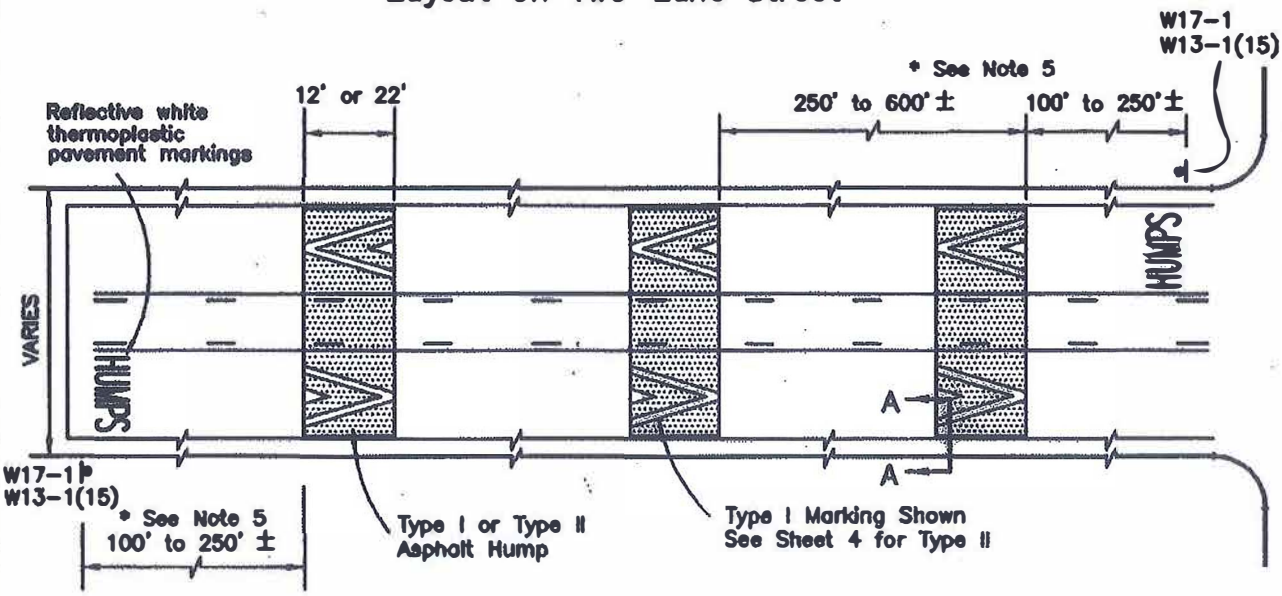
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

Continental Crosswalks on Controlled Approaches — 1 / 1

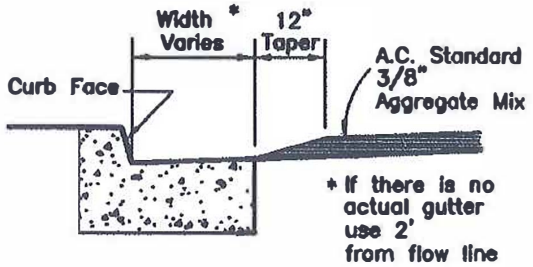
| T. E. | Sr. T. E. | Pr. T. E. |
|---|---|---|
| NO | JV | |
| DWN | CKD | Dwg. No. |
| MT/EM | NO | S-481.1 |




Layout on Two–Lane Street




Layout on Street with Striped Median




Section A–A

APPROVED June 27, 2007

John E. Fisher

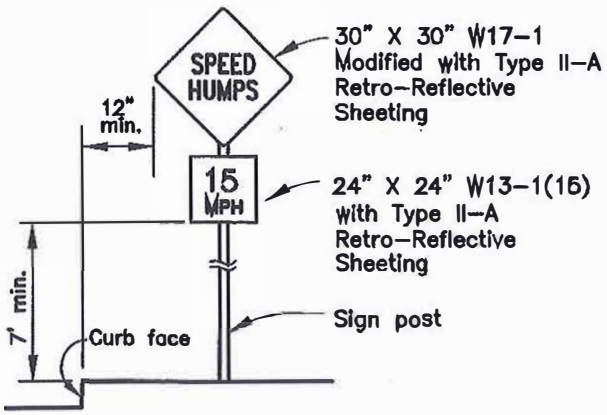
for Gloria J Jeff, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

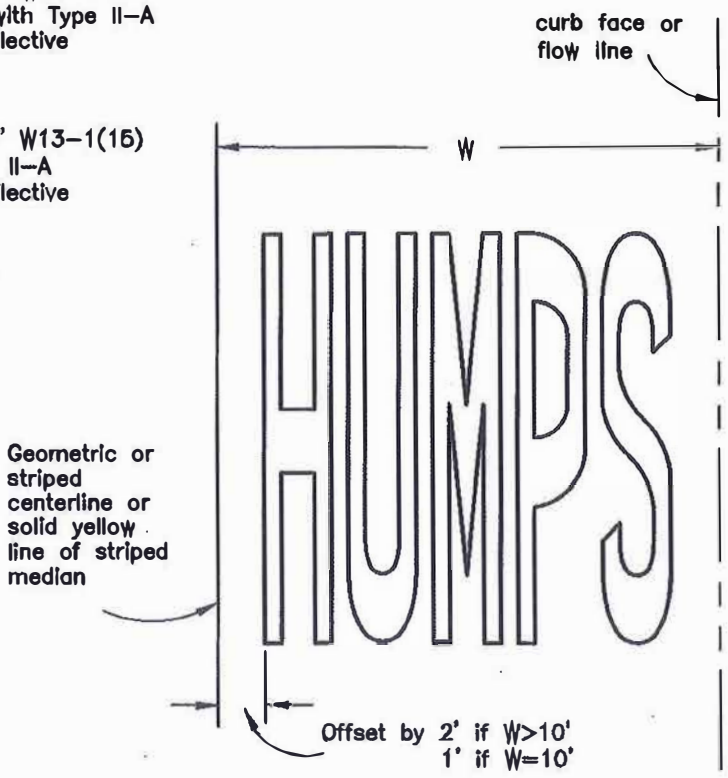
Speed Humps

1/4

| CKD. | SR. T.E. JW | PR. T.E. SS |
|---|---|---|
| DWN. M.T. | T.E. TC | S–483.0 |




Advance Warning Sign

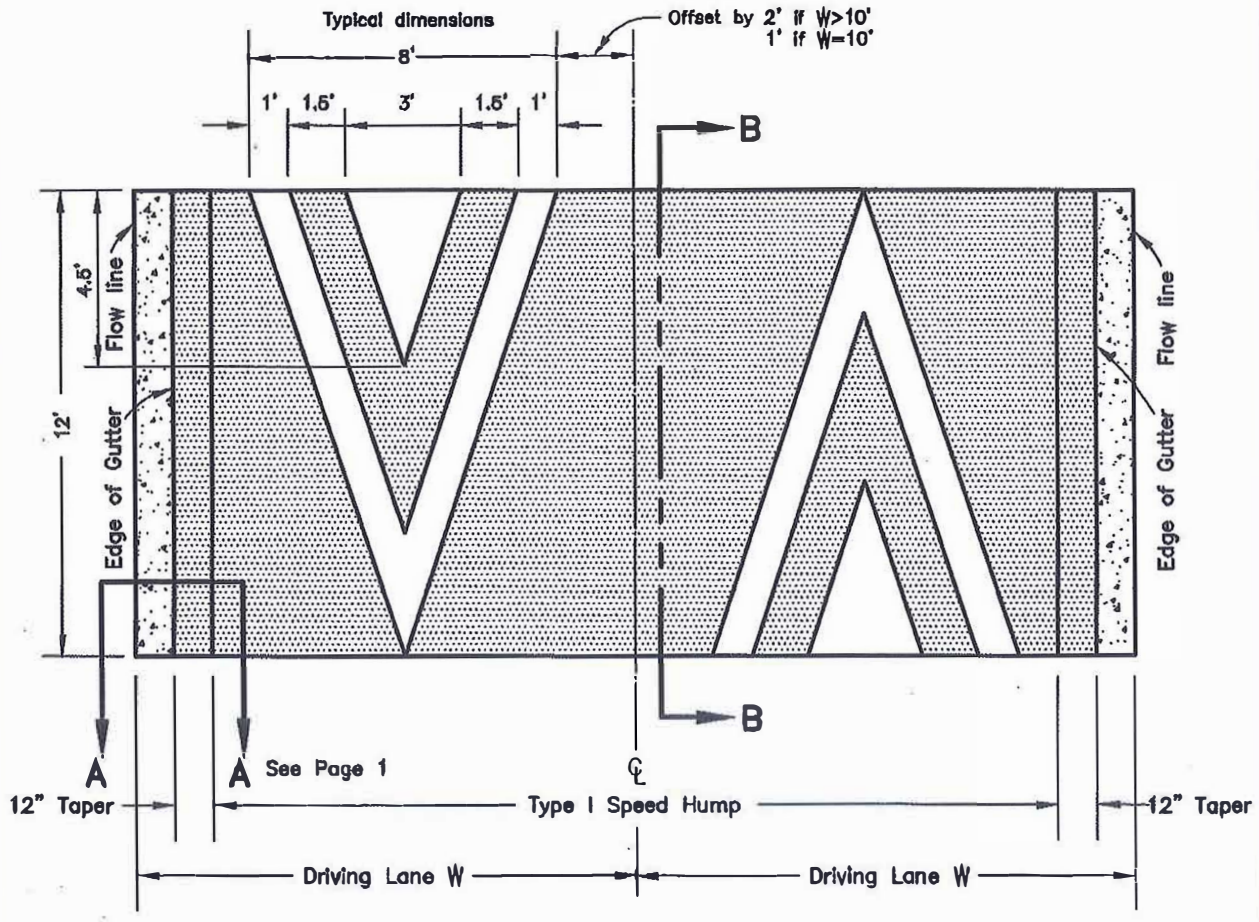



Advance Pavement Marking
(See S-509.0)

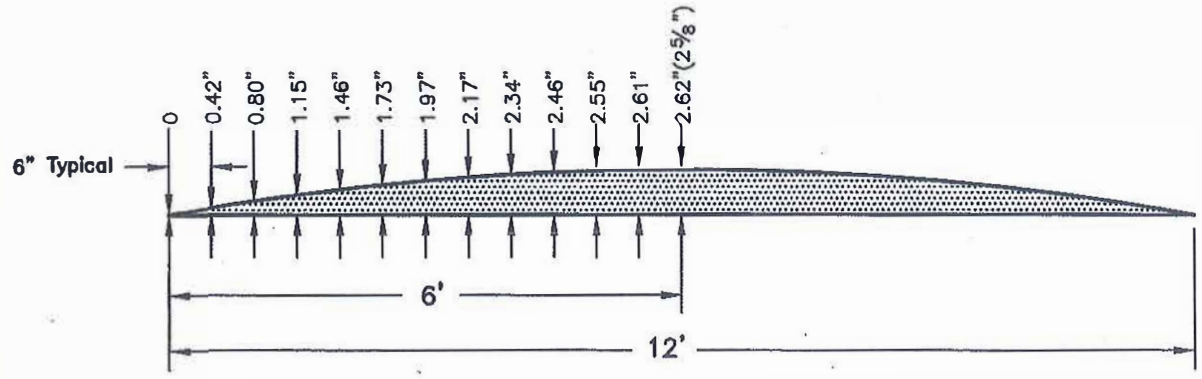
## Speed Humps Installation Notes

1. Speed humps shall be installed only when authorized by LADOT. Installations shall conform to the latest revision of LADOT Specification No. 51-008-003.
2. All asphalt concrete pavement shall conform to the most recent edition of the Standard Specification for Public Works Construction Section 302-5.
3. Speed humps shall not be placed over maintenance covers, watergates, junction chambers, etc.
4. Edge of speed humps should be 5 ft. or more from edge of driveway or catch basin.
5. Spacing between humps may vary. Exact locations and type of speed humps and sign locations shall be determined by LADOT.
6. Asphalt joins shall be accomplished by feather-edging.
7. The height of the speed hump shall not be less than 2 5/8 inch, and shall not exceed a tolerance of +1/4 inch.

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: Speed Humps | Drawing No.: S-483.0 | 2/4 |
|---|---|---|---|

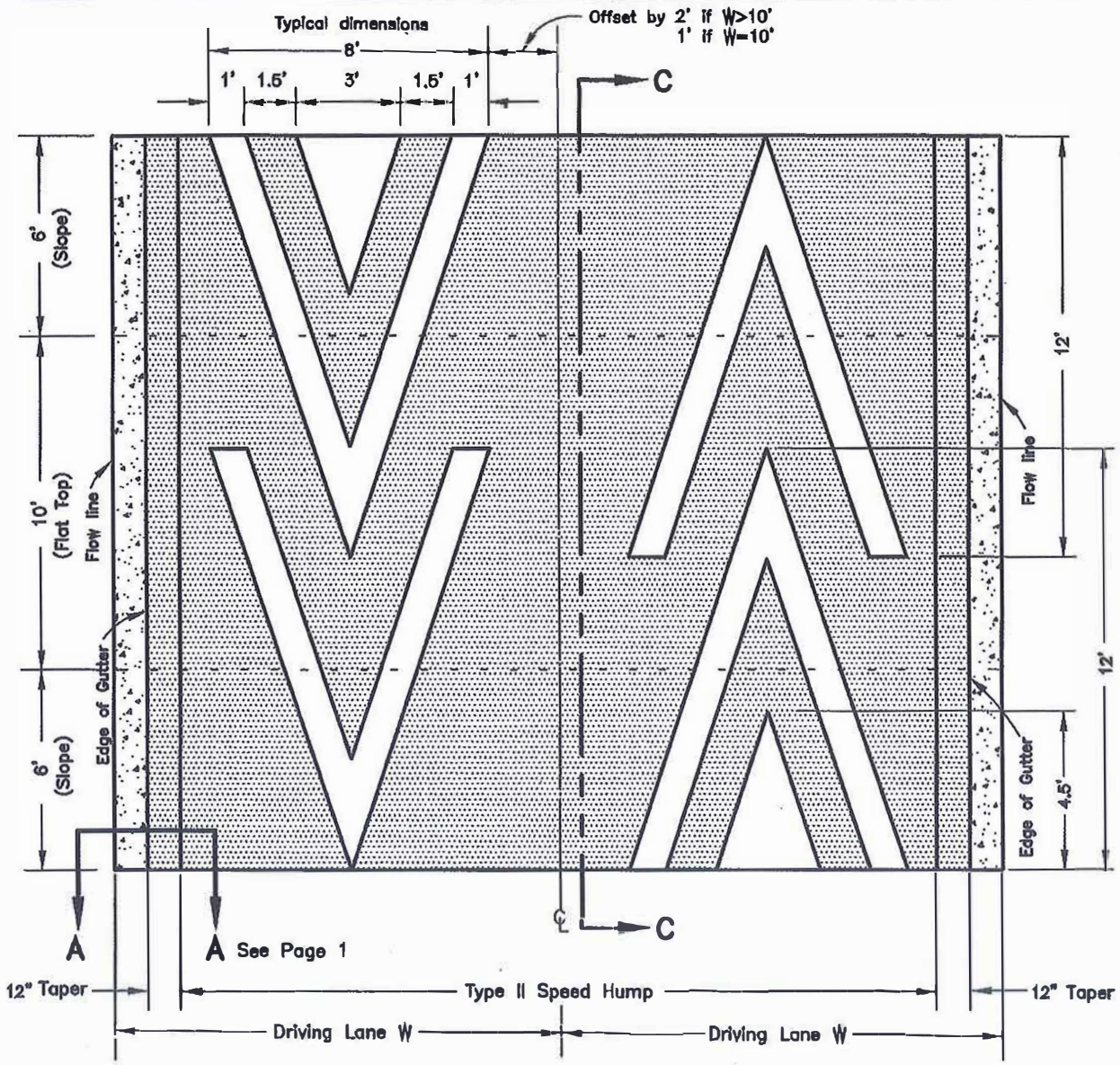



## Type I Speed Hump Marking (Chevron I)

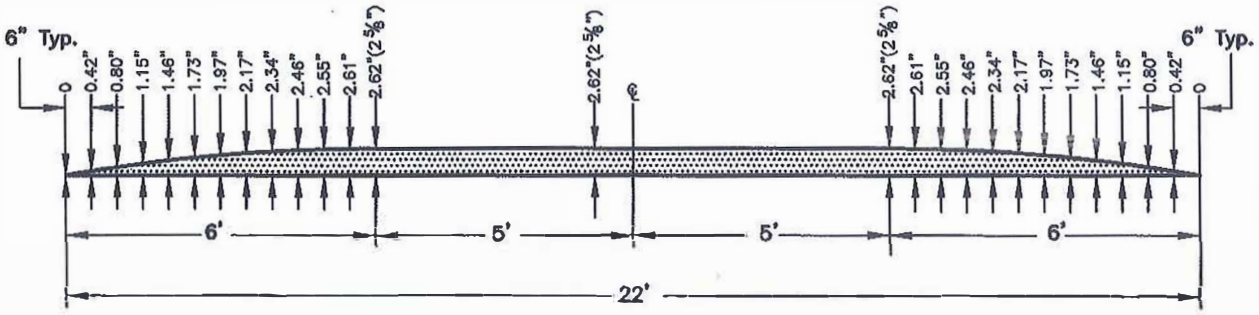



**Type I Speed Hump**
**2 5/8" High by 12' long**
**Section B–B**

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: Speed Humps | Drawing No.: S–483.0 | 3/4 |
|---|---|---|---|

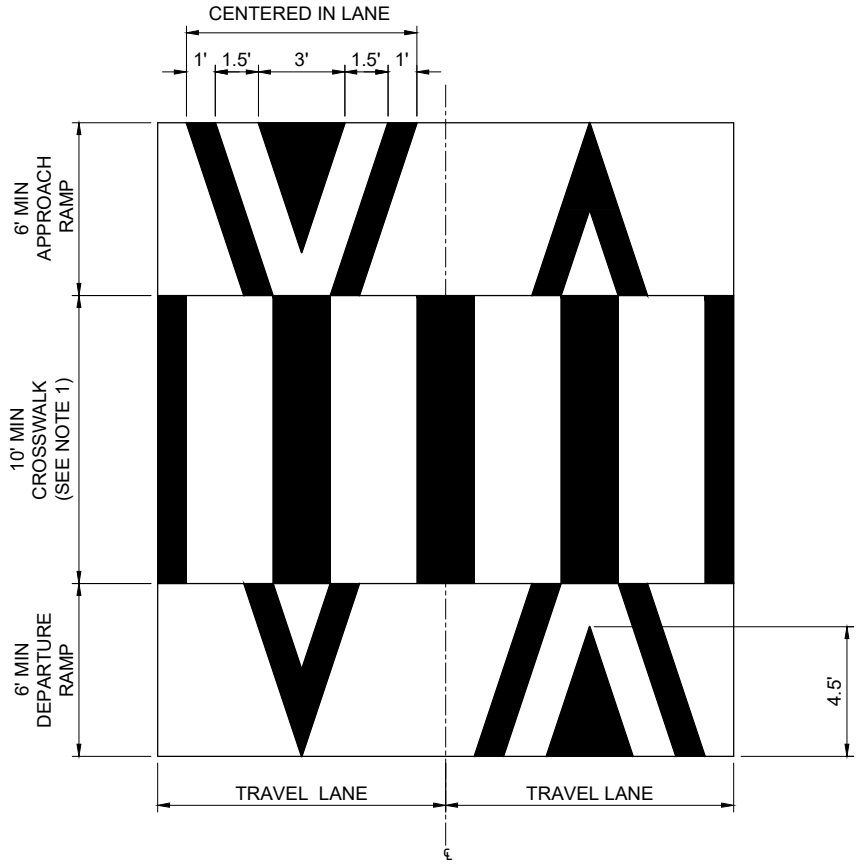



## Type II Speed Hump Marking (Chevron II)

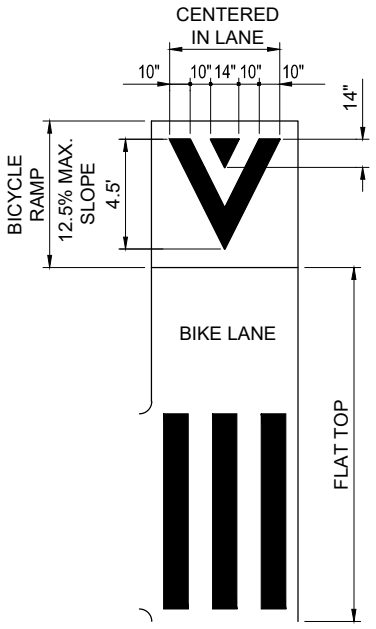



**Type II Speed Hump**
**2 5/8" High by 22' long**
**Section C–C**

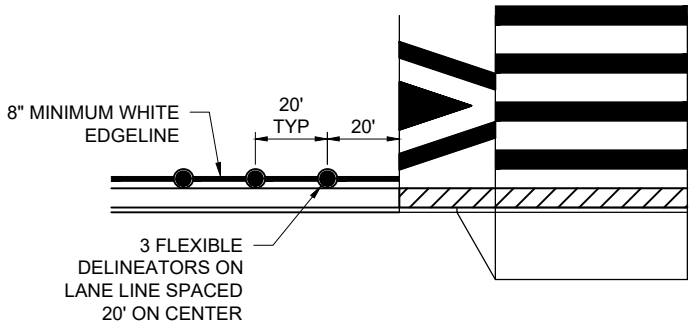
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>Speed Humps | Drawing No.<br>S–483.0 | 4/4 |
|---|---|---|---|




## RAISED CROSSWALK MARKING (CHEVRON III)




## BICYCLE RAMP MARKING (CHEVRON IV)




## SIDEWALK CULVERT MARKINGS

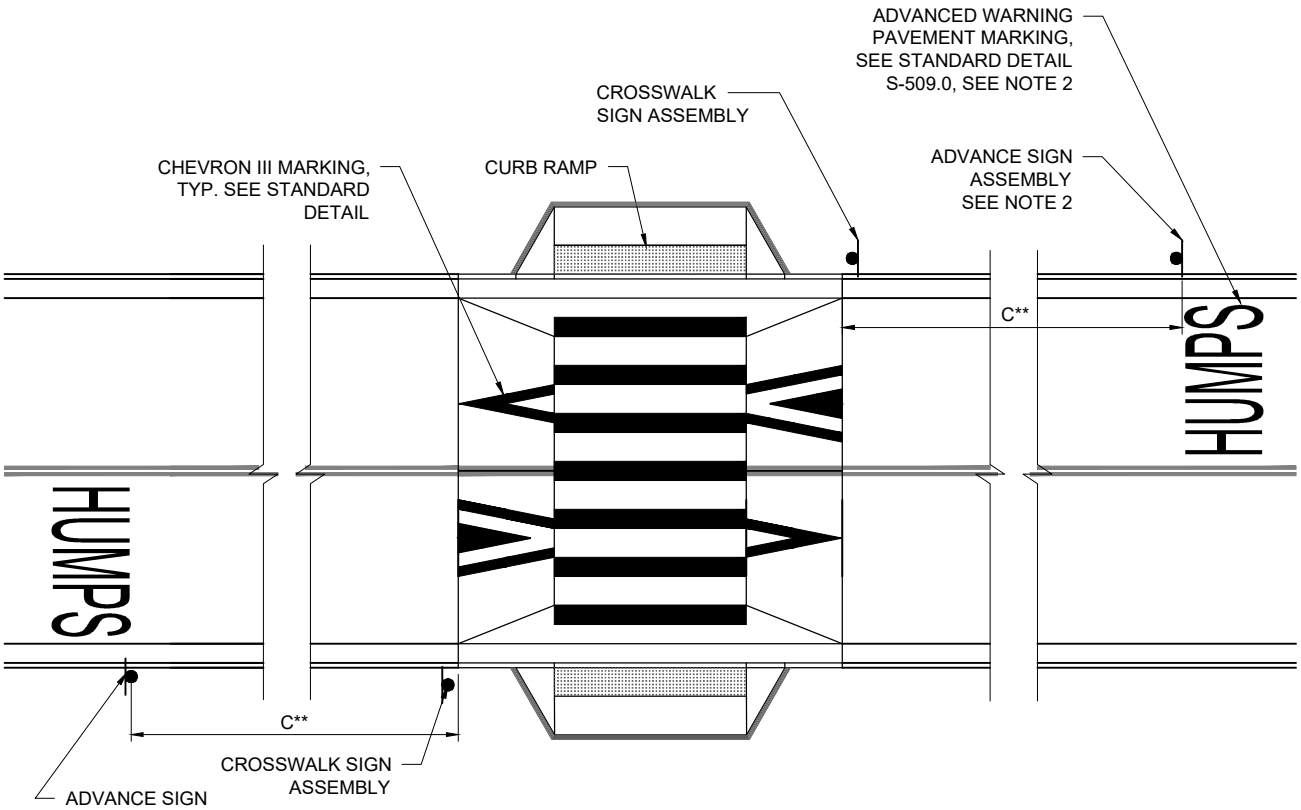
APPROVED 02-20-2020

for Seleta Reynolds, General Manager

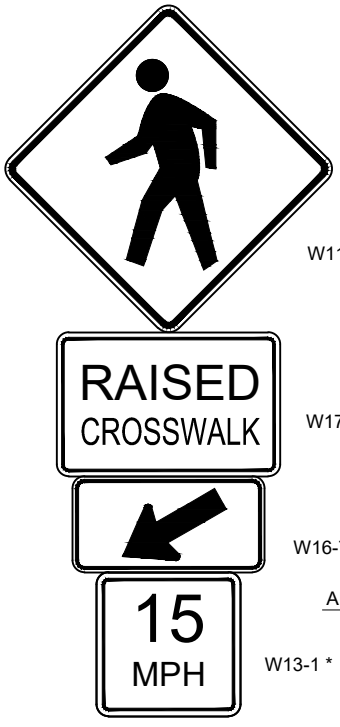
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

RAISED CROSSWALKS 1/3

| CKD. Priv. Engr. | SR. T.E. JV | PR. T.E. BS |
|---|---|---|
| DWN. Priv. Engr. | T.E. MN | S-483.1 |



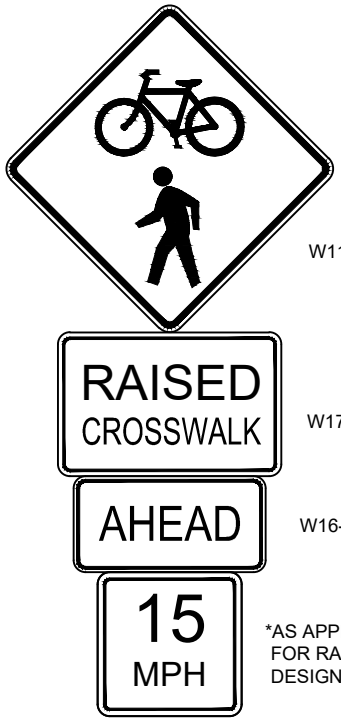

## RAISED CROSSWALK MARKING AND SIGNS




ADVISORY SPEED PLAQUES

*W13-1 (15 MPH)
W13-1 (20 MPH)
W13-1 (25 MPH)
W13-1 (30 MPH)

## CROSSWALK ASSEMBLY

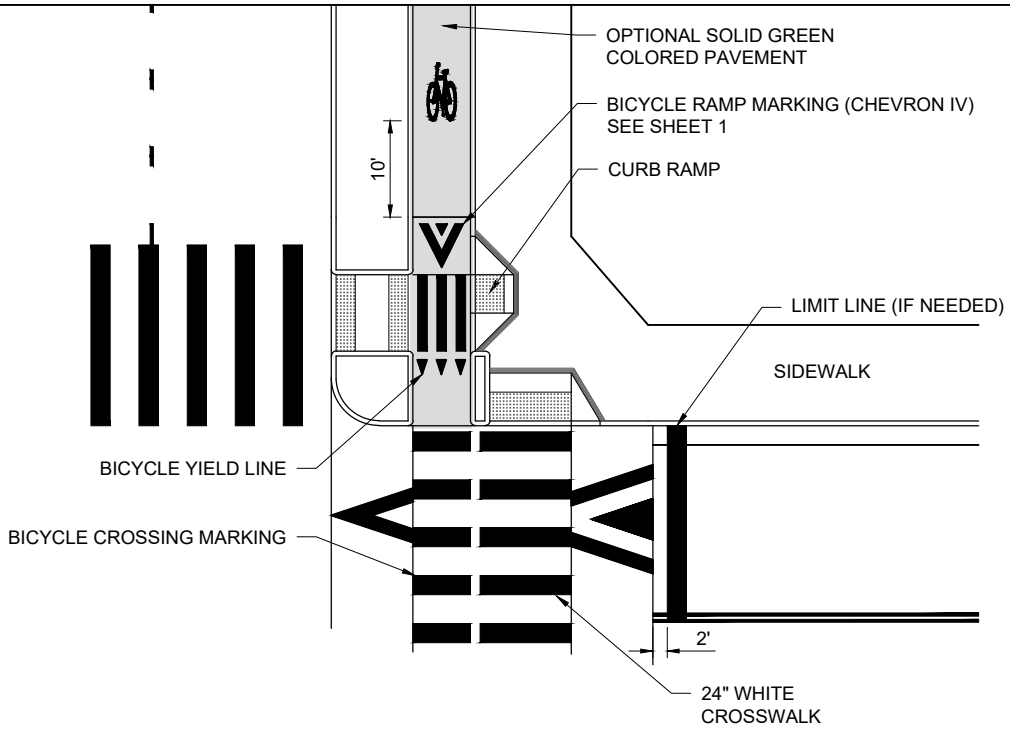



*AS APPROPRIATE FOR RAISED CROSSWALK DESIGN SPEED

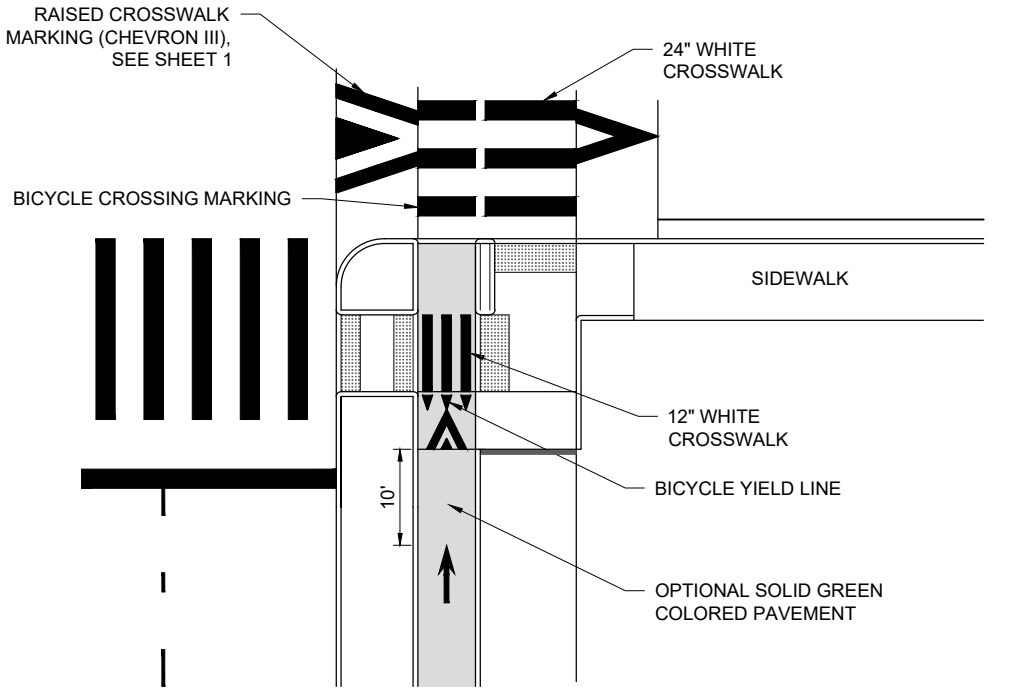
## ADVANCE ASSEMBLY

## RAISED CROSSWALK SIGN ASSEMBLIES

| | | | |
|---|---|---|---|
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>RAISED CROSSWALKS | Drawing No.<br>S−483.1 | 2/3 |




## RAISED SIDE STREET CROSSWALK
## STANDARD CURB RAMP

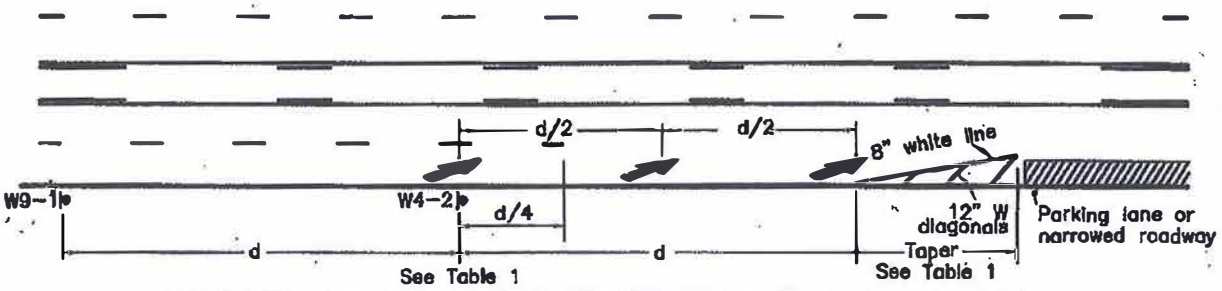



## RAISED SIDE STREET CROSSWALK
## DEPRESSED CORNER

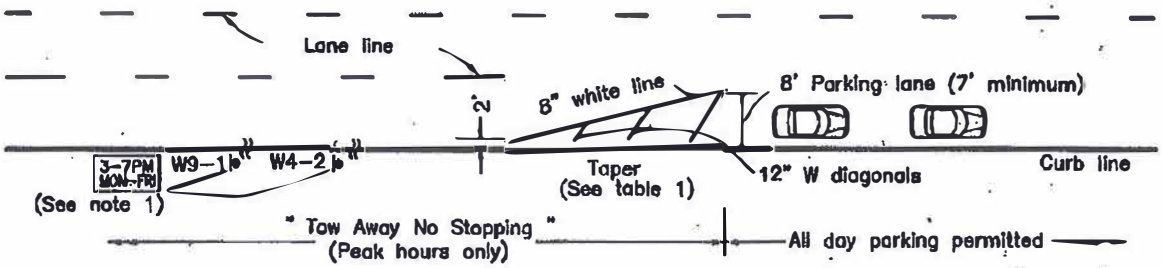
NOTES

1. THE WIDTH OF THE TOP OF RAISED CROSSWALKS SHOULD MATCH THE WIDTH OF THE CONNECTING SIDEWALK, SHARED USE PATH, OR DESIRED CROSSWALK, BUT NOT LESS THAN 10' IN WIDTH.
2. THE PLACEMENT OF ADVANCED WARNING SIGNS AND MARKINGS SHALL FOLLOW THE GUIDANCE FOR ADVANCED SIGN POSTING (C**) SHOWN ON S-481.0.
3. SEE CITY OF LOS ANGELES SUPPLEMENTAL STREET DESIGN GUIDE, DETAIL 600 FOR RAISED CROSSING DETAILS.

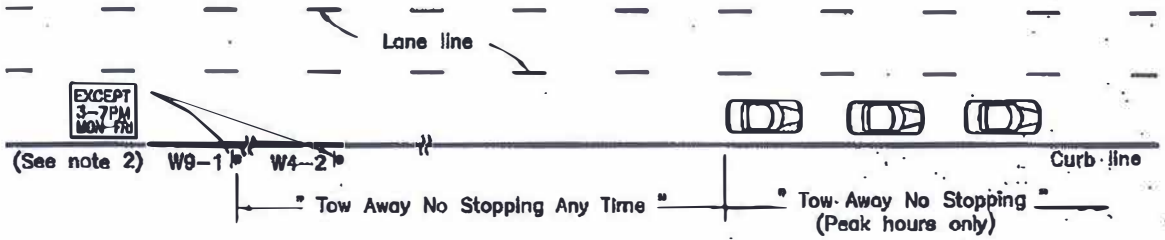
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>RAISED CROSSWALKS | Drawing No.<br>S-483.1 | 3<br>3 |
|---|---|---|---|




## Typical Signs and Lane Reduction Markings - Reference MUTCD Section 3B.09 and Figure 3B-12(CA)




## Peak period lane to all day parking lane




## Full time lane to peak period lane

TABLE 1

| Posted Speed Limit (mph) | Posted Speed Limit plus 5mph | "d" Distance (feet) | d/4 (feet) | Taper Rate (minimum) |
|---|---|---|---|---|
| 25 | 30 | 450 | 113 | 15 : 1 |
| 30 | 35 | 550 | 138 | 20.5 : 1 |
| 35 | 40 | 650 | 163 | 26.7 : 1 |
| 40 | 45 | 750 | 188 | 45 : 1 |
| 45 | 50 | 850 | 213 | 50 : 1 |
| 50 | 55 | 950 | 238 | 55 : 1 |
| 55 | 60 | 1100 | 275 | 60 : 1 |

"d"= Advance Placement Distance per MUTCD, section 2C.05, Condition A. Taper rates and "d" distances shown are based on posted speed plus 5 mph. Where the 85% speed (critical speed) on the approach is determined to be equal or less than the posted speed, the table numbers for the next lower speed increment may be used.



Notes:

1. Where the lane dropped is a peak period lane, the W9-1 and W4-2 signs shall be modified by the addition of a black-on-yellow sign plate below to indicate the hours during which the curb lane is used by moving traffic.
2. Where the lane drop is installed in advance of a parking lane which is used as a thru lane for peak period traffic, the W9-1 and W4-2 signs shall be modified by the addition of a black-on-yellow sign plate below to indicate the excepted hours during which the lane is continuous.

Approved November 17, 2009

John E. Fisher

Rita L. Robinson, General Manager

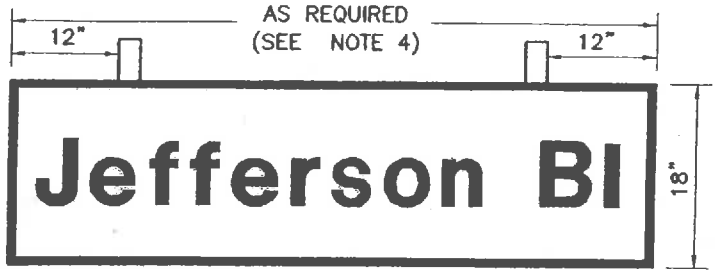
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

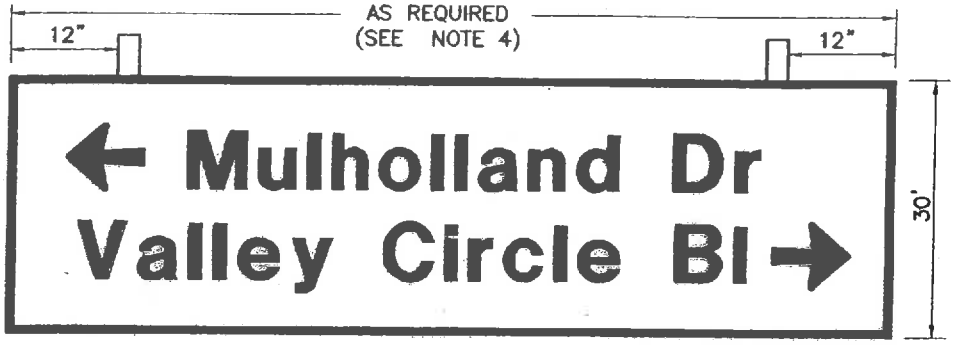
# Lane Reduction

1/1

| T. E. | Sr. T. E. | Pr. T. E. |
|---|---|---|
| | JW | SS |
| DWN MT 11-17-09 | CKD | Dwg. No. S-485.0 |

## A. STREET NAME SIGNS

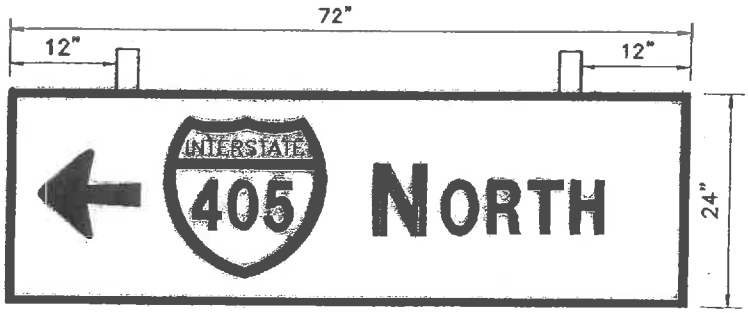



NOTES

1. LEGEND SIZE : 8" UPPER CASE, 6" LOWER CASE, SERIES "E" LETTERS; 11-1/4"X12-3/4" ONE-LINE ARROW
2. COLOR: WHITE LEGEND, BLUE BACKGROUND
3. REFLECTIVETY: HIGH INTENSITY LETTERS ON SUPER ENGINEER GRADE BACKGROUND OR REVERSE SCREENING ON HIGH INTENSITY SHEETING
4. WHERE THE LENGTH OF THE SIGN BLADE WOULD EXCEED 96" (GENERALLY 16 LETTERS AND SPACES) THE STREET NAME TITLES, "ST","AVE","BL","PL","DR","RD", ETC. MAY BE DELETED

## B. FREEWAY RAMP SIGNS




NOTES

1. LEGEND SIZE: 8" AND 6" SERIES D CAPITAL LETTERS; 11-1/4" X 12-3/4" ONE-LINE ARROW; 18" HIGH US, CALIFORNIA OR INTERSTATE SHIELD, AS APPROPRIATE WITH PROPORTIONAL NUMBERS
2. COLOR: WHITE LEGEND, WARBOYS GREEN (L.A. NO.1) BACKGROUND; BLACK ON WHITE US SHIELD; WHITE ON GREEN CALIFORNIA SHIELD; WHITE ON BLUE AND RED INTERSTATE SHIELD
3. REFLECTIVITY: HIGH INTENSITY LETTERS ON SUPER ENGINEER GRADE OR REVERSE SCREENING ON HIGH INTENSITY SHEETING

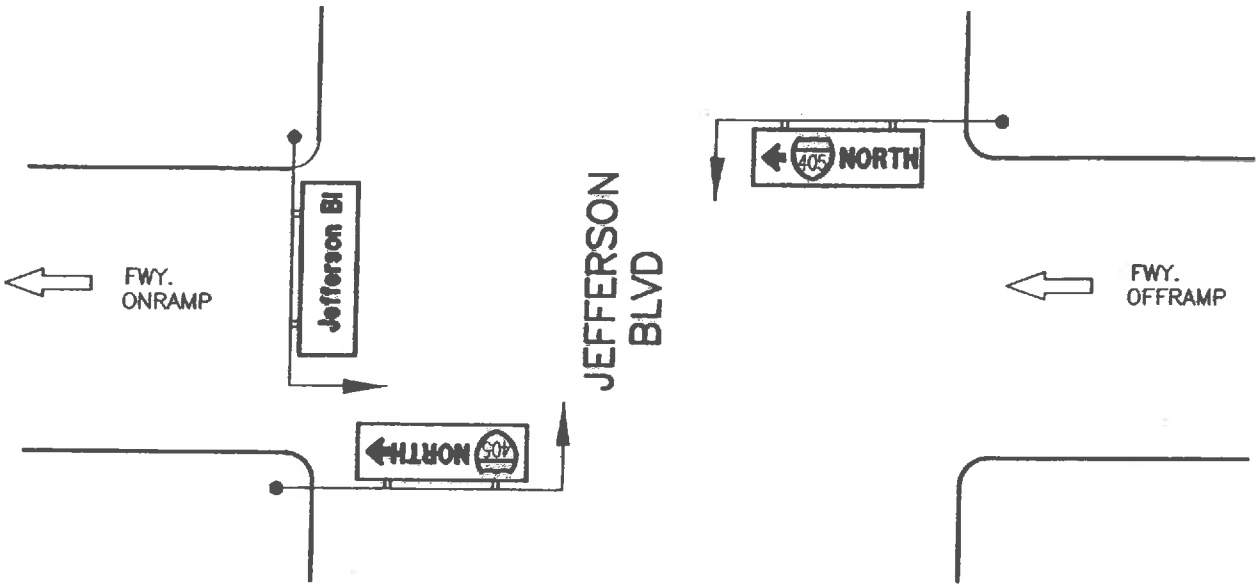
APPROVED March 4, 2005
for John L. Fisher
Wayne K. Tanda, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

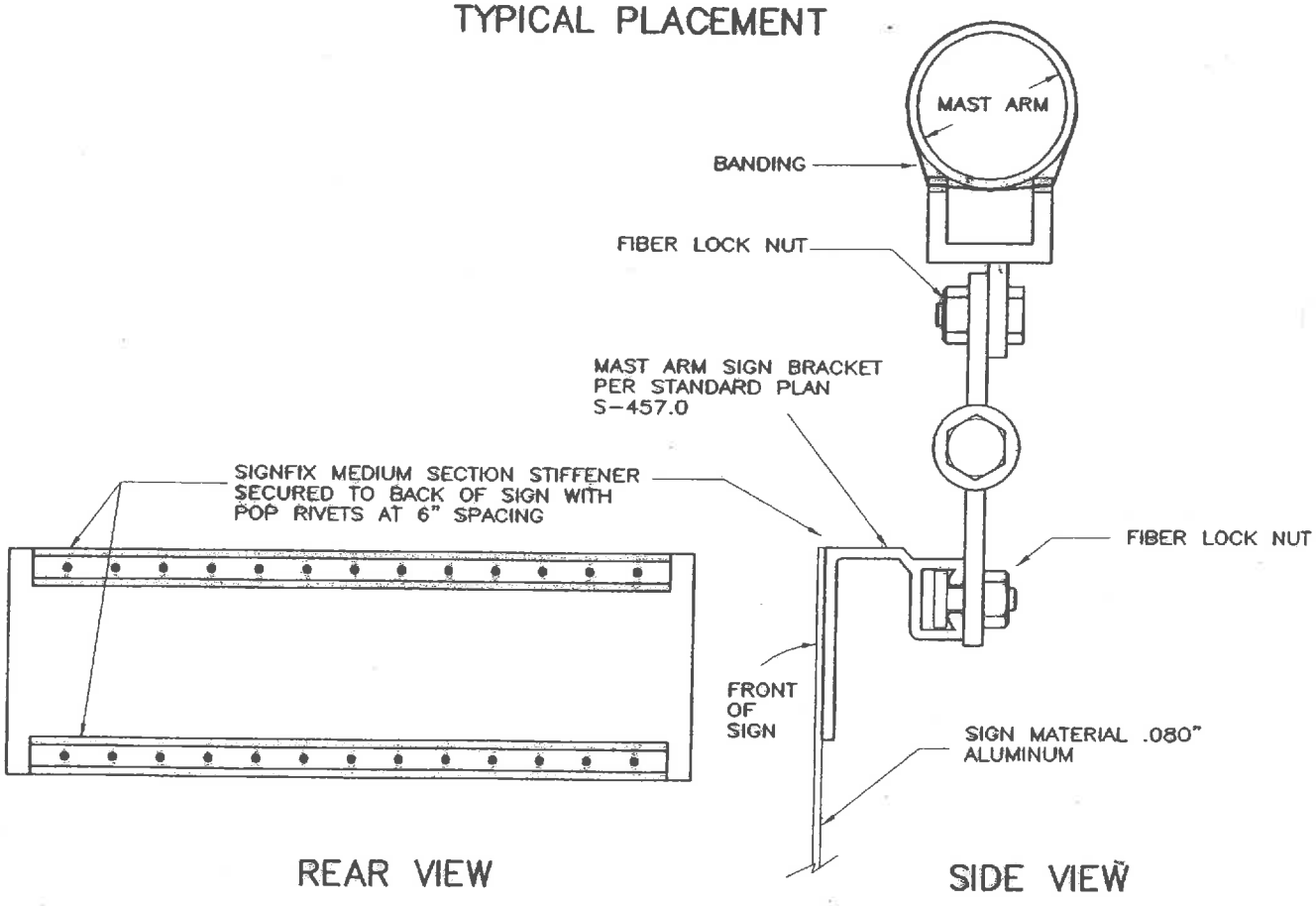
MAST ARM MOUNTED STREET NAME SIGNS

1/2

| CKD. | SR. T.E. | PR. T.E. TLJ |
|---|---|---|
| DWN. MT | T.E. | S-486.0 |




## TYPICAL PLACEMENT



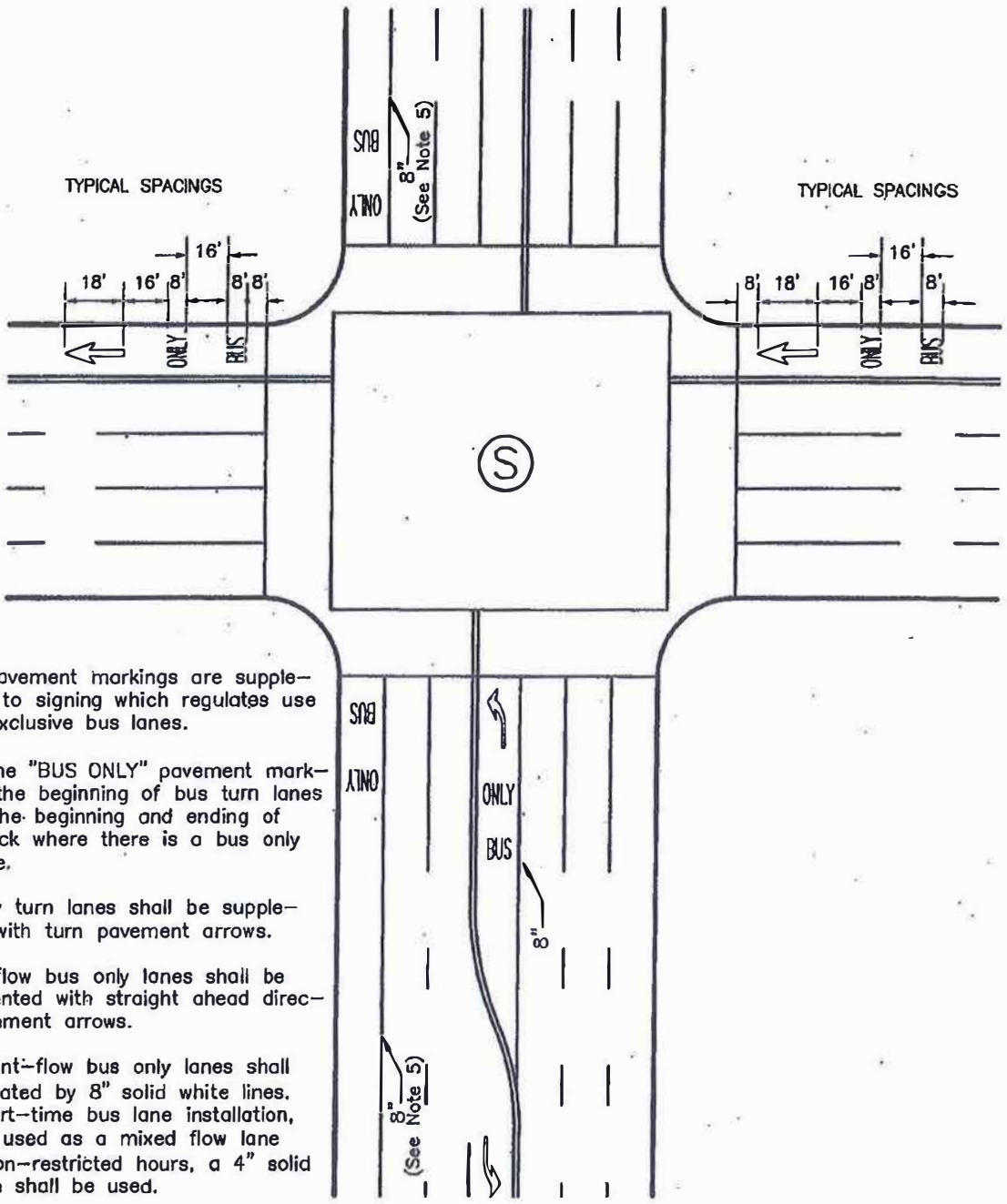

REAR VIEW

SIDE VIEW

NOTES:

1. FOR INSTALLATION DETAILS SEE STD. PLAN S-457.0
2. FOR SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM DETAILS SEE STANDARD PLAN S-476.0

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>MAST ARM MOUNTED STREET NAME SIGNS | Drawing No.<br>S-486.0 | 2<br>2 |
|---|---|---|---|




## Notes

1. These pavement markings are supplementary to signing which regulates use of the exclusive bus lanes.
2. Install the "BUS ONLY" pavement markings at the beginning of bus turn lanes and at the beginning and ending of each block where there is a bus only curb lane.
3. Bus only turn lanes shall be supplemented with turn pavement arrows.
4. Contra-flow bus only lanes shall be supplemented with straight ahead direction pavement arrows.
5. Concurrent-flow bus only lanes shall be delineated by 8" solid white lines. For a part-time bus lane installation, which is used as a mixed flow lane during non-restricted hours, a 4" solid white line shall be used.
6. Bus only left turn pocket lanes shall have a closed entrance delineated by the extension of the 8" white barrier line.
7. Mid-block pavement markings for bus only curb lanes shall be installed where the block length exceeds 700 feet.
8. The "BUS ONLY" pavement markings shall conform to the 8' high Caltrans Standard.
9. All markings shall be Alkyd-Based thermoplastic.

APPROVED 11/15/2001

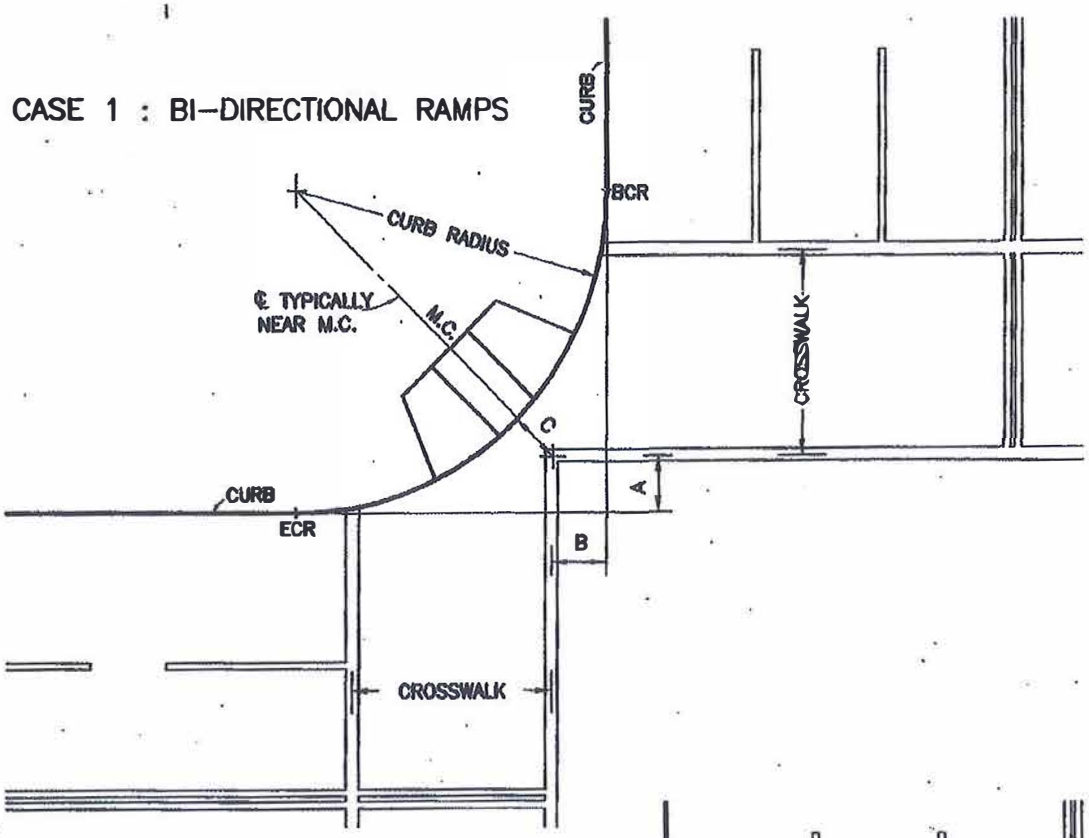
Frances T. Banerjee, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

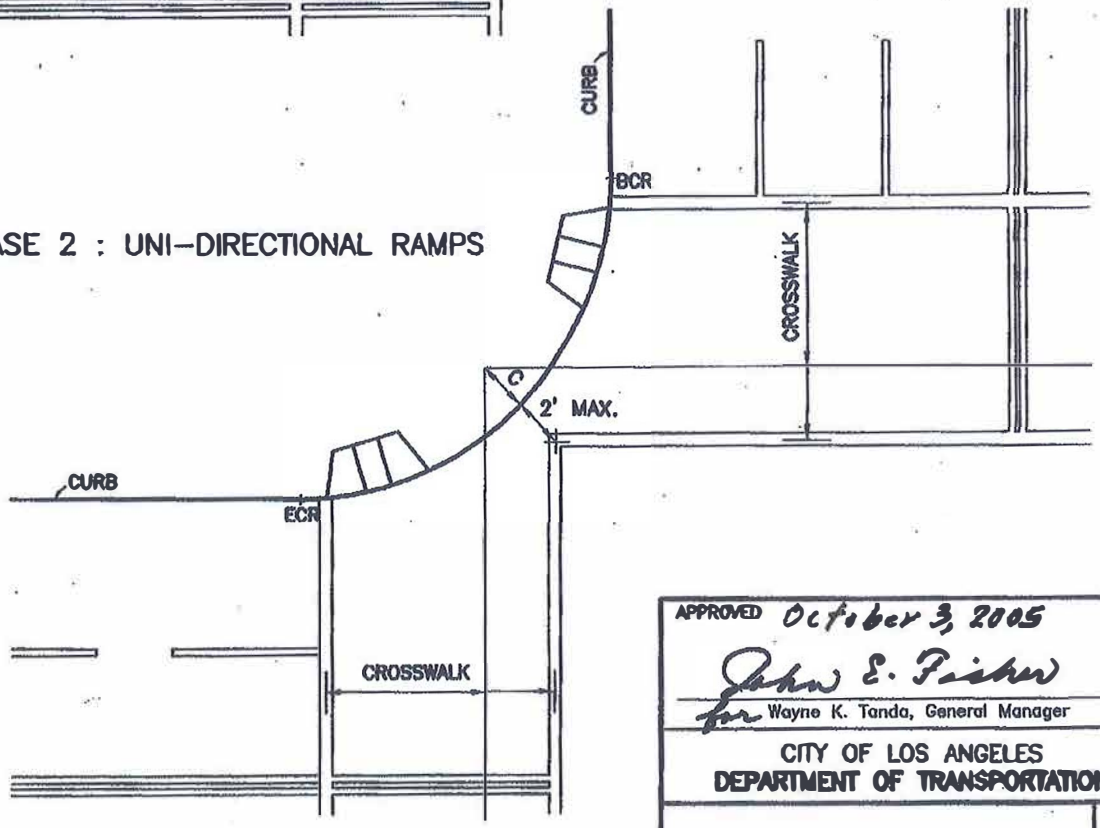
EXCLUSIVE BUS LANE PAVEMENT MARKINGS 1/1

| CKD. | SR. T.E. TLJ | PR. T.E. GO |
|---|---|---|
| DWN. M.T. | T.E. | S-487.0 |

## CASE 1 : BI-DIRECTIONAL RAMPS




## CASE 2 : UNI-DIRECTIONAL RAMPS




APPROVED October 3, 2005

John E. Fisher
for Wayne K. Tanda, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

# CROSSWALK ALIGNMENT

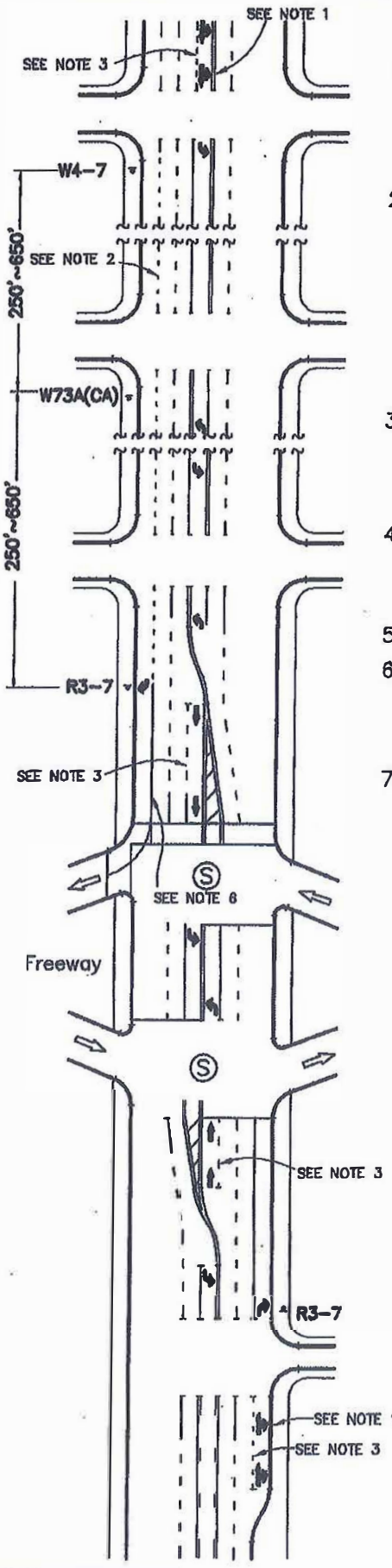
1/2

| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| DWN. M.T. | T.E. | S-490.0 |

## NOTES

1. Crosswalk installations with an access ramp intended to serve Case 1 situations generally should be aligned so that A≥2', B≥2' and C≤7'. However, if there is an all–day parking lane, a parallel approach right–turn lane or if the curb lane width for parallel through traffic is ≥14', the related A or B distance may be ≥0.
2. Countless combinations of existing intersectional angles, curb radii and ramp locations prevent selection of specific dimensions for A, B, and C in Case 1 situations. C should be set at a preferred 4' dimension wherever the criteria for A and B are met. However, at a right angle intersection with an existing ramp located at the M.C. and curb return radius of <17', C must be <4' in order for A and B to be the desired 2' minimum needed when through curb lanes are ≤ 14'. For a curb radius of 14', set C=3' so that A & B are equal to 2. C dimensions for curb radii between 14' and 17' may be increased proportionately to 4'. For curb radii <13', set the C distance at the edge of gutter (generally 1' to 2') when curb lanes are ≤14'. With these smaller radii where curb lanes are >14', the A and B distances should be decreased to 0 to achieve a larger C dimension.
3. At intersections where street resurfacing, street widening, or channelization projects require reinstallation or modification of an existing crosswalk, all crosswalks at the intersection should be realigned to meet the criteria of Notes 1 and 2 above.
4. At curb returns without a ramp where a single ramp location would not meet the criteria of Note 1 above, unidirection ramps should be proposed, as shown in Case 2.
5. For Case 2 situations, C≤2'.
6. A crosswalk width of 15' is standard. Use 20' in high pedestrian areas, or on the receptive leg of dual left turns.

| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | Title<br>CROSSWALK ALIGNMENT | Drawing No.<br>S–490.0 | 2<br>2 |
|---|---|---|---|




## Notes:

1. The second (downstream) pavement marking is not mandatory if advance turn lane is 100' long or less. At locations where a right turn is prohibited at an intermediate intersection during limited hours, the pavement arrow at that intersection should be deleted.
2. Continuous through lanes that terminate as mandatory turn lanes and that are not otherwise regulated by the Vehicle Code, (commonly known as "Trap Lanes") shall be delineated by Elephant Tracks. The length of Elephant Tracking should be two blocks in advance of the mandatory turn, but not less than 500 feet and not more than 1,300 feet. This striping shall be supplemented with W4-7 and W73A(CA) signing. The W4-7 sign should be placed near the start of the Elephant Tracks.
3. Added turn lanes (i.e. having no continuity upstream) traversing through all intervening intersections shall be delineated by Elephant Tracking (lane drop markings) and pavement arrows as shown.
4. Trap Lanes should be considered where it is not feasible to drop a lane with the standard signing and pavement markings, They should terminate at arterial streets or freeway ramps.
5. Trapped lanes for left turns should have overhead signing.
6. Trapped lanes for right-turn lanes should be 100' minimum.
7. Placement of arrows should also conform with Standard Plan S-456.0.

W73A(CA)

W4-7

R3-7

APPROVED February 13, 2006

John E. Fisher

Frances T. Banerjee, Interim General Manager

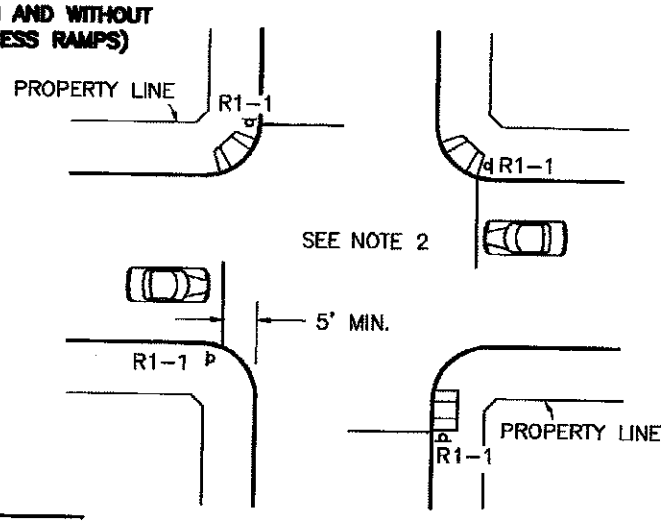
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

ADVANCE TURN LANES 1/1

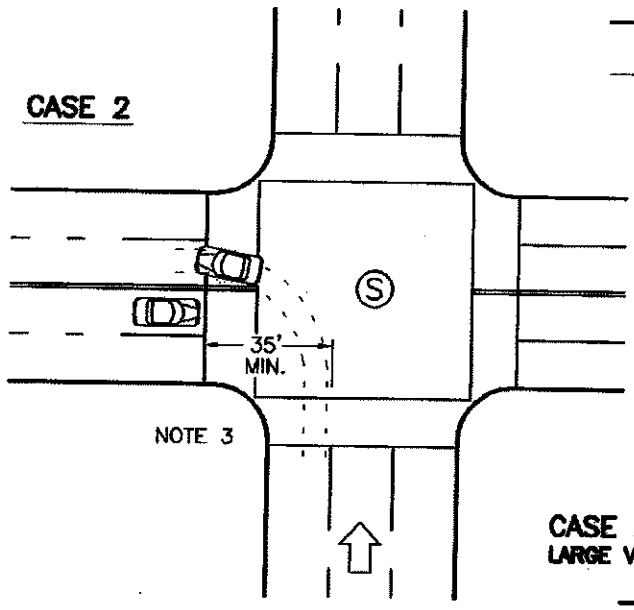
| | | |
|---|---|---|
| DKD. | SR. T.E. | PR. T.E. SS |
| DWN. M.T. | T.E. | S-491.0 |

## CASE 1

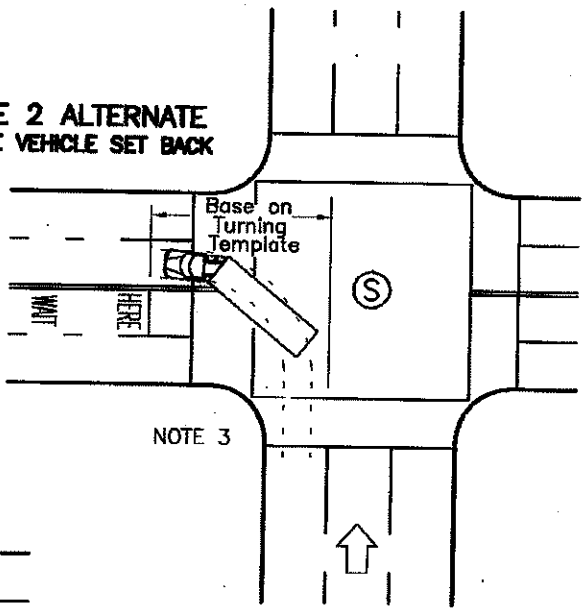
**(WITH AND WITHOUT ACCESS RAMPS)**



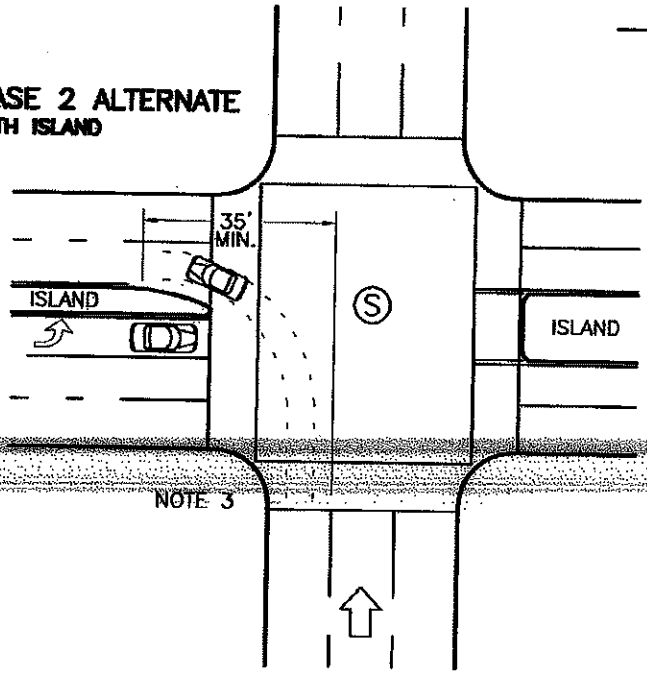

## CASE 2




## CASE 2 ALTERNATE
**LARGE VEHICLE SET BACK**




## CASE 2 ALTERNATE
**WITH ISLAND**

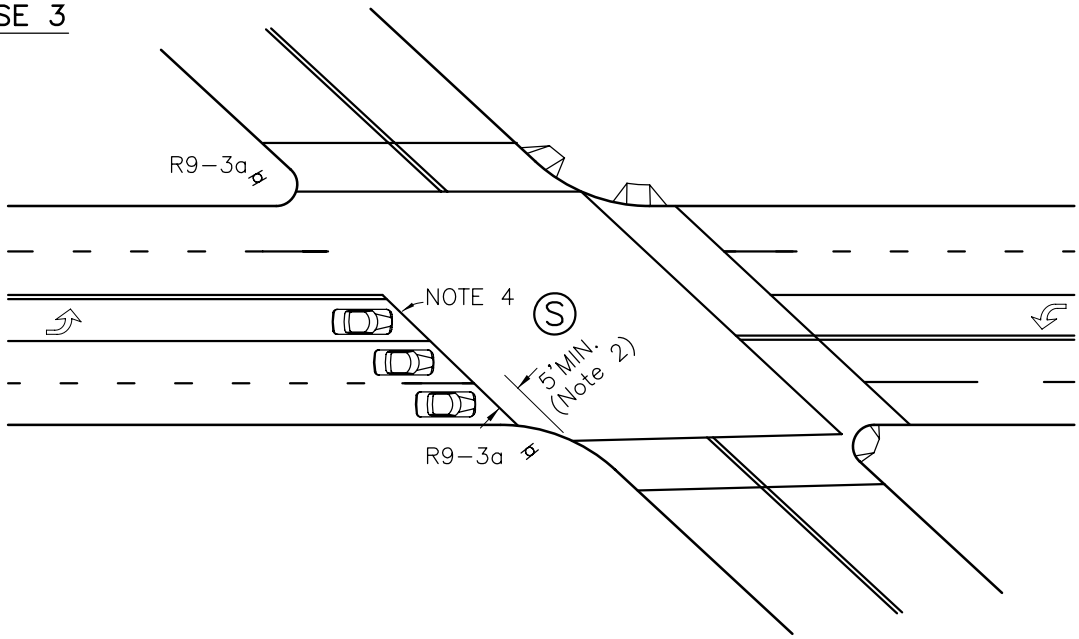



Approved July 24, 2009
John E. Fisher
for Rita L. Robinson, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| LOCATION OF LIMIT LINES AND CROSSWALKS | | 1/7 |
|---|---|---|
| T.E. TC | Sr. T.E. JW | Pr. T.E. SS |
| DWN MT 7-20-09 | CKD | Dwg. No. S-493.0 |

## CASE 3



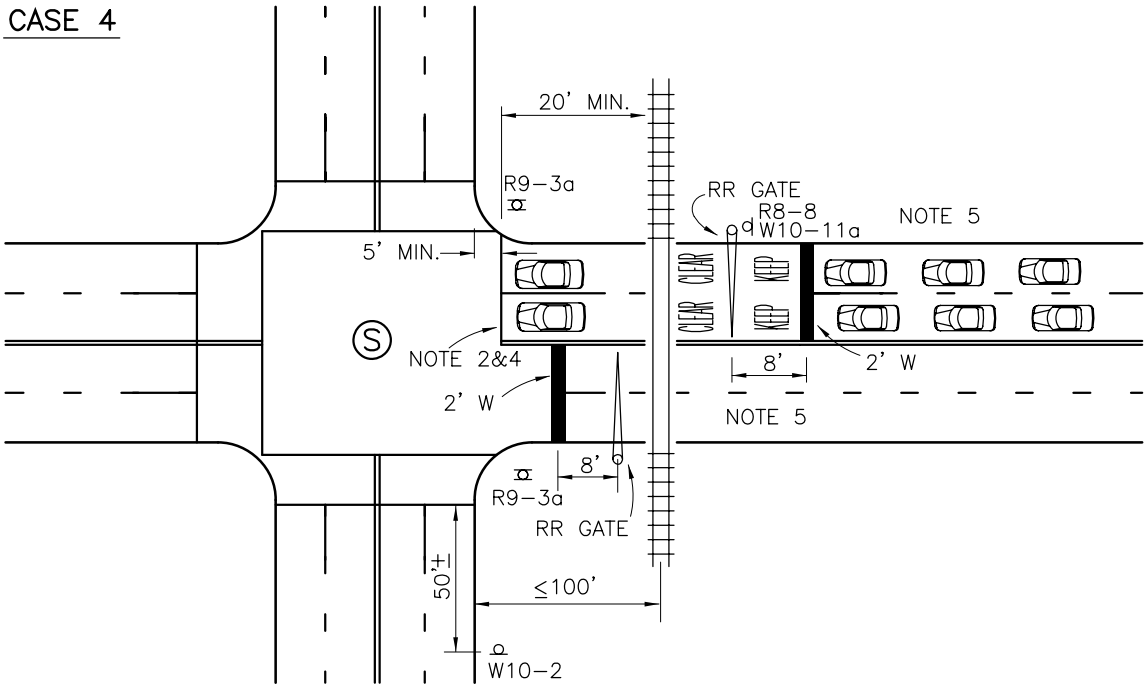

R9-3a

W10-2


W10-11a
(See Note 5)

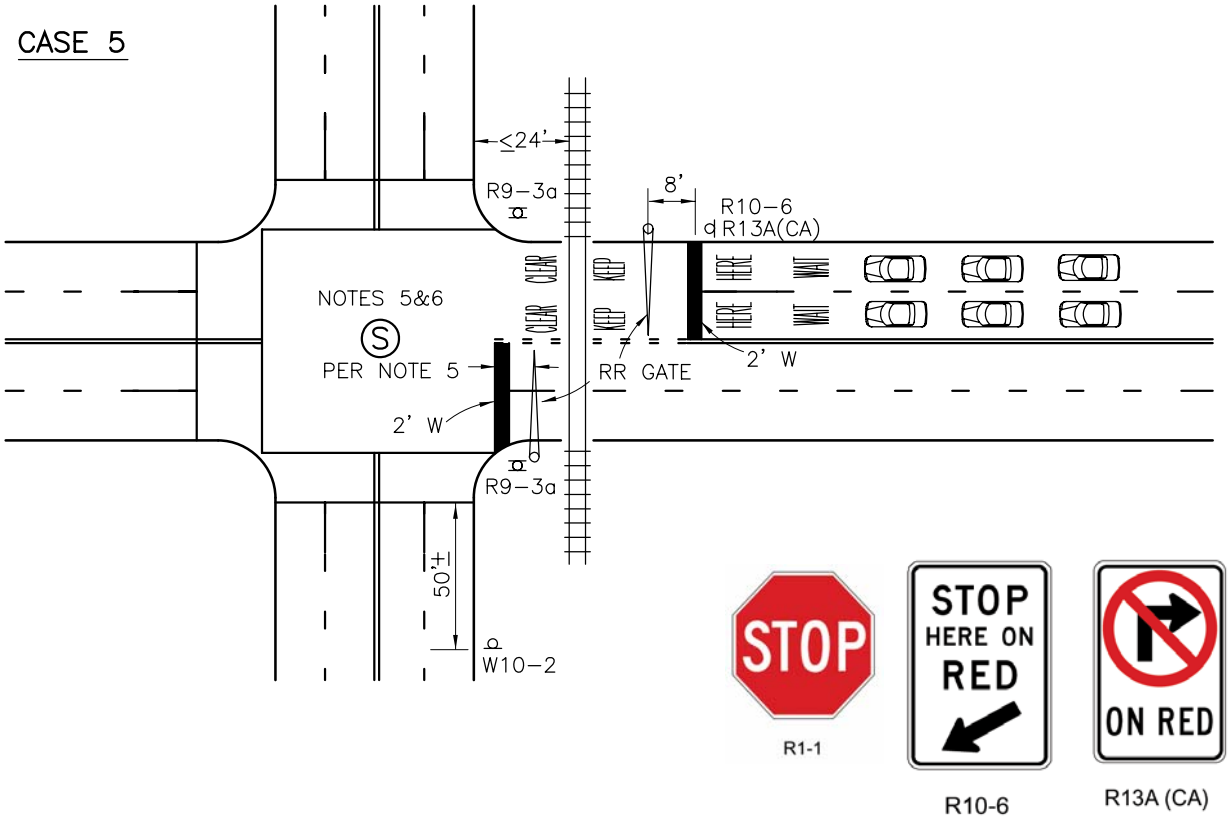

R8-8

## CASE 4




| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>LOCATION OF LIMIT LINES<br>AND CROSSWALKS | Drawing No.<br>S-493.0 | 2<br>7 |
|---|---|---|---|

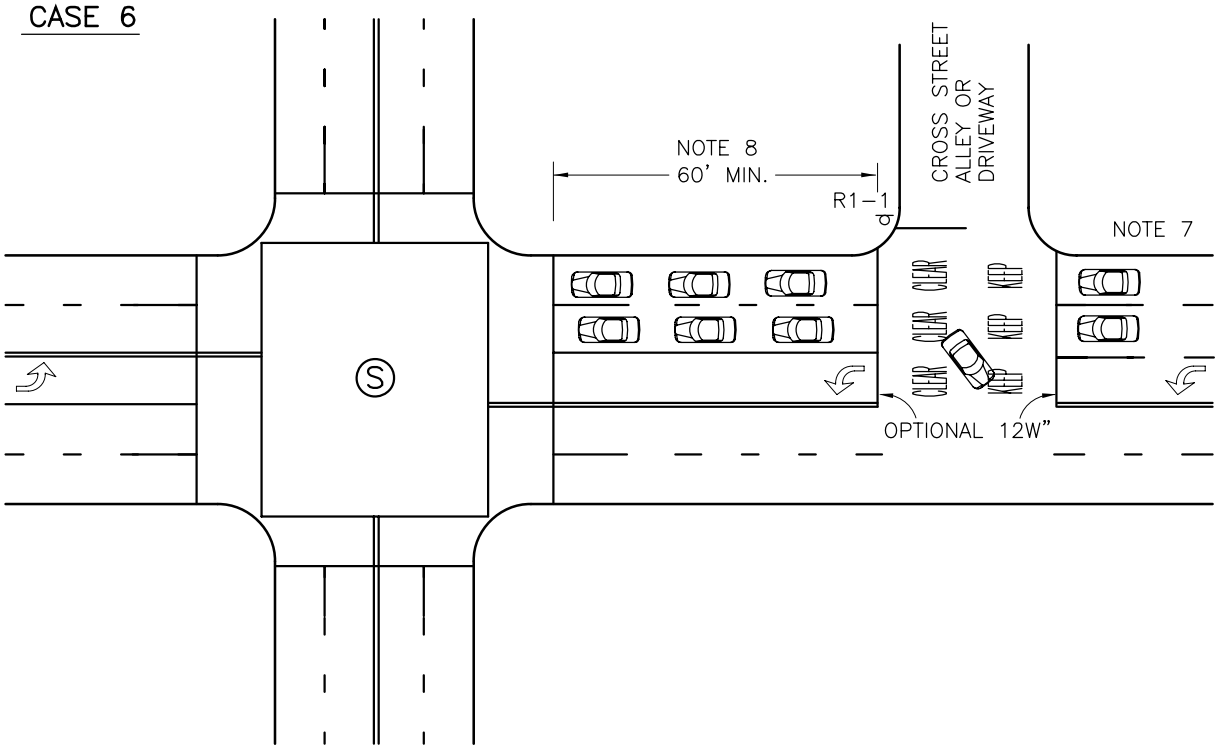
## CASE 5





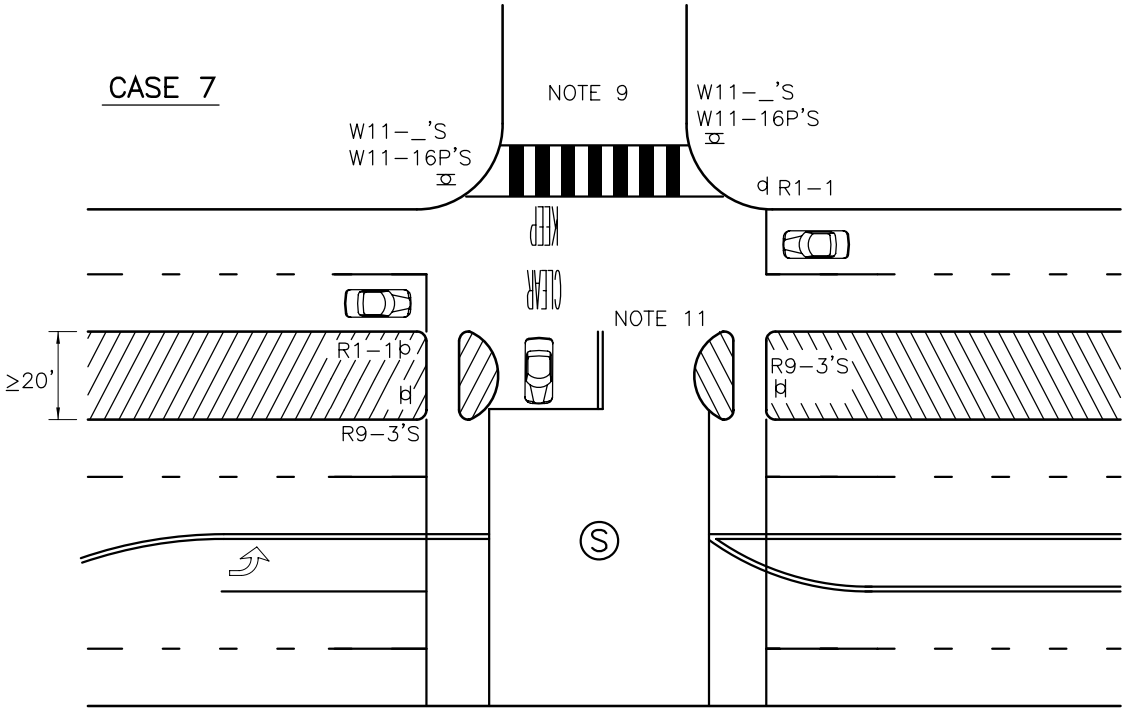


## CASE 6

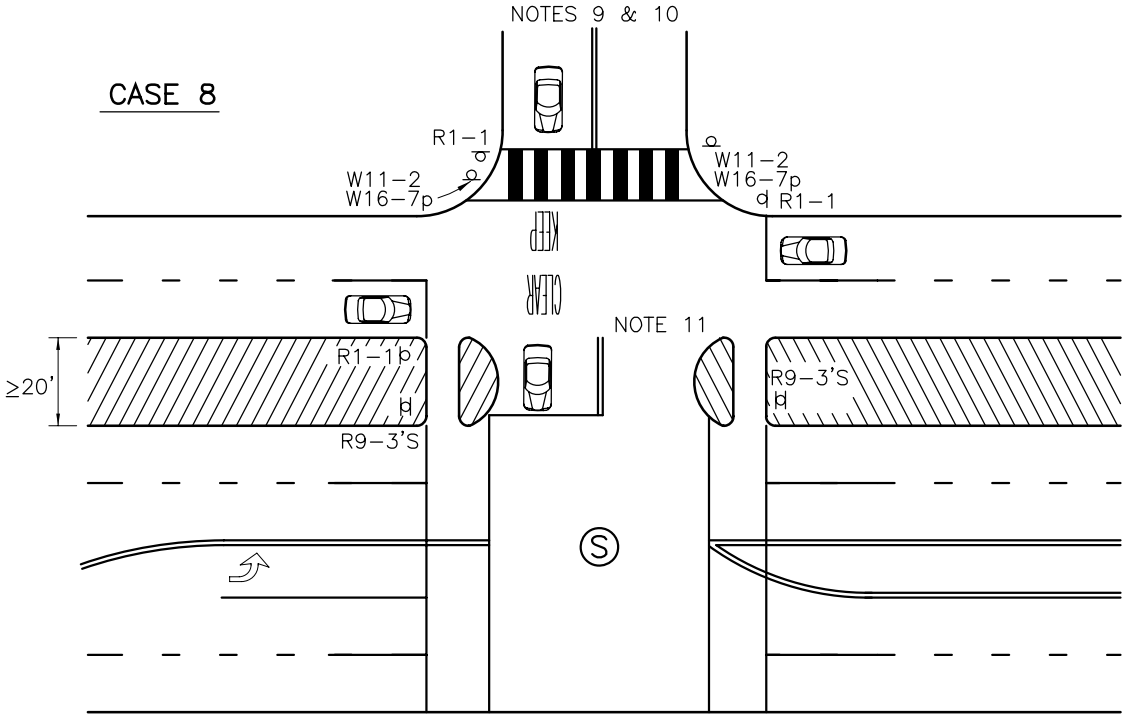



| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>LOCATION OF LIMIT LINES<br>AND CROSSWALKS | Drawing No.<br>S-493.0 | 3<br>7 |
|---|---|---|---|

## CASE 7

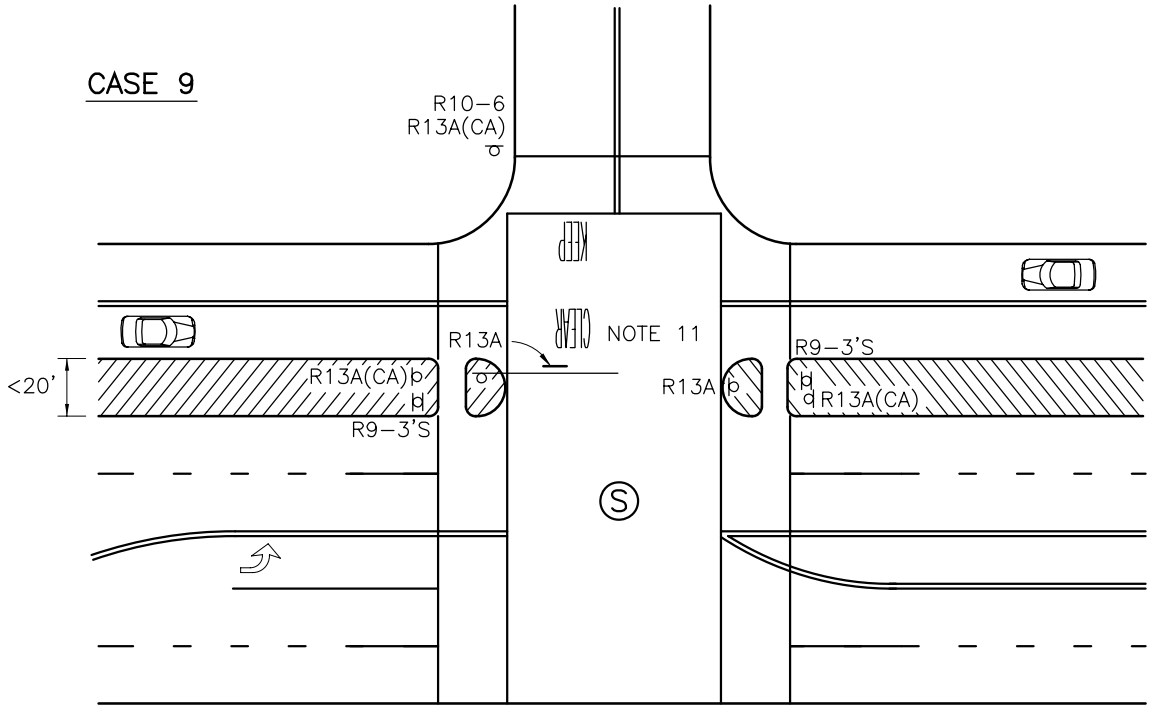



## CASE 8

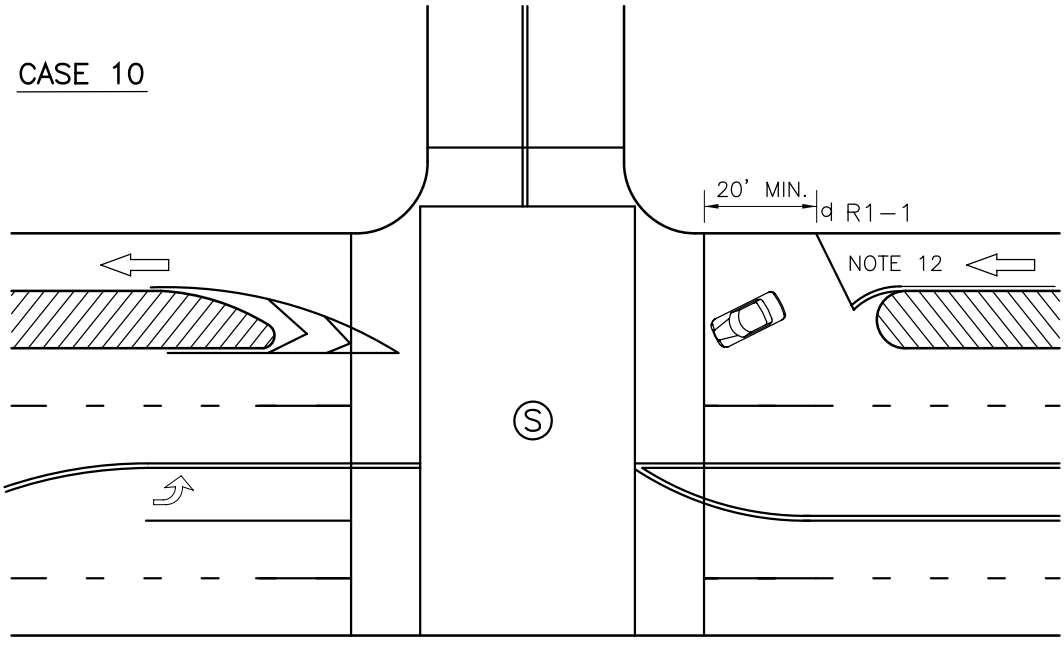



| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>LOCATION OF LIMIT LINES<br>AND CROSSWALKS | Drawing No.<br>S-493.0 | 4<br>7 |
|---|---|---|---|

## CASE 9

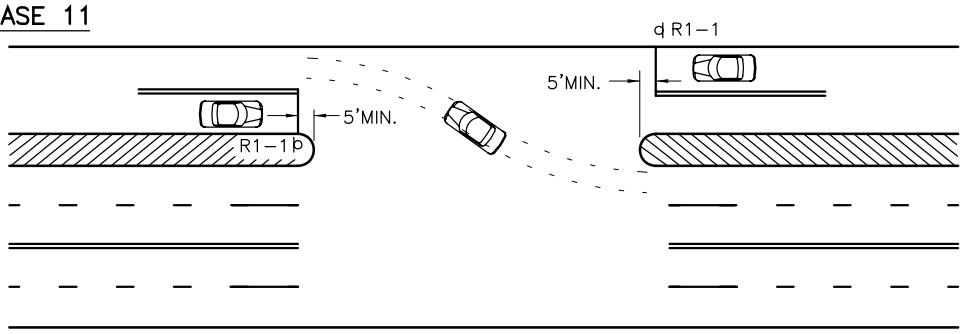



## CASE 10

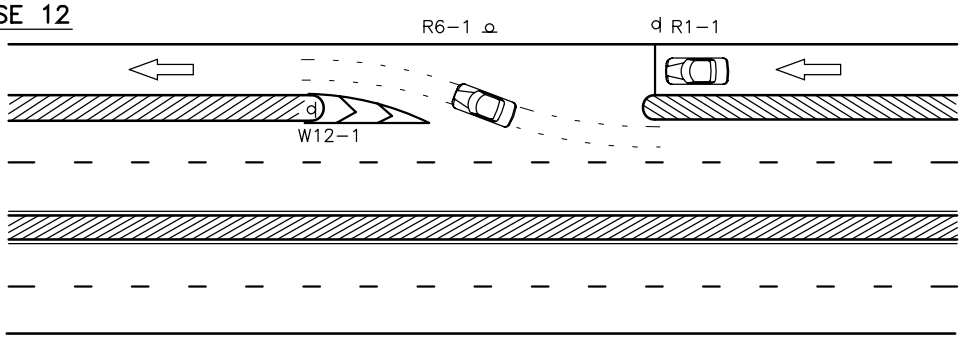



| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: LOCATION OF LIMIT LINES AND CROSSWALKS | Drawing No. S-493.0 | 5/7 |
|---|---|---|---|

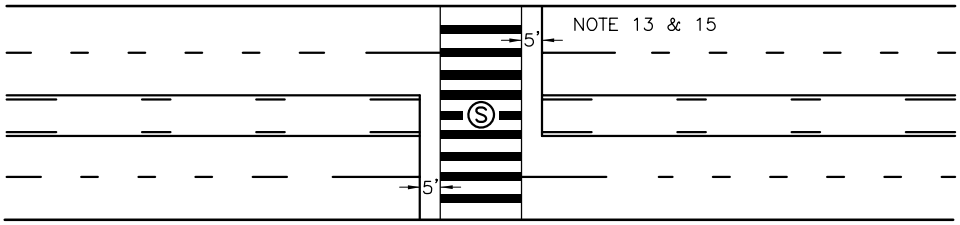
CASE 11



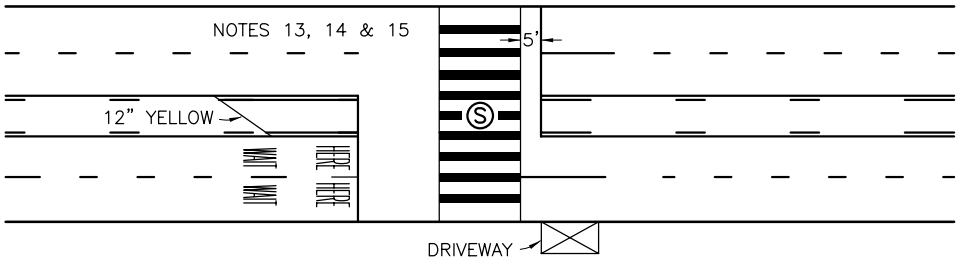

CASE 12



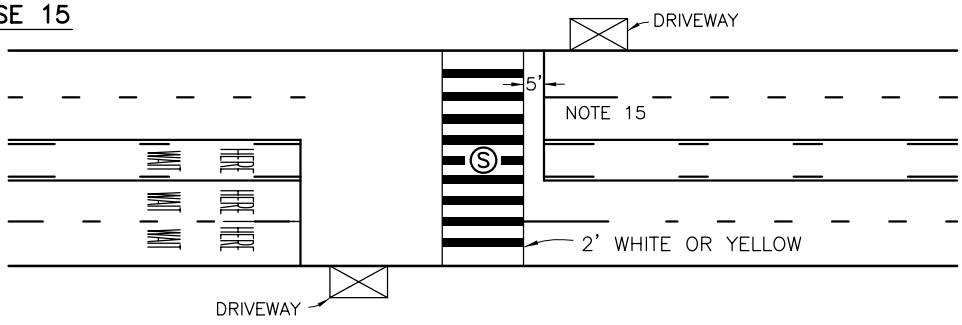

CASE 13




CASE 14




CASE 15




| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: LOCATION OF LIMIT LINES AND CROSSWALKS | Drawing No. S-493.0 | 6/7 |
|---|---|---|---|

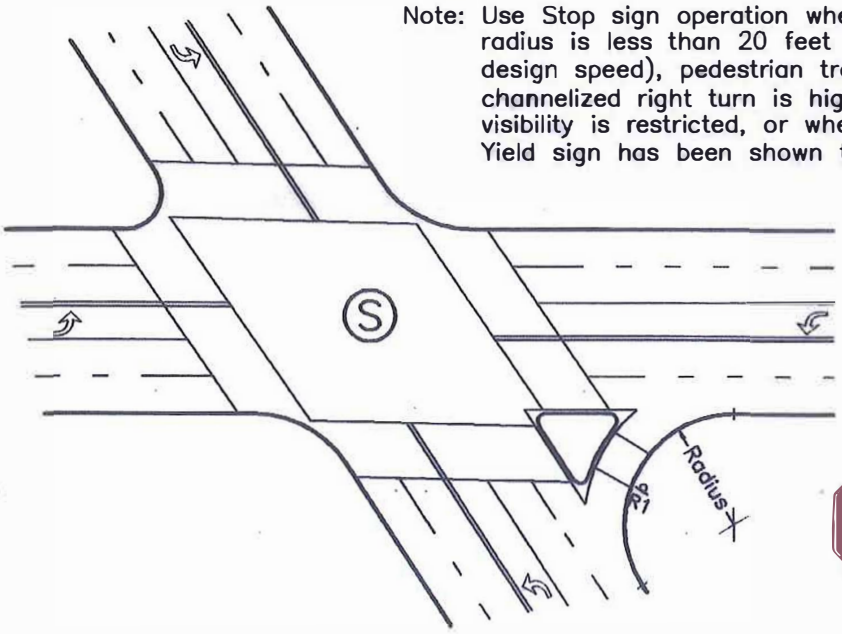
NOTES:

1. For Cases 2 ~10 refer to S–490.0 for precise alignment of crosswalks.
2. Generally, limit lines are located along the extension of the property line. They shall be placed at the near side or upstream of the flat portion (w) of any access ramp. It is preferable to have the limit line upstream of the (w) to allow a buffer between the crossing pedestrian and stopped vehicles. Limit lines may be located downstream of the extension of the property line to improve cross–traffic visibility, where necessary, The distance between the curb line extended and the limit line shall be at least 5 feet.
3. The reception leg for a left–turn from a one–way street requires a minimum 25 foot setback so as to provide a buffer between the left turning vehicle and the vehicle waiting at the crosswalk. This can be measured at 35 feet from the lane line marking for the turning vehicle. Where medians separate the turning vehicle from waiting vehicles on the cross street, the median is to be designed to accommodate the turns. In this latter instance the stop line for waiting vehicle may be closer to the cross street while maintaining the intended buffer. Where large trucks prevail, a stepped limit line in the number one lane should be considered, based on truck turning templates. Commonly single unit or WB40 trucks are to be used for design. Unique situations may require use of the largest design vehicle (WB65). There should be a 5–foot buffer distance from the nearest point of the turning design vehicle and the limit line.
4. Limit lines shall be at or upstream of where a crosswalk line parallel to the direction of travel intersects the curb. At skewed intersections a single skewed limit line often is preferred to stepped limit lines, for ease of recognition and maintenance.
5. Where gates are present at railroad crossings the limit line in advance of the gate shall be placed 8 feet from the gate, except as indicated for Cases 4 and 5. In Case 4, a greater distance may be required to provide space for the "Keep Clear" pavement markings. In Case 5, a lesser distance may be required when gates are close to the cross street. In these instances the limit line should be located as shown. Install W10–2 as shown when distance to parallel track is 100' or less. W10–11a signs should be installed when the distance between the nearst rail and the limit line is 100' or less. See MUTCD California Supplement and S–436.0 for other applicable sign and pavement markings associated with railroad crossings.
6. Ensure that the signal design (detector locations, signal head location and size) and signal timing (clearance intervals) reflect the setback limit line and wide intersection. Except for any cat–tracks that may be necessary, there shall be no lane line striping between the double limit line and the curb line for the approach that crosses the rail line in Case 5.
7. "Wait Here" pavement markings shall be used only to show the stopping point for vehicles at a stop sign or signal.
8. Where installed, the minimum storage of 60 feet between the traffic signal limit line and the "Keep Clear" pavement message, as shown, should be provided in order to command respect for the interruption in queuing. The limit lines are optional in Case 6.
9. See Section 21355 CVC ("...stop signs shall not be erected at any entrance to an intersection controlled by official traffic control signals...").
10. Case 8 is an alternative to Case 7 where it is desired to have Stop sign control on the approach to the frontage road immediately in advance of the signalized intersection.
11. Where the storage is less than 20 feet, the frontage road should be signalized as shown in Case 9 and S–101.0.
12. The 20–foot minimum distance allows one passenger car to store between the respective limit lines of the stop sign and traffic signal, in order to ensure compliance with Section 21355 CVC ("...stop signs shall not be erected at any entrance to an intersection controlled by official traffic control signals...").
13. The mastarm signal shall be at least 50 feet downstream from the limit line.
14. Case 14 and Case 15 are interim alternatives to Case 13, and are designed to provide at least 50 feet between the limit line and the mastarm signal where the signal is installed at the crosswalk. Signal projects should convert Case 14 and Case 15 locations to Case 13 operation where possible. In the presence of a driveway immediately downstream of the crosswalk, where it is desirable to exclude the driveway from traffic signal control, Case 14 and Case 15 operation may be permanent.
15. Install crosswalk markings along striping and space at 4.5', 5', 5.5' and 6' c–c for 9', 10', 11' and 12' lanes, respectively.

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>LOCATION OF LIMIT LINES<br>AND CROSSWALKS | Drawing No.<br>S–493.0 | 7<br>7 |
|---|---|---|---|

## CASE 1: STOP SIGN CONTROL

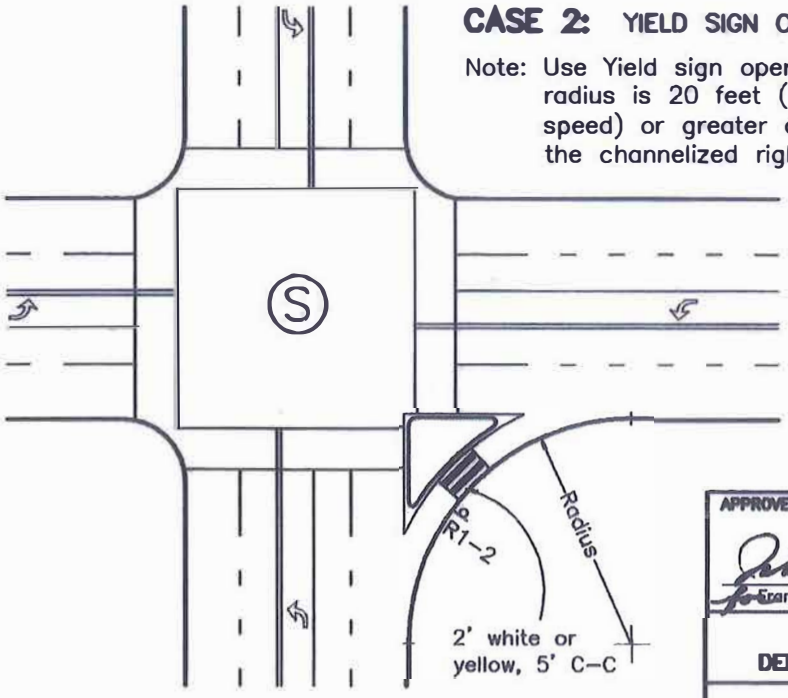
Note: Use Stop sign operation where the curb return radius is less than 20 feet (10 miles per hour design speed), pedestrian traffic across the channelized right turn is high, cross–traffic visibility is restricted, or where the use of a Yield sign has been shown to be inadequate.




R1-1

## CASE 2: YIELD SIGN CONTROL

Note: Use Yield sign operation where the curb return radius is 20 feet (10 miles per hour design speed) or greater and pedestrian traffic across the channelized right turn is low.




R1-2

APPROVED February 13, 2006

John E. Fisher

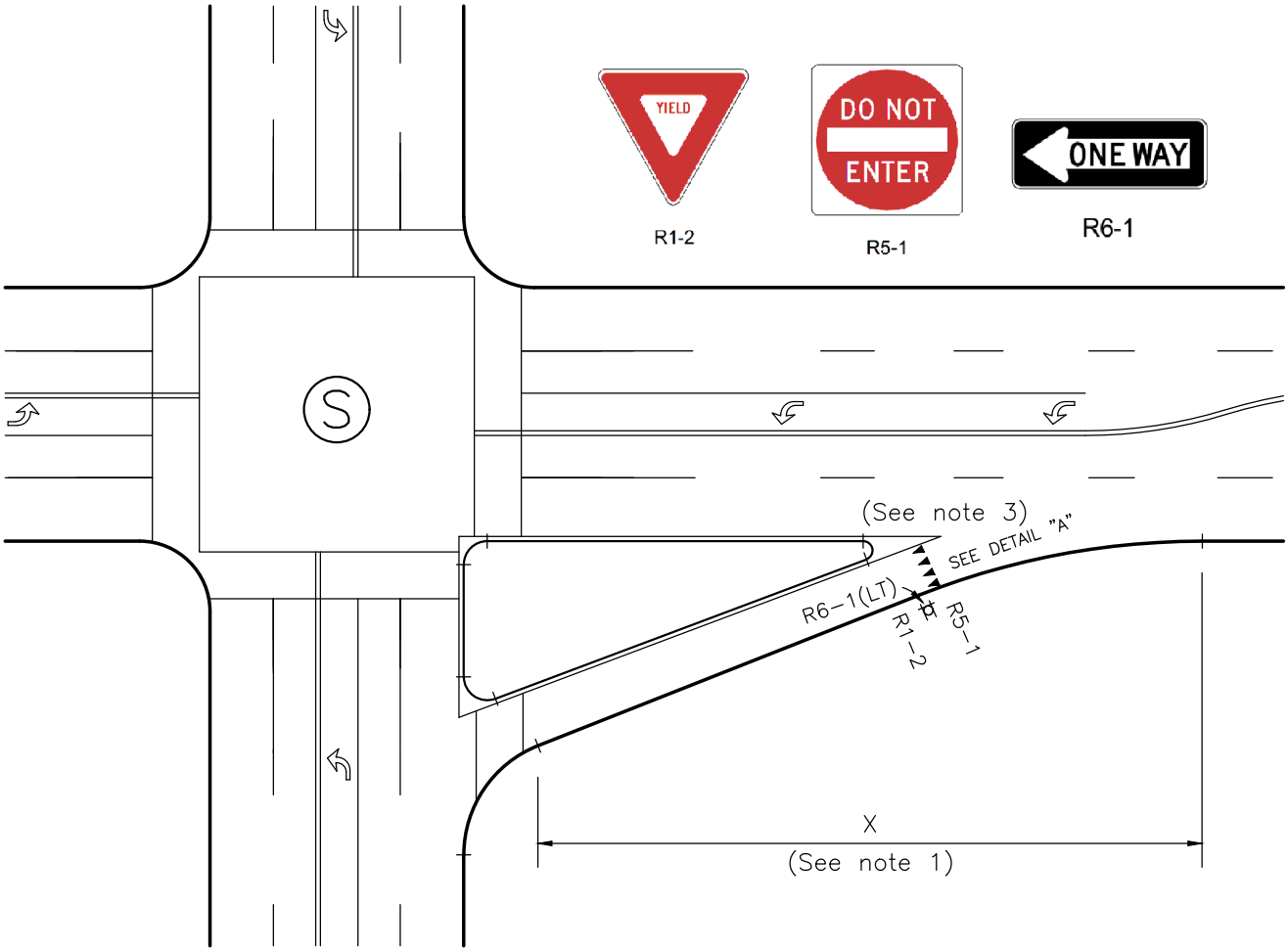
for Frances T. Banerjee, Interim General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

CHANNELIZED RIGHT TURNS 1/5

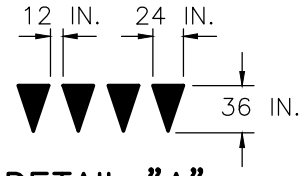
| CKD. | SR. T.E. | PR. T.E. 88 |
|---|---|---|
| DWN. MT | T.E. | S–494.0 |

## CASE 3: YIELD SIGN CONTROL




Notes

1. Use Yield sign operation where the available distance "x" for acceleration and merging is less than "D", as determined by the tables in Case 4.
2. Installation of the Yield limit line is optional.
3. An optional added location for a crosswalk is where the Yield sign is shown near the end of the island. If added, stop sign control should be considered. If Yield sign control is retained then the crosswalk should have ladder markings as shown on sheet 1.



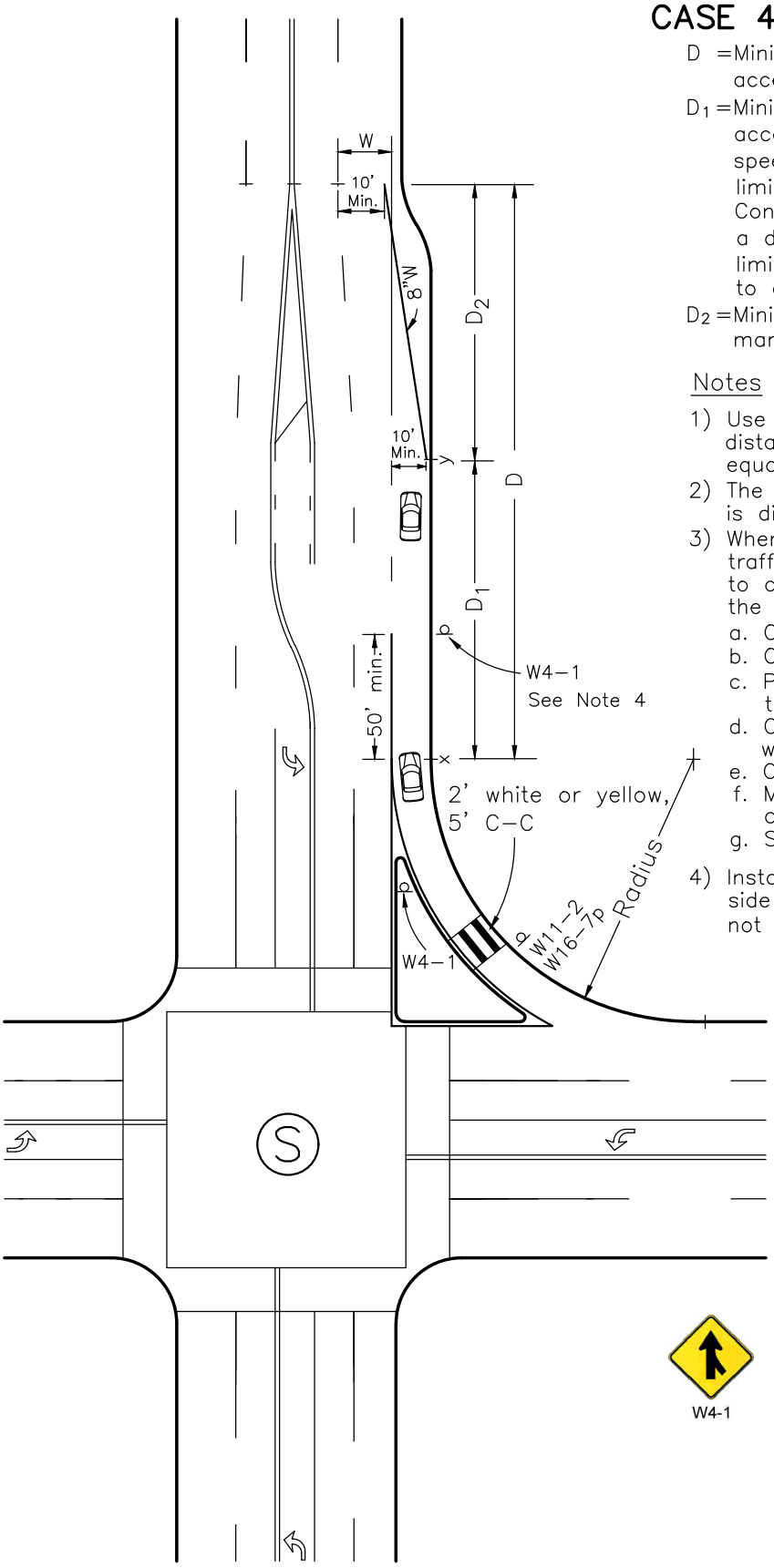

DETAIL "A"

## CASE 4: MERGE OPERATION

D = Minimum distance necessary for accelerating and merging

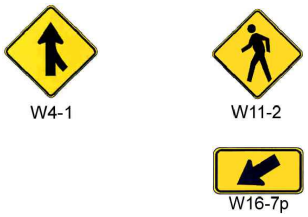
$D_1$ = Minimum distance necessary for accelerating from point x at the initial speed, $S_1$, to point y at the speed limit, $S_2$. see Tables 1&2. Consideration should be given to using a design speed greater than the speed limit where higher speeds are known to occur.

$D_2$ = Minimum distance necessary for merging maneuver at speed, S . see Table 3.




Notes

1) Use Merge operation where the available distance for acceleration and merging equals or exceeds "D".
2) The length of lane line within D is discretionary.
3) Where it is desired to provide traffic signal control for pedestrians to cross the channelized right turn, the following shall apply:
   a. Omit the W11-2 sign; and
   b. Omit ladder markings in crosswalk.
   c. Provide pedestrian heads across the channelized right turn; and
   d. Control the channelized right turn with three-arrow signal heads; and
   e. Omit reference to Table1; and
   f. Measure D, from diagonal crosswalk; and
   g. $S_1 = 0$ at crosswalk
4) Install a second W4-1 sign on the right side if the median mounted W4-1 sign is not visible to merging traffic.




W11-2 Flourescent Yellow-Green

W16-7p

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: CHANNELIZED RIGHT TURNS | Drawing No. S-494.0 | 3/5 |
|---|---|---|---|

Table 1: Determination of $S_1$ (Case 4)

| Radius ft | $S_1$ mi/hr |
|---|---|
| 20 | 10 |
| 55 | 15 |
| 110 | 20 |
| 210 | 25 |
| 340 | 30 |

Table 2: Determination of $D_1$ (Case 4)

$D_1 = \frac{(S_2 - S_1)^2}{2a}$, Where a= acceleration rate of 3 ft/sec$^2$

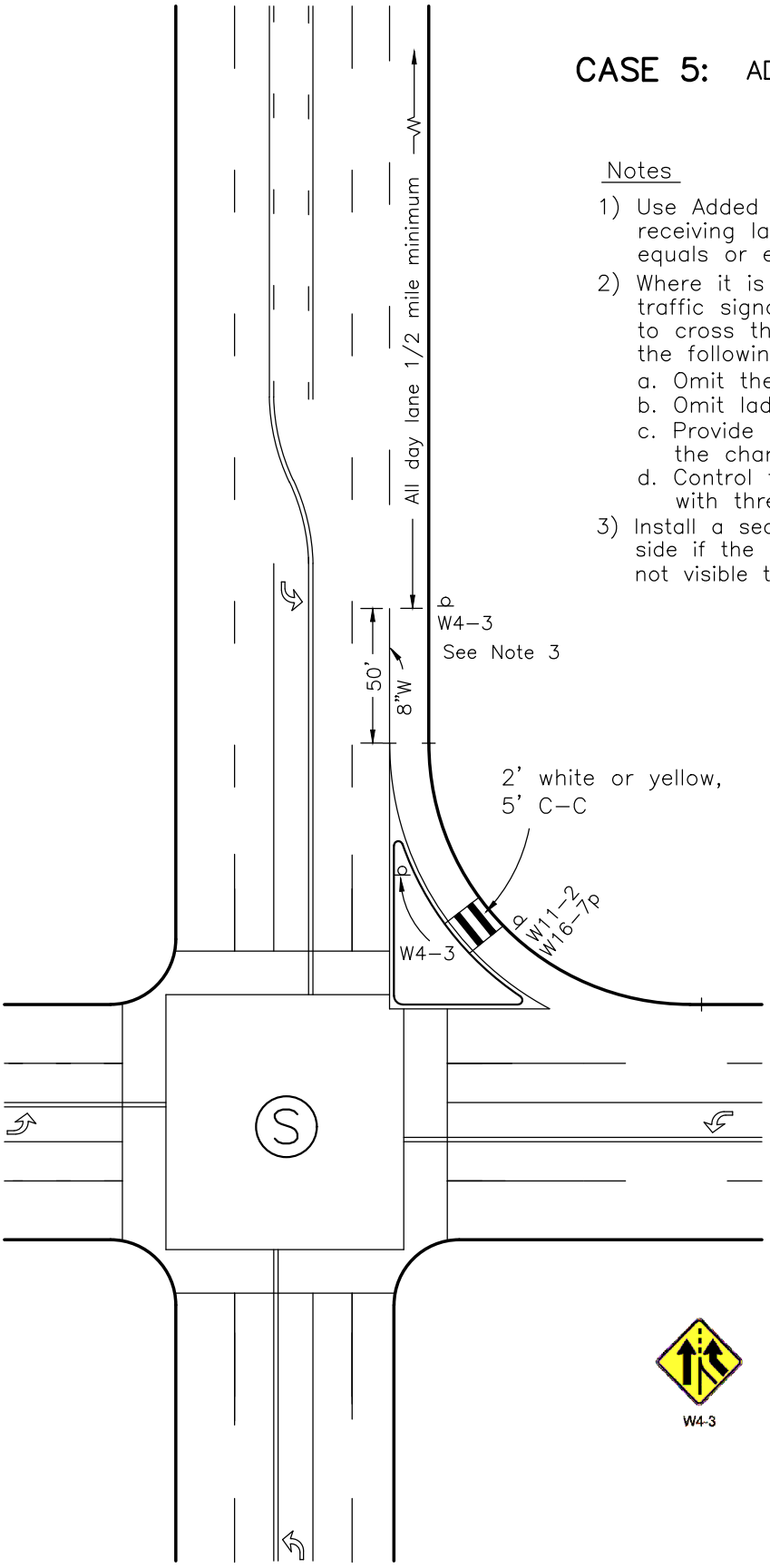
| $S_2 - S_1$ | | $D_1$ (rounded) |
|---|---|---|
| mi/hr | ft/sec | ft |
| 15 | 22.0 | 85 |
| 20 | 29.3 | 150 |
| 25 | 36.7 | 235 |
| 30 | 44.0 | 335 |
| 35 | 51.3 | 450 |
| 40 | 58.7 | 585 |

Table 3: Determination of $D_2$ (Case 4)

| $S_2$ mi/hr | Formula | $D_2$, ft for | | |
|---|---|---|---|---|
| | | W=10ft | W=11ft | W=12ft |
| 25 | $WS_2^2/60$ | 105 | 116 | 126 |
| 30 | $WS_2^2/60$ | 150 | 165 | 180 |
| 35 | $WS_2^2/60$ | 205 | 226 | 246 |
| 40 | $WS_2^2/60$ | 267 | 294 | 320 |
| 45 | $WS_2$ | 450 | 495 | 540 |
| 50 | $WS_2$ | 500 | 550 | 600 |
| 55 | $WS_2$ | 550 | 605 | 660 |

For determining $D_2$, use the posted speed limit plus 5 mph (35 mph speed limit + 5 mph = 40 mph for $S_2$). Where the 85% speed (critical speed) in the vicinity of the taper is determined to be equal or less than the posted speed, use the speed limit for $S_2$.

# CASE 5: ADDED LANE OPERATION

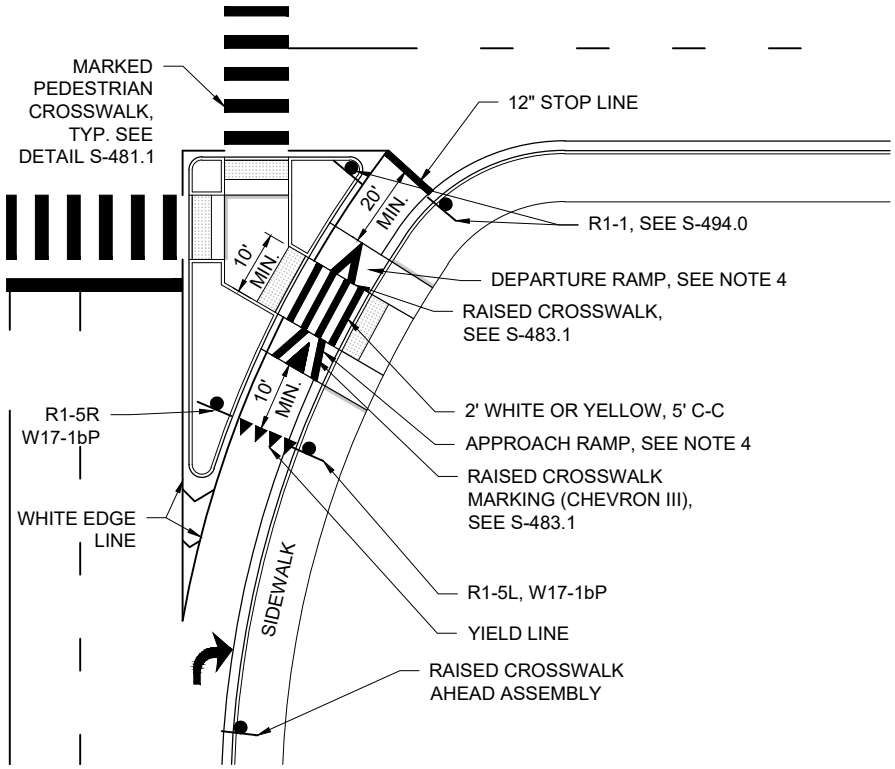



Notes

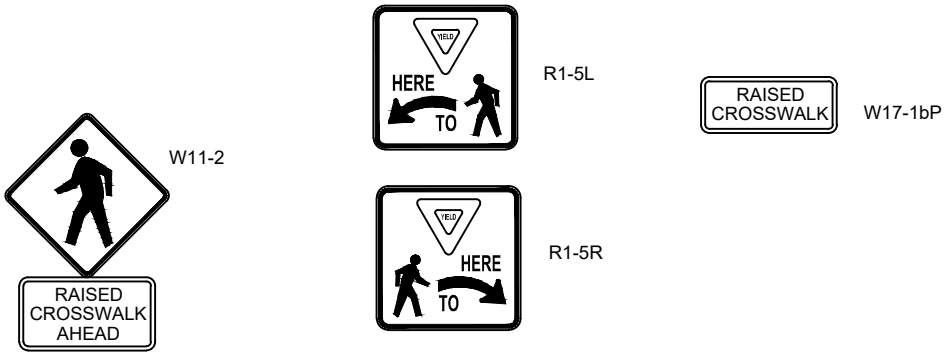
1) Use Added Lane operation where the receiving lane is available all day and equals or exceeds 1/2 mile in length.
2) Where it is desired to provide traffic signal control for pedestrians to cross the channelized right turn, the following shall apply:
   a. Omit the W11-2 sign; and
   b. Omit ladder markings in crosswalk.
   c. Provide pedestrian heads across the channelized right turn; and
   d. Control the channelized right turn with three-arrow signal heads.
3) Install a second W4-3 sign on the right side if the median mounted W4-3 sign is not visible to merging traffic.


W11-2
Flourescent Yellow-Green
W16-7p

| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | Title<br>CHANNELIZED RIGHT TURNS | Drawing No.<br>S-494.0 | 5/5 |
|---|---|---|---|




## PEDESTRIAN ISLAND CHANNELIZED RIGHT TURN




## RAISED CROSSWALK AHEAD ASSEMBLY DETAIL

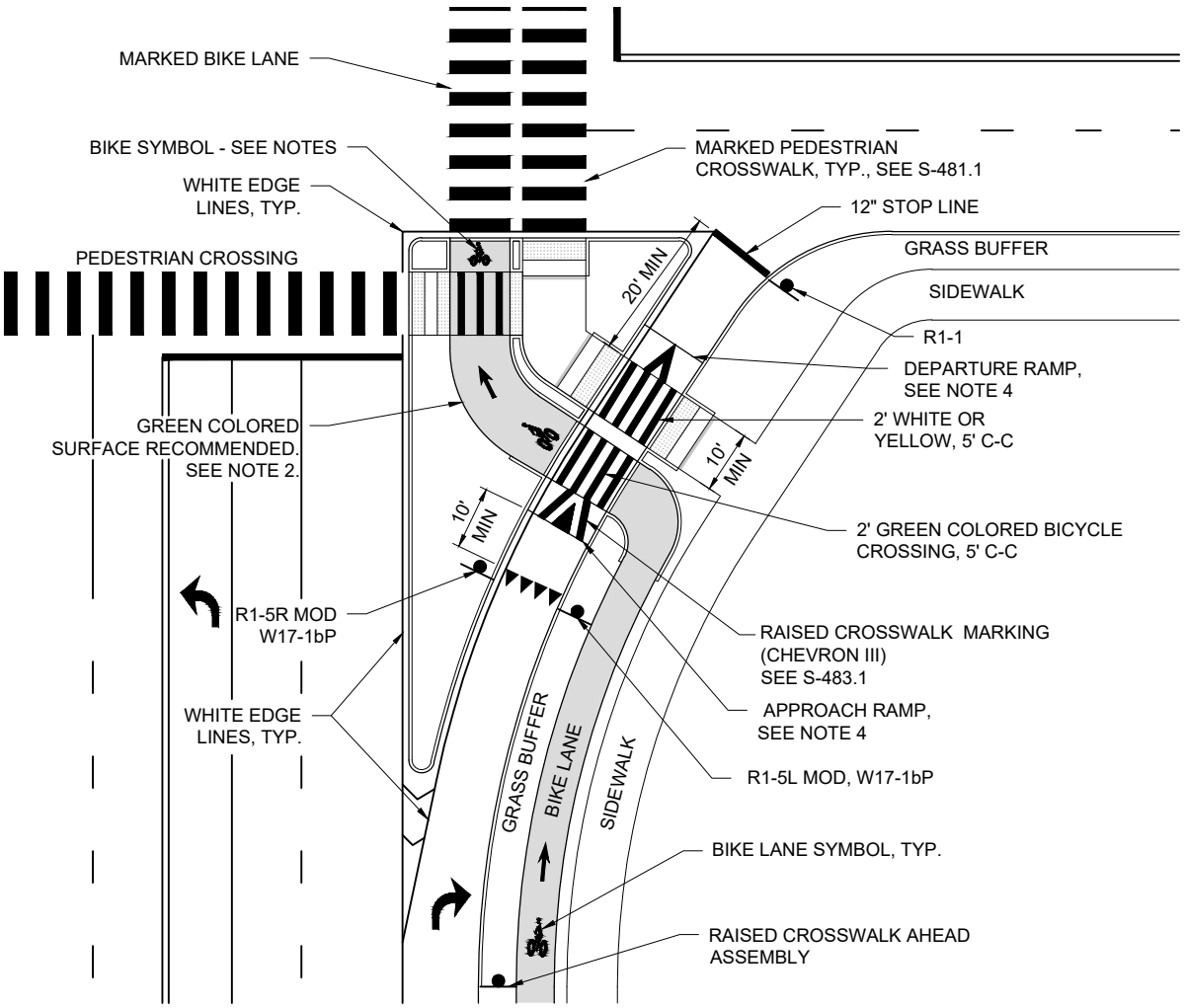
APPROVED 02-20-2020

for Seleta Reynolds, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

CHANNELIZED RIGHT TURNS WITH RAISED CROSSWALKS 1/2

| CKD. Priv. Engr. | SR. T.E. JV | PR. T.E. BS |
|---|---|---|
| DWN. Priv. Engr. | T.E. MN | S-494.1 |




# PEDESTRIAN ISLAND CHANNELIZED RIGHT TURN


R1-5L MOD


R1-5R MOD


W17-1bP

NOTES:

1. BIKE LANE SYMBOLS ARE RECOMMENDED TO CLARIFY THE INTENDED OPERATION OF THE BIKE LANE SPACE.
2. OPTIONAL USE OF GREEN COLORED PAVEMENT TO ENHANCE VISIBILITY AND CONSPICUITY OF BICYCLE LANE, GREEN COLORED PAVEMENT MAY BE INSTALLED FOR THE ENTIRE LENGTH OF THE BICYCLE LANE OR FOR ONLY A PORTION (OR PORTIONS) OF THE BICYCLE LANE. ALL GREEN COLORED PAVEMENT SHOULD COMPLY WITH FHWA INTERIM APPROVAL FOR OPTIONAL USE OF GREEN COLORED PAVEMENT FOR BIKE LANES (IA-14) AND APPROVED BY LADOT.
3. SEE CITY OF LOS ANGELES SUPPLEMENTAL STREET DESIGN GUIDE, DETAIL 100 AND DETAIL 600 FOR PEDESTRIAN/BICYCLIST ISLAND AND RAISED CROSSWALK DETAILS.
4. APPROACH AND DEPARTURE RAMPS SHOULD BE A MINIMUM OF 6' IN LENGTH. WHERE WB-50'S OR BUSES ARE EXPECTED THE RAMP LENGTH SHOULD BE 9' MINIMUM.

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>CHANNELIZED RIGHT TURNS<br>WITH RAISED CROSSWALKS | Drawing No.<br>S-494.1 | 2<br>2 |
|---|---|---|---|

Notes:

1. This standard plan supplements Table 1 of Section 521, pertaining to restricted sight distance which justifies protected left-turn phasing at signalized intersections.

2. Motorists require both an acceptable gap in opposing traffic and sufficient sight distance in order to execute permissive left turns. Studies have shown that the value of an acceptable gap is equal to (5.0+ 0.5 n) seconds of travel time, where "n" is the number of opposing through lanes. Sufficient sight distance is the distance associated with an acceptable gap, or the gap time multiplied by the design speed. The design speed for opposing through traffic is five miles per hour above the posted or prima facie speed limit. However, where there is restrictive horizontal or vertical alignment the design speed is five miles per hour above the posted advisory speed. See Table 1.

Table A: Minimum Sight Distance Requirements for Permissive Left Turns, * ft (rounded)

| Speed Limit or Advisory Speed, mi/hr | Minimum Sight Distance Requirements, * ft (rounded) | | | |
|---|---|---|---|---|
| | 5.5 sec 1 lane | 6.0 sec 2 lane | 6.5 sec 3 lane | 7.0 sec 4 lane |
| 15 | 165 | 180 | 195 | 210 |
| 20 | 205 | 220 | 240 | 260 |
| 25 | 240 | 260 | 290 | 310 |
| 30 | 280 | 310 | 330 | 360 |
| 35 | 320 | 350 | 380 | 410 |
| 40 | 360 | 400 | 430 | 460 |
| 45 | 400 | 440 | 480 | 510 |
| 50 | 440 | 480 | 520 | 570 |
| 55 | 480 | 530 | 570 | 620 |

*Based on the speed limit or advisory speed plus 5 mi/hr

3. Several types of sight distance restrictions can occur. Permanent type restrictions, due to horizontal curvature, vertical alignment or physical obstructions cannot be readily overcome. Where the sight distances for permanent type restrictions are less than that shown in Table A, and left turns are allowed then protected left-turn phasing is required. See Figures 1, 2 and 3 which illustrate these types of restrictions.

4. Sight distance also can be restricted due to opposing left turn vehicles at locations where left turn lanes are negatively offset. Where the opposing left turn demand is light it tends to be accommodated during the same signal cycle of arrival. In this case, left turn motorists would be afforded adequate sight distance to execute left turns at some point during the green or yellow after opposing left turn motorists clear. Thus, protected left turn phasing would not be necessary. See Figure 4. However, where an opposing left turn queue is frequent and persistent and the sight distances are less than those shown in Table A then left turn motorists are not afforded an opportunity to turn with adequate sight distance. In this case, island removal with restriping or protected left-turn phasing is necessary and required. See Figure 5.

5. A unique situation occurs with negatively offset left turn lanes in combination with a right horizontal curve. As illustrated in Figure 6, left turn motorists can see opposing through traffic both upstream from the front and downstream from the back of a left turn queue. However, motorists cannot continuously see downstream from the front of the queue. If the required sight distance is at a point which is not obstructed by the opposing queue then protected left turn phasing is phasing would not be necessary. However, where the required sight distance is at a point which is obstructed by the opposing queue then visibility is inadequate for left turning decisions and protected left turn phasing is required.

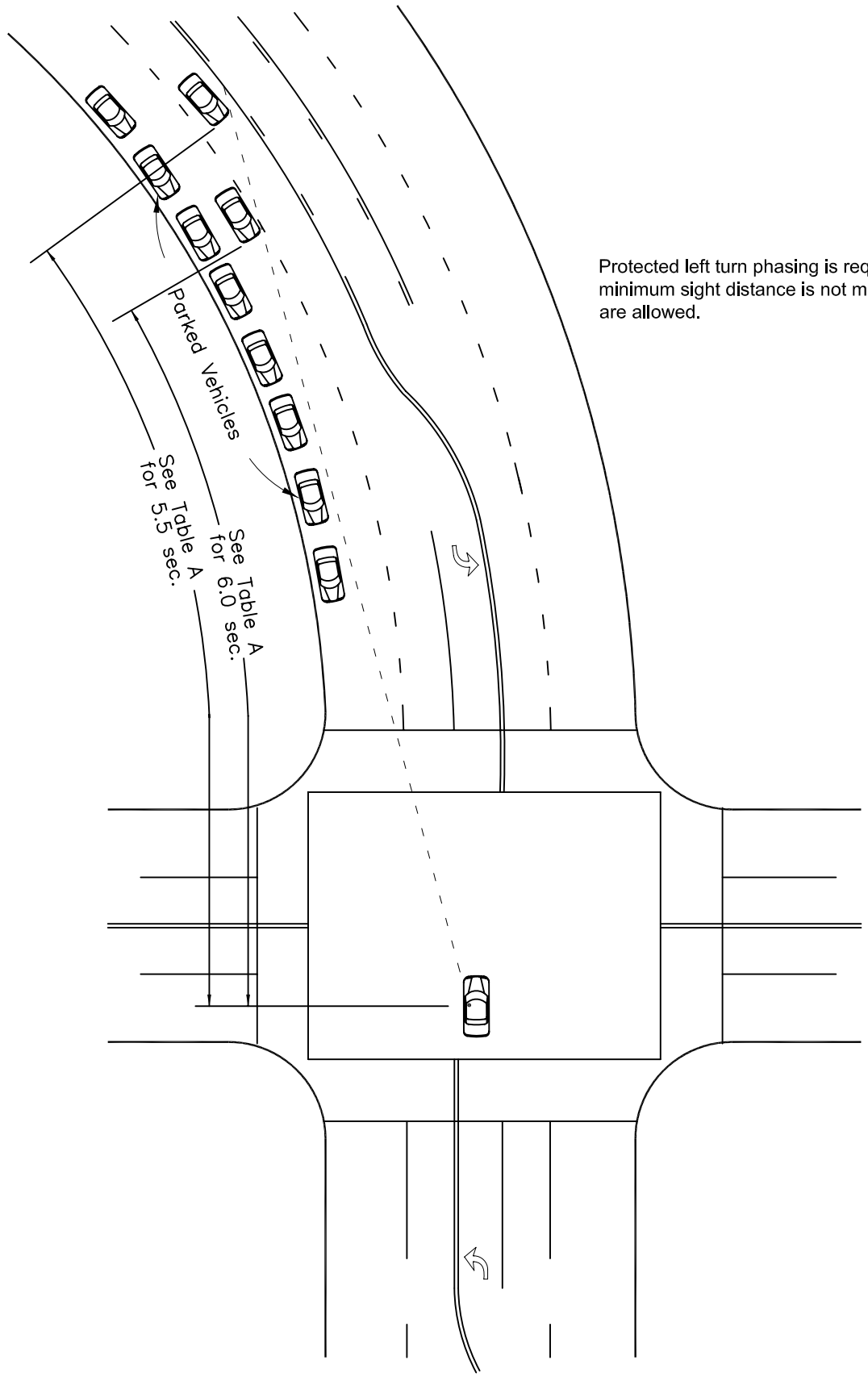
APPROVED 12 / 26 / 2000

Frances T. Banerjee, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

Restricted Sight Distance Criteria for Protected Left-Turn Phasing — 1 / 7

| CKD. | SR. T.E. TLJ | PR. T.E. GO |
|---|---|---|
| DWN. MT | T.E. | S-497.0 |

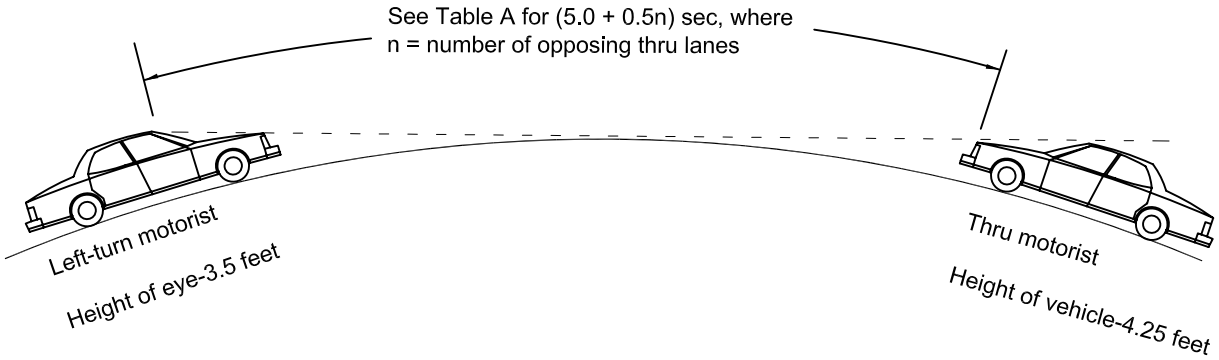



Protected left turn phasing is required if any minimum sight distance is not met and left turns are allowed.

Example of Restricted Sight Distance Due To Left Horizontal Curvature

Figure 1

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: Restricted Sight Distance Criteria for Protected Left-Turn Phasing | Drawing No. S-497.0 | 2 / 7 |
|---|---|---|---|

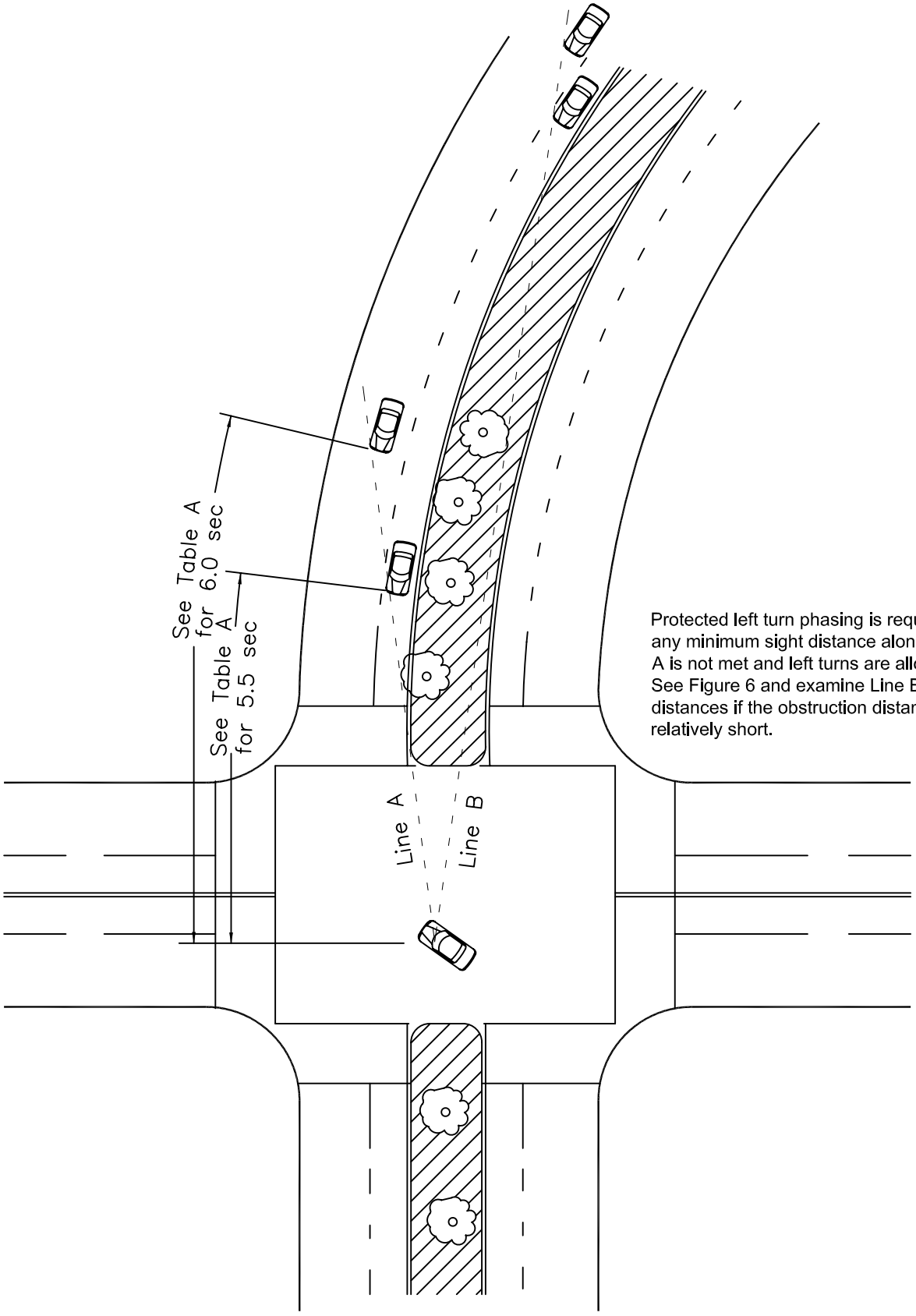



Protected left turn phasing is required if any minimum sight distance is not met and left turns are allowed.

Example of Restricted Sight Distance Due To Vertical Alighment

Figure 2

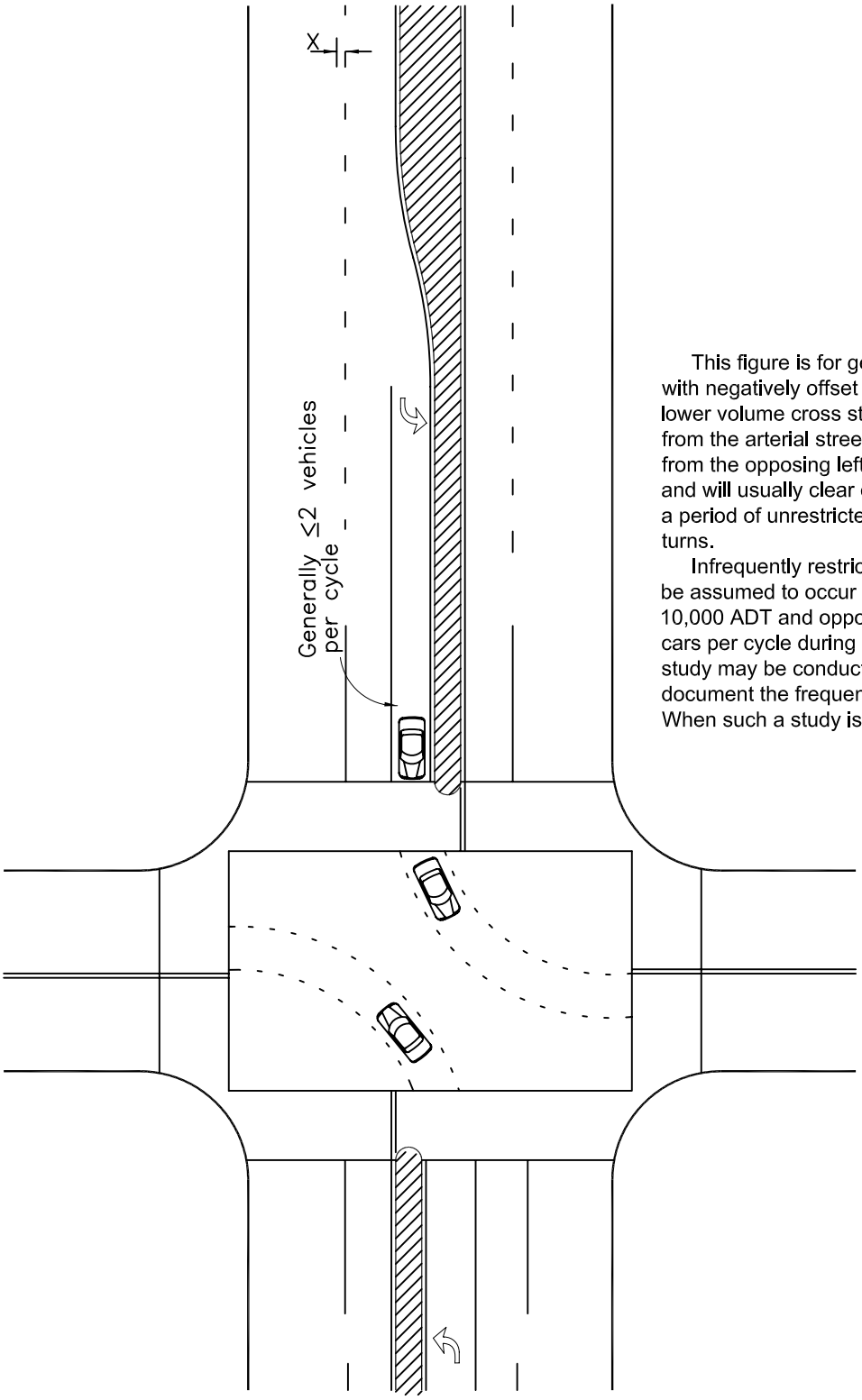
| | | | |
|---|---|---|---|
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title Restricted Sight Distance Criteria for Protected Left-Turn Phasing | Drawing No.<br>S-497.0 | 3<br>7 |




Example of Restricted Sight Distance Due To Physical Obstruction

Figure 3

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: Restricted Sight Distance Criteria for Protected Left-Turn Phasing | Drawing No. S-497.0 | 4 / 7 |
|---|---|---|---|



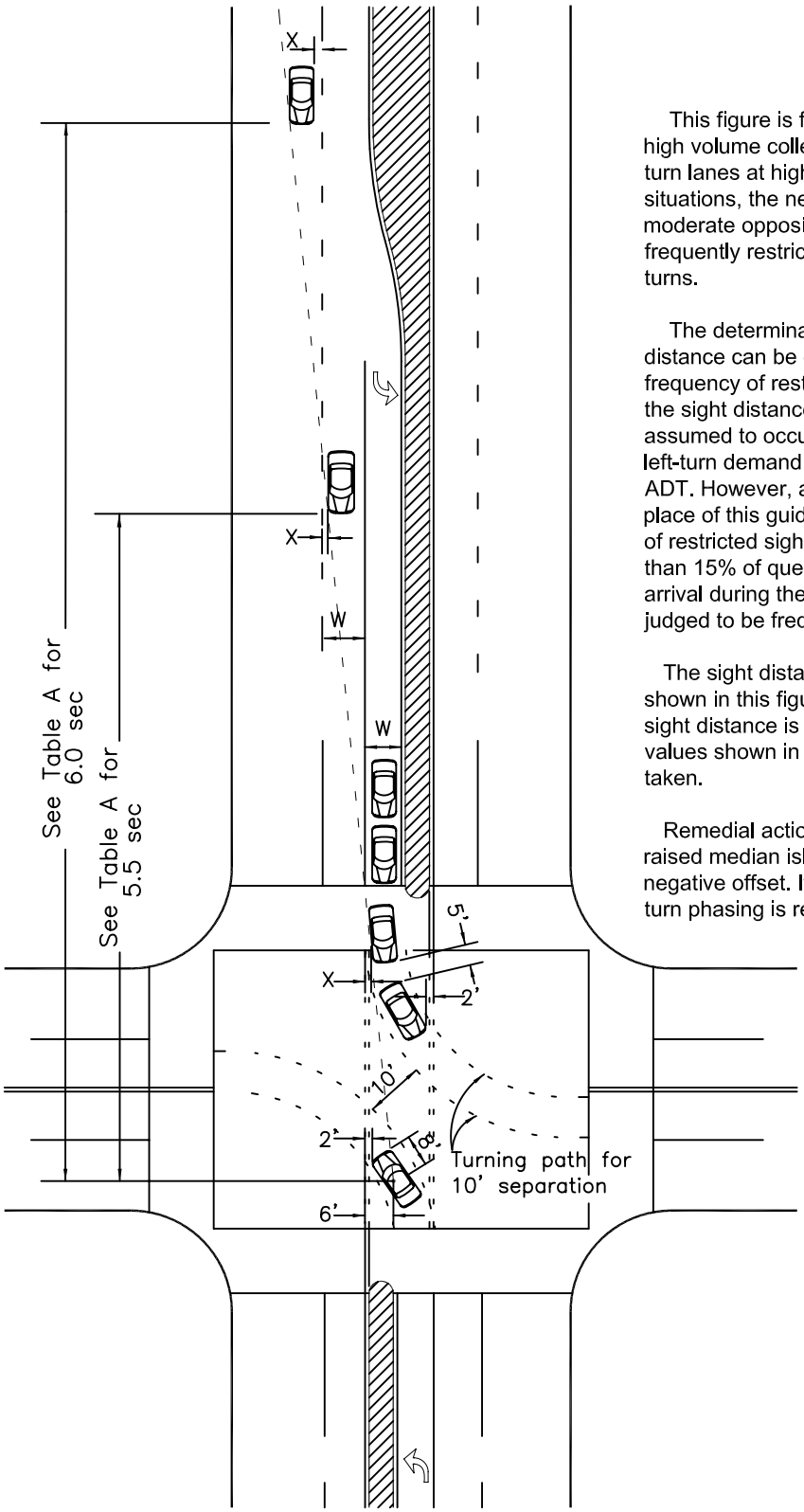

This figure is for general use on arterial highways with negatively offset left turn lanes at intersections with lower volume cross streets and /or low volume left turns from the arterial streets. In these situations the queuing from the opposing left turns will be short or infrequent and will usually clear during the cycle, thus resulting in a period of unrestricted sight distance for permissive left turns.

Infrequently restricted sight distance generally would be assumed to occur if the cross street has less than 10,000 ADT and opposing left turns are less than two cars per cycle during the peak hour. However, a left turn study may be conducted in place of these guidelines to document the frequency of restricted sight distance. When such a study is conducted, refer to Figure 5.

Example of Infrequently Restricted Sight Distance Due to Negatively Offset Left Turn Lanes with Light Opposing Left Turn Demand

Figure 4

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: Restricted Sight Distance Criteria for Protected Left-Turn Phasing | Drawing No. S-497.0 | 5 / 7 |
|---|---|---|---|




This figure is for general use on arterial highways or high volume collector streets with negatively offset left turn lanes at higher volume cross streets. In these situations, the negative offset, in combination with moderate opposing left turn demand, may result in frequently restricted sight distance for permissive left turns.

The determination of frequently restricted sight distance can be determined by : 1) Assessing the frequency of restricted sight distance; and 2) measuring the sight distance. Restricted sight distance will be assumed to occur frequently with moderate opposing left-turn demand if the cross street has more than 10,000 ADT. However, a left turn study may be conducted in place of this guideline to document the actual frequency of restricted sight distance. If the study shows that more than 15% of queues do not clear during their cycles of arrival during the peak hour then restricted visibility is judged to be frequent.

The sight distance can be plotted on a striping plan as shown in this figure or as measured in the field. If the sight distance is frequently restricted and is less than the values shown in Table A then remedial action should be taken.

Remedial action should first consider removal of the raised median island and restriping to eliminate the negative offset. If this is not feasible then protected left turn phasing is required.

Generally, an Arterial or High Volume Collector Street (10,000 ADT)

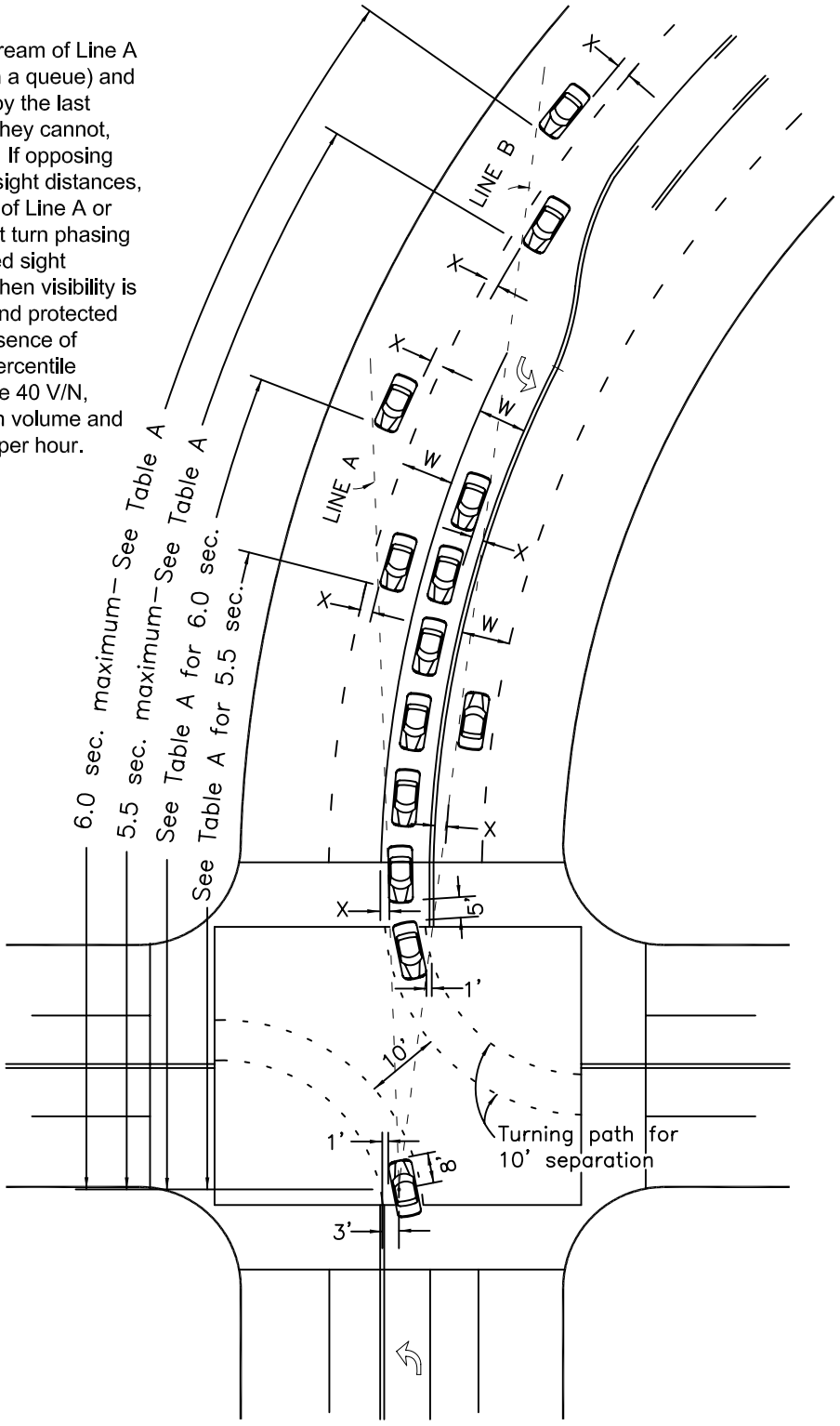
| W,ft | X,ft |
|---|---|
| 9 | 1.5 |
| 10 | 2.0 |
| 11 | 2.5 |
| 12 | 3.0 |

Example of Frequently Restricted Sight Distance Due To Negatively Offset Left Turn Lanes with Moderate Opposing Left Turn Demand

Figure 5

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: Restricted Sight Distance Criteria for Protected Left-Turn Phasing | Drawing No. S-497.0 | 6/7 |
|---|---|---|---|

Left turning motorists can see downstream of Line A (which is defined by the first vehicle in a queue) and upstream of Line B which is defined by the last vehicle in an 85th percentile queue. They cannot, however, see between Lines A and B. If opposing vehicles can be seen at the required sight distances, shown in Table A, either downstream of Line A or upstream of Line B, then protected left turn phasing is not required. If however, the required sight distances lie between Lines A and B then visibility is inadequate for left turning decisions and protected left turn phasing is required. In the absence of documented observations, the 85th percentile queue length, in feet, is assumed to be 40 V/N, where V equals the peak hour left turn volume and N equals the number of signal cycles per hour.

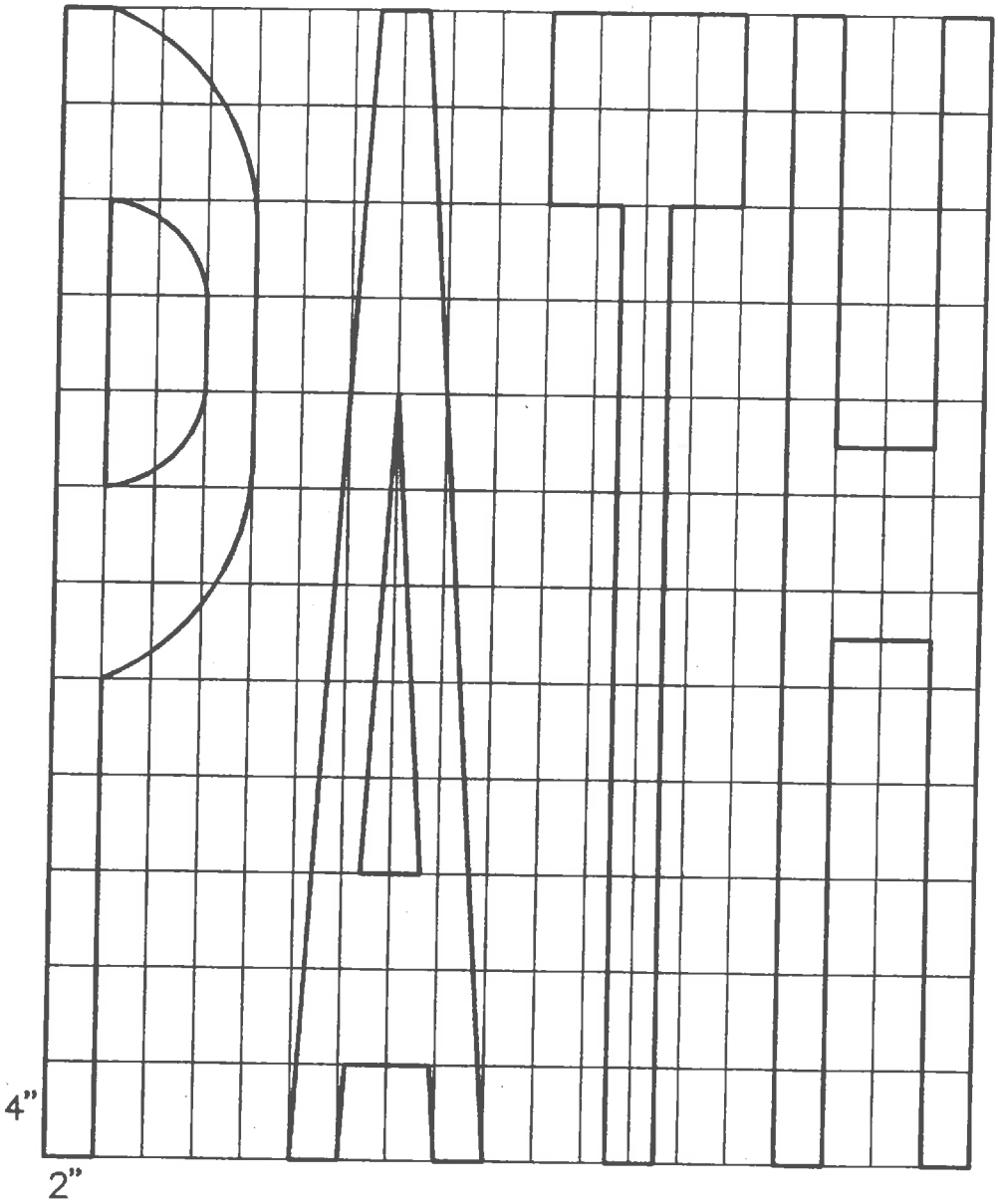



| W,ft | X,ft |
|---|---|
| 9 | 1.5 |
| 10 | 2.0 |
| 11 | 2.5 |
| 12 | 3.0 |

Example of Frequently Restricted Sight Distance Due To Moderate Opposing Left Turn Demand in Combination with Right Horizontal Curvature

Figure 6

| | | | |
|---|---|---|---|
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title: Restricted Sight Distance Criteria for Protected Left-Turn Phasing | Drawing No.<br>S-497.0 | 7<br>7 |




A = 5.5 SQ. FT.

APPROVED

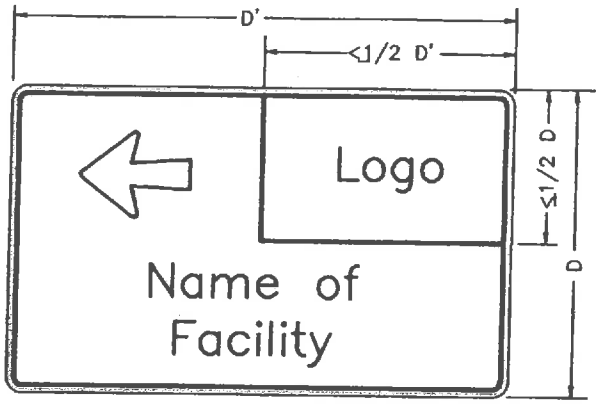
Thomas Conner 1-30-1998
GENERAL MANAGER

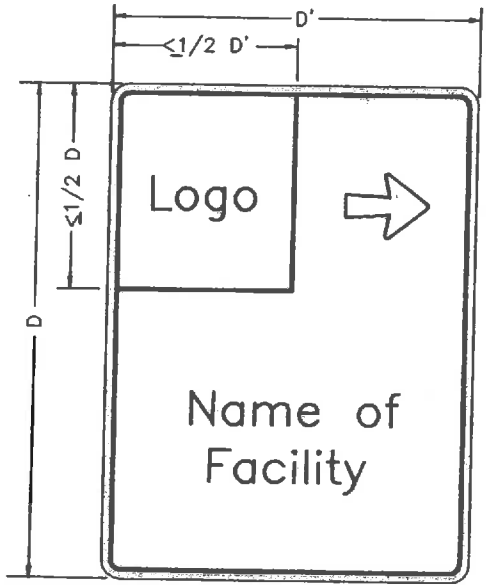
| | |
|---|---|
| PAVEMENT MARKING<br>PATH | 1/1 |

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION
Thomas K. Conner, General Manager

| | | |
|---|---|---|
| CKD. | SR. T.E. TLS | PAGE 287 |
| DWN. M.T. | T.E. PAT | S-498.0 |

## SIGN SAMPLES:




## Notes:

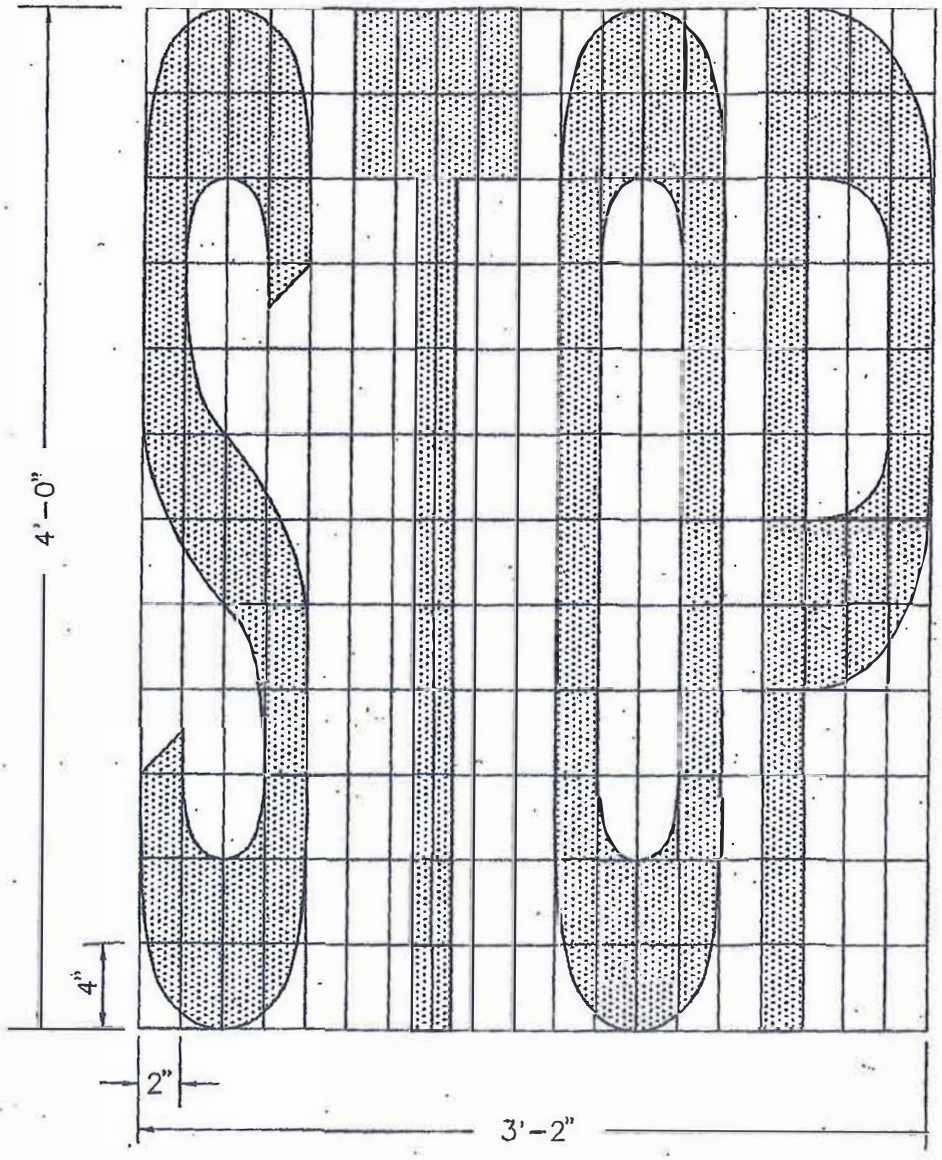
1. Guide signs should be considered for installation as per Section 336 of the Department of Transportation's Manual of Policy and Procedures.
2. The minimum lettering size is 8" upper case and 6" lower case for overhead signs and 6" upper case and 4½" lower case for roadside signs. Series E reflective white engineering grade sheeting should be used for the lettering. Total area of sign shall not exceed 18 square feet for roadside installations per Standard Plan S-476.0
3. Signs may be fabricated by qualified private parties, with installation by LADOT field forces. Contact LADOT Coordination Section, for a list of approved sign manufacturers. However, after initial installation LADOT is responsible for maintenance and replacement of sign. If the private entity does not furnish a suitable replacement logo to LADOT when the sign need to be replaced, LADOT may elect to install a guide sign without a logo.
4. Standard Highway Series lettering and arrow style shall be used.
5. The logo size shall not exceed 25% of the sign area and shall be located in the upper left or right corner for roadside signs.
6. Sign colors should be reflectorized. Background color of sign, except for logo shall be Type 2 (Super-engineering grade) green. Legend except for logo shall be Type 3 (High Intensity) white. Logo colors shall be Type 2.
7. All lines of legend are to be centered.
8. The outside edge of the sign shall have a ¾" reflective white border for roadside signs. There shall be a ½" margin between the sign edge and the border.
9. The entire sign shall be produced on 0.080 inch aluminum sheeting.
10. Sign stiffener system and hardware shall be secured to the back of the sign as required, per Standard Plan S-476.0.
11. Use one-line directional arrows as shown in S-418.5.

APPROVED January 21, 2005 /
John E. Fisher
for Wayne K. Tanda, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

GUIDE SIGN WITH LOGO 1/1

| CKD. | SR. T.E. | PR. T.E. T.J. |
|---|---|---|
| DWN. M.T. | T.E. T.C. | S-499.0 |




Painted Area = 5.5 sq/ft

Pavement marking shall be in paint in accordance with current LADOT specifications.

APPROVED 7/18/2000

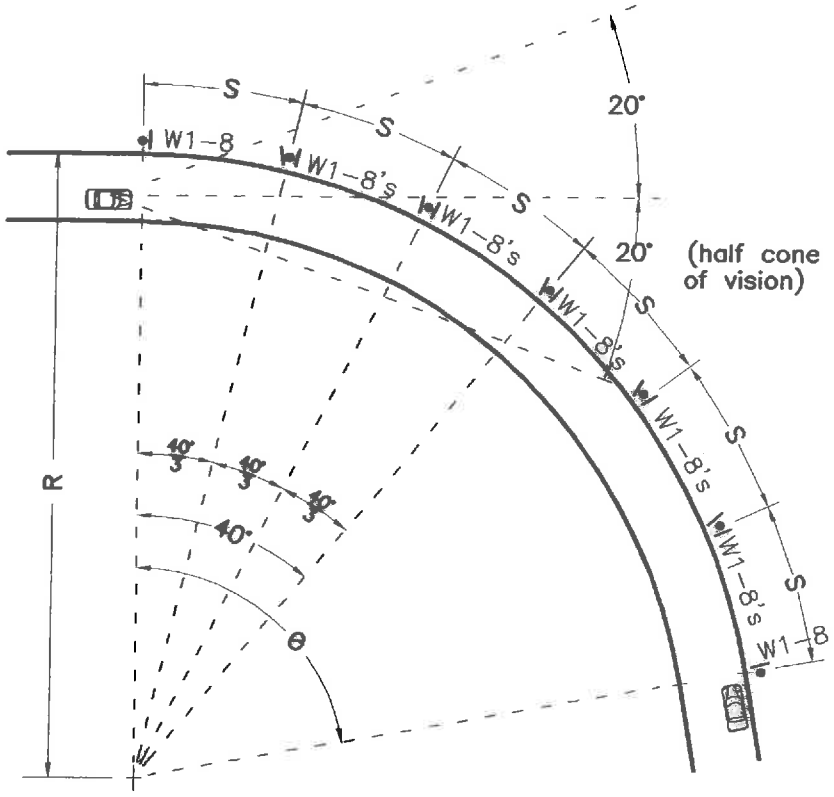
Frances Boney Jr., General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

Pavement Marking
STOP (for bike paths)

1/1

| CKD. | SR. T.E. TJ | PR. T.E. GO |
|---|---|---|
| DWN. M.T. | T.E. PAT | S-500.0 |



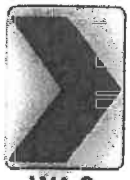

S = Approximate equal spacing between W1–8 Signs
R = Radius of outside curve
θ = Central Angle of Curve
L = Arc Length

$L = 2\pi R\theta/360$
$S = 2\pi R(13.3)/360 \leq 100'$ or table, below
$\Sigma s = L$

| R, ft | Maximum Average S, ft * |
|---|---|
| 100 | 25 |
| 150 | 35 |
| 200 | 45 |
| 250 | 55 |
| 300 | 70 |
| 350 | 80 |
| 400 | 90 |
| ≥ 450 | 100 |

* See Note 6

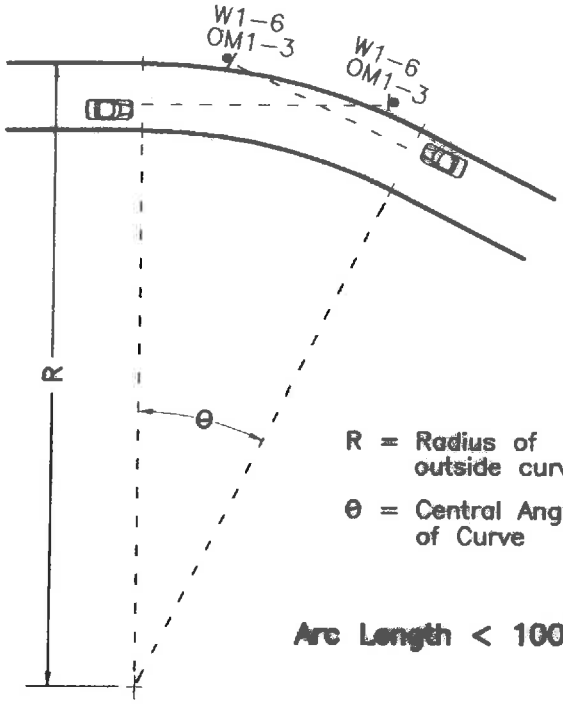
**Arc Length ≥ 100'**



W1-8

W1-6

OM1-3




R = Radius of outside curve

θ = Central Angle of Curve

**Arc Length < 100'**

APPROVED October 4, 2005

John E. Fisher for Wayne K. Tanda, General Manager

**CITY OF LOS ANGELES**
**DEPARTMENT OF TRANSPORTATION**

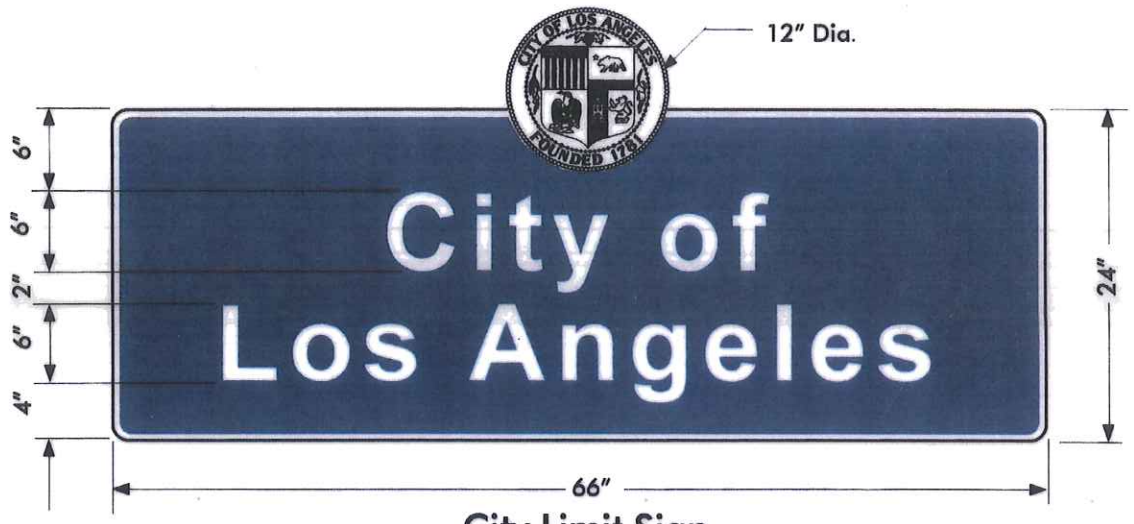
# Supplemental Curve Warning Signing

1/2

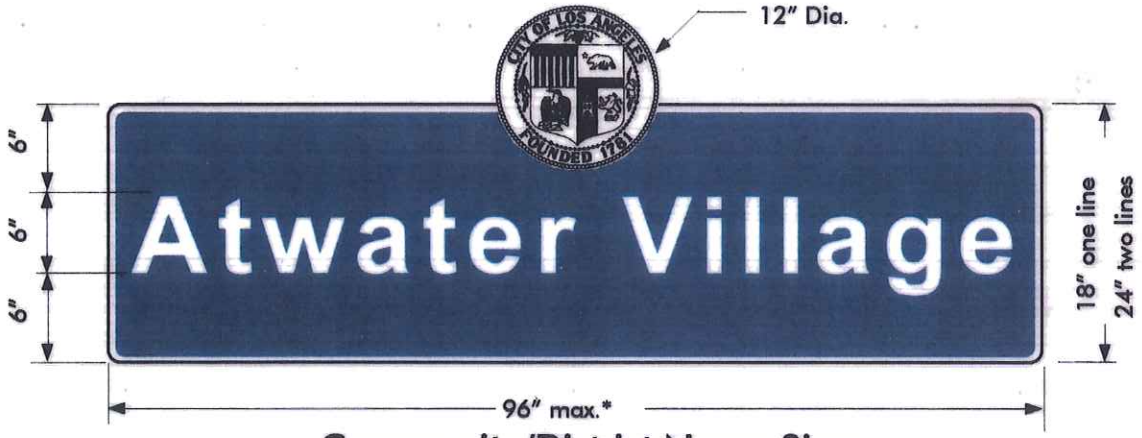
| CKD. | SR. T.E. | PR. T.E. |
|---|---|---|
| DWN. M.T. | T.E. | S–501.0 |

## Notes

1. Supplemental curve warning signing may be used along any curve and should be used where the design speed of the curve is at least 10 miles per hour below the speed limit. Either W1-6 or W1-8 signs are used for this purpose.
2. W1-6 signs (in combination with OM1-3 signs) are used for "short" curves. One installation is posted on the outside of the curve facing each direction near the tangent of the curve. For purposes of this standard, "short" curves have arc lengths less than 100 feet.
3. W1-8 signs are used for "long" curves. Three signs must be seen in each direction at all times throughout the curve. They are installed on the outside of the curve. For purposes of this standard, "long" curves have arc lengths of 100 feet or more.
4. Determine R and $\theta$ of the curve for the outside curb line of the street. Calculate the arc length by the formula $L = 2\pi R\theta/360$, and determine if W1-6 or W1-8 signs are to be used.
5. If W 1-8 signs are to be used, the spacing is determined by the 20 degree half cone-of-vision, where three should be seen within this angle. Thus, each sign is 6.7 degrees apart, which corresponds to a 13.3 degree central angle. The maximum spacing is calculated from the formula $S = 2\pi R(13.3)/360$ and rounded values are shown in the table.
6. Adjust S downward from the value derived from the formula calculation or table, where the arc length is not an integer multiple of the value. Along a given arc length S may vary somewhat due to trees, driveways or other spacing obstructions.

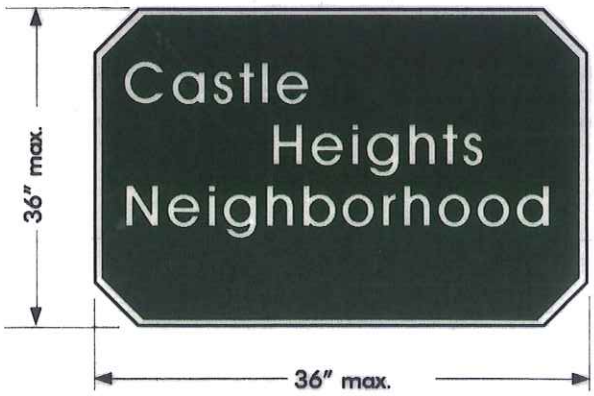



City Limit Sign




Community/District Name Sign

* Community or District names that would exceed the 96" maximum length shall require two lines of text, with a 24" height.




Custom Neighborhood Sign

| | | |
|---|---|---|
| APPROVED 2/1/12/2002<br>Frances T. Banerjee, General Manager | | |
| CITY OF LOS ANGELES<br>**DEPARTMENT OF TRANSPORTATION** | | |
| **Community and Neighborhood Signs** | | 1/2 |
| CKD. | SR. T.E. | PR. T.E. GO |
| DWN M.T. | T.E. | S-502.0 |

**City Limit Signs** (Sign No. 4130, MMS No. 5731 624)

Installed and maintained by LADOT near official City Limit locations on arterial streets. Blue background with 6" upper case and 4 1/2" lower case letters.

**Community/District Name Signs** (Sign No. 4160, MMS No. 5731 627)

Installed and maintained by LADOT near Community Plan Boundaries on arterial streets identified in the adopted Community Plan, or as adopted by resolution of the City Council between Community Plan updates. Each sign is individually fabricated by LADOT for the specific community. Blue background with 6" upper case and 4 1/2" lower case letters.

**Custom Neighborhood Signs**

These signs are generally not installed nor maintained by LADOT, due to the numerous variations and styles. They are designed by the local community, retail district or neighborhood under an officially sanctioned program of the City, and as approved by the affected Council office. Each installed sign shall be purchased by the local group and installed by a sign installation firm acceptable to LADOT. A map of the proposed locations of all signs shall be provided to the General Manager, LADOT, by the City agency sponsoring the project. Requirements for these unique signs are as follows:

Sign - Size shall be no greater than three feet horizontally or vertically, with a maximum total area of nine square feet.

Colors should be reflectorized and may be any background color except red, yellow, orange, white, or black, in order to avoid confusion with stop signs, warning signs, construction signs and regulatory signs. Signs preferably should have one background color and one contrasting legend color. The text shall be restricted to community identification. Slogans and words, such as "Welcome" and "Leaving" may not be included in the text. A logo or community symbol may be shown.

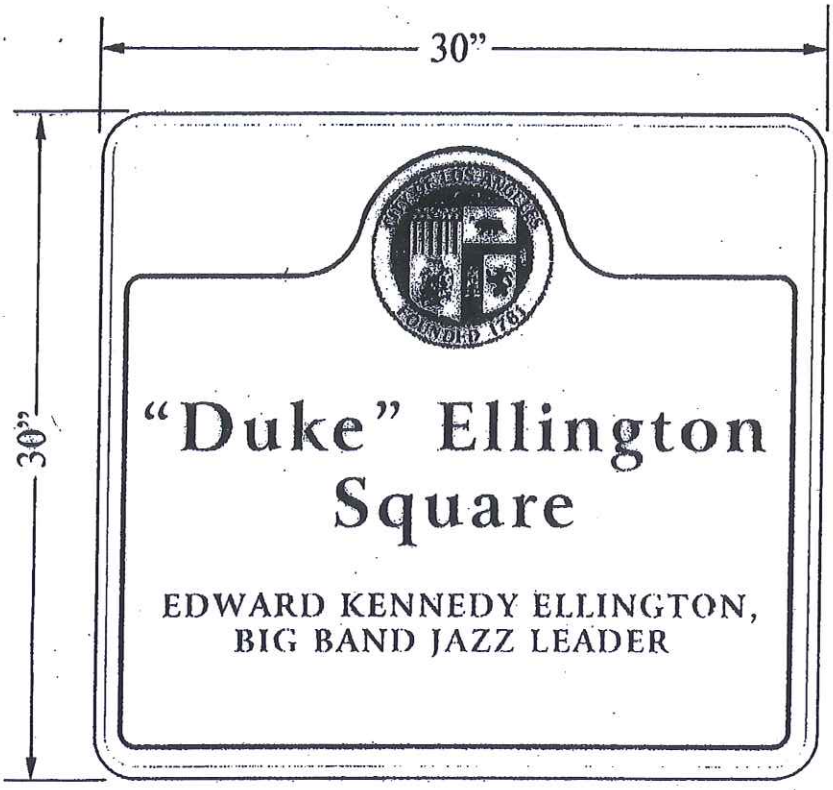
Anti graffiti film should be used.

Material shall be 0.08 inch minimum thickness aluminum stock, pre-drilled with two 3/8 inch diameter holes, centered with one near the top of the sign and one near the bottom. Corners of sign shall have a minimum 0.50 inch radius.

Shape shall not be a regular octagon (Stop sign), an equilateral triangle with one point down (Yield sign), or a diamond (Warning sign).

Installation - Signs shall be installed only by a qualified sign installer approved by LADOT. A list of qualified sign installers can be obtained by calling the LADOT Field Coordination Section, telephone (213) 928-9603. A listing of LADOT approved sign manufacturers can also be obtained at this number.

Signs should be installed on steel street lighting poles, upon receiving approval from the Bureau of Street Lighting. They may be installed on street lighting poles with parking restriction signs. However, they may not be installed on traffic signal poles, nor on street lighting poles with other warning, regulatory or, unrelated guidance traffic signs. They may be installed in combination with G60 signs in retail districts. Where feasible they should be installed at a clearance height greater than 7 feet. so that they will be less prone to vandalism. LADOT reserves the right to remove Custom Neighborhood Signs not in conformance with these guidelines.




1. The sign shall have brown letters on a tan background with the mission shape outline and the City Seal on top.
2. The name of the intersection or facility shall use 4 inch upper case and 3 inch lower case serif letters.
3. Below the name identification shall be a short description of the person's significance, using all upper case serif letters. Refer to the Council File for guidance as to the commemorated person's significance.
4. The sign shall not include the name of any current elected official.
5. The designation shall have been approved by the City Council or an official state or federal historical committee prior to installation.

APPROVED 8 / 21 /2000

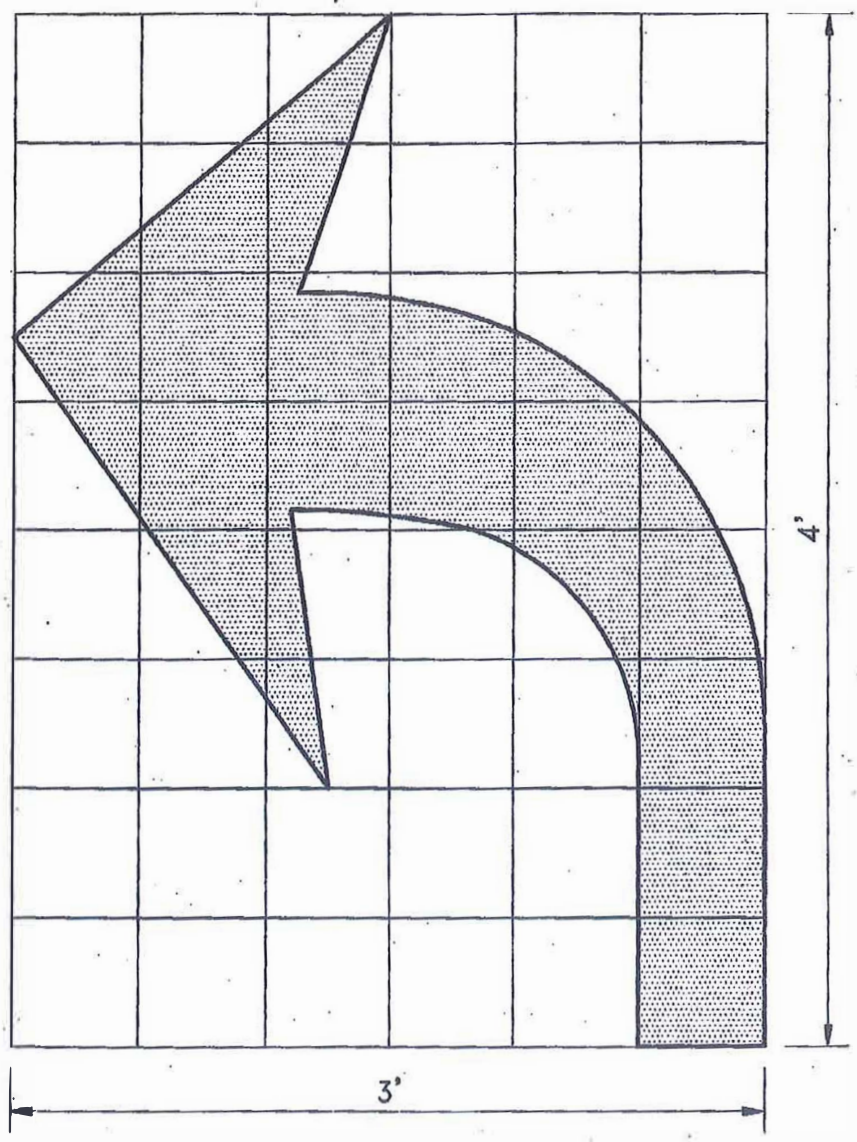
Frances Banerjee

Frances T. Banerjee, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

**Commemorative Signs** 1/1

| CKD. | SR. T.E. | PR. T.E. GO |
|---|---|---|
| DWN M.T. | T.E. | S-506.0 |




6 INCH GRID

APPROVED 7/10/2001

Frances T. Banerjee, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| Pavement Marking (left turn arrow for bike path) | | 1/1 |
|---|---|---|
| CKD. | SR. T.E. TJ | PR. T.E. GO |
| DWN. MT | T.E. TC | S-507.0 |

## Authority

Installation of these signs is subject to completion of an "Application for Installation of Official Neighborhood Watch Sign " and receipt of Los Angeles Department of Transportation (LADOT) approval.

The name of elected officials, donating parties, sponsoring parties, neighborhood groups or neighborhood councils, etc. shall not be shown on the sign.

## Sign

Size shall be no greater than 24 inches vertically and 18 inches horizontally. Appearance shall be as shown by the sample on the right.

Colors should be reflectorized. All lettering is black. Top and bottom portion are orange background, middle portion is white background. The Burglar figure is black in color and the circle and slash is red in color.

Anti-graffiti film should be used.

Material shall be 0.08 inch minimum thickness aluminum stock, pre-drilled with two 3/8 inch diameter holes, centered with one near the top of the sign and one near the bottom. Corners of sign shall have a minimum 0.50 inch radius.

## Installation

Signs shall be manufactured and installed only by qualified sign companies approved by LADOT.

Signs should be installed on non-wooden street lighting poles. They may be installed on street lighting poles with parking restriction signs. However, they may not be installed on traffic signal poles, nor on street lighting poles with other warning, regulatory, or guidance traffic signs facing the same direction. They should be installed at a clearance height greater than 7 feet so they will be less prone to vandalism. LADOT reserves the right to remove Neighborhood Watch Signs not in conformance with these guidelines.

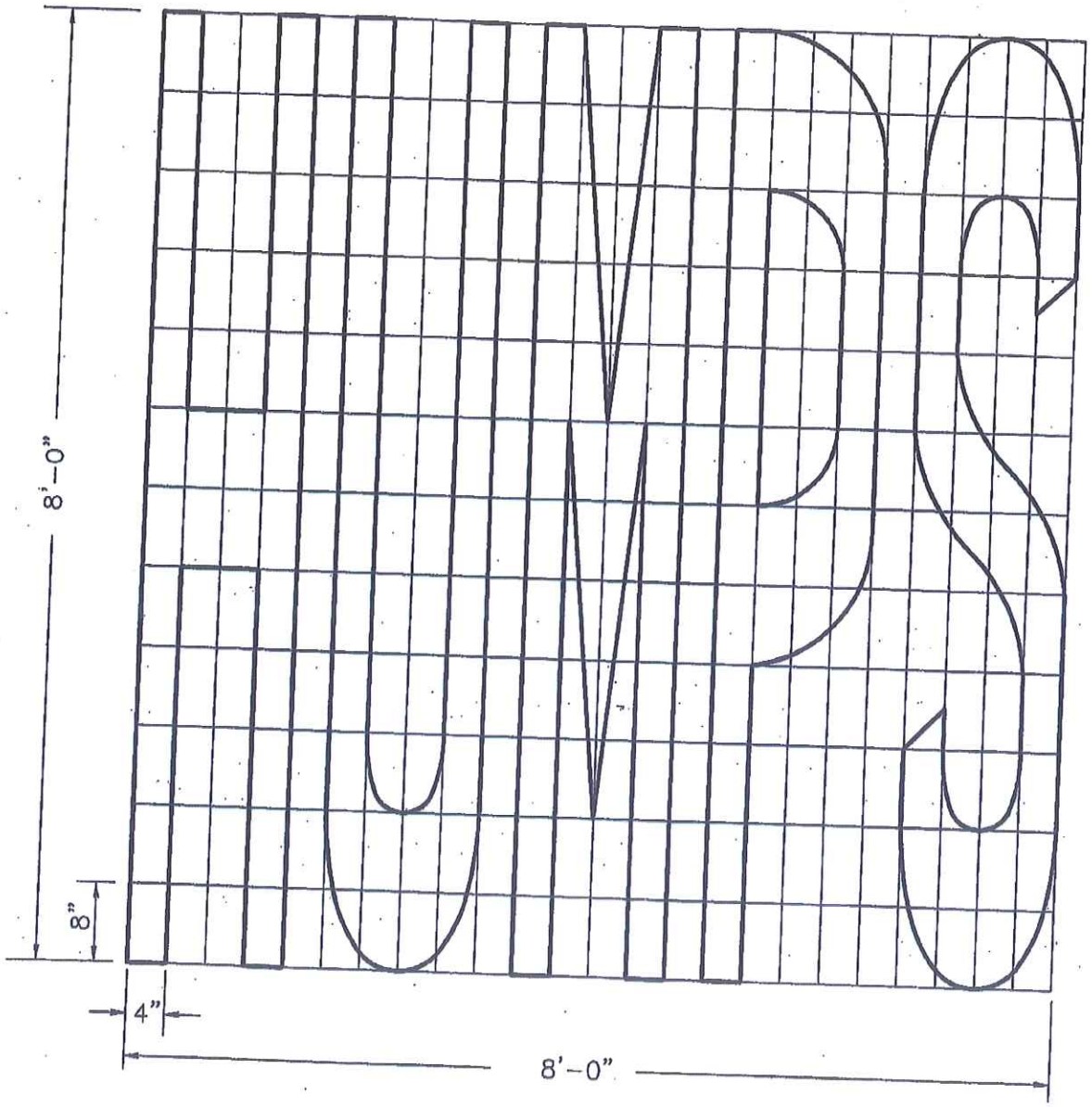

## Maintenance

LADOT is not responsible for the maintenance of these signs. If the signs are damaged or stolen, the local group is responsible for sign replacement and reinstallation using only LADOT approved sign companies.

Approved November 4, 2009
for John E. Fisher
Rita L. Robinson, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| Neighborhood Watch Signs | | 1/1 |
|---|---|---|
| T. E. TC | Sr. T. E. | Pr. T. E. SS |
| DWN MT 11-3-09 | CKD | Dwg. No. S-508.0 |




Painted Area = 30 sq/ft

Material for pavement markings shall be Alkyd Thermoplastic in accordance with current LADOT specifications.

APPROVED July 13 / /2004

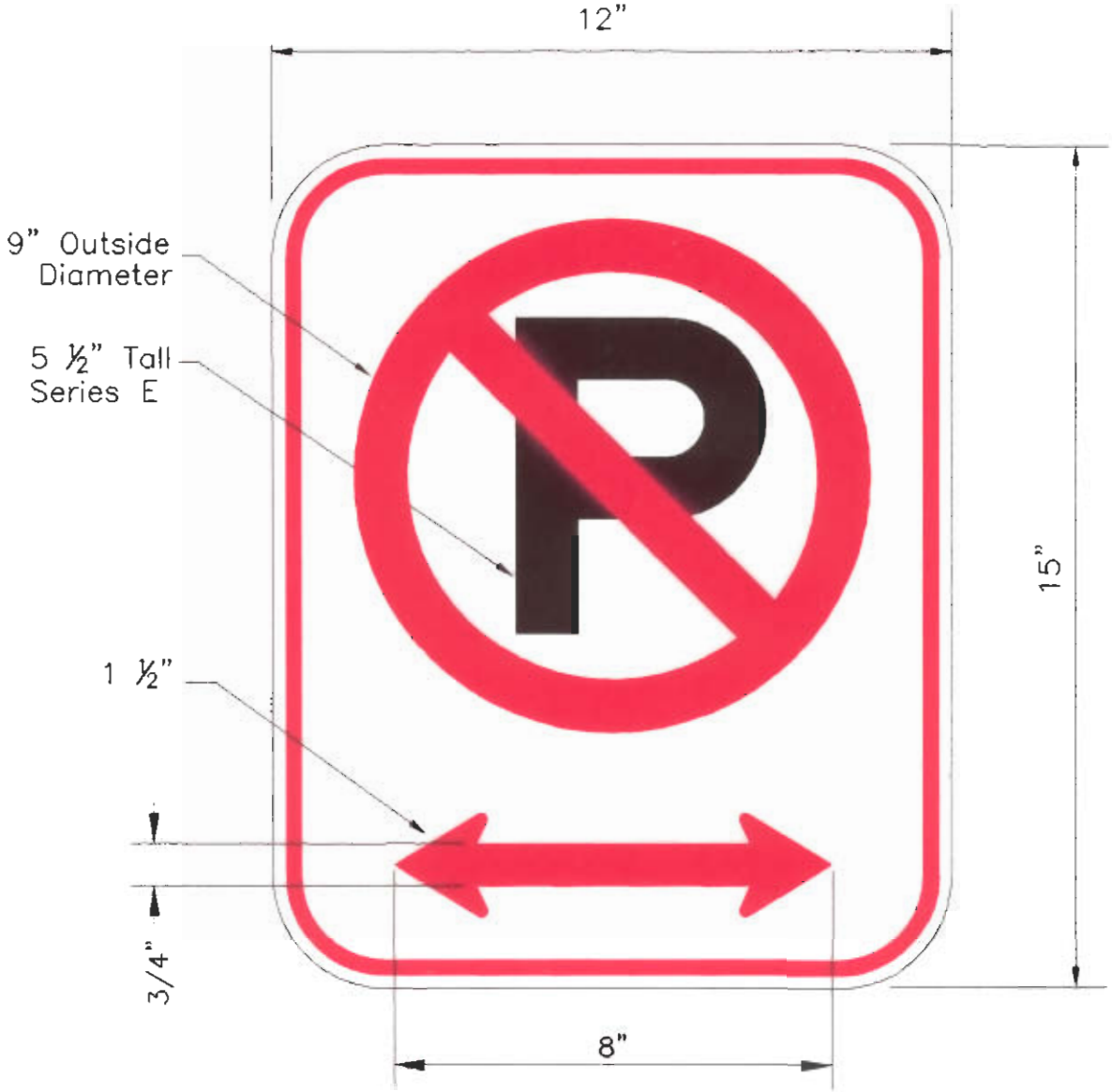
for Wayne K. Tanda, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

Pavement Marking
HUMPS

1/1

| CKD. | SR. T.E. PC | PR. T.E. TJ |
|---|---|---|
| DWN. MT | T.E. TE | S-509.0 |




Notes:

1. Signs shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.

2. Sign size is 12"x15", and legend lettering size shall be as noted above. The arrow is 1½" in height and can be Double, Left or Right. The border shall be ¼" wide and spaced ¼" from edge of sign.

3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacturer "code" and date of fabrication e.g. "SM 09/05", b) "Property of City of Los Angeles", c) LADOT Stack Number 2530.

4. The background color is white. The large "P" is black. The circle and slash, arrow and border are red.

5. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

APPROVED October 6, 2005

for Frances T. Banerjee, General Manager

**CITY OF LOS ANGELES**
DEPARTMENT OF TRANSPORTATION

**No Parking (Any Time) Sign**
**(DOT Stock Number 2530)**

1 / 1

| CKD | SR. T.E. | PR. T.E. 88 |
|---|---|---|
| DWN. MT | T.E. | S-510.0 |


Notes:

1. Signs shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.
2. Sign size is 12"x18", and legend lettering size shall be as noted above. The font is Highway Gothic Series C type. All lines of legend are to be centered. The border shall be ¼" wide and spaced ¼" from edge of sign.
3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacturer "code" and date of fabrication e.g. "SM 09/05", b) "Property of City of Los Angeles", c) LADOT Stock Number (four numbers).
4. The background color is white. The large "P" is black. The circle and slash, all text and border are red.
5. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

APPROVED 1-29-07

John E. Fisher for Gloria J. Jeff, General Manager

**CITY OF LOS ANGELES**
DEPARTMENT OF TRANSPORTATION

| | | |
|---|---|---|
| Street Cleaning Sign (DOT Stock No. 7000–7199) | | 1 / 1 |
| CKD. | SR. T.E. JW | PR. T.E. 88 |
| DWN. MT 01-08-07 | T.E. TC | S-511.0 |

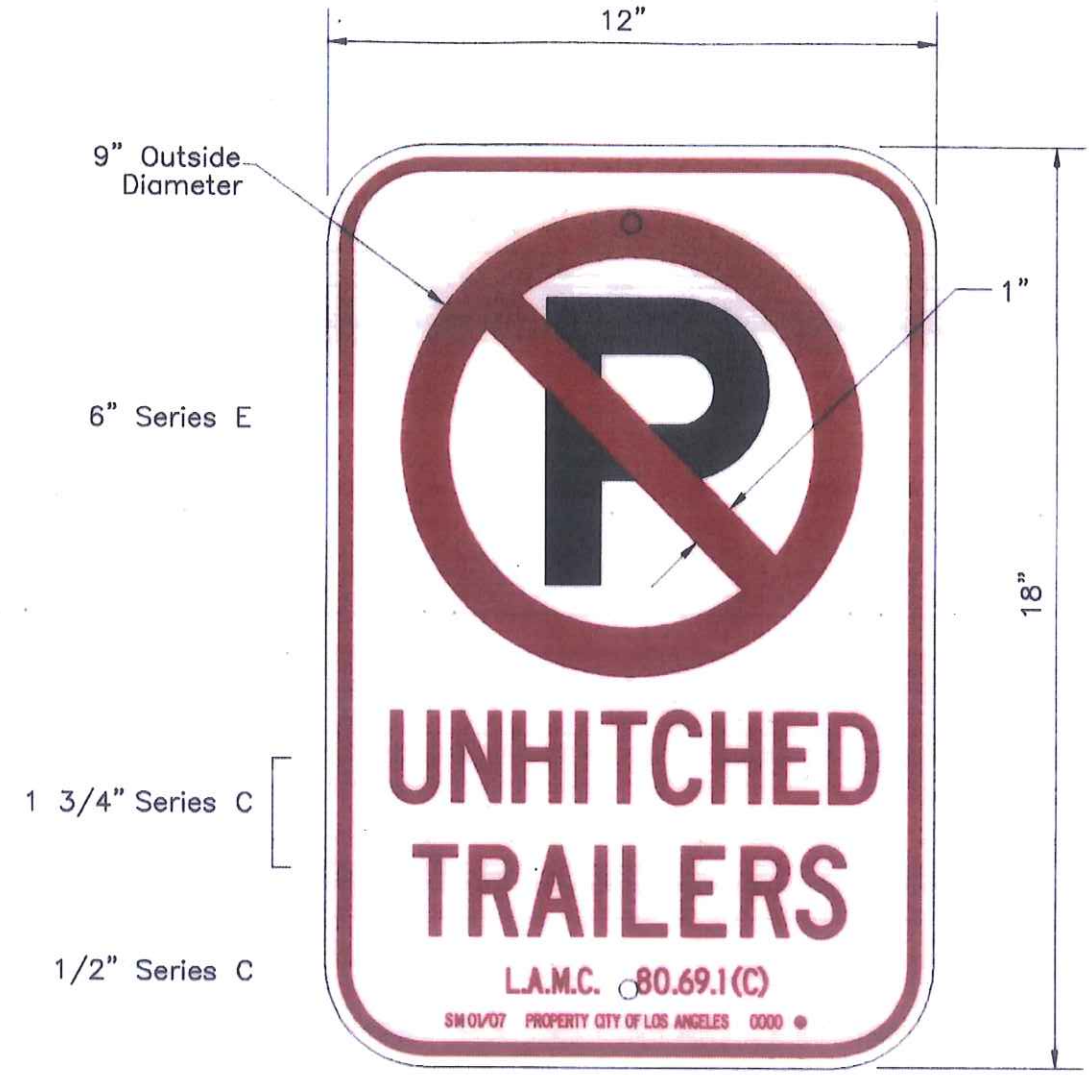

Notes:

1. Sign shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.
2. Sign size is 12" X 18", and legend lettering size shall be as noted above. The arrow is 1½" in height and can be Double, Left or Right. All lines of legend are to be centered. The border shall be ¼" wide and spaced ¼" from edge of sign.
3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacture "code" and date of fabrication e.g. "SM 09 / 05", b) "Property of City of Los Angeles", c) LADOT Stock Number (four numbers).
4. The background color is white. The large "P" is black. The circle and slash, all text, arrow and border are red.
5. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

Approved July 21, 2010
for Rita L. Robinson, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| Red Flag Days No Parking Sign | | 1/1 |
|---|---|---|
| T. E. TC | Sr. T. E. | Pr. T. E. |
| DWN MT 7-14-10 | CKD | Dwg. No. S-512.0 |




Notes:

1. Signs shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.
2. Sign size is 12"x18", and legend lettering size shall be as noted above. The font is Highway Gothic Series C type. All lines of legend are to be centered. The border shall be ¼" wide and spaced ¼" from edge of sign.
3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacturer "code" and date of fabrication e.g. "SM 09/05", b) "Property of City of Los Angeles", c) LADOT Stock Number (four numbers).
4. The background color is white. The large "P" is black. The circle and slash, all text and border are red.
5. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

APPROVED 1-29-07

John E. Fricker for Gloria Jeff, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| No Parking Unhitched Trailers Sign | | 1 / 1 |
|---|---|---|
| CKD. | SR. T.E. JW | PR. T.E. SS |
| DWN. MT 01-19-07 | T.E. TC | S-513.0 |


## Notes:

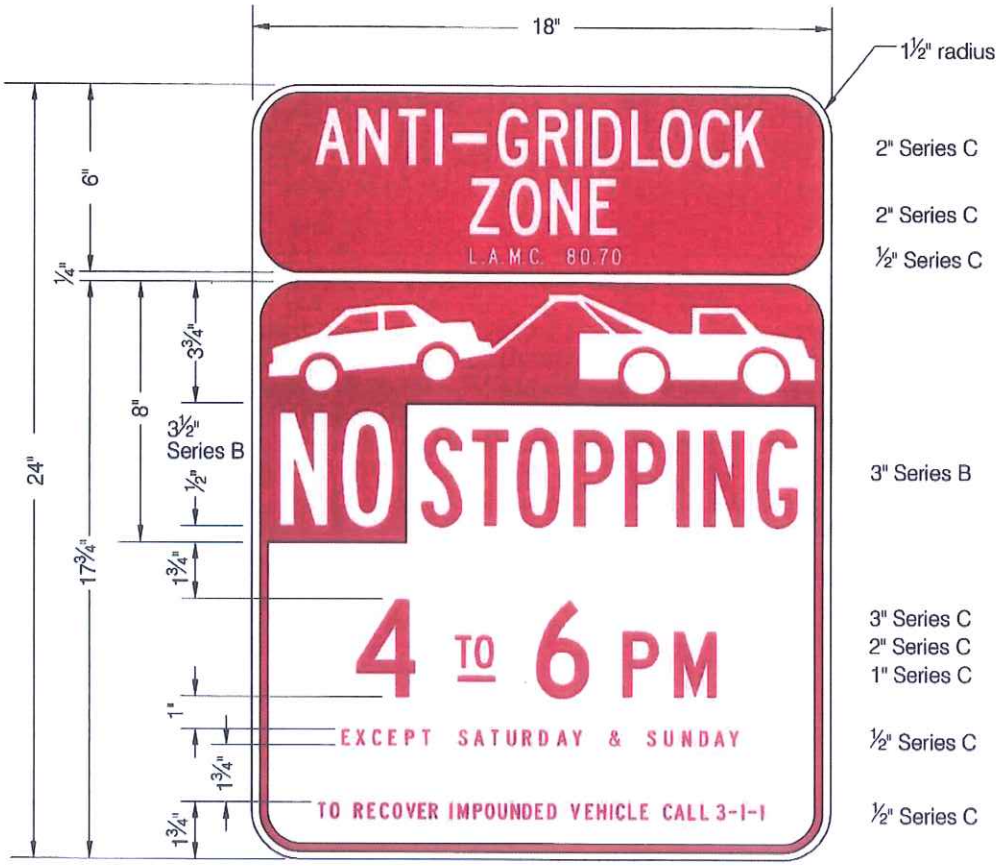
1. Signs shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.
2. Sign size is 18"x24", and legend lettering size shall be as noted above. The font is as noted. All lines of legend are to be centered. The border shall be 1/4" wide and spaced 1/4" from edge of sign.
3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacturer "code" and date of fabrication e.g. "MS 12/06", b) "Property of City of Los Angeles", c) LADOT Stock Number (four numbers).
4. The background color is white. The large "P" is black, The circle and slash, all text, arrow and border are red.
5. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

Approved August 20, 2010
John E. Fisher
for Rita L. Robinson, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

**Oversize Vehicles No Parking Sign** 1/1

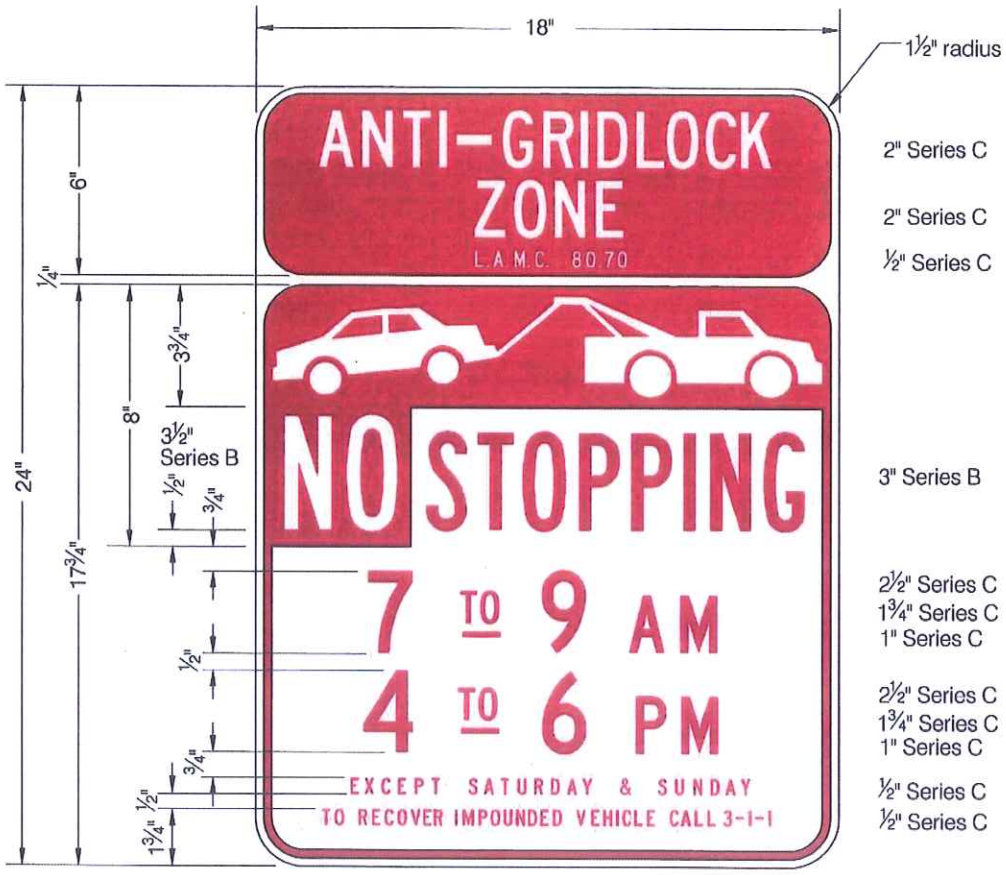
| T. E. | Sr. T. E. | Pr. T. E. |
|---|---|---|
| DWN MT 8-19-10 | CKD | Dwg. No. S-514.0 |




Notes:

1. Sign shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.
2. Sign size is 18" X 24", and legend lettering size shall be as noted above. The font is as noted. All lines of legend are to be centered. The border shall be ¼" wide and spaced ¼" from edge of sign.
3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacture "code" and date of fabrication e.g. "SM 09 / 05", b) "Property of City of Los Angeles", c) LADOT Stock Number (four numbers).
4. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

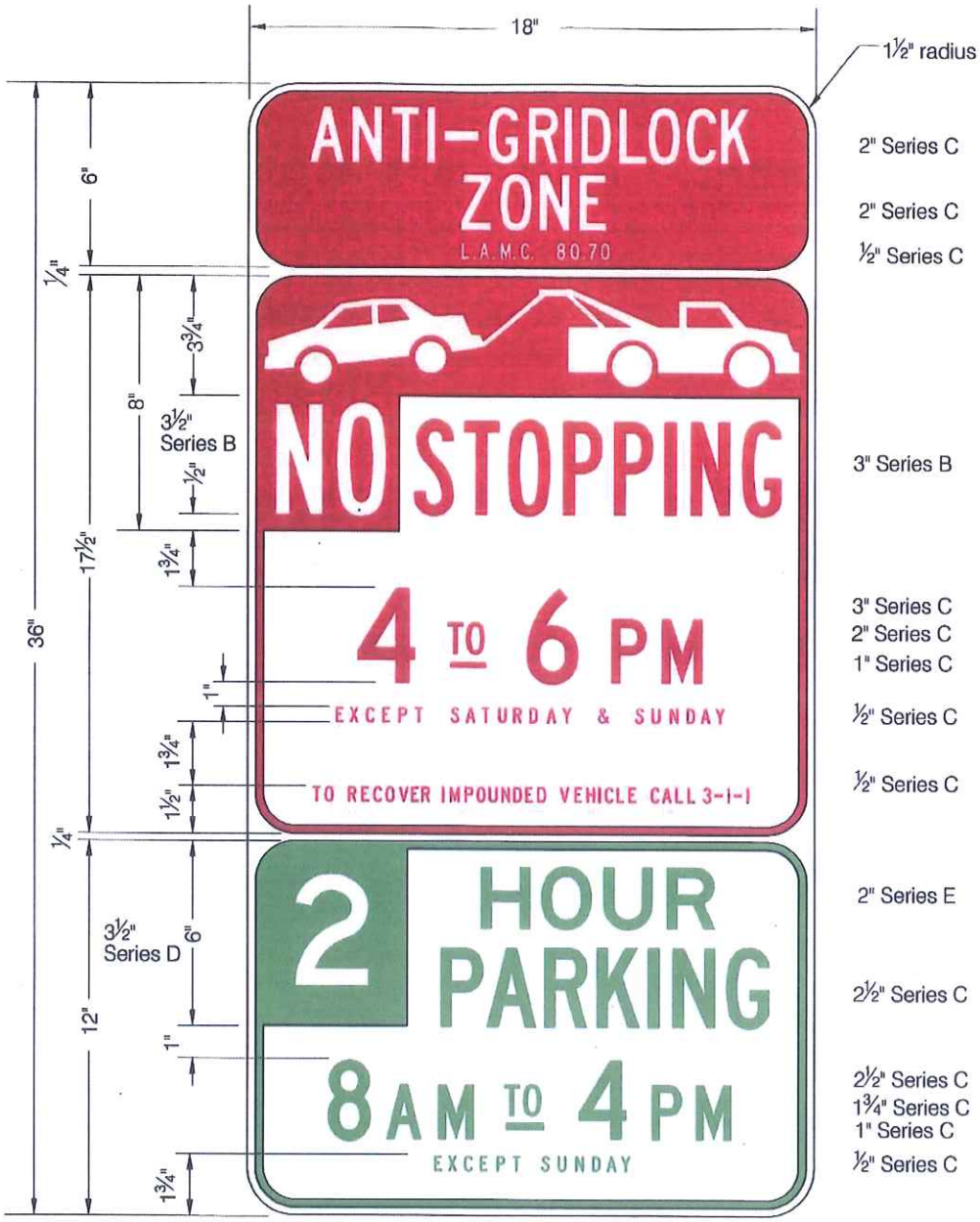
| | | |
|---|---|---|
| Approved July 21, 2010<br>John L. Fischer<br>for Rita L. Robinson, General Manager | | |
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
| Tow Away No Stopping<br>Peak Period Sign | | 1/4 |
| T. E.<br>TC | Sr. T. E. | Pr. T. E. |
| DWN<br>MT 7-20-10 | CKD | Dwg. No.<br>S-515.0 |




Notes:

1. Sign shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.
2. Sign size is 18" X 24", and legend lettering size shall be as noted above. The font is as noted. All lines of legend are to be centered. The border shall be ¼" wide and spaced ¼" from edge of sign.
3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacture "code" and date of fabrication e.g. "SM 09 / 05", b) "Property of City of Los Angeles", c) LADOT Stock Number (four numbers).
4. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

| | | |
|---|---|---|
| Approved July 21, 2010<br>John E. Fisher<br>for Rita L. Robinson, General Manager | | |
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
| Tow Away No Stopping<br>Peak Period Sign | | 2/4 |
| T. E.<br>TC | Sr. T. E. | Pr. T. E. |
| DWN<br>MT 7-20-10 | CKD | Dwg. No.<br>S-515.0 |




Notes:

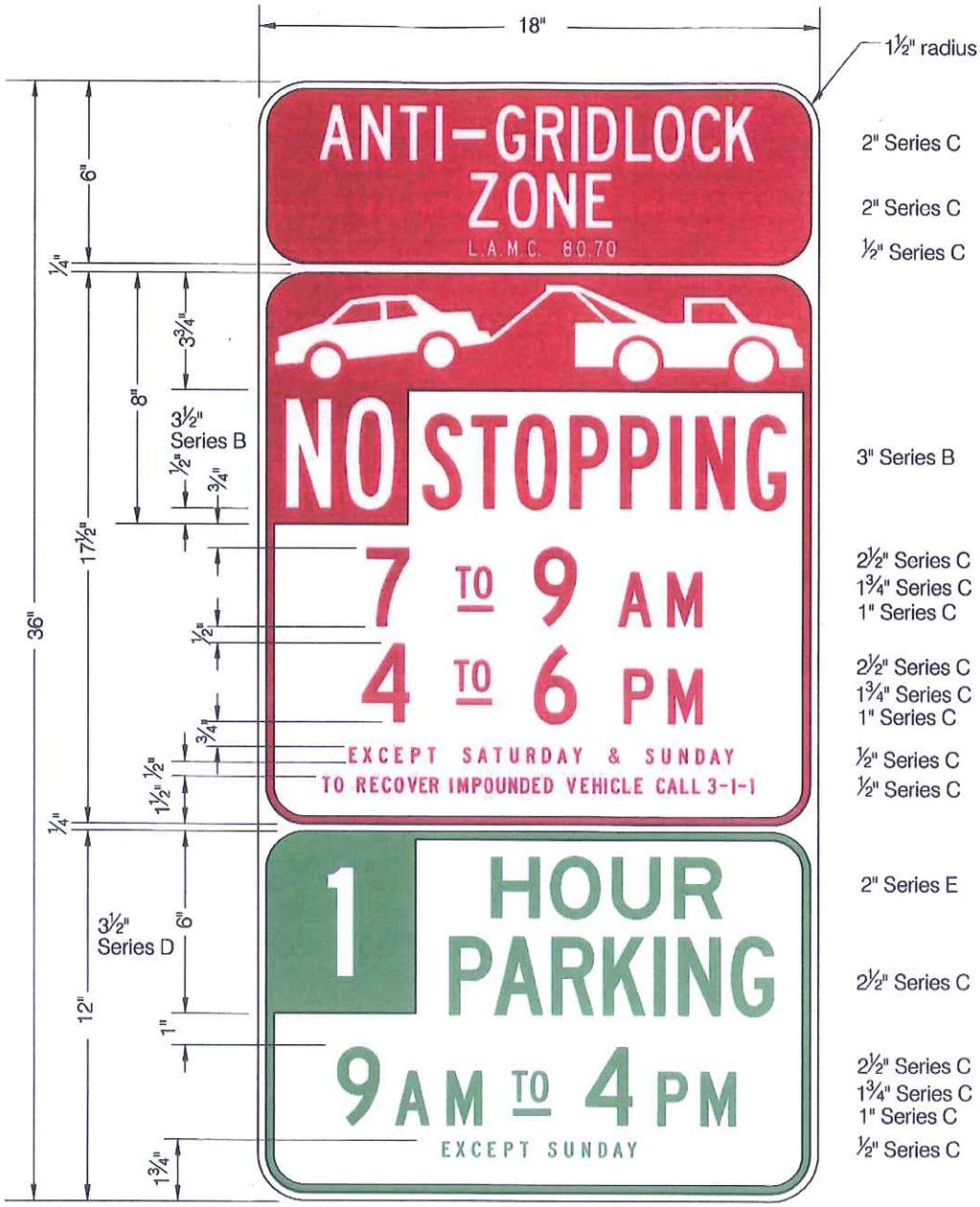
1. Sign shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.
2. Sign size is 18" X 36", and legend lettering size shall be as noted above. The font is as noted. All lines of legend are to be centered. The border shall be ¼" wide and spaced ¼" from edge of sign.
3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacture "code" and date of fabrication e.g. "SM 09 / 05", b) "Property of City of Los Angeles", c) LADOT Stock Number (four numbers).
4. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

Approved July 21, 2010

for Rita L. Robinson, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

| Tow Away No Stopping Peak Period Sign | | 3/4 |
|---|---|---|
| T. E. TC | Sr. T. E. | Pr. T. E. |
| DWN MT 7-20-10 | CKD | Dwg. No. S-515.0 |




Notes:

1. Sign shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.
2. Sign size is 18" X 36", and legend lettering size shall be as noted above. The font is as noted. All lines of legend are to be centered. The border shall be ¼" wide and spaced ¼" from edge of sign.
3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacture "code" and date of fabrication e.g. "SM 09 / 05", b) "Property of City of Los Angeles", c) LADOT Stock Number (four numbers).
4. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

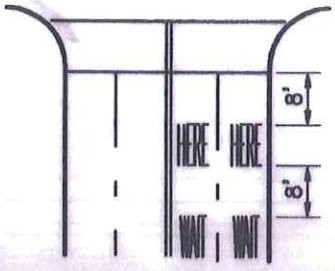
Approved July 21, 2010

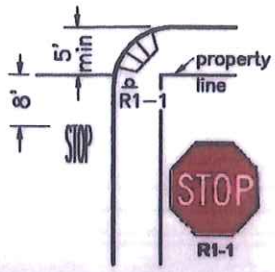
John E. Fielder

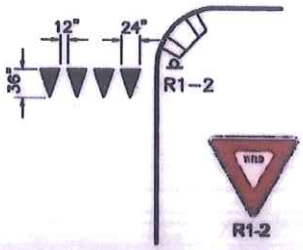
for Rita L. Robinson, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

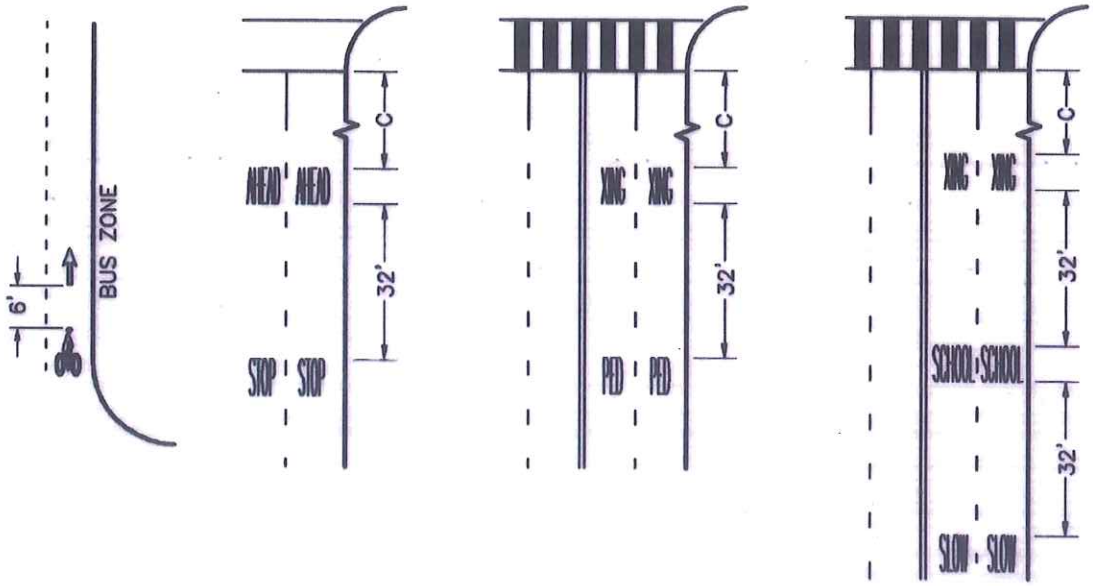
| Tow Away No Stopping Peak Period Sign | | 4/4 |
|---|---|---|
| T. E. TC | Sr. T. E. | Pr. T. E. |
| DWN MT 7-20-10 | CKD | Dwg. No. S-515.0 |

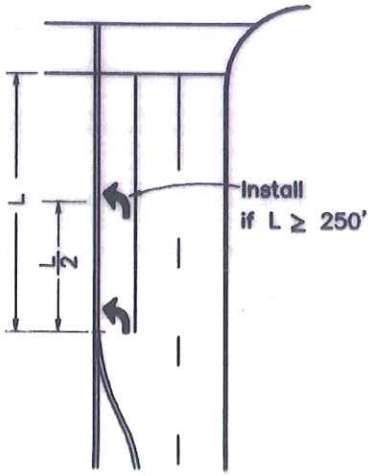



Generally, limit and yield lines are located along the extension of the property line. They shall be placed at the near side or upstream of the flat portion (w) of any access ramp. The distance between the curb line extended and the limit line shall be at least 5 feet. The limit line should extend to the middle of the street or the striped centerline.




| POSTED SPEED (mph) | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|
| C * (ft) | 100 | 100 | 125 | 175 | 250 | 325 |

* Distance may exceed the dimensions in the table by up to 100' in order to adjust to the field conditions.

APPROVED December 11, 2008

John E. Fisher

for Rita L. Robinson, General Manager

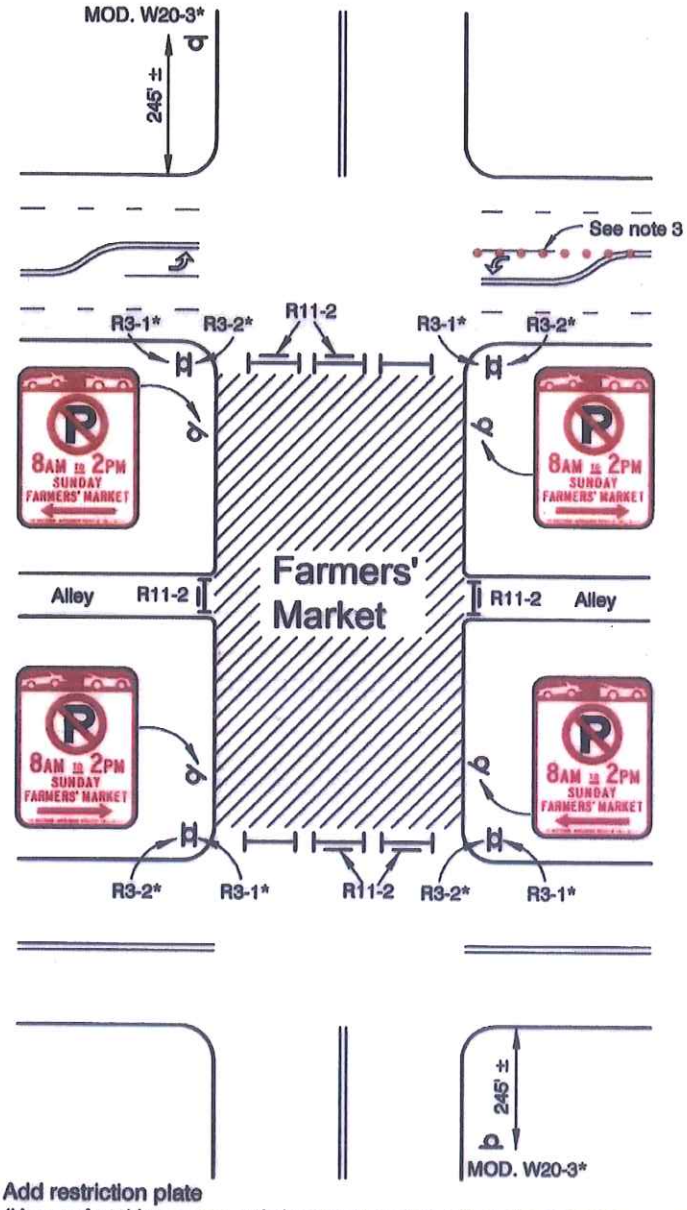
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

# Typical Pavement Marking Installations

1/1

| CKD. | SR. T.E. DW | PR. T.E. SS |
|---|---|---|
| DWN. M.T. 11-20-08 | T.E. TC | S-517.0 |

NOT TO SCALE





* Add restriction plate
(Hours of parking, turn restrictions and road closure to be shown on permit)

**Notes**

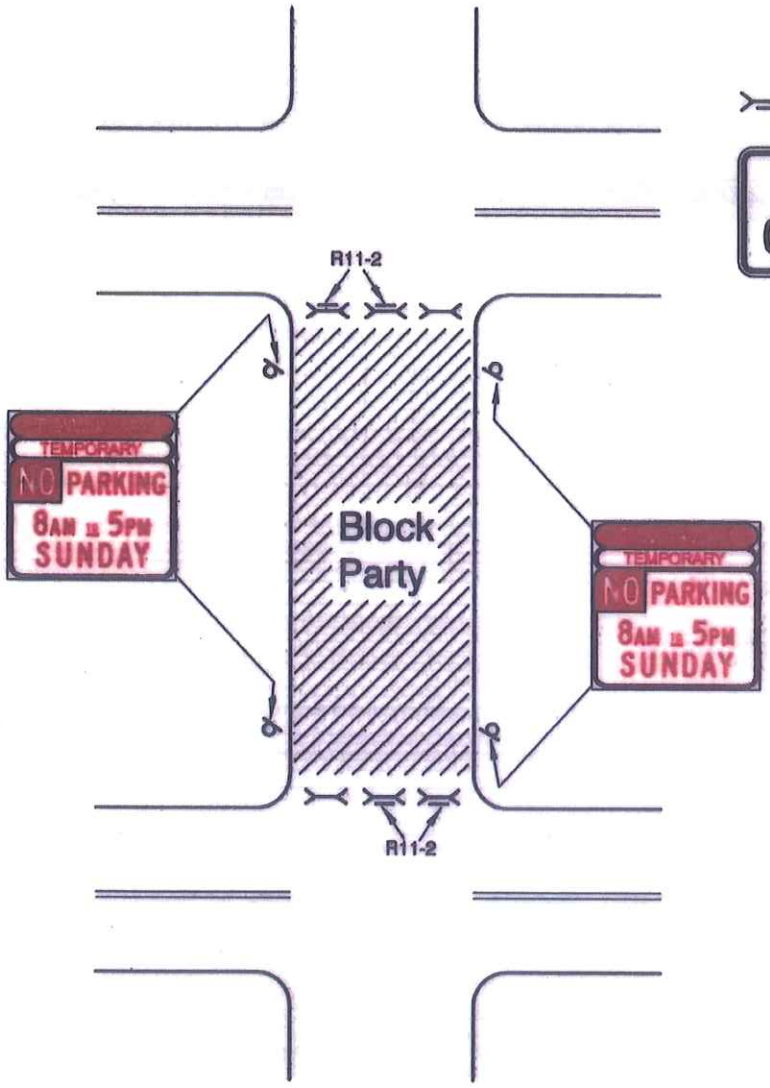
1. Maintain 20' fire lane through closure area.
2. Type III barricades shall cover entire street with no more than a 4' gap between barricades or barricade and curb.
3. Minimum 28" tall traffic cone spaced a maximum 25' apart on all turn lanes into closure area.
4. Permanent signs to be installed by LADOT. Permittee shall reimburse LADOT for the sign fabrication and installation cost.
5. Permittee shall provide install and maintain barricades, R11-2 signs mounted on barricades and traffic cones as shown. Permittee must wear safety vest, conforming to ANSI/ISEA 107-2004 when installing and removing signs, cones, and barricades.
6. Additional traffic controls may be required as determined by LADOT.

Approved November 17, 2009
John E. Fisher for Rita L. Robinson, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

**Typical Street Closure for Farmers' Market** 1/1

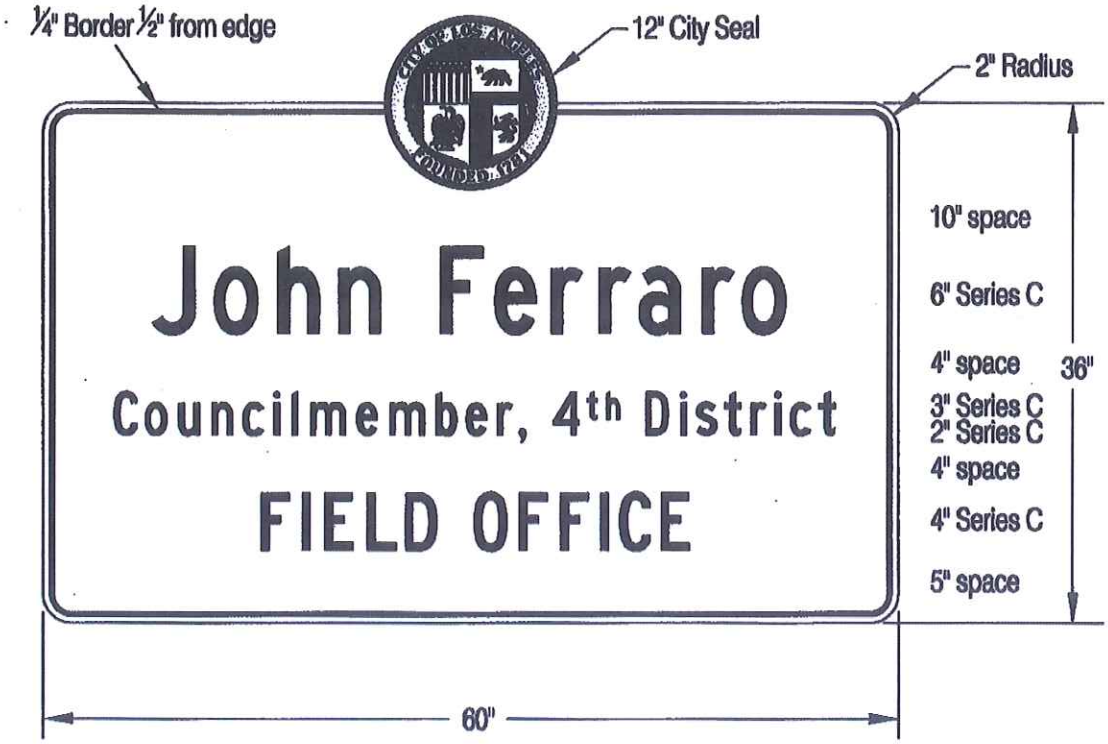
| T. E. | Sr. T. E. | Pr. T. E. |
|---|---|---|
| TC | JW | SS |
| DWN MT 11-12-09 | CKD | Dwg. No. S-518.0 |




**Notes**

1. Maintain 20' fire lane through closure area.
2. Type II barricades shall cover entire street with no more than a 4' gap between barricades or barricade and curb.
3. Permittee shall obtain R11-2 signs and barricades from the Bureau of Street Services and install and maintain barricades as shown. Permittee must wear safety vest, conforming to ANSI/ISEA 107-2004 when installing and removing signs and barricades.
4. The installation of Temporary No Parking signs are optional. If requested by permittee, LADOT shall be reimbursed for the installation cost.
5. Additional traffic controls may be required as determind by LADOT.

| | | |
|---|---|---|
| Approved December 10, 2009<br>for John E. Fisher<br>Rita L. Robinson, General Manager | | |
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
| Typical Street Closure for Neighborhood Block Party | | 1/1 |
| T. E. TC | Sr. T. E. JW | Pr. T. E. |
| DWN MT 12-10-09 | CKD | Dwg. No. S-519.0 |




**Sign**

Size shall be 36" vertically and 60" horizontally. Background color shall be blue and reflectorized. Letters and border are white. Anti graffiti film shall be used. Material shall be 0.08 inch minimum thickness aluminum stock. Corners of sign shall be 2 inch radius.

**Installation**

Signs shall be installed on two heavy duty sign posts. Signs may not be installed on traffic signal poles, or on street lighting poles. Signs should be installed at a clearance height of 10 feet so they will be less prone to vandalism.

**Authority**

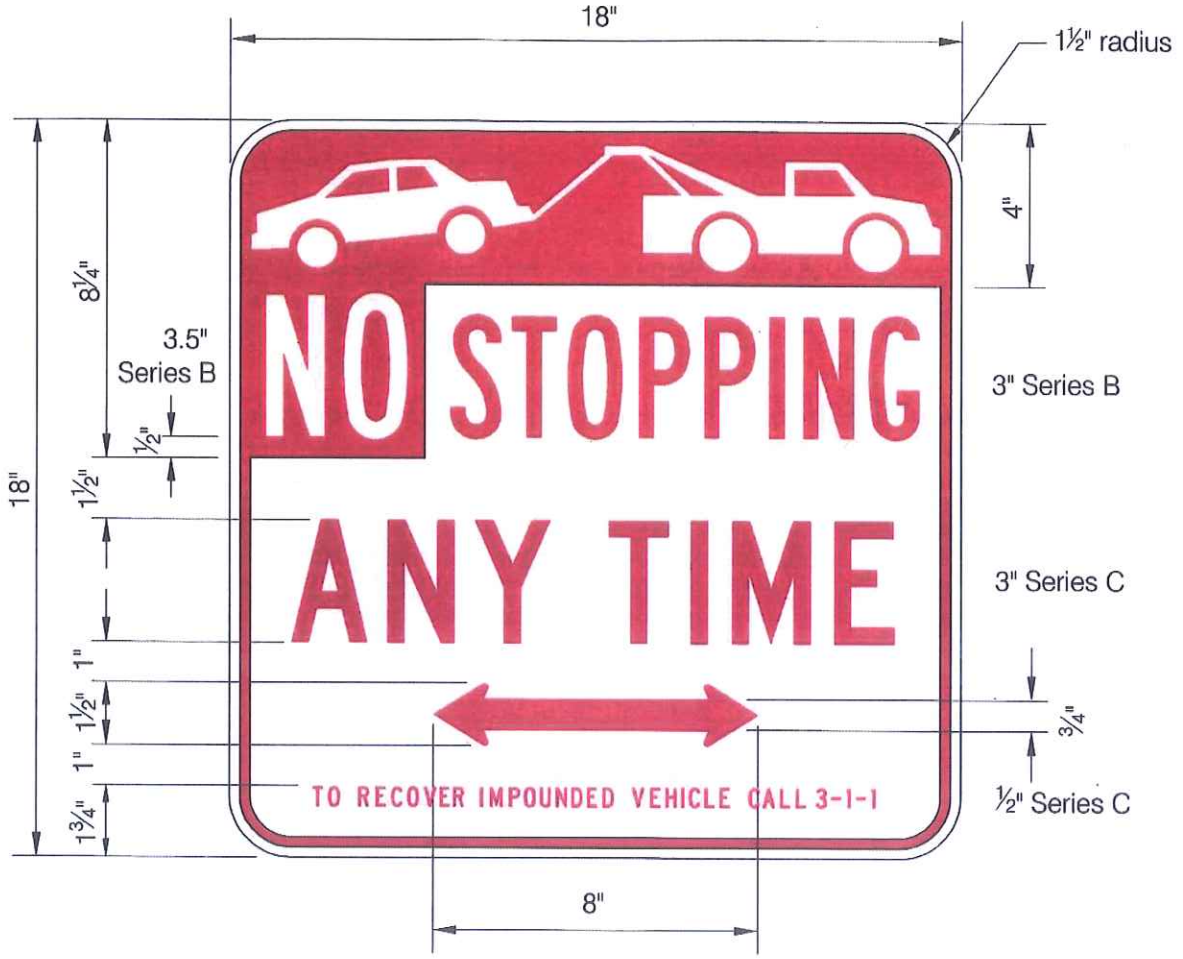
District Office is responsible for determining the exact name and spelling on the sign. Fabrication and installation work orders should be initiated by District Office. Field Operations should install the signs on or before the effective date the new Councilmember assumes office.

| | | |
|---|---|---|
| Approved February 9, 2010<br>John E. Fisher for Rita L. Robinson, General Manager | | |
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
| Council District<br>Field Office Sign | | 1/1 |
| CKD | Sr. T. E. SW | Pr. T. E. SS |
| DWN MT 2-3-10 | T. E. TC | S-520.0 |


Notes:

1. Sign shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.
2. Sign size is 18" X 24", and legend lettering size shall be as noted above. The font is as noted. All lines of legend are to be centered. The border shall be ¼" wide and spaced ¼" from edge of sign.
3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacture "code" and date of fabrication e.g. "SM 09 / 05", b) "Properly of City of Los Angeles", c) LADOT Stock Number (four numbers).
4. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

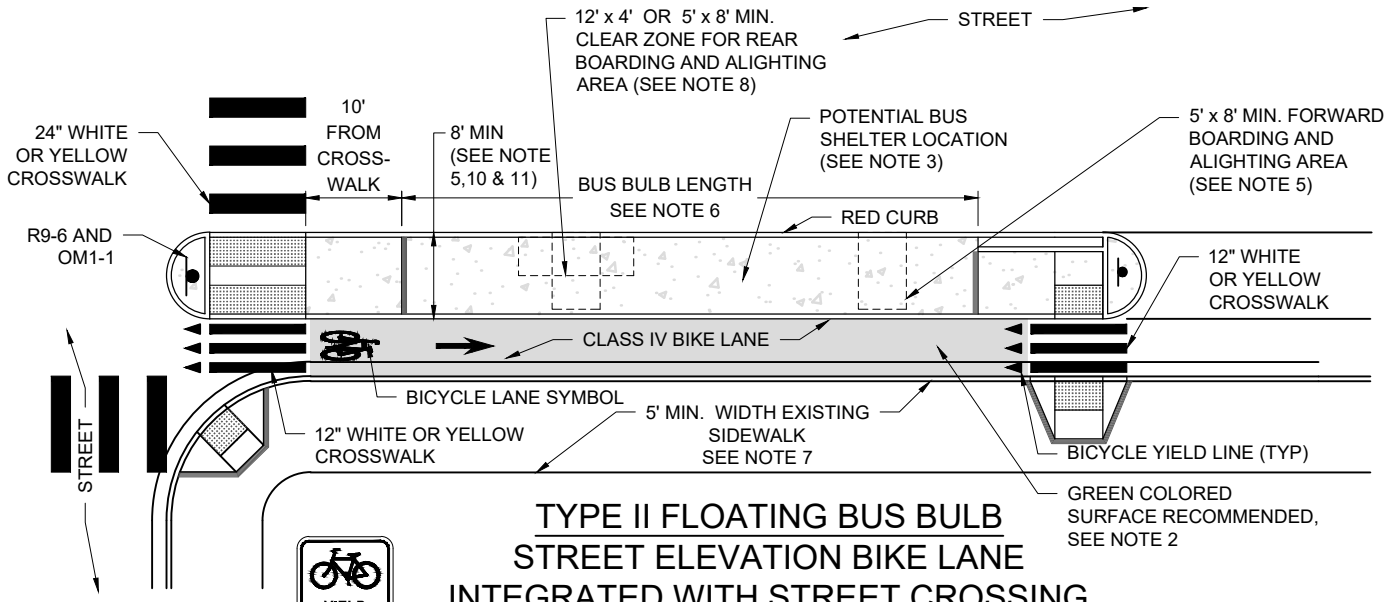
| | | |
|---|---|---|
| Approved July 21, 2010<br>for Rita L. Robinson, General Manager | | |
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
| Tow Away No Stopping In This Area Sign | | 1 / 1 |
| T. E.<br>TC | Sr. T. E. | Pr. T. E. |
| DWN<br>MT 7-20-10 | CKD | Dwg. No.<br>S-521.0 |



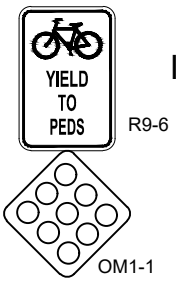

Notes:

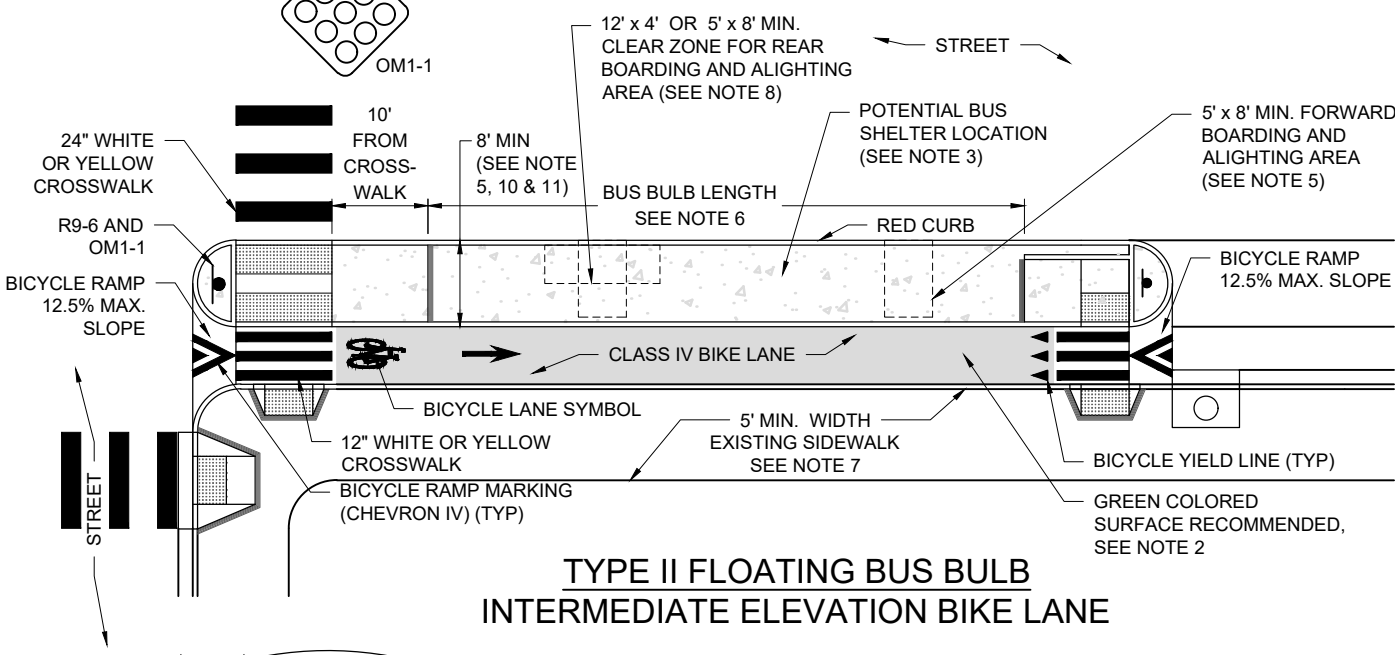
1. Sign shall be fabricated by a qualified, professional sign manufacturer approved by LADOT.
2. Sign size is 18" X 18", and legend lettering size shall be as noted above. The arrow is 1½" in height and can be Double, Left or Right. All lines of legend are to be centered. The border shall be ¼" wide and spaced ¼" from edge of sign.
3. All signs shall include (reading left to right) at the bottom of the sign the following information: a) if fabricated by a private contractor, a manufacture "code" and date of fabrication e.g. "SM 09 / 05", b) "Property of City of Los Angeles", c) LADOT Stock Number (four numbers).
4. The background color is white. All text, arrow and border are red.
5. Sign shall be made of .080 Aluminum and have reflective SEG Type II material with graffiti film.

| | | |
|---|---|---|
| Approved July 21, 2010<br>John L. Fisher<br>for Rita L. Robinson, General Manager | | |
| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | | |
| Tow Away<br>No Stopping Any Time Sign | | 1/1 |
| T. E.<br>TC | Sr. T. E. | Pr. T. E. |
| DWN<br>MT 7-15-10 | CKD | Dwg. No.<br>S-522.0 |

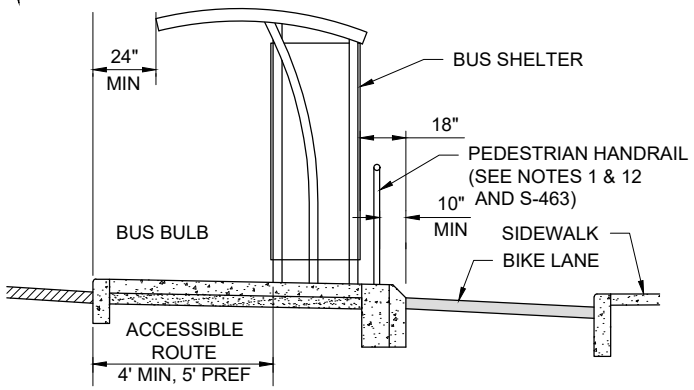



## TYPE II FLOATING BUS BULB
## STREET ELEVATION BIKE LANE
## INTEGRATED WITH STREET CROSSING




## TYPE II FLOATING BUS BULB
## INTERMEDIATE ELEVATION BIKE LANE




## SHELTER AND RAILING
## PLACEMENT GUIDANCE

APPROVED 02-20-2020

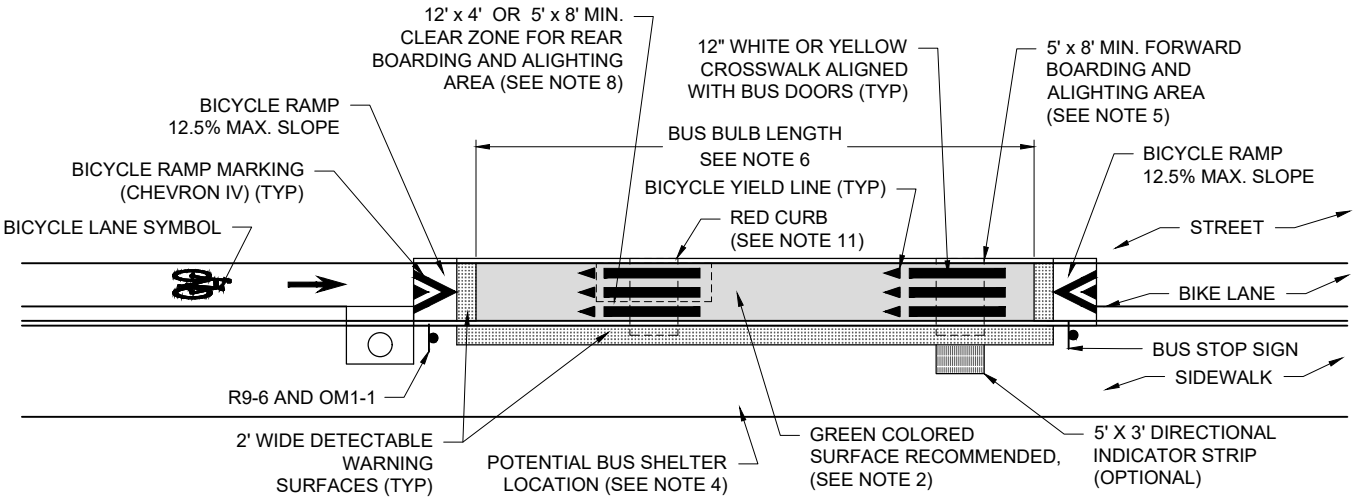
for Seleta Reynolds, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

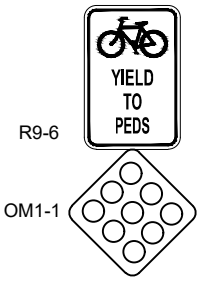
BUS BULBS

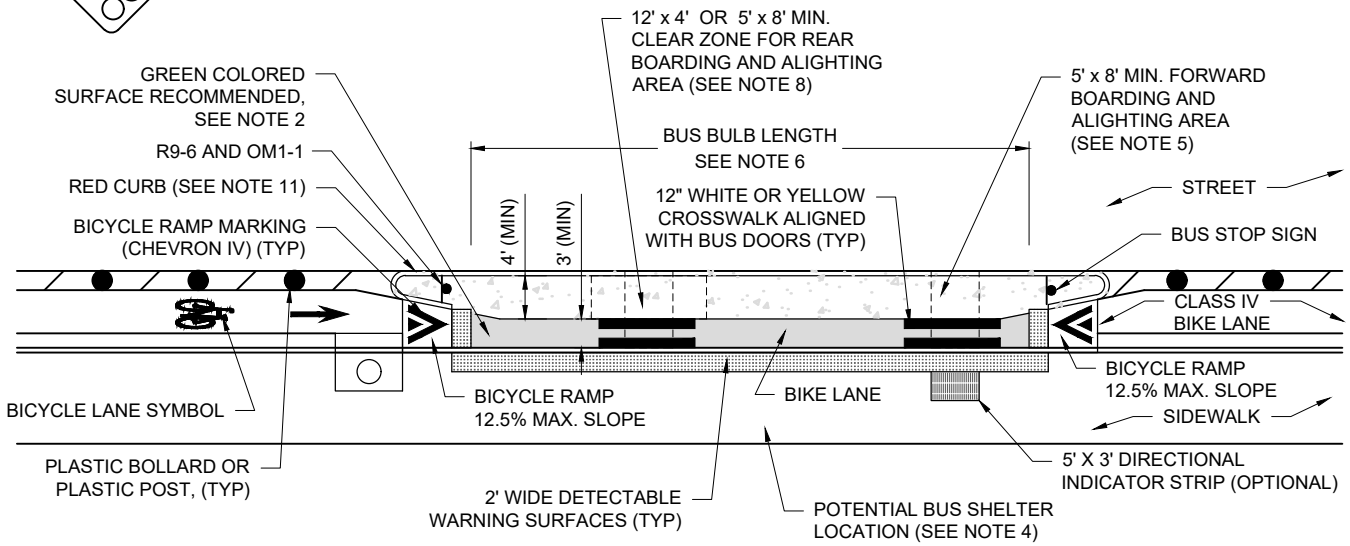
1/4

| CKD. Priv. Engr. | SR. T.E. JV | PR. T.E. BS |
|---|---|---|
| DWN. Priv. Engr. | T.E. MN | S-523.0 |

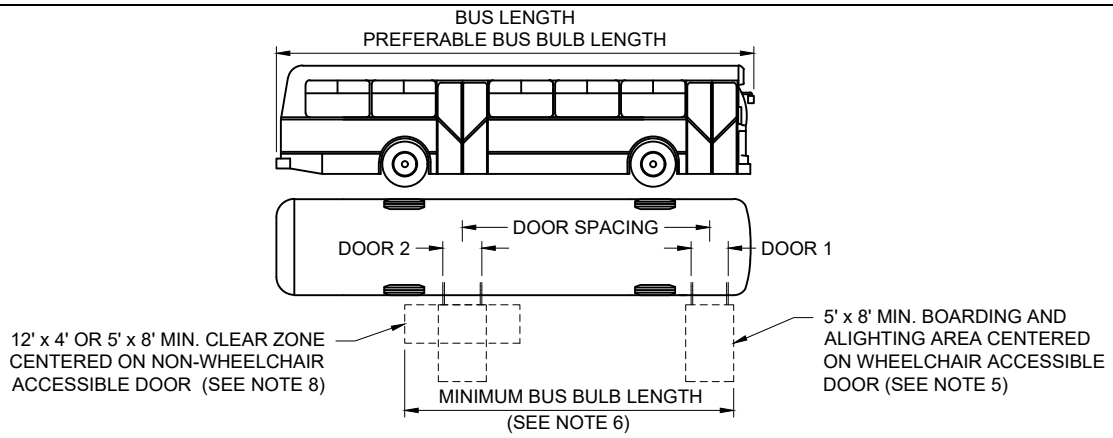



## CONSTRAINED TYPE II BUS BULB
## RAISED BIKE LANE




## CONSTRAINED TYPE II BUS BULB
## RAISED BIKE LANE WITH NARROW BOARDING AND ALIGHTING AREA



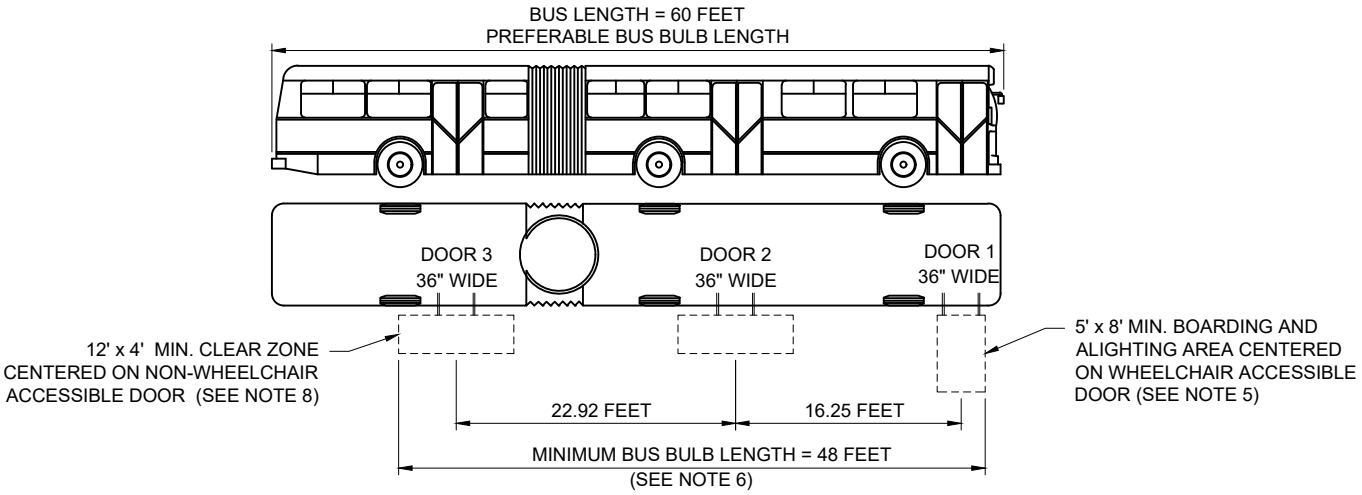

DOOR 1 (FRONT DOOR) DEPICTED AS WHEELCHAIR ACCESSIBLE DOOR

| AGENCY | BUS SERIES | LENGTH (ft) | DOOR SPACING** | | FRONT DOOR WIDTH | | REAR DOOR WIDTH | | ACCESSIBLE DOOR* | TOTAL LENGTH OF DOORS AND SPACE BETWEEN (ft) | MINIMUM BUS BULB LENGTH (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-2 (in) | 1-2 (ft) | (in) | (ft) | (in) | (ft) | | | |
| DASH LADOT | EZRIDER | 32 | 148 | 12.33 | 36 | 3 | 36 | 3 | REAR* | 15.33 | 21 |
| | EZRIDER II | 32 | 156 | 13.00 | 36 | 3 | 36 | 3 | FRONT | 16.00 | 22 |
| | AXESS | 35 | 180 | 15.00 | 36 | 3 | 36 | 3 | FRONT | 18.00 | 24 |
| | GILLIG | 30 | 165 | 13.75 | 36 | 3 | 30 | 2.5 | FRONT | 16.50 | 23 |
| | K9LR | 32 | 156 | 13.00 | 36 | 3 | 36 | 3 | FRONT | 16.00 | 22 |
| | K7M | 30 | 146 | 12.17 | 44 | 3.67 | 47 | 3.92 | REAR* | 15.96 | 21 |
| | PROTERRA | 35 | 221 | 18.42 | 33 | 2.75 | 39 | 3.25 | FRONT | 21.42 | 27 |
| METRO | 1001-1005 | 40 | 237 | 19.75 | 30 | 2.5 | 30 | 2.5 | FRONT | 22.25 | 29 |
| | 3850-4199 | 40 | 249 | 20.75 | 30 | 2.5 | 30 | 2.5 | FRONT | 23.25 | 30 |
| | 4200-4205 | 42 | 195 | 16.25 | 36 | 3 | 36 | 3 | FRONT | 19.25 | 25 |
| | 5300-5522 | 40 | 257 | 21.42 | 30 | 2.5 | 30 | 2.5 | FRONT | 23.92 | 30 |
| | 5600-6149 | 40 | 249 | 20.75 | 30 | 2.5 | 30 | 2.5 | FRONT | 23.25 | 30 |
| | 7000-7949 | 40 | 207 | 17.25 | 30 | 2.5 | 30 | 2.5 | FRONT | 19.75 | 26 |
| | 7980 | 40 | 208 | 17.33 | 30 | 2.5 | 30 | 2.5 | FRONT | 19.83 | 26 |
| | 8000-8650 | 45 | 255 | 21.25 | 30 | 2.5 | 30 | 2.5 | FRONT | 23.75 | 30 |

* DRAWING DEPICTS ACCESSIBLE DOOR AT FRONT OF BUS. IF ACCESSIBLE DOOR IS AT REAR OF BUS, 5' x 8' BOARDING AND ALIGHTING AREA MUST BE LOCATED AT REAR DOOR AND 12' x 4' BOARDING ALIGHTING AREA WILL BE LOCATED AT FRONT DOOR. ENSURE THAT ACCESSIBLE AREAS ARE PROVIDED BASED ON ALL BUSES EXPECTED TO USE THE BUS STOP.

** DOOR SPACING MEASURED CENTER TO CENTER ON THE DOORS.

## BUS BULB LENGTHS (STANDARD BUS)




## BUS BULB LENGTHS
## (METRO 9200-9595 SERIES ARTICULATED BUS)

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: BUS BULBS | Drawing No.: S-523.0 | 3/4 |
|---|---|---|---|

NOTES

1. SEE CITY OF LOS ANGELES SUPPLEMENTAL STREET DESIGN GUIDE, DETAIL 400 FOR BUS BULB DETAILS.

2. OPTIONAL USE OF GREEN COLORED PAVEMENT TO ENHANCE VISIBILITY AND CONSPICUITY OF BICYCLE LANE. GREEN COLORED PAVEMENT MAY BE INSTALLED FOR THE ENTIRE LENGTH OF THE BICYCLE LANE OR FOR ONLY A PORTION (OR PORTIONS) OF THE BICYCLE LANE. ALL GREEN COLORED PAVEMENT SHOULD COMPLY WITH FHWA INTERIM APPROVAL FOR OPTIONAL USE OF GREEN COLORED PAVEMENT FOR BIKE LANES (IA-14), AND APPROVED BY LADOT.

3. BUS SHELTERS LOCATED ON BUS BULBS MUST BE CHOSEN AND LOCATED TO MAINTAIN A MINIMUM 4 FOOT CLEAR ACCESSIBLE PATH BETWEEN THE SHELTER, CROSSWALKS, AND BUS BOARDING AND ALIGHTING AREAS.

4. BUS SHELTERS LOCATED ON SIDEWALKS MUST BE CHOSEN AND LOCATED TO MAINTAIN A MINIMUM 4 FOOT CLEAR ACCESSIBLE PATH BETWEEN THE SHELTER, CROSSWALKS, AND BUS BOARDING AND ALIGHTING AREAS. BUS SHELTERS SHALL NOT BE PLACED ON CONSTRAINED BUS BULBS. THEY MUST BE PLACED ON THE SIDEWALKS, IF USED.

5. A MINIMUM 5-FOOT WIDE BY 8-FOOT DEEP BOARDING AND ALIGHTING AREA, WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION, IS REQUIRED AT FORWARD LOADING AREA ADJACENT TO THE BUS DOOR. THE 8-FOOT DEPTH MAY INCLUDE THE ADJACENT CURBLINE, BUT IS EXCLUSIVE OF ANY RAILING OR BATTERED CURB SPACE; AS SUCH THE PHYSICAL WIDTH OF THE CONSTRUCTED BUS BULB MAY NEED TO EXCEED 8-FEET. A 4-FOOT MINIMUM CLEAR ACCESSIBLE ROUTE MUST BE PROVIDED BETWEEN THE BOARDING AND ALIGHTING AREA AND THE SIDEWALK. AN ACCESSIBLE ROUTE MUST ALSO BE PROVIDED BETWEEN ANY PROVIDED BUS SHELTERS AND THE BOARDING AND ALIGHTING AREA. IF A BUS BULB SERVES MULTIPLE TRANSIT VEHICLE STOPS SIMULTANEOUSLY, BOARDING AND ALIGHTING AREAS MUST BE PROVIDED AT EACH VEHICLE DOOR AND ACCESSIBLE ROUTES PROVIDED ACCORDINGLY.

6. THE MINIMUM BUS BULB LENGTH IS IDENTIFIED IN THE TABLE ON SHEET 3, BUT THE PREFERABLE LENGTH IS BASED ON THE LENGTH OF THE BUS(ES) EXPECTED TO USE THE BUS STOP. IF MULTIPLE BUSES ARE EXPECTED TO USE THE STOP AT THE SAME TIME, THE LENGTH SHOULD BE BASED ON THE BUS LENGTH(S) WITH 20-FEET OF SEPARATION BETWEEN THE BUSES. THE LENGTH OF A BUS BULB IS EXCLUSIVE OF ALL PEDESTRIAN RAMPS.

7. AT LOCATIONS WHERE THE SIDEWALK IS LESS THAN 5 FEET IN WIDTH, A CONSTRAINED BUS BULB SHOULD BE CONSIDERED.

8. A MINIMUM 12-FOOT X 4-FOOT CLEAR SPACE, WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION IS RECOMMENDED AT ALL REAR BUS DOORS. IF THE REAR DOOR SERVES AS THE WHEELCHAIR ACCESSIBLE LOADING DOOR, A 5-FOOT X 8-FOOT LOADING AREA IS REQUIRED

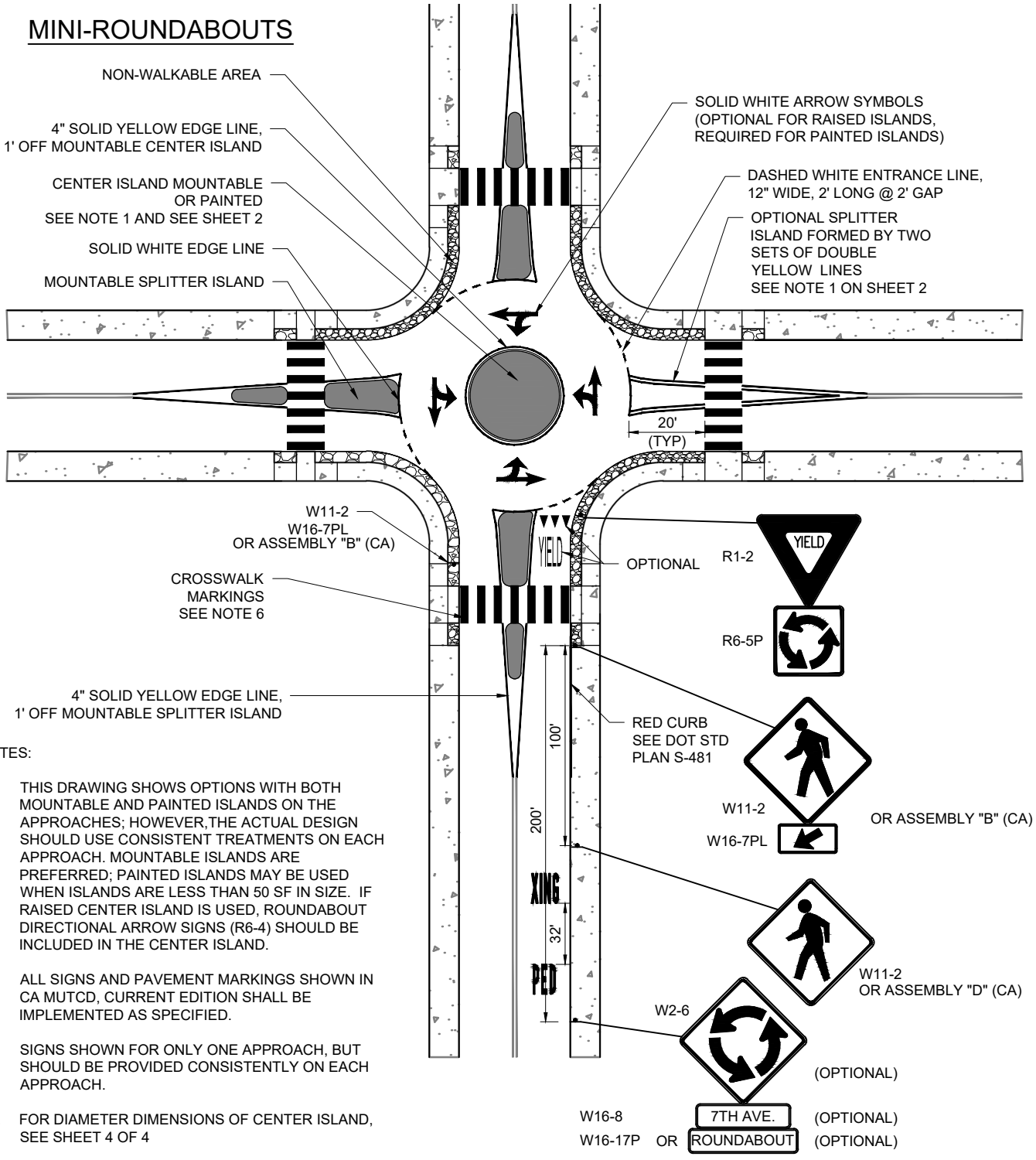
9. SEE TABLE ON SHEET 3 OF 4 FOR DASH AND METRO BUS DETAILS AND THE CORRESPONDING MINIMUM AND RECOMMENDED BUS BULB LENGTHS.

10. A MINIMUM OF 24 INCH SETBACK IS NEEDED FROM THE FACE OF CURB TO A BUS SHELTER CANOPY IF PROVIDED. A MINIMUM OF 18 INCH SETBACK IS RECOMMENDED FROM A BIKE LANE FACE OF CURB TO THE FACE OF ANY REAR SUPPORT POSTS. THE SELECTION OF BUS SHELTER TYPES AND BUS BULB WIDTHS MUST BE COORDINATED TO ENSURE CLEARANCES AND NECESSARY ACCESSIBLE ROUTES ARE PROVIDED.

11. BUS BULBS SHALL HAVE RED CURB ALONG THEIR ENTIRE LENGTH ADJACENT TO THE STREET. ADDITIONAL RED CURB PRIOR TO AND AFTER THE BUS BULB MAY BE REQUIRED BY LADOT.

12. A HANDRAIL IS REQUIRED IF DROP-OFF FROM THE BUS BULB TO THE ADJACENT BIKE LANE EXCEEDS 8 INCHES. A MINIMUM OF 10 INCH SETBACK IS NEEDED FROM A BIKE LANE FACE OF CURB TO THE FACE OF PEDESTRIAN HAND RAIL ON THE BUS BULB.

# MINI-ROUNDABOUTS




NOTES:

1. THIS DRAWING SHOWS OPTIONS WITH BOTH MOUNTABLE AND PAINTED ISLANDS ON THE APPROACHES; HOWEVER,THE ACTUAL DESIGN SHOULD USE CONSISTENT TREATMENTS ON EACH APPROACH. MOUNTABLE ISLANDS ARE PREFERRED; PAINTED ISLANDS MAY BE USED WHEN ISLANDS ARE LESS THAN 50 SF IN SIZE. IF RAISED CENTER ISLAND IS USED, ROUNDABOUT DIRECTIONAL ARROW SIGNS (R6-4) SHOULD BE INCLUDED IN THE CENTER ISLAND.
2. ALL SIGNS AND PAVEMENT MARKINGS SHOWN IN CA MUTCD, CURRENT EDITION SHALL BE IMPLEMENTED AS SPECIFIED.
3. SIGNS SHOWN FOR ONLY ONE APPROACH, BUT SHOULD BE PROVIDED CONSISTENTLY ON EACH APPROACH.
4. FOR DIAMETER DIMENSIONS OF CENTER ISLAND, SEE SHEET 4 OF 4
5. INSTALL NEW CURB RAMPS AND CROSSWALKS AS SHOWN. DIAGONAL RAMPS MAY NOT BE USED. EXISTING RAMPS WITHIN THE CIRCULATING LANE MUST BE REMOVED.
6. CROSSWALKS MAY BE SUPPLEMENTED WITH PEDESTRIAN ACTIVATED RECTANGULAR RAPID FLASHING BEACONS (RRFB'S).
7. SEE CITY OF LOS ANGELES SUPPLEMENTAL STREET DESIGN GUIDE DETAIL 710 FOR MINI-ROUNDABOUT DETAILS.

APPROVED 02–20–2020

for Seleta Reynolds, General Manager

CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

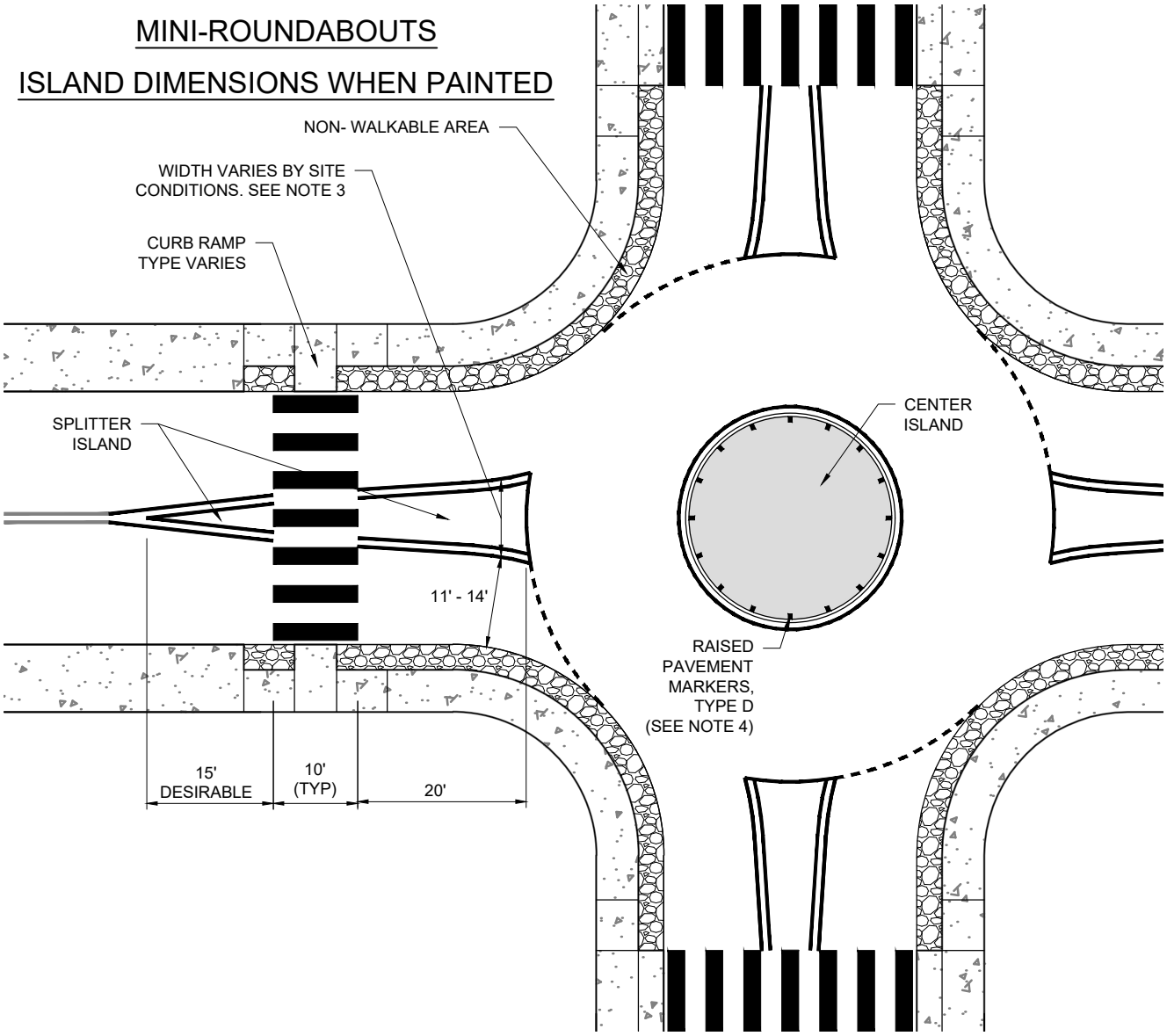
MINI–ROUNDABOUTS AND NEIGHBORHOOD TRAFFIC CIRCLES

1 / 4

| CKD. Priv. Engr. | SR. T.E. JV | PR. T.E. BS |
|---|---|---|
| DWN. Piv. Engr. | T.E. MN | S–524.0 |

# MINI-ROUNDABOUTS

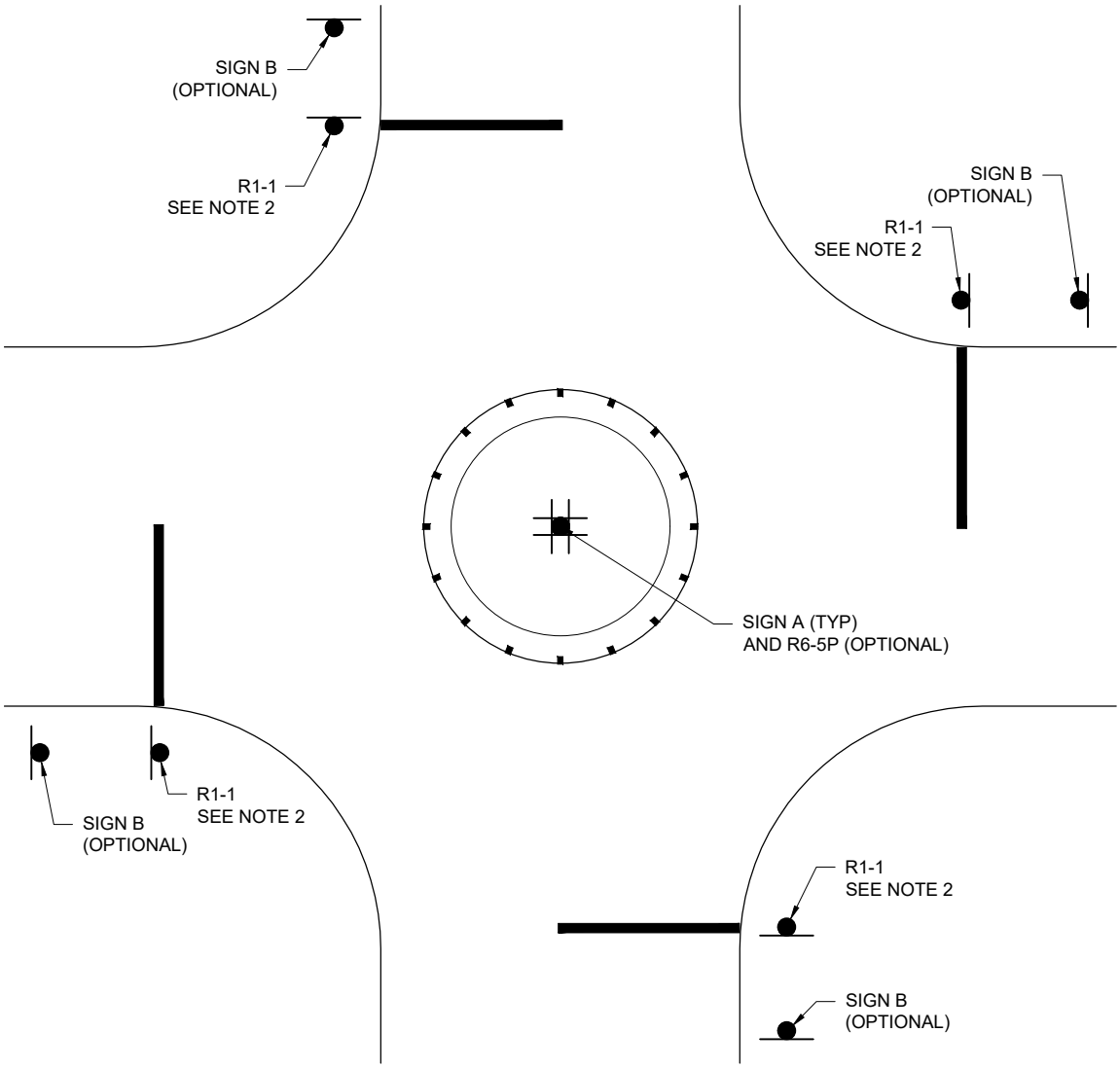
## ISLAND DIMENSIONS WHEN PAINTED



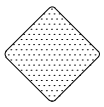

NOTES:

1. PAINTED SPLITTER ISLANDS MAY BE USED WHEN SITE GEOMETRY LEADS TO ISLANDS LESS THAN 50 SF IN SIZE.
2. USE DIMENSION SCHEDULE ON SHEET 4 OF 4 AS A DESIGN GUIDE. FINAL DIMENSIONS TO BE DETERMINED BY THE ENGINEER.
3. WHERE CROSSING STREETS ARE NOT THE SAME WIDTH, CONSIDER CURB EXTENSIONS ON WIDER ROAD TO CREATE CONSISTENT APPROACH WIDTHS.
4. TYPE D PAVEMENT MARKERS PLACED ON THE YELLOW CENTERLINE ARE REQUIRED FOR PAINTED CENTER ISLANDS AND SPLITTER ISLANDS AND RECOMMENDED FOR RAISED SPLITTER AND CENTER ISLANDS.
   USE 12 FOR <= 15' DIA.
   USE 16 FOR > 15' DIA. < 20' DIA.
   USE 20 FOR >= 20' DIA.

# NEIGHBORHOOD TRAFFIC CIRCLES

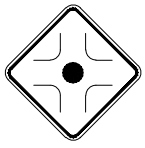



SIGN A



18" X 18" YELLOW HIGH INTENSITY TYPE 1 OBJECT MARKER PLACED IN TRAFFIC CIRCLE FOR EACH APPROACH. ALL SIGNS TO BE MOUNTED ON SINGLE POST. LOCATION TO BE DETERMINED BY ENGINEER. SIGN HEIGHT: 5' FROM BOTTOM OF LOWER SIGN TO BARK MULCH.

SIGN B

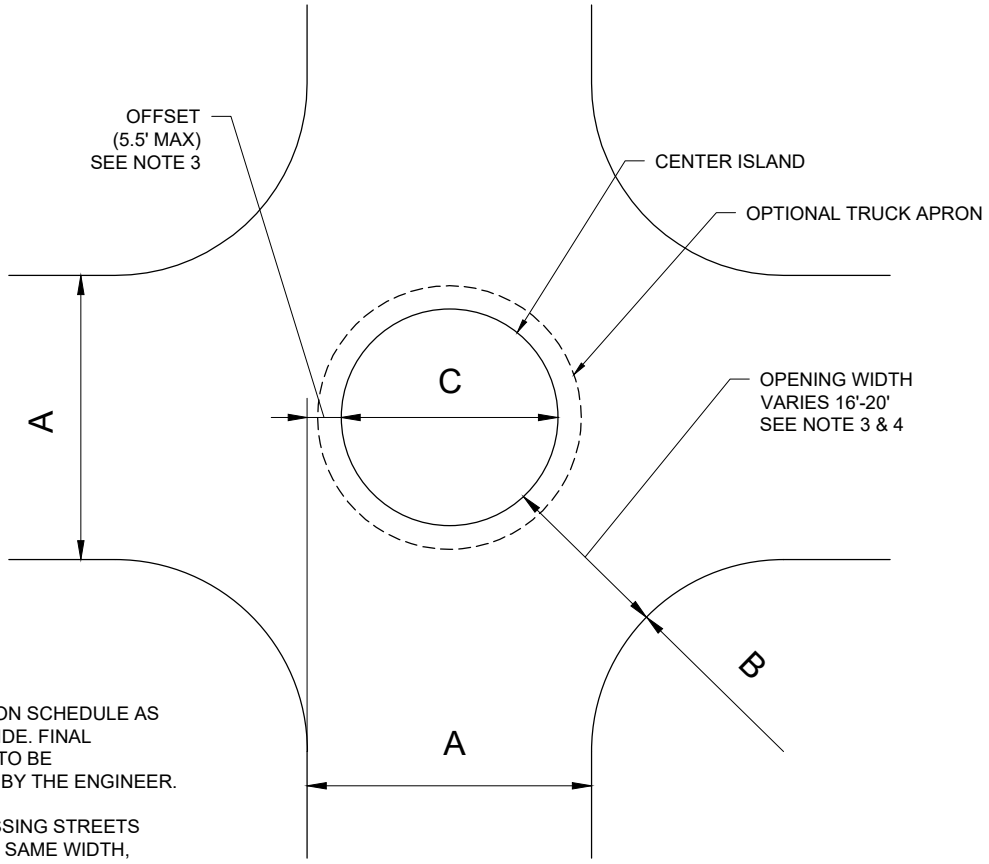


30" X 30" BLACK ON YELLOW PLACED 75' TO 100' BACK FROM TRAFFIC CIRCLE ON EACH APPROACH (OPTIONAL).

NOTES

1. SEE CITY OF LOS ANGELES SUPPLEMENTAL STREET DESIGN GUIDE, DETAIL 700 FOR NEIGHBORHOOD TRAFFIC CIRCLE DETAILS.
2. TWO-WAY STOP CONTROL IS OPTIONAL.
3. USE DIMENSION SCHEDULE AS SHOWN ON SHEET 4 OF 4 AS A DESIGN GUIDE. FINAL DIMENSIONS TO BE DETERMINED BY THE ENGINEER.

# CENTER ISLAND GEOMETRY




NOTES

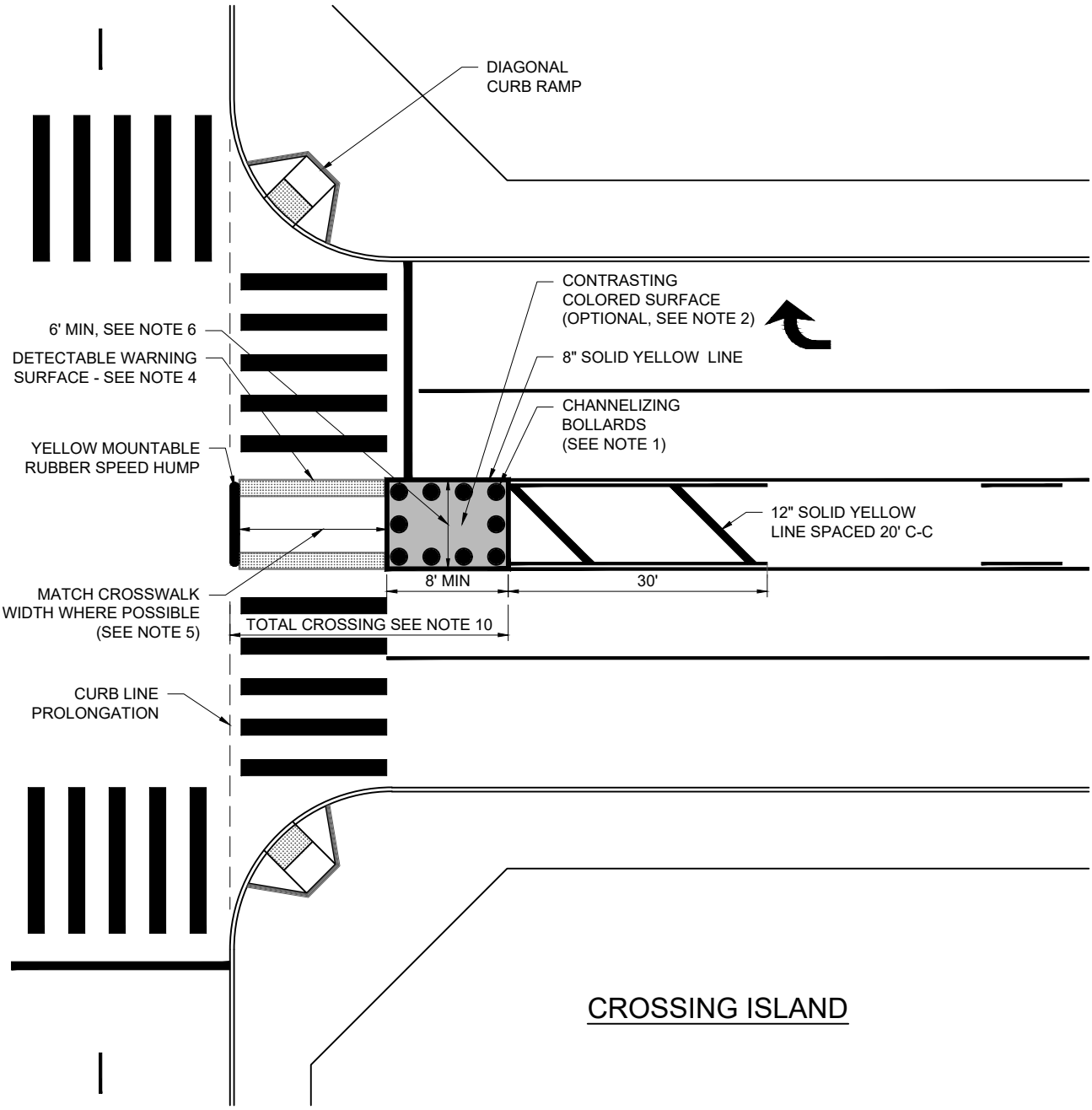
1. USE DIMENSION SCHEDULE AS A DESIGN GUIDE. FINAL DIMENSIONS TO BE DETERMINED BY THE ENGINEER.
2. WHERE CROSSING STREETS ARE NOT THE SAME WIDTH, CONSIDER CURB EXTENSIONS ON WIDER ROAD TO CREATE CONSISTENT APPROACH WIDTHS.
3. FOR LOCATIONS WITH NON-STANDARD STREET WIDTHS, THE RELATIONSHIP BETWEEN THE OFFSET AND THE OPENING WIDTH IS DETERMINED BY THE OPENING WIDTH TABLE:
4. WHERE THE CIRCULATING WIDTH IS LESS THAN 20 FEET WIDE, A MOUNTABLE TRUCK APRON MAY BE REQUIRED.

## OPENING WIDTH

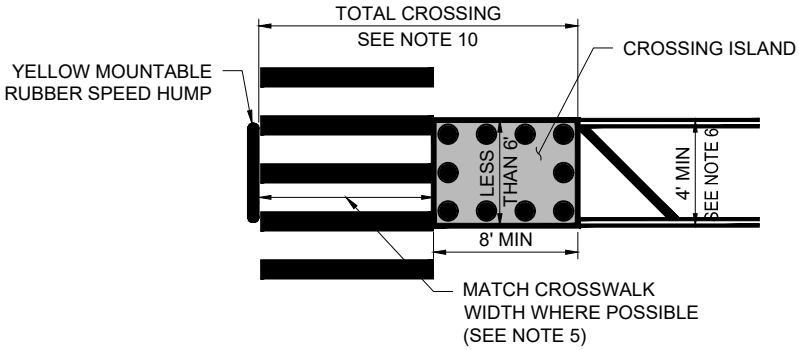
| OFFSET | OPENING WIDTH |
|---|---|
| 5.5' (MAX) | 16' (MIN) |
| 5.0 | 17' |
| 4.5 | 18' |
| 4.0 | 19' |
| 3.5 OR LESS | 20' (MAX) |

## DIMENSIONS

| A<br>STREET<br>WIDTH | B<br>CURB RETURN<br>RADIUS | C<br>CENTER ISLAND<br>DIAMETER |
|---|---|---|
| 28'<br>(HILLSIDE LIMITED<br>STANDARD) | 15'<br>20'<br>25' | 18'<br>20'<br>22' |
| 30'<br>(LOCAL STREET<br>LIMITED) | 15'<br>20'<br>25' | 20'<br>22'<br>24' |
| 36'<br>(LOCAL STREET<br>STANDARD) | 15'<br>20'<br>25' | 27'<br>29'<br>33' |
| 40'<br>(COLLECTOR) | 15'<br>20'<br>25' | 32'<br>34'<br>38' |




## CROSSING ISLAND




## OPTION WHEN ISLAND IS LESS THAN 6' WIDE

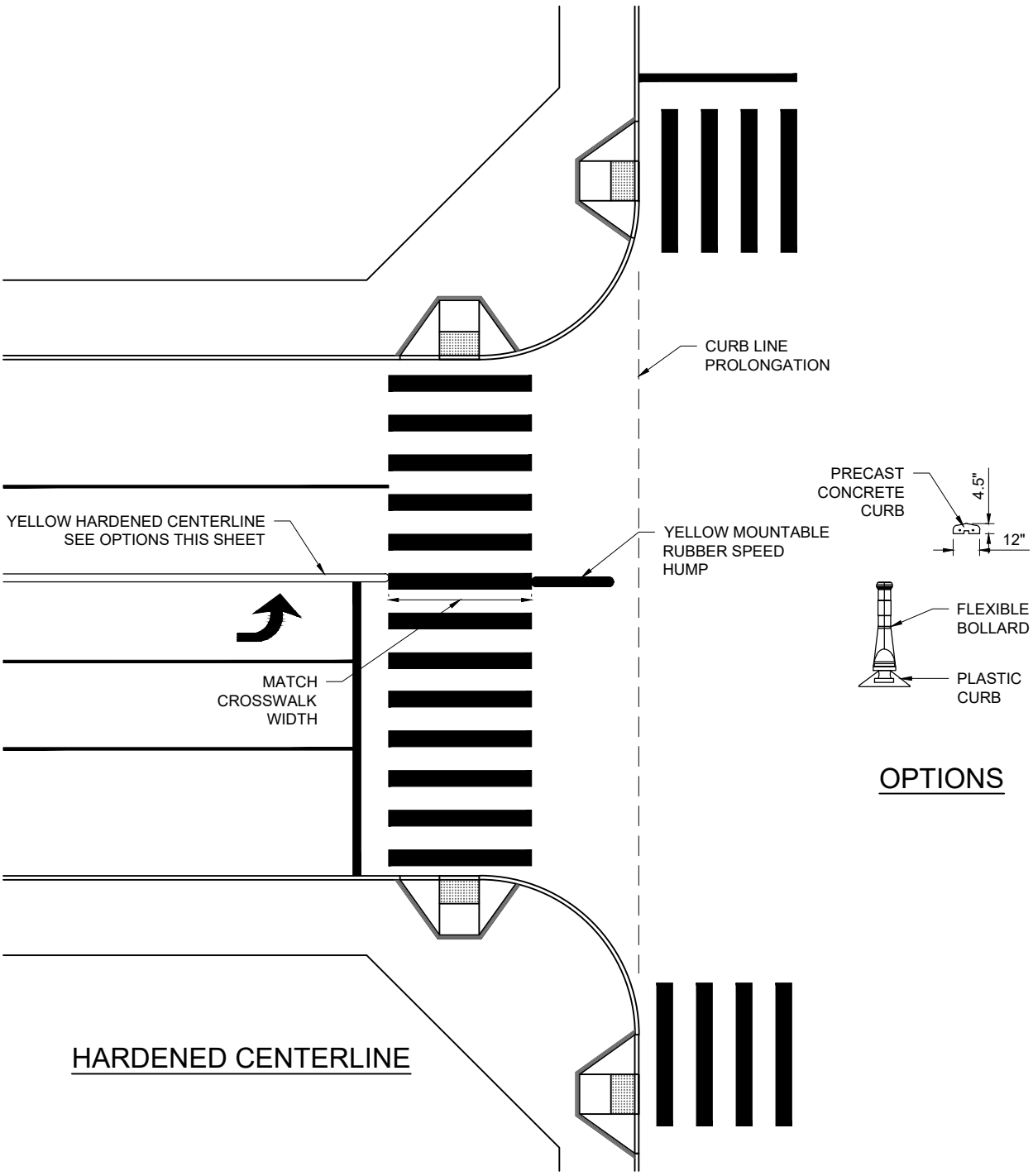
APPROVED 02–20–2020

for Seleta Reynolds, General Manager

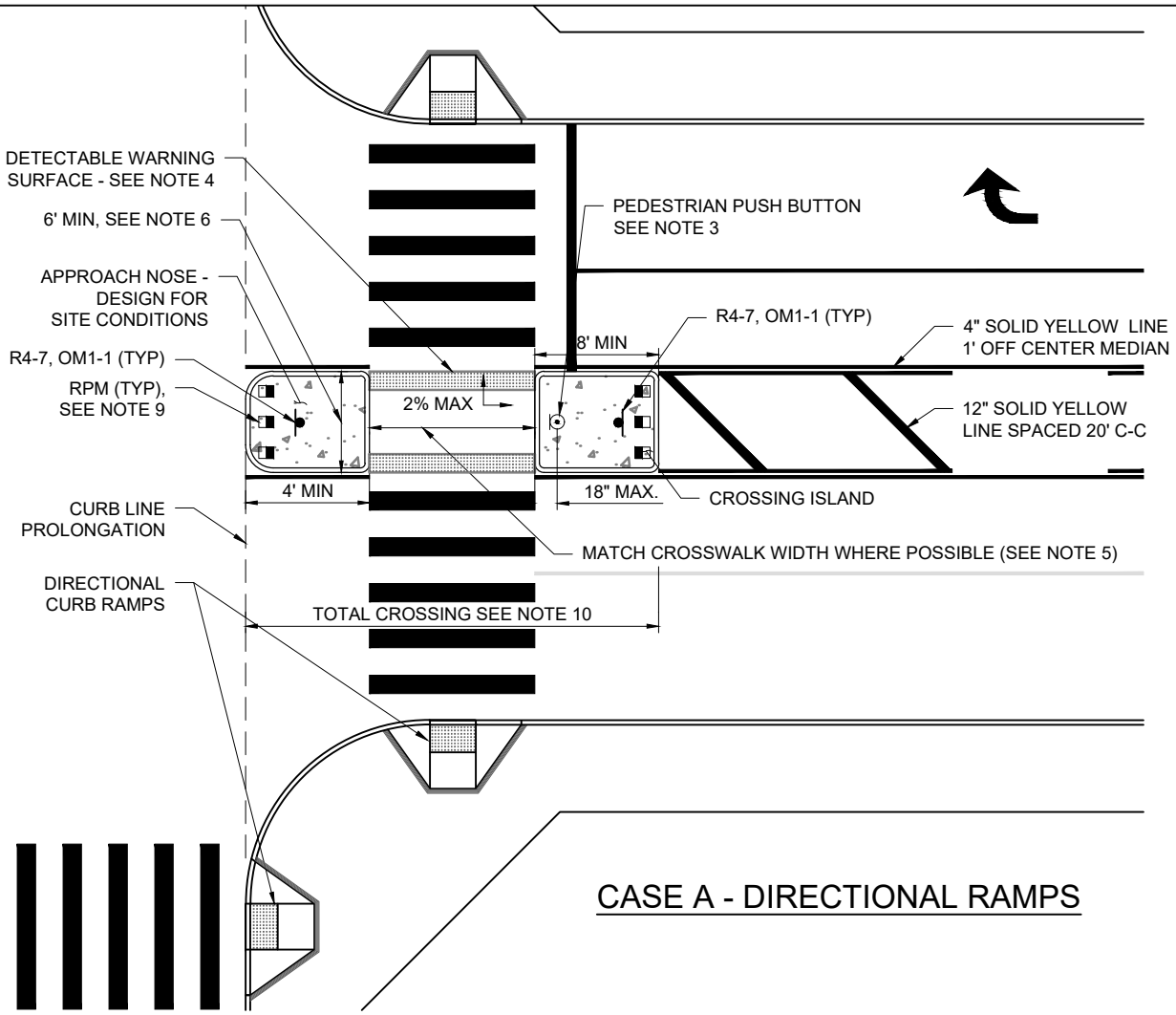
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

CROSSING ISLANDS 1/5

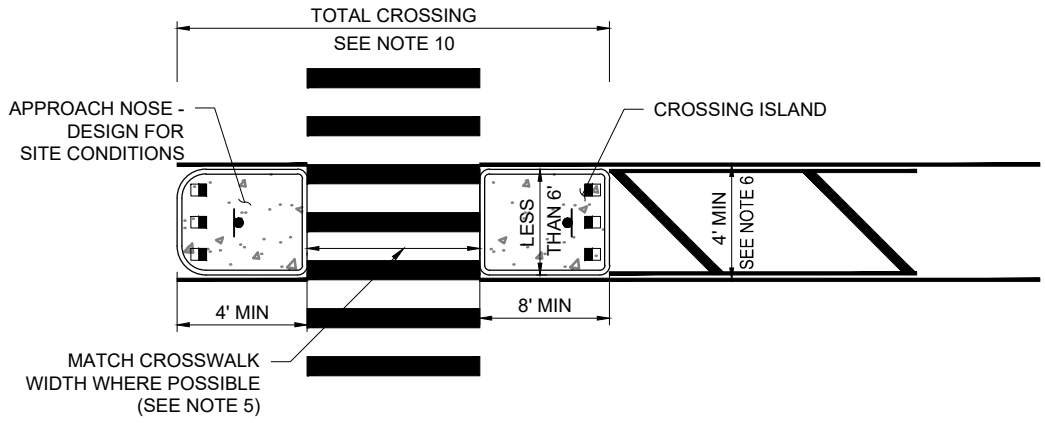
| CKD. Priv. Engr. | SR. T.E. JV | PR. T.E. BS |
|---|---|---|
| DWN. Priv. Engr. | T.E. MN | S–525.0 |




| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>CROSSING ISLANDS | Drawing No.<br>S–525.0 | 2<br>5 |
|---|---|---|---|



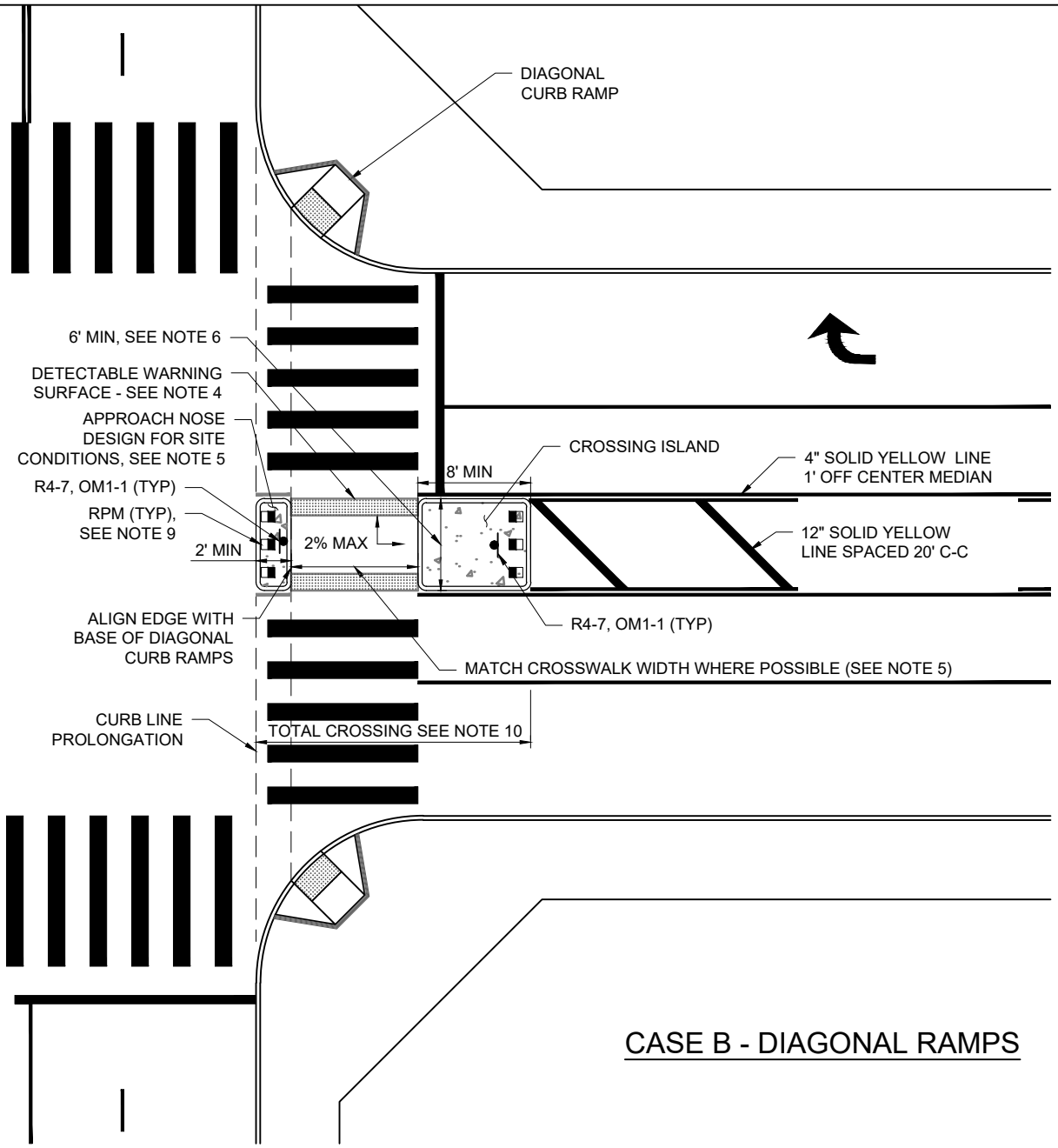

## CASE A - DIRECTIONAL RAMPS



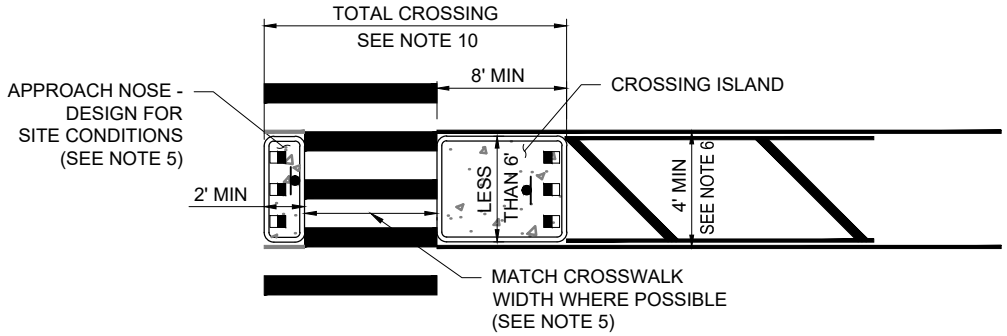

## OPTION WHEN ISLAND IS LESS THAN 6' WIDE

SEE NOTE 3

| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | Title: CROSSING ISLANDS | Drawing No.: S-525.0 | 3/5 |
|---|---|---|---|




## CASE B - DIAGONAL RAMPS




## OPTION WHEN ISLAND IS LESS THAN 6' WIDE

SEE NOTE 3

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>CROSSING ISLANDS | Drawing No.<br>S-525.0 | 4<br>5 |
|---|---|---|---|

NOTES

1. BOLLARDS SHALL BE LOCATED 6 INCHES BEHIND THE EDGE LINE. BOLLARDS MAY BE SPACED BETWEEN 24 INCHES AND 60 INCHES TO ENSURE A MINIMUM OF THREE BOLLARDS ARE PROVIDED. AN EVEN SPACING BETWEEN BOLLARDS SHOULD BE SELECTED. BOLLARDS SHOULD NOT BE LOCATED WITHIN A CROSSWALK OR PARKING LANE.

2. THE PAVEMENT SURFACE MAY BE COLORED TO ENHANCE THE CONTRAST BETWEEN THE ADJACENT TRAVELLED WAY AND THE CURB EXTENSION WITH MATERIALS APPROVED BY CITY.

3. AT SIGNALIZED INTERSECTIONS, IF THE CROSSING ISLAND IS AT LEAST 6 FEET WIDE, THEN A PEDESTRIAN PUSH BUTTON MAY BE PROVIDED WITHIN THE CROSSING ISLAND WITH LADOT APPROVAL. PUSH BUTTONS SHOULD BE LOCATED AT THE CENTER OF THE ISLAND, BUT WIDER ISLANDS MAY NECESSITATE TWO PUSH BUTTONS CLOSER TO THE EDGE OF THE ISLAND. PUSH BUTTONS SHOULD BE LOCATED WITHIN 18 INCHES FROM CURB FACE. IF CROSSING ISLANDS ARE LESS THAN 6 FEET WIDE, THEN PEDESTRIAN CROSSING SIGNALS MUST BE TIMED TO ALLOW COMPLETE CROSSING AND NO PUSH BUTTONS SHALL BE LOCATED IN THE CROSSING ISLAND.

4. DETECTABLE WARNING SURFACES SHALL BE USED IF CROSSING ISLAND SERVES AS A PEDESTRIAN REFUGE. DETECTABLE WARNING SHALL BE 36" DEEP WHEN THE CROSSING ISLAND IS 8' OR MORE IN WIDTH. BETWEEN 6' AND 8', THE DETECTABLE WARNING SHALL BE 24" DEEP. THE DETECTABLE WARNING SHALL BE PLACED AT THE EDGES OF THE PEDESTRIAN ISLAND OR CUT-THROUGH MEDIAN, AND SHALL BE SEPARATED BY 24" MINIMUM OF WALKING SURFACE WITHOUT DETECTABLE WARNINGS.

5. IF THE PEDESTRIAN MEDIAN OPENING IS GREATER THAN 20 FEET WIDE, THEN A BOLLARD MAY BE CONSIDERED TO PREVENT VEHICLES FROM ENCROACHING INTO THE PEDESTRIAN REFUGE SPACE. NARROWING THE PEDESTRIAN MEDIAN OPENING TO LESS THAN THE CROSSWALK WIDTH MAY BE CONSIDERED IN ORDER TO CREATE SUFFICIENT SPACE FOR AN APPROACH NOSE.

6. A MINIMUM OF 6 FOOT WIDTH IS REQUIRED TO PROVIDE PEDESTRIAN REFUGE. WIDTHS OF 8 TO 10 FEET ARE PREFERRED WHERE PEDESTRIAN VOLUMES ARE HIGH, WHERE PEOPLE WITH MOBILITY DEVICES CROSS, OR WHERE BICYCLISTS CROSS. THE MINIMUM WIDTH IS 4 FEET, BELOW WHICH A HARDENED CENTERLINE IS PREFERRED WHERE IT IS DESIRED TO SLOW LEFT-TURNING MOTORISTS.

7. WHEN DIAGONAL RAMPS ARE PRESENT, AN APPROACH NOSE MAY BE ADDED BY NARROWING THE CROSSING WIDTH (SEE NOTE 5). WHEN THIS IS NOT DESIRABLE, A RUBBERIZED MOUNTABLE APPROACH NOSE SHALL BE USED INSTEAD.

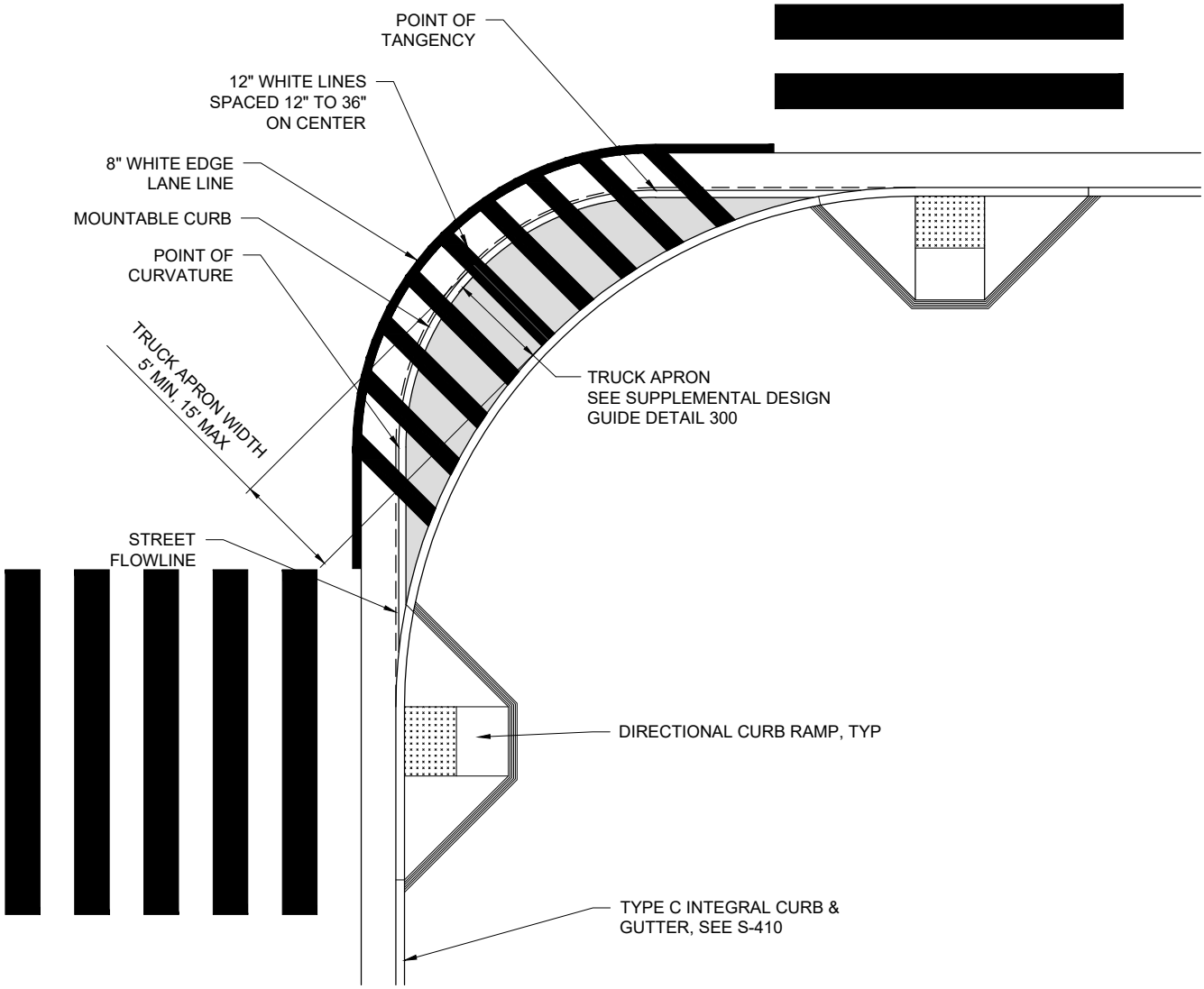
8. LANDSCAPING OF CROSSING ISLANDS SHALL FOLLOW SECTION E 467.3 OF THE BUREAU OF ENGINEERING STREET DESIGN MANUAL.

9. RAISED PAVEMENT MARKERS (RPM'S) ONE-WAY CLEAR (WHITE) OR ONE-WAY AMBER (YELLOW) SPACED 2' CENTER-TO-CENTER MAY BE INSTALLED ON THE CROSSING ISLAND DEPENDING ON ITS LOCATION.

10. THE TOTAL LENGTH OF THE CROSSING ISLANDS AND CROSSWALK SHALL BE LIMITED TO 30 FEET OR LESS ON STREETS WITH ONLY ONE THROUGH LANE IN EACH DIRECTION.

11. SEE CITY OF LOS ANGELES SUPPLEMENTAL STREET DESIGN GUIDE, DETAIL 500 FOR CROSSING ISLAND DETAILS.

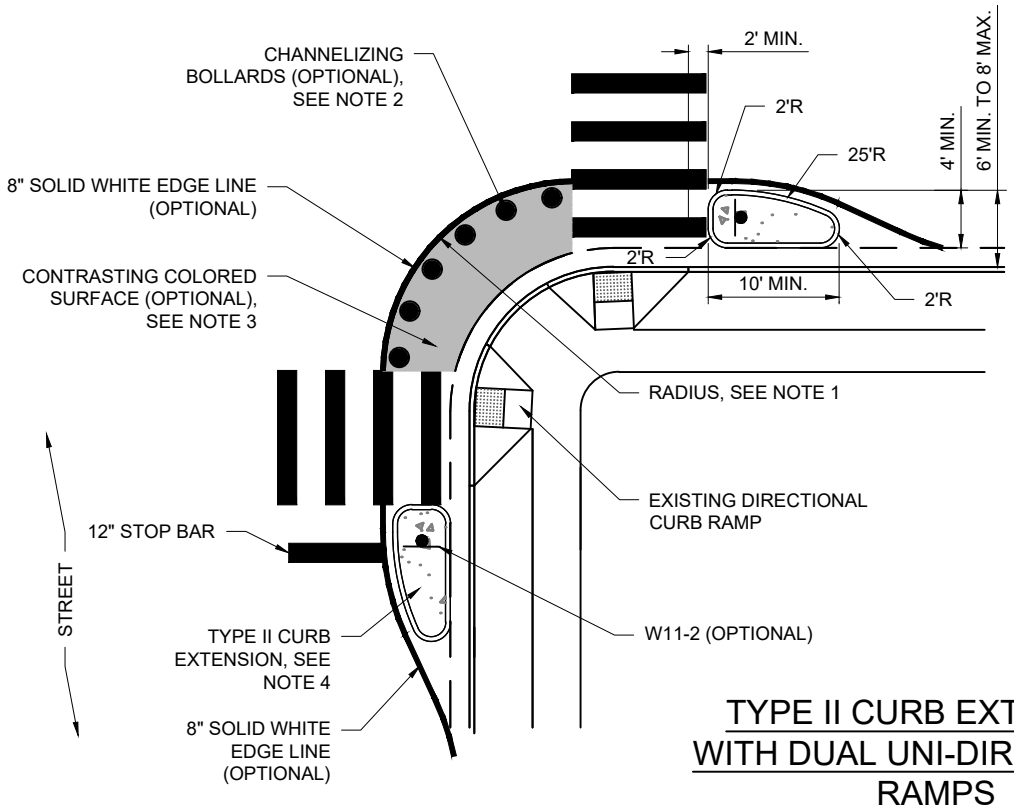
# MOUNTABLE TRUCK APRON



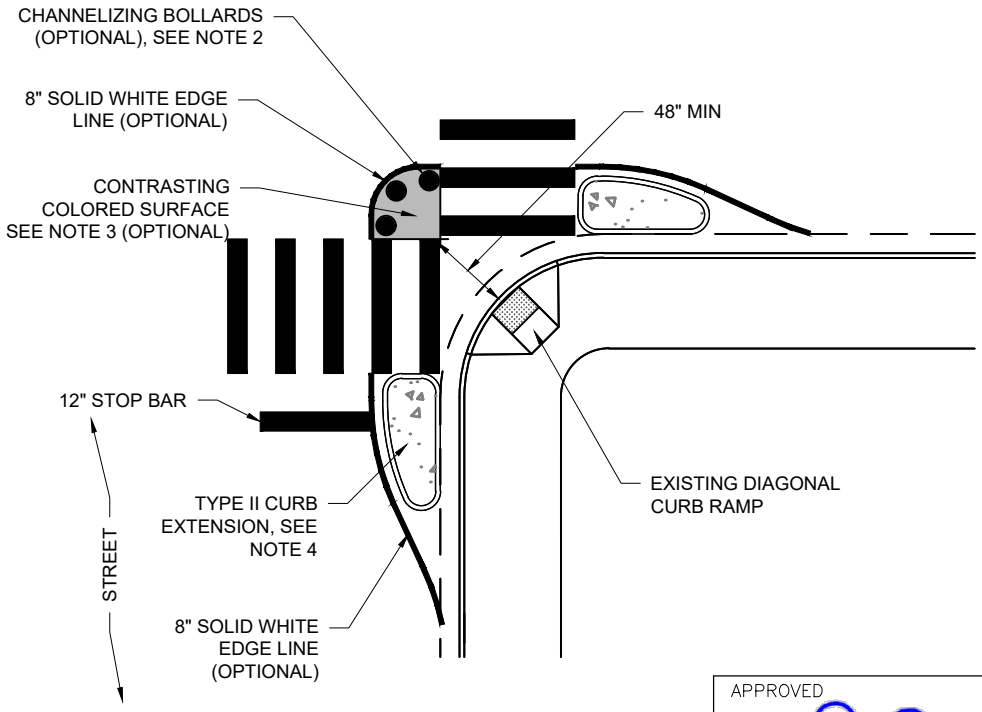

NOTE:

1. SEE CITY OF LOS ANGELES SUPPLEMENTAL STREET DESIGN GUIDE, DETAIL 300 FOR TRUCK APRON DETAILS.

| | | |
|---|---|---|
| APPROVED 02-20-2020 | | |
| for Seleta Reynolds, General Manager | | |
| CITY OF LOS ANGELES DEPARTMENT OF TRANSPORTATION | | |
| TRUCK APRONS | | 1/1 |
| CKD. Priv. Engr | SR. T.E. JV | PR. T.E. BS |
| DWN. Priv. Engr. | T.E. MN | S-526.0 |




## TYPE II CURB EXTENSION WITH DUAL UNI-DIRECTIONAL RAMPS




## TYPE II CURB EXTENSION WITH DIAGONAL RAMP

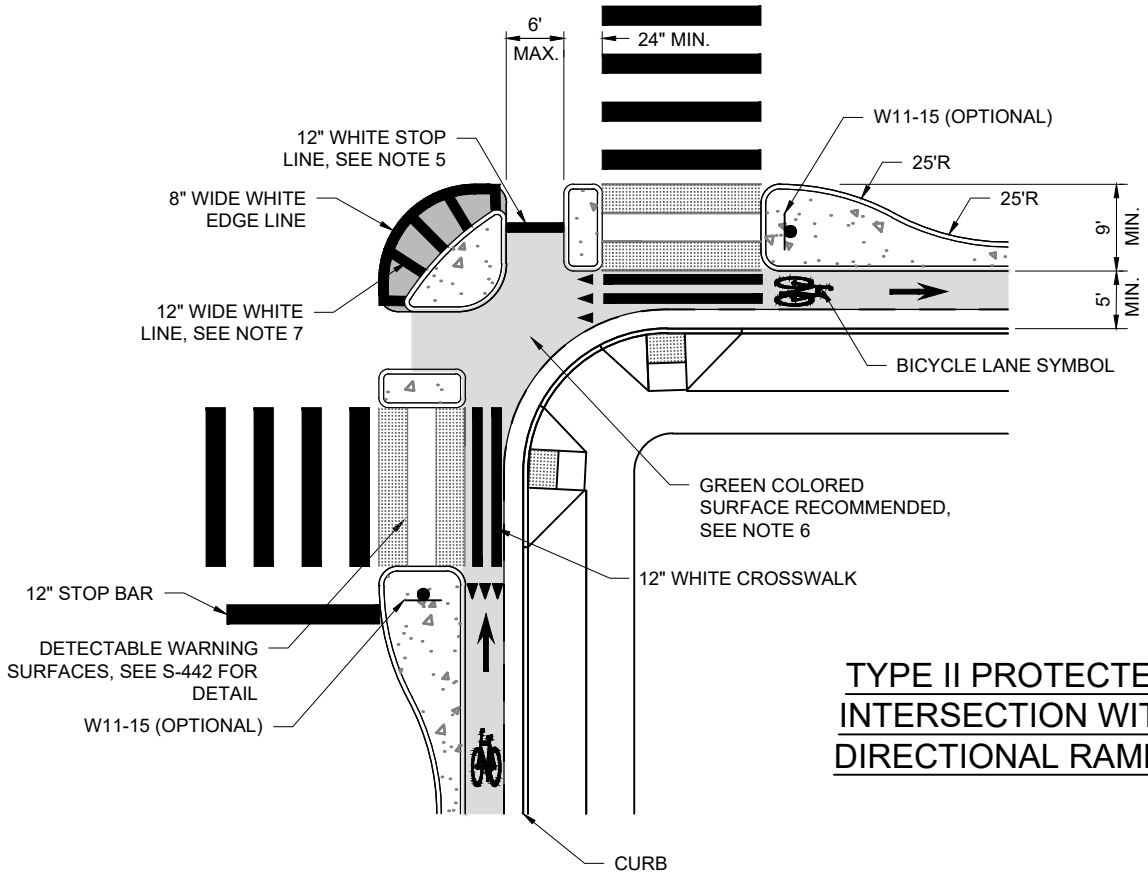
APPROVED 02–20–2020

for Seleta Reynolds, General Manager

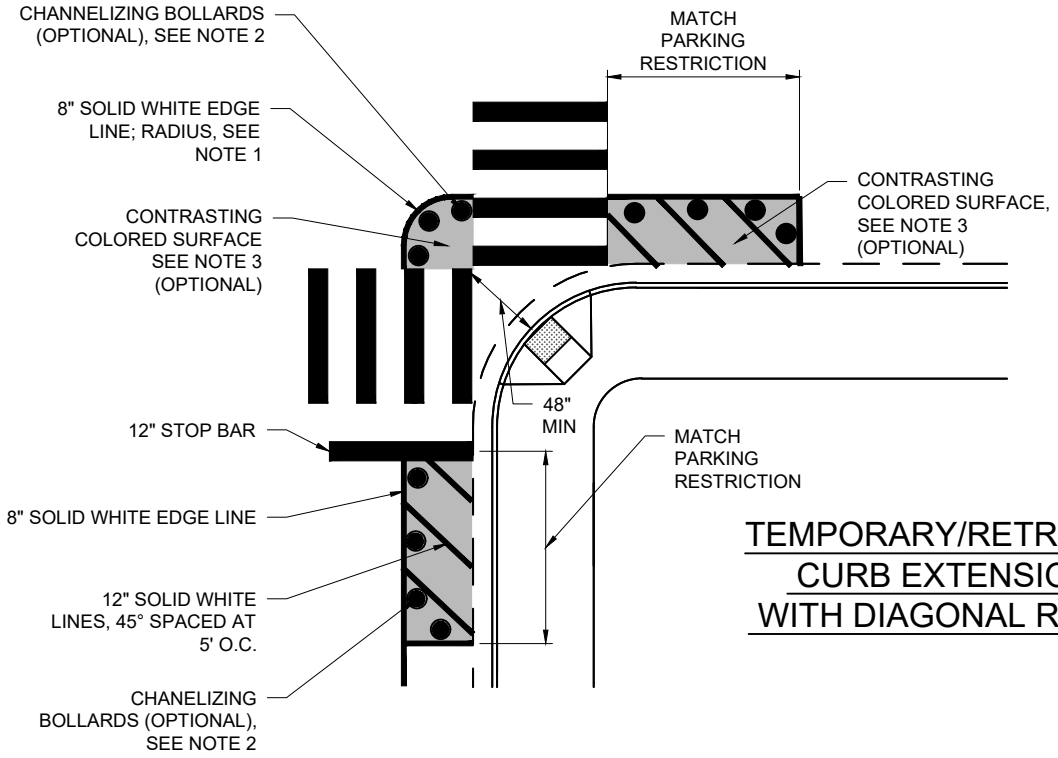
CITY OF LOS ANGELES
DEPARTMENT OF TRANSPORTATION

CURB EXTENSIONS 1/3

| | | |
|---|---|---|
| CKD. Priv. Engr. | SR. T.E. JV | PR. T.E. BS |
| DWN. Priv. Engr. | T.E. MN | S–527.0 |




## TYPE II PROTECTED INTERSECTION WITH DIRECTIONAL RAMPS




## TEMPORARY/RETROFIT CURB EXTENSION WITH DIAGONAL RAMP

| CITY OF LOS ANGELES<br>DEPARTMENT OF TRANSPORTATION | Title<br>CURB EXTENSIONS | Drawing No.<br>S–527.0 | 2<br>3 |
|---|---|---|---|

NOTES

1. THE DESIGN RADIUS SHOULD BE ESTABLISHED FOLLOWING THE CITY'S CORNER RADIUS POLICY. OPTION TO IDENTIFY WITH A WHITE EDGE LINE.

2. WHERE BOLLARDS ARE PROVIDED, THE DESIGN RADIUS MUST ALLOW THE DESIGN VEHICLE TO TURN WITHOUT STRIKING THE BOLLARDS. THIS CAN BE ACCOMPLISHED BY MARKING THE CORNER RADIUS WITH A WHITE EDGE LINE AND LOCATING THE BOLLARDS SIX INCHES BEHIND THE EDGE LINE. BOLLARDS MAY BE SPACED BETWEEN 24 INCHES AND 60 INCHES TO ENSURE A MINIMUM OF THREE BOLLARDS ARE PROVIDED. AN EVEN SPACING BETWEEN BOLLARDS SHOULD BE SELECTED. BOLLARDS SHOULD NOT BE LOCATED WITHIN A CROSSWALK OR PARKING LANE.

3. THE PAVEMENT SURFACE MAY BE COLORED TO ENHANCE THE CONTRAST BETWEEN THE ADJACENT TRAVELED WAY AND THE CURB EXTENSION WITH MATERIALS APPROVAL BY THE CITY.

4. SEE CITY OF LOS ANGELES SUPPLEMENTAL STREET DESIGN GUIDE, DETAIL 200 FOR CURB EXTENSION DETAILS.

5. WHERE STOP LINE IS REQUIRED, IT SHOULD BE PLACED NEAR THE EDGE OF THE CROSSING ROADWAY, LOCATED OUTSIDE THE PATH OF TURNING VEHICLES.

6. OPTIONAL USE OF GREEN COLORED PAVEMENT TO ENHANCE VISIBILITY AND CONSPICUITY OF BICYCLE LANE. GREEN COLORED PAVEMENT MAY BE INSTALLED FOR THE ENTIRE LENGTH OF THE BICYCLE LANE OR FOR ONLY A PORTION (OR PORTIONS) OF THE BICYCLE LANE. ALL GREEN COLORED PAVEMENT SHOULD COMPLY WITH FHWA INTERIM APPROVAL FOR OPTIONAL USE OF GREEN COLORED PAVEMENT FOR BIKE LANES (IA-14) AND APPROVED BY LADOT.

7. OPTIONAL 12" WIDE WHITE LINES, PERPENDICULAR TO WHITE EDGE LINE. IF USED, MINIMUM OF THREE (3) LINES IS PREFERRED.