City of Hurst

BARRICADE MANUAL

PUBLIC WORKS DEPARTMENT-
ENGINEERING DIVISION

As Adopted in Ordiance No. 552
October 23, 1973

ORDINANCE NO. 552

AN ORDINANCE AMENDING CHAPTER 21 OF THE HURST CODE OF ORDINANCES BY ESTABLISHING A NEW ARTICLE V REQUIRING PERMITS FOR WORK IN, ON, UNDER, OVER OR ABOUT ANY PUBLIC STREET OR RIGHT OF WAY OR OTHER PUBLIC PROPERTY; ADOPTING A BARRICADE MANUAL; REQUIRING A FEE AND ESTABLISHING A PENALTY.

WHEREAS, the City of Hurst has heretofore lacked defined procedures for regulating work in public places so as to protect the users of such areas; and

WHEREAS, the City Council is charged with the responsibility of providing for the health, safety and general welfare of its citizens;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF HURST, TEXAS:

Sec. 1. THAT the Code of Ordinances, Hurst, Texas, is hereby amended by adding an Article to Chapter 21, to be numbered Article V, which said Article reads as follows:

"ARTICLE V. Street Use Permits.

Barricades.

Sec. 21-45. Permits for street work

No person shall occupy, obstruct, or do any work in, on, over, about, or under any street, public right of way or other public property without first obtaining from the Public Works Department a permit to do so. Public agencies and public utilities franchised to use public property are exempt from permit requirements; however, they shall be subject to the notice, approval and warning device requirements as set forth in this Article.

Sec. 21-46. Adoption of Barricade Manual; compliance

Permits and approval shall be granted as set forth in the "Barricade Manual" hereby adopted and on file in the office of the City Secretary and the Public Works Department, and no person shall conduct any operations

within any public street or right of way except in compliance with the provisions thereof and the conditions set forth in any permit.

Sec. 21-47. Fees

The fee for permits hereunder shall be $5.00. The City Manager and his designees are hereby delegated the authority to make such determinations as are authorized in said "Barricade Manual" as well as the authority to deny permission to any person, firm or corporation to use any public way for any purpose other than transportation of persons and goods."

Sec. 2. Any person, firm or corporation violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon final conviction thereof, shall be fined in an amount not to exceed TWO HUNDRED DOLLARS ($200.00).

Sec. 3. The City Secretary is hereby authorized to cause publication of the descriptive caption and penalty clauses hereof as an alternative method provided by law.

AND IT IS SO ORDERED.

Passed on first reading on the 9th day of October, 1973, by a vote of 4 to 0.

Passed on second reading on the 23 day of October, 1973, by a vote of 5 to 0.

CITY OF HURST

By: B. J. Hampton
B. J. Hampton, Mayor

ATTEST:

Margaret I. Larson
City Secretary

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CITY OF HURST

BARRICADE ORDINANCE

1. PERMIT REGULATIONS

Whenever it is necessary to work in the street right-of way of any street in the City of Hurst, the person or company doing the work must, before starting the work, obtain a permit and/or approval from the Engineering Division. Authorization from the Engineering Division to work in the city streets must be applied for a representative of the agency doing the work at least 24 hours before the work is initiated. Street closures when deemed necessary must be requested at least two working days in advance of the time the work is to be started. Applications for approval or a permit for minor street work may be submitted to the Engineer Division by mail providing such mail is received at least 48 hours in advance of the start of work. For large projects, a conference with representatives of Engineering, Street Maintenance, Police Department, Fire Department and the agency involved may be necessary before work on street right-of way will be authorized.

Except when specifically exempted, no work will be authorized during the peak hours of traffic movement (7-9 AM and 4-6 PM, weekdays) at the following locations:

1. Near signalized intersections.

2. On streets carrying two lanes of traffic in one direction.

3. On any street where parking is prohibited during peak hours of traffic movement.

The Engineering Division may require work to be performed at night or on weekends when the location of such work is considered critical from a traffic standpoint. Generally these critical locations are in the vicinity of major signalized intersections, near shopping centers and in the downtown area. On contract work, plans should be reviewed with the Engineering Division prior to determing if night or weekend work will be required.

Occasionally the health, safety and welfare of the public requires that work be done in a city street immediately on an emergency basis and without delay incurred in taking out a permit. Such work may be done on an emergency basis.

If an emergency occurs during normal office hours (8 AM to 5 PM , weekdays), the agency doing the work must first telephone the Engineering Division at (817) 788-7076 and obtain approval of said work and obtain a permit number. The applicant then may obtain the permit in person at the Engineering Division before the close of the next work day.

If the emergency occurs during other than normal work hours, the applicant is required to phone Central Control at (817) 788-7212 and give the Dispatcher the location and nature of the emergency before starting the work. The applicant is required to either appear in person at the Engineering Division before noon of the next work day to obtain the necessary permit or the applicant may phone the Engineering Division before noon of the next work day and obtain a permit number and have the permit application in

the mail and postmarked on that same day.

All street excavations at the following locations shall be plated during the peak hours of traffic movement (7-9 AM and 4-6 PM, weekdays, or as specified in the permit) and during all other hours when work in the excavation is not in progress:

1. Near signalized intersections.

2. On streets carrying two lanes of traffic in one direction.

3. On any street where parking is prohibited during peak hours of traffic movement.

All spoil material from the excavation is to be removed from the pavement surface when plates are in use. The Director of Public Works may allow an exception to these plating requirements when traffic volumes or other special conditions warrant such action.

All plating shall be sufficient strength to accommodate all traffic loads. Plating shall be secured in place so that it will not shift out of position during usage. The permit holder shall be responsible for any damages or liability arising out of usage of plating under the requirements of any permit issued for street work and shall hold the City harmless from any liability arising out of such plate usage.

The determination of detour need for major construction projects shall be made prior to the final contract plans or at the pre-construction conference. The Engineering Division will determine the detour route. During normal working hours, emergency detour routes may be requested by telephoning the Engineering Division, (817) 788-7076. On other than normal working days, emergency closing must be reported by notifying Central Control at (817) 788-7212.

When street is ready for reopening, the Engineering Division must be notified by the agency 24 hours in advance of reopening. The Engineering Division will notify the Fire and Police Departments that the street is open.

2. GENERAL INSTRUCTIONS

Temporary traffic control devices shall be installed prior to the start of all street construction and maintenance operations and shall be properly maintained during the time such conditions exist. They shall remain in place only as long as they are required and shall be removed immediately thereafter. Where operations are performed in stages, there shall be in place only those devices that apply to the conditions present during the stage in progress. Signs such as "Survey Crew" or "Flagman Ahead" shall be covered and set aside out of view of traffic at times when they do not apply. Existing traffic signs and control devices must necessarily remain in place until construction or maintenance activities are started. Only the Department of Public Works will remove and replace such signs as needed. The Contractor will be responsible for any damage resulting from failure to maintain or protect such devices.

Barricades shall be placed as shown in Section 8 - Standard Barricading Plans.

All barricades and sign supports shall be neatly constructed and they shall be repaired and cleaned or repainted as needed to maintain their appearance.

Special care shall be taken to see that weeds, shrubbery, construction material or equipment, and spoil are not allowed to obscure any signs, flags or barricades.

Where possible, a construction vehicle with appropriate flashing lights should be place between approaching traffic and the work area to provide added safety to the workman. The vehicle should have the cab heading in the direction of the traffic. Caution must be exercised in maneuvering the vehicle into position. Also avoid reducing usable street area by poorly parked equipment. Whenever possible, park all vehicles an equipment on the same side of the street.

Materials taken from excavation or new material to be used for replacement should, if permitted to be stored in the street, be placed on that side of the excavation being approached by the traffic. All such materials shall be completely enclosed by lighted barricades during the time they remain in the street.

During hours of darkness, traffic control devices must be reflectorized or illuminated as further specified in the following information regarding each of these devices. Sheeting shall be used to reflectorize all signs and barricades.

In cases where manual control of traffic is required, an off-duty uniformed police officer will be employed. Other flagmen in the employment of the Contractor may be used to assist the police officer. Determination of the need of manual control will be the responsibility of the Public Works Department.

3. TYPES OF BARRICADES

Barricades shall be used for outlining the excavation or construction area in the street. Barricades mounted on posts set firmly in the ground may be used for major construction work. Portable barricades shall be used where the project is of short duration or where the work area must be opened to traffic during periods of the day. Barricades generally should not be used to channelize traffic. Barricades should be freshly painted and kept clean at all times.

Each barricade rail shall be marked with alternate reflective orange and reflective white stripes of 6 inch width (at an angle of 45% degrees from vertical, slanting downward toward the side which traffic is to pass). For increased emphasis at night, lights or flashers shall be mounted on the barricades.

A barricade shall not be placed in the line of traffic without an advance warning device. "Saw horse" type barricades may be placed with approved advance warning devices to divert traffic around an obstruction.

The standard barricade shall be either of three types: Type I, Type II or Type III as herein described.

A Type I barricade shall consist of a single horizontal rail of nominal 8 or 10 inches in width and length as required with its top edge 36 to 42 inches above the roadway. This type is intended for use where the hazard is relative small, or to delineate a restricted roadway.

Type I barricades should be used to separate work areas, excavation, equipment and materials, and excavated earth from traffic

areas, and to separate pedestrian walkways from vehicular traffic areas. Where space permits they may be used for channelization.

A Type II barricade shall be used wherever repair work is in progress. Normally it should be used only when one lane is open and one lane is closed. Type II barricades is 36 inches high and 48 inches wide. The frame is hinged at the top for quick installation and improved portability.

A Type III barricade shall consist of three horizontal rails of nominal 8 or 10 inches width spaced vertically at approximately 20 inch center to center. The upper edge of the top rail be at a height of approximately 5 feet above the roadway. The barricade may be of variable length required. Long barricades may be assembled from units of any convenient size. The Type III barricade is the type normally required for major operations such as indicating the closure of a street.

All Type III barricades shall have two, 120V, 150W, twelve inch amber flashers when the street lighting intensity is less than 0.9 candelas or if the barricade is to be installed in excess of one year. These flashers shall not be required on Type III barricades at permanently closed dead end streets.

Where a street is closed to traffic, Type III barricades shall be erected at the points of closure. They shall extend from curb line to curb line as a fence, but where the roadway must be open for access of equipment and authorized vehicles, barricades must be provided with gates or movable sections that can be closed at all times except when equipment and vehicles are actually moving through the barricade.

When a street is closed to through traffic, but access to property abutting the right-of-way within the limits of the project must be provided Type III barricades shall be erected at the points of closure. They shall extend from curb line to curb line so as to appear as a fence, but the center section across the main roadway shall be set forward so that local drivers may maneuver around the ends of the center section to gain access to the project area.

When traffic is maintained through a construction project Type III barricades shall be erected at each edge of each section where work is actually underway. The barricades shall extend from the curb line to within 6 feet of the edge of the travel way.

Oftentimes these barricades may close part of a roadway. In this case they must be placed across the entire width of the closed lane or lanes, including any adjacent travelable shoulder.

If space requirements or project duration are such that the use of the Type III barricades is impractical, then Type I barricades may be used if shown on the plans or if directed by the Engineer.

"Road Closed" and "Detour" arrow signs may be mounted on the top rail of Type I or Type II barricades.

During the day red flags may be used to call attention to signs (so long as they do not interfere with a clear view of the sign face), barricades, or equipment. A tripod device may be used to display flags or, at night, lanterns or electric torches, high enough to be visible above vehicles.

A barricade should never be placed in the line of traffic without advanced warning devices. It is desirable to provide a line of cones

or torches to guide traffic around a barricade in the line of traffic if it is to be by-passed. At horizontal or vertical curves where sight distances are inadequate, barricading should start sufficiently in advance of the curve to be fully visible to approaching drivers.

To narrow a roadway gradually either a series of wing barricades or a series of SINGLE LARGE ARROW signs, on portable mountings, alternating with clearance markers, on portable mountings, shall be used, with the first one on the shoulder and the succeeding ones each extending farther into the roadway. Markers shall be used if drivers must pass to the right of the transition, with SINGLE LARGE ARROWS pointing to the right, while Markers shall be used if drivers must pass to the left of the transition, with SINGLE LARGE ARROWS pointing to the left. A series of closely spaced cones in line can serve the same purpose temporarily at maintenance sites where the transition must be used for less than a day.

Beyond a barricade or transition closing one or more lanes, it may be necessary to confine drivers to certain lanes for some distance. Additional Type III barricade sections placed across the closed lane at close intervals may be used, or a series of Type II barricades or cones may be set in a row along the edge of the closed lane, to prevent drivers from entering it.

4. **BARRICADE DESIGN**

A Type III barricade shall consist of three horizontal rails of nominal 8 inch width spaced vertically at approximately 20 inches, center to center, with upper edge of the top rail at a height of approximately 5 feet above the roadway or ground level. Barricades may be variable lengths required, and longer barricades may be assembled from sections of any convenient length. The Type III is the type normally required for major operations, where the barricade must remain i place for extended periods.

A Type II barricade consist of an upper horizontal rail of nominal 8 inch width, and length as required, with its top edge approximately 44 inches above the roadway or ground level, and a lower horizontal rail of nominal 6 inches width. This type is intended for use where the hazard is relatively small, on city streets, or for more or less continuous marking of a restricted roadway, or for temporary daytime use.

All three (3) rails of the Type III barricades, and the top rail of the Type I barricades shall be marked with alternate orange and white sloping stripes, which shall be at an angle of forty-five (45) degrees with the vertical. When a barricade extends entirely across a roadway, it is suggested that the stripes slope downward in the direction toward which must turn in detouring. Where both right and left turns are provided for, the stripes should slope downward in both directions from the center. As Type II are frequently used in such situations, or are moved frequently enough to be used almost alternately on the right and on the left of moving traffic, the striping on Type II barricades shall always slope in both directions from the center.

Portions of barricades not striped shall be white.

All barricades used at night shall be effectively reflectorized. Type III barricades shall have the white stripes on all rails reflectorized. Type I barricades shall have the white stripes on the rail reflectorized, and shall have striping both sides of the rail. Torches may be used i front of, or yellow battery flashers may be mounted on, the ends of Type I or Type III barricades. Yellow battery flashers shall not be used in a series to outline the barricaded area.

Red flags may be mounted on Type I or Type III barricades for increased daytime emphasis.

5. LIGHTING DEVICES

Independent light sources capable of being seen at a distance of 500 feet against oncoming headlights must be provided between the hours of sunset and sunrise. These light sources include flashers, electric lights and electric torches. Use of open flame light sources such as kerosene torches or flare pots is prohibited.

1. Flashers - Flashers include all portable, battery operated, lens directed, enclosed lights, illuminated by rapid intermittent flashes of short duration. The flashers shall be round with a diameter of 7 inches or larger, emit a standard amber light with regular flashes from 55 to 75 flashes per minute and the "on" time shall be at least 10 percent of the cycle. Minimum effective intensity shall be 4.0 candelas. Flashers are a warning device to be used for advanced warning and marking of unexpected hazards in or near the roadway. Flashers are more effective when mounted on barricades or other similar traffic control supports.

2. Mobile Signal Equipment - Amber flashers (electric or battery operated) on mobile equipment may be provided by all agencies as an additional warning device whenever a vehicle is stopped in a traffic or parking lane.

3. Electric Lights - Where commercial power or a portable electric generator is available, electric lights may be used both for illumination and hazard marking. Electric lights can be used for floodlighting dangerous conditions and illuminating signs, barricades and flagman stations. Lights used for illuminating signs or barricades shall be sufficient in size and number to provide effective illumination and legibility under normal atmospheric conditions. Precautions must be taken when placing lights to insure the prevention of glare. A series of low wattage lamps may be used to mark obstructions and hazards, Lamps used for this purpose should be yellow. Aline of yellow lights can be effectively used on a longitudinal fence-type barricade to delineate the traveled way. When illuminated, hazard-marking lights shall burn steadily and not be flashed.

6. TRAFFIC CONES

Traffic cones shall be used to direct traffic around barricades in sizes from 18 inches to 36 inches in height. Cones shall be made of rubber or other pliable material to withstand impact without damage to themselves or the striking vehicles. Cones of the larger size should be used on arterial streets.

Traffic cones should be orange in color. When the color is a surface application, the cones should be refinished frequently to provide a bright appearance. Cones should be kept clean and checked frequently for location. When traffic cones are used to divert a traffic lane, spacing shall not exceed 20 feet on a taper of one foot of roadway width for each 10 feet of roadway length.

7. SIGNING

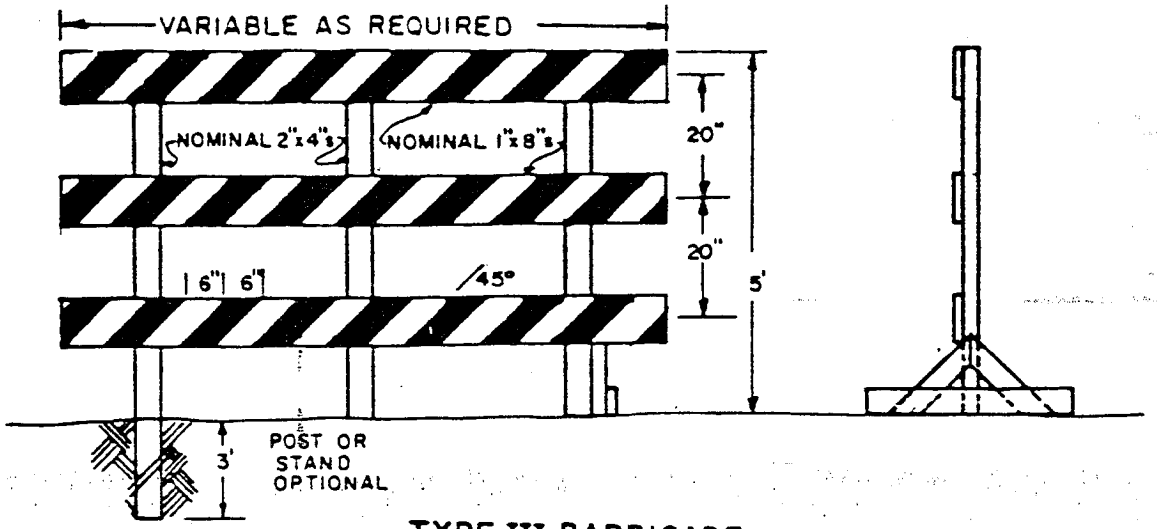
Advance warning and guide signs appropriate to the work being performed shall be of the designs prescribed and placed in accordance with Part VI of the MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1980.

8. STANDARD BARRICADING PLANS

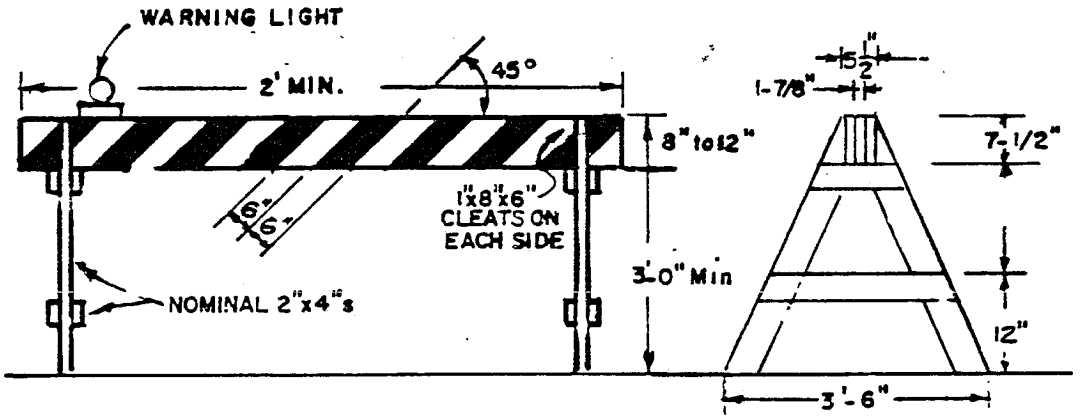
The placement of all barricades shall, as nearly as possible, follow the typical layouts shown in Typical Barricading Plans.

BARRICADES

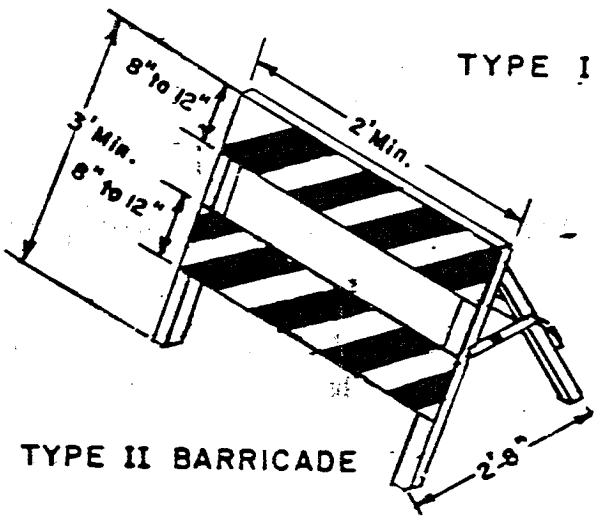
B-1A



TYPE III BARRICADE



TYPE I BARRICADE



TYPE II BARRICADE

NOTES:

1. Barricade faces are to be of reflectorized orange and white sheeting or paint.
2. Barricades which are to be left in place during hours of darkness shall have flashing lights mounted on the barricade.

STANDARD BARRICADE

Scale: N.T.S.

BARRICADE

city of hurst

BARRICADE CONSTRUCTION

DEPARTMENT OF PUBLIC WORKS-ENGINEERING

DATE: 10/89	DRAWN: L.E.C.	APPROVED: R.W.H.	REVISION:

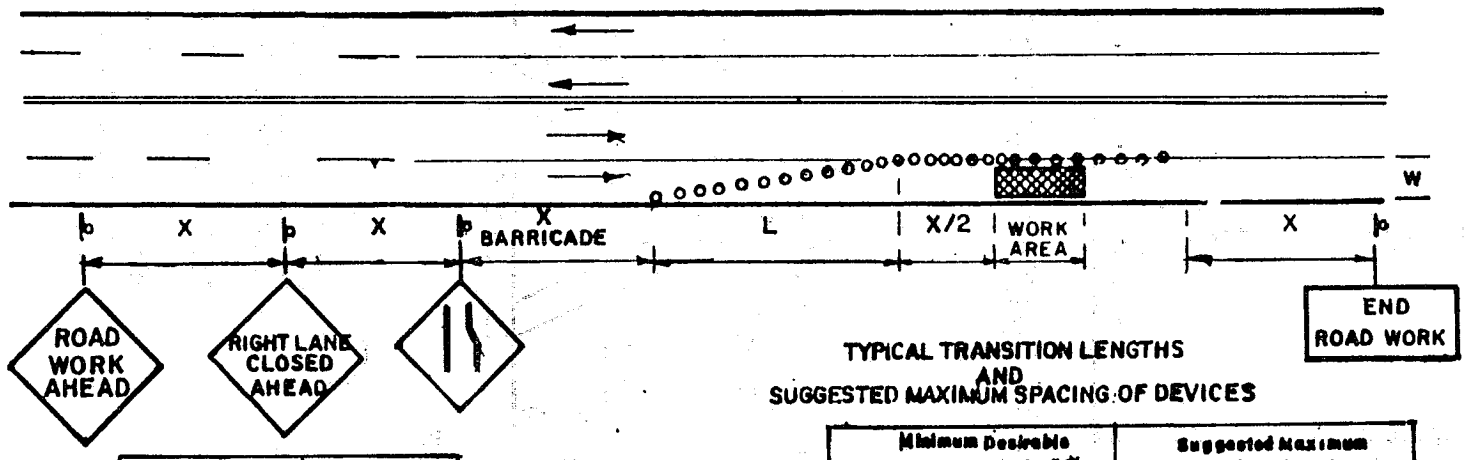
TYPICAL BARRICADING PLANS

BARRICADE

DEPARTMENT OF PUBLIC WORKS-ENGINEERING

DATE: 10/89 | DRAWN: L.E.C. | APPROVED: H.L.H | REVISION:

Scale: N.T.S.



POSTED SPEED (MPH)	X MIN. DISTANCE (FT)
30 or LESS	80
35	120
40	160
45	240
50	320
55	500

TYPICAL TRANSITION LENGTHS AND SUGGESTED MAXIMUM SPACING OF DEVICES

Posted Speed*	Formula	Minimum Desirable Taper Lengths** W			Suggested Maximum Spacing of Device	
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		265'	295	320'	40'	80'-100'
45	L=WS	450'	495'	540'	45'	90'-110'
50		500'	550	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60'		600'	660	720'	60'	120-150'

*85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit.

**Taper lengths have been rounded off.

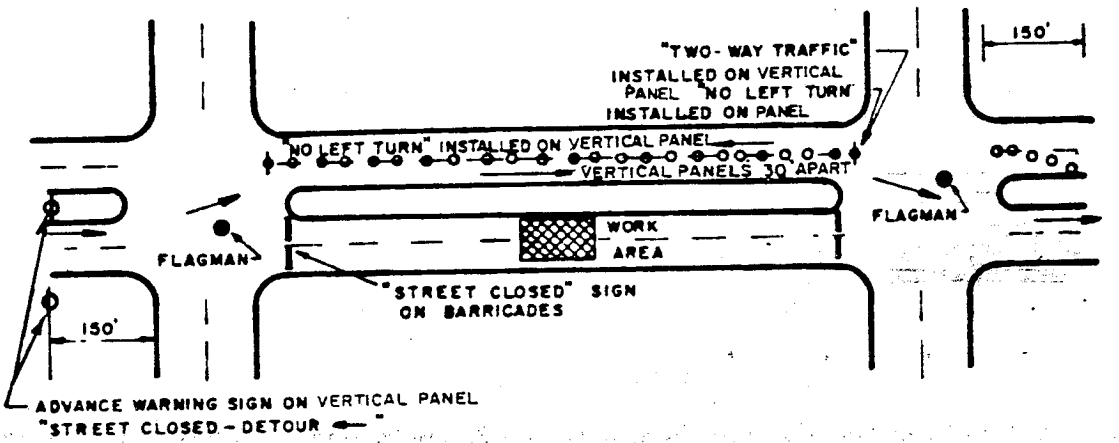
CONSTRUCTION AREA IN MID-BLOCK
ON 4-LANE UNDIVIDED ROADWAY
ONE LANE IS CLOSED

NOTE:

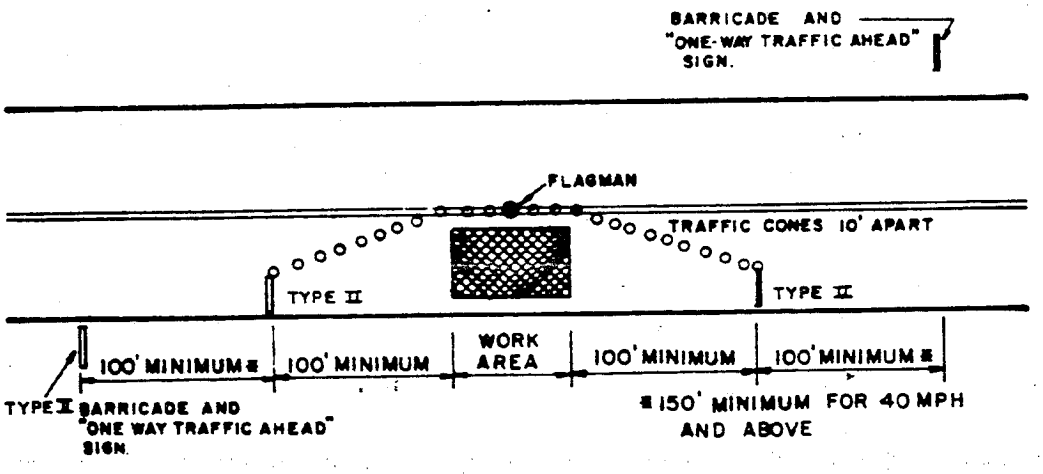
REFER TO TEXAS MANUAL ON TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS. FOR OTHER TYPES OF BARRICADING OR FOR DEVIATIONS FROM THIS PLAN.

B-3A

B-3B



CONSTRUCTION BLOCKING ONE-HALF OF A DIVIDED STREET



CONSTRUCTION BLOCKING ONE-HALF OF TWO-WAY STREET

Scale: N.T.S.

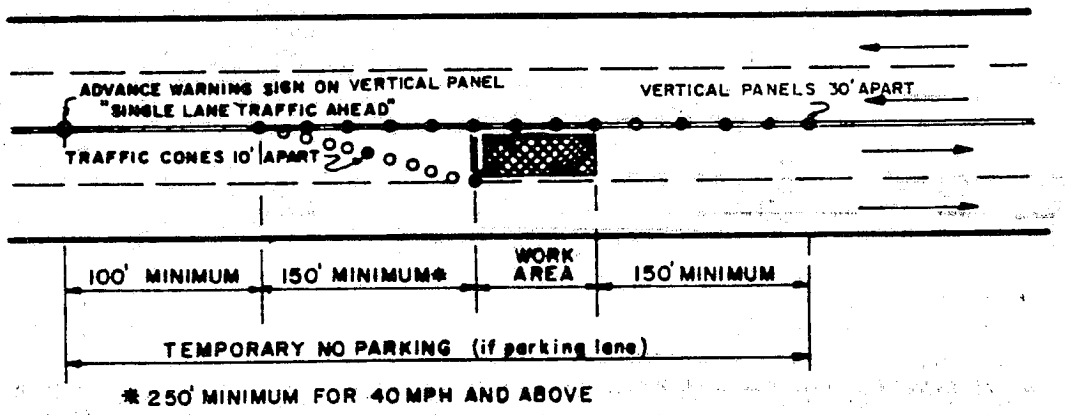
BARRICADE

TYPICAL BARRICADING PLANS

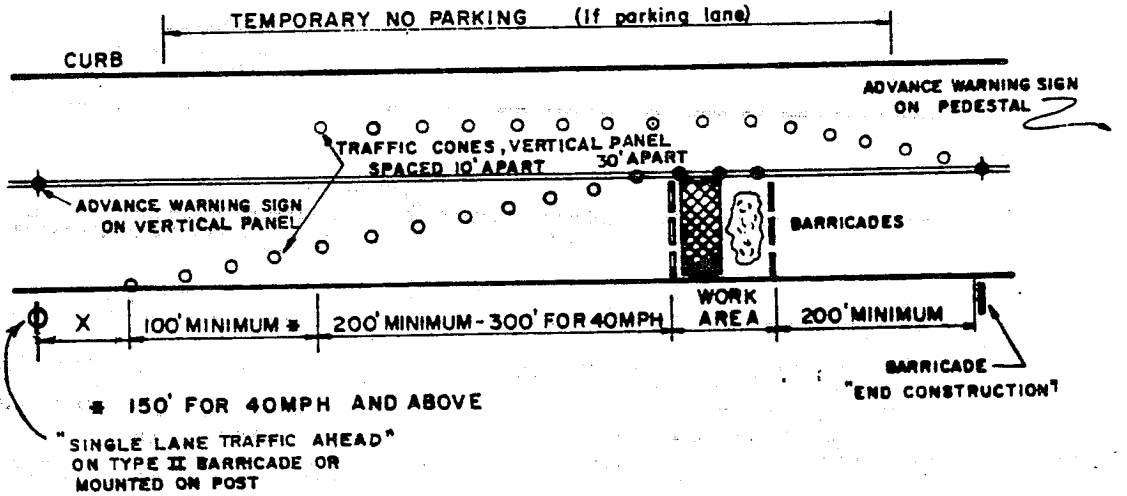
city of hurst

DEPARTMENT OF PUBLIC WORKS-ENGINEERING

DATE: 10/89	DRAWN: L.E.C.	APPROVED: H.L.H	REVISION:



CONSTRUCTION AREA IN CENTER LANE MID-BLOCK



CONSTRUCTION BLOCKING ONE-HALF OF FOUR-LANE STREET

Scale: N.T.S.

BARRICADE

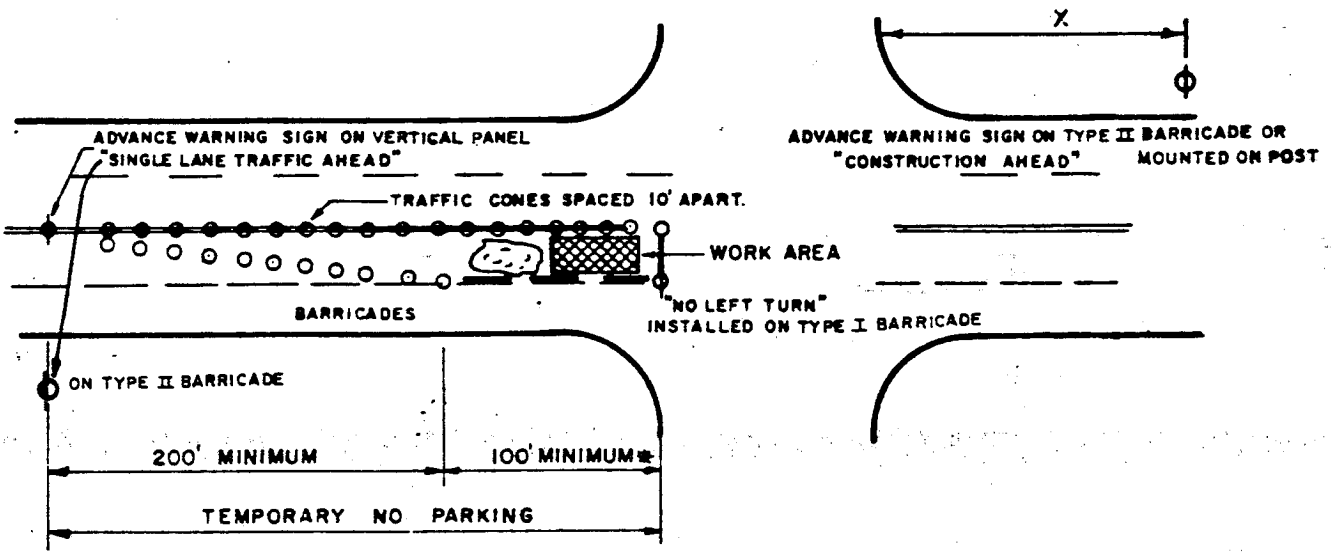
TYPICAL BARRICADING PLANS

city of hurst

DEPARTMENT OF PUBLIC WORKS-ENGINEERING

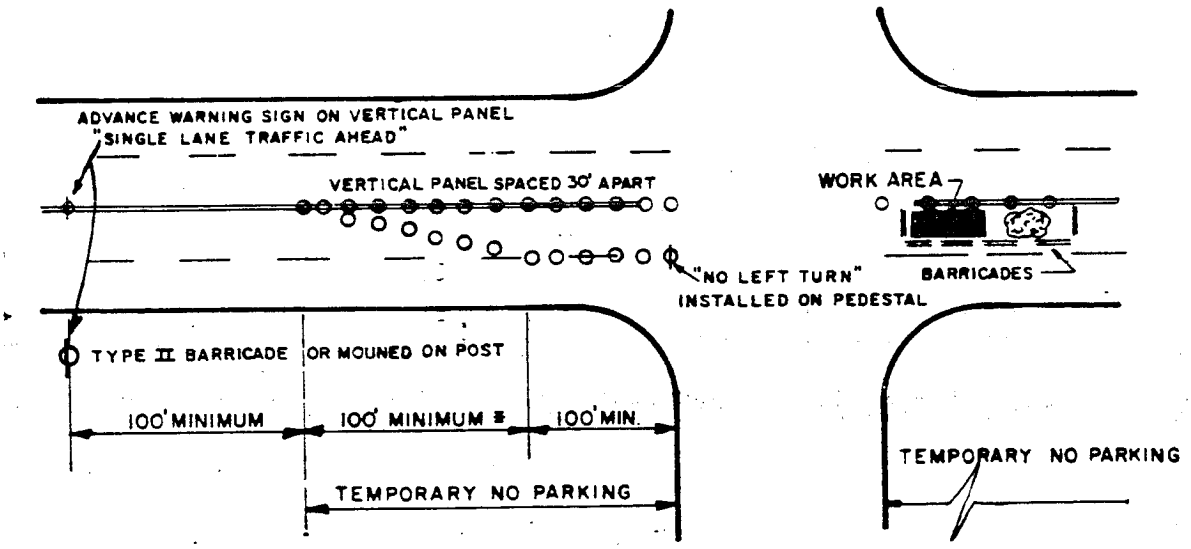
DATE: 10/89	DRAWN: L.E.C.	APPROVED: H.L.H	REVISION:

B-3D



* 150' MINIMUM FOR 40MPH AND ABOVE

CONSTRUCTION AT NEAR SIDE OF INTERSECTION



* 150' MINIMUM FOR 40MPH AND ABOVE.

CONSTRUCTION AREA FAR SIDE OF INTERSECTION

Scale: N.T.S.

BARRICADE

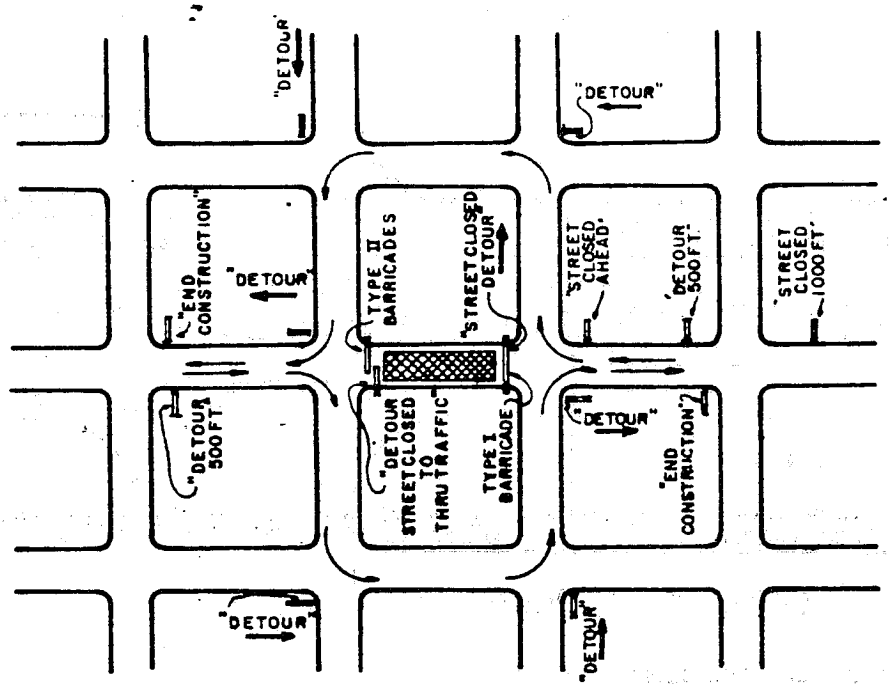
TYPICAL BARRICADING PLANS

city of hurst

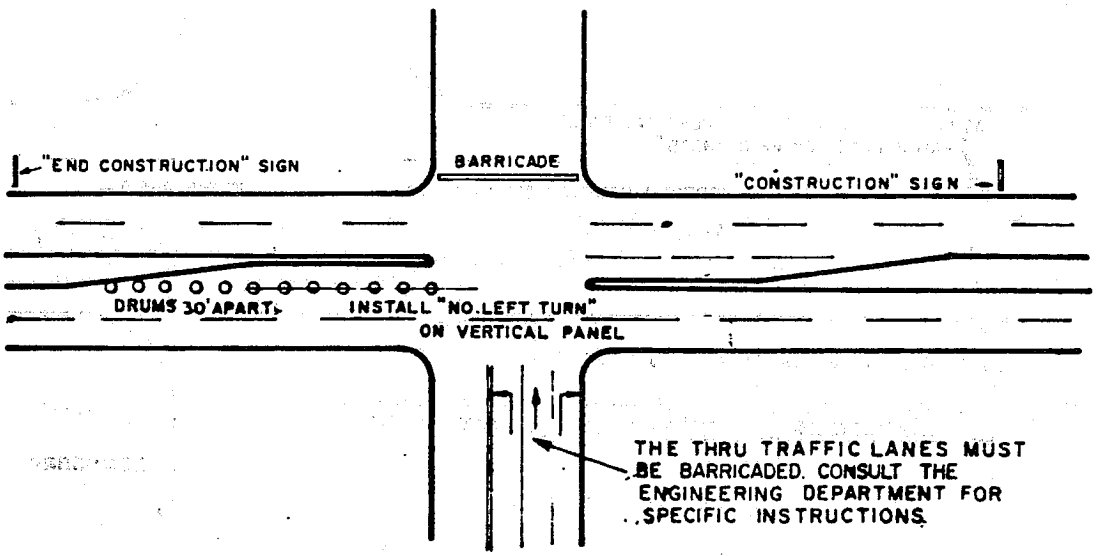
DEPARTMENT OF PUBLIC WORKS-ENGINEERING

DATE: 10/89	DRAWN: L.E.C.	APPROVED: H.L.H	REVISION:

B-3E



COMPLETE STREET CLOSURE



CONSTRUCTION CLOSING SIDE STREET TO MAJOR THOROUGHFARE

Scale: N.T.S.

BARRICADE

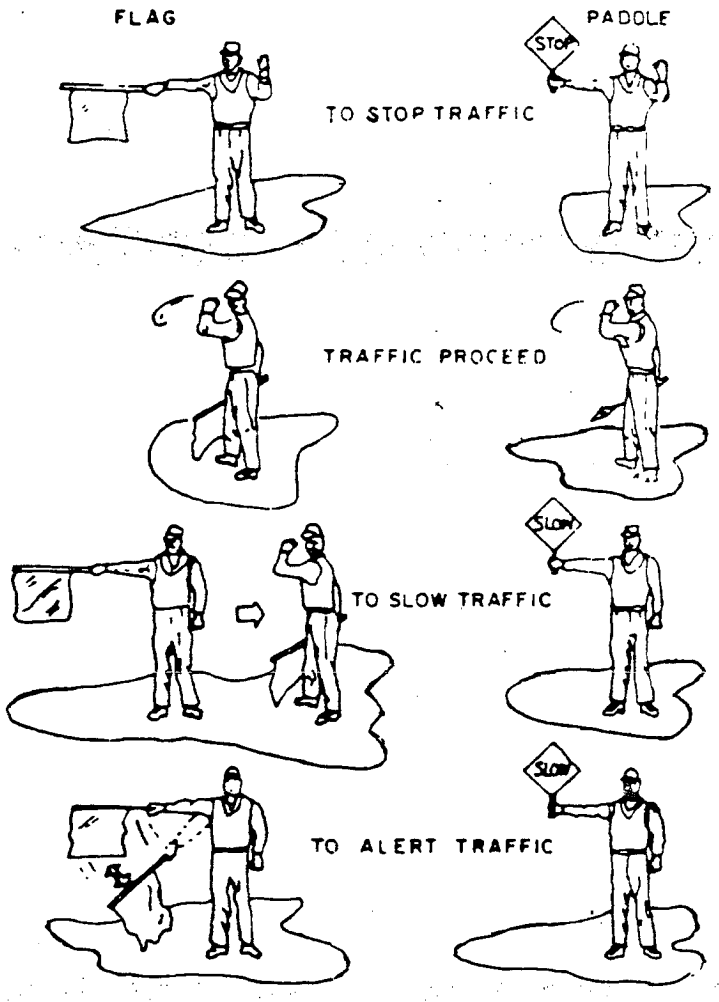
city of hurst

TYPICAL BARRICADING PLANS

DEPARTMENT OF PUBLIC WORKS-ENGINEERING

DATE: 10/89	DRAWN: L.E.C.	APPROVED: H.L.H	REVISION:

FLAGMEN HAND SIGNALS



STANDARD BARRICADING PLANS

Scale: N.T.S.

BARRICADE

city of hurst

FLAGMEN HAND SIGNALS

DEPARTMENT OF PUBLIC WORKS-ENGINEERING

DATE: May 88	DRAWN: L.E.C.	APPROVED: H.L.H	REVISION: