

\$4.00

City of Fife

Standard Operating Procedures

For

Construction Signing (Temporary)

August - 1993

Community Development Department

The following information is provided for the construction signing within the jurisdiction of the City of Fife, Community Development Department, to insure uniformity within the system.

GUARDING WORK AREAS - GENERAL

GENERAL

1. This group of practices covers the description and use, including typical examples, of standard warning devices for guarding work areas. Warning devices are used for the purpose of giving protection to workmen, equipment, and the public in general while causing a minimum of interference with vehicular traffic and pedestrians.
2. The important matter of protecting workmen and the general public through planned protected work areas and traffic guidance, must be given consideration in advance of any work operations at all locations.
3. In guarding work areas and especially those that are exposed to vehicular traffic, it is always preferable to provide more protection than may appear necessary rather than to underprotect.
4. The information contained in this group of practices will not fit all situations precisely, nor cover any single situation completely. The instructions and illustrations provided are intended as typical examples. Used in conjunction with each other and good judgement they will serve as a guide for solving many traffic problems.

PRECAUTIONS

1. Every employee must realize that continual alertness is required to supplement the best warning equipment available in order to obtain maximum safety. On arterial streets, for instance, the noise caused by a car out of control striking a distant warning device may give sufficient time for an alert workman to get in the clear.
2. When placing signs, barricades, etc., carefully observe all moving traffic and exercise extreme caution when entering the roadway to place the warning devices.
3. One purpose of warning devices is to indicate to drivers of approaching vehicles the presence of open manholes or other work operations, so that drivers can change their speed and course to avoid collisions. By guiding the flow of traffic around or to the sides of the work area, the safety of the workmen as well as of the operators of the vehicles is greatly increased. Warning devices should be placed in the traffic lane in which the manhole, or other work is located, before positioning the truck, opening a manhole or starting other work. The devices should be removed as soon as the work has been completed.
4. Warning devices should be kept clean and in good condition. Warning signs should be handled carefully and placed in or on the truck or trailer so that tools and material will not come in contact with the panel and damage the device. Warning

flags should be carefully stored when not in use. Flags which are dirty, torn or badly faded should be replaced.

5. Every effort should be made to reduce exposure time of the workmen and others to possible danger. All discussions should take place off the street and not in a traffic lane.
6. A height for the high level device (equipped with flags when visibility is good or a warning flasher and possibly flags at night or when visibility is poor) should be carefully chosen so that visibility will not be impaired or obstructed by trees, shrubbery, a parked car, a line of moving cars etc. Where necessary, two or more warning masts equipped with flags or flashers may be used at different levels above the ground for added visibility.
7. Where, because of hills, curves, etc., a vehicle driver cannot see the work area from the vicinity of the initial warning sign, a mast with flags and/or flasher should be placed at this location in addition to those at the work area.
8. Displayed warning flags should be inspected from time to time to see that they are not wrapped around their supports and corrected if necessary.
9. Display flashers should be inspected from time to time to see that they are operating at the required flash rate. A slow rate generally indicates that the batteries should be changed. It is recommended that the rate of flash be regular with from 70 to 120 flashes per minute and that the "on" time be at least 25% of cycle.
10. Warning devices should be arranged in the setup or process of setting up or storing so that hazards will not be created for pedestrians.
11. The use of a hand signaling device (flag or paddle) is for HAND use only. In no case should it be attached to a truck, barricade, warning mast, or to a similar device. It should be used only by an authorized employee. Care shall be exercised to hold the sign without motion (and with the words upright) so that it may be easily read by the driver of an approaching vehicle. The sign is NOT a device to wave in order to attract attention. If motions are required to secure the attention of an oncoming driver, the motions shall be made by the free hand or arm, not by the hand holding the flag or paddle.

GUARDING WORK AREAS - PLANNING

GENERAL

1. This section is a check list of items to be considered in developing a plan for guarding works areas.
2. Safe job planning in connection with the use of warning devices involves not only

the actual arrangement of the devices but also the related locations of men and equipment while working. The main objective is to (1) prevent injury to workmen and to the public and (2) interfere with traffic and pedestrians as little as possible.

3. After completing a plan of a setup for warning devices at a particular location, the setup should be analyzed from the point of view of a motor vehicle driver and a pedestrian.
4. The initial warning sign must be placed far enough from the work location to allow the approaching driver time to stop if necessary. The distances for placing the initial warning device ahead for the first channeling device are shown in the attached examples. They are to be considered as the minimum allowable and shall be increased as needed to provide adequate warning if the work area is near a curve or hill or is otherwise obscured. Consideration must also be given to the fact that normal traffic speeds are occasionally somewhat higher than the posted speed limit.
5. The placement of 18-inch traffic cones and the space between cones to form a transition lane to guide traffic speeds as follows:
 - a. 30 to 40 MPH (inclusive). The transition lane shall be formed by cones placed on 20 foot centers. It is recommended that it be not less than 150 feet in length.
 - b. 25 MPH and under. The transition lane shall be formed by cones placed on 10-foot centers. It is recommended that it be not less than 100 feet in length.
 - c. In each of the above classifications additional cones shall be placed to round off the transition lane and clearly define all sides of the work area.
6. Portable "No Parking" signs, when required, should be placed the previous night to prohibit parking near work site.
7. Between the initial warning sign and the start of the transition the appropriate directional and caution signs such as "Left Lane Closed Ahead", "Flagman Ahead", or directional arrows shall be displayed.
8. If available, a motor vehicle equipped with warning flags and/or warning lights may serve as a very effective barrier for vehicular traffic. The vehicle should be placed between the work area and the oncoming traffic and should have the brakes set and the transmission engaged in reverse gear.
9. Where a vehicle is used for this purpose, there are a number of factors to be considered in determining which direction it should be faced, i.e., toward oncoming traffic or in the same direction as the traffic flow. Headlights should be off when facing oncoming traffic. The principal concern is to afford maximum protection to

the workman. Some of the factors to be considered are:

- a. Location of work area to be protected with respect to traffic flow. For example, when oncoming drivers cannot observe the protected work area for a reasonable distance, facing the work vehicle in the same direction as the oncoming traffic may avoid possible confusion to a driver suddenly approaching a vehicle facing in the opposite direction from the normal traffic flow.
 - b. Amount of equipment, tools, and materials which must be unloaded from the bed and side boxes of the truck.
 - c. Location of materials and work space on the particular type of truck.
 - d. Amount of work which must be done at the side or rear of the vehicle.
 - e. Safety considerations and difficulty in turning the truck around to face oncoming traffic.
10. When a vehicle is used in guarding a work area, it should be considered supplemental to all other warning devices necessary to adequately safeguard the area and not as a substitute for any device. In this way, the work area is protected should it be necessary to remove the vehicle.
 11. At busy intersections in city streets or other heavy traffic locations, the supervisor should presurvey the location and then discuss the protection plan with the workmen before the work is started.
 12. If flashers are readily available they should be used regardless of visibility conditions.

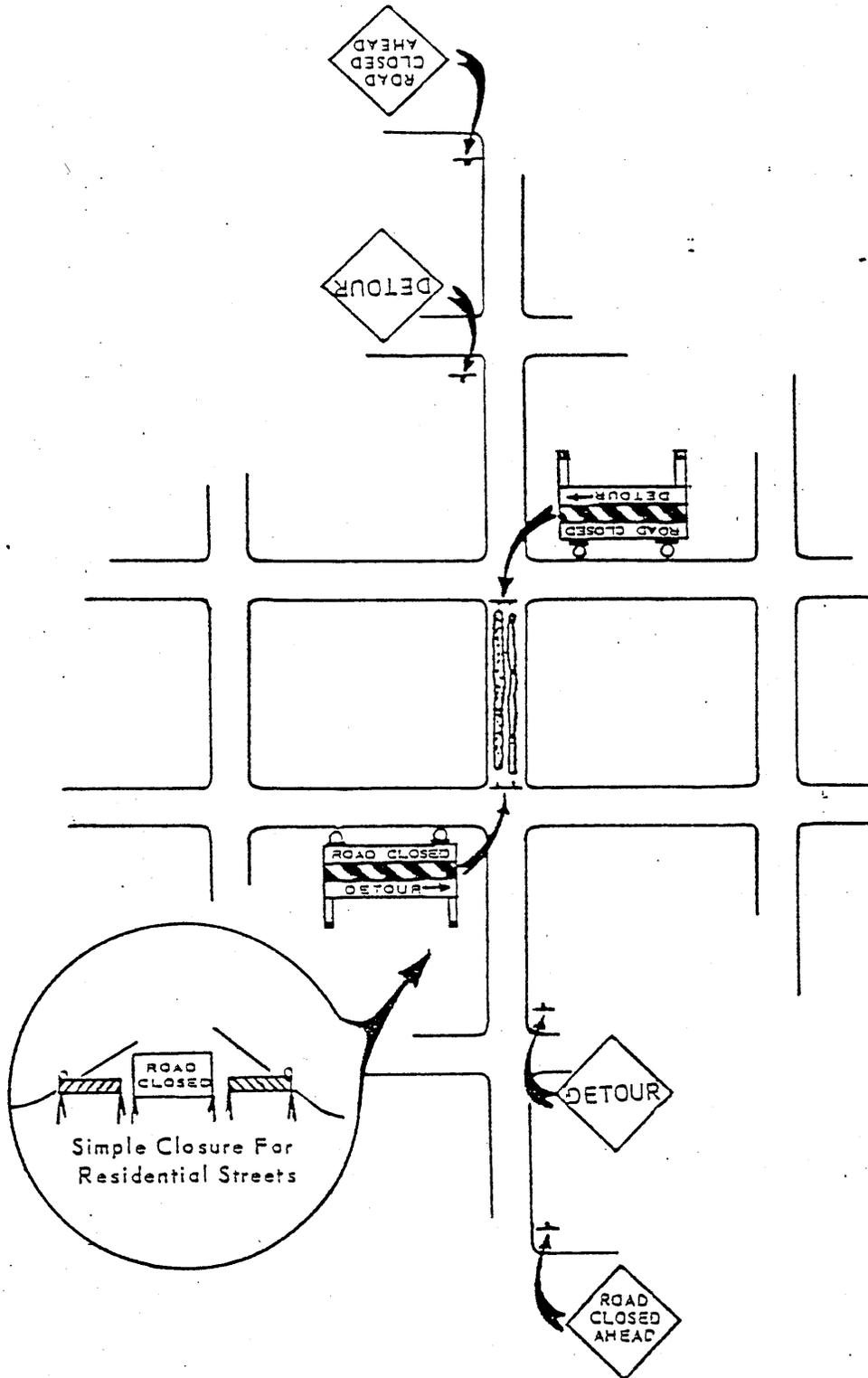
DURING HOURS OF DARKNESS

1. For night-time use all signs and barricades shall be reflectorized and transition lanes must be marked by lighted barricades at intervals not to exceed the speed limit in feet per MPH for that street.
2. On dark days or during the hours of darkness the following additional warning devices should also be employed:
 - a. Place flasher or flashers at the work area location which will warn traffic from all directions being cautioned by initial warning devices.
 - b. High level devices should be equipped with flashers as well as flags.

PRESURVEY CHECK LIST

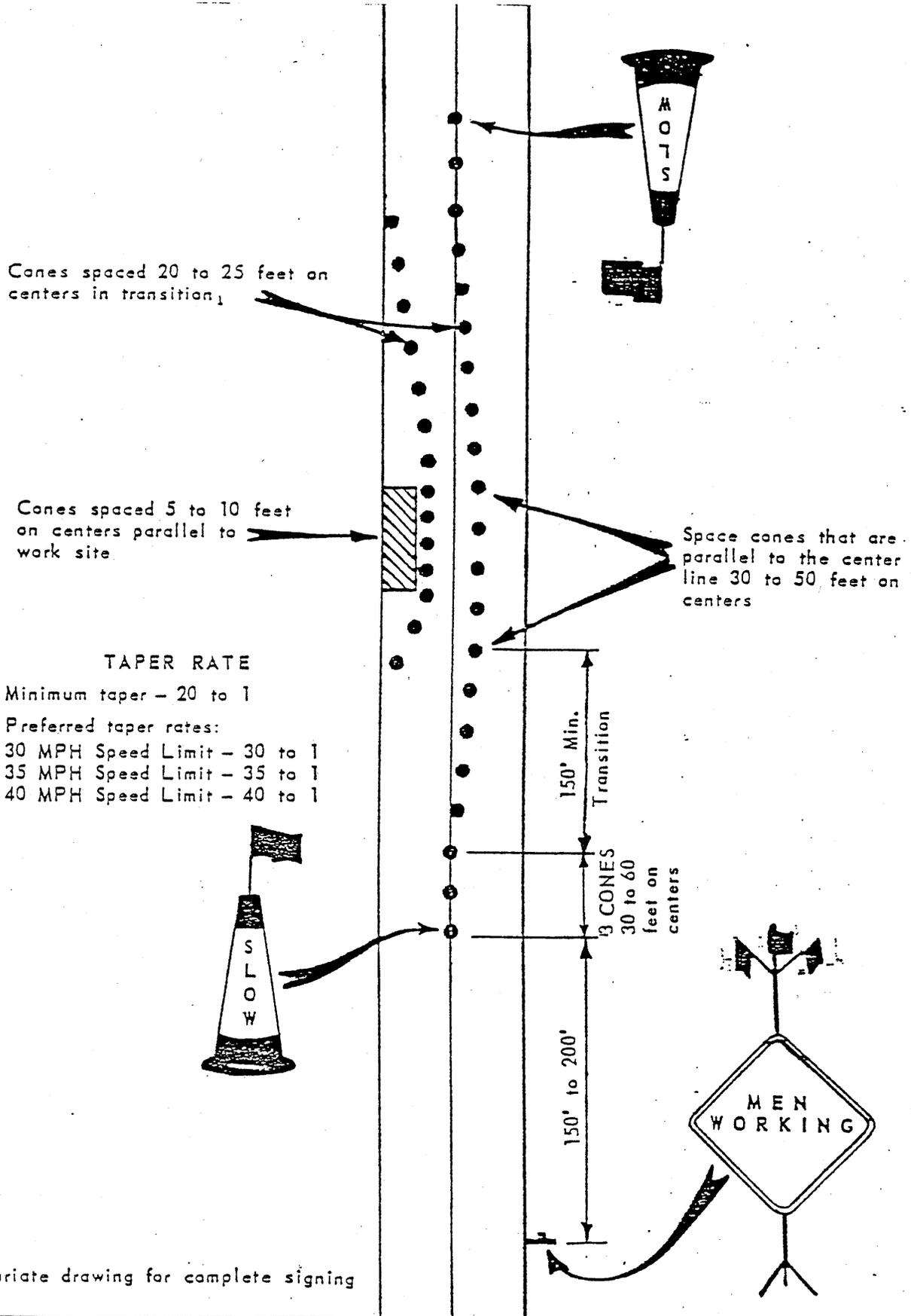
1. Before leaving the storeroom or garage for a job location, a workman should check to see that all warning devices are in operating condition and give consideration to whether warning devices in addition to those normally carried will be necessary.
2. The following items should be considered in planning for guarding the work area before starting work:
 - a. Is traffic high speed or low speed?
 - b. Is traffic congested or light?
 - c. Will character of traffic change during job operation?
 - d. Will barricades be necessary?
 - e. Will a flasher or other emergency lighting equipment be required?
 - f. Will flagger(s) be required when setting up and removing the equipment? During job operation?
 - g. Where will it be possible to keep all materials, tools, and equipment pertaining to the job during work operations? After working hours?
 - h. Along routes to or near special events, such as baseball games, race tracks, etc., is it possible to schedule job on days or hours with least traffic.
 - i. Where will pump and lighting equipment be located with respect to the work location?
 - j. Will job operation cause interference to a pedestrian or vehicular crossing such as a school crossing, bus stop, etc.
 - k. Can warning devices be placed in traffic lane or lanes in which manhole is located?
 - l. If truck is on the job, where should it be located for maximum protection?
 - m. In a manhole, is the ladder in such a position that user must face approaching traffic?
 - n. Are there other utilities or public works activity scheduled at the same time?
 - o. Have we used as little of the travel portion of the street as we reasonably can, with the safety of our employees and the general public given full consideration?

- p. Flashers - Is the rate of flash adequate? Should be regular with from 70 to 120 flashes per minute and that the "on" time be at least 25% of the cycle.
3. The following examples should be used as a guide in planning and setting up work area protection. They illustrate minimum protection and should be enlarged upon wherever necessary.



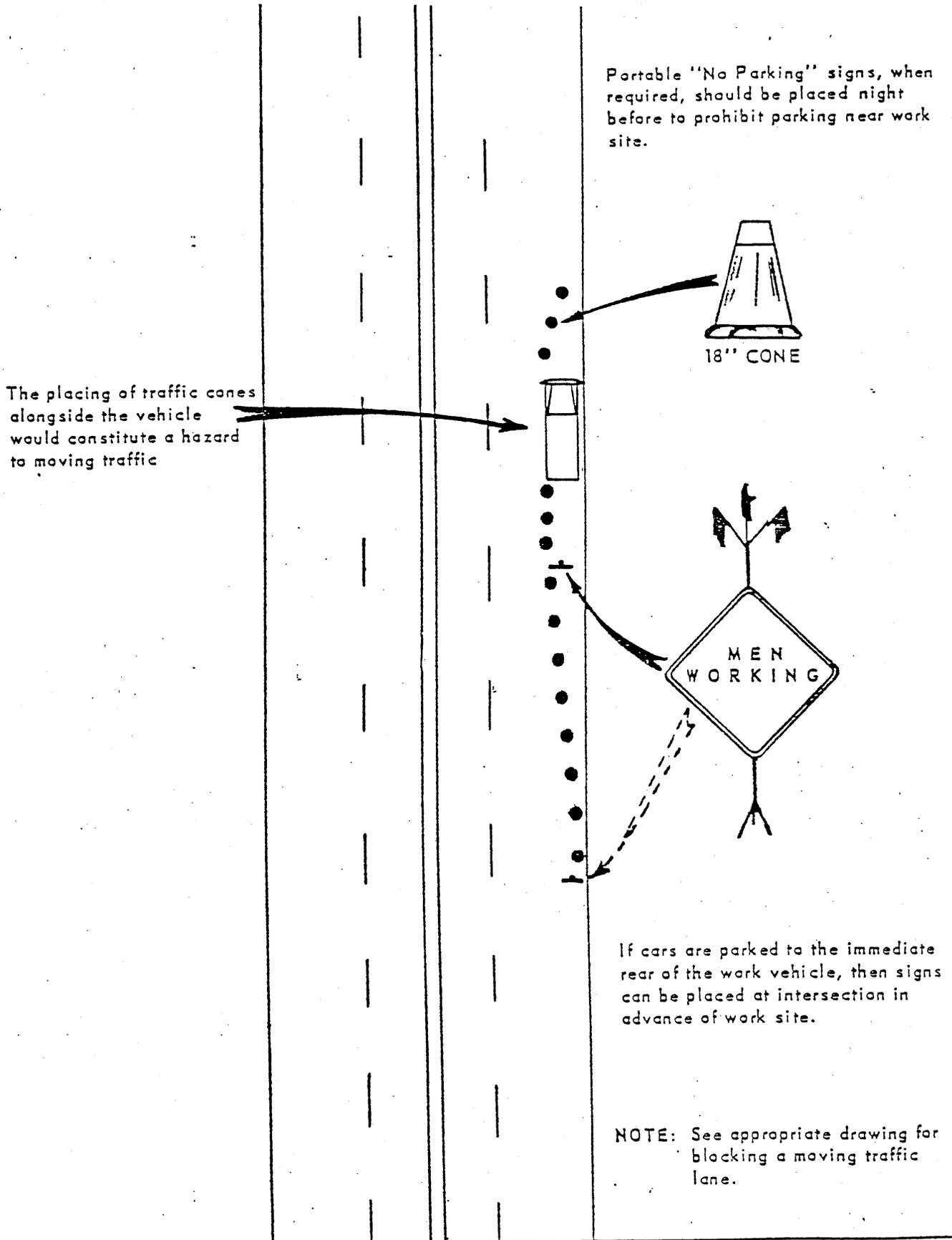
COMPLETE STREET CLOSURE

Complete street closures will be avoided whenever possible. If it is found necessary to close an ARTERIAL street, the City Traffic Engineer must be consulted for layout of detour routes and control devices required.

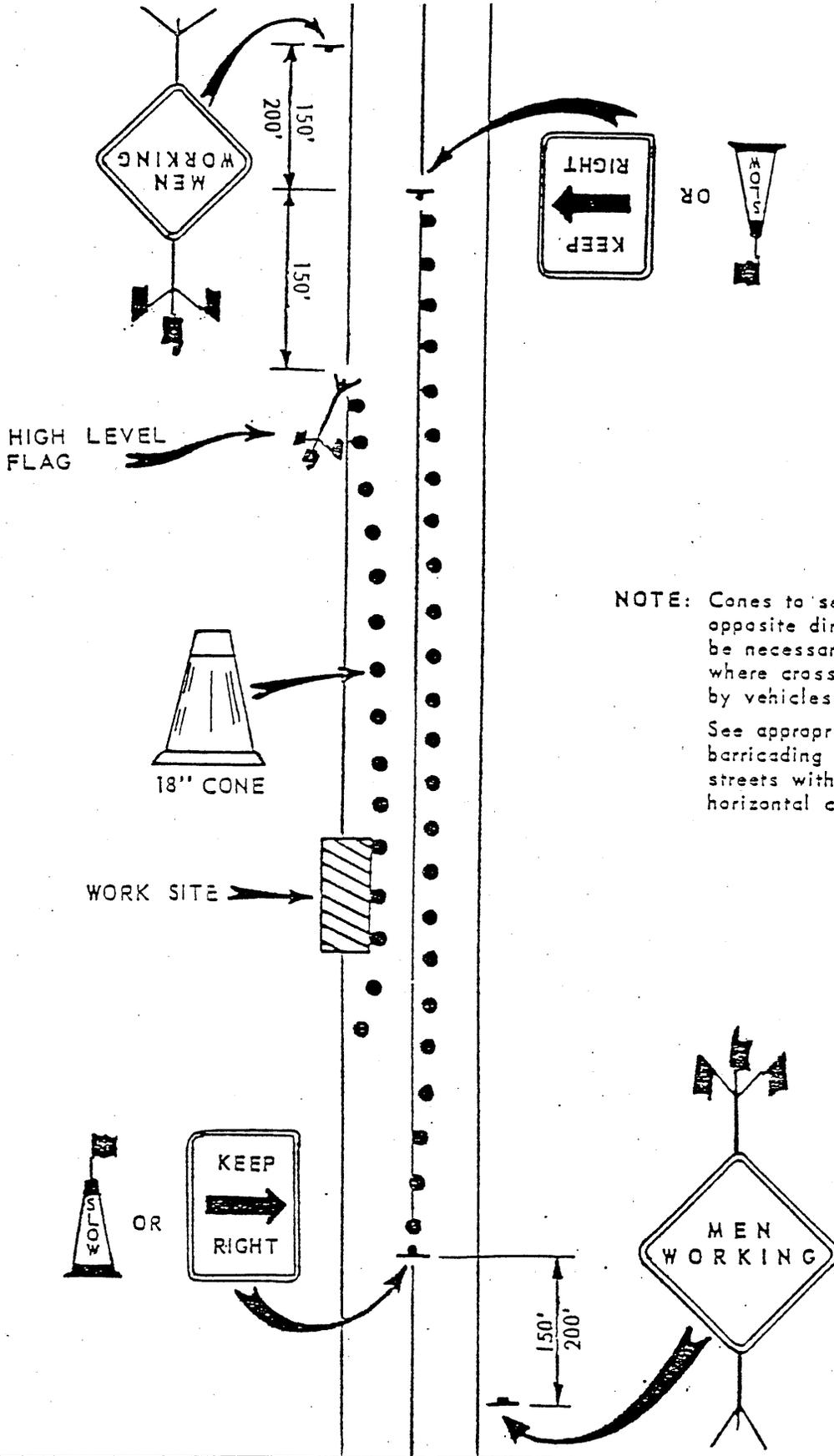


*See appropriate drawing for complete signing

TAPER RATES, CONE SPACING & SIGN LOCATION*

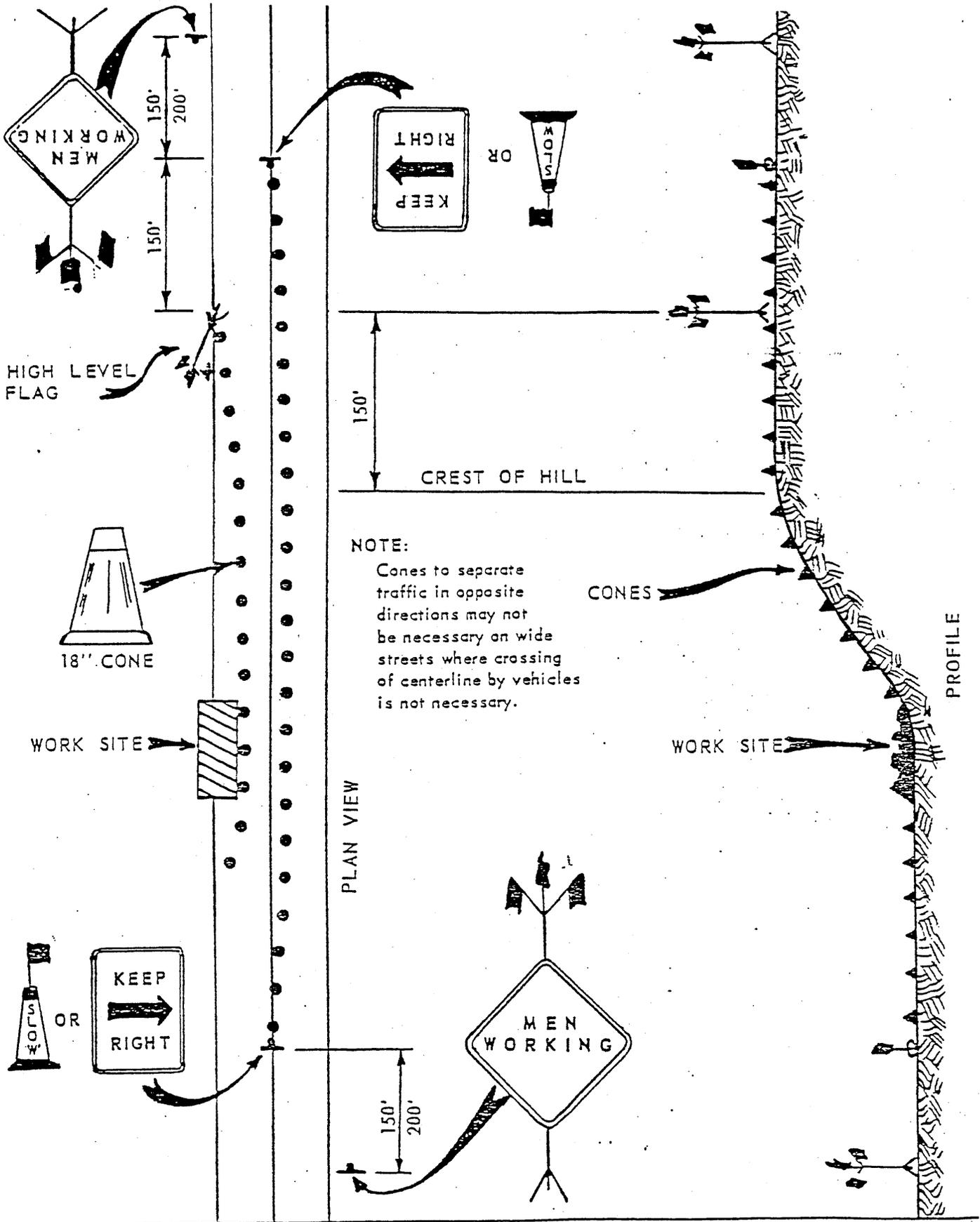


VEHICLE & JOB BLOCKING A PARKING LANE OR A "RIGHT TURN ONLY" LANE

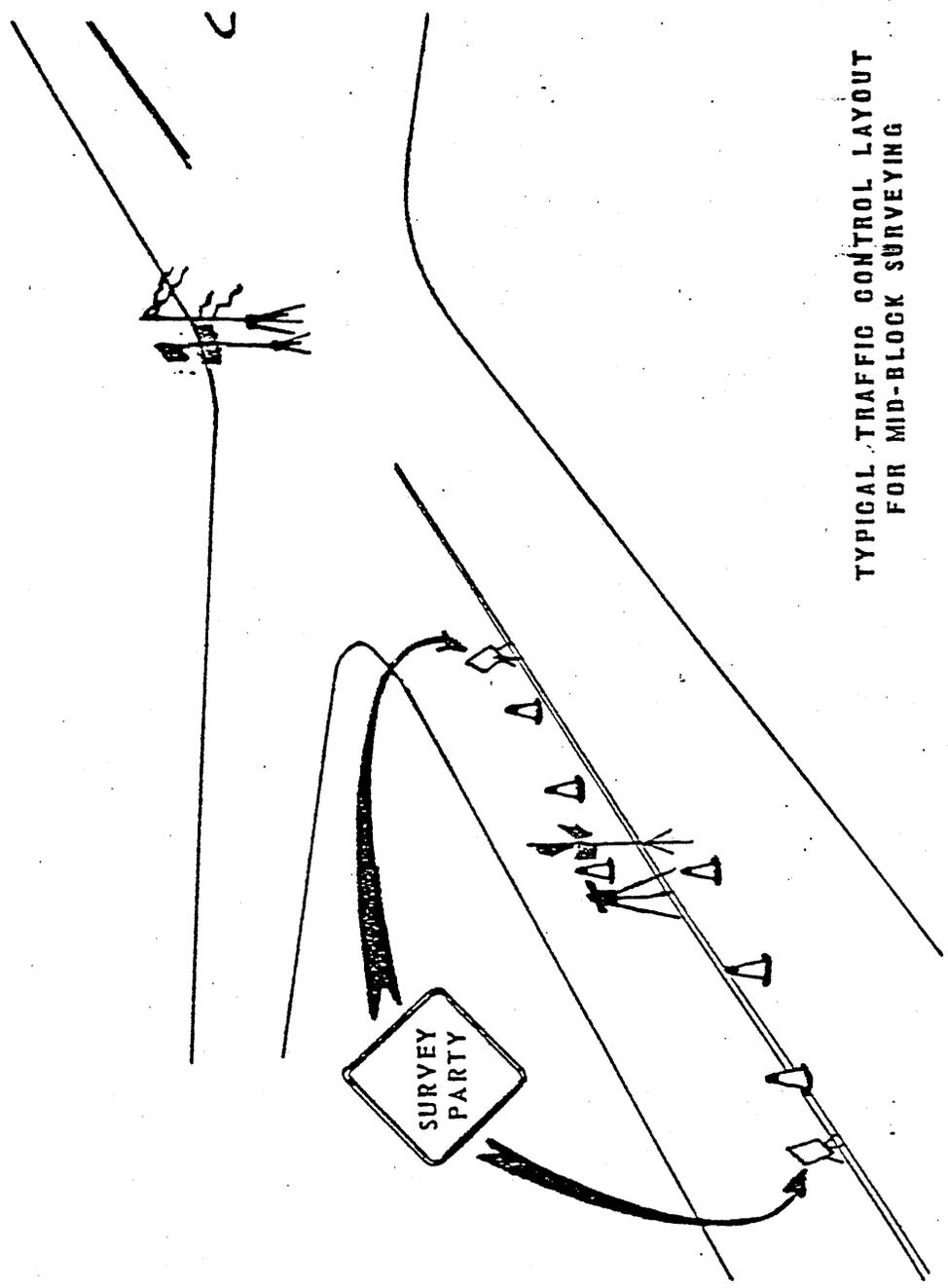


NOTE: Cones to separate traffic in opposite directions may not be necessary on wide streets where crossing of centerline by vehicles is not necessary. See appropriate drawing for barricading and signing streets with vertical and horizontal curves.

TWO-LANE (TWO-WAY) STREET WORK SITE BLOCKING PORTION OR ALL OF ONE LANE

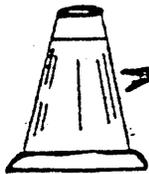


VEHICLE AND/OR JOB SITE AT SAG OF VERTICAL CURVE. THIS WOULD ALSO APPLY TO WORK BEYOND THE CREST.



TYPICAL TRAFFIC CONTROL LAYOUT
FOR MID-BLOCK SURVEYING

NOTE: On wide streets where encroachment onto other lane is not necessary, these cones can be eliminated or placed on centerline.



18" CONE



OR



KEEP
RIGHT

WORK SITE

HIGH LEVEL WARNING FLAG

MEN
WORKING

KEEP
RIGHT
OR
CONES

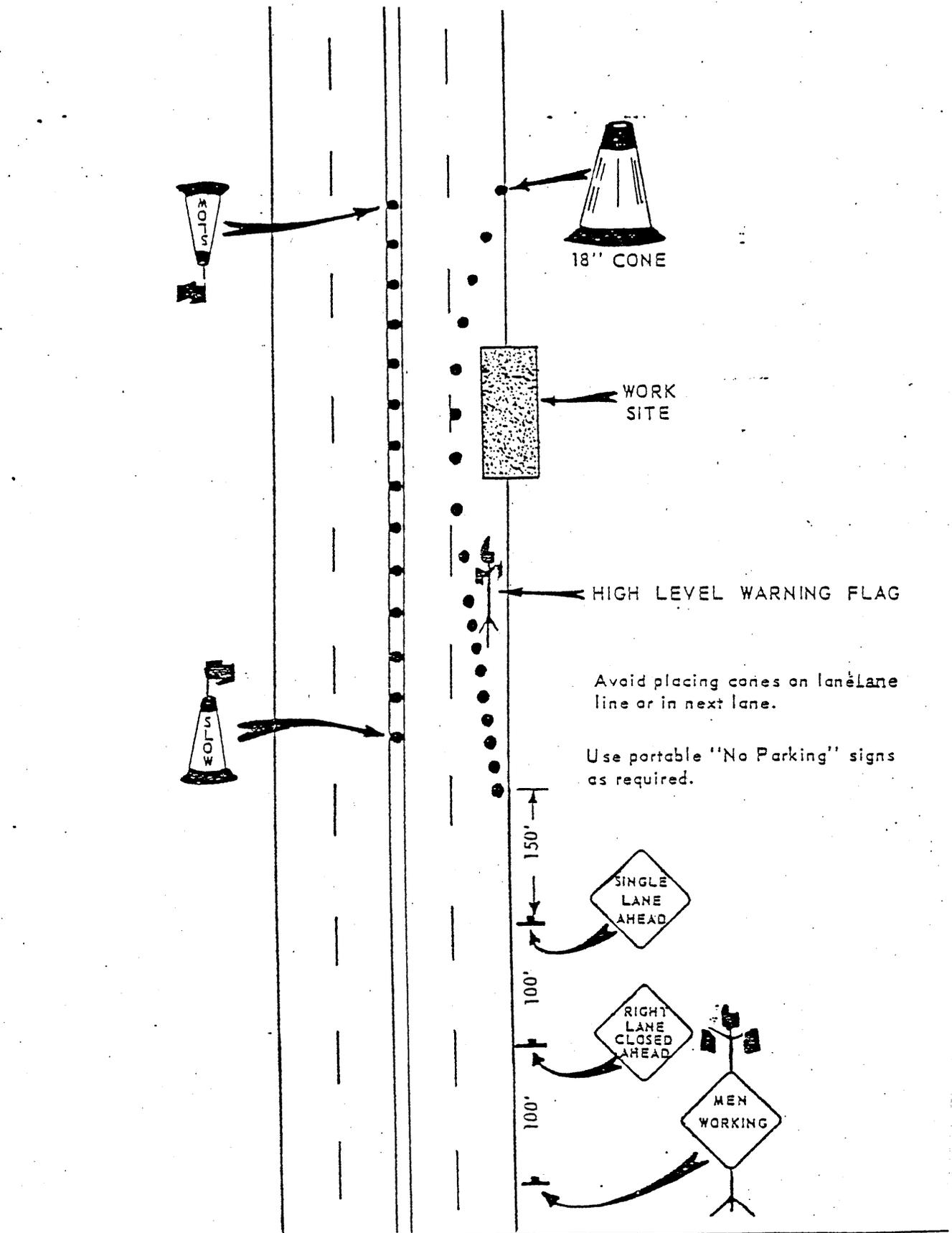
WORKING

150'
200'

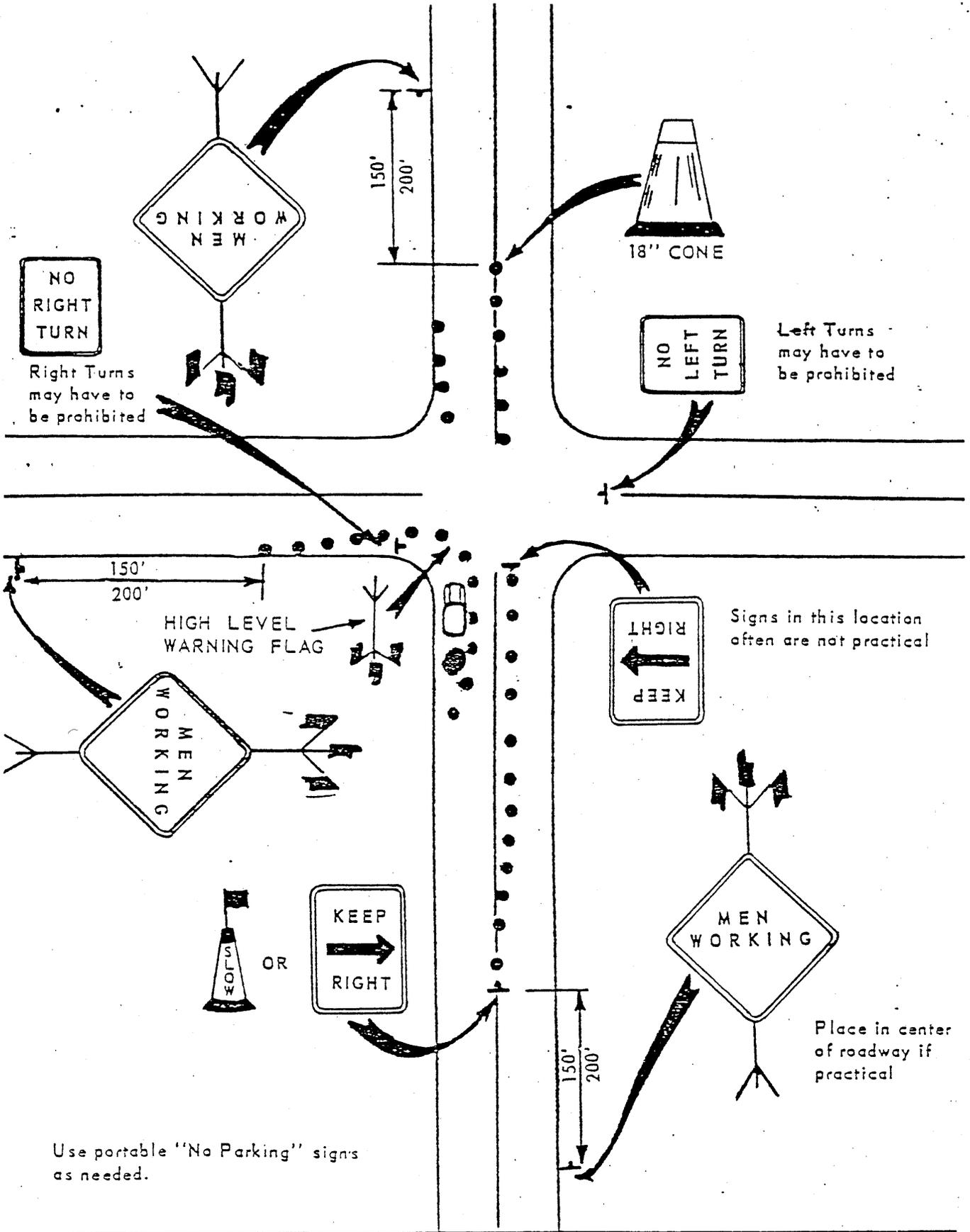
150'
200'

150'
200'

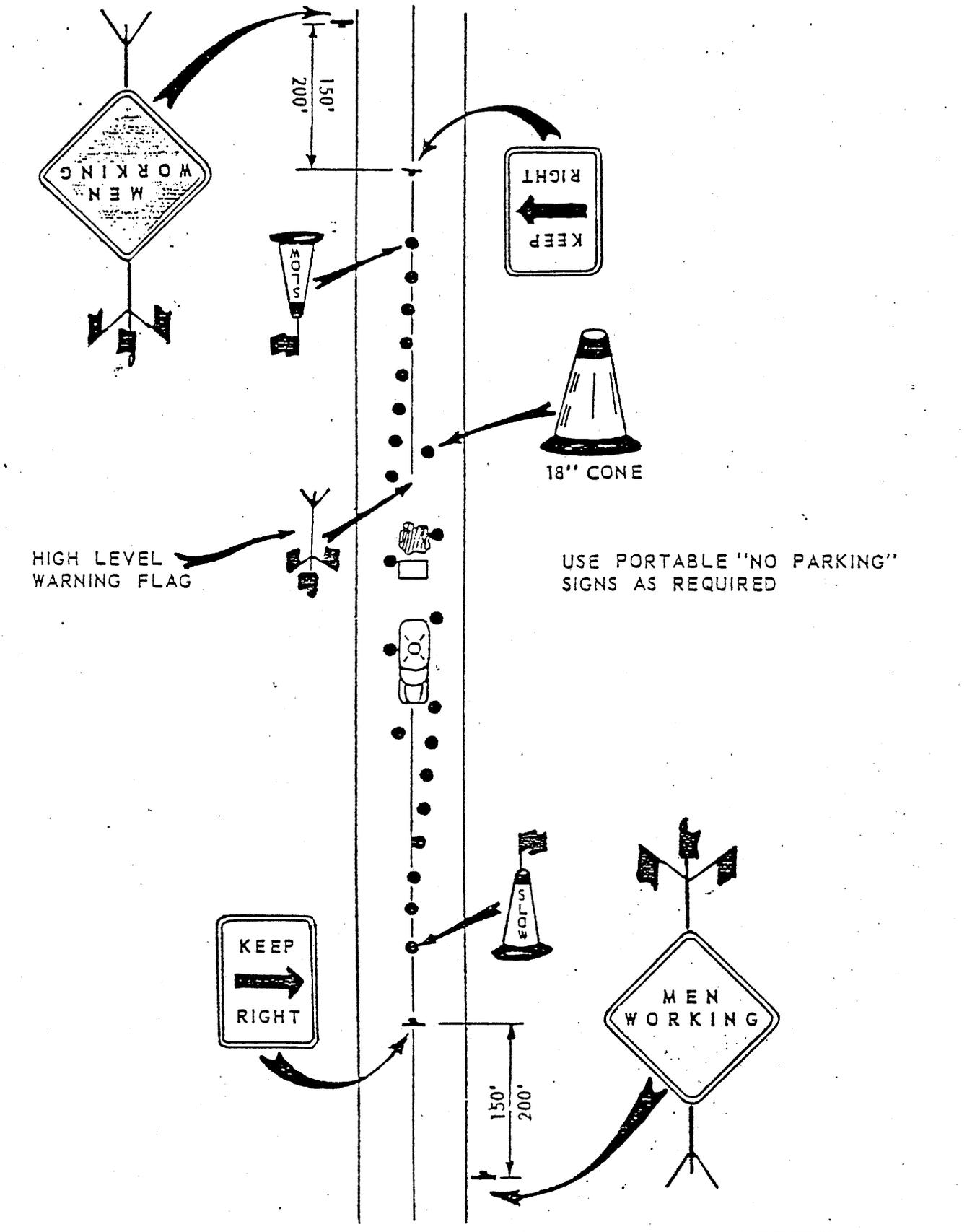
VEHICLE AND/OR JOB AT OR BEYOND HORIZONTAL CURVE



4 LANE, 2-WAY STREET WITH ONE LANE BLOCKED



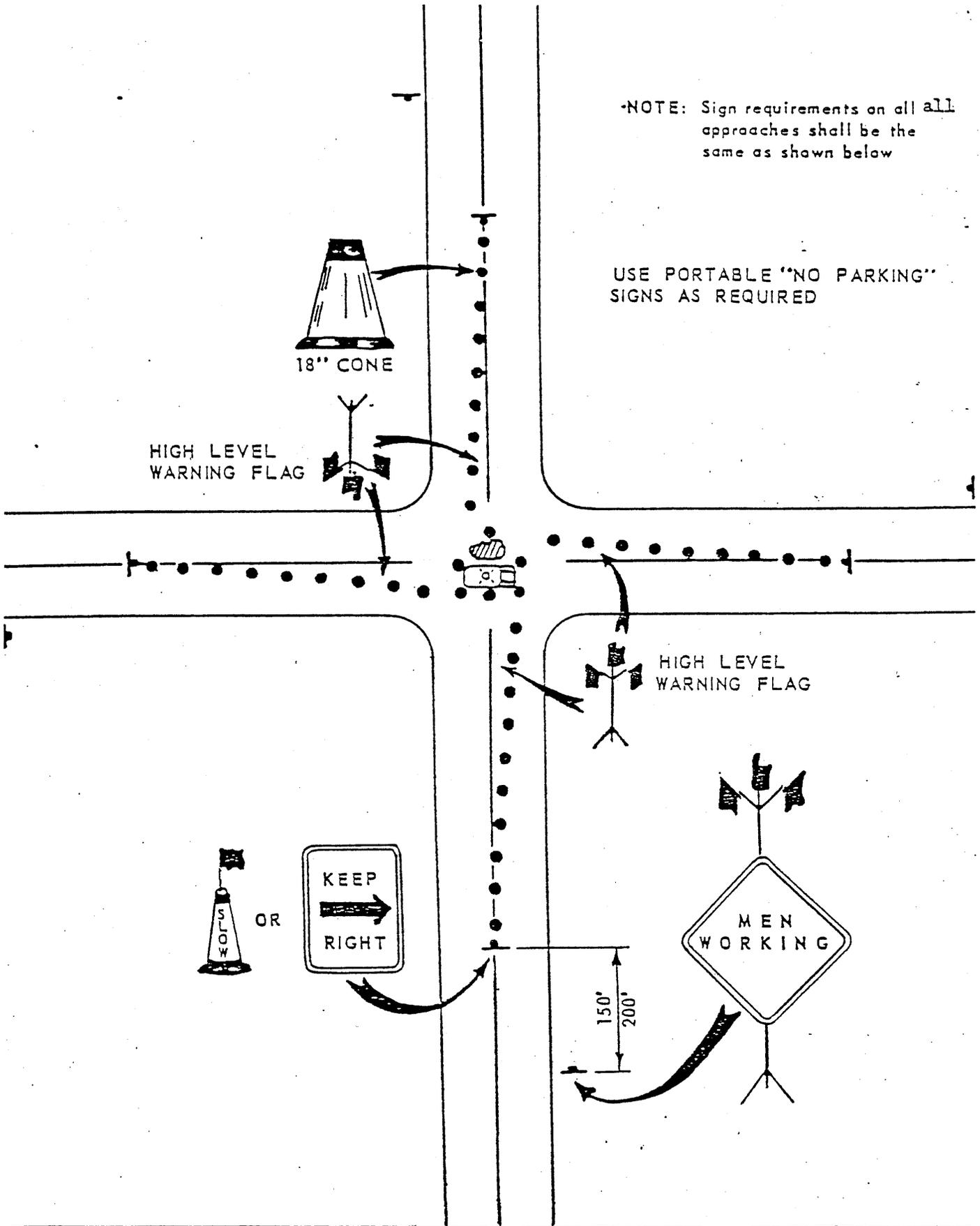
VEHICLE AND/OR JOB NEAR AN INTERSECTION



VEHICLE & JOB IN CENTER OF 2 LANE ROAD. TRAFFIC CAN PASS SAFELY ON EITHER SIDE.

NOTE: Sign requirements on all all approaches shall be the same as shown below

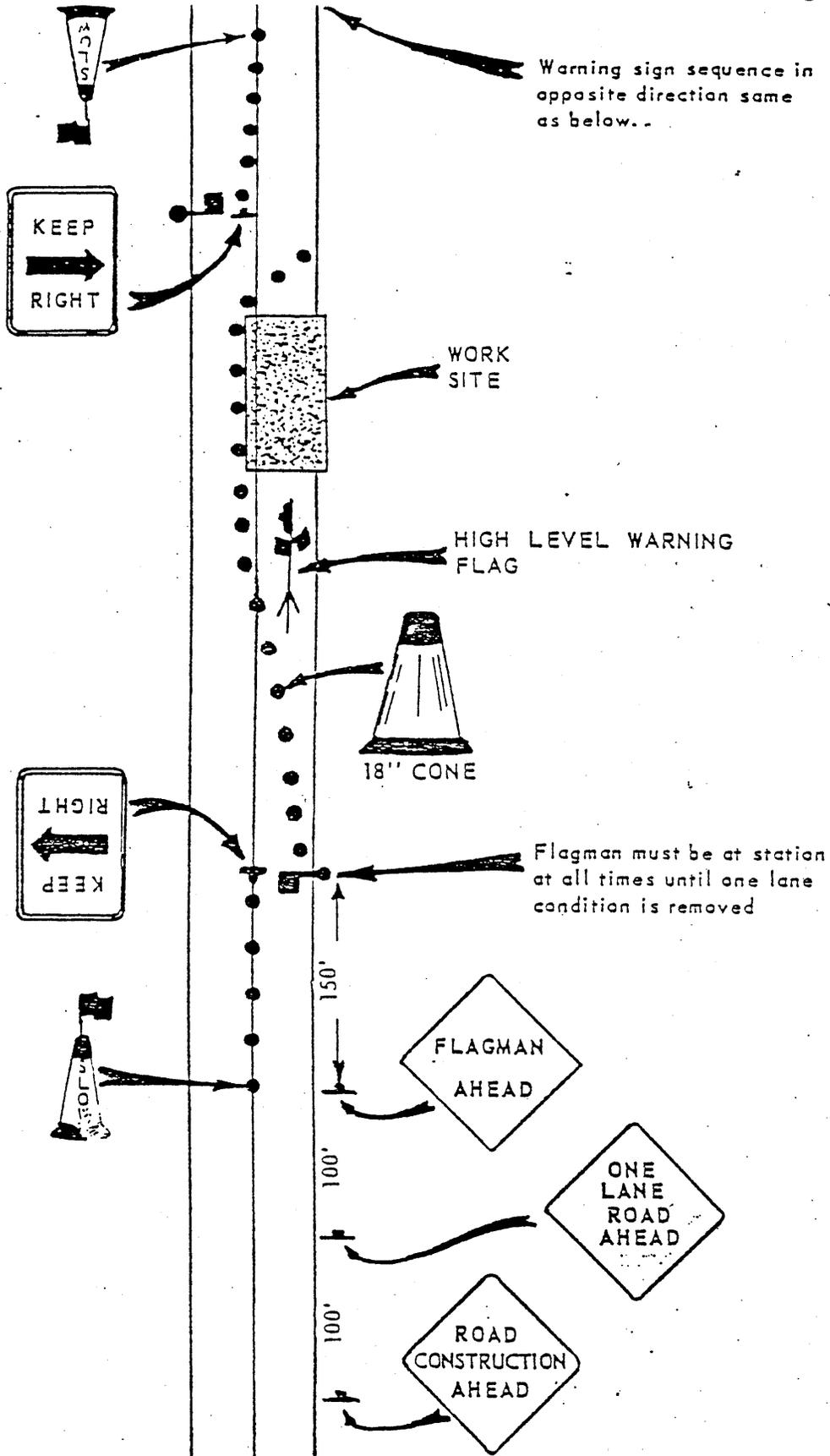
USE PORTABLE "NO PARKING" SIGNS AS REQUIRED



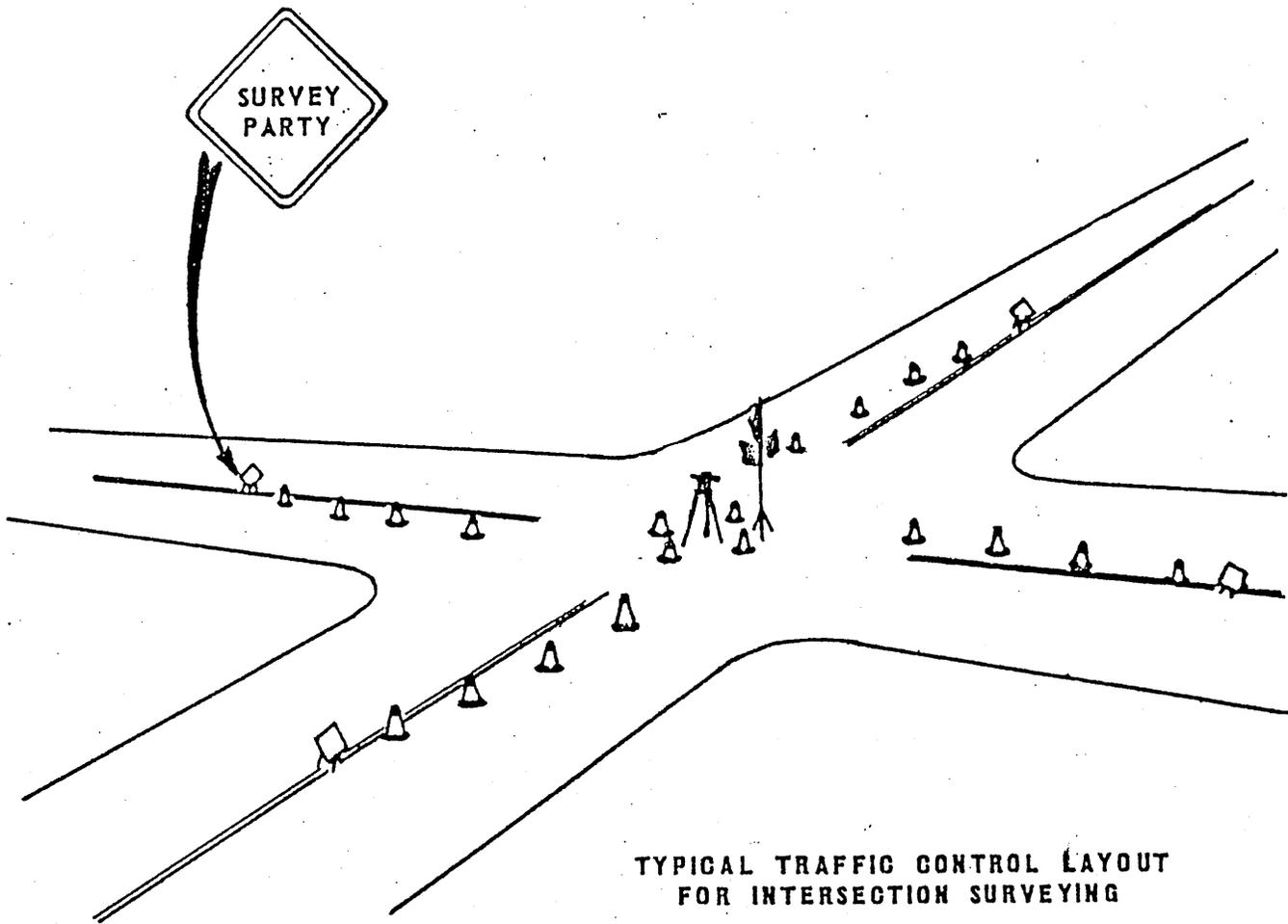
VEHICLE & WORK AREA WITHIN AN INTERSECTION OF TWO TWO-WAY STREETS

Standard Operating Procedures

Construction Signing (Temporary)



SIGNING FOR ONE-WAY TRAFFIC CONTROL.
CLOSING ONE-HALF OF UNDIVIDED ROAD.



TYPICAL TRAFFIC CONTROL LAYOUT FOR INTERSECTION SURVEYING