

## DIVISION 800 – TRAFFIC CONTROL

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[Include the following Section 801 and 802 in contacts that involve construction on the Turnpike:]

### SECTION 802 - LANE AND SHOULDER CLOSINGS

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#### 802.03 METHODS OF CONSTRUCTION

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##### (A) Lane Closings.

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Traffic lanes shall not be kept closed when no work is scheduled to be performed. Traffic protection will not be permitted to remain in effect overnight in work areas not requiring overnight lane closings.

*The contractor shall have the choice of using 28" or 36" traffic cones. The contractor shall not combine 28" and 36" cones in a single closing. All cones per closing shall be the same height.*

All traffic cones adjacent to the contractor's work area which have been moved or displaced for whatever reason shall be immediately restored to their proper position by the Contractor during such times as he is actively engaged at the site.

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[Include the following Sections 801 and 802 in contracts that involve construction on the PARKWAY:]

## SECTION 801 – MAINTENANCE AND PROTECTION OF TRAFFIC

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### 801.01 GENERAL PROVISIONS

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#### Parkway Traffic

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The Contractor shall be responsible for implementing all necessary lane and/or shoulder closures and shall provide all equipment and manpower as may be necessary to affect the required closures.

*The contractor shall have the choice of using 28" or 36" traffic cones. The contractor shall not combine 28" and 36" cones in a single closure. All cones per closure shall be the same height.*

Whenever the Contractor's vehicles operate on any roadway which is open to traffic, travel shall always be with and not across or against the flow of such traffic. Vehicles shall not park or stop in roadways except within work areas. During permissible work hours for lane closings, when a flagger is not on duty, automobiles operated solely for the transportation of supervisory personnel, flaggers, or approved inspectors will be allowed access to work sites provided that such vehicles are operated in a safe, nonhazardous manner.

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### 801.05 TRAFFIC CONTROL DEVICES

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#### Traffic Cones

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The Contractor shall furnish traffic cones that meet the requirements as specified in ~~the Manual~~. *Subsection 920.01.*

# DIVISION 900 – MATERIALS

## SECTION 920 – TRAFFIC CONTROL DEVICES

### 920.01 TRAFFIC CONES

Replace this section with the following;

Traffic Cones shall be NCHRP 350 compliant and shall meet the requirements listed herein. Cones shall have either separate or molded bases. Cones need not be new but must be in good condition as approved. The Engineer may order the replacement of any cones that are dirty, cracked, unstable, exhibiting loose/frayed collars or not in conformance with the requirements herein. The cone material shall be impregnated with orange pigment, and the surface shall have a glossy, non-reflectorized finish. The color of the cone surface shall be in accordance with the Manual on Uniform Traffic Control Devices (*fluorescent orange*). The contractor shall submit certification from the vendor that the cones meet the evaluation criteria of NCHRP 350 and the physical properties listed below, in accordance with 105.04.

(A) Cones.

Each cone shall be provided with a 6-inch wide collar and 4-inch wide collar of silver (white) retroreflective sheeting meeting the requirements of ASTM D-4956, type III.

The retroreflective sheeting shall be applied to the cone so that the 6-inch collar is three to four inches from the top of the cone and the 4-inch collar is 2 inches below the 6-inch collar.

*The cones shall be constructed in a manner so that the cones in any given delivery, shipment or mobilization will nest or stack with each other, with or without stabilizers, without difficulty.*

*Cone bases shall be black in color. Bases for 36" Cones shall be flat (no cleats).*

Cones shall have the following physical properties:

(1) Material	PVC/Plastic or Rubber
(2) Overall Height	28"
(3) Cone Weight	7 lbs. (min.)
(4) Total in place Weight	15 lbs. (min.)
(5) Cone Diameter, Top Interior (1" from top)	2 7/16" ± 1/8"
(6) Cone Diameter, Bottom Interior	11 1/2" ± 1/2"
(7) Base Size, Square	14 1/2" ± 1/2"
(8) Tensile Strength	1,000 psi (min.)
(9) Elongation	200% (min.)
(10) Hardness – Durometer	80 ± 10

(11) Fold Resistance Test No Effect

Fold resistance shall be determined by placing the cone in this normal position on a flat and level surface and folding it at a point near the middle of its vertical height. Hold the upper tip of the cone by hand for ten seconds to the base and touching the surface upon which the base is resting. When released, the cone shall return to its original vertical position within 15 seconds.

(12) Heat Resistance Test No Effect

Heat resistance shall be demonstrated by conditioning the cone in an atmosphere of 140°F for a minimum of four hours. The conditioned cone shall remain self supporting with no appreciable slump or sag.

(13) Cold Resistance Test No Effect

Cold resistance shall be demonstrated by conditioning the cone in an atmosphere of 10°F for a minimum of four hours and then subjecting the cone to a 180°F fold as described above for fold resistance. The conditioned cone shall show no evidence of fracturing, cracking or splitting.

(14) Impact Resistance Test No Effect

Impact resistance tests shall be performed for PVC/Plastic traffic cones. Impact resistance shall be demonstrated by conditioning the cone as described in (13) and dropping a steel ball weighing 2 pounds (0.9 kg) a distance of 5 feet (1.5m) through a virtually frictionless guide to impact the surface of the cone. The surface of the cone being struck by the steel ball shall be in a horizontal position with the cone supported and held in position at both ends. The cone shall be subjected to five concurrent impact tests concentrated near the middle. The conditioned cone shall show no evidence of fracturing, cracking or splitting.

		Design Criteria	
		28" Cone	36" Cone
(1)	Material	PVC/Plastic or Rubber	PVC
(2)	Overall Height	28"	36"
(3)	Cone Weight	7 lbs. (min.)	15.5 lbs. (min.)
(4)	Total in-place Weight	15 lbs. (min.)	15.5 lbs. (min.)
(5)	Cone Diameter, Top Interior (1" from top)	2-3/8" ± 1/8"	2-3/8" ± 1/8"
(6)	Cone Diameter, Bottom Interior	10-5/8" ± 1/2"	11-3/8" ± 1/2"
(7)	Base Size, Square	13-3/4" ± 1/2" With Cleats	17" ± 1/2" Without Cleats
(8)	Tensile Strength ASTM D638	1,000 psi (min.)	1,000 psi (min.)
(9)	Elongation	200% (min.)	200% (min.)
(10)	Hardness - Durometer ASTM D2240	80 ± 10	80 ± 10
(11)	Fold Resistance - A cone is placed in an upright position and folded at a point near the middle of its vertical height by holding the upper tip of the cone by hand for ten seconds to the base and touching the surface upon which the base is resting.	The cone shall return to its original vertical position within 15 seconds after release.	

(12)	Heat Resistance - Cones are placed upright for 1 hour at 180°F with a 3±0.11 Lb mass suspended approximately 14" from the top of each cone, and secured using a 2.6 inch diameter flat metal disc. Cones are returned to ambient air temperature, and are stacked in various configurations with one another.	The cones shall not stick to one another and shall be easy to remove from the stack(s).
(13)	Cold Resistance - A cone is placed upright for 3 hours at 0°F. Immediately after, a steel ball weighing 2 pounds (0.9 kg) is dropped a distance of 5 feet (1.5m) through a virtually frictionless guide tube onto the surface of the cone. The surface of the cone that was struck by the steel ball shall be in a horizontal position, with the cone supported and held in position at both ends. The cone shall be subjected to five concurrent impacts concentrated near the middle.	The cone shall show no evidence of fracturing, cracking or splitting

(b) ~~Bases and Collars.~~ Stabilizers

Separate ~~square bases~~ stabilizers shall be provided for 28" cones to meet the Total in-place weight requirement listed herein for cones without molded bases. 36" cones do not require separate stabilizers. The separate ~~bases~~ stabilizers shall be black in color shall be constructed so that they rest evenly on the base of the cone without overhanging. The ~~weight of the base stabilizer~~ shall be a minimum of 8.5 pounds and shall have the same physical properties as cones in tensile strength, elongation and hardness. Only one stabilizer per cone shall be used.

~~Separate collars shall be provided to meet the Total in-place weight requirement listed herein for cones with molded bases. The collars shall be constructed so that they rest evenly on the base of the cone without overhanging. The weight of the collar shall be a minimum of 8 pounds.~~