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## ENGINEERING DIRECTIVE

CHIEF ENGINEER

### GUIDANCE FOR DESIGNERS TO MINIMIZE TRAVEL DELAYS DURING CONSTRUCTION OPERATIONS

In an effort to minimize travel delays and inconveniences during construction operations, designers shall consider the following items when developing project documents:

- The existing number of travel lanes should be maintained whenever possible during peak travel times. These times may vary depending on location; however, in some cases work may be performed off the roadway surface during peak travel times depending on location and conditions.
- The majority of temporary lane closures, which would normally require the use of drums and/or cones, must be initiated during off-peak travel times unless the traffic volumes allow otherwise. The most recent traffic counts in the area should be used when formulating the traffic management plan. New traffic counts should be taken if no recent data is available (within the last 5 years).
- Normal work hours can vary from project to project. The designer's goal shall be to provide a daily eight-hour work window to the contractor. Work hours and work zone traffic plans shall be developed using the following table or other current acceptable information (practice):

**Measured Average Work Zone Capacities**

NUMBER OF LANES		NUMBER OF STUDIES	AVERAGE CAPACITY	
NORMAL (existing)	OPEN (to traffic)			
			VPH	VPHPL
3	1	7	1,170	1,170
2	1	8	1,340	1,340
5	2	8	2,740	1,370
4	2	4	2,960	1,480
3	2	9	2,980	1,490
4	3	4	4,560	1,520

Source: Dudek, C., *Notes on Work Zone Capacity and Level of Service*.

Texas Transportation Institute, Texas A&M University, College Station, Texas (1984)

If the most recent traffic data (that falls within the proposed work schedule) exceeds the numbers presented in the chart then the designer must perform a queue or delay analysis to determine average delays that could result based on the proposed construction staging. If the queue or delay is excessive then other alternatives for construction shall be developed.

- Message boards with condition-specific messages should be used as stipulated in Chapter VI of the 2000 Manual on Uniform Traffic Control Devices (MUTCD) to inform the traveling public of expected work zone conditions.
- The needs of all roadway users, including bicyclists, pedestrians and handicapped persons, must be considered in all traffic management plans. Designers must coordinate with project abutters and local businesses for information that may affect their design.
- Designers must coordinate with the district offices, municipalities, and utility companies for information on adjacent projects that may affect their design.
- Designers must also be aware that:
  - In accordance with standard contract provisions there is no work allowed on Saturdays, Sundays, holidays, or the day before or after a holiday without prior approval by the Engineer.
  - Work on Cape Cod may be restricted between Memorial Day and Labor Day.
  - Roadways leading to Cape Cod can have restrictions to halt work on Friday afternoons and to delay the start of work on Monday mornings.
  - Work can be preempted by special events at locations such as the Fleet Center, the Worcester Centrum, the Big E, Gillette Stadium, and Fenway Park.
  - Work can be curtailed near shopping plazas/malls between Thanksgiving and Christmas.
  - Temporary road closures, including rolling roadblocks, usually occur between 12:00 Midnight and 5:00 AM, depending on actual traffic volumes.
  - Work hour restrictions can be waived or reduced for emergency work.
  - All signs must be in compliance with the latest edition of the MUTCD.