

# Traffic Signal Operations Specialist Certification Program Refresher Course

Developed for the  
**ITE Educational Foundation**

**March 2007**

# Table of Contents

## **Traffic Signal Operations Specialist Certification** **Program Refresher Course**

|                                                                                                                                             |                |
|---------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>Module 1: Principles of Traffic Signal Control .....</b>                                                                                 | <b>1</b>       |
| <i>Prepared by George L. Butzer, Senior Traffic Engineer, DLZ Ohio Inc.</i>                                                                 |                |
| Module 1 Exam Questions .....                                                                                                               | 22             |
| Module 1 Exam Answers .....                                                                                                                 | 26             |
| <br><b>Module 2: Elements of Signal Design and Installation .....</b>                                                                       | <br><b>27</b>  |
| <i>Prepared by Robert K. Seyfried, Director, Transportation Safety Division,<br/>Northwestern University Center for Public Safety</i>       |                |
| Module 2 Exam Questions .....                                                                                                               | 58             |
| Module 2 Exam Answers .....                                                                                                                 | 61             |
| <br><b>Module 3: Signal Phasing and Timing.....</b>                                                                                         | <br><b>62</b>  |
| <i>Prepared by Robert K. Seyfried, Director, Transportation Safety Division,<br/>Northwestern University Center for Public Safety</i>       |                |
| Module 3 Exam Questions .....                                                                                                               | 85             |
| Module 3 Exam Answers .....                                                                                                                 | 89             |
| <br><b>Module 4: Signal System Timing and Operations.....</b>                                                                               | <br><b>90</b>  |
| <i>Prepared by Philip J. Tarnoff, Director, Maryland Transportation Technology<br/>Transfer Center, University of Maryland-College Park</i> |                |
| Module 4 Exam Questions .....                                                                                                               | 117            |
| Module 4 Exam Answers .....                                                                                                                 | 120            |
| <br><b>Module 5: Signal Operations and Safety Review .....</b>                                                                              | <br><b>121</b> |
| <i>Prepared by Richard B. Nassi, Traffic Engineer, City of Tucson, AZ</i>                                                                   |                |
| Module 5 Exam Questions .....                                                                                                               | 155            |
| Module 5 Exam Answers .....                                                                                                                 | 158            |