

# ATLB-1220: TRAFFIC CONTROL

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## Cuyahoga Community College

**Viewing: ATLB-1220 : Traffic Control**

**Board of Trustees:**

2012-11-29

**Academic Term:**

Spring 2019

**Subject Code**

ATLB - AIT-Construct/Hazard Material

**Course Number:**

1220

**Title:**

Traffic Control

**Catalog Description:**

Covers the procedure for establishing traffic control including flagging operations for asphalt placement, barrier and control sign stationing, and placement of asphalt on roadways. Presentations covering estimating asphalt quantities. Care and use of hand tools for installation procedures.

**Credit Hour(s):**

2

**Lecture Hour(s):**

2

## Requisites

**Prerequisite and Corequisite**

Departmental approval: admission to the Construction Tending and Hazardous Material Abatement program.

## Outcomes

**Course Outcome(s):**

A. Interpret the Manual of Uniform Traffic Control Devices (MUTCD) to properly select channelized devices, place signage, layout tapers, and establish device spacing.

**Objective(s):**

1. Analyze roadway situations to determine the proper cone sizes, barrels, tubular markers, and barricades to channelize traffic during highway maintenance and construction.
2. Evaluate roadway types to establish proper signage based upon size of sign and height above roadway, spacing, and methods of mounting.
3. List and define the various types of roadway tapers.
4. Calculate the length of taper as prescribed in the MUTCD standard and determined by speed limits and roadway type.
5. Establish device spacing determined by posted speed limits and or work zone tangents.

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**Course Outcome(s):**

B. Identify the behaviors of safe flagging operations personnel including conduct and attention to detail.

**Objective(s):**

1. Identify distractions on the worksite that may impact the safety of the workers and motorists.
2. Apply the safety regulations as prescribed in the MUTCD manual including equipment and best locations of flagging operations.
3. List the different types of flagging equipment and apparel.
4. Describe behaviors required for flagging crew members.
5. Discuss the respective details of flagging operations including attentiveness and alertness.

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**Course Outcome(s):**

C. Estimate the amount of asphalt required for a project based on roadway drawings, mix design, aggregate size and project dimensions.

**Objective(s):**

1. Calculate volumes of asphalt based on dimensions designated in feet, inches and decimal parts of a foot and also given in metric measure.
2. Identify different types of asphalt design mixes determined by aggregate type and size and binding material.
3. Use measuring tools to determine roadway widths and lengths.
4. Interpret roadway civil drawings to establish appropriate stationing.
5. Interpret roadway surveyor grade stakes.
6. Compute asphalt material quantities as measured in tons of product.

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**Course Outcome(s):**

D. Demonstrate the ability to properly install asphalt on roadways identifying construction hazards, safety concerns and equipment and hand tool usage.

**Objective(s):**

1. Identify safety regulations as applied to roadway work including personal protective equipment, overhead hazards and potential pinch points.
2. Identify different paving equipment and respective components and demonstrate the ability to properly adjust the paver to correct settings with respect to width and depth.
3. List the hand tools used in paving operations and demonstrate the ability to properly use them.
4. Assess asphalt placement to identify defects in the surface including upheaval, depressions, cracks, and potholes.
5. Demonstrate the ability to repair defects in asphalt.

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**Methods of Evaluation:**

1. Quizzes
2. Tests
3. Class participation
4. Field exercises

**Course Content Outline:**

1. MUTCD
  - a. Federal Highway Administration
    - i. State level
    - ii. Federal application
  - b. Traffic control
  - c. Channelized devices
    - i. Cones
    - ii. Barrels
    - iii. Barricades
    - iv. Tubular markers
  - d. Roadway types
    - i. Interstate high speed
    - ii. Rural
    - iii. Urban
  - e. Signs
    - i. Warning
    - ii. Regulatory
    - iii. Guide
    - iv. Proper spacing
  - f. Tapers
    - i. Flagger
    - ii. Merging
    - iii. Shoulder

- iv. Shifting
- v. Downstream
- g. Taper length calculations
  - i. Length = Lane Width x Speed Limit
  - ii. Length = ( Lane Width x ( Speed Limit)<sup>2</sup> ) ÷ 60
- h. Device spacing
  - i. i. Speed limit
  - ii. Tangent of work zone
  - iii. Requirements
- 2. Flagging
  - a. Safety regulations
    - i. MUTCD
    - ii. Equipment
    - iii. Location
    - iv. Apparel
  - b. Flagging equipment
  - c. i. Stop/slow paddle
    - ii. Flag
    - iii. Flashlight
    - iv. Cones
  - d. Personality traits
  - e. i. Courtesy
    - ii. Decision makers
    - iii. Respect
    - iv. Control
    - v. Attentive
  - f. Worksite distractions
  - g. i. Pedestrians
    - ii. Co workers
    - iii. Radios and phones
    - iv. Noise
- 3. Estimating
  - a. Roadway volume
    - i. Dimensions
    - ii. Conversions
  - b. Design mixes
  - c. i. Weight
    - ii. Aggregate size
    - iii. Binders
  - d. Measuring tools
  - e. i. Tapes
    - ii. Wheels
    - iii. Other
  - f. Roadway stations
  - g. i. Interpretation
    - ii. Pluses and minuses
    - iii. Hub identification
  - h. Asphalt quantities
- 4. Installation
  - a. Safety regulations
    - i. Personal Protective Equipment (PPE)
    - ii. Material safety data sheets (MSDS)
    - iii. MUTCD
    - iv. Overhead hazards
    - v. Pinch points
  - b. Paving equipment
    - i. Hoppers
    - ii. Augers

- iii. Slat conveyor
- iv. Screed plate
- v. Screw adjustments
- vi. Screed wings
- vii. Crown adjustments
- viii. Electronic grade and slope control
- c. Hand tools
  - i. Shovels
  - ii. Lute
  - iii. Scrapers
  - iv. Tampers
  - v. Spray gun
  - vi. Defects
    - 1. Cracks
    - 2. Pot holes
    - 3. Depressions and upheavals
    - 4. Asphalt repairs

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## Resources

LIUNA Training and Education Fund. *"Introduction to Asphalt"*. Current edition. LIUNA Training and Education Fund Pomfret Center, Connecticut, 2007.

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LIUNA Training and Education Fund. *"Asphalt Calculations and Estimating"*. Revised edition. LIUNA Training and Education Fund Pomfret Center, Connecticut, 2007.

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LIUNA Training and Education Fund. *"Traffic Control"*. Current edition. LIUNA Training and Education Fund Pomfret Center, Connecticut, 2006.

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LIUNA Training and Education Fund. *"Principles of Construction of Hot Mix Asphalt Pavements"*. Current edition. Liuna Training and Education Fund Pomfret Center, Connecticut, 1983.

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LIUNA Training and Education Fund. *"Principles of Construction of Hot Mix Asphalt Pavements"*. Current edition. LIUNA Training and Education Fund Pomfret Center, Connecticut., 1983.

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## Resources Other

1. "Online Asphalt Pavement Resource Library"
2. National Asphalt Paving Association [http://www.asphaltpavement.org/index.php?option=com\\_content&task=view&id=348&Itemid=752](http://www.asphaltpavement.org/index.php?option=com_content&task=view&id=348&Itemid=752) ([http://www.asphaltpavement.org/?option=com\\_content&task=view&id=348&Itemid=752](http://www.asphaltpavement.org/?option=com_content&task=view&id=348&Itemid=752))

Top of page

Key: 400