



## **MACP/LACP Combined Class Syllabus**

Manhole Assessment and Certification Program® (MACP®) Version 7.0.3

Lateral Assessment and Certification Program® (LACP®) Version 7.0.3

### **Pre-requisites**

All MACP and LACP students must pass the PACP portion of the class before moving forward towards MACP and LACP certification.

### **Required Texts**

Pipeline Assessment & Certification Manual- provided by NASSCO through a certified trainer. Updates to the manual can be found by logging in to [www.nassco.org](http://www.nassco.org)

### **Suggested Reference**

Sewerage Rehabilitation Manual- WRc. Available for purchase at [www.nassco.org](http://www.nassco.org)

Manual of Sewer Condition Classifications- WRc. Available for purchase at [www.nassco.org](http://www.nassco.org)

### **Course Goals**

MACP - The goal of the MACP is to provide the student a thorough understanding of the procedures required to perform an appropriate inspection of manholes and other Access Points.

LACP - The goal of the LACP is to provide the student, who is familiar with PACP as a certified User, with a complete understanding of how the PACP codes have been adapted to provide critical data on the conditions found in laterals. The course presents many opportunities for the student to ask questions about the new codes specifically required for proper use of the LACP.

### **Course Activities**

Presentation of Modules

Course Review

Multiple Choice/Open Book Test

## **Course Schedule**

1. Introduction to Manhole Condition Assessment, *estimated time 45 minutes*
  - A. Manhole Assessment Certification Program (MACP)
    - i. Overview
    - ii. MACP Inspection Form
    - iii. Levels
    - iv. Photographs
  - B. Manhole Component Descriptions
    - i. Cover
    - ii. Frame
    - iii. Chimney
    - iv. Cone
    - v. Wall
    - vi. Bench
    - vii. Channel
    - viii. Pipe Connections
2. Manhole Inspection Header Section and Component Observation, *estimated time 1.75 hours*
  - A. Header Section Instructions
  - B. Component Observation Section Instructions
3. Manhole Component Defect Section, *estimated time 1 hour*
  - A. PACP Defect Codes
  - B. Manhole Component Section
  - C. Chimney Defect Condition Inspection
  - D. Cone Defect Condition Inspection
  - E. Wall Defect Condition Inspection
  - F. Bench Defect Condition Inspection
  - G. Channel Defect Condition Inspection
  - H. Sample MACP Inspection Form
4. Introduction and Overview of Lateral Sewer Assessment, *estimated time 30 minutes*
  - A. Lateral Assessment Certification Program (LACP)
  - B. Lateral Configurations
  - C. Examples of Lateral Inspections
  - D. General Approach to CCTV Inspection Using the LACP
  - E. General Rules for Coding Observations/Defects
5. Lateral Inspection Form Header Section, *estimated time 1 hour*
  - A. LACP Header Section
  - B. LACP Header Fields

6. LACP Inspection Form Details Section, *estimated time 1 hour*
  - A. Continuous Defect Coding
  - B. Structural Defects
  - C. Operation and Maintenance Features
  - D. Construction Features
    - i. Access Points (A)
    - ii. Fittings (F)
7. Course Review, *estimated time 1 hour*
8. Multiple Choice Tests, *estimated time 1 hour (30 minutes per subject matter)*

#### **Comments**

- General - The Trainer should clearly explain that MACP consists of Level 1 and Level 2 inspections. The class should understand why there are two levels and the differences between the two.
- Manhole Component Descriptions - The Trainer must describe each component of a manhole from the cover down to the channel and include pipe connections in the manhole. The manual contains good descriptions and helpful sketches of the manhole components for reference.
- Manhole Inspection Header Section - The Trainer must carefully explain the proper uses of the Header Section as it relates to Level 1 or Level 2 inspections. All fields in the Header Section must be explained clearly while encouraging questions from the class. Many of the fields are taken directly from the PACP Header Section and will require minimum review by the Trainer. Others that are unique to MACP will require more detailed explanation from the Trainer.
- Manhole Component Observation Section - The observation of manhole component defects and attributes is important to complete understanding and must be carefully covered during the instruction period.
- Lateral Configurations - The examples in LACP of various lateral configurations must be covered in detail and must include a detailed description of LACP surveys that may start at the main or the clean-out or from the manhole. It is important for the Trainer to ensure that the student understands the coding system for each variation.
- Class participation is a more effective way to ensure understanding than lecturing from the PowerPoint.
- The Trainer should focus on the examples of LACP survey from the three main starting points i.e. from the manhole, from the main and from the clean out. The access points of the surveys are critical and must be reviewed until the Trainer is confident of class understanding.
- General Approach to TV Inspection using LACP - The conditions found in laterals such as debris, obstructions and bellies can reduce the effectiveness of a LACP survey. Particular

attention must be given to cleaning, appropriate lighting, centering of the camera lens and the rate of travel is extremely critical.

- The Lateral Segment Reference (LSR) - The LSR can be confusing to students. Instructors should explain the importance of making LSR's unique.
- Lateral Inspection Form Details Section - The Trainer should reinforce the relevance of the PACP codes in lateral surveys, and take time to explain additional Construction Features Group codes specific to lateral inspection, including access points and fittings.

### **Grading**

Each student will be expected to get at least 85% of the questions asked correct on each of the subject matter tests (MACP and LACP) in order to become certified. If the target is not met, every effort will be made to help the student grasp the information and retake the test(s).

Estimated time: MACP: 4.5 hours, LACP: 3.5 hours

Total Course Time: 8 hours