



SEPTEMBER 9, 2010 MWEA

**CCTV OPERATOR CERTIFICATION PROGRAMS &
INSPECTOR TRAINING & CERTIFICATION
PROGRAMS
-NASSCO'S 4 STEP EDUCATION APPROACH-**

*Setting the Industry Standards for the Rehabilitation of Underground Utilities
Since 1976.*

www.nassco.org



Introduction to NASSCO

- The National Association of Sewer Service Companies (NASSCO) was founded in 1976 with one key goal in mind:

To improve the success rate of everyone involved in the pipeline maintenance and rehabilitation industry through education, training, certification, technical resources and industry advocacy.

- NASSCO's continued mission is to research & evaluate new methods to train our members and educate them, on a neutral platform, about the importance of properly rehabilitated underground pipelines.
- NASSCO provides a strong networking opportunity where our members share real-life experiences which may serve as a basis for development of future training programs.
- NASSCO is a not-for-profit corporation serving all areas of the pipeline industry.



Membership

- NASSCO's membership includes contractors, engineers, municipalities, academia, manufacturers and suppliers.
- Membership continues to grow and has doubled in the last five years with current membership at more than 350 companies and members, representing all areas of the industry.



Networking

- Members have identified networking as one of the key benefits of NASSCO membership. A number of opportunities exist throughout the year, including:
 - Member participation on a variety of NASSCO committees
 - Annual and Semi Annual membership meetings
 - Interactive Website with “Meet a Member” features
 - Industry tradeshow
 - Special events
 - Quarterly newsletters, and interactive communications
 - And More



Technical Support

- NASSCO provides technical information through many publications, member specification guidelines, performance specification standards and technical support from the Technical Director. Publications include:
 - Manual of Practices
 - Inspector's Handbook
 - Specification Guidelines
 - Trenchless Assessment Guide for Rehabilitation (TAG-R)
 - Standard Performance Based Specifications
 - PACP/MACP/LACP Reference Manual
 - Sewerage Rehabilitation Manual (SRM) – WRc Version
 - Manual of Sewer Condition Classification (MSCC) – WRc Version
 - Sewer Jetting Code of Practices both in English & Spanish
 - Web Site www.NASSCO.org



Training & Education

- NASSCO is the trusted source, for the nation's sewer and water industry, by offering the following:
 - ***Pipeline Assessment Certification Program (PACP)*** The North American standard for sewer defect identification and assessment. PACP provides training/education/certification for Contractors, Municipalities, Utilities and Industries through qualified trainers at locations throughout North America
 - ***Manhole Assessment Certification Program (MACP)*** A national training and certification program for the identification of manhole defects based on the common language format developed for PACP
 - ***Lateral Assessment Certification Program (LACP)*** An extension of PACP specific to Lateral Sewers
 - ***Inspector Training Certification Program (ITCP)*** A new standard national training and certification program that provides field construction professionals (i.e., inspectors consulting and municipal engineers,) with comprehensive learning tools to understand and inspect trenchless pipeline renewal technologies.



***NASSCO'S 4-STEP APPROACH
TO INDUSTRY SUPPORT &
EDUCATION***

STEP 1

Documentation of Collection System Defects and Deterioration Mechanisms

*Pipeline Assessment & Certification Programs
include:*

PACP/LACP/MACP



Pipeline Assessment & Certification Program (PACP)





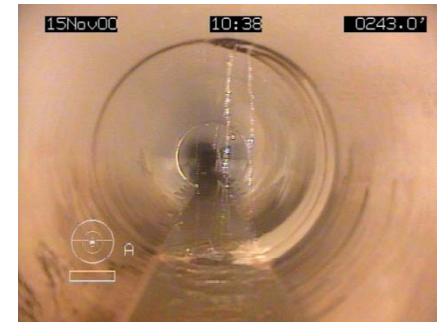
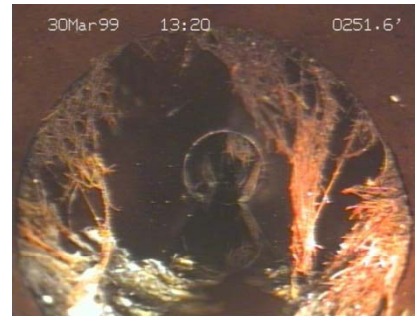
Pipe Deterioration Mechanisms

NASSCO's Goal is to:

- Train & certify CCTV operators on how to identify defects in a pipeline system with a common identification language.
- Define sewer pipeline defects that are common to systems containing similar materials but in different locations and climate conditions.
- Train CCTV Operators, Engineers and Municipalities on how to set renewal priorities based on the documented severity condition of the pipeline system.

Major Deterioration Factors

- Loss of soil surrounding the pipe
- Position of groundwater table
- Hydraulic regime within the sewer (Surcharging)
- Load on the sewer
- Methods and materials of sewer construction
- 3rd party construction damage
- Roots, grease, debris causing surcharging, necessitating more frequent cleaning & potentially more deterioration



Sewer Deterioration Documentation Methods

- CCTV inspection
- Visual inspection
- Development of a pipeline's problem history
- Documented pipeline complaints
- Documented pipeline repairs





CCTV Inspection History

- Only been around about 40 years
- Made possible the advancement of the trenchless rehabilitation industry
- Steadily increasing amount of CCTV performed
- Large amount of poorly organized and documented CCTV data
- Mass data storage and information retrieval became readily available
- The need to effectively use and manage large volumes of data became apparent
- Advancement in equipment have been made for accurately documenting pipeline conditions



Background of Industry Standardization

- Up until 2001 the industry in US had no standard pipeline defect identification and management program.
- NASSCO led effort to develop a standard
- Based on Water Research Centre codes
 - Many years of use in UK
 - WRc providing consulting services to NASSCO
- Standardization concept more important than the benefits of one defect coding system compared to another



Major Deficiencies in Condition Assessment

- Majority of sewers in place today, were only first televised many years after construction
- Many of the defects in pipes were created during construction
- Up until 2001, the US had little ability to quantitatively measure change in pipe condition over time
- With greater emphasis on Condition Assessment better data management is required

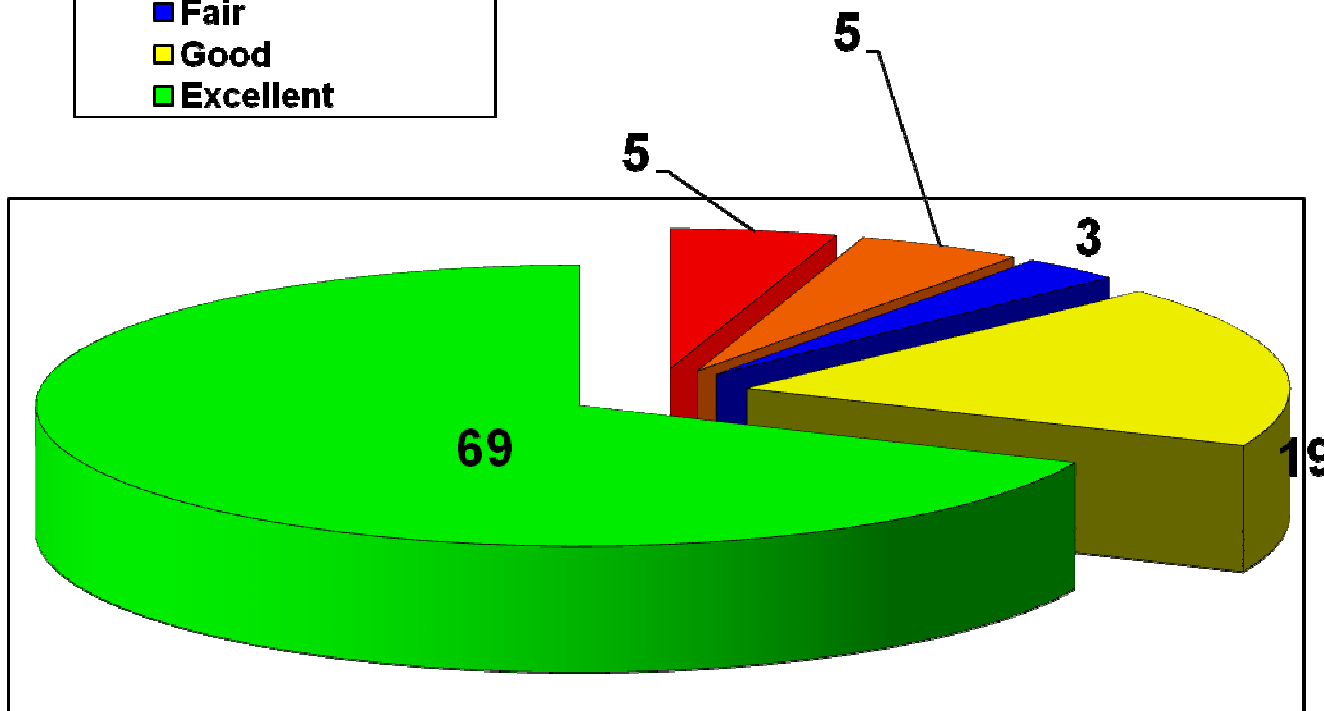
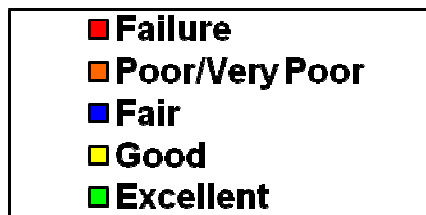


Need for Condition Assessment is Growing

- ASCE “Infrastructure Report Card” D-
- Water Infrastructure Now (WIN) “Clean Safe Water” Report - 1 Trillion investment required over the next 20 years
- EPA “Gap Analysis” Report 2000-2019 investment in wastewater \$454 B, in drinking water \$475 B
- Congressional Budget Office “Future Investment in Drinking Water and Wastewater Infrastructure” Report 2000-2019 investment in wastewater, \$420 B, in drinking water \$400 B

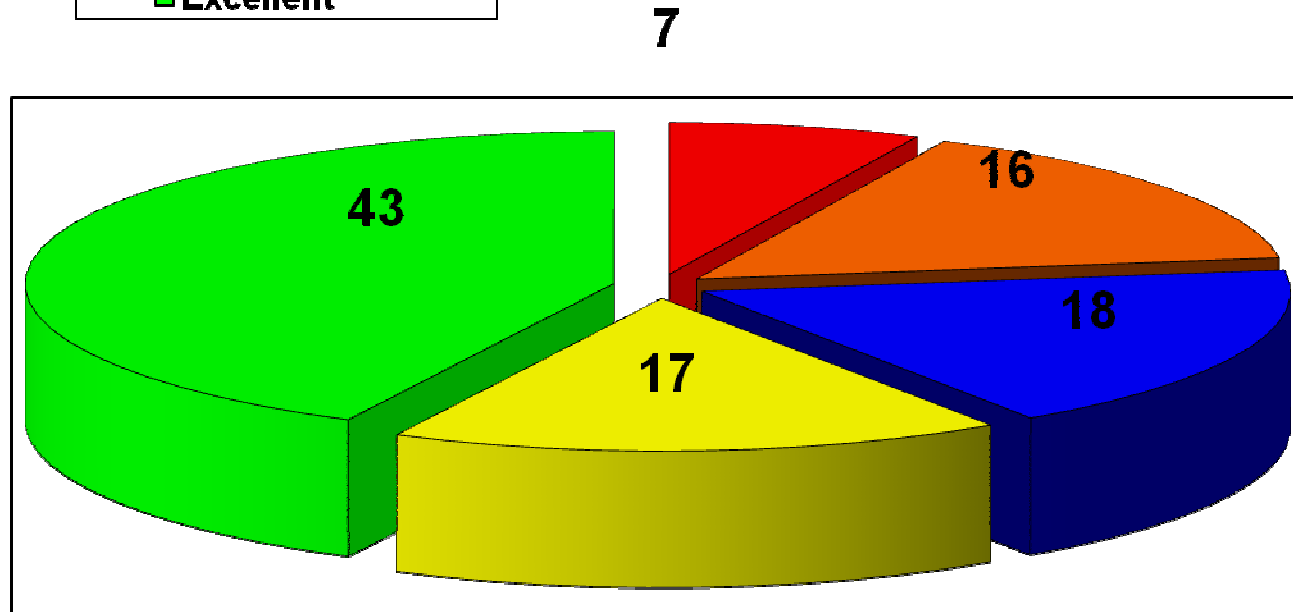


Estimated Condition of Sewer Pipes In 1980



EPA Gap Analysis

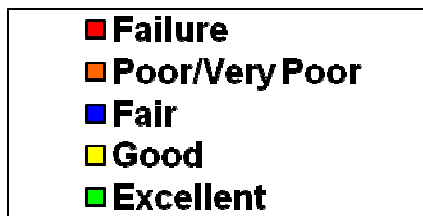
Estimated Condition of Sewer Pipes In 2000



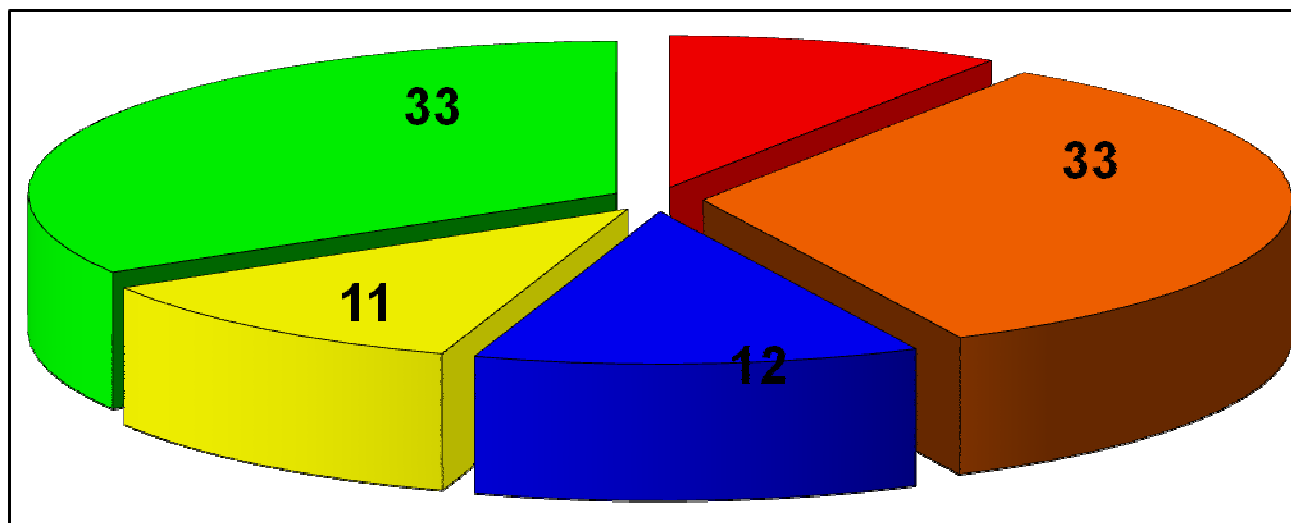
EPA Gap Analysis



Estimated Condition of Sewer Pipes In 2020



9



EPA Gap Analysis



NASSCO's Pipeline Assessment and Certification Program (PACP) was Developed

- Modification/Adoption of standard codes and ratings
- Training and certification of CCTV operators
- Standard NASSCO data format
- Certification of software vendors
- Data evaluation
- Guidelines for mapping of data results
- Condition rating for pipelines



Modification/Adoption of Standard Codes and Ratings

- Started with established WRc codes in the UK
- Adapted UK codes to the United States market
- Re-enforced maintenance related defect codes
- Added codes for corrosion evaluation/assessment
- Developed codes specific to rehabilitated sewers



Training and Certification of Users

- Training to understand standard codes and interpretation of common defects
- Use of codes in forms and software
- Two day course with certification exam
- Includes review of pipeline deterioration mechanisms.



Operators Trained to Date

- More than 10,600 and growing
- Training classes available throughout the US and Canada. Contact NASSCO 410 486-3500 or go to web site www.nassco.org



PACP Data Standards

- Data dictionary defines:
 - Field names
 - Field character number and format
 - Valid field data entries
- Standard Database Format (ACCESS)
- Provide the ability to seamlessly combine data from various projects



Certification of Software Vendors

- All data fields conform to NASSCO standards
- Software has the ability to export seamlessly to NASSCO standard data format and import data from the standard database
- Data exported from one NASSCO certified software can be imported to another NASSCO certified software

Certified Software Vendors





**More Than 200 Municipalities &
Utilities, in the US and Canada have
Adopting PACP as a Standard**



Examples of Defect Coding

Crack Longitudinal (CL)



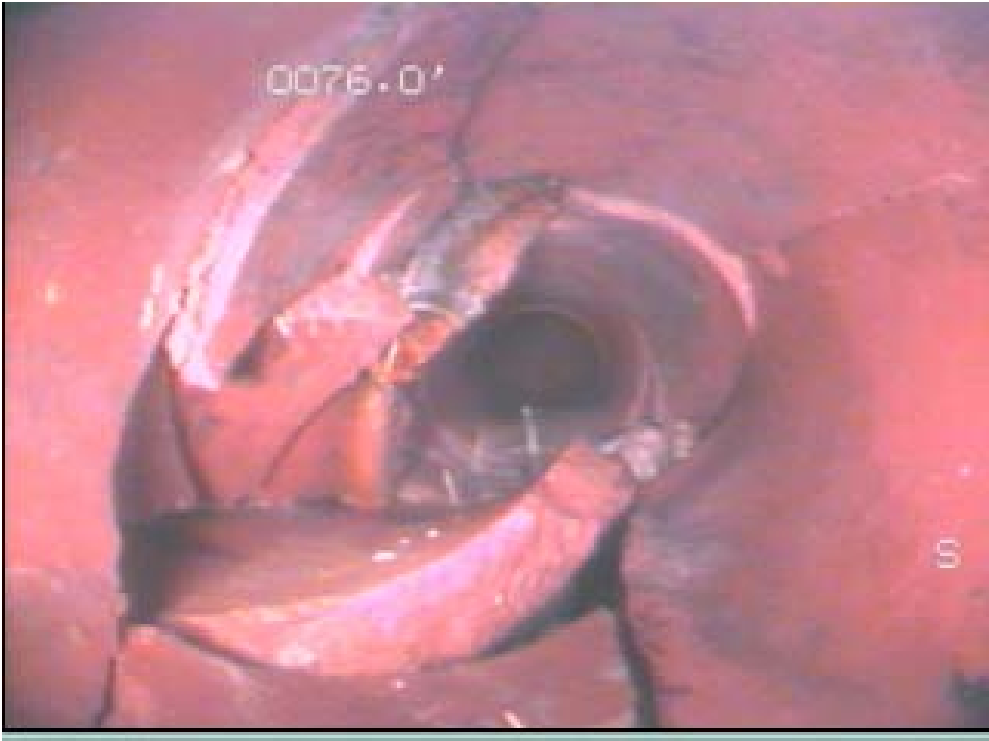
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		Group/ Descriptor	Modifier/ severity		S/M/L	Inches (mm)			%	At/ From			To
						1st	2nd						
54.7		CL		S01									
59.0		CL		F01				J					

BROKEN (B)



Distance (feet) (meters)	Video Ref.	Code		Continuous defect	Value			Joint	Circumferential Location		Image Ref.	Remarks	
		Group/ Descriptor	Modifier/ severity		S/M/L	Inches (mm)			%	At/ From			To
						1st	2nd						
3.4		B						J	07	03			

Collapse Pipe (XP)



Distance (feet) (meters)	Video Ref.	Code		Continuous defect	Value			Joint	Circumferential Location		Image Ref.	Remarks	
		Group/ Descriptor or	Modifier / severity		S/M/ L	Inches (mm)			%	At/ From			To
						1st	2nd						
76.0		XP					75						
76.0		MSA										Survey Abandoned Due to Collapse	

Collapse Brick (XB)



Distance (feet) (meters)	Video Ref.	Code		Continuous defect	Value			Joint	Circumferential Location		Image Ref.	Remarks	
		Group/ Descriptor or	Modifier / severity		S/M/ L	Inches (mm)			%	At/ From			To
						1st	2nd						
6.0		XB					70						
6.0		MSA										Survey Abandoned Due to Collapse	



Benefits of Pipeline Assessment and Certification Program (PACP)

- Standard data and more efficient assessment of pipeline defects
- Creates opportunities to better understand sewer system condition and deterioration over time
- More efficient defining of rehabilitation requirements
- Document data base for deterioration modeling, decision matrix evaluation, preventive maintenance and bidding priorities




PACP Today

- Project-based application of PACP
- Benchmarking of pipe condition within utilities and across the United States
- Recognized as the standard for pipeline condition assessment
- Development of case histories of pipeline condition assessed over time
- Important tool for understanding sewer deterioration and for long term capital planning & Asset Management



PACP Applications

- GASB 34 Rule Implementation
- Condition Assessment of High Consequence Areas (Critical Sewers)
- Condition-based Preventive Maintenance and Re-inspection
- Pipeline Deterioration Analysis
- Pipeline Condition Mapping
- Population of Other Application Databases



Condition Based Preventive Maintenance (PM) and Re-Inspection

- Preventive Maintenance selected and scheduled based on what conditions are found
 - Root or Grease Control
 - Routine Cleaning
 - More detailed corrosion assessment
- Preventive Maintenance Interval also based on conditions found
 - Allows for a more efficient use of resources
 - Best implemented using computerized maintenance management systems



Pipeline Deterioration Analysis

- A “before” and “after” assessment of a pipeline
- Provides a quantitative understanding of rate of deterioration progression
- Should also include other deterioration factors such as soils, surcharging, groundwater, age, etc.
- PACP standards provide the ability to share information with others for evaluation



Pipeline Condition Mapping

- Places location of defects and observations on the sewer map
 - Structural defects
 - O&M defects
 - Construction features
- Display of important pipeline data
 - Size, material, depth, age
 - Pipeline condition ratings
 - Critical sewer rating



Population of Other Application Databases

- Computerized Maintenance Management Systems (CMMS)
- Hydraulic Modeling programs
- Accounting databases (GASB-34)
- SSES Projects
- GIS inventory and Mapping
- Nationwide wastewater pipeline integrity management research



Don't Ignore Retrofitting Existing Data

- Very inexpensive compared to obtaining new data
- Audio and Video often of excellent quality
- Can add up quickly to a considerable portion of the system
- Provides immediate ability to assess rate of deterioration by comparing “old” data to “new”



Condition Grading

- Grade 5 – Collapsed or Collapse Eminent
- Grade 4 – Collapse Likely in Foreseeable Future
- Grade 3 – Collapse Unlikely in the Near Future
- Grade 2 – Minimal Collapse Risk
- Grade 1 - Acceptable Structural Condition

Based on internal inspection without consideration to external consequence of failure, soil conditions, O&M impacts, distribution of defects and history of preventive maintenance



PACP Quick Score

The PACP Quick Rating is a shorthand way of expressing the number of occurrences for the two highest severity grades in a specific segment

- 1.The first character is the highest severity grade occurring along the pipe segment.
- 2.The second character is the total number of occurrences of the highest severity grade. After 9 a letter code is used.
- 3.The third character is the second highest severity grade occurring along the pipe length.
- 4.The fourth character is the total number of occurrence of the second highest severity grade.



Quick Score Example

- **5647** – there are 6 number 5 defects and 7 number 4 defects in the line section
- **5600** – there are 6 number 5 defects and no other defects
- **4227** – there are 2 number 4 defects and 7 number 2 defects
- **3224** – there are 2 grade 3 defects and 4 number 2 defects.

Lateral Assessment & Certification Program (LACP)





NASSCO Lateral Assessment and Certification Program (LACP)

- Adoption of standard PACP codes and ratings
- Training and certification of operators
- Standard NASSCO data format
- Certification of software vendors
- Guidelines for mapping of data results
- Condition rating for laterals same as PACP



Lateral Assessment

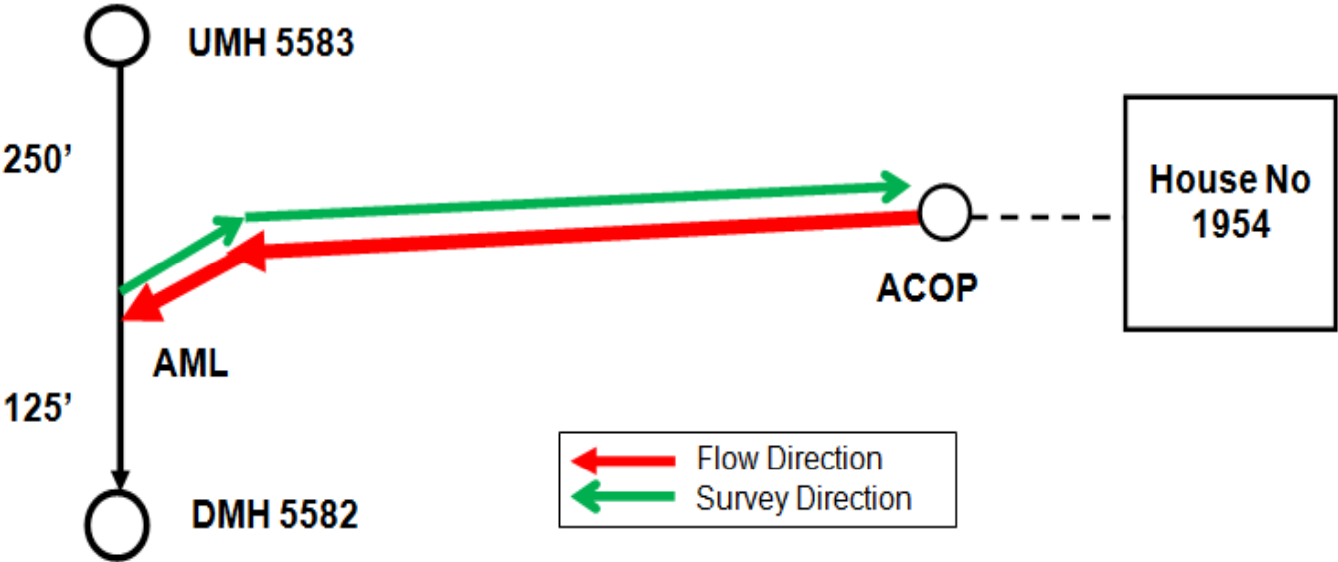
- The LACP program is a continuation of the PACP program. The premise being that lateral pipes are no different than mainline pipe except as to size and configuration.
- The PACP defect codes will apply to lateral pipes in all respects. Specific access and fitting codes for the lateral pipes have been created to describe only the components that are specific to lateral sewers.
- The similarities between mainline and lateral sewers are that they are both pipes.
- The differences will include access and fittings such as wyes, bends, clean-outs and more. Some access codes however, are already defined in the PACP codes and therefore will remain as described therein.



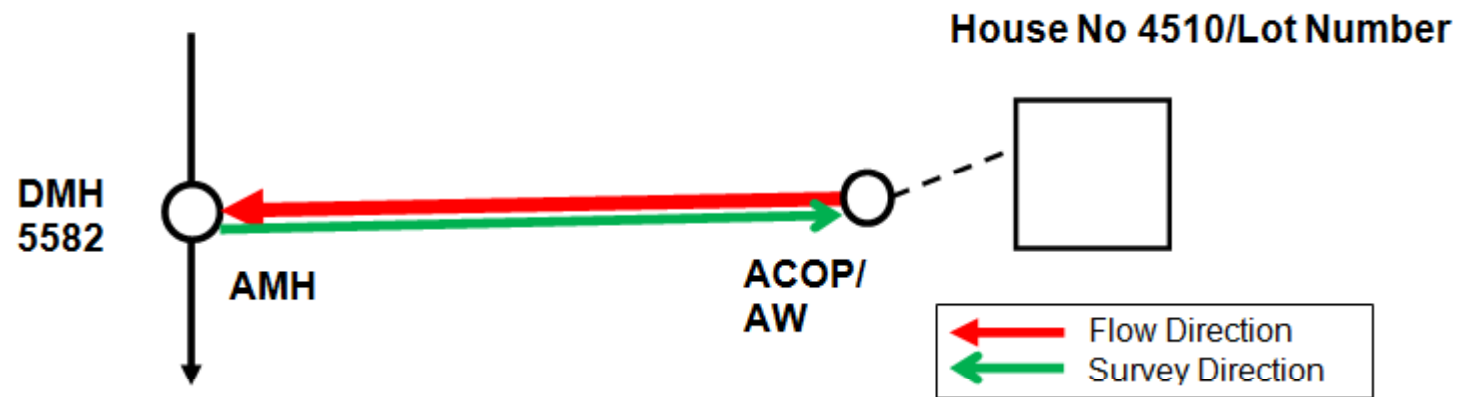
Lateral Inspection Features

- Laterals can include bends, wyes, tees and other fittings that are not common to mainline pipe
- Laterals can be inspected from the mainline, from a manhole from a cleanout or from a house.
- Laterals can consist of single pipes or multiple pipes to a number of different structures.
- Lateral can have pipe size and material changes in a single pipe segment.
- Lateral documentation should include a unique number for future identification or reverse inspections

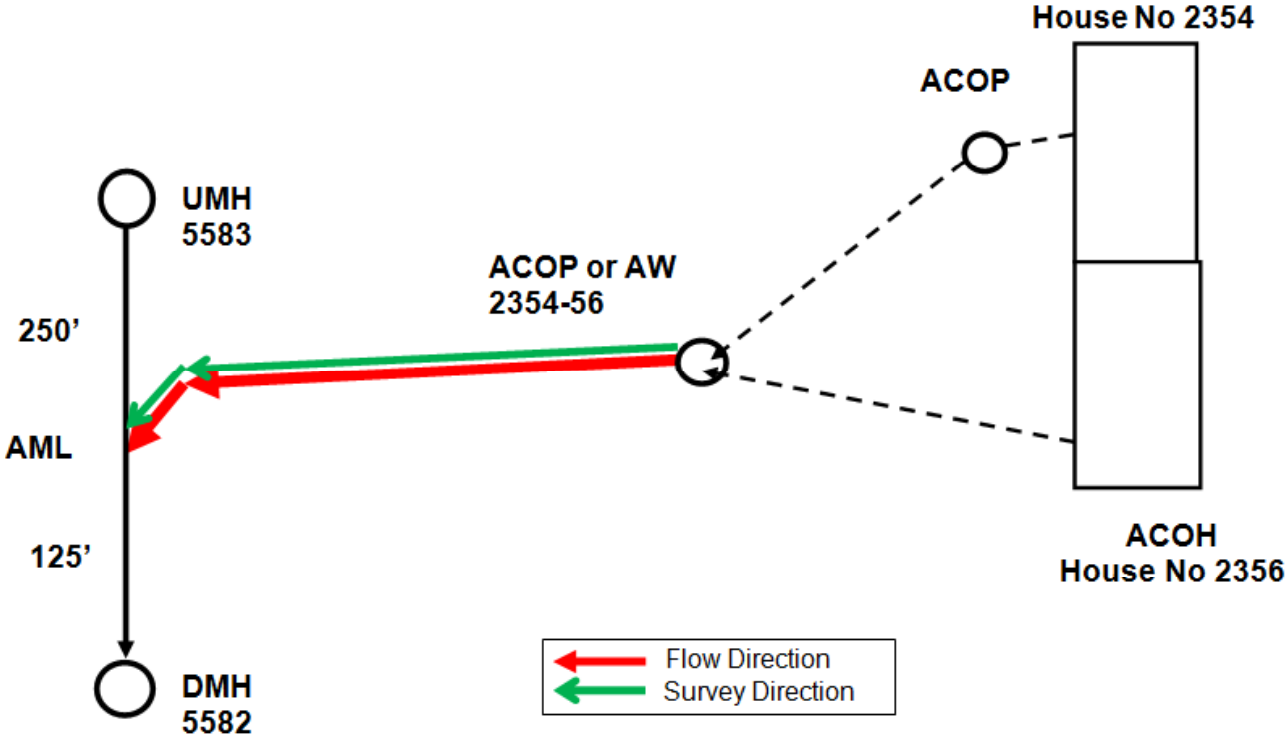
Lateral Inspection From Mainline



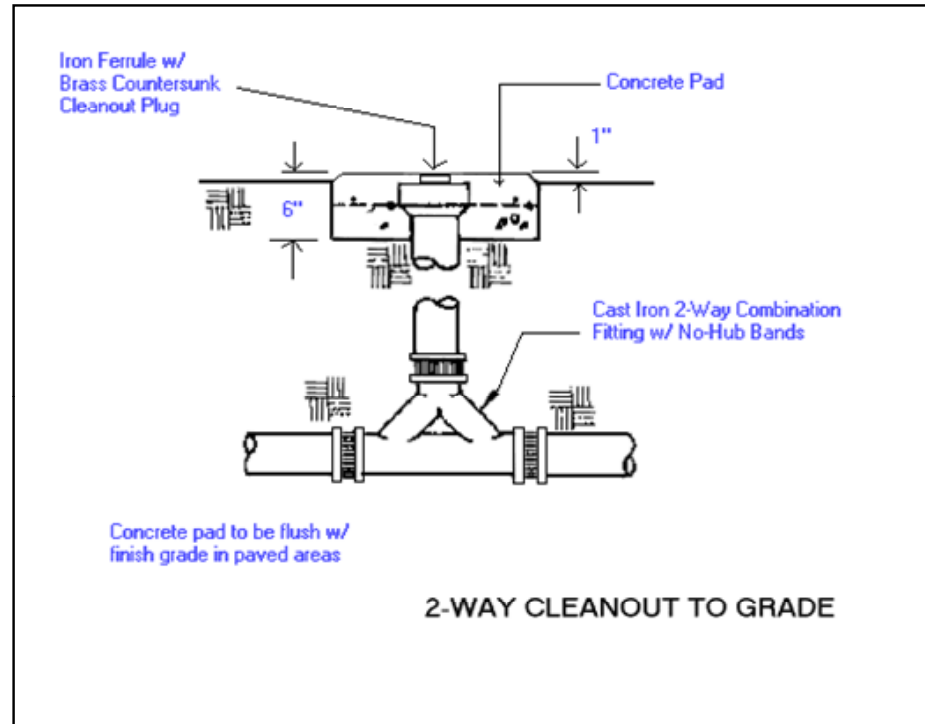
Inspection from Manhole



Inspection from Clean-out



Fitting Double Sweep Tee (FTDS)



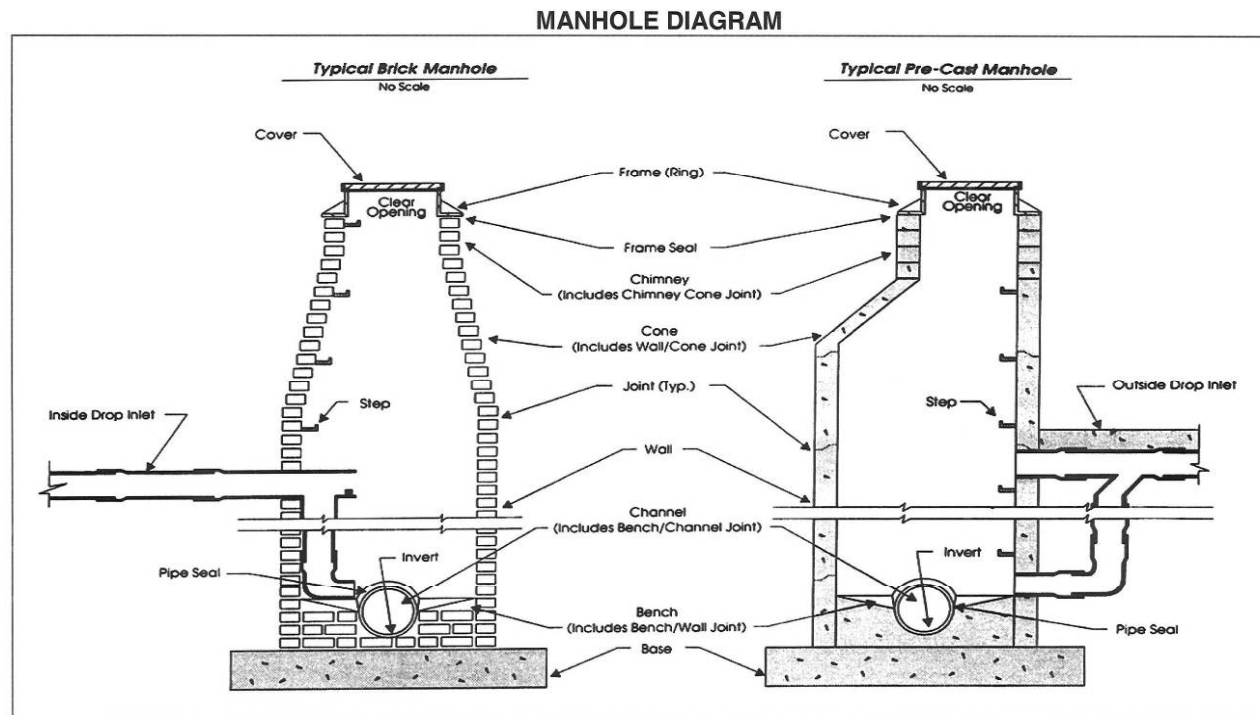
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		Group/ Descriptor	Modifier/ severity		S/M/L	Inches (mm)			%	At/ From			To
						1st	2nd						
23.50		FTDS				4		100					

Manhole Assessment & Certification Program (MACP)



Manhole Assessment

- A manhole is most vulnerable to damage because of its surface proximity
- Proximity to surface also increases potential for extraneous flow
- Manholes are essential for proper collection system maintenance





References for Manhole Descriptions, Terminology, and Codes

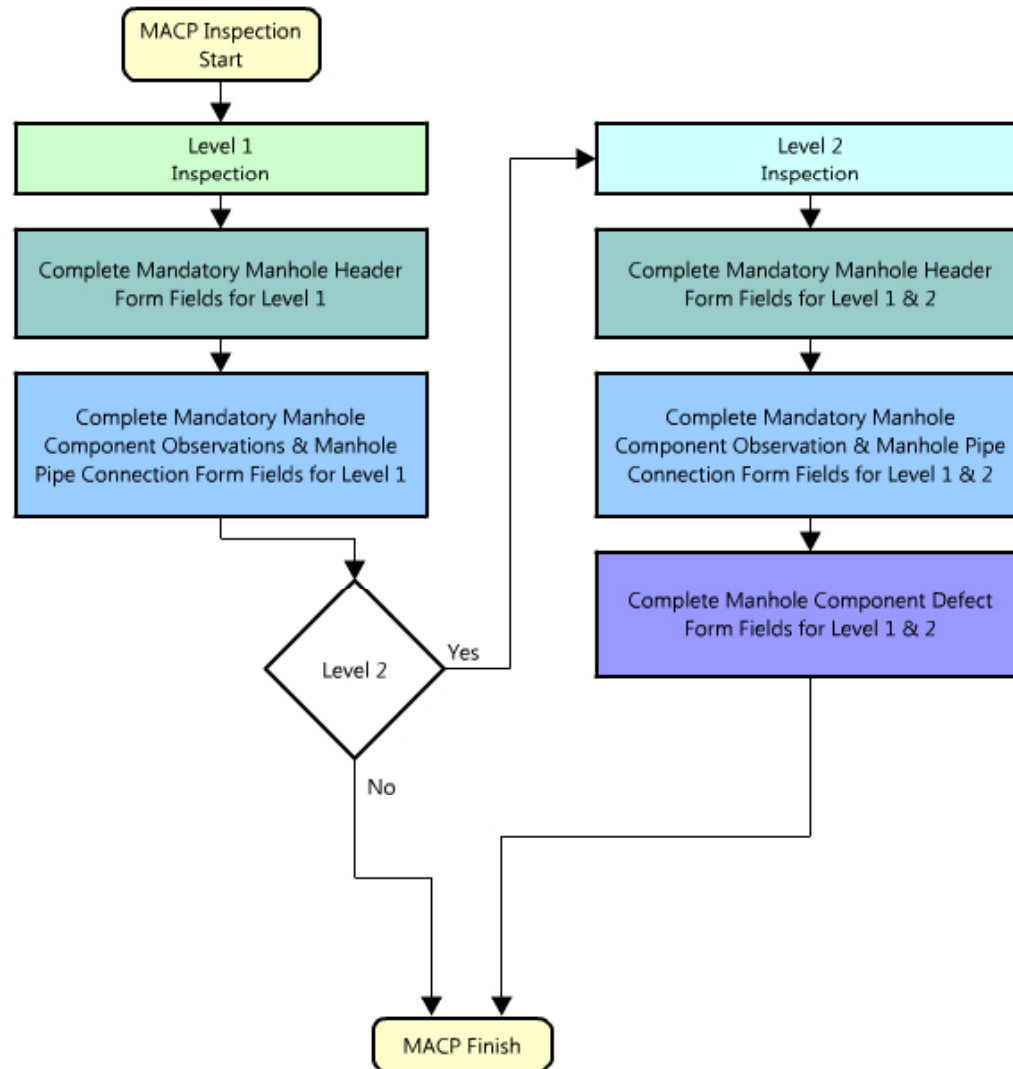
- WEF Collections Systems Committee Manual of Practice 7
- ASCE Manuals and Reports on Engineering Practice No 92, Manhole Inspection and Rehabilitation
- WRc Manual of Sewer Condition Classification 4th Edition, Part B – Manholes and Inspection Chambers
- NASSCO Pipeline Assessment and Certification Program (PACP) Manual



MACP

- The manhole Assessment & Certification Program was launched in 2007 and was revised in 2010 by NASSCO.
- The revisions were based on peer reviews and on input and comments received from industry users of the program

MACP Inspection





Level 1 Manhole Inspection

- A Level 1 inspection will allow utility owners to gather basic condition assessment information to evaluate general condition of a manhole and to gather enough information to determine if a comprehensive Level 2 inspection is appropriate.
- A Level 1 inspection can be completed without the use of any special equipment or manned entry into a manhole.
- A Level 1 MACP inspection will be completed by selecting predefined location, inspection and condition data and completing a
 - Manhole Inspection Header Form
 - Manhole Component Observation Form.



**MANHOLE INSPECTION HEADER FORM
LEVEL 1 & LEVEL 2 INSPECTIONS**

Surveyed By (1) **1,2**

Certificate Number (2) **1,2**

Owner (3)

Customer (4)

Date
(YYYY/MM/D) (8) **1,2**

Drainage Area (5)

Sheet Number (6)
1,2

P/O. Number (7)

Location
Details (12)

Time (9)

Street (No. & Name) (10) **1, 2**

City(11) **1, 2**

Rim to Grade
(16) **2**

Manhole Number (13) **1,2**

Rim to Invert (14) **2**

Grade to Invert (15) **2**

Media Label
(20)

MH Use (17) **1,2**

Year Built (18)

Year Renewed (19)

Date Cleaned
(YYYY/MM/D)
(24)

Purpose (21) **1,2**

Category (22)

Pre-Cleaning (23) **2**

Surface Type
(28) **1,2**

Weather (25)

Location Code (26) **1, 2**

Additional Info (27)

Potential for Runoff (29)

Access Type (30) **1,2**

Northing (31)

Easting (32)

Elevation (33)

Coordinate System (34) **1,2 ***

GPS Accuracy (35)

Inspection
Status (36) **1,2**

Evidence of Surcharge (37)

SKETCH



Level 2 Manhole Inspection

- The purpose of a Level 2 inspection is to gather detailed information to fully document all existing defects, determine the condition of a manhole and to provide specific information to recommend or specify corrective actions.
- A Level 2 MACP inspection will include the:
 - Manhole Inspection Header Form and the
 - Manhole Component Observation form
 - Manhole Component Defect Form, using valid PACP and MACP defect codes.



Examples of Defect Coding



Summary – PACP, LACP & MACP

- Standardization, Training & Certification has increased confidence in data and the use of the data
- Condition ratings can be developed and recommended follow-up for every line televised
- Inspection results mapping becomes an integral part of the process
- Existing TV inspection data can readily be converted to PACP format at pennies the cost of re-televising.
- Asset condition can be based on real, documented, deterioration data & rehabilitation projects developed.

Step 2

Available Technologies

NASSCO's effort for educating the industry on the existing and developing technologies that can be used to renew existing pipeline infrastructure



Rehabzone

- Each year NASSCO sponsors the REHABZONE a technology educational exhibit & live demonstration, developed by industry professionals & included as part of the Underground Construction Show & Exhibition in January of each year.



Pumper & Cleaner Show

- Each year NASSCO hosts one day of educational presentations during Education Day at the Pumper and Cleaner Environmental Expo International.
- Educational content includes new technologies and improvements to existing technologies and services that apply to field operators, engineers and contractors.
- Educational subjects are typically contributed and presented by NASSCO members.



TAG-R Software

- Provides the tools for selecting the correct renewal technology for the sewer pipeline conditions selected.
- Working with the Trenchless Technology Center (TTC) of Louisiana Tech University, NASSCO has developed a computerized Trenchless Assessment Guide for Rehabilitation (TAG-R). This guide gives the industry the tool to quickly and effectively determine correct technology applications based on the existing condition of the pipeline





Step 3

Support & Understanding Specifications





NASSCO Specification Guidelines

- The Specification Guidelines, available on the web site www.nassco.org contain sample specifications complete with invaluable information on the installation and rehabilitation of pipelines and manholes as provided by NASSCO Members for their products or technologies.
- The Specification Guidelines are intended to provide engineers, municipal officials & others information that can be the basis for preparing project specifications.



Performance Based Specifications Guidelines

- A number of performance-based specifications have been produced by NASSCO & are available, to the membership and the industry, on the web site
- These guidelines stress that the project delivery or means & methods are the Contractors responsibility
- These guidelines emphasis quality products, testing and inspection during construction to verify specified contract requirements
- Specifications that promote consistent quality installations

WELL WRITTEN SPECIFICATIONS TOGETHER WITH QUALIFIED INSPECTION RESULTS IN CONSISTENT QUALITY PRODUCTS

The logo for NASSCO is a vertical blue bar on the left side of the slide. It features the letters 'NASSCO' in a light blue, sans-serif font, stacked vertically. The letters are partially obscured by a white, curved shape that resembles a stylized 'S' or a pipe section.

Available Performance Specifications Guidelines

- Guideline Specifications for the Replacement of mainline Sewer Pipes by Pipe Bursting
 - Performance Specifications for the Installation of Cured-In-Place Pipe (CIPP)
 - Performance Specifications for the Installation of folded (thermoplastic) Pipe (FP) PVC & PVC Type A
 - Performance Specifications for the Renovation of Manhole Structures
- All specifications are available, in electronic format, on the NASSCO web site www.nassco.org for downloading.

Step 4

Inspector Training & Certification Program (ITCP)



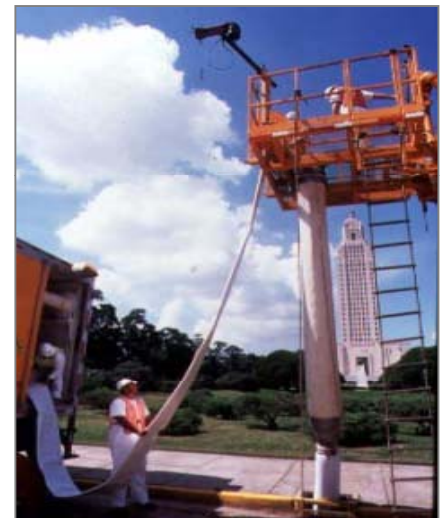
Field Inspector Training Program

- Provides certification for field inspectors, consulting engineers and municipal engineers to better understand each technology and how the technology is constructed in the field
- Provides the education of key elements of the contract specifications to ensure successful installations
- Defines quality assurance requirements
- Provides standard checklists and forms for accurate field inspection & documentation
- **The CIPP inspector training program is currently available**



What is Cured-In-Place Pipe (CIPP)?

- CIPP is the most widely used technology for the renewal of pipelines
- The technology has been the solution for a variety of pipe renewals in virtually every market segment for over 30 years
- CIPP is the fastest growing technology for renewal of collection systems and is also positioned to provide solutions for water distribution systems in the future

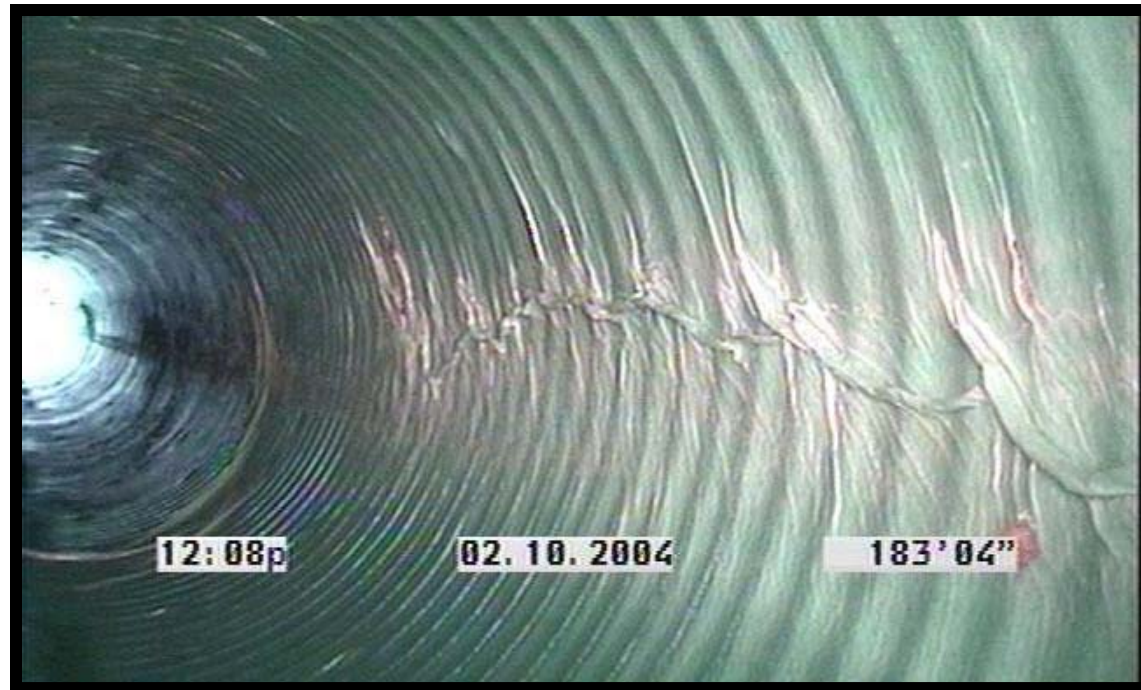


What is ITCP?

- Inspector **T**raining and **C**ertification **P**rogram
- Curriculum focused on the inspection & field documentation of Cured-In-Place Pipe (CIPP) installation
- The course is **not** designed to teach the inspector how to design or install the CIPP
- The course is designed to teach the inspector what to observe and record during the CIPP installation



Why Do We Need ITCP?
Because even though properly installed, CIPP can sometimes be ugly!





The NASSCO Certification Program

- Provides the inspector a better understanding of CIPP
- Reviews CIPP technology applications
- Discusses installation quality and what's acceptable
- Reviews key inspection & testing procedures recommended during installation
- Discusses the importance of structural requirements of the installed CIPP
- Reviews possible defects and which should be of concern and those that are cosmetic
- The course is interactive with questions & discussions on specific issues throughout the course



Anticipated Program Results

An inspector that is sufficiently knowledgeable with CIPP will provide an additional resource during field construction and further enhance the success of each installation, while assuring that the customer's specification requirements and expectations are met

Course Chapter One

Existing Pipe Defects and How They Affect CIPP Installations

- **Purpose** – This chapter provides the inspector with a basic knowledge of existing pipe conditions, what defects are okay to install a CIPP and how they defects affect the installed product
- Cured-in-place pipe can be installed in a variety of shapes and configurations. Levels of pipeline collapse however, may dictate where the CIPP may not be able to effectively renew the old pipe
- **CIPP CONCEPT** - the existing pipe is the mold for the new CIPP pipe being installed and manufactured in the field

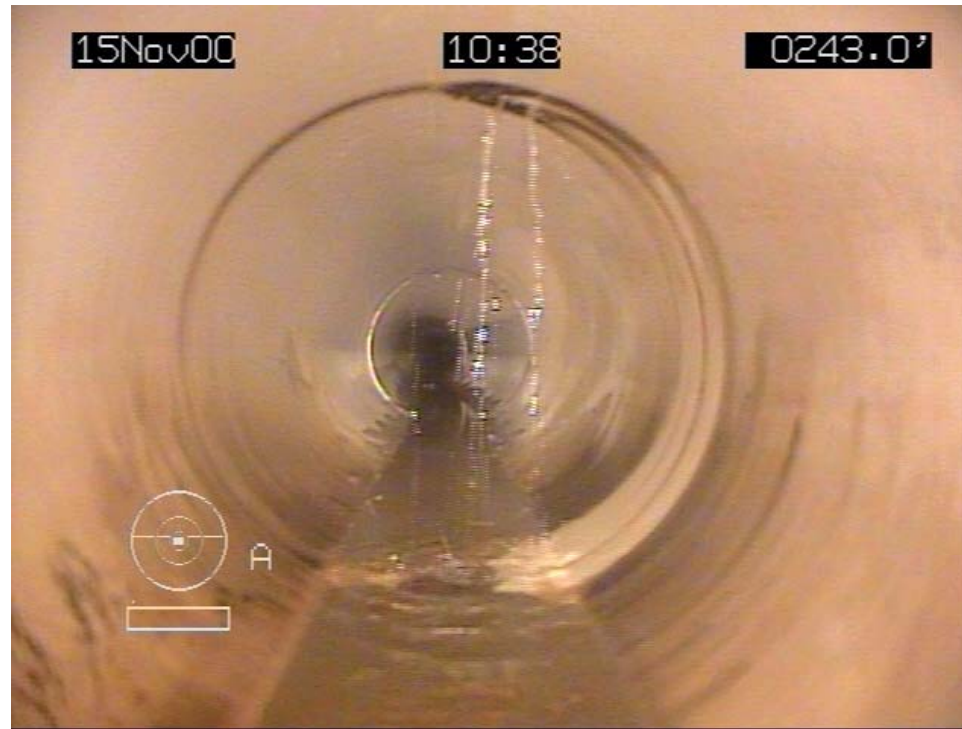
Some examples include:

Broken Pipe



The student will learn what existing pipe conditions are ideal and those that should be avoided when installing the CIPP technology

Infiltration



The student will learn all about infiltration and how it might affect the installation of CIPP

Protruding Connections



The student will learn about protrusions in the existing pipe and what should be done before installing the CIPP



Course Chapter Two

Overview of the CIPP Technology

- **Purpose** - to give the inspector a better understanding of all aspects of the CIPP technology
- The inspector will learn about the technology from raw materials, to wet-out of the tube and then installation and proper curing methods

Some examples include:

Tube Materials



The student learns about different tube materials and how they are fabricated to meet the customer's specification requirements

Factory Tube Wet-Out



The student learns about the process of impregnating the resin material into the dry tube in a factory environment

Field Tube Wet-Out



The student learns about the process of impregnating the resin material into the dry tube in a field environment while at the same time installing the liner into the existing pipe.



Course Chapter Three

The Field Installation of CIPP

- **Purpose** – To review the inspector's responsibilities, during the installation of a Cured-In-Place Pipe
- The inspector will learn all about the field installation of CIPP from the set-up and delivery of the liner, to the installation and curing, to the evaluation of the final product for defects and structural compliance with the contract requirements

Some examples include:

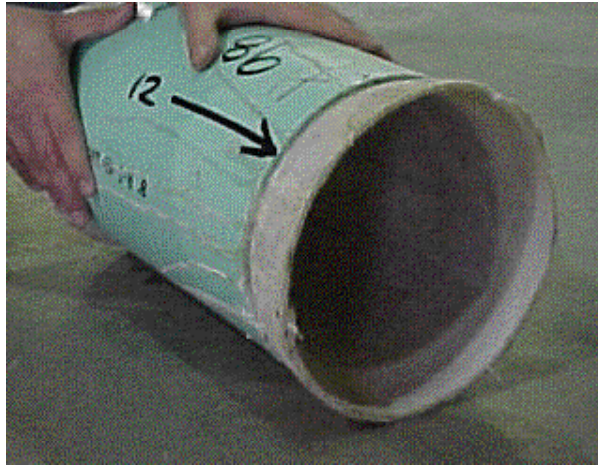
Pre-installation Line Flushing



INSPECTOR ACTION

The student learns the importance of inspector action associated with pipe cleaning before installation of the CIPP

Typical Samples for Testing



INSPECTOR ACTION

The student learns the value and importance of the inspector obtaining product sample for testing purposes

Wrinkles/Fins



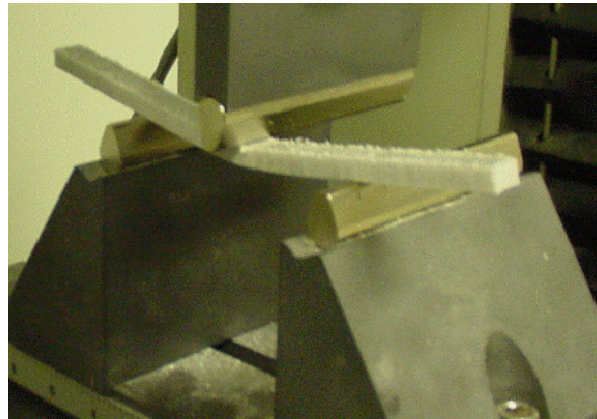
The student learns the significance of wrinkles/fins and when they should be a concern and when they are merely cosmetic

Lifts



The student learns about lifts in a liner, how they are caused and what the inspector needs to know if a lift occurs on a project site

Physical Property Testing



The student learns about the physical properties of the CIPP and what the inspector needs to do to verify that the installed product meets the specification requirements



Course Chapter Four

Writing and Understanding Performance Specifications for CIPP

- **Purpose** – The Inspector will learn about some of the key aspects of performance specifications and what they need to know to ensure that the customer receives a quality installation of the product specified
- The inspector will understand that the contract specification requirements are the guidelines for ensuring that a CIPP is installed as required



Course Chapter Five

Pipeline Renewal Technologies and Their Applications

- **Purpose** – To provide the Inspector with an overview of trenchless technologies
- The inspector will learn about technologies other than CIPP that require inspection

TAG-R

**Trenchless Assessment Guide Rehabilitation (TAG-R)
For
Sanitary, Storm & Combined Sewers,
Pressure Potable & Non-Potable Pipelines,
Lateral Sewers & Manholes**





Where are the Certification Classes Offered?

Throughout the US & Canada

Class dates are posted on the NASSCO web site www.nassco.org as they are determined & scheduled

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What Will the Certification Course Include?

- Experienced instructor
- A comprehensive course reference manual
- Over 20 sample inspection forms
- The Trenchless Assessment Guide – Rehabilitation (TAG-R)
- Latest report on styrene and its use in the CIPP technology
- A sample Performance Specification Guideline for CIPP
- A certificate of completion & photo ID card for each student
- Follow-up technical support from NASSCO
- 1.35 CEU credits or equivalent PDH



Who Should Become ITCP Certified?

- **All inspectors** – that have responsibility for inspecting the installation of CIPP
- **Consulting Engineers** who provide inspection services
- **Municipal Engineers** who perform inspections on their own projects
- **Anyone** who needs a comprehensive understanding of how CIPP is installed!



Planned Training & Certification Courses By NASSCO

- Pipeline Assessment & Certification Program (PACP) [schedule on web site](#)
- Lateral Assessment & Certification Program (LACP) [schedule on web site](#)
- Manhole Assessment & Certification Program (MACP) [schedule on web site](#)
- Inspector Training for Cured-In-Place Pipe classes currently schedule around the country over 400 inspectors trained. [Schedule on web site](#)
- Inspector Training For Pipe Bursting [planned launch end of 2010](#)
- Inspector Training for Manhole Rehabilitation [planned launch early 2011](#)

A vertical banner on the left side of the slide, featuring the word "NASSCO" in a large, light blue, sans-serif font, repeated vertically against a darker blue background with a wavy pattern.

THANK YOU!

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