



**Final Exam**  
Continuing Education Course #482  
Collection System CIP Management

1. Which is NOT a main component of a collection system?
  - ☐ a. Laterals
  - ☐ b. Interceptors
  - ☐ c. Water mains
2. Which does "CIP" NOT normally stand for?
  - ☐ a. Capital Improvement Program
  - ☐ b. Capital Improvement Plan
  - ☐ c. Collection Improvement Program
3. Why should hydraulic restrictions be corrected?
  - ☐ a. Prevent backups and overflows
  - ☐ b. Reduce I&I
  - ☐ c. Reduce consequence of failure
4. Which is an example of a structural failure?
  - ☐ a. Sediment buildup
  - ☐ b. Pipe collapse
  - ☐ c. Overflow
5. What does I&I stand for?
  - ☐ a. Inflow and infiltration
  - ☐ b. Inflow and Influent
  - ☐ c. Influent and infiltration
6. What can help identify I&I?
  - ☐ a. Force main inspections
  - ☐ b. Record drawings
  - ☐ c. CCTV & Flow Monitoring
7. Which pipe material is considered to have the longest lifespan?
  - ☐ a. HDPE
  - ☐ b. Ductile iron
  - ☐ c. Concrete
8. Which is a reason to combine sewer improvements with a road project?
  - ☐ a. Schedule flexibility
  - ☐ b. Save on pavement restoration costs
  - ☐ c. Faster installation

9. What does CMOM stand for?
- ☐ a. Capital, Management, Operations and Maintenance
  - ☐ b. Construction, Management, Operations and Maintenance
  - ☐ c. Capacity, Management, Operations and Maintenance
10. Which is a term used for managing infrastructure to minimize cost while delivering desirable service levels?
- ☐ a. Sewer Supervision
  - ☐ b. Asset Management
  - ☐ c. O&M
11. Which is NOT a key element of asset management?
- ☐ a. Run-to-failure management
  - ☐ b. Condition assessment
  - ☐ c. Master planning
12. Which is the EPA recommended percent of useful life for replacing or rehabilitating sewers?
- ☐ a. %50
  - ☐ b. 80%
  - ☐ c. 100%
13. Which is NOT commonly included in a Master Plan Report?
- ☐ a. Hydraulic Modeling Results
  - ☐ b. Recommended Improvements
  - ☐ c. Board's Budget Guidance
14. For budgetary purposes, what is a typical design cost as percent of construction cost?
- ☐ a. 10%
  - ☐ b. 20%
  - ☐ c. 30%
15. Which is NOT a method to help align the annual spending budget with the CIP program budget?
- ☐ a. Detailed budget projections
  - ☐ b. Preconstruction meetings
  - ☐ c. Careful scheduling
16. Which is NOT an example of how GIS can assist in asset management?
- ☐ a. Map of break history
  - ☐ b. Pipe ages in colors
  - ☐ c. Budget projections
17. Which type of hydraulic model assumes flow in = flow out?
- ☐ a. Steady-state model
  - ☐ b. Dynamic model
  - ☐ c. CFD model
18. Which is the process of modifying a model so results align with field readings?
- ☐ a. Calibration
  - ☐ b. Validation
  - ☐ c. Desktop Study
19. What does LOF stand for?

- ☐ a. Lapse of frequency
  - ☐ b. Length or flow
  - ☐ c. Likelihood of failure
20. Which is NOT a common method for inspecting laterals?
- ☐ a. Smoke Testing
  - ☐ b. Electromagnetic scanning
  - ☐ c. CCTV
21. Which type of risk is often considered more important?
- ☐ a. LOF
  - ☐ b. COF
22. Which is an example of infiltration?
- ☐ a. Groundwater seeping in
  - ☐ b. Connection to a storm drain
  - ☐ c. Flow in through manhole covers
23. Which is an example of inflow?
- ☐ a. Constant leak at a joint
  - ☐ b. Groundwater intrusion
  - ☐ c. Connection to a storm drain
24. Which is NOT an element of an I&I reduction program?
- ☐ a. Benchmark assessment
  - ☐ b. Accommodating future development
  - ☐ c. Field investigations
25. Which is often the assumed gravity sewer rehabilitation technique?
- ☐ a. Coating
  - ☐ b. CIPP
  - ☐ c. Pipe bursting