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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

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