TAKE THE NEXT STEP!

Strengthen your knowledge and get recognized for your stormwater expertise with the APWA CSM certification.

For more information visit the CSM page at **www.apwa.org.**

It's your time. Get Certified!

Certified Stormwater Manager (CSM)

The purpose of the Certified Stormwater Manager credential (CSM) is to promote excellence and commitment to public service by advancing the knowledge and practice of stormwater management to benefit the community, public agencies, and the profession.

The Stormwater Manager Certification is intended for experts in the public and private sectors who coordinate and implement stormwater management programs for city, county, state, provincial, and federal agencies.

These individuals are responsible for administering drainage, flood control, and/or water quality programs.

Step 1: Applying for Eligibility

To demonstrate eligibility, candidates must submit an application documenting the completion of one of the following education and work experience pathways:

- High school graduation or equivalent and 7 years of relevant work experience*
- Associate's degree or equivalent trade school certificate and 5 years of relevant work experience*
- Bachelor's degree and 3 years of relevant work experience*
- Master's degree and 2 years of relevant work experience*
- Doctoral degree and 1 year of relevant work experience*

**Relevant work experience is that performed within or for a public entity in one or more aspects of stormwater management as defined in the CSM target audience description and illustrated in the CSM Content Outline.*

Eligibility Application Fee: $195 APWA members; $245 nonmembers

Step 2: Taking the Exam

Exams are administered computer-based directly to the candidate at their place of employment. The exam consists of 150 multiple-choice questions based on the CSM Content Outline. Candidates are given a minimum of 3.5 hours to complete the exam. Preparation for the exam includes review of the CSM Content Outline and Recommended Reading List.

Exam Application Fee: $500

Step 3: Navigating Recertification

After successful completion of the exam, candidates become certified for a period of five years. Prior to the end of the five-year period, Certified Stormwater Managers must complete a minimum of 100 credits earned through a combination of continuing education and contributions to the profession.

Recertification Application Fee: $195 APWA members; $245 nonmembers

Visit the CSM page at www.apwa.org.

Certified Stormwater Manager CERTIFICATION
EXAMINATION CONTENT OUTLINE

1. PROGRAM MANAGEMENT: 67 items (Recall: 16, Application: 40, Analysis: 11)

A. Overall Storm Management: 22 items (Recall: 5, Application: 13, Analysis: 4)

1. Identify the common sources and impact of non-point source pollutants caused by stormwater runoff (e.g., nitrogen, phosphorous, pesticides, fecal coliforms).
2. Maintain knowledge of applicable laws and regulations, such as the Clean Water Act and NPDES/TMDL programs.
3. Identify the impact of land use changes related to urban drainage systems.
4. Interpret engineering drawings and blueprints.
5. Understand the flood plain management program.
6. Understand the surface water/groundwater relationship.

B. Program Administration: 15 items (Recall: 3, Application: 9, Analysis: 3)

1. Monitor revenues and expenditures pertaining to stormwater programs.
2. Administer the stormwater program governing the quality and quantity of stormwater discharges.
3. Provide input in the determination of funding options for stormwater projects (e.g., grants, impact fees, general fund, stormwater utility).
4. Implement the annual NPDES stormwater discharge permit reporting, compliance and monitoring program if applicable.
5. Develop stormwater budget:
    a. compliance cost projections.
    b. tracking ongoing costs.
6. Manage stormwater contracts.
7. Retain records of state, federal, and provincial correspondence related to stormwater environmental permits.
8. Implement permittee's stormwater management program (SWP).
9. Maintain a database of stormwater utility customers, updated and amended from time to time through a system of adjustments, credits, variances, and new developments.
10. Track enforcement actions.
11. Ensure that workmanship and materials conform to specifications and standards during review and throughout project construction.

C. **Communication/Education: 7 items** (Recall: 3, Application: 4, Analysis: 0)

1. Confer with stakeholders, public officials and legal counsel in developing:
    a. stormwater quality and quantity programs.
    b. new environmental programs.
    c. draft permit responses to the issuing authority.
    d. new ordinances.
2. Develop community outreach and educational programs concerning stormwater management issues (e.g., EPA Phase II Stormwater, adaptive management.
3. Educate stakeholders on environmental regulations (e.g., communicate violations, deficiencies or noncompliance).
4. Educate stakeholders on matters pertaining to equipment, construction, and operations.

D. **Planning and Design: 23 items** (Recall: 5, Application: 14, Analysis: 4)

1. Determine the most cost-effective mix of structural vs. non-structural stormwater management practices that can meet the subwatershed goals.
2. Determine the primary stormwater pollutants of concern (e.g., phosphorus, bacteria, sediment, metals, hydrocarbons, or trash and debris).
3. Determine stormwater management practices that should be used or avoided in the subwatershed because of their environmental impacts.
4. Identify property as needed for the stormwater management program.
5. Develop capital improvement projects.
6. Evaluate low impact development alternatives for stormwater.
7. Review plans for impact of stormwater runoff from highways, parking lots, residential developments and other impervious surfaces.
8. Review individual plans to ensure compliance and consistency with other plans (e.g., master plans for development).
9. Utilize GIS or other mapping techniques.

2. **WATER QUALITY and QUANTITY: 68 items** (Recall: 16, Application: 32, Analysis: 20)

A. **Regulatory Programs: 30 items** (Recall: 6, Application: 18, Analysis: 6)

1. Administer various pollution abatement management programs.
2. Implement programs to determine which local businesses require inspections for other pollutants such as oil and grease.
3. Conduct site inspections of businesses and private properties:
    a. inspections for other pollutants.
    b. discharge permits.
    c. non-stormwater discharges.
4. Conduct illicit discharge inspections and surveys for:
    a. cross-connections.
    b. pollutant tracking.

5. Ensure construction projects are in compliance with applicable local, state, provincial, and federal stormwater regulations, laws, ordinances, policies, and specifications:
    a. grading.
    b. stormwater ponds and sewers.
    c. erosion control measures.
6. Investigate and resolve environmental matters related to contamination of the sewer and storm drain systems and pollution problems such as:
    a. oil leaks.
    b. spills.
    c. spill response.
    d. chemical contamination.
    e. outfall coliform source detection.
    f. sewer to storm drain cross-connections in compliance with existing legislation.
7. Determine and implement remedial and enforcement procedures.
8. Interpret sampling/monitoring data.
9. Demonstrate knowledge of the household hazardous waste program.

B. **Structural Best Management Practices: 23 items** (Recall: 4, Application: 5, Analysis: 14)

1. Address stormwater quality and quantity in:
    a. ponds (e.g., micro-pool extended detention pond, wet pond, wet extended detention pond, multiple pond system, “pocket” pond).
    b. wetlands (e.g., shallow wetlands, extended detention, pond/wetland system, “pocket” wetland).
    c. infiltration (e.g., infiltration trench, infiltration basin, porous pavement).
    d. filtering systems (e.g., surface sand filter, underground sand filter, perimeter sand filter, organic filter, bio-retention).
    e. open channels (e.g., dry swale, wet swale, grass channels).
2. Assess stormwater pollution control facilities for:
    a. stormwater benefits for varying degrees of pollutant removal.
    b. maintenance requirements for different pollutant removal devices.
    c. frequency for storm sewer cleaning and catch basin cleaning.
3. Select proper BMPs to meet water quality and quantity goals in orderto:
    a. meet measurable pollution reduction goals.
    b. identify implementation status.
    c. identify effectiveness of each BMP.
    d. comprise a schedule for implementing each BMP.
    e. monitor the BMP schedule status.

C. **Hydrology and Hydraulics: 15 items** (Recall: 6, Application: 9, Analysis: 0)

1. Conduct studies and analyses by:
    a. determining percent impervious of the drainage areas.
    b. performing drainage and flow calculations.
    c. identifying soil type and infiltration rates for drainage areas.
    d. delineating drainage areas.
    e. utilizing models for analysis/design, if needed.
    f. selecting rainfall data (e.g., storm duration and volume).
    g. determining pipe sizing requirements.
    h. determining pond size for water quantity issues (flooding).
    i. determining pond size for water quality issues (pollutant removal).
2. Determine which hydrologic/hydraulic variables to manage in the subwatershed:
    a. groundwater recharge.
    b. stream bank protection/restoration.
    c. channel protection.
    d. flood reduction.

3. **OPERATIONS and MAINTENANCE: 15 items** (Recall: 6, Application: 9, Analysis: 0)

1. Administer the storm and/or sewer drain TV viewing program.
2. Coordinate with various internal city departments to enact BMPs.
3. Develop operational procedures for maintenance and repair of the stormwater infrastructure, drainage channels, and stormwater ponds.
4. Respond to drainage complaints, recommend solutions and coordinate the implementation.
5. Analyze maintenance methods, equipment used, and performance to find new ways of increasing compliance, effectiveness, and high productivity (e.g., street sweeper, vacuum truck).

