North Carolina Office of State Fire Marshal

North Carolina Response Rating Schedule

Student Study Guide
Fire Department Certification
### Status of Fire Districts in North Carolina (2013)

- Fire Departments: 1,256
- Fire Districts: 1,537
- Municipal Districts: 369
- Rural Fire Districts: 1,168
- Non-profit corporations: 937

### Status of Fire Districts in North Carolina (2013)

- Class 9S / 9E Districts: 423
- Districts Below 9: 1,124
- Districts with Split Grades: 647

### Rating Classifications

<table>
<thead>
<tr>
<th>Rating Class</th>
<th># of Departments in NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<tr>
<td>7</td>
<td>212</td>
</tr>
<tr>
<td>8</td>
<td>26</td>
</tr>
</tbody>
</table>
Certification of Fire Districts

Definitions

Fire Insurance District (G.S. 153A-233)
An area outside corporate limits with boundaries approved by the County Board of Commissioners for fire insurance purposes.

An “Insurance District” is NOT supported by either a referendum type fire tax (G.S. 69.25) or a special service district tax (G.S. 153A-300).

Rural Fire Protection District (G.S. 69-25)
An area outside corporate limits with boundaries designated by petition of 35% of the resident free-holders, in which a fire tax not to exceed $0.15 per $100.00 valuation, has been authorized by the resident qualified voters within the district.

Fire Service District (G.S. 153A-300)
An area outside corporate limits, with boundaries approved by the County Board of Commissioners, in which a fire tax is levied without referendum for fire protection services. Such district or districts may include territory within corporate limits if approved by resolution of the municipal governing body.
Certification of Fire Districts

Common Factors Affecting Communities by Non-Compliance
- Insurance Premiums
- Potential Residential Development
- Potential Commercial Development
- Local Funding Tied To Property Development

Certification of Fire Districts

Significant Factors Affecting A Fire Department by Non-Compliance
- Pension Fund
- Fireman's Relief Fund
- Fireman's Death Benefit - N.C.
- Fireman's Death Benefit - U.S.
- Grants

Certification of Fire Districts

To Meet the 9S / 9E Requirements for Fire Departments in North Carolina
Certification of Fire Districts

Charter and Amendments

- The inspector will need copies of the Charter and any Amendments

Certification of Fire Districts

Current Contracts with County and/or Municipalities

- The inspector will need copies of all current Contracts
- Contracts must be properly signed and dated

Certification of Fire Districts

Verification by City/Town, that the department is part of the municipality

- This can be verified by
  - Resolution
  - Letter from the city or town Mayor, Town Administrator or City or Town Manager
  - Established City or Town Charter

Appendix A

CURRENT CONTRACTS WITH COUNTY AND/OR MUNICIPALITIES

WHEREAS, The Volunteer Fire Department of the Town of ______________ is a part of the municipality's government and serves as an agency of the town; and
WHEREAS, The Volunteer Fire Department of the Town of ______________ has requested confirmation of this Agency relationship; and
WHEREAS, This Agency's relationship is longstanding and generally acknowledged.
NOW THEREFORE, Be it resolved, that the Town of ______________ does hereby confirm this Agency's relationship and does verify by this Resolution that relationship.

Adopted this __________ day of __________________, 19___.

ATTEST:

________________________________
________________________________
Clerk
Mayor
Certification of Fire Districts

• GIS Map or NCDOT Map
• If a NCDOT map is used then a Written Description is required

Certification of Fire Districts

Designation of Insurance District

• The inspector will need a copy of the most current County Commissioner approval of Insurance District Map

Certification of Fire Districts

Certification Roster

• The inspector will need a copy of the Current NCSFA Certification Roster of Members
• Personnel who are members of 2 different departments can only count in the primary 20 personnel for one department
Certification of Fire Districts

Personnel Requirements

• All creditable personnel must be 18 years of age
• 20 firefighters needed for single station departments
• For each Sub-Station, 8 additional firefighters are required

Certification of Fire Districts

Personnel Requirements, Option

• Average 12 or more firefighters on the last 20 structure fire calls for the Main Station
• Average 4 or more firefighters on the last 20 structure fire calls for each Sub-Station

Certification of Fire Districts

Personnel Requirements

• Junior Members, and/or those members less than 18 years of age, will NOT be considered for membership purposes. These persons will NOT be credited as part of the 20/8 member roster or minimum 12/4 member average response requirement.
Certification of Fire Districts

Personnel Turnout Gear Requirements

The department shall provide each firefighter the following equipment

- Pants
- Coat
- Helmet
- Boots
- Hood
- Gloves

Protective Clothing Form

PROTECTIVE CLOTHING FORM

- The department shall provide the original notarized protective clothing form
- Or the department shall have all turnout gear at the station for the inspection

Personnel Communications Requirements

If the department does not use a siren, then each firefighter shall be equipped with a pager, or a some type of radio that has paging capabilities, to notify the firefighters of a call.

Refer to Page 1 Handout
Certification of Fire Districts

Service Test on Engine

- Department shall provide a signed and dated pump test which has been conducted in the last 12 months.

Certification of Fire Districts

Certified Weight Tickets

- Department will provide signed weight tickets that are less than 1 year old, for the first out engine and first out tanker.

Certification of Fire Districts

Training

- Departments are required to provide a minimum of 48 hours of training per year. (At least 4 hours per month)
- All members of fire departments shall comply with the training requirements of G.S. 58-86-2 as a minimum. Each member shall have a minimum of 36 hours of training per year.
- The departments shall provide training records to verify that the firefighters obtained the required 36 hours of training.
- The Fire Chief shall have attended the Chief 101 class within 12 months of becoming chief.

Refer to Page 2 Handout
Certification of Fire Districts

National Fire Incident Reporting System (NFIRS)

Whenever the fire department responds to a fire, a chief of that fire department shall complete or cause to be completed a fire incident report on the current electronic version of the NFIRS in accordance with G.S 58-79-45.

The inspector will verify that the departments are submitting their incident reports to the state.

The inspector will verify that the department is responding with at least 1 engine and 4 personnel on all structure fires and automatic fire alarms in their district.

Refer to Page 2 Handout

Certification of Fire Districts

Engine Requirements

- 750 GPM UL Approved Fire Pump
- 500 Gallon Water Tank
- GVW Plate
- Inventory of Equipment Check-off Lists
- Maintenance Check-off sheets

Refer to Page 3 Handout

Certification of Fire Districts

Engine Equipment Requirements

- 2 - 150’ 1-1/2” or 1-3/4” pre-connected attack line, with nozzle attached
- 1 - Booster Reel or a 3rd 150’ pre-connected attack line with nozzle attached
- 2 - 10’ Sections of “Suction” Hose
- 4 - SCBAs
- 1 - 12’ or 14’ Roof Ladder
- 1 - 24’ or 35’ Extension Ladder

Refer to Page 3 Handout
Certification of Fire Districts

Engine Equipment Requirements

• 1 - Axe
• 1 - Crowbar (Halligan Tool can substitute)
• 1 - Claw Tool (Halligan Tool can substitute)
• 1 - Pike Pole
• 2 - Hand Light (rechargeable)
• 2 - Shovels (no folding military entrenching tools)
• 2 - Class BC Portable Extinguishers @ 20 lb. minimum
• 1 - First Aid Kit
• 1 - Bolt Cutter (minimum 14” handles)
• 1 - 100’ of (minimum ½” Rope)

Refer to Page 3 Handout

Certification of Fire Districts

Tanker Requirements

• Minimum 1,000 Gallon Water Capacity
• Adequate Hose for Filling & Dumping
• Properly Baffled
• GVW Plate
• Maintenance Check off sheets

Refer to Page 4 Handout

Certification of Fire Districts

Fire Station Requirements

• The Fire Station building shall provide suitable heating, as well as all weather protection, of the department’s response equipment.

Refer to Page 5 Handout
Certification of Fire Districts

Class 8B

To be eligible for a 8B rating a department must meet the following criteria:

- Pass the North Carolina 9S inspection
- Have an average response of 6 firefighters to all structure fires within their district
- Must respond with a minimum of 4000 gallons of usable water for firefighting on the first alarm to all structure fires
- Must be able to demonstrate the ability to provide 200 gpm flowing within 5 minutes

Certification of Fire Districts

Electronic Records

- The department must have a policy in place ensuring documentation cannot be tampered with or edited by unauthorized personnel
- The department must have a policy describing the method in which they back up the documentation

Refer to Page 4 Handout

Other Services Provided by OSFM Inspections & Rating

- Extending Districts to 6 Mile Districts
- Fire and Emergency Services Laws
- Annexation
- Rural Fire Protection Districts
- Merger of Fire Departments
- County Service Districts
- Motor Vehicles (Fire Service)
- Nonprofit Corporation (Fire Service)
Introduction to the North Carolina Response Rating Schedule
Introducing The North Carolina Response Rating System (NCRRS)

Introduction to the NCRRS

On July 1, 2000; the North Carolina Department of Insurance became the agency responsible for the fire insurance rating of municipalities/fire districts with under 100,000 population.

Purpose:
The purpose of the NCRRS/Public Protection Classification Survey is to outline the criteria for evaluating the fire prevention and fire suppression capabilities of individual communities – or fire protection areas. The purpose of such an evolution is to develop a Public Protection Classification for property insurance rating.
Introduction to the NCRRS

Scope:
The schedule measures the major elements of a fire protection area’s fire prevention and fire suppression systems. The fire suppression component evaluates how those systems address reported structure fires. The schedule gives procedures and formulas for developing the measurements into a Public Classification number on a relative scale 1 to 10, with 10 representing less than the minimum recognized protection.

The Schedule is a property insurance rating tool, and is not intended to analyze all aspects of a comprehensive public fire protection program.

Importance of NCRRS
To a Community Planner
Ex: Street layouts, subdivision / development location(s)

To a Fire Chief / Administrator
Ex: Documenting needs – fire stations, personnel, equipment, etc.

To a Water Superintendent
Ex: Provide data for needed services, expansion needs and growth projections

To a Businessman / Homeowner in the District
Ex: Factors impacting insurance rates, projected costs of commercial operations

How does improving your rating affect your citizens
This chart compares annual insurance premiums for a new wood frame home valued at $100,000.00 with smoke detectors. This report was provided by an actual agent in Wake County.

<table>
<thead>
<tr>
<th>ISO CLASS</th>
<th>AGENT 1</th>
<th>AGENT 2</th>
<th>AGENT 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>$475.00</td>
<td>$514.00</td>
<td>$553.00</td>
</tr>
<tr>
<td>9</td>
<td>$376.00</td>
<td>$411.00</td>
<td>$469.00</td>
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<td>8</td>
<td>$353.00</td>
<td>$384.00</td>
<td>$438.00</td>
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<tr>
<td>7</td>
<td>$318.00</td>
<td>$347.00</td>
<td>$394.00</td>
</tr>
<tr>
<td>6</td>
<td>$259.00</td>
<td>$283.00</td>
<td>$320.00</td>
</tr>
<tr>
<td>5</td>
<td>$259.00</td>
<td>$283.00</td>
<td>$320.00</td>
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<tr>
<td>4</td>
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<td>1</td>
<td>$259.00</td>
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Savings with a class 9 rating
$94.00 $103.00 $116.00

Refer to Page 5 Handout
Introduction to the NCRRS

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Additional savings for a 7 rating: $58.00 $64.00 $75.00
Total Savings: $152.00 $167.00 $191.00

Refer to Page 5 Handout

Introduction to the NCRRS

How does improving your rating affect your citizens
This chart compares annual insurance premiums for a new wood frame home valued at $100,000.00 with smoke detectors. This report was provided by an actual agent in Wake County.

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<tr>
<td>1</td>
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<td>$283.00</td>
<td>$320.00</td>
</tr>
</tbody>
</table>

Additional savings for a 6 rating: $59.00 $64.00 $74.00
Total Savings: $211.00 $231.00 $265.00

Refer to Page 5 Handout

Introduction to the NCRRS

**Key Fact**
NCRRS does not require a community to purchase anything for a survey.
Introduction to the NCRRS

Try to imagine us taking a giant photograph of your fire district, department and operations upon our arrival.

- That information, represented in the ‘photograph,’ is what establishes the parameters of the data to be collected for your survey.

Introduction to the NCRRS

Components of a Rating Inspection
Emergency Communications 10 Points
Fire Departments 50 Points
Water Supply 40 Points
Community Risk Reduction 5.5 Points

Refer to Page 6 Handout

Method of Operation

Directly affects credit received
**Introduction to the NCRRS**

**Four Methods of Rating**

**Method #1**
- Using Pressurized Fire Hydrants only, for supplying water, with no Tanker Relay utilized.
- May result in a split grade

**Method #2**
- Using Pressurized Fire Hydrants and/or Suction Points, for supplying water, with no Tanker Relay utilized.
- May result in a split grade
Introduction to the NCRRS
Four Methods of Rating

Method #3:
- Using Pressurized Fire Hydrants and a Tanker Relay from Pressure Hydrants and/or Suction Points to provide water.
- Will result in a single grade

Method #4:
- Using a Tanker Relay, only, from Pressure Hydrants and/or Suction Points to provide water.
- Will result in a single grade

If your department wishes to change the method by which they are to be graded, written notice from the County Fire Marshal must be sent to the Inspections Supervisor prior to scheduling your next survey.

AC Daniels
Inspections Supervisor
NC DOI / OSFM
1202 Mail Service Center
Raleigh, North Carolina  27699
ac.daniels@ncdoi.gov
Communications
Communications

Emergency Communications

A review of the Emergency Communications accounts for 10% of the total Grade

This section is weighted at 10 points, as follows:

- Emergency Reporting: 3 points
- Telecommunicators: 4 points
- Dispatch Circuits: 3 points

National Fire Protection Association
NFPA Standard 1221

Association of Public Communications Officials International
APCO 33

Emergency Reporting System

- No 9-1-1 or Basic 9-1-1
- Enhanced 9-1-1
- ANI - Automatic Number Identification
- ALI - Automatic Location Identification
Communications

Emergency Communications
- Wireless Phase 1
- Wireless Phase 2

Communications

Emergency Communications
Voice over Internet Protocol (VoIP)
- Static
- Nomadic

Communications

Emergency Communications
Computer Aided Dispatch (CAD)
- Basic CAD
- CAD with MIS (Management Information System)
- CAD with Interoperability
- CAD with MIS and Interoperability
Communications

Emergency Communications

GIS/AVL

- GIS - Geographic Information System
- AVL - Automatic Vehicle Location

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Communications

Telecommunicators

Handling of fire calls should be in accordance with the general criteria of NFPA 1221

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Communications

Telecommunicators

Call Detail Recording

- A system that provides a record of each call
- Automatic number identification (ANI), trunk number
- Answering attendant number; and the time of capture, answer, and disconnect / transfer

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Communications
Telecommunicators
Telecommunicators performance based on:
Call receipt
• 95% of alarms answered within 15 seconds
• 99% of alarms answered within 40 seconds

Communications
Telecommunicators
Telecommunicators performance based on:
Call processing
• Complete 80% of emergency dispatching within 60 seconds
• Complete 95% within 106 seconds

Communications
Telecommunicators
Telecommunicators performance based on:
Call transfer
• Transfer 95% of all alarms from a PSAP within 30 seconds, if applicable
Communications

Telecommunicators

Emergency Dispatch Protocols for Fire Service (EDP):

- Telecommunicators have EDP containing questions and a decision-support process to facilitate correct call categorization and prioritization
- Telecommunicators use those protocols to provide pre-arrival instructions to emergency responders and callers

Qualification and Requirements

- Meet the qualification requirements referenced in NFPA 1061
- Association of Public-Safety Communications Officials - International (APCO) Project 33
- Telecommunicators are certified in the knowledge, skills, and abilities corresponding to their job functions

Telecommunicators participate in continuing education and/or in-service training

- Quality-assurance programs as appropriate for their positions
Communications

Dispatch Circuits

Definition

- A dispatch circuit is a circuit over which an alarm is transmitted, automatically or manually, from the communication center to an emergency response facility.
- All fire departments need adequate means of notifying personnel of fire locations.

Review of the dispatch circuit include

- Type of circuit(s) provided for alarm dispatch
- Monitoring for integrity
- Emergency power supply

Needed Dispatch Circuits

- Less than 730 alarms* per year: 1 dispatch circuit is needed
- 730 or more alarms* per year: 2 dispatch circuits are needed

* alarms transmitted to the graded area only
Communications

Dispatch Circuits
Types of Dispatch Circuits

- Circuits to On-Duty Personnel
  - Radio, voice-amplification, facsimile
  - Coded system indicating box number
  - Telephone circuit only

Communications

Dispatch Circuits
Types of Dispatch Circuits

- Circuits to On-Call Personnel
  - Pagers/Alerting Portables
  - Alerting home receiver

Communications

Dispatch Circuits
Types of Dispatch Circuits

- Circuit to coded/non-coded outside sounding device
  - Air horn
  - Siren
“Automatic monitoring of circuits and other system components for defects or faults that interfere with receiving or transmitting an alarm”

What needs to be monitored?
- All portions of the primary circuit path extending outside the communications center
- Normal and emergency power for all components at the communications center and remote sites
- Defects/faults require a visual and audible signal at the dispatch console

Emergency Power Supplies
Communications

Emergency Power Supplies

Emergency Power Supply May Include

- Batteries and manually started generator
- Automatically started generator with or without UPS
- Manually started generator
- Batteries only (Minimum 4 hours)

Communications

Required Testing of Emergency Power For Full Credit

- Testing under load
- Conducted weekly, 1 hour duration
- Testing must be recorded and available for review
Needed Fire Flow
The Needed Fire Flow (NFF) for a particular structure is the amount of water considered necessary to control a major fire in that structure.
How to Determine Needed Fire Flow (NFF)

Determine the Construction Factor
- 1.5 for Construction Class 1 (Frame)
- 1.0 for Construction Class 2 (Joisted Masonry)
- 0.8 for Construction Class 3 (Non-Combustible) and
  Construction Class 4 (Masonry Non-Combustible)
- 0.6 for Construction Class 5 (Modified Fire Resistive) and
  Construction Class 6 (Fire Resistive)

Refer to Page 7 Handout

Refer to Page 8 Handout
### Needed Fire Flow

How to Determine Needed Fire Flow (NFF)

**Determine the Occupancy Factor**

The factors below reflect the influence of the occupancy in the selected building on the Needed Fire Flow:

<table>
<thead>
<tr>
<th>Occupancy Combustibility</th>
<th>Class Occupancy Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-1 (Non-Combustible)</td>
<td>0.75</td>
</tr>
<tr>
<td>C-2 (Limited Combustible)</td>
<td>0.85</td>
</tr>
<tr>
<td>C-3 (Combustible)</td>
<td>1.00</td>
</tr>
<tr>
<td>C-4 (Free Burning)</td>
<td>1.15</td>
</tr>
<tr>
<td>C-5 (Rapid Burning)</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Refer to Page 9,10,11 Handout

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### Needed Fire Flow

**NEEDED FIRE FLOW 300**

<table>
<thead>
<tr>
<th>Nearest 2 Inter. Sts</th>
<th>Dist.</th>
<th>Type</th>
<th>Nearest Fire No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Refer to Page 12 Handout

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### Needed Fire Flow

**Needed Fire Flows for Residential Properties**

For 1- and 2-family dwellings not exceeding 2 stories in height, the following Needed Fire Flows at a duration of 1 hour shall be used:

<table>
<thead>
<tr>
<th>DISTANCE BETWEEN BUILDINGS</th>
<th>NEEDED FIRE FLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 10 feet</td>
<td>500 gpm</td>
</tr>
<tr>
<td>11 - 20 feet</td>
<td>750 gpm</td>
</tr>
<tr>
<td>21 - 30 feet</td>
<td>1,000 gpm</td>
</tr>
<tr>
<td>More than 30 feet</td>
<td>1,500 gpm</td>
</tr>
</tbody>
</table>

For 1- or 2-family dwelling with an Effective Area greater than 4,800 square feet, calculate the Needed Fire Flow using the Needed Fire Flow formula.

Refer to Page 12 Handout

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For 1- or 2-family dwelling with an Effective Area greater than 4,800 square feet, calculate the Needed Fire Flow using the Needed Fire Flow formula.
Basic Fire Flow (BFF)

Basic Fire Flow is determined by using the fifth highest * Needed Fire Flow (NFF) within a given Fire Insurance District.

* Maximum BFF shall not exceed 3500 gpm

Needed Fire Flow

Needed Fire Flow Calculator
A review of the Fire Department accounts for 50% of the total grade. The NCRRS focuses on a fire department's first alarm response and initial attack to minimize potential loss. The fire department section is weighted at 50 points, as follows:

- **Engine Companies** 6 points
- **Reserve Pumpers** 0.5 points
- **Pump Capacity** 3 points
- **Ladder/Service Co.** 4 points
- **Reserve Ladder/Ser.** 0.5 points
- **Deployment Analysis** 10 points
- **Company Personnel** 15 points
- **Training** 9 points
- **Operational considerations** 2 points

Total 50 Points

---

The number of engines needed by a fire department is based on their **Basic Fire Flow (BFF)**:

- Basic Fire Flow is determined by using the fifth highest Needed Fire Flow (NFF) for a given Fire Insurance District.

<table>
<thead>
<tr>
<th>Basic Fire Flow</th>
<th>Needed Engines</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 GPM – 1,000 GPM</td>
<td>1</td>
</tr>
<tr>
<td>1,250 GPM – 2,500 GPM</td>
<td>2</td>
</tr>
<tr>
<td>3,000 GPM – 3,500 GPM</td>
<td>3</td>
</tr>
</tbody>
</table>

**Fire Department Engine Company**

For maximum credit a 2 engine response is required to all structure fires when Basic Fire Flow is greater than 1000 GPM.
Pumping Capacity
- Capacity of "in-house" fire apparatus that utilizes an approved pump for fire suppression activities. Total of pump capacities as compared to BFF requirement.
- Reduced or no credit awarded for pumps of inadequate size, and/or not adhering to required testing frequency.

Hose Carried
- Supply Hose Required (2 ½" to 5") ------ 1,000 Ft
- Attack Hose Required (2" to 2 ½") ------ 200 Ft
- Attack Hose Required (1 ½", 1 ¾" or 2") - 400 Ft (2- 200' lines)
- 15' Soft-Suction or 20' Hard-Suction Hose

Refer to Page 13,14,15 Handout
Reserve Engine Companies

No Reserve Unit, No Credit Earned

Apparatus must be service tested to receive full credit as a reserve unit.

Equipment credit will be earned utilizing the Apparatus Equipment form provided.

Service Test on Engine

Average Interval Between 3 Most Recent Tests: Maximum Points Credit
1 year: 100
2 years: 75
3 years: 50
4 years: 25
5 years or more: 0

Department should provide 3 years of pump test records with the most current test less than 1 year old.

All pump test records must be signed and dated for credit.
### Fire Department Engine Company

**Hose Testing**

<table>
<thead>
<tr>
<th>Average Interval Between 3 Most Recent Tests</th>
<th>Maximum Points Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>50</td>
</tr>
<tr>
<td>2 years</td>
<td>37</td>
</tr>
<tr>
<td>3 years</td>
<td>25</td>
</tr>
<tr>
<td>4 years</td>
<td>12</td>
</tr>
<tr>
<td>5 years or more</td>
<td>0</td>
</tr>
</tbody>
</table>

*Department will provide 3 most recent years of hose test records for review*

*All hose tests must be recorded and dated for credit*

*Attack lines tested at 250 psi*

*LDH lines tested at 200 psi*

Refer to Page 16,17 Handout

### Fire Department Ladder / Service Company

**Determining Ladder Company and/or Service Company Needs**

1. Does the fire district in question contain 5 or more buildings with a NFF of over 3,500 GPM?
2. Does the fire district in question contain 5 or more buildings that are 3 stories tall (32’ to the eave) or taller?
3. Does the fire district in question contain enough 3 story buildings and buildings of greater than 3,500 GPM NFF to equal 5 or more?

If **YES** to any of these, a Ladder Company is needed, otherwise a Service Company is needed.
### Fire Department Ladder / Service Company

<table>
<thead>
<tr>
<th>Triangle</th>
<th>Oval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building 3 Stories (32’ to the eave) or taller</td>
<td>Building with NFF over 3500 GPM</td>
</tr>
</tbody>
</table>

**Ladder / Service Company Response**

For maximum credit a Ladder / Service Company response is required on all structure fires.
**Reserve Ladder / Service Companies**

No Reserve Unit, No Credit Earned

Aerial device must meet testing standards to receive full credit.

Equipment credit will be earned utilizing the Apparatus Equipment form provided.

---

**Aerial Ladder Testing Requirements**

<table>
<thead>
<tr>
<th>Average Interval Between 3 Most Recent Tests</th>
<th>Maximum Points Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>50</td>
</tr>
<tr>
<td>2 years</td>
<td>37</td>
</tr>
<tr>
<td>3 years</td>
<td>25</td>
</tr>
<tr>
<td>4 years</td>
<td>12</td>
</tr>
<tr>
<td>5 years or more</td>
<td>0</td>
</tr>
</tbody>
</table>
Fire Department
Ladder / Service Company

Aerial Ladder Testing Requirements
• Annual aerial test - Department should provide 3 most recent aerial test records with the most current less than 1 year old.
• A current 5 year non-destructive aerial test record must be provided
• All aerial test records must be signed and dated for credit.

Fire Department

Common Issues Effecting Point Values
• Inadequate apparatus response
• Inadequate pump capacity
• Inadequate equipment carried
• Inadequate hose carried

Fire Department

Deployment Analysis
• Percentage of 'built-upon' properties which lie within the fire protection area (total roadway miles within the 5 mile fire district), where for:
  • Engine Companies: Total road miles within 1½ miles of existing department fire stations as determined by all-weather roadways.
  • Ladder/Service Companies: Total road miles within 2½ miles of existing department fire station as determined by all-weather roadways.
Fire Department Deployment Analysis

Alternative to Determining the Number of Needed Engines

- The fire department’s fire suppression resources shall be deployed to provide for the arrival of an engine company within a 240-second travel time to 90 percent of the structure fires within the district.
- The fire department shall have the capability to deploy an initial full alarm assignment within a 480-second travel time to 90 percent of the structure fires within the district.
- Reference: NFPA 1710 5.2.4.1.1 and 5.2.4.2.1

Fire Department Automatic Aid (AA)

- Automatic Aid is that aid which is dispatched automatically/simultaneously, or without undue delay (depending on system capabilities), alerting first alarm personnel of a fire alarm.
- Mutual Aid is that aid which is requested, either while enroute or upon arrival, expressing a need for additional and/or specific resources not dispatched automatically on first alarm.
- Maximum AA factor 1.0
- Minimum AA factor 0.40

Fire Department Automatic Aid

Automatic Aid – Requirements

- AA departments must be within 5 road miles of the receiving department boundary.
- Departments must operate under an established AA agreement, operate under a predetermined response plan and dispatched on initial alarm.
- Radio Interoperability
- Training
- SOPs or SOGs
Automatic Aid – For needed Engine Companies

- Supplemental Engine Need
  - To meet needed Engine requirement based on Basic Fire Flow

Automatic Aid – For Personnel

- Credit may be received for Automatic Aid Personnel responding on initial alarm

Factors used to determine AA factor
- Communication Facilities
- Dispatch Plans
- Training
- Radio Interoperability
- SOPs or SOGs
- Verification of initial dispatch response
  - Apparatus
  - Personnel

Refer to Page 20 Handout
Fire Department Staffing

Personnel
- On Duty: firefighters scheduled at the station
- On Call: firefighters, other than on duty personnel, who respond on the initial alarm
- Auto Aid: firefighters responding on initial alarm from other departments

Refer to Page 21 Handout

Fire Department Training

- Training credit only awarded for training in the realm of structural fire fighting
- Credit is awarded according to training content, member participation, available and use of facilities

(Training records must be available for Inspector review)

Refer to Page 22 Handout

Fire Department Training

Facilities Include
- Live fire training structure including smoke room
- Drill tower at least 3 stories in height
- Training area at least 2 acres in size

Use of Facilities
- For full credit under facilities each member of the department should attend 18 hours of training at the facilities per year
Fire Department Training

Company Training
- Training at the fire station using streets, buildings, and open areas
- For maximum credit under this area each member should obtain 16 hours a month of company training

Fire Department Training

Officers Certification and Training
- Officer Certification
  - Certification of each current officer with responsibilities in fire suppression, in accordance with the general criteria of NFPA 1021 Fire Officer 1, or NC Chief 101 and one of the NFPA Officer Level Classes from the approved list. Starting January 1, 2019 to obtain credit in this area the officers must obtain Fire Officer 1 certification.
- Officer Training
  - Officers who have fire suppression responsibility should have at least 12 hours of officers training per year

Refer to Page 23 Handout

Fire Department Training

New Driver/Operator Program
- New Driver/Operators should obtain 60 hours of driver/operator training
Fire Department Training

Existing Driver/Operator Program
• Existing Driver/Operators should obtain 12 hours of driver/operator training per year

Hazardous Materials Training
• Each member should obtain 6 hours of Hazardous Material training per year

Recruit Training Program
• New Recruit Firefighters should obtain 240 hours of training the first year of their joining a department
Pre-Incident Planning Program

- Fire department should make pre-fire plans for all commercial, industrial, institutional, other similar buildings in their district.
- Each pre-fire plan should be updated at least annually.
- The pre-fire plans must be available for the responding incident commander.

Frequency of Inspections

<table>
<thead>
<tr>
<th>Points</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>100</td>
</tr>
<tr>
<td>2 years</td>
<td>.83</td>
</tr>
<tr>
<td>3 years</td>
<td>.67</td>
</tr>
<tr>
<td>4 years</td>
<td>.58</td>
</tr>
<tr>
<td>5 years</td>
<td>.42</td>
</tr>
<tr>
<td>More than 5 years</td>
<td>.00</td>
</tr>
</tbody>
</table>

Training Credit Equivalents:

<table>
<thead>
<tr>
<th>Category</th>
<th>maximum %</th>
<th>Grade/Point Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Facility &amp; Use</td>
<td>25</td>
<td>0.35 X 9 = 3.15</td>
</tr>
<tr>
<td>Company Training</td>
<td>25</td>
<td>0.25 X 9 = 2.25</td>
</tr>
<tr>
<td>Officer Certification</td>
<td>8</td>
<td>0.06 X 9 = 0.54</td>
</tr>
<tr>
<td>Officer Training</td>
<td>6</td>
<td>0.06 X 9 = 0.54</td>
</tr>
<tr>
<td>Pre-Plans</td>
<td>12</td>
<td>0.12 X 9 = 1.08</td>
</tr>
<tr>
<td>Recruit Training</td>
<td>5</td>
<td>0.05 X 9 = 0.45</td>
</tr>
<tr>
<td>New Driver/Operator</td>
<td>5</td>
<td>0.05 X 9 = 0.45</td>
</tr>
<tr>
<td>Established Driver/Operator</td>
<td>5</td>
<td>0.05 X 9 = 0.45</td>
</tr>
<tr>
<td>Hazardous Materials</td>
<td>1</td>
<td>0.01 X 9 = 0.09</td>
</tr>
</tbody>
</table>

Refer to Page 24, 25 Handout

Refer to Page 26, 27 Handout
Departments should establish SOPs or SOGs for the fire department general emergency operations, procedures may include:

- Response of apparatus
- Operation of emergency vehicles
- Communications
- Apparatus inspection and maintenance
- Fire suppression operations (IMS)
- Company operations
- Automatic aid operations
- Mutual aid operations
- Training
- Personnel response

Departments should establish an incident management system to be used during an emergency incident.
Water Supply
**Water Supply**

### Supply System Components

- Source of Supply
- Means of Water Movement
- Processing/Treatment Facilities
- Water Treatment Plant
- Distribution System and Storage

---

**Supply System**

<table>
<thead>
<tr>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
</tr>
<tr>
<td>Hydrant Size, Type and Installation</td>
</tr>
<tr>
<td>Hydrant Inspection and Condition</td>
</tr>
<tr>
<td>Total Water Supply</td>
</tr>
</tbody>
</table>

---

**Where does the water for fire suppression efforts originate?**

- **Examples:** Well, reservoir, lake, pond, river or creek
Water Supply
Supply System Components
• Processing/Treatment Facilities – Water Treatment Plant
• If the water supply undergoes any type of treatment or filtration/processing, which may affect flow or available volume, details of such conditions must be provided.

Water Supply
Supply System Components
• Pumps
  • Low lift pumps, High lift pumps
• Storage
  • Ponds, Clearwells, Ground tanks, Standpipe or Elevated tank

Water Supply
Maximum Daily Consumption – MDC
• The highest daily rate of water consumption in the last three years for a given city or fire protection area
• List the actual date this occurred and the total number of gallons used
• Don’t consider major system failures such as water main breaks
Water Supply

Average Daily Consumption – ADC

- The average daily rate of water consumption, in gallons per minute (GPM), for the last year for a given water system.

Water Supply

Minimum Water Supply Requirements

- A pressure hydrant must supply 250 GPM at 20 PSI residual pressure for a minimum two-hour duration in order to be recognized.
- A static water supply source must be capable of delivering a minimum 250 GPM for at least two hours in order to be a recognized water source, (requires a minimum of 30,000 gallons of usable supply).

Water Supply

Hydrant Distribution

- Credit up to 1500 GPM per hydrant
- Hydrant distribution credit for all hydrants within a 1,000 feet of a structure
**Water Supply**

**Inspection and Fire Flow Testing of Hydrants**

- Inspections include pressure tested, flushed, caps lubricated, etc.
- Department must document the inspection
- Department will provide 3 most recent years of hydrant inspection records

<table>
<thead>
<tr>
<th>Frequency of Inspection</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>30</td>
</tr>
<tr>
<td>2 years</td>
<td>20</td>
</tr>
<tr>
<td>3 years</td>
<td>10</td>
</tr>
<tr>
<td>4 years</td>
<td>5</td>
</tr>
<tr>
<td>5 years or more</td>
<td>No Credit</td>
</tr>
</tbody>
</table>

**Fire Flow Testing**

- Fire Flow testing must be conducted on all parts of the water system
- Department must document the Fire Flow tests
- Department will provide records of the Fire Flow tests
- Increase in points for frequency if a hydrant marking program is in place in accordance of NFPA 291

---

**Hydrant Fire Flow Testing**

To obtain credit for Fire Flow Testing a 2 hydrant test must be conducted.

---

Refer to Page 28, 29, 30 Handout

Refer to Page 31 Handout
Water Supply

Inspection and Fire Flow Testing of Hydrants

Fire Flow Testing

• In lieu of a comprehensive fire fire flow testing program, credit the results of a current properly installed and calibrated hydraulic water distribution system computer model that can produce static pressure and flow predictions at 20-psi residual pressure.

<table>
<thead>
<tr>
<th>Frequency of Flow Testing</th>
<th>Points</th>
<th>Points w/Marking Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>6 years</td>
<td>30</td>
<td>37.5</td>
</tr>
<tr>
<td>7 years</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>8 years</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>9 years</td>
<td>5</td>
<td>6.25</td>
</tr>
<tr>
<td>10 years or more</td>
<td>No Credit</td>
<td>No Credit</td>
</tr>
</tbody>
</table>
Water Supply
Hauling Water
Water Haul Operations

Creditable Water Points
- Lakes / Ponds
- Streams / Rivers
- Tanks
- Pressurized hydrants

Static Water Points Basic Requirements

Requirements for Static Water Points
- Permission from property owner
- Department must provide a copy of the properly signed agreement during the inspection

Refer to Page 32 Handout
Water Haul Operations

Requirements for Static Water Points

• Minimum 30,000 Gallons of usable water
• No more than 15' of lift
• All weather road to the drafting and fill site
• Accessibility 24/7 365 days a year
• Must provide a copy of the engineer verification during the inspection

Refer to Page 33 Handout

Water Haul Operations

Requirements for Static Water Points

• Documentation verifying water point is functional
• Must provide a copy of The Demonstration of Static Water Point

Refer to Page 34 Handout

Water Haul Operations

Requirements for Static Water Points

• Signage on the roadway must visible from all approaching directions
• Inspector will visit each water point to verify the source is assessable and that the signage is visible

Refer to Page 35,36 Handout
Water Haul Operations

Requirements for Static Water Points

- The department should provide the following information on all established static water points
  - Location: 4860 Lewis Rd
  - Reference ID: WP # 32-1
  - Type of Water Point: Suction Point, Dry Hydrant, Other

Water Haul Operations

Required Documents for Storage Tanks used for Water Points

- Engineering verification of useable water
- Minimum 30,000 Gallons of useable water
- Physical Address and GPS coordinates
- Verification that water point has been tested
- Signage on the roadway visible from all approaching directions
- Documentation on how the tanks water level is maintained

Water Haul Operations

Required Documents for Pressurized hydrants used for Water Points

- Need a hydrant flow test and the amount of water available
- No signage required
**Water Haul Operations**

**Required Testing of Water Points**

- Dry hydrants must be back flushed and flow tested annually
- Suction points must be inspected annually
- Records, with dates of the inspections, are required for credit
- A 25% reduction in points on frequency of inspection will be applied if partial records are provided

**Water Haul Operations**

**Filling and Dumping**

**Water Haul Operations**

**Types of fill points**

- Suction Points
- Dry Hydrants
- Pressurized Hydrants
- Turbo Draft
Water Haul Operations

Fill Site Engines

The department shall provide a list of fill site engines that could be used on the first alarm of a structure fire.

The department should provide the following information:

- If using an Auto Aid engine, mileage from the station district line.
- Name of the department.
- Unit number.
- Pump size.

Fill Site Set Up

• This is a timed event.
• The time is stopped when water is flowing out of one of the lines.

Refer to Page 37 Handout
This is a time event
- Time stops when the tanker crosses the second cone
Water Haul Operations

Dumping Tankers

- Rear dump
- Side dump
- Gravity or Jet dump
- Tubes or no tubes

Refer to Page 37 Handout

Tanker Dumps

Time starts when the truck leaves the first cone

Refer to Page 37 Handout
Water Haul Operations

Time ends when it goes by the second cone.

Refer to Page 37 Handout

Water Haul Operations

Fire Site Up Operation

Water Haul Operations

Fire Site Set Up Requirements

- Must be able to flow 250 gpm from a 100' - 2 ½” attack line with a 1-1/8” tip smooth bore nozzle within 5 minutes
- If any additional drop tanks are deployed, there is an additional 10 minutes allowed to develop adequate water transfer between tanks
- The pump operator must be able to transfer from the drop tank to the booster tank and back while maintaining the 250 gpm flow
- The pump operator will safely pump as much water out of the drop tank as possible
**Water Haul Operations**

Fire Site Sit Up

- Hose must be at least 100' in length with an 1-1/8" tip

**Refer to Page 37 Handout**

- Time is taken when water hits the drop tank
- Time is taken when there is 250 gpm flowing from the drop tank
Water Haul Operations

Fire Site Up Using 2 Drop Tanks

Time is taken when water hits the second tank

Refer to Page 37 Handout

Water Haul Operations

Auto Aid Factors

Credit for Auto Aid Training

• For maximum credit departments must conduct four - 3 hour training exercises per year with all auto aid companies

Water Haul Operations

Auto Aid Factors

Credit for Auto Aid Communication

For maximum Credit

• AA Departments must be dispatched on initial alarm without delay
• Must have common mobile and portable radios
Water Haul Operations

Frequently Asked Questions

• How many people are allow to perform the fire scene set up?
• How many tankers can be used?
• How many drop tanks are needed?
Community Risk Reduction
If a department has a Community Risk Reduction program they may obtain additional points in these areas:

- Fire Prevention Code Adoption and Enforcement - 2.2 points
- Public Fire Safety Education - 2.2 points
- Fire Investigation - 1.1 point

**Fire Prevention Code Adoption and Enforcement**

- Jurisdictions must adopt the current edition of the NC Fire Prevention Code.
- NC Code adoption should be within current allowed adoption period. Five years for maximum credit.
- Enforcement of the current NC Fire Prevention Code

Fire Marshals and Building Inspectors will be accepted to manage departments inspection programs. They must have appropriate certification.

**Requirements:**

- Must have adequate personnel to perform inspections as set forth in the NC Fire Prevention Code Section 106
- Inspection Schedule must be approved by the local jurisdiction and submitted to the Office of State Fire Marshal
- All Inspectors are required by NC General Statue to be certified to rules established by the NC Code Officials Qualification Board.
Community Risk Reduction

Fire Prevention Code Adoption and Enforcement

Requirements:
- Plan review for all new commercial construction
- Perform condition of occupancy inspections on all occupancies
- Perform code compliance follow up inspections
- Quality assurance program to be implemented for inspection programs
- Inspection of all private fire protection equipment. NC Code requires compliance with current NFPA standards.

Community Risk Reduction

Fire Prevention Code Adoption and Enforcement

Certification and Training

- Must have NC Code Official Qualification Board Certificates to perform appropriate inspections
- All fire prevention inspection personnel must maintain their NC Inspector qualifications per NC requirements which is 6 hrs. at this time

Community Risk Reduction

Public Fire Safety Education

Public Fire Safety Programs
- Smoke Alarm
- Carbon Monoxide
- Causes of Fires
- Educational programs
- Emergency Preparedness
- Fire Prevention Week
- Interactive Displays
- Occupancies

Refer to Page 38,39,40,41 Handout
Community Risk Reduction
Public Fire Safety Education

Public Fire Safety Programs (cont.)
- Occupant protection
- Outdoor Safety
- Populations
- Safe Kids programs
- Seasonal
- Arson Awareness

---

Community Risk Reduction
Public Fire Safety Education

Requirement for credits
Provide:
- List of programs conducted
- Any media outreach or social media activities
- Any awareness activities performed
- Dates, times, and locations of all events
- Conduct (4) different programs to receive maximum credit

---

Community Risk Reduction
Public Fire Safety Education

Educator Qualifications and Training
- All Public Fire Safety Education personnel must be trained in methods of teaching, by completion of approved Fire Safety Education Courses.
Community Risk Reduction

Public Fire Safety Education

Educator Qualifications and Training

- Approved Fire Safety Education Courses
  - Fire and Life Safety Educator I
  - Fire and Life Safety Educator II
  - Fire and Life Safety Educator III
  - Fire and Life Safety Educator Instructor
  - Public Information Officer
  - Certified Fire Investigator

Refer to Page 42 Handout

Community Risk Reduction

Public Fire Safety Education

Educator Qualifications and Training (cont.)

- Certified Child Passenger Safety Technicians
- Certified Child Passenger Safety Technician Proxy
- Certified Child Passenger Safety Technician Instructor
- Juvenile Firesetter Intervention Specialist I
- Juvenile Firesetter Intervention Specialist II

Copy of Certification Required

Refer to Page 42 Handout

Community Risk Reduction

Public Fire Safety Education

Fire Safety Education Continuing Education

- Fire and Life Safety Education workshops, meetings, or conferences
- Safe Kids meetings, workshops, and conferences
- Training or workshops sponsored by NC DOI - OSFM and Safe Kids NC

Certificate of completion or copy of roster required

Refer to Page 42 Handout
Community Risk Reduction

Fire Investigations

Requirements

- There must be an office within, or outside, the fire district with the responsibility to conduct investigations of the cause and origin of fires
- Fire Marshals will be accepted to manage departments fire investigations
- Credit is given for incident reporting using NFIRS; 3 years of records must be provided

Community Risk Reduction

Fire Investigations

Staffing

- Staffing will be based on the number of fires responded to and the number of fires investigated within the jurisdiction of the investigation staff

Community Risk Reduction

Fire Investigations

Certification and Training

- North Carolina Certified Fire Investigator or IAAI Certified Fire Investigator
Community Risk Reduction

Fire Investigations
Continuing Education Training

The investigator must meet the requirements to maintain the North Carolina Certified Fire Investigator or the IAAI Certified Fire Investigator.
The Inspection
The Inspection

- Notification of an inspection
  - The department will be sent notification 60 to 120 days before the inspection
  - Inspector will contact the chief and will be available to answer questions concerning upcoming inspection
  - The inspector will confirm that the department received the pre-package information

The Inspection

Required Maps

The department must provide a map of the district

Maps should have the following information

- Maps must have a scale printed on the map and 1" = 1,200' is the preferred scale
- The fire stations' locations
- Road base with names
- Hydrants and water points
- Fire departments' response district
- Five mile district line

Refer to Page 43 Handout

Required Maps

The department must provide a map of the district

Maps should have the following information with no overlaps

- Total road miles within the five mile district
- Total road miles within 1-1/2 miles from each station
- Total road miles within 2-1/2 miles from each station

Refer to Page 43 Handout
The Inspection

Standards and Policies

- The inspection staff of NC DOI/OSFM will gladly answer questions concerning the survey process prior to a survey site visit.
- Once the survey site visit has begun it is our responsibility to conduct your survey in a professional and timely manner.
- To accomplish this we will not be able to provide assistance, pertaining to specifics of the grading process, during the site visit.

Inspectors will ask to view the chassis GVW plate affixed to your Apparatus.
Inspectors must view contents of compartments to complete inventory requirements.
Hydrants must be opened and closed during the flow tests (if applicable).
Please provide someone from the department to open the necessary compartments and to operate hydrants as needed.

Visitors

- This is an issue for the Fire Chief and must be determined prior to the beginning of the survey site visit.
- Only pertinent Fire Service related personnel allowed to ‘sit-in’ during the survey process.
- The number of visitors must be limited to a minimum to avoid disruptions during the survey process.
- This is not a question and answer time for visitors observing the survey process.
The Inspection
Standards and Policies
• Retrospection – receiving a less favorable (than the current) rate classification
• If Retrospection occurs: The Department must acknowledge, in writing and within 30 days, receipt of their Retrospection notification. Otherwise, OSFM may reduce the rate classification of the Department based on the current grade received.
• If OSFM receives written acknowledgement from the Department, within 30 days, the Inspector and Department will meet to develop a ‘plan of action’. The ‘plan of action’ must describe the strategies, to be used by the Department, to eliminate the reduction in rate classification.

The Inspection
Standards and Policies
The sharing or borrowing of equipment between or among fire departments, or between or among stations within a fire department, the falsifying of documents, or engaging in any other act of misrepresentation, for the purpose of falsely satisfying the apparatus/equipment grading score of a NCFSRS inspection is prohibited.

The Inspection
Standards and Policies
• Notification of the 9S inspection will be received prior to the survey results
• Notification of the survey results will be sent to the department within 90 to 120 days
**The Inspection**

**Summary Review**

<table>
<thead>
<tr>
<th>Earned Credit</th>
<th>Credit Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Reporting</td>
<td>414.00</td>
</tr>
<tr>
<td>Credit for Emergency Reporting</td>
<td>2.10</td>
</tr>
<tr>
<td>Credit for Telecommunicators</td>
<td>422.00</td>
</tr>
<tr>
<td>Credit for Dispatch Circuits</td>
<td>432.00</td>
</tr>
<tr>
<td>Credit for Receiving and Handling Fire Alarms</td>
<td>440.00</td>
</tr>
<tr>
<td>Credit for Engine Companies</td>
<td>513.00</td>
</tr>
<tr>
<td>Credit for Reserve Pumpers</td>
<td>523.00</td>
</tr>
<tr>
<td>Credit for Pumper Capacity</td>
<td>532.00</td>
</tr>
<tr>
<td>Credit for Ladder Service</td>
<td>549.00</td>
</tr>
<tr>
<td>Credit for Reserve Ladder and Service Trucks</td>
<td>553.00</td>
</tr>
<tr>
<td>Credit for Deployment Analysis</td>
<td>561.00</td>
</tr>
<tr>
<td>Credit for Company Personnel</td>
<td>571.00</td>
</tr>
<tr>
<td>Credit for Training</td>
<td>581.00</td>
</tr>
<tr>
<td>Credit for Operational Considerations</td>
<td>730.00</td>
</tr>
<tr>
<td>Credit for Fire Department</td>
<td>590.00</td>
</tr>
<tr>
<td>Credit for Supply System</td>
<td>616.00</td>
</tr>
<tr>
<td>Credit for Hydrants</td>
<td>621.00</td>
</tr>
<tr>
<td>Credit for Inspection and Flow Testing</td>
<td>631.00</td>
</tr>
<tr>
<td>Credit for Water Supply</td>
<td>640.00</td>
</tr>
</tbody>
</table>

**Divergence**

- What is Divergence?
- The capability of a fire department is limited without an adequate water supply.
- The water supply cannot be fully utilized without an adequate fire department.
- Therefore credit totals are proportionately adjusted to balance the variance between the earned credit of these two categories.

<table>
<thead>
<tr>
<th>Equation</th>
<th>Example</th>
</tr>
</thead>
</table>
| DIV = 0.5 (CWS) - 0.8 (CFD) | CWS = 30
| DIV = divergence | CFD = 30
| CWS = credit for water supply | DIV = 0.5 \( \times (30) - 0.8 \times (30) \) |
| CFD = credit for fire department | DIV = 0.5 \( \times (30-24) \) |
| | DIV = 3 points |
The Inspection

Summary of Credit

The Public Protection Class is based on the total percentage of credit as follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>90.00 or more</td>
</tr>
<tr>
<td>2</td>
<td>80.00 to 89.99</td>
</tr>
<tr>
<td>3</td>
<td>70.00 to 79.99</td>
</tr>
<tr>
<td>4</td>
<td>60.00 to 69.99</td>
</tr>
<tr>
<td>5</td>
<td>50.00 to 59.99</td>
</tr>
<tr>
<td>6</td>
<td>40.00 to 49.99</td>
</tr>
<tr>
<td>7</td>
<td>30.00 to 39.99</td>
</tr>
<tr>
<td>8</td>
<td>20.00 to 29.99</td>
</tr>
<tr>
<td>9</td>
<td>10.00 to 19.99</td>
</tr>
<tr>
<td>10</td>
<td>.00 to 9.99</td>
</tr>
</tbody>
</table>