

**Public Protection Classification
Summary Report**

**Washington,
District of Columbia**

Prepared by

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Background Information

Introduction

ISO collects and evaluates information from communities in the United States on their structure fire suppression capabilities. The data is analyzed using our Fire Suppression Rating Schedule (FSRS™) and then a Public Protection Classification (PPC™) number is assigned to the community. The surveys are conducted whenever it appears that there is a possibility of a classification change. As such, the PPC program provides important, up-to-date information about fire protection services throughout the country.

The Fire Suppression Rating Schedule (FSRS) recognizes fire protection features only as they relate to suppression of first alarm structure fires. In many communities, fire suppression may be only a small part of the fire department's overall responsibility. ISO recognizes the dynamic and comprehensive duties of a community's fire service, and understands the complex decisions a community must make in planning and delivering emergency services. However, in developing a community's Public Protection Classification, only features related to reducing property losses from fire are evaluated. Multiple alarms, simultaneous incidents and life safety are not considered in this evaluation. The PPC program evaluates the fire protection for small to average size buildings. Specific properties with a Needed Fire Flow in excess of 3,500 gpm are evaluated separately and assigned an individual classification.

A community's investment in fire mitigation is a proven and reliable predictor of future fire losses. Statistical data on insurance losses bears out the relationship between excellent fire protection – as measured by the PPC program – and low fire losses. So, insurance companies use PPC information for marketing, underwriting, and to help establish fair premiums for homeowners and commercial fire insurance. In general, the price of fire insurance in a community with a good PPC is substantially lower than in a community with a poor PPC, assuming all other factors are equal.

ISO is an independent company that serves insurance companies, communities, fire departments, insurance regulators, and others by providing information about risk. ISO's expert staff collects information about municipal fire suppression efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data and assigns a Public Protection Classification – a number from 1 to 10. Class 1 represents an exemplary fire suppression program, and Class 10 indicates that the area's fire suppression program does not meet ISO's minimum criteria.

ISO's PPC program evaluates communities according to a uniform set of criteria, incorporating nationally recognized standards developed by the National Fire Protection Association and the American Water Works Association. A community's PPC depends on:

- **Needed Fire Flows**, which are representative building locations used to determine the theoretical amount of water necessary for fire suppression purposes.
- **Receiving and Handling Fire Alarms**, including telephone systems, telephone lines, staffing, and dispatching systems.
- **Fire Department**, including equipment, staffing, training, and geographic distribution of fire companies.
- **Water Supply**, including condition and maintenance of hydrants, alternative water supply operations, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires up to 3,500 gpm.

Data Collection and Analysis

ISO has evaluated and classified over 48,000 fire protection areas across the United States using its Fire Suppression Rating Schedule (FSRS). A combination of meetings between trained ISO field representatives and the dispatch center coordinator, community fire official, and water superintendent is used in conjunction with a comprehensive questionnaire to collect the data necessary to determine the PPC number. In order for a community to obtain a classification better than a Class 9, three elements of fire suppression features are reviewed. These three elements are Receiving and Handling Fire Alarms, Fire Department and Water Supply.

A review of the **Receiving and Handling Fire Alarms** fire alarm and communication system accounts for 10% of the total classification. The review focuses on the community's facilities and support for handling and dispatching fire alarms. This section is weighted at **10 points**, as follows:

- Telephone Service 2 points
- Number of Needed Operators 3 points
- Dispatch Circuits 5 points

A review of the **Fire Department** accounts for 50% of the total classification. ISO focuses on a fire department's first alarm response and initial attack to minimize potential loss. In this section, ISO reviews such items as engine companies, ladder or service companies, distribution of fire stations and fire companies, equipment carried on apparatus, pumping capacity, reserve apparatus, department personnel, and training. The fire department section is weighted at **50 points**, as follows:

- Engine Companies 10 points
- Reserve Pumpers 1 point
- Pumper Capacity 5 points
- Ladder/Service Companies 5 points
- Reserve Ladder/Service Trucks 1 point
- Distribution of Companies 4 points
- Company Personnel 15+ points
- Training 9 points

A review of the **Water Supply** system accounts for 40% of the total classification. ISO reviews the water supply a community uses to determine the adequacy for fire suppression purposes. Hydrant size, type, and installation is also considered, as well as the inspection frequency and condition of fire hydrants. The water supply system is weighted at **40 points**, as follows:

- Credit for Supply System 35 points
- Hydrant Size, Type & Installation 2 points
- Inspection/Condition of Hydrants 3 points

There is one additional factor considered in calculating the final score – **Divergence**.

Even the best fire department will be less than fully effective if it has an inadequate water supply. Similarly, even a superior water supply will be less than fully effective if the fire department lacks the equipment or personnel to use the water. The FSRS score is subject to modification by a divergence factor, which recognizes disparity between the effectiveness of the fire department and the water supply.

The Divergence factor mathematically reduces the score based upon the relative difference between the fire department and water supply scores. The factor is introduced in the final equation.

Public Protection Classification Number

The PPC number assigned to the community will depend on the community's score on a 100-point scale:

PPC	Points
1	90.00 or more
2	80.00 to 89.99
3	70.00 to 79.99
4	60.00 to 69.99
5	50.00 to 59.99
6	40.00 to 49.99
7	30.00 to 39.99
8	20.00 to 29.99
9	10.00 to 19.99
10	0.00 to 9.99

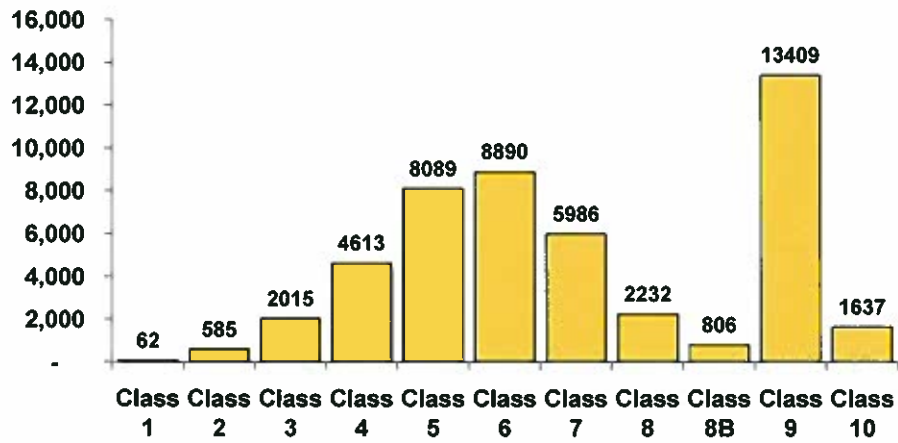
The classification numbers are interpreted as follows:

- Class 1 through (and including) Class 8 represents a fire suppression system that includes an FSRS creditable dispatch center, fire department, and water supply.
- Class 8B is a special classification that recognizes a superior level of fire protection in otherwise Class 9 areas. It is designed to represent a fire protection delivery system that is superior except for a lack of a water supply system capable of the minimum FSRS fire flow criteria of 250 gpm for 2 hours.
- Class 9 is a fire suppression system that includes a creditable dispatch center, fire department but no FSRS creditable water supply.
- Class 10 does not meet minimum FSRS criteria for recognition.

Distribution of Public Protection Classification Numbers

The 2010 published countrywide distribution of communities by the Public Protection Classification number is as follows:

Countrywide



Assistance

The PPC program offers help to communities, fire departments and other public officials as they plan for, budget, and justify improvements. ISO is also available to assist in the understanding of the details of this evaluation.

ISO Public Protection representatives can be reached by telephone at (800) 444-4554. The technical specialists at this telephone number have access to the details of this evaluation and can effectively speak with you about your PPC questions. What's more, we can be reached via the internet at www.isomitigation.com/talk/.

We also have a website dedicated to our Community Hazard Mitigation Classification programs at www.isomitigation.com. Here, fire chiefs, building code officials, community leaders and other interested citizens can access a wealth of data describing the criteria used in evaluating how cities and towns are protecting residents from fire and other natural hazards. This website will allow you to learn more about ISO's Public Protection Classification program. The website provides important background information, insights about the PPC grading processes and technical documents. ISO is also pleased to offer Fire Chiefs Online — a special secured website with information and features that can help improve your ISO Public Protection Classification, including a list of the Needed Fire Flows for all the commercial occupancies ISO has on file for your community. Visitors to the site can download information, see statistical results and also contact ISO for assistance.

In addition, on-line access to the Fire Suppression Rating Schedule and its commentaries is available to registered customers for a fee. However, fire chiefs and community chief administrative officials are given access privileges to this information without charge.

To become a registered fire chief or community chief administrative official, register at www.isomitigation.com.

Classification Details

Public Protection Classification

On Aug 17, 2010 ISO concluded its review of the fire suppression features being provided for/by Washington, DC. The resulting community classification is **Class 2**.

If the classification is a single class, the classification applies to properties with a Needed Fire Flow of 3,500 gpm or less in the community. If the classification is a split class (e.g., 6/9), the following applies:

- The first class (e.g., "6" in a 6/9) applies to properties within 5 road miles of a recognized fire station and within 1,000 feet of a fire hydrant or alternate water supply.
- Class 8B or class 9 applies to properties beyond 1,000 feet of a fire hydrant but within 5 road miles of a recognized fire station.
- Alternative Water Supply: The first class (e.g., "6" in a 6/10) applies to properties within 5 road miles of a recognized fire station with no hydrant distance requirement.
- Class 10 applies to properties over 5 road miles of a recognized fire station.
- Specific properties with a Needed Fire Flow in excess of 3,500 gpm are evaluated separately and assigned an individual classification.

Summary Evaluation Analysis

The following points represent the analysis of the application of the criteria outlined in the FSRS of four topics– Receiving and Handling Fire Alarms, Fire Department, Water Supply, and the Divergence factor for Washington, DC:

FSRS Feature	Earned Credit	Credit Available
Receiving and Handling Fire Alarms		
414. Credit for Telephone Service	2.00	2
422. Credit for Operators	3.00	3
432. Credit for Dispatch Circuits	4.05	5
440. Credit for Receiving and Handling Fire Alarms	9.05	10
Fire Department		
513. Credit for Engine Companies	8.67	10
523. Credit for Reserve Pumpers	0.87	1
532. Credit for Pumper Capacity	5.00	5
549. Credit for Ladder Service	4.68	5
553. Credit for Reserve Ladder and Service Trucks	0.93	1
561. Credit for Distribution	3.45	4
571. Credit for Company Personnel	11.99	15+
580. Credit for Training	4.95	9
590. Credit for Fire Department	40.54	50
Water Supply		
616. Credit for Supply System	32.84	35
621. Credit for Hydrants	2.00	2
631. Credit for Inspection and Condition	2.86	3
640. Credit for Water Supply	37.70	40
Divergence	-2.63	–
Total Credit	84.66	100

General Information

To determine the Total Credit, the points for Receiving and Handling Fire Alarms, Fire Department and Water Supply are added together and the Divergence factor is applied. To establish the points for each category, FSRS items labeled as "Credit for..." are totaled. These particular items are intermediate values. Usually these intermediate values are based upon a 100-point scale, but they can be different. The ratios between the actual points scored in each of these sub-items and the points available for full credit are then multiplied by the points available for the sub-item.

For instance, Item 414 "Credit for Telephone Service (CTS)" is valued at 2 points. To determine the credit earned, the totals for Item 411 "Review of Telephone Lines (TL)", Item 412 "Review of Telephone Directory (TD)", and Item 413 "Review of Recording Device (RD)" are summed. In Item 411, up to 60 points can accrue; Item 412 has a combined value of 20 points; and 20 points are available for Item 413. The sum of these three Items is divided by 100 and then multiplied by the 2 point weight in Item 414 to determine the final score for "Credit for Telephone Service (CTS)".

The formula for Item 414 "Credit for Telephone Service (CTS)" looks like this:

$$CTS = \frac{TS}{100} \times 2$$

Where TS = TL + TD + RD

Detailed Evaluation Analysis

On the following pages are the details of the evaluation of each category for Washington, DC. These details relate only to the fire insurance classification for this jurisdiction. They are not for property loss prevention or life safety purposes and no life safety or property loss recommendations are made.

At the end of the detailed analysis the relative class is indicated. The relative class represents the classification each category would have achieved if the individual score was translated into a 100-point scale instead of the points available for that category.

Receiving and Handling Fire Alarms

Ten percent of a community's overall score is based on how well the communications center receives and dispatches fire alarms. Our field representative evaluated:

- the telephone service, including the number of telephone lines coming into the center
- the listing of the emergency number and business number in the telephone directory
- the automatic recording of emergency calls
- the communications center, including the number of operators on-duty and awake at the center
- the dispatch circuits and how the center notifies firefighters about the location of the emergency

Item 414 - Credit for Telephone Service (2 points)

The first item reviewed is Item 414 "Credit for Telephone Service (CTS)". This item reviews the facilities provided for the public to report fires including the telephone line used to report an emergency, business and private alarm lines including progression of emergency calls to business lines. Also analyzed is the listing of fire and business numbers in the telephone directory and the automatic recording of emergency calls. ISO uses National Fire Protection Association (NFPA) 1221, *Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems* as the reference for this section.

To determine the score for Item 414, three sub-items (Item 411, Item 412, and Item 413) were evaluated. The details are as follows:

Item 411 - "Review of Telephone Lines (TL)"	Earned Credit	Credit Available
<p>A. Number of needed fire lines*</p> <p>For maximum credit, there should be 8 incoming telephone lines reserved for receiving notification of fires. The Communication Center serving Washington, DC has 96 lines reserved.</p> <p>The telephone directory listed both a business and an emergency number.</p>	25.00	25
<p>B. Number of needed fire, business, and private alarm lines*</p> <p>For maximum credit, there should be 8 incoming lines reserved for notification of fires (and other emergency calls) plus 3 additional lines for conducting other fire department business and, if applicable, for private alarms.</p> <p>The Communication Center serving Washington, DC has 10 lines in addition to the 96 lines reserved for receiving notification of fires (and other emergency calls).</p> <p>The telephone directory listed both a business and an emergency number.</p>	25.00	25
<p>C. Progression of emergency calls to business lines</p> <p>For maximum credit, unanswered emergency calls should progress to the business number.</p>	10.00	10
<p>D. If detailed information of a fire is received and transmitted through more than one communication center, DEDUCT</p> <p>For no deduction of points, fire calls should be immediately transferred from the answering point to the dispatcher who will then obtain the needed information from the caller for dispatching.</p>	0.00	-20
Review of Telephone Lines (TL) total:	60.00	60

***Note:** When only one telephone number is listed in the telephone directory the telephone lines provided can not be reserved for emergency calls because the general public is not given a choice of telephone lines to use. Therefore, the operator/telecommunicator must accept both emergency and business calls over the same lines. The number of needed fire, business, and alarm lines will show a reduction in credit.

Item 412 - "Review of Telephone Directory (TD)"	Earned Credit	Credit Available
<p>A. Emergency number on the inside front cover or the front page</p> <p>For credit, the fire emergency telephone number should be printed on the inside front cover or front page of the white pages in the telephone directory.</p>	10	10
<p>B. Emergency number and business number listed under "Fire Department"</p> <p>For credit, both the number to report a fire and the fire department business number should be listed under "FIRE DEPARTMENT" in the white pages (or government section) of the telephone directory.</p> <p>The fire number is listed and the business number is listed.</p>	5	5
<p>C. Emergency number and business number listed under the name of the city</p> <p>For credit, both the number to report a fire and the fire department business number should be listed under the community or fire district in the white pages (or government section) of the telephone directory.</p> <p>The fire number is listed and the business number is listed.</p>	5	5
<p>D. If the numbers for individual fire stations are listed, DEDUCT</p> <p>For no deduction of points, the individual fire stations should not be listed in the telephone directory.</p>	0	-10
Review of Directory Listing (TD) total:	20	20

Item 413 - "Review of Recording Device (RD)"	Earned Credit	Credit Available
<p>A. Review of the recording device (RD):</p> <p>For credit, a voice recorder should automatically record all emergency calls and the operator should be able to immediately play back any emergency call to review the conversation.</p>	20	20
Review of Recording Device (RD) total:	20	20

The Items "TL", "TD", and "RD" are then added together and divided by the total possible points (100 points) to determine the factor that is applied to the 2 points available for Item 414 "Credit for Telephone Service (CTS)".

414 "Credit for Telephone Service (CTS)" = 2.00 points

Item 422 - Credit for Operators (3 points)

The second item reviewed is Item 422 "Credit for Operators (CTO)". This item reviews the number of operators on duty and awake at the center to handle fire calls and other emergencies. All emergency calls including those calls that do not require fire department action are reviewed to determine the proper staffing to answer emergency calls and dispatch the appropriate emergency response. NFPA 1221, *Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems*, recommends that ninety-five percent of emergency calls shall be answered within 15 seconds and ninety-nine percent of emergency calls shall be answered within 40 seconds. In addition, NFPA recommends that ninety percent of emergency alarm processing shall be completed within 60 seconds and ninety-nine percent of alarm processing shall be completed within 90 seconds of answering the call.

To receive full credit for operators on duty, ISO must review documentation to show that the communication center meets NFPA 1221 call answering and dispatch time performance measurement standards. This documentation may be in the form of performance statistics or other performance measurements compiled by the 9-1-1 software or other software programs that are currently in use such as Computer Aided Dispatch (CAD) or Management Information System (MIS). If the necessary data is not available, the number of needed operators will be determined by specification criteria using a "Call Volume Matrix Table" (see the following page).

**CALL VOLUME MATRIX TABLE #1
For Public Safety Answering Points that
Perform Call Taking and Dispatching**

Alarms per Year	Number of Needed Telecommunicators
Less than 731	1*
731 to 10,000	2
10,001 to 25,000	4**
25,001 to 50,000	5**
50,001 to 100,000	6**
100,001 to 150,000	7**
150,001 to 200,000	8**
200,001 to 250,000	9**
250,001 to 300,000	10**
Over 300,000***	11**

**CALL VOLUME MATRIX TABLE #2
For Public Safety Answering Points that
Perform Call Taking Without Dispatching**

Alarms per Year	Number of Needed Telecommunicators
Less than 10,001	1
10,001 to 50,000	2
50,001 to 100,000	4**
100,001 to 150,000	5**
150,001 to 200,000	6**
200,001 to 250,000	7**
250,001 to 300,000	8**
Over 300,000***	9**

* *Communication centers that provide emergency medical dispatching (EMD) protocols need two telecommunicators on duty at all times.*

** *Includes a supervisor in the communication center.*

*** *For every 10 additional calls (alarms) that are averaged per hour (87,600 calls per year), one additional telecommunicator is added.*

To determine the score for Item 422, two sub-Items (421.A and 421.B) are summed. The details are as follows:

Item 421 - "Review of Operators (PO)"	Earned Credit	Credit Available
<p>A. Number of operators on-duty (OD): For maximum credit, there should be 17 operators on duty at all times. There are an average of 45.00 operators on duty at the communication center.</p>	80.00	80
<p>B. Number of operators awake at all times (OA): For maximum credit, all operators should be awake at all times. There is an average of 45.00 operators awake at all times.</p>	20.00	20
Review of Operators (PO) total:	100.00	100

After the items "OD" and "OA" are summed up to determine the points received for the "Review of Operators", the sum is divided by the total possible points (100 points) to determine the factor that is applied to the 3 points available for Item 422 "Credit for Operators (CTO)".

Item 422 "Credit for Operators (CTO)" = 3.00 points

Item 432 - Credit for Dispatch Circuits (5 points)

The third item reviewed is Item 432 "Credit for Dispatch Circuits (CDC)". This item reviews the dispatch circuit facilities used to transmit alarms to fire department members. A "Dispatch Circuit" is defined in NFPA 1221 as "A circuit over which an alarm is transmitted from the communications center to an emergency response facility (ERF) or emergency response units (ERUs) to notify ERUs to respond to an emergency". All fire departments (except single fire station departments with full-time firefighter personnel receiving alarms directly at the fire station) need adequate means of notifying all firefighter personnel of the location of reported structure fires. The dispatch circuit facilities should be in accordance with the general criteria of NFPA 1221. "Alarms" are defined in this Standard as "A signal or message from a person or device indicating the existence of an emergency or other situation that requires action by an emergency response agency".

There are two different levels of dispatch circuit facilities provided for in the Standard – a primary dispatch circuit and a secondary dispatch circuit. In jurisdictions that receive 730 alarms or more per year (average of two alarms per 24-hour period), two separate and dedicated dispatch circuits, a primary and a secondary, are needed. In jurisdictions receiving fewer than 730 alarms per year, a second dedicated dispatch circuit is not needed. Dispatch circuit facilities installed but not used or tested (in accordance with the NFPA Standard) receive no credit.

The score for Credit for Dispatch Circuits (CDC) is influenced by monitoring for integrity of the primary dispatch circuit. There are up to 1.5 points available for this Item. Monitoring for integrity involves installing automatic systems that will detect faults and failures and send visual and audible indications to appropriate communications center (or dispatch center) personnel. ISO uses NFPA 1221 to guide the evaluation of this item.

Additional points are available for dispatch recording facilities at the Communication Center. All alarms that are transmitted over the required dispatch circuits need to be automatically recorded (including the dates and times of transmission) to earn the maximum points in this item.

ISO's evaluation includes a review of the communication system's emergency power supplies. To receive maximum credit, two sources of power need to be provided for the operation of the communications network including dispatch circuits and its related support systems and equipment. A common arrangement is to have the primary power come from a utility distribution system and a secondary power source from an automatic starting emergency engine-generator and/or an Uninterruptible Power Supply (UPS) and Battery System – (SEPSS-Stored Emergency Power Supply Systems).

To determine the score for Item 432, four sub-items (Item 431.A, Item 431.B, Item 431.C and Item 431.D) needed to be evaluated.

The score that Washington, DC received for Item 432 was calculated as follows:

Item 432 - "Credit for Dispatch Circuits (CDC)"	Earned Credit	Credit Available
Item 431A - "Dispatch Circuits Provided" The points are determined by prorating the value of the type of dispatch circuit using the percentage of members dependent upon each circuit.	40.00	40
Item 431B - "Monitoring for Integrity of Circuit" For maximum credit, the dispatch circuit should have an automatic system that will detect faults and failures and send visual and audible indications to appropriate personnel. These systems are subject to field verification and demonstration.	15.00	30
Item 431C - "Dispatch Recording Facilities at Communication Center" For maximum credit, all alarms that are transmitted over the required dispatch circuits need to be automatically recorded.	10.00	10
Item 431D - "Emergency Power Supply" For maximum credit, emergency power supplies need to be provided and regularly tested (one hour weekly, under load, with test documentation).	16.00	20
Item 431E - "When no circuit is needed" If all responding firefighters are in the same building as the communication center and are alerted, no dispatch circuit is needed and the maximum points are credited. However, the community does not operate in this fashion.	0.00	100
Dispatch Circuits (DC) total:	81.00	100

After the Items in 431 are summed up to determine the points received for the "Credit for Dispatch Circuits (CDC)", the sum is divided by the total possible points (100 points) to determine the factor that is applied to the 5 points available for Item 432 "Credit for Dispatch Circuits (CDC)".

Item 432 "Credit for Dispatch Circuits (CDC)" = 4.05 points

The final step in determining the credit for "Receiving and Handling Fire Alarms" is to add Item 414, Item 422, and Item 432:

Item	Earned Credit	Credit Available
414. Credit for Telephone Service (CTS)	2.00	2
422. Credit for Operators (CTO)	3.00	3
432. Credit for Dispatch Circuits (CDC)	4.05	5
Item 440. Credit for Receiving and Handling Fire Alarms:	9.05	10

Fire Department

Fifty percent of a community's overall score is based upon the fire department's structure fire suppression system. ISO's field representative evaluated:

- Engine and ladder/service vehicles including reserve apparatus
- Equipment carried
- Distribution of fire companies
- Available and/or responding firefighters
- Automatic Aid with neighboring fire departments
- Training

Basic Fire Flow

The Basic Fire Flow for the community is determined by the review of the Needed Fire Flows for selected buildings in the community. The following building addresses were used to determine the Basic Fire Flow:

- 6000 gpm 4400 Massachusetts Avenue, Washington, DC
- 5500 gpm 700-800 Water Street, Washington, DC
- 5000 gpm 1561-1601 Maryland Avenue, Washington, DC
- 5000 gpm 3000 K Street, Washington, DC
- 5000 gpm 600-780 New Hampshire Avenue, Washington, DC

The fifth largest Needed Fire Flow is determined to be the Basic Fire Flow. Since the FSRS develops a PPC for properties with a Needed Fire Flow of 3,500 gpm or less, the maximum that the Basic Fire Flow can be is 3,500 gpm. The Basic Fire Flow for Washington, DC has been determined to be 3500 gpm.

Item 513 - Credit for Engine Companies (10 points)

The first item reviewed is Item 513 "Credit for Engine Companies (CEC)". This item reviews the number of engine companies, their pump capacity, hose testing, pump testing and the equipment carried on the in-service pumpers. To be recognized, pumper apparatus must meet the general criteria of NFPA 1901, *Standard for Automotive Fire Apparatus* which include a minimum 250 gpm pump, an emergency warning system, a 300 gallon water tank and hose.

The review of the number of needed pumpers considers the Basic Fire Flow; the response distance to built-upon areas; the method of operation; and the response outside the city. Multiple alarms, simultaneous incidents, and life safety are not considered.

Item 510.A. Number of Needed Engine Companies (NE):

BASIC FIRE FLOW, GPM	ENGINE COMPANIES
500 - 1,000	1
1,250 - 2,500	2
3,000 - 3,500	3

The FSRS indicates that 33 engine companies are needed in the fire district to suppress fires in structures with a Needed Fire Flow of 3,500 gpm or less. This number is calculated as follows:

The greater of:

- a) 3 engine companies to support a Basic Fire Flow of 3500 gpm.
- b) 22 engine companies by distribution. This number represents the maximum number of existing stations needed to provide fire suppression services to built-upon areas with a reasonable concentration of buildings within 1½ road miles. The evaluation of engine company distribution includes plotting all existing engine companies on a map and measuring the coverage areas of each engine, calculating all built-upon areas within 1½ miles, as apparatus can travel on accessible roadways.

Additional engine company locations are considered needed when there are considerable built-upon areas beyond 1½ miles of existing locations.

Where engine companies are closely located, and there are significant overlaps of the 1½-mile coverage areas from different stations, the need by distribution for each of these existing locations is individually evaluated.

Existing engine company locations that do not contribute to a reduction of areas beyond 1½ miles of other companies are considered as not needed by distribution. This determination evaluates only the 1½ -mile distance from engine companies, and does not take into consideration other factors that may contribute to fire station location decisions, such as high incidence of alarms, medical and other non-structural alarms, traffic congestion, building concentration, and buildings with Needed Fire Flows in excess of 3500 gpm.

- c) 33 engine companies based upon the fire department's method of operation to provide a minimum two engine response to all first alarm structure fires. This evaluation includes a study of the unique first alarm response assignments of engines to each area of the district. Where there are more than the minimum of 2 engines assigned to respond to structural alarms, the response of each engine is individually investigated to determine whether it's response is in excess of what is needed to satisfy the first alarm criteria referenced in the FSRS. When such overlapping response assignments exist, engines in excess of the FSRS minimum criteria are considered as not needed by method of operation.

This determination is based only on the evaluation of a minimum 2-engine response to all structural fire alarms, and does not consider other factors, such as personnel needs for vertical access and building evacuation, and buildings with Needed Fire Flows in excess of 3500 gpm.

There are 0 additional engine companies needed for response outside the city.

The FSRS recognizes that there are 33 engine companies in service. Since each of these engine companies is the first responding engine company to some part of the city, each engine company is treated as a Needed Engine when determining the Credit for Engine Companies.

For maximum credit, at least two engine companies should respond to all reported first alarms for fires in buildings (except when only one engine company is needed). The credit for engine companies has been reduced by 0.0 percent because the FSRS review deemed there is an adequate response to all reported fires in the district.

For each in-service engine, ISO reviews the pump capacity (as indicated by a pumper test), the hose (including hose testing) and the equipment carried.

For maximum credit, pumper service tests must be done annually and documented. ISO evaluates the pumper service tests using NFPA 1911, *Standard for the Inspection, Maintenance, Testing and Retirement of In-service Automotive Fire Apparatus*.

This Standard indicates that the service tests should be conducted for:

- 20 minutes @ 100% capacity at 150 psi
- 10 minutes @ 70% capacity at 200 psi
- 10 minutes @ 50% capacity at 250 psi

Other factors such as the "overload test" are not evaluated in the FSRS and are not required for FSRS credit.

For maximum credit, hose tests must be performed annually and documented. ISO evaluates a hose testing program using NFPA 1962, *Standard for the Inspection, Care, and Use of Fire Hose, Couplings and Nozzles and the Service Testing of Fire Hose*.

The FSRS also reviews Automatic Aid. Automatic Aid is considered in the review as assistance dispatched automatically by contractual agreement between two communities or fire districts. That differs from mutual aid or assistance arranged case by case.

ISO will recognize an Automatic Aid plan under the following conditions:

- It must be prearranged for first alarm response according to a definite plan. It is preferable to have a written agreement, but ISO may recognize demonstrated performance.
- The aid must be dispatched to reported structure fires on the initial alarm.
- The aid must be provided 24 hours a day, 365 days a year.
- The aid must offset a need in the community ISO is surveying. For example, if a community needs a ladder company and the fire department does not have one, but a neighboring community's ladder company responds by Automatic Aid agreement, credit may be available.
- The aiding ladder company must cover at least 50% of the needed ladder company Standard Response District by hydrant count in the community being graded.

FSRS Item 512.D "Automatic Aid Engine Companies" responding on first alarm and meeting the needs of the city for basic fire flow and/or distribution of companies are factored based upon the value of the Automatic Aid plan (up to 0.90 can be used as the factor). The Automatic Aid factor is determined by a review of the Automatic Aid provider's communication facilities, how they receive alarms from the graded area, inter-department training between fire departments, and the fire ground communications capability between departments.

For each engine company, the credited Pump Capacity (PC), the Hose Carried (HC), the Equipment Carried (EC) and a factor for an overweight apparatus all contribute to the calculation for the percent of credit the FSRS provides to that engine company.

After the Items in 512 are summed to determine the points received for the "In Service Total (EC)", the sum is divided by the total possible points and then multiplied by the Needed Engine Companies (NE). Next, this is multiplied by the appropriate factor representing the percent of built-upon area of the city with first alarm response of one or two engine companies. Finally, this product is multiplied by the 10 points available for Item 513 "Credit for Engine Companies (CEC)" to determine the final score for this item.

Engines 1 through 33 were each 87% adequate due to the pump test interval (2.5 years) and insufficient equipment.

Item 513 "Credit for Engine Companies (CEC)" = 8.67 points

Item 523 - Credit for Reserve Pumpers (1 point)

The second pumper item reviewed is Item 523 "Credit for Reserve Pumpers (CRP)". This item reviews the number and adequacy of the pumpers and their equipment with one (or more in larger communities) pumper out of service. The number of needed reserve pumpers is 1 for each 8 needed engine companies determined in Item 513, or any fraction thereof. The number of reserve pumpers credited in this item will not exceed the number of needed reserve pumpers. If only one reserve pumper is needed, and more than one reserve pumper is provided in the city, only the best equipped reserve pumper will be credited. Reserve pumpers are reviewed for pump capacity, hose carried, and equipment in the same manner as described in Item 512 except that Automatic Aid reserve pumpers are not considered.

The value of the Reserve Pumper Credit (RPC) is determined by multiplying the credited Pump Capacity (PC) times the credit for the Hose Carried (HC) times the credit for the Equipment Carried (EC) times the factor for an overweight apparatus.

After the items in 521 are factored to determine the points received for each reserve pumper, the reserve pumper with the largest points is selected for the Reserve Pumper Credit (RPC). The value for RPC is added to the value in Item 512 determined above. Next, the best equipped in-service pumper is subtracted from the in-service and reserve total. The difference is then divided by the total the possible points times the Needed Engine Companies (NE). Finally, this quotient is multiplied by the 1 point available for Item 523 "Credit for Reserve Pumpers (CRP)".

Reserve Engines 61, 62, 65, 66, and 74 were each 87% adequate due to the pump test interval (2.5 years) and insufficient equipment.

Item 523 "Credit for Reserve Pumpers (CRP)" = 0.87 points

Item 532 – Credit for Pumper Capacity (5 points)

The next item reviewed is Item 532 "Credit for Pumper Capacity (CPC)". The total pump capacity available should be sufficient for the Basic Fire Flow of 3500 gpm in Washington, DC. The maximum needed pump capacity credited is the Basic Fire Flow of the community. The pump capacity is obtained by test at the rated pump pressure. Credit is limited to 80 percent of rated capacity if no test data is available within two years of the survey date. Less than 80 percent may be credited if other mechanical features of the apparatus indicate a generally poor mechanical condition.

The existing pump capacity (EP) represents the capacity of in-service pumpers, pumper-ladder, and pumper-service trucks that were credited in Item 513.

The reserve pump capacity (RP) is that capacity of reserve pumpers, reserve pumper-ladder, and pumper-service trucks that were credited in Item 523. One-half the capacity of permanently-mounted pumps capable of delivering at least 50 gpm at 150 psi on other apparatus, reserve pumpers and reserve pumper-ladder and reserve pumper-service trucks not credited in Items 513 or 523 is credited in this item. This capacity is expressed as "OP".

Automatic Aid pumper capacity is that capacity of pumpers credited as Automatic Aid in Item 513. The capacity credited does not exceed the percent determined by the value of the Automatic Aid plan determined in Item 512.D multiplies by the creditable pump capacity for each Automatic Aid pumper. This capacity is expressed as AAP.

The sum of the capacities determined for EP, RP, OP, and AAP is 48125 gpm. The FSRS limits the total capacity to the Basic Fire Flow of 3500 gpm. Next, this capacity is divided by the Basic Fire Flow. Finally, this factor is multiplied by the 5 points available for Item 532 "Credit for Pumper Capacity (CPC)".

Item 532 "Credit for Pumper Capacity (CPC)" = 5.00 points

Item 549 – Credit for Ladder Service (5 points)

The next item reviewed is Item 549 "Credit for Ladder Service (CLS)". This item reviews the number of response areas within the city with 5 buildings that are 3 or more stories or 35 feet or more in height, or with 5 buildings that have a Needed Fire Flow greater than 3,500 gpm, or any combination of these criteria. The height of all buildings in the city, including those protected by automatic sprinklers, is considered when determining the number of needed ladder companies. When no individual response area alone needs a ladder company, at least one ladder company is needed if buildings in the city meet the above criteria. The number and type of apparatus is dependent upon the height of buildings, Needed Fire Flow and response distance.

Response areas not needing a ladder company should have a service company. A service company is an apparatus with some or all of the equipment identified in Table 544.A (see the following pages).

The number of ladder or service companies, the height of the aerial ladder, aerial ladder testing and the equipment carried on the in-service ladder trucks and service trucks is compared with the number of needed ladder trucks and service trucks and an FSRS equipment list (Table 544 A, B, and C). Ladder trucks must meet the general criteria of NFPA 1901, *Standard for Automotive Fire Apparatus* to be recognized.

The number of needed ladder-service trucks is dependent upon the number of buildings 3 stories or 35 feet or more in height, buildings with a Needed Fire Flow greater than 3,500 gpm, the response distance to built-upon areas, the method of operation and the response outside the city.

The FSRS indicates that 16 ladder companies are needed. This is calculated as follows:

16 ladder companies due to the number of buildings with a Needed Fire Flow over 3,500 gpm or 3 stories or more in height, the response distance to built-upon areas or the method of operation.

There are 0 additional ladder companies needed because 10% or less of the responses outside of the district result in a reduction of the ladder companies left in the district to 50% or less of the normal strength level.

The FSRS recognizes that there are 16 ladder companies in service. Since each of these companies is the first responding company to some part of the city, each company is treated as a Needed Ladder when determining the Credit for Ladder Service.

For maximum credit, a ladder or service company should respond on first alarms to all reported fires in buildings. It was determined the ladder or service company response is to 100% of first alarm fires in buildings.

The FSRS indicates that a minimum of 0 service companies are needed. This need is calculated as follows:

0 service companies due to the number of buildings with a Needed Fire Flow over 3,500 gpm or 3 stories or more in height, the response distance to built-upon areas or the method of operation.

The FSRS recognizes that there are 0 service companies in service.

Ladders, tools and equipment normally carried on ladder trucks are needed not only for ladder operations but also for forcible entry, ventilation, salvage, overhaul, lighting and utility control.

If a ladder company is needed, the available equipment items in Table 544.A are summed to determine the points received for a Service Company, and available equipment items in Table 544.B are summed to determine the additional equipment points available for a Ladder Company. Table 544.A and 544.B points are added together to determine the total possible points available out of a possible 784 points.

Tests and sample forms for recording tests for aerial ladder and elevating platforms are described in NFPA 1911, *Standard for the Inspection, Maintenance, Testing and Retirement of In-service Automotive Fire Apparatus*.

If a service company is needed, the available equipment items are summed in Table 544.A. If additional ground ladders are needed for the service company, the assigned points for each available ground ladder up to 4 (from Table 544.B) are added to the points determined in Table 544.A.

All ladder company equipment, available service company equipment, available engine-ladder company equipment and available engine-service company equipment are summed. This sum is then divided by the sum of 784 points multiplied by the Needed Ladder (NL) plus 334 points multiplied by the Needed Service (NS) companies plus any points assigned for any additional ladders from Table 544.B.

Next, this factor is multiplied by the appropriate factor (A) representing the percent of built-upon area of the city with first alarm response of a ladder, service, engine-ladder or engine-service company to fires in buildings. Finally, this product is multiplied by the 5 points available for Item 549 "Credit for Ladder Service (CLS)".

The credit for each in-service Ladder Company was between 90% and 95% due to aerial test intervals (2.0 to 3.0 years) and insufficient equipment.

Equipment from Engine Companies that are housed with Ladder Companies was credited when such equipment satisfied a need for the Ladder Company.

Item 549 "Credit for Ladder Service (CLS)" = 4.68 points

Item 553 – Credit for Reserve Ladder and Service Trucks (1 point)

The next item reviewed is Item 553 "Credit for Reserve Ladder and Service Trucks (CRLS)". This item considers the adequacy of ladder and service apparatus when one (or more in larger communities) of these apparatus are out of service. The number of needed reserve ladder and service trucks is 1 for each 8 needed ladder and service companies that were determined to be needed in Item 540, or any fraction thereof. When 8 or less ladder and service companies are needed, and 1 or more ladder companies are needed, the reserve truck should be a ladder truck. When the number of needed reserve ladder and service trucks exceeds the number of needed reserve ladder trucks, the difference is considered as needed reserve service trucks.

The number of in-service ladder and service trucks considered out of service is determined by the number of needed reserve ladder and service trucks. The in-service ladder and service trucks credited in Item 549 having the largest number of points is what is considered as out of service. The equipment on credited reserve ladder and service trucks shall be reviewed by application of Tables 544.A, 544.B and 544.C.

The number of reserve ladder trucks credited in this item shall not exceed the number of needed reserve ladder and service trucks. If only one reserve ladder is needed, and if more than one reserve ladder or service truck is provided in the city, only the best equipped reserve ladder or service truck will be credited.

All ladder company equipment, available service company equipment, available engine-ladder company equipment and available engine-service company equipment are summed.

After the points for all reserve ladder and service equipment is determined, the reserve ladder service truck with the largest points is selected. This value is added to the value of all in-service ladder and service company equipment determined in Item 549. Next, the best equipped in-service ladder or service truck is subtracted from the in-service and reserve total. The difference is then divided by the total possible points for a ladder truck times the Needed Ladder (NL) plus the total possible points times the Needed Service (NS) plus any assigned points for any additional ladders needed from Table 544.B. Finally, this quotient is multiplied by the 1 point available for Item 553 "Credit for Reserve Ladder and Service Trucks (CRLS)".

Reserve Ladder Companies 34 and 63 were 93% to 94% adequate due to aerial test intervals (2.0 to 3.0 years) and insufficient equipment.

Item 553 "Credit for Reserve Ladder and Service Trucks (CRLS)" = 0.93 points

Item 561 – Credit for Distribution (4 points)

Next, Item 561 "Credit for Distribution (CD)" is reviewed. This Item examines the number and adequacy of existing engine and ladder-service companies to cover built-upon areas of the city. The built-upon area of the city should have a fully equipped first-due engine company within 1½ miles and a fully equipped ladder-service company within 2½ miles.

To determine the Credit for Distribution, first the Existing Engine Company (EC) points and the Existing Engine Companies (EE) determined in Item 513 are considered along with Ladder Company Equipment (LCE) points, Service Company Equipment (SCE) points, Engine-Ladder Company Equipment (ELCE) points, and Engine-Service Company Equipment (ESCE) points determined in Item 549.

Secondly, a determination is made of the percentage of built upon area within 1½ miles of a first-due engine company and within 2½ miles of a first-due ladder-service company.

Percentage of built upon area within 1½ miles of a first-due engine company = 95%

Percentage of built upon area within 2½ miles of a first-due ladder-service company = 99%

Item 561 "Credit for Distribution (CD)" = 3.45 points

Item 571 – Credit for Company Personnel (15+ points)

Item 571 "Credit for Company Personnel (CCP)" reviews the average number of existing firefighters and company officers available to respond to reported first alarm structure fires in the city.

The on-duty strength is determined by the yearly average of total firefighters and company officers on duty considering vacations, sick leave, holidays, "Kelley" days and other absences. When a fire department operates under a minimum staffing policy, this may be used in lieu of determining the yearly average of on-duty company personnel.

Firefighters on apparatus not credited under Items 513 and 549 that regularly respond to reported first alarms to aid engine, ladder and service companies are included in this item as increasing the total company strength.

Firefighters staffing ambulances or other units serving the general public are credited if they participate in fire-fighting operations, the number depending upon the extent to which they are available and are used for response to first alarms of fire.

Call and volunteer members (VM) are credited on the basis of the average number staffing apparatus on first alarms. Off-shift career firefighters and company officers responding on first alarms are considered on the same basis as call and volunteer personnel. For personnel not normally at the fire station, the number of responding firefighters and company officers is divided by 3 to reflect the time needed to assemble at the fire scene and the reduced ability to act as a team due to the various arrival times at the fire location when compared to the personnel on-duty at the fire station during the receipt of an alarm. The number of Public Safety Officers who are positioned in emergency vehicles within the jurisdiction boundaries may be credited based on availability to respond to first alarm structure fires. In recognition of this increased response capability the number of responding Public Safety Officers is divided by 2.

Call and volunteer firefighters and company officers assigned for on-duty shifts at fire stations on a pre-arranged schedule are considered as on duty for the proportional time that they are at the fire station.

The average number of firefighters and company officers responding with those companies credited as Automatic Aid under Items 513 and 549 are considered for either on-duty or volunteer company personnel as is appropriate. The actual number is calculated as the average number of company personnel responding multiplied by the value of AA Plan determined in Item 512.D.

The maximum creditable response of on-duty and call/volunteer firefighters is 12, including company officers, for each existing engine and ladder company and 6 for each existing service company.

Chief Officers are not creditable except when more than one chief officer responds to alarms; then extra chief officers may be credited as firefighters if they perform company duties.

The FSRS recognizes 235.00 on-duty personnel and an average of 0.00 volunteers/off-shift members responding on first alarm structure fires.

Item 571 "Credit for Company Personnel (CCP)" = 11.99 points

Item 581 – Credit for Training (9 points)

The final item reviewed in the Fire Department section is Item 580 "Credit for Training (CT)". This item evaluates training facilities and aids and the use made of them by the fire suppression force; company training at fire stations; classes for officers; driver and operator training; new driver and operator training; hazardous materials training; recruit training; the pre-fire planning inspection program; and the training and inspection records.

A maximum of 35% of the training evaluation is attributed to facilities, aids and use, and 65% is attributed to specialized training including the pre-fire planning inspection program.

Item 580.A.1 "Facilities and Aids "	Earned Credit	Credit Available
<p>Drill Tower For maximum credit, a 4 story drill tower should be used.</p> <p>A 8 story drill tower is available and used by the fire department.</p>	8.00	8
<p>Fire Building (including smoke room) For maximum credit, there should be a fire resistive smoke room that is separated from the drill tower so that training may be conducted in the tower and in the smoke room.</p> <p>A fire building is not available or used for training.</p>	8.00	8
<p>Combustible Liquids Pit For maximum credit, a 1,500 square foot combustible liquid pit or equivalent video instructing effective fire suppression of Class B fires should be used.</p> <p>Credit for a 1500 square foot combustible liquids pit was provided representing the actual size of the pit or that there is a video instructing effective fire suppression of Class B fires available for use to train the fire department personnel.</p>	5.00	5
<p>Library and Training Manuals For maximum credit, a complete library of training manuals should be available in the department for the membership. The library and manuals may include: NFPA "Fire Protection Handbook", "The Fire Chief's Handbook" published by Fire Engineering, "Managing Fire and Rescue Services" published by ICMA, Training manuals published by IFSTA or equivalent, and the following NFPA Standards, 472, 1001, 1002, 1021, 1201, 1401, 1403, 1410, 1451, and 1620.</p> <p>Credit was given for complete training materials.</p>	2.00	2
<p>Multi-Media Training Aids including Pump and Hydrant Cutaways A slide/overhead projector and compatible multi-media aids are available. A movie/VCR type projector and compatible multi-media aids are available. A pump cutaway is available in the department for the membership. A hydrant cutaway is available in the department for the membership.</p>	2.00	2

Item 580.A.1 "Facilities and Aids" (continued)	Earned Credit	Credit Available
Training Area For maximum credit, a fire department training area of at least 2.0 acres in size should be available for single and multi-company drills. A training area of 13 acres is provided. also	10.00	10
Review of Facilities and Aids (FA) total:	35.00	35
Item 580.A.2 "Use"		
a. Half-day (3 hours) drills, 8 per year (0.05 each) For maximum credit, all members should participate in 8 half-day, single company drills. There were an average of 4.00 single company half-day drills.	0.20	0.40
b. Half-day (3 hours) multiple-company drills, 4 per year (0.10 each): For maximum credit, all members should participate in 4 half-day multiple company drills. There were an average of 4.00 multiple company drills.	0.40	0.40
c. Night drills (3 hours), 2 per year (0.10 each): For maximum credit, all members should participate in two 3-hour night drills per year. There were an average of 0.00 night drills.	0.00	0.20
Factor for "Use" subtotal -	0.60	
Average percentage participating in drills -	100%	
Factor for Use (FU):	0.60	1.0
Review of Facilities and Aids (FA) total:	35.00	35
"Facilities, Aids and Use" subtotal:	21.00	
Deduction for incomplete or missing records -	-4.20	

Note 1: A single company drill may receive credit under a and c; a multiple-company drill may receive credit under a, b, and c.

Note 2: If the Drill Tower, Fire Building, Combustible Liquids Pit or Training Area do not achieve at least 10 points, credit will be given for the use of buildings, streets and open areas (other than formal training grounds), but not both.

After the items under Item "Facilities and Aids" are summed and the factor for "Use" is established, the credit for "Facilities, Aids and Use" is determined by multiplying the total possible points (35 points) by the factor for "Use" (up to 1.0) and subtracting any deductions for record keeping.

Facilities, Aids and Use subtotal = 21.00 points

Specialized Training	Earned Credit	Credit Available
<p>B. Company Training</p> <p>For maximum credit, each firefighter should receive 20 hours per month in structure fire related subjects as outlined in NFPA 1001.</p> <p>There was an average of 12.00 hours per month of company training received by company members and participation was 100% of those eligible to participate.</p> <p>1.50 points will be deducted for missing or incomplete records.</p>	15.00	25
<p>C. Classes for Officers</p> <p>For maximum credit, each officer should receive 2 days of leadership, management, supervisory, and incident management system training per year as outlined in NFPA 1021.</p> <p>There was an average of 2.00 days devoted to officer classes and participation is 100% of those eligible to participate.</p> <p>1.50 points will be deducted for missing or incomplete records.</p>	15.00	15
<p>D. Driver and Operator Training</p> <p>For maximum credit, each driver and operator should receive 4 half-day sessions of driver/operator training per year in accordance with NFPA 1002 and NFPA 1451.</p> <p>There were 2.00 half-day sessions received per year by drivers and operators and participation was 100% of those eligible to participate.</p> <p>0.10 points will be deducted for missing or incomplete records.</p>	1.00	2
<p>E. New Driver and Operator Training</p> <p>For maximum credit, each new driver and operator should receive 40 hours of driver/operator training per year in accordance with NFPA 1002 and NFPA 1451.</p> <p>There were 40.00 hours received per year by new drivers and operators and participation was 100% of those eligible to participate.</p> <p>0.00 points will be deducted for missing or incomplete records.</p>	2.00	2

Specialized Training (continued)	Earned Credit	Credit Available
<p>F. Training on Hazardous Materials</p> <p>For maximum credit, each firefighter should receive ½ day of training for incidents involving hazardous materials in accordance with NFPA 472.</p> <p>There was 1.00 day of training received per year and participation was 100% of those eligible to participate.</p> <p>0.10 points will be deducted for missing or incomplete records.</p>	1.00	1
<p>G. Recruit Training</p> <p>For maximum credit, each firefighter should receive 240 hours of structure fire related training in accordance with NFPA 1001 within the first year of employment or tenure.</p> <p>There were 240.00 hours received per year and participation was 100% of those eligible to participate.</p> <p>0.00 points will be deducted for missing or incomplete records.</p>	5.00	5
<p>H. Pre-Fire Planning Inspections</p> <p>For maximum credit, pre-fire planning inspections of each commercial, industrial, institutional, and other similar type building (all buildings except 1-4 family dwellings) should be made twice per year by company members. Records of inspections should include up-to date notes and sketches.</p> <p>There are 17.90% of the buildings inspected at a yearly frequency of 1.00. Participation is 100.00%.</p> <p>0.22 points will be deducted for missing or incomplete records.</p>	2.16	15

To determine the Credit for Training, the points credited in Item 580.A through 580.H are summed.

For maximum credit, records should be kept of all training. NFPA 1401 outlines the appropriate manner in which to accomplish this. A deduction of up to 20 points (20% for each item) is made for a lack of records. A deduction of 10% is made for incomplete records and 20% for no records for each sub-item.

A total of **7.62** points is deducted to reflect a deficiency of record keeping for Washington, DC.

Finally, this sum is divided by 100 and then multiplied by the 9 points available for Item 580 "Credit for Training (CT)".

Item 580 "Credit for Training (CT)" = 4.95 points

The final step in determining the Credit for Fire Department is to add the following eight components:

Item	Earned Credit	Credit Available
513. Credit for Engine Companies (CEC)	8.67	10
523. Credit for Reserve Pumpers (CRP)	0.87	1
532. Credit for Pumper Capacity (CPC)	5.00	5
549. Credit for Ladder Service (CLS)	4.68	5
553. Credit for Reserve Ladder and Service Trucks (CRLS)	0.93	1
561. Credit for Distribution (CD)	3.45	4
571. Credit for Company Personnel (CCP)	11.99	15+
581. Credit for Training (CT)	4.95	9
Item 590. Credit for Fire Department:	40.54	50

Water Supply

Forty percent of a community's overall score is based on the adequacy of the water supply system. The ISO field representative evaluated:

- the capability of the water distribution system to meet the Needed Fire Flows at selected locations up to 3,500 gpm.
- size, type and installation of fire hydrants.
- inspection and condition of fire hydrants.

Item 616 – Credit for Supply System (35 points)

The first item reviewed was Item 616 "Credit for Supply System (CSS)". This item reviews the rate of flow that can be credited at each of the Needed Fire Flow test locations considering the supply works capacity, the main capacity and the hydrant distribution. The lowest flow rate of these items is credited for each representative location. A water system capable of delivering 250 gpm or more for a period of two hours plus consumption at the maximum daily rate at the fire location is considered minimum in the ISO review.

To determine the score for Item 616 "Credit for Supply System (CSS)", three sub-items are evaluated (Item 612 "Supply Works Capacity", Item 613 "Main Capacity" and Item 614 "Hydrant Distribution").

Where there are 2 or more systems or services distributing water at the same location, credit is given on the basis of the joint protection provided by all systems and services available.

The supply works capacity is calculated for each representative Needed Fire Flow test location, considering a variety of water supply sources. These include public water supplies, emergency supplies (usually accessed from neighboring water systems), suction supplies (usually evidenced by dry hydrant installations near a river, lake or other body of water), and supplies developed by a fire department using large diameter hose or vehicles to shuttle water from a source of supply to a fire site. The result is expressed in gallons per minute (gpm).

The normal ability of the distribution system to deliver Needed Fire Flows at the selected building locations is reviewed. The results of a flow test at a representative test location will indicate the ability of the water mains (or fire department in the case of fire department supplies) to carry water to that location.

The hydrant distribution is reviewed within 1,000 feet of representative test locations measured as hose can be laid by apparatus. Credit is allowed up to 1,000 gpm for each hydrant within 300 feet of the location, 670 gpm for hydrants within 301 to 600 feet of the location and 250 gpm for hydrants within 601 to 1,000 feet of the location. Credit may be reduced when hydrants do not have a pumper outlet and/or two or more hose outlets. If a hose diameter greater than 2½ inch is carried by all in-service pumpers, the hydrant distribution credit may be greater due to the reduced friction loss in the larger diameter hose.

For maximum credit, the Needed Fire Flows should be available at each location in the district. Needed Fire Flows of 2,500 gpm or less should be available for 2 hours; and Needed Fire Flows of 3,000 and 3,500 gpm should be obtainable for 3 hours.

114,000 gpm needed – 106,950 gpm provided for all Needed Fire Flows (92%)

70 flow tests were conducted, 5 flow tests were less than 100% adequate

Item 616 “Credit for Supply System (CSS)” = 32.84

Item 621 – Credit for Hydrants (2 points)

The second item reviewed is Item 621 “Credit for Hydrants (CH)”. This item reviews the number of fire hydrants of each type compared with the total number of hydrants.

For maximum credit, all hydrants should have a pumper outlet, 6 inch or larger branch connection, uniform size operating nut and should operate in a uniform direction in accordance with AWWA C-502 *Standard for Dry-Barrel Fire Hydrants* or AWWA C-503 *Standard for Wet-Barrel Fire Hydrants*.

For maximum credit, all suction supply points should be equipped with a dry hydrant with a 6 inch or larger pipe and fittings, a minimum number of 90 degree elbows (preferably no more than two), and suction screen placement so that the dry hydrant will deliver the design capacity (usually 1,000 gpm) as specified in NFPA 1142, *Standard on Water Supplies for Suburban and Rural Fire Fighting*.

There are a total of 9041 hydrants in the city.

620. Hydrants, - Size, Type and Installation	Earned Credit	Credit Available
A. With a 6 -inch or larger branch and a pumper outlet with or without 2½ -inch outlets There are 9039 hydrants that have a 6 -inch or larger branch and a pumper outlet.	99.98	100
B. With a 6 -inch or larger branch and no pumper outlet but two or more 2½ -inch outlets, or with a small foot valve, or with a small barrel There are 0 hydrants that have a 6 -inch or larger branch but no pumper outlet, or have a small foot valve or with a small barrel.	0.00	75
C. With only a 2½ -inch outlet There are 0 hydrants with only a 2½ -inch outlet.	0.00	25
D. With less than a 6 -inch branch There are 2 hydrants with less than a 6 -inch branch connection.	0.01	25
E. Flush Type There are 0 hydrants that are of the flush type.	0.00	25
F. Cistern or suction point There are 0 locations that are considered a cistern and/or a suction point.	0.00	25
Total	99.98	100

Note 1: 2 points are deducted for each 10 percent of the hydrants that are not operating in a uniform direction of the majority, or with an operating nut different from the majority.

Of the 9041 hydrants that were reviewed, 0% did not operate in the direction of the majority and 0% had a different size operating nut.

Note 2: 10 points are deducted if more than one type hose thread is used for pumper or hose outlets. Of the 9041 hydrants that were reviewed, none had a different hose thread than the majority. There were no points deducted for this item.

To determine the "Credit for Hydrants (CH)", the points credited in Item 620.A through 620.F are summed, including any deductions. The sum is divided by 100 and then multiplied by the 2 points available for Item 621 "Credit for Hydrants (CH)".

Item 621 "Credit for Hydrants (CH)" = 2.00

Item 630 – Credit for Inspection and Condition (3 points)

The third item reviewed is Item 630 “Credit for Inspection and Condition (CIC)”. This item reviews the fire hydrant inspection frequency, the completeness of the inspections and the condition of hydrants. Inspection and condition of hydrants should be in accordance with AWWA M-17, *Installation, Field Testing and Maintenance of Fire Hydrants*.

A. Inspection (HI):

The frequency of inspection is the average time interval between the 3 most recent inspections.

Frequency of Inspections	Points
½ year	100
1 year	80
2 years	65
3 years	55
4 years	45
5 years or more	40

Note 1: The points for inspection frequency are reduced by 10 points if the inspections are incomplete or do not include a flushing program. An additional reduction of 10 points are made if hydrants are not subjected to full system pressure during inspections. If the inspection of cisterns or suction points does not include actual drafting with a pumper, or back-flushing for dry hydrants, 40 points are deducted.

B. Condition (HF):

A factor (HF) is determined from the following list of conditions according to the actual condition of hydrants examined compared with the total number examined during the survey:

Condition	Factor
Standard (no leaks, opens easily, conspicuous, well located for use by pumper)	1.0
Usable (with some defects and/or impediments to use)	0.5
Not Usable	0.0

For maximum credit, all hydrants should be inspected twice a year. The inspection should include operation of the fire hydrant, a test for leaks (using domestic pressure), and a flushing of the hydrant. Records should be kept of inspections.

Water System: District of Columbia Water & Sewer Authority

Item 630.A "Inspection (HI):"		Time Interval
Most recent inspection was Mar 01, 2009		
1 st prior inspection was Nov 01, 2008		0.5 year
2 nd prior inspection was May 01, 2008		0.5 year
Review of Inspection (HI):	Earned Credit	Credit Available
	100	100

For maximum credit, all hydrants should be conspicuous, well located for use by a pumper and in good condition. There were 208 hydrants examined in this FSRS item.

Item 630.B "Condition (HF):"	Maximum Factor	
Standard: There were 189 hydrants considered in standard condition.	1.0	
Usable: There were 18 hydrants considered in usable condition.	0.5	
Not Usable: There was 1 hydrant considered not usable.	0.0	
Review of Condition (HF):	Condition Factor (HF)	Maximum Factor
	0.95	1.0

To determine the "Credit for Inspection and Condition (CIC)", the points credited in Item 630.A are multiplied by the Condition Factor from Item 630.B. The product is divided by 100 and then multiplied by the 3 points available for Item 631 "Credit for Inspection and Condition (CIC)".

Item 631 "Credit for Inspection and Condition (CIC)" = 2.86

The final step in determining the credit for Water Supply is to add Item 616, Item 621, and Item 631:

Item	Earned Credit	Credit Available
616. Credit for Supply System (CSS)	32.84	35
621. Credit for Hydrants (CH)	2.00	2
631. Credit for Inspection and Condition (CIC)	2.86	3
Item 640. Credit for Water Supply:	37.70	40

Divergence = -2.63

The Divergence factor mathematically reduces the score based upon the relative difference between the fire department and water supply scores. The factor is introduced in the final equation.

Summary of Public Protection Classification Review

Completed by ISO on Aug 17, 2010

for

Washington, DC

FSRS Item	Earned Credit	Credit Available
Receiving and Handling Fire Alarms		
414. Credit for Telephone Service	2.00	2
422. Credit for Operators	3.00	3
432. Credit for Dispatch Circuits	4.05	5
440. Credit for Receiving and Handling Fire Alarms	9.05	10
Fire Department		
513. Credit for Engine Companies	8.67	10
523. Credit for Reserve Pumps	0.87	1
532. Credit for Pumper Capacity	5.00	5
549. Credit for Ladder Service	4.68	5
553. Credit for Reserve Ladder and Service Trucks	0.93	1
561. Credit for Distribution	3.45	4
571. Credit for Company Personnel	11.99	15+
580. Credit for Training	4.95	9
590. Credit for Fire Department	40.54	50
Water Supply		
616. Credit for Supply System	32.84	35
621. Credit for Hydrants	2.00	2
631. Credit for Inspection and Condition	2.86	3
640. Credit for Water Supply	37.70	40
Divergence	-2.63	--
Total Credit	84.66	100

Community Classification = 2

If the individual scores Washington, DC achieved for Receiving and Handling Fire Alarms; Fire Department; and Water Supply were translated into a 100 point scale instead of the (10, 50 and 40) points actually used, the relative Fire Suppression Rating Schedule classification for each of these sections would be:

Receiving and Handling Fire Alarms: a (relative) **Class 1**

Fire Department: a (relative) **Class 2**

Water Supply: a (relative) **Class 1**

INSURANCE SERVICES OFFICE, INC.
HYDRANT FLOW DATA SUMMARY

City Washington District Of Columbia State Columbia District Of Columbia Witnessed by: Insurance Services Office, Inc. Date: 9/09 - 11/09

TEST NO.	TYPE DIST.*	TEST LOCATION	SERVICE	FLOW - GPM $Q=(29.83C(d^2)p^{0.5})$			PRESSURE PSI		FLOW -AT 20 PSI NEEDED**	AVAIL.	REMARKS***	
				INDIVIDUAL HYDRANTS	TOTAL	STATIC	RESID.					
1	Comm	Idaho Ave. NW, south of Massachusetts Ave. NW	District of Columbia Water & Sewer Authority, 3rd High	870	900	820	2590	35	24	6000	3100	
1A	Comm	Idaho Ave. NW, south of Massachusetts Ave. NW	District of Columbia Water & Sewer Authority, 3rd High	870	900	820	2590	35	24	3500	3100	
2	Comm	Water St. SW, south of 9th St. SW	District of Columbia Water & Sewer Authority, Low	1240	1260	0	2500	63	59	5500	9000	
2A	Comm	Water St. SW, south of 9th St. SW	District of Columbia Water & Sewer Authority, Low	1240	1260	0	2500	63	59	3000	9000	
3	Comm	Maryland Ave. SW & 12th St. Expressway SW	District of Columbia Water & Sewer Authority, Low	1160	1230	1030	3420	57	54	5000	12000	
4	Comm	4th St. NW & D St. NW	District of Columbia Water & Sewer Authority, Low	820	670	0	1490	55	45	5000	2900	
5	Comm	7th St. SW, south of D St. SW	District of Columbia Water & Sewer Authority, Low	1160	1190	1240	3590	56	50	5000	9400	
6	Comm	North Capitol St. NW & Massachusetts Ave. NW	District of Columbia Water & Sewer Authority, Low	750	530	0	1280	52	50	5000	5700	
6A	Comm	North Capitol St. NW & Massachusetts Ave. NW	District of Columbia Water & Sewer Authority, Low	750	530	0	1280	52	50	2250	5700	
7	Comm	A St. SE & 19th St. SE	District of Columbia Water & Sewer Authority, 1st High	1160	1320	0	2480	75	63	5000	5600	
8	Comm	4th St. NW & G St. NW	District of Columbia Water & Sewer Authority, Low	950	840	0	1790	47	33	5000	2600	
9	Comm	I St. SW, east of Delaware Ave. SW	District of Columbia Water & Sewer Authority, Low	1180	1220	690	3090	62	52	5000	6700	
9A	Comm	I St. SW, east of Delaware Ave. SW	District of Columbia Water & Sewer Authority, Low	1180	1220	690	3090	62	52	1500	6700	
10	Comm	Independence Ave. SW & 7th St. SW	District of Columbia Water & Sewer Authority, Low	1280	1140	1230	3650	56	55	5000	12000	
11	Comm	30th St. NW & K St. NW	District of Columbia Water & Sewer Authority, Low	1060	810	0	1870	66	51	5000	3400	
11A	Comm	30th St. NW & K St. NW	District of Columbia Water & Sewer Authority, Low	1060	810	0	1870	66	51	2250	3400	

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HYDRANT FLOW DATA SUMMARY

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 County District Of Columbia

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				INDIVIDUAL HYDRANTS	TOTAL	STATIC	RESID.	NEEDED**	AVAIL.			
12	Comm	17th St. NE, south of Maryland Ave. NE	District of Columbia Water & Sewer Authority, 1st High	1200	1210	1240	3650	70	64	5000	11500	
12A	Comm	17th St. NE, south of Maryland Ave. NE	District of Columbia Water & Sewer Authority, 1st High	1200	1210	1240	3650	70	64	3500	11500	
13	Comm	Virginia Ave. NW & New Hampshire Ave. NW	District of Columbia Water & Sewer Authority, Low	2260	1220	1210	4690	55	52	5000	12000	
14	Comm	New Hampshire Ave. NW & Dupont Circle	District of Columbia Water & Sewer Authority, 1st High	1300	1030	500	2830	65	63	2500	12000	
15	Comm	Pennsylvania Ave. NW & 14th St. NW	District of Columbia Water & Sewer Authority, Low	1140	1060	0	2200	65	62	5000	9500	
16	Comm	12th St. NE & Rhode Island Ave. NE	District of Columbia Water & Sewer Authority, 1st High	580	580	0	1160	43	25	5000	1300	
16A	Comm	12th St. NE & Rhode Island Ave. NE	District of Columbia Water & Sewer Authority, 1st High	580	580	0	1160	43	25	1750	1300	
17	Comm	Wisconsin Ave. NW & Van Ness St. NW	District of Columbia Water & Sewer Authority, 4th High West	990	1010	610	2610	43	35	5000	4600	
17A	Comm	Wisconsin Ave. NW & Van Ness St. NW	District of Columbia Water & Sewer Authority, 4th High West	990	1010	610	2610	43	35	2000	4600	
18	Comm	6th St. NE, north of Buchanan St. NE	District of Columbia Water & Sewer Authority, 2nd High	1240	1270	0	2510	69	48	4500	4000	
18A	Comm	6th St. NE, north of Buchanan St. NE	District of Columbia Water & Sewer Authority, 2nd High	1240	1270	0	2510	69	48	3500	4000	
19	Comm	Bladensburg Rd. NE & Earl Place NE	District of Columbia Water & Sewer Authority, 1st High	1180	1060	1030	3270	61	53	4500	7900	
19A	Comm	Bladensburg Rd. NE & Earl Place NE	District of Columbia Water & Sewer Authority, 1st High	1180	1060	1030	3270	61	53	2500	7900	
20	Comm	D St. SW, east of 4th St. SW	District of Columbia Water & Sewer Authority, Low	1130	1180	1280	3590	60	55	4500	11000	
21	Comm	Harry Thomas Way NE, east of Edgington Place NE	District of Columbia Water & Sewer Authority, 1st High	1350	1090	1100	3540	77	61	4500	7000	
21A	Comm	Harry Thomas Way NE, east of Edgington Place NE	District of Columbia Water & Sewer Authority, 1st High	1350	1090	1100	3540	77	61	2500	7000	

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 County District Of Columbia

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				INDIVIDUAL HYDRANTS	TOTAL	STATIC	RESID.	NEEDED **	AVAIL.			
22	Comm	F St. NW & 10th St. NW	District of Columbia Water & Sewer Authority, Low	920	920	1220	3060	54	52	4500	12000	
22A	Comm	F St. NW & 10th St. NW	District of Columbia Water & Sewer Authority, Low	920	920	1220	3060	54	52	2250	12000	
23	Comm	C St. SE & 1st St. SE	District of Columbia Water & Sewer Authority, 1st High	1150	1150	1200	3500	67	58	4500	8500	
23A	Comm	C St. SE & 1st St. SE	District of Columbia Water & Sewer Authority, 1st High	1150	1150	1200	3500	67	58	1500	8500	
24	Comm	Moore St. NE & 4th St. NE	District of Columbia Water & Sewer Authority, 1st High	1030	690	0	1720	70	42	4500	2400	
24A	Comm	Moore St. NE & 4th St. NE	District of Columbia Water & Sewer Authority, 1st High	1030	690	0	1720	70	42	3500	2400	
25	Comm	G St. NW, east of 13th St. NW	District of Columbia Water & Sewer Authority, Low	1090	1020	1020	3130	51	45	4500	7600	
25A	Comm	G St. NW, east of 13th St. NW	District of Columbia Water & Sewer Authority, Low	1090	1020	1020	3130	51	45	2250	7600	
26	Comm	29th St. NW, south of Trampuson St. NW	District of Columbia Water & Sewer Authority, 3rd High	950	0	0	950	38	25	4500	1100	
26A	Res	29th St. NW, south of Trampuson St. NW	District of Columbia Water & Sewer Authority, 3rd High	950	0	0	950	38	25	1000	1100	
27	Comm	S St. NW & Wiltberger St. NW	District of Columbia Water & Sewer Authority, 1st High	1270	920	1300	3490	67	62	4500	11700	
27A	Comm	S St. NW & Wiltberger St. NW	District of Columbia Water & Sewer Authority, 1st High	1270	920	1300	3490	67	62	2500	11700	
28	Comm	E St. NW, west of 17th St. NW	District of Columbia Water & Sewer Authority, Low	1180	1100	0	2280	57	50	4000	5600	
29	Comm	7th St. NW, south of H St. NW	District of Columbia Water & Sewer Authority, Low	1050	1050	1430	3530	50	48	4000	12000	
29A	Comm	7th St. NW, south of H St. NW	District of Columbia Water & Sewer Authority, Low	1050	1050	1430	3530	50	48	3500	12000	
30	Comm	Brandywine St. NW & 40th St. NW	District of Columbia Water & Sewer Authority, 4th High West	750	790	900	2440	30	26	4000	4000	

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 County District Of Columbia

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				INDIVIDUAL HYDRANTS	TOTAL	STATIC	RESID.	NEEDED **	AVAIL.			
30A	Comm	Brandwine St. NW & 40th St. NW	District of Columbia Water & Sewer Authority, 4th High West	750	790	900	2440	30	26	3500	4000	
31	Comm	F St. NW & 17th St. NW	District of Columbia Water & Sewer Authority, Low	980	930	0	1910	47	30	4000	2500	
31A	Comm	F St. NW & 17th St. NW	District of Columbia Water & Sewer Authority, Low	980	930	0	1910	47	30	1500	2500	
32	Comm	23rd St. NW, north of M St. NW	District of Columbia Water & Sewer Authority, 1st High	1110	1110	1280	3500	75	62	4000	7600	
32A	Comm	23rd St. NW, north of M St. NW	District of Columbia Water & Sewer Authority, 1st High	1110	1110	1280	3500	75	62	2500	7600	
33	Comm	Macarthur Blvd. NW, east of Q St. NW	District of Columbia Water & Sewer Authority, 1st High	1030	1100	0	2130	60	53	4000	5500	(A)-(3470 gpm)
33A	Comm	Macarthur Blvd. NW, east of Q St. NW	District of Columbia Water & Sewer Authority, 1st High	1030	1100	0	2130	60	53	1750	5500	
34	Comm	Pennsylvania Ave. SE, west of Branch Ave. SE	District of Columbia Water & Sewer Authority, Anacostia 1st High	890	1010	0	1900	30	25	4000	2800	
34A	Comm	Pennsylvania Ave. SE, west of Branch Ave. SE	District of Columbia Water & Sewer Authority, Anacostia 1st High	890	1010	0	1900	30	25	2250	2800	
35	Comm	Columbia Rd. NW & Champlain St. NW	District of Columbia Water & Sewer Authority, 2nd High	1240	930	0	2170	64	47	2500	3600	
36	Comm	16th St. NW & Decatur St. NW	District of Columbia Water & Sewer Authority, 3rd High	1220	0	0	1220	69	54	2000	2300	
37	Comm	Cathedral Ave. NW & Connecticut Ave. NW	District of Columbia Water & Sewer Authority, 3rd High	1190	1270	0	2460	88	70	3500	5000	
38	Comm	Rittenhouse St. NW & Piney Branch Rd. NW	District of Columbia Water & Sewer Authority, 3rd High	920	920	0	1840	49	41	2250	3700	
38A	Res	Rittenhouse St. NW & Piney Branch Rd. NW	District of Columbia Water & Sewer Authority, 3rd High	920	920	0	1840	49	41	1000	3700	
39	Comm	Georgia Ave. NW & Princeton Place NW	District of Columbia Water & Sewer Authority, 2nd High	1150	1190	0	2340	63	52	1500	4900	
40	Res	Livingston St. NW & 39th St. NW	District of Columbia Water & Sewer Authority, 3rd High	930	750	770	2450	51	41	1000	4500	

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				INDIVIDUAL HYDRANTS	TOTAL	STATIC	RESID.	NEEDED **	AVAIL.		
41	Res	Shetler Place NW, south of Newark St. NW	District of Columbia Water & Sewer Authority, 2nd High	920	0	920	78	47	1000	1300	
42	Res	Pinnose Rd. NW, east of Northgate Rd. NW	District of Columbia Water & Sewer Authority, 3rd High	730	0	730	58	10	1000	650	
43	Comm	Hawaii Ave. NE & Yarnum St. NE	District of Columbia Water & Sewer Authority, 3rd High	1130	1270	0	2400	87	72	3500	5400
44	Comm	East Capitol St. NE & Minnesota Ave. NE	District of Columbia Water & Sewer Authority, Anacostia 1st High	650	0	650	85	13	3000	600	
45	Res	B St. SE & 46th St. SE	District of Columbia Water & Sewer Authority, Anacostia 2nd High	1240	1300	0	2540	60	56	1000	8800
46	Comm	50th St. NE & Toole St. NE	District of Columbia Water & Sewer Authority, Anacostia 1st High	1430	560	0	1990	67	60	2250	5600
47	Comm	Martin Luther King Jr. Ave. SE & V St. SE	District of Columbia Water & Sewer Authority, Low	890	890	1290	3070	54	48	3500	7800
48	Comm	7th St. SE & Alabama Ave. SE	District of Columbia Water & Sewer Authority, Anacostia 1st High	750	710	0	1460	34	27	3000	2100
49	Comm	22nd St. SE & Savannah Place SE	District of Columbia Water & Sewer Authority, Anacostia 2nd High	900	920	0	1820	42	34	2250	3100
50	Comm	1st St. SW, south of South Capitol St.	District of Columbia Water & Sewer Authority, Anacostia 1st High	1430	1350	0	2780	86	80	2000	10100
51	Comm	Good Hope Rd. SE & 18th St. SE	District of Columbia Water & Sewer Authority, Anacostia 1st High	690	1190	0	1880	70	50	1500	3100
52	Comm	Independence Ave. SE & 13th St. SE	District of Columbia Water & Sewer Authority, 1st High	290	340	1200	1830	73	67	1250	5900
53	Res	12th St. NE & Irving St. NE	District of Columbia Water & Sewer Authority, 2nd High	730	1130	0	1860	75	57	1000	3400
54	Res	Brandyrine St. NW & 28th St. NW	District of Columbia Water & Sewer Authority, 3rd High	1190	0	0	1190	96	74	1000	2300
55	Comm	Kentworth Ave. NE, 2nd hyd south of Polk St. NE	District of Columbia Water & Sewer Authority, Low	650	950	950	2550	52	47	1750	6900
56	Comm	Alabama Ave. SE & 34th St. SE	District of Columbia Water & Sewer Authority, Anacostia 2nd High	670	650	1050	2270	40	31	1500	3600

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				INDIVIDUAL HYDRANTS	TOTAL	STATIC	RESID.	NEEDED**				
57	Comm	Woodley Rd. NW & Wisconsin Ave. NW	District of Columbia Water & Sewer Authority, 3rd High	980	810	0	1790	38	33	3000	3600	
58	Comm	4th St. NE, south of Michigan Ave. NE	District of Columbia Water & Sewer Authority, 2nd High	690	0	0	690	60	22	3000	700	
59	Res	19th Place NE & Webster St. NE	District of Columbia Water & Sewer Authority, 2nd High	500	1190	0	1690	105	95	1000	5400	
60	Comm	W Place NW & Hall Place NW	District of Columbia Water & Sewer Authority, 3rd High	1160	840	860	2860	65	55	3000	6400	
61	Res	Irs St. NW & 14th St. NW	District of Columbia Water & Sewer Authority, 4th High East	380	530	0	910	82	50	1000	1300	
62	Comm	39th St. NW & Massachusetts Ave. NW	District of Columbia Water & Sewer Authority, 4th High West	560	650	1130	2340	55	47	3500	5200	
63	Comm	East Capitol St., west of 22nd St. SE	District of Columbia Water & Sewer Authority, Low	840	920	0	1760	46	25	5000	2000	
64	Comm	Virginia Ave. NW, south of New Hampshire Ave. NW	District of Columbia Water & Sewer Authority, 1st High	1210	1050	0	2260	85	59	5000	3700	
65	Comm	Rhode Island Ave. NE & 14th St. NE	District of Columbia Water & Sewer Authority, 2nd High	1030	0	0	1030	67	44	1750	1500	
66	Comm	New York Ave. NW, east of 15th St. NW	District of Columbia Water & Sewer Authority, 1st High	1350	1390	0	2740	80	72	4500	8100	
67	Comm	31st St. SE & Westover Dr. SE	District of Columbia Water & Sewer Authority, Anacostia 2nd High	1130	0	0	1130	55	39	4000	1700	
68	Comm	13th St. SE & Pleasant St. SE	District of Columbia Water & Sewer Authority, Anacostia 1st High	1350	1360	0	2710	77	70	3500	8400	
69	Comm	34th St. NW & Klinge Rd. NW	District of Columbia Water & Sewer Authority, 4th High West	730	730	0	1460	43	27	3000	1800	
70	Comm	17th St. NW & G St. NW	District of Columbia Water & Sewer Authority, 1st High	1290	1320	0	2610	77	62	4000	5400	

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