I. Purpose:

Fire flow test are conducted on water distribution systems to determine the flow capacity of water mains at various locations in the distribution system. Additional benefits derived from the maintenance program, are to identify out of service hydrants, partially closed valves, or any other defects that may render the hydrant useless.

II. Policy:

It is the policy of the New Braunfels Fire Department that we shall inspect and maintain the fire hydrants in our response area. Routine painting and color-coding shall be completed as well.

III. Procedure:

A. Definitions:
   a. Barrel: The portion of the hydrant that extends above ground level and ends at the bottom of the bonnet.
   b. Bonnet: The dome shaped portion making up the top of the hydrant and extending down and ending at the top of the barrel.
   c. Residual Pressure: The remaining pressure that exists in the distribution system, measured at a time when water is flowing from the system.
   d. Static Pressure: The pressure that exists at a given point under normal distribution system conditions measured while no water is flowing.

B. Time Frame of Program:

The New Braunfels Fire Department will conduct the fire hydrant maintenance program year round. The cycle starts in January and ends in December, with each shift maintaining the same hydrants for a one-year cycle, with flow testing preformed on the fifth year of the cycle (Example: 2006, 2011, 2016.) Hydrant maintenance tasks will take place between the hours of 0730 to 1500 hours Monday thru Friday.
C. Safety

Safety of personnel is to remain a priority. Safety precautions shall be adhered to in order to prevent injuries.

Communications: Advise New Braunfels Utilities Dispatch at 608-8800 prior to flowing and flushing hydrants. Radio communications will be used to coordinate activities between static and residual hydrant crews during testing. (If necessary)…Tactical Channel #1, and Tactical Channel #2 will be the frequency utilized.

Personal Injury: Always work from the backside of the fire hydrant.

Parking: The attempt shall be made to park apparatus in the nearest parking lot or out of through traffic lanes. If apparatus must be placed on the street, place apparatus where it will serve as a protection to the crews at work. Apparatus should be placed out of the lanes of traffic and not interfere with the normal flow of traffic as much as possible.

Emergency Flashers: Emergency flashers shall be used during hydrant maintenance operations if apparatus is placed on the street.

D. Education and Training

Periodic training on hydrant maintenance shall be scheduled, and become a part of the training program of the New Braunfels Fire Department.

E. Districts

Map quadrants and not response districts divide the hydrants among the stations, and each station has a database that lists their respective hydrants.

F. Flowing A Hydrant

As per N.F.P.A. 291, 1995 Edition. Chapter 2. Hydrant diffusers shall be used during these operations.

G. Flushing A Hydrant:

Hydrants shall be flushed prior to placing on any appliances to help prevent damage to gauges. Flow the hydrant and allow the water to run until it becomes clear of visible debris.

H. Pressure Testing:

Every fire hydrant shall be pressure tested once a year. Pressure testing consists of placing the static gauge on the fire hydrant and opening the hydrant completely open. Record the static reading. Close the fire hydrant. Record the reading into the RMS.
I. Hydrant Maintenance:

The following items shall be inspected and maintenance performed as necessary:

**Oil the hydrant:** Only if the hydrant is difficult to operate. Oil shall be applied at approximately ½ cup or 30 CCs. Per hydrant.

**Gaskets:** Replace when necessary. Gaskets should be intact, not warped out of shape and not torn. If hydrant does not leak with the gasket currently in place, a new gasket is not necessary.

**Operate:** Operate the hydrant, all the way open and all the way closed. Operation shall be preformed SLOWLY. You should meet minimal resistance.

**Caps:** Caps shall be inspected for thread condition and ease of taking them on and off. Grease the threads as needed.

NOTE: If steamer connection is different from any adapter currently carried on the apparatus please make a note and forward to the Fire Prevention Division.

NOTE: Only use approved grease and / or oil on the hydrant threads. No substitution grease or oil shall be used. NBU shall provide these materials.

**General Information to Obtain during Hydrant Maintenance:**

Fill out the computer generated Maintenance Form in the Record Management System.

If you flowed a hydrant, enter flow data.

**Out Of Service Hydrant:** A hydrant shall be removed from service for any of the following reasons; cracked barrel, damaged operating nut, foreign object obstruction, valve stem does not work, street valve closed or any other condition that renders the hydrant unusable, inoperable or unsafe.

**Protocol for Out of Service Hydrants:**

The crew, which identifies the “out of service hydrant”, shall forward a HYDRANT MAINTENANCE REQUEST form to the Fire Marshal’s Office secretarial staff by phone or fax.

The Fire Prevention Division will contact the appropriate purveyor and advise them of the hydrant status.

New Braunfels Utilities will place an out of service ring on the hydrant.

After repairs are complete the purveyor shall notify the Fire Prevention Division that the hydrant is back in service.
Field Repair:
Include but are not limited to:
- Oil and Grease the hydrant
- Steel brushing of the threads
- Replace Gaskets

J. Reports
- **HYDRANT MAINTENANCE REQUEST** forms – shall be forwarded to Fire Prevention Division as they are filled out.
- **STATION / SHIFT** reports - shall be sent to the Fire Prevention Division on a monthly basis.
- **WATER USAGE** forms – shall be filled out on a monthly basis and forwarded to the Lieutenant at Station 5, B shift.

K. Records
New Braunfels Fire Department shall maintain all records via: computer date base and hard copy. Hard copies shall be retained at the Fire Prevention Division.

L. Color Code of Hydrant Bonnets = N.F.P.A. 291
- 500 g.p.m. or less = RED…………………………..CLASS “C”
- 501 to 999 g.p.m. = ORANGE………………………CLASS “B”
- 1000 to 1499 g.p.m. = GREEN……………………CLASS “A”
- 1500 g.p.m. and above = LIGHT BLUE……………CLASS “AA”
Barrel and caps of all hydrants shall be painted Silver.

M. New Braunfels Utilities
The New Braunfels Utilities and the New Braunfels Fire Department will work together on the Hydrant Maintenance Program. The utilities will perform all major repairs to hydrants.

N. Private Hydrants
Private fire hydrants, even though water is supplied by New Braunfels Utilities, are not part of the New Braunfels water supply system. Hydrants found in areas such as Coleman Plant, Wal-Mart Distribution System, Casco, Owens Corning, and etc. are considered private hydrants.

*Marking or testing of hydrants within private enclosures is to be at the owner’s discretion. When private hydrants are located on public areas (i.e.: parking lots) they shall not be tested nor flowed unless the owner has been contacted and permission has been obtained.*
O. E.A.A Stage 1, 2, 3, Water Conservation
Hydrant maintenance shall continue during stage 1 water conservation. Hydrant maintenance shall continue through stage 2, and 3-water conservation, however flowing will not be performed and flushing shall be limited to an “as needed bases”.
Fire Hydrant Maintenance shall continue in the event of water restrictions with the exception of flowing water. Maintenance and exercising valves shall be done.

P. Complaints
Complaints from the public referencing the damage of property, water condition or other complaints shall be recorded by the company performing the maintenance and shall be forwarded to the Fire Marshal.

Q. Customer Service
Professional conduct from all fire service personnel shall be maintained at all times.

R. Destruction of Property including Vegetation
The destruction of planted, landscaped and maintained areas should be avoided whenever possible. While performing the task of hydrant maintenance there will be those occasions when damage to property cannot be avoided, please use discretion. If the vegetation is within 3 foot of the fire hydrant, use the hydrant maintenance request form to report the violation to the Prevention Division. If possible the hydrant maintenance shall be conducted. If landscaping or vegetation obstructs the hydrant to the point of making it inaccessible the maintenance for the hydrant shall be postponed until such obstructions have been removed by the owner / occupant.
S. **Map Books and Hydrant Numbering System**

Hydrant identification numbers are found in the map books provided by N.B.U. and on the station/laptop computer. District personnel shall be responsible for the hydrant pages assigned to them. The pages are assigned by drawer numbers, (example 1-2, where 1 represents the station number and the 2 represents the drawer number) and are on a one-year rotation.

1\textsuperscript{st} Year – Hydrants are flushed, pressure tested, greased, oiled and painted as needed.
2\textsuperscript{nd} Year – Hydrants are flushed, pressure tested, greased, oiled and painted as needed.
3\textsuperscript{rd} Year – Hydrants are flushed, pressure tested, greased, oiled and painted as needed.
4\textsuperscript{th} Year – Hydrants are flushed, pressure tested, greased, oiled and painted as needed.
5\textsuperscript{th} Year – Hydrants are flow tested, painted, greased, oiled and flushed.

T. **Additional Information**

Copy of N.F.P.A 291, 1995 Edition
Obstructed Fire Hydrant Form