



# Burlington Fire Department



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<b>Section: 01 - Suppression</b>	
<b>SOG Number: 01.40</b>	<b>Effective Date: January 27, 2022</b>
<b>Subject: Pumping Operations</b>	
<b>By Order of Fire Chief Steven A. Locke</b>	

## **I. Purpose:**

To establish consistent flows of fire streams through pumping fire apparatus. Any line selection at an emergency scene should produce an expected fire flow and reaction force independent of the pump operator or apparatus.

## **II. Scope:**

All personnel operating fire pumps at emergencies trainings.

## **III. Definitions:**

Fire Stream: Water discharged through a fire pump into a hose or appliance.

Handline: A hose line that able to be advanced by a fire company while flowing

Master Stream: An appliance that is not mobile by a fire company while flowing, typically greater than 350 gpm.

Outdoor Fire: A fire outside the structural environment to include vehicle fires, brush fires, flammable liquid fires, and dumpster fires.

## **IV. Guidelines:**

### A). Hydraulics

#### 1. General intent of fire streams

##### a. Handlines

- (a) A fire stream for 1 3/4" attack lines allow the line to be handled by a single firefighter while stationary or moving. The minimum flow shall

be 150 gpm. Flows can range from 150-185 gpm based on nozzle and nozzle pressure.

- (b) A fire stream for 2 ½” attack lines allow for a single firefighter to manage the line in a stationary position and require 2 or more firefighters to move the line while flowing. The minimum flow shall be 250 gpm. Flows can range from 250-325 gpm based on nozzle and nozzle pressure.

b. Master Streams

In pumping master stream devices, attempting to obtain the desired flow will be the first objective. Over pumping a device (within limitations of the device) or under pumping the device are acceptable based on available water supply.

2. Target flows

- a. 1 ¾” attack lines 160 gpm
- b. 2 ½” attack lines 265 gpm
- c. Master stream devices 350-1250 gpm based on appliance.

3. Burlington Fire Department established coefficients for hose lines:

- a. 1 ¾” hose will be Mercedes KrakenExo hose with an effective coefficient of “8.8”
- b. 2 ½” hose will be Mercedes KrakenExo hose with an effective coefficient of “2”
- c. 4” hose will be Mercedes Megaflo Breather hose with an effective coefficient of “0.2”

4. FDC operations

- a. Max sprinkler or standpipe pressure in Burlington shall be 185 psi.
- b. Pump sprinkler only systems to 150 psi discharge or 20 psi on the intake.

5. Maximum operating pressures

- a. 1 ¾” and 2 ½” hose shall have a maximum operating pressure of 375 psi.
- b. 4” hose shall have a maximum operating pressure of 275 psi.
- c. The maximum operating flow through an aerial device shall be 1250 gpm.

6. See attached Pumping Reference Sheet for common layouts.

B). Water supply

1. Initial hydrant

- a. Water supply can be initiated with a direct tie in to the hydrant, no relay pumper, it is recommended to pump the hydrant when the supply line exceeds 500’.
- b. Recommended to have multiple outlets dressed for use.

2. Subsequent hydrants

- a. Any additional hydrants must be pumped if over 300’ from the attack truck being supplied.
- b. Two or more outlets shall be dressed for use, steamer connection and minimally one 2 ½” outlet.

3. 20 PSI residual shall be maintained by any apparatus directly connected to a hydrant.

4. Only one pump shall be directly tied to a hydrant.
5. When available all water supply operations shall utilize 4" hose.

C). Outdoor fires should be pumped for lower nozzle reaction and flows, structural fire flows are not required and should not be expected.

D). Standardized Preconnect hose lines

1. Blue- 200' blue 1 3/4" hose with 7/8" smoothbore nozzle
2. Green- 250' green 1 3/4" hose with 7/8" smoothbore nozzle
3. Yellow- 250' yellow 1 3/4" hose with fixed gallonage combination nozzle
4. 2 1/2" Attack line- 200' 2 1/2" hose with 1 1/8" smoothbore nozzle
5. Blitzfire- 200' 2 1/2" hose with Blitzfire monitor and Dual Force nozzle
6. Trashline- 100' 1 3/4" hose with fixed gallonage combination nozzle

## V. **Responsibility:**

It is the responsibility of all members to read, understand and follow this Standard Operating Guideline

Revision History			
Revision Date	Section	Summary	Principal Author
January 27, 2022	All	New SOG	Lt. Perkins