

ITEM	8
MANAGER'S REPORT NO.	7
COUNCIL MEETING	1981 01 26

RE: FIRE UNDERWRITERS SURVEY FOR THE MUNICIPALITY OF BURNABY  
 (ITEM 13, REPORT NO. 67, 1979 OCTOBER 09)  
 (ITEM 10, REPORT NO. 71, 1979 OCTOBER 22)

The following report from the Director of Fire Services contains information on the Fire Underwriters Survey which was recently completed for Burnaby. Background information was contained in previous reports that Council received on 1979 October 09 and 1979 October 22.

RECOMMENDATION:

1. THAT the recommendations of the Director of Fire Services be adopted.

\* \* \* \* \*

1981 January 21  
 Fire Department

TO: MUNICIPAL MANAGER  
 FROM: DIRECTOR-FIRE SERVICES  
 SUBJECT: FIRE UNDERWRITERS SURVEY, MUNICIPALITY OF BURNABY, DATE OF COMMENCEMENT 1980 APRIL 07

RECOMMENDATIONS:

1. THAT the Fire Underwriters Survey Report, submitted by Mr. A.H. Piper, Supervisor Fire Underwriters, 1981 January 12, be received for information.
2. THAT Council be advised Mr. A.H. Piper will attend the Council meeting 1981 January 26 to discuss his report.

BACKGROUND

Item 13, Manager's Report #67, 1979 October 09, advised Council the Insurers Advisory Organization (IAO) had been requested to have their Fire Underwriters carry out a comprehensive survey within the Municipality of Burnaby, commencing 1980 April 07 for the purpose of evaluating our current insurance grading schedule then a Class 4.

REPORT

The ATTACHED Report, submitted by Mr. A.H. Piper, although somewhat technical in nature, provides an overview of the improvements which have taken place in Burnaby's fire defences since the last Underwriters survey was carried out in 1972.

Salient Points of the Survey are as follows:

1. Insurance Reclassification:

Reclassified from Class 4 to Class 3, e.g; deficiency points reduced from 1980 points to 1277 points (subject to confirmation by head office).

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2. \*Fire Flow (Water)

With certain exceptions, Burnaby's water supply for fire suppression is considered adequate. See Water Flow Test Tables ATTACHED

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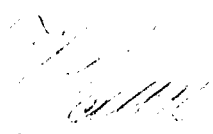
\*In reviewing the attached fire flow test results, comparison should be made between "required fire flow" and the column, quantity available I.G.P.M. at 20 psi, insofar as the fire department pumpers can operate efficiently with a water main draw down to 20 psi.

FIRE DEPARTMENT

In general, the fire department is rated as Class 2, with a total deficiency of 386 points. The fire suppression equipment, with the addition of the replacement aerial ladder truck presently on order, is adequate in terms of first line response and reserve units for the immediate future.

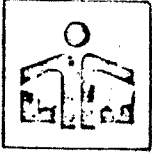
Factors such as training, communications, Municipal Fire Prevention Legislation, Mutual Aid and the current Fire Prevention and Control Master Planning Program, are briefly commented on. These factors will be reviewed in greater depth by Mr. A.H. Piper in the Council chambers 1981 January 26 should Council so desire.

In conclusion, the recommendations contained in Mr. A.H. Piper's report and subsequent to any direction given by Council, will be reviewed in terms of improving the fire safety of the general public, coupled with cost effectiveness so as to promote the physical, mental and social well being of the community at large.

  
T.G. Nairn  
DIRECTOR-FIRE SERVICES

ATT:

TGN/jlm



# FIRE UNDERWRITERS SURVEY

A SERVICE TO INSURERS AND MUNICIPALITIES

c/o Insurers' Advisory Organization, 409 Granville Street, Vancouver, British Columbia V6C 1W5 (604) 681-3111

12 January 1981

The Corporation of the District of Burnaby,  
Managers Department,  
4949 Canada Way,  
Burnaby, B.C.  
V5G 1M2

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Attention: Mr. Melvin J. Shelley - Municipal Manager


Dear Mr. Shelley:

A survey of the fire defenses of the District was commenced in April 1980 by this Organization, at the District's request, for insurance grading purposes. Our analysis of the survey results has been completed and we are pleased to advise that the Public Fire Protection or "Commercial" Classification has bettered from Class 4 to Class 3 mainly because of improvements made in the water distribution system and upgrading of the fire department. The following comments on the survey findings are offered for the consideration of the Administration.

### Water Supply

Gravity supplies from the Greater Vancouver Water District supply works provides ample water sources. Hydrant waterflow tests, conducted in representative areas throughout the municipality to determine water supplies available for fire fighting, indicate that water supplies for fire fighting have improved. However, there are industrial, institutional and commercial areas where water supplies are moderately deficient. These locations are mainly south of Kingsway Avenue with some insufficiency south of the Lougheed Highway at the east end of the District, at Burnaby General Hospital and north of Hastings Street between the District boundary and Capital Hill. Records of servicing and observations made during the survey show that system components, including valves, hydrants, etc. receive regular servicing and maintenance. Continuous monitoring of system operations by telemetering and on-duty staff ensures continuity of service. Use of acceptable standards for watermain installations and the extensive continuing use of ductile iron pipe keeps the frequency of watermain breaks at a significantly reduced level. Valve spacing is mainly adequate in limiting the amount of watermain out of service for repairs, or for changes and additions to the system,

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 *Financed and directed by*  
Insurance Bureau of Canada  
Bureau d'assurance du Canada



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Hydrant spacing in the system is being improved to keep the length of fire hose supply lines to a reasonable minimum, especially in areas where water supply does not meet recommended requirements. Management and operational staff of the waterworks department are competent and experienced.

Fire Department

There are an adequate number of pumper and ladder companies in service. When the new aerial ladder company, on order, is received and placed in service the recommended number of reserve apparatus will be provided. Results of the fire station location part of the District's ongoing fire service study should ensure that all areas of the municipality receive uniform fire service. Pumper capacity presently in service and reserve is adequate. Equipment maintenance staff appear to be well qualified but the effectiveness and scope of the maintenance program can be improved. Better facilities for service testing pumpers from draught and more extensive testing of aerial ladder equipment other than non-destructive type (X-rays of welds etc.) is desirable. Response of off-duty firefighters when needed and outside aid from other municipalities improves the credit for the on-duty manning strength to an acceptable level. Amount and kinds of both heavy and minor type firefighting equipment are adequate. Training occupies an increasingly important part of the growth and development of a modern fire department. A program to upgrade this function is currently being developed within the fire department. Implementation of a successful training program must have the active participation of all supervisory staff at the company or administrative level, upgrading of the training facilities and staff teaching and administrative skills plus development of a vertical communications system to facilitate necessary changes. Records should include quality evaluation of training given and a system of grading its effectiveness.

Response of equipment and manpower to first alarms and multiple alarms appears to be effective. There was no opportunity to witness an actual working fire during the survey. Observation of one "hands on" type training drill indicated a need for a process for revising drill evolutions where necessary. Management and staff are experienced and competent.

Fire Service Communications

Commercial telephone service is used almost entirely for the receipt of fire alarms. The Communications Centre (alarm office) for the receipt of alarms is vulnerable to loss of service if telephone service is interrupted.

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To provide a satisfactory degree of reliability consideration should be given to installing a back-up telephone alarm receipt service at another location. A radio communications report for improving the use of radio throughout the Greater Vancouver Regional District is under review.

#### Fire Safety Control

Burnaby is to be commended for having had a modern fire prevention bylaw in force for many years and the development of a well organized and capable fire prevention bureau and staff. Continuing development of the District's industrial and commercial growth in conjunction with public education programs on life safety has placed a considerable burden on the bureau's manpower resources. Steps are being taken by the Fire Department Administration to alleviate this situation.

Good cooperation exists between other municipal regulatory services responsible for life and building safety. Record systems are generally adequate and complete.

#### General Remarks

The Greater Vancouver Regional District has set up a technical committee to develop a mutual aid emergency plan. There are several large industrial operations in Burnaby, namely oil refineries and companion bulk loading facilities that cooperate with the District in implementing recognized safety standards. Discussions are underway between the municipality and Simon Fraser University concerning the level of fire protection services needed for future planned development. A municipal policy to regulate changes and additions in existing operations and in future industrial and institutional growth has been inaugurated.

A recommended improvement program which the District may wish to use as a guide in future planning is attached. These recommendations may be helpful when viewed in combination with more specific studies of local needs by consultants, staff or local task forces in arriving at fire protection decisions. We are prepared to assist at any time with matters relating to fire protection and prevention.

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May we express our appreciation for the willing and courteous assistance given by the various department officials and staff during and after the survey.

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Yours very truly,

A.H. Piper,  
Supervisor,  
Fire Underwriters Survey.

AHP:bw  
Encl.

RECOMMENDATIONS

WATER SUPPLY

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1. Development of new industrial and commercial districts and redevelopment of existing areas to more intensive land use (apartment blocks, etc.) should include planning for adequate water supplies and hydrant spacing. A copy of the results of hydrant waterflow witnessed during the survey is attached.

FIRE DEPARTMENT

2. Review of the proposed Burnaby Fire Department Training Program for Officers should be completed as soon as possible. This important program will provide a necessary upgrading of officers skills at all levels and its early adoption is urged.
3. More adequate facilities should be provided for service testing of fire department pumping and ladder apparatus. Construction of an adequate pumper test pit and the acquisition of the necessary equipment to completely test aerial ladders according to National Fire Protection Association recommended requirements should be given immediate consideration. Service testing of fire apparatus should be done at least annually, after major repairs and following extreme use.

FIRE SERVICE COMMUNICATIONS

4. Telephone service for the receipt of fire alarms would be seriously hampered by loss of the single telephone cable to the alarm office at No. 1 Fire Hall. Planning has commenced to improve this telephone alarm service. Early implementation of the proposed improvement plans should be given consideration.

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FIRE SAFETY CONTROL

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5. The expanding work load of the Fire Prevention Bureau staff has resulted in an increasing time interval between routine inspections of commercial, industrial and institutional properties. Steps are being taken in the fire department training program to improve this condition and should be actively supported by the Administration.



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FIRE UNDERWRITERS SURVEY

MAY 22 19. 80 FLOW TEST RESULTS - BURNABY , B. C.

DISTRICT	NO.	HYDRANT LOCATION		HYDRANT PRESS. P.S.I.		DISCHARGE I.G.P.M.	REQUIRED FIRE FLOW	QUANTITY AVAILABLE I.G.P.M.	
		GAUGE	FLOW	STATIC	RESIDUAL			@ 60 PSI	@ 20 PSI
Industrial & Residential	24	Beresford Street & Daisy Avenue	Beresford Street and McPherson Avenue	65	60	1251	2500	1251	4088
Industrial & Residential	25	Hydrant No. 1309 7400 McPherson Avenue	Hydrant No. 1310 1st Hydrant North of Gauge Hydrant	76	66	1251	4500	1615	3169
Industrial	26	Irmin Street & Curragh Avenue	Irmin Street North of Gauge Hydrant	78	46	819	2500	600	1129
Industrial	27	Hydrant No. 84 7383 Buller Avenue	Hydrant No. 547 Rumble Street & Buller Avenue	74	68	1379	2500	2181	4520
Industrial (School)	28	Hedley Avenue & Beresford Street	Hedley Avenue & Prenter Street	75	60	1496	4000	1496	3016
Industrial & Residential	29	Stride Avenue & 19th Street	Stride Avenue & 20th Street	113	98	1551	2250	3063	4150
Industrial	30	1st Hydrant North of Flow Hydrant on Greenall	Greenall Avenue & Brechin Street	130	38	1058	3500	913	1166
Industrial	31	Fraser Park Drive & Byrne Road	1st Hydrant North of Gauge on Fraser Park Dr.	130	90	1154	2500	1829	2334

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FIRE UNDERWRITERS SURVEY

JUNE 5, 19 80 FLOW TEST RESULTS - BURNABY, B. C.

DISTRICT	NO.	HYDRANT LOCATION		HYDRANT PRESS. P.S.I.		DISCHARGE I.G.P.M.	REQUIRED FIRE FLOW	QUANTITY AVAILABLE I.G.P.M.	
		GAUGE	FLOW	STATIC	RESIDUAL			@ 60 PSI	@ 20 PSI
Industrial	32	Byrne Road (In front of Stadco Premium Mfg.)	1st Hydrant West of Gauge on Byrne Road	132	110	1907	2500	3616	4590
Industrial	33	Spur Avenue & Willard Street	1st Hydrant South of Gauge on Willard Street	134	85	1604	2500	2004	2530
Industrial	34	Hydrant No. 724 Barnet Highway (Adjacent to Barnet Booster Pump Station)	Hydrant No. 724 Barnet Highway (Adj. to Barnet Booster Pump Station)	84	20	1682	2000	990	1682
Industrial	35	Hydrant No. 2136 Barnet Highway (Near Gulf Oil Bulk Plant)	Hydrant No. 1949 Barnet Highway (Near Gulf Oil Plant)	80	42	1183	4000	836	1513
Industrial	36	Hydrant No. 2136 Barnet Highway (Near Gulf Oil Bulk Plant)	Hydrant No. 1949 Barnet Highway (Near Gulf Oil Plant)	149	65	1439	4000	1485	1815

\* Barnet Highway Booster Pump Running

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FIRE UNDERWRITERS SURVEY

MAY 21, 19 80 FLOW TEST RESULTS - BURNABY, B. C.

DISTRICT	NO.	HYDRANT LOCATION		HYDRANT PRESS. P.S.I.		DISCHARGE I.G.P.M.	REQUIRED FIRE FLOW	QUANTITY AVAILABLE I.G.P.M.	
		GAUGE	FLOW	STATIC	RESIDUAL			@ 60 PSI	@ 20 PSI
Industrial	1	N. Carleton Avenue & McGill Street	N. Carleton Avenue & McGill Street	150	62	1738	4000	1760	2145
Commercial	2	Kensington Avenue & Hastings Street	Hammarskjold Dr. & Hastings Street	117	111	1533	2750	5176	6896
Residential	3	Fell Avenue & Pandora Street	Fell Avenue & Pandora Street	92	10	625	1500	376	583
Residential	4	Barnet Road & Sperling Avenue	Barnet Road & Inlet Drive	136	116	1950	1500	4012	5041
Industrial	5	On Gilmore Avenue North of Still Creek Street	1st Hydrant North of Gauge	130	121	1892	2500	5722	7303
Commercial	6	Dominion Street East of Sumner Avenue	Dominion Street & Willingdon Avenue	126	90	1738	3000	2410	3112
Industrial	7	Broadway Street (Hydrant No. 2308) West of Underhill Avenue	Broadway St. (Hydrant No. 2309) East of Lake City Way	78	74	1551	2500	3499	6586
Industrial	8	Underhill Avenue & Enterprise Street	1st Hydrant West of Gauge on Enterprise St.	105	96	1754	2000	4176	5888

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FIRE UNDERWRITERS SURVEY

MAY 21, 1980 FLOW TEST RESULTS - PRIMARY, B. C.

DISTRICT	NO.	HYDRANT LOCATION		HYDRANT PRESS. P.S.I.		DISCHARGE I.G.P.M.	REQUIRED FIRE FLOW	QUANTITY AVAILABLE I.G.P.M.	
		GAUGE	FLOW	STATIC	RESIDUAL			@ 60 PSI	@ 20 PSI
Industrial	9	Production Way & Eastlake Drive	Thunderbird Crescent & Production Way	132	123	2121	3500	6512	8264
Industrial	10	Cardstone & Government Street	1st Hydrant West of Gauge on Cardstone	123	70	1359	4000	1493	1947
Industrial		Cariboo Road & Avalon Avenue	1st Hydrant East of Gauge on Cariboo Road	130	25	885	4000	711	908
Industrial	12	Winston Street - West of Brighton Avenue	1st Hydrant East of Gauge on Winston Street	126	120	1722	3500	6292	8125
Industrial	13	Douglas Road & Regent Street	1st Hydrant West of Gauge on Regent Street	120	90	1533	2500	2226	2934
Institutional (Hospital)	14	1st Hydrant West of Flow on Kincaid Street	Kincaid Street & MacDonald Avenue	68	35	1110	2500	516	1359
Commercial	15	4620 Kingsway	4747 Kingsway	64	60	1183	3000	1183	4328

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MAY 22, 19 80 FLOW TEST RESULTS - BURNABY , B. C.

DISTRICT	NO.	HYDRANT LOCATION		HYDRANT PRESS. P.S.I.		DISCHARGE I.G.P.M.	REQUIRED FIRE FLOW	QUANTITY AVAILABLE I.G.P.M.	
		GAUGE	FLOW	STATIC	RESIDUAL			@ 60 PSI	@ 20 PSI
Commercial	16	4747 Kingsway	1st Hydrant East of Gauge	60	55	1273	3000	-	3904
Commercial	17	Bonsor Avenue Between Beresford Street and Brief Street	Bonsor Avenue Between Beresford St. & Brief St. (Hydrant #164)	58	18	976	3500	-	949
Industrial Residential	18	6721 Dow Avenue	Dow Avenue & Beresford Street	58	50	1183	3500	-	2747
Residential	19	Maywood Street & Telford Avenue	1st Hydrant North of Gauge on Telford Avenue	60	53	1031	3500	-	2642
Residential	20	6175 Silver Avenue	6175 Silver Avenue	62	22	1058	3500	209	1087
Commercial Residential	21	Imperial Street & Marlborough Avenue	Imperial Street & Dunblane Avenue	58	52	1165	3500	-	3937
Commercial Residential	22	Royal Oak Avenue & Imperial Street	6960 Royal Oak (1st Hydrant South of Gauge)	54	51	1273	3500	-	4719
Institutional & Industrial	23	Victory Street & Royal Oak Avenue	1st Hydrant East of Gauge on Victory Street	68	66	1296	2000	2744	7231

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