Salt Spring Island Fire Protection District

10 Year Plan 2008 – 2017

January 21, 2008

Salt Spring Island Fire Protection District
10 Year Plan 2008 - 2017

Contents

Page

Introduction 3

Table of Recommendations 4

Purpose & Methodology 5

History of Fire/Rescue 6
- Population of Salt Spring Island

Core Services 7
- Partnerships

Operations 8
- Structure Fires
- First Responder Program
- Fire Prevention, Inspection & Public Education

Service Delivery 15

Capital Assets & Staff Resources 20

Training 24

Additional Responsibilities & Challenges 27

Management & Staff 29

Costs to Tax Payers 34

Appendices
- Appendix A: Salt Spring Island Fire/Rescue Mission & Values 38
- Appendix B: Minimum Fire Fighting Personnel According to Level of Risk 40
- Appendix C: Response Time Maps pp. 47-49
- Appendix D: Public Fire Protection Classification: Community Comparisons 50
- Appendix E: Property Comparison Matrix 51
- Appendix F: Training Cost Comparisons 52
- Appendix G: Staffing Costs 53
- Appendix H: Property Assessment Tables 54-55
  - 1996 to Current
  - 10 Year Projections
- Appendix I: Long Term Debt Repayment Tables 56-59

Introduction

The Salt Spring Island Fire Protection District has come a long way in the 48 years since Fire Hall #1 was built in Ganges. From a completely volunteer force with a wide range of skills, often modest, it has evolved to a highly competent, composite force of volunteers backstopped by a core group of career professionals. With the leadership of its current Chief there has been a vast improvement in the quality of its fire fighters. All fire fighters, volunteer and career, are trained to the same standards. The SSIFPD is proud of all its firefighters, their dedication to service in the community, their training and their readiness to serve at all hours.

The 2005 Fire Insurance Underwriters Survey (FUS) complimented the improvement achieved since its 1990 assessment. FUS ratings exert an important influence on residential and commercial insurance rates. For this reason, close attention is paid to FUS recommendations concerning equipment and staffing where the cost of improvements may be offset to some degree or more than offset by insurance savings. This is a difficult point to quantify, but broad statements can be made (ref. p. 34).

The SSIFPD faces several urgent and immediate challenges:

- The primarily volunteer character of the SSIFPD is in jeopardy.
- Fire Hall #1 is obsolete
- Improved training facilities are badly needed and would be cost effective.

Costs incurred in resolving these challenges will be repaid by preventing the deterioration of fire/rescue services and continuing their gradual improvement.

The Board of Trustees is committed to taking every possible step to retain, strengthen and improve the volunteer character of the Fire/Rescue Service. This will be an uphill effort which will require patient and thorough exploration of various measures and combinations of measures. These will be worked out and tested in consultation with the volunteers and career staff in flexible annual work plans and are not detailed here.

Should the SSIFPD and the community fail in this regard, it will be possible to prevent deterioration and even improve service delivery by moving to a department staffed with increasing numbers of career fire fighters. In addition to ending a strong Island tradition, this solution would be costly.

This Plan is intended neither as a mandate nor a formal blueprint for implementation. It is to serve as a guide for annual work planning and will be modified as conditions warrant by the SSIFPD. As in its development, modifications to the Plan will be open to public scrutiny and comments will be welcomed.

Public meetings of the SSIFPD Trustees are held at Fire Hall #1 at 7:30 p.m. on the third Monday of every month. This Plan and the 2005 Fire Underwriters Survey are available on-line under the Trustees Section at www.saltspringfire.com.

Table of Recommendations

Page

Fire Prevention, Investigation & Public Education:

- Inspection & Investigation 14
  - Frequency of inspections; staff training; wildfire risk assessments
- Public Education 15
  - Fire Smart initiatives; wildfire risk reduction

Response Times 19

- Establishment of Response Time Targets

Fire Hall #1 21

- Land acquisition; construction

Fire Hall #2 22

- Seismic assessment; additional vehicle shelter

Vehicles & Equipment 23-24

- Recommendations for new vehicles and replacement of existing vehicles.

Training 27

- Construction of an improved and expanded training ground; acquisition of equipment and classroom materials

Bylaw Enforcement 29

- Continuing pursuit of means and measures to enforce Bylaws

Staff Resources 32-33

Maintaining, strengthening and building volunteer fire fighter compliment; additional career staff should this effort fail.

Purpose and Methodology of this Plan

The purpose of the Plan is to provide a goal oriented framework for the provision of fire and rescue services. It intends to meet current and evolving emergency response, fire prevention and public education requirements over the ten-year period 2008-2017 and establish a foundation for the provision of services beyond that period.

The Plan provides a long term vision and accompanying predictability for the community and for the Board of Trustees. It is intended to be a 'rolling' plan, available on the Internet web-site www.saltspringfire.com and updated at least every 2-years.

Mandated regulatory requirements will be met and the Plan seeks to meet or move towards the minimum standards and best practices of professional bodies such as the National Fire Prevention Association (NFPA), while remaining mindful of fiscal realities.

The Plan responds to and incorporates core recommendations of the July 2005 Fire Underwriters Survey (FUS) report. In doing so, the Plan indicates the capital and operating budget implications of addressing facility, vehicle and staffing requirements.

The Plan process began in 2006 and has been the focus of considerable effort over a two year period, following the submission of a report by consultants: Results Management Services of Surrey, B.C. The consultant report was completed with extensive involvement from the Fire Chief and other staff, questionnaires and interviews with volunteer fire fighters and input from selected Trustees.

The structure and content of the Plan draws heavily on the consultant's report, with important modifications as a result of further work by the Trustees and staff. That work was informed by public consultation.

The methodology used for developing the Plan included,

- Adherence to mandatory regulations, consideration and adaptation of guidelines and related requirements of regulatory bodies and/or legislation such as, Work Safe BC, BC Fire Services Act, and the BC Fire and Building Codes as well as the National Fire Prevention Association (NFPA – a non-profit international organization headquartered in the U.S.A.).
- Best practices from other fire department's Strategic/Master Plans, notably Abbotsford, Kamloops, Parksville, Westbank, Port Moody and Maple Ridge.
- Data analysis of historical service level experience
- Recommendations from the July 2005 Fire Underwriter's Survey report

The Plan honours and wishes to build on the contribution of volunteers as an integral part of a composite service delivery model and to continue that important component in the future.

The Plan builds on notable improvements achieved in recent years in the areas of staff training, pre-incident planning, and operating guidelines.

Plan development included confirming core services provided to the community and defining actions to maintain and improve these services. It includes performance measurement concepts expressed as target service levels and target response times.

The Plan will be modified in annual work plans and budgets according to evolving conditions in annual work plans and will be reviewed in detail in five years time.

History of Fire/Rescue

Like most small growing populated areas, Salt Spring Island had its fire and rescue beginnings in volunteerism. Fire Hall #1was built in Ganges in 1960 and was used by volunteer fire fighters to provide emergency response service.

In 1973, when Salt Spring's population was approximately 5,000, the first fulltime fire chief was obtained from the City of Vancouver Fire Department. There was one other full time employee and approximately 20 volunteers. In those early days, caretakers who lived in the Ganges Fire Hall would answer emergency calls, dispatch volunteers through a paging system, and set off the Fire Hall tower siren.

Fire Hall #2, in the Fulford area, began in a garage style hall equipped with a 4-wheel drive Jeep. The present Fire Hall #2 became operational in 1982 and provides fire and rescue services to the southern area of the island. The Fulford hall is serviced by volunteers who respond to incidents directly and with the vehicles stationed at the hall.

Fire Hall #3, at Central, was constructed in 1994 and is located at a roadway junction enabling efficient access to both the northeast, northwest and north central areas. Like Fulford, Central is serviced by volunteers who respond to incidents directly and with the vehicles stationed at the hall.

The First Responder Program was developed by the Province in 1989 to provide standardized certified training for fire (and police in many areas) staff to provide patient care, initiate the reporting procedure, and prepare the patient for transfer to BC Ambulance Service (BCAS) paramedics. The program was not intended to replace the basic response of BCAS, but rather to support it. While participation in the First Responder Program is not mandatory, the decision that the SSIFPD should join the FR program was taken in 1993 in response to fire fighters being assisting at numerous vehicle accidents and other medical emergencies without first aid training.

Today, Salt Spring Island enjoys a resident population of approximately 9,700, supplemented by a large number of visitors, particularly in the summer months who take advantage of B & B's, hotel and other accommodation spread across the island, as well as day trips.

The Salt Spring Island Fire/Rescue service has evolved from a strictly volunteer service to a composite service with 30 Volunteer Fire Fighters led by a career Chief who is in turn supported by six additional career staff, a Deputy Chief, an Assistant Chief, two Captains, a career Fire Fighter and an Administrative Assistant.

Salt Spring Island Population

The requirements for service by SSI Fire/Rescue are driven in part by community growth and the impact of that growth on response volumes and times. Fire prevention activities and First Responder demands increase with community growth. Facilities, vehicles and staffing must be appropriate for increasing call volumes.

Statistics Canada has recently published overall population figures with some detail for SSI for 2006. The population projection for 2016 is a rough estimate based on the growth of 3.9% that occurred during the 2001-2006 period.

Salt Spring Island Population & Projections

2001 Census	Population 2006	2001-2006 Change (%)	Projected Population 2016	2006-2016 Change (%)
9,279	9,640	3.9%	10,407	8%

Observation of development trends indicates continuing second home construction, part time residency not tracked by Census as the primary residence, and rental or loaning of such residences. The housing stock to protect has increased as has the overall assessed value. There is a substantial increase in the short and longer term visitor and resident populations in the summer months.

It is expected that the population will continue to grow. It may grow at an advanced rate with the development of Bishop's Walk, community housing on Rainbow Road, the planned development at Channel Ridge, expansion in Trincomali Heights, and the possible resurrection and construction of the Salt Spring Village Resort project.

Core Services

To fulfill its mission, Fire/Rescue provides the following five core services:

- Response: Fire suppression (structure, vehicle, boat, appliance, brush, interface, grass), motor vehicle incidents, First Responder, vehicle rescue, special teams (Rope Rescue, inland water rescue, confined space, hazardous materials, alarm bells, complaints.
- Prevention – Inspection & Assistance:
    - Buildings such as commercial, mercantile, industrial, public assembly facilities and churches are to be inspected twice per year. Education facilities are required to run 6 fire drills each year. Fire Rescue is to inspect these facilities twice a year and attends fire drills on request. Twice yearly full inspections are time consuming. Bed & Breakfast establishments should also be inspected but are not at this time. Inspections of new driveways are carried out on request from home owners, building inspectors and contractors.
    - Assistance testing smoke detectors is provided on request concerning the supply of new batteries or new detectors as required. Fire and incident investigation, pre-incident planning and plan review are an integral part of prevention.
- Public Education: Provide education sessions to specific target groups (e.g. Schools, seniors), topic-specific training (e.g. CPR, fire extinguisher training, FireSmart program), Fire Hall tours, Fire prevention Week and similar activities.
- Training: Provide staff training for career and volunteer fire fighters and training to community groups (e.g. forestry skills).

- Support Services: Vehicle, equipment and facility repair and maintenance, and administrative services such as receiving and directing enquiries and issuing Burn Permits (1364 issued and signed for at Hall #1 in 2007 to date).

Partnerships

Fire/Rescue has established partnerships in the provision of services,

- Ministry of Forests: Standard Operating Guide between Local Governments (Fire Services) and the Forest Protection Program 2006 for non-structure fires
- Gulf Islands Fire Chiefs: Annually, during the low fire risk season, Gulf Islands Fire Chiefs and representatives from the Ministries of Forests, Environment and Community Services, Office of the Fire Commissioner, Capital Regional District, and major property developers meet to discuss fire related issues and initiatives
- Mutual Aid Agreements – In Place: Although response times are necessarily longer, mutual aid agreements are in place for the following islands
    1. Pender Islands
    2. North & South Galiano Islands
    3. Mayne Island
- Mutual Aid Agreements – Under Consideration: Discussions are underway to develop support agreements with two Vancouver Island fire and rescue services
    1. North Saanich
    2. Cowichan Valley Regional District

Partnerships between fire departments on Vancouver Island often take the form of mutual aid agreements based on automatic response to structure fires or specific requests, with 10 or 15 minutes travel time between fire districts. By comparison, Salt Spring Island is virtually isolated. Partnerships are a matter of receiving or sending fire fighters by boat and equipment by ferry. In the case of wild land fires, time is required to mobilize air support.

Operations

The goal of any emergency service delivery system is to provide sufficient staff and response equipment on a timely basis and take effective action to minimize the adverse impact on people and property. This applies to fires, First Responder emergencies, motor vehicle incidents and the other types of emergencies to which Fire/Rescue responds.

Salt Spring Island Fire/Rescue is a composite service with a predominant reliance on volunteers. Typically, the Duty Officer is the first to arrive on the scene. After normal working hours, the Duty Officer may be responding from home. Barring a failure in volunteer turnout, the Duty Officer will be most often be backstopped by a team from arriving from Fire Hall #1. Volunteers and Fire Hall #2 and/or Fire Hall #3 equipment then arrive to complete the team. The composite staffing model works well, serving the community while containing staffing costs. Well trained volunteers are a fundamental part of Fire/Rescue.

Governance of the separate Salt Spring Island Emergency Program is provided by the Capital Regional District. Salt Spring's Fire Chief serves as the local program planner and coordinator, and the representative on broader emergency planning. Fire/Rescue supports the program through public education initiatives.

Structure Fires

Most fires within buildings develop in a predictable fashion, unless accelerated by highly flammable material. Ignition, or the beginning of a fire, starts the sequence of events. It may take some minutes or even hours from the time of ignition until flame is visible. This smoldering stage is very dangerous, especially during times when people are sleeping, since large amounts of highly toxic smoke may be generated.

Once flames appear, the sequence continues rapidly. Combustible material adjacent to the flame heats and ignites which in turn heats and ignites other adjacent materials if sufficient oxygen is present. As the objects burn, heated gases accumulate at the ceiling of the room. Some of the gases are flammable and all are highly toxic.

The spread of the fire continues quickly, soon the flammable gases at the ceiling reach ignition temperature. At that point, an event termed “flashover” occurs, damage caused by the fire is significant and the environment within the room no longer supports life.
Flashover usually happens about five to eight minutes from the appearance of flame in typically furnished and ventilated buildings. Since flashover has such a dramatic influence on the outcome of a fire, the goal is to apply water to the fire prior to flashover.

Perhaps as important as preventing flashover is the need to control a fire before it does damage to the structural frame of a building. Materials used to construct buildings today are often less fire resistive than the heavy structural skeletons of older frame buildings. Roof trusses and floor joists are commonly made with lighter materials more easily weakened by the effects of fire. Light weight roof trusses fail after five to seven minutes of direct flame contact. Plywood I-beam joists can fail after as little as three minutes of flame contact, creating a very dangerous environment for Fire Fighters.

In addition, the contents of buildings today have much greater potential for heat production than in the past. The widespread use of plastics in furnishings and other building contents rapidly accelerate fire spread and increase the amount of water needed to effectively control a fire. These factors make the need for early application of water essential to a successful outcome.

The relationship between time and temperature is illustrated in the following graphs. Response times are crucial in minimizing the potential for death, injury and property damage and loss.

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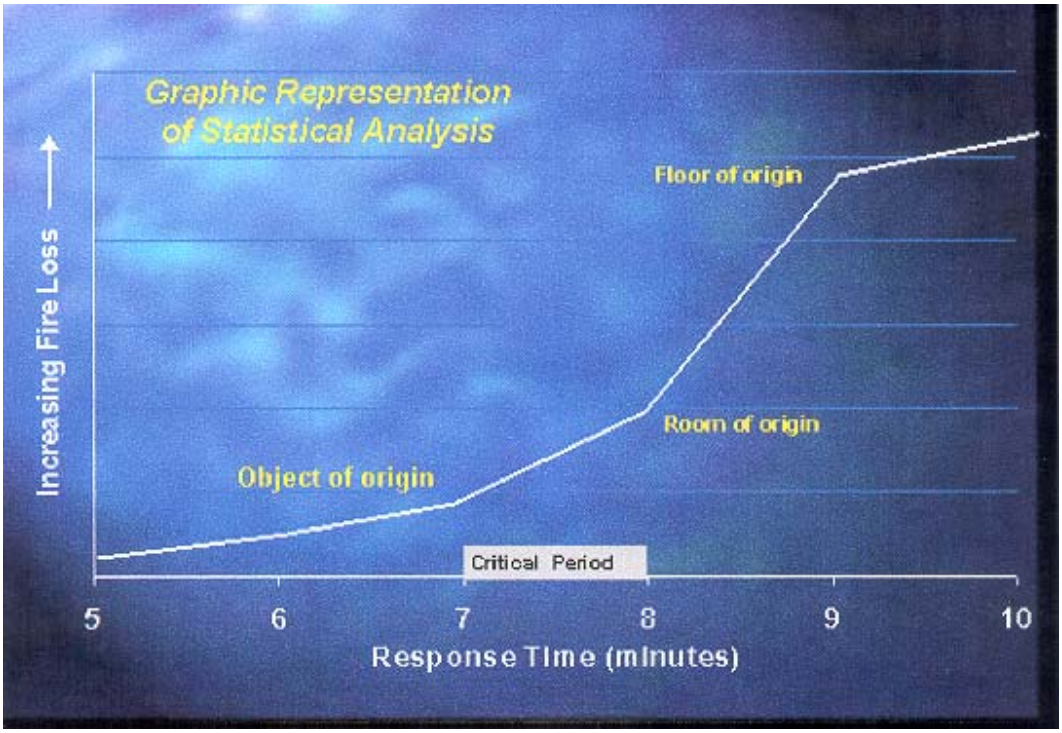

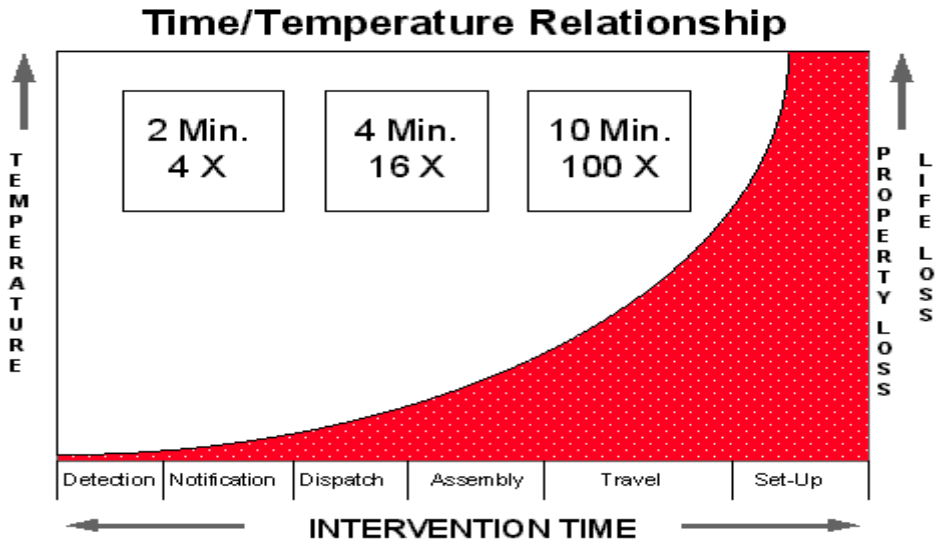

Beginning with ignition and concluding with the application of water. The time required for each of six steps in the response cycle varies. The policies and practices of Fire/Rescue directly influence four of the steps; two steps are indirectly manageable.

- Detection: Detection happens by way of automated fire alarm system or by public emergency calls.
- Reporting: Reporting happens in two phases. The initial call is taken at the 911 call in centre and then is transferred to Salt Spring Fire/Rescue' dispatch centre in Fire Hall #1. Call transfer is completed within 30 seconds.
- Dispatch: The dispatcher identifies the correct fire location and initiates the dispatch by paging Fire Fighters.
- Turnout: Volunteer fire fighters respond in a safe manner to the fire hall. Fire fighters don personnel protective equipment, assemble on the responding apparatus and leave the

fire hall. Good training and proper fire station design minimize the time required for this step.

- Travel: This is the longest phase of the six step process as the distance traveled road conditions, weather, traffic; driver training and topography are major factors.
- Set-up: Once Fire Fighters arrive on the scene, fire apparatus is positioned, hose lines laid-out, additional equipment assembled, and certain preliminary tasks performed before entry is made to the structure and water is applied.

As is apparent from this sequence of events, the application of water in time to prevent flashover is a serious challenge for any fire department. It is reasonable following these steps to design an emergency response time matrix.

In addition to the time required to fulfill each step of the response cycle, an efficient and effective response to an alarm assignment requires varying numbers of personnel according to the nature of the alarm. The International Commission of Fire Accreditation has set out recommendations for the numbers of fire fighting personnel needed for types of incidents categorized by level of risk. These have been adjusted for our own unique conditions and are set out in **Appendix B**. The levels are based on professional experience and are recommended rather than required personnel numbers.

First Responder Program

The experience in Salt Spring is much the same as other communities where Fire Departments have chosen to participate in the First Responder Program. Typically, 50 – 60% of total call volume is for medical emergencies. On Salt Spring FR calls have been in the range of 32 to 40% of total calls in the past four years. Fire halls are normally positioned for fast response and are well suited to the program. Fire/Rescue training in basic life support, spinal management, and rapid defibrillation protocols provides a level of service to the public which results in more successful patient management.

Fire/Rescue responds to medical emergencies such as, but not limited to stroke, heart attacks, falls, respiratory problems, diabetic seizures, overdoses, anaphylactic shock.

Cardiac arrest is generally the example used as the typical life threatening medical event. A victim of cardiac arrest has mere minutes in which to receive definitive lifesaving care if there is to be any hope of resuscitation.

The probability of recovery from cardiac arrest drops quickly as time progresses. The stages of medical response are very similar to the components described for a fire response. Heart attack survival chances fall by seven to ten percent for every minute between collapse and defibrillation. BCHSF recommends administration of cardiac defibrillation within five minutes of cardiac arrest.

Research stresses the importance of rapid cardiac defibrillation and administration of certain drugs as a means of improving the opportunity for successful resuscitation and survival.

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Motor Vehicle Incidents

The goals of Fire/Rescue at a Motor Vehicle Incident are scene safety, personnel safety and fire suppression. MVI activities include traffic control, extrication of patients and vehicles, stabilization, fire suppression, hazardous material control, over-the-bank rescue and interior medical aid.

Actions within the first hour after a motor vehicle incident has occurred are very important. Within this hour, injured people need to be at a critical care facility to save lives, reduce suffering and enhance recovery. Fire/Rescue works to ensure that the patient is stabilized prior to movement to prevent further injury or death. Where patients are trapped Fire/Rescue undertakes extrication, a time consuming methodical process of removing the damaged vehicle from around the patient. To carefully cut, spread, pry and pull a vehicle apart without moving an injured person takes knowledge, skill and time. Dealing expeditiously with hazardous materials is of great importance to those at the scene and to the community in general.

Fire Prevention, Investigation & Public Education

(a) Inspections

Fire Prevention staff perform fire prevention inspections according to established frequencies for building categories. Re-inspections are performed until deficiencies are corrected.

Inspections are grouped by property use and degree of risk. Typically, more highly used buildings and those containing higher risk activities or storage of potentially dangerous materials, are inspected most frequently.

Fire/Rescue's Operating Guideline #5.07.01 specifies an inspection frequency for all commercial building and asset categories at one inspection annually. The Fire Underwriter's Survey recommended inspection frequency should be increased to a minimum of twice a year (FUS recommendation 10.17A).

Fire Prevention Inspection Category Descriptions

Inspection Category	Description	Inspection Frequency
Group A	Churches, Halls, Schools, Pubs, Commercial Daycares, Restaurants	Minimum - once/year with one re-inspection
Group B	Institutions, Group Homes, Hospital	Minimum - once/year with one re-inspection
Group C	Hotels, Motels, Apartments, B&Bs	Minimum - once/year with one re-inspection
Group D	Offices, Banks, Professional Services	Minimum - once/year with one re-inspection
Group E	Retail Outlets	Minimum - once/year with one re-inspection
Group F	Industrial	Minimum - once/year with one re-inspection

The following table indicates the number of inspections performed annually by category and the percentage of inspections completed. The difference between the percentage completed and 100% indicates the backlog of inspections outstanding.

Inspections Carried Out

Inspection Type	2003	%	2004	%	2005	%	2006	%
Buildings	302	30%	307	20%	311	60%	332	20%
Driveways	69	100%	65	100%	80	100%	260	100%
Fire Hydrants	270	30%	272	0	276	0	280	0
Storage Tanks	5	100%	5	100%	6	100%	7	100%
Machine Piles	0	100%	59	100%	76	100%	82	100%
Fire Drills	54	50%	54	50%	54	25%	54	25%
Re-inspection	124	10%	73	10%	139	10%	46	10%
Total	824	60.0%	839	54.3%	942	55.0%	1,061	50.7%

The inspections data indicates the volume of inspections has increased from 824 to 1,061 during the four year period, an increase of 28.8%.

In 2007 the following inspections were carried out:

- 64 of 332 commercial buildings
- 1 driveway
- 6 storage tanks
- 33 machine piles
- 10 alarm systems.

In addition 11 fire safety plans were developed, 24 civic functions were addressed, 11 sub-division approvals were commented on, and 9 fire drills were attended.

Headway was made in 2007 toward clearing a backlog of inspecting and flushing fire hydrants. 50 of some 280 hydrants were flushed, painted for color coding, greased in appropriate areas, plotted for GPS and had their site location identified by a painted spot in the middle of the road. The BC Fire Code (#6.6.4.4) specifies inspection frequency (6 months) and testing (12 months) and records maintenance. It is expected that servicing up to code will take place in 2008.

(b) Pre-Incident Planning

Pre-incident planning is a core service that has been done very well. Pre-incident planning provides suppression crews with information regarding building layout, fire protection and life safety systems, and associated hazards.

(c) Investigations

Fire Prevention staff are responsible for all fire investigations. Under the Fire Services Act, Fire/Rescue is required to investigate in a general way, the cause, origin and circumstances of each fire within three (3) days after the fire, excluding holidays.

Fire/Rescue must complete a Fire Report for the Office of the Fire Commissioner (OFC) for data collection purposes. The length of time to complete investigations can range from hours to days, depending on the nature and complexity of the event.

During 2006, 49 OFC reports were submitted. In 2007, 34 investigation reports were submitted, including particularly complex reports such as the report on the Bullock Lake Village Resort and that for a boat fire in Ganges Harbour.

Inspectors are trained to OFC standards. The FUS report recommendation is for Fire Investigator II level training for fire investigation. NFPA 921, "Guide for Fire & Explosion Investigators" recommends Fire Investigator Levels I & II training.

(d) Public Education

Public education lectures, programs and demonstrations are offered by Fire Prevention Office staff to adults, youth and children in a wide range of fire safety topics including:

- Fire safety awareness, including wild land interface fire risk reduction general awareness and individual consultations and general public education from pre-schoolers to seniors.
- Fire Smart and fire safety awareness (home and business, including inspections)
- Fire safety plans (development and implementation)
- Fire extinguisher training (home and commercial)
- Emergency preparedness
- First aid instruction
- Fireworks safety
- Smoke alarms (including some installation and maintenance)
- Child car seat installations
- People with special needs
- Cadet camp
- Fire prevention week
- School programs including Career Day at GISS
- Fire Chief for a Day program
- Fire hall tours (school classes and individual)
- Spring break work experience at high school level

Public Education Participation Volume (Sessions/Attendance)

Core Program Name	2003	2004	2005	2006	2007
Fire Smart Education	0	0	150	250	600
Fire Smart Inspections	0	0	4	18	17
Child Restraint	0	0	0	10	11
CPR	72	82	12	0	7
Pre-school	89	80	76	65	45
Grade School	350	318	125	180	336
Adults	55	110	202	335	110
Juvenile Fire Setters	6	4	0	3	0
Fire Extinguishers	73	65	78	42	64
Fire Hall Tours	38	54	68	83	236
Fire Cadet Program	0	0	12	12	0
Total	683	713	727	998	1426

Public Education activities more than doubled over the five year period.

To counter poor attendance at Wild land interface and Fire Smart program offerings, in 2007, SSIFR opted to attend community meetings, POD Captain meetings, and make individual presentations to concerned citizens. Through an initiative spearheaded by the Office of the Fire Commissioner and BC Ferries, both Pender and Salt Spring crews made Fire Smart presentations at the Swartz Bay Ferry Terminal and on the Queen of Nanaimo during a number of Friday sailings in the dry summer season. These presentations found a receptive audience, some of whom sought further information from their local jurisdiction. The number of people reached in these presentations was impressive, but was not tracked and is not included in the above table.

Recommendations: Fire Prevention, Investigation & Public Education

- Inspection & Investigation
  - Retain the current inspection frequency of once per year minimum. Focus efforts on completing this number of inspections and eliminating the current backlog of inspections through support of the new Fire Fighter.
  - Train fire inspection staff to the Fire Inspection II certification level.
  - Review historical data of individual occupancies regarding compliance with the BC Fire Code. Adjust frequency of inspections upwards or downwards based on the degree of compliance.
  - Provide wildfire risk assessments using Fire Smart criteria in response to requests from private homeowners for risk reduction advice.
  - Investigate the possibility of having a Fire Prevention Office vehicle donated by a private contributor in exchange for advertising on the vehicle.

- Public Education
  - Support Fire Smart initiatives and initiate increased public information initiatives regarding wildfire risk reduction
  - In partnership with Fire Smart agencies, develop an education strategy to deliver a consistent public message regarding wild land fire risk reduction
  - Provide input to the Official Community Plan development process to incorporate Fire Smart recommendations.

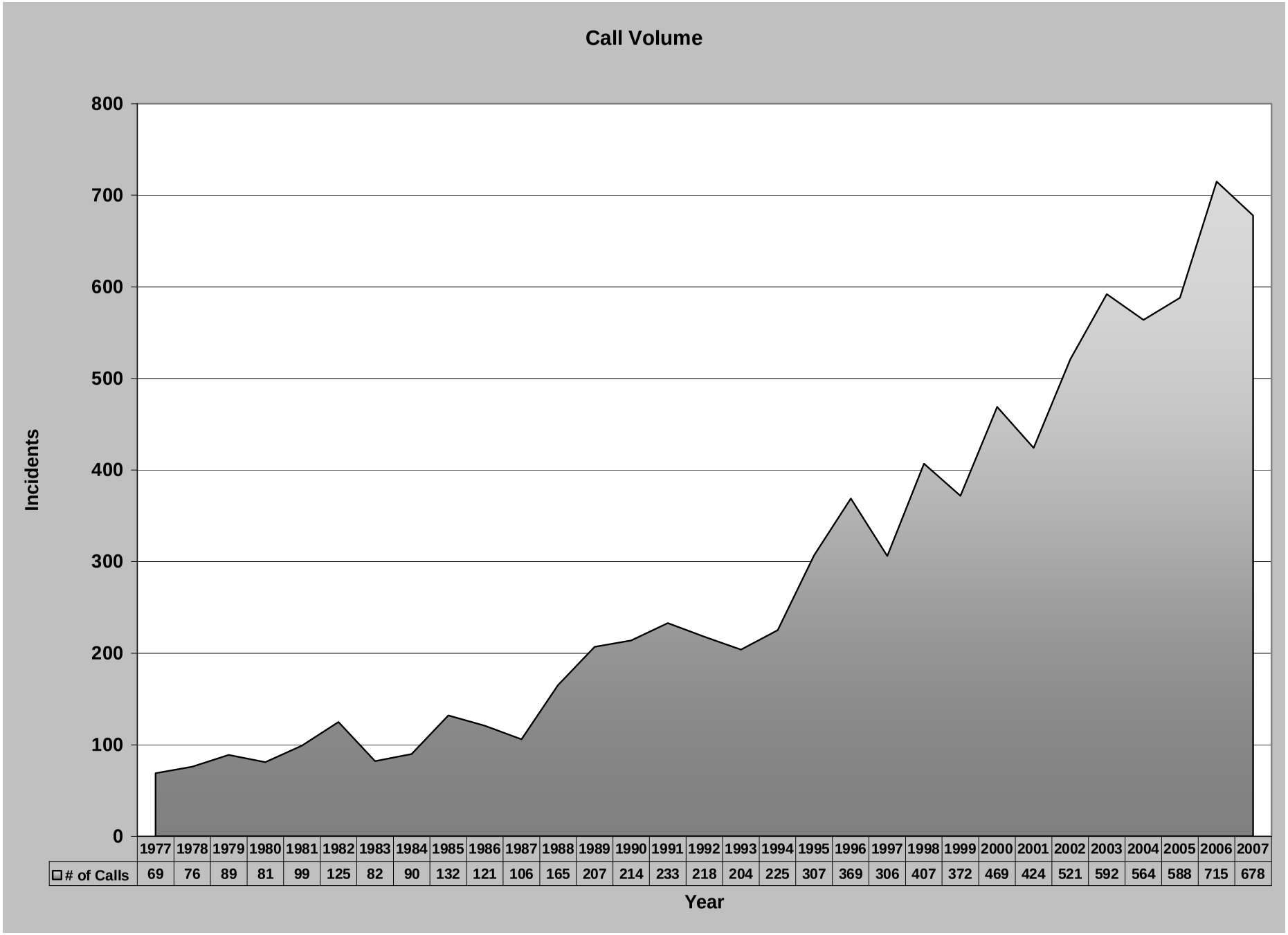
Service Delivery

Call volumes have been tracked for the last 30 years.

Percentage increase in call volumes every ten years

1977-1986	75%
1987-1996	248%
1997-2006	134%

- The increase in volume from 1977 to 2006 was 936%.
- In 2007 there were 678 responses to calls.
- The First Responder program, the single major source of calls, was introduced by the Province in 1989 and added to Salt Spring Island Fire/Rescue responsibilities in 1993.



	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
# of Calls	69	76	89	81	99	125	82	90	132	121	106	165	207	214	233	218	204	225	307	369	306	407	372	469	424	521	592	564	588	715	678

Response volumes

The number of incidents requiring response has increased over the past seven years. First Responder calls virtually doubled and Motor Vehicle Incidents are up. On average there were 62 fire calls per year within a range of 41 to 87.

Number of Responses

Response Type/Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Fire (Structure, Chimney, Bush, Grass, Vehicles, Boats & Appliances)	67	87	69	56	53	64	41
First Responder	139	148	151	189	233	233	272
Motor vehicle incidents	41	48	64	51	44	63	51
Complaints	66	117	156	110	97	120	96
Alarms							67
Other*	154	121	152	158	161	235	151
Total	467	521	592	564	588	715	678

*Other includes alarms, Hazmat, hydro, miscellaneous

Response Times

Response times were tracked (using the radio voice recording system) from May 3 - September 11, 2007. Incidents requiring a crewed Engine (minimum crew of 4 recommended) response were analyzed. A total of 75 calls were documented. The average response times are as follows:

- Average response time to roll an engine – 4 min, 41 seconds
- Average arrival time in an Engine – 8 min, 21 seconds
- Average Engine crew – 2.87 fire fighters (i.e. below minimum standard of 4)
- In 26 of the 75 incidents, there was no response from an Engine crew as there were not sufficient volunteer response numbers to roll an engine.

The tracking results show that there is a serious deficiency in the number of volunteers responding to incidents requiring an engine crew. While the average response times appear impressive, had the Engine remained at the hall until a full crew turnout, the times would have been considerably slower.

The Operations section of the Strategic Plan includes time trial results for typical response routes. These results establish travel times that when added to projected average turnout times and typical dispatch times, determines the total response time experience that can be compared to response time targets. Time trials were completed by two volunteer fire fighters, both with extensive driving expertise using `an Engine without sirens or flashing lights, during low season traffic.

Response Time Comparisons

The National Fire Protection Association (NFPA) is the recognized professional association that develops recommended standards, guidelines and best practices for fire and rescue services.

While guidelines produced by the NFPA are not mandatory, they are a valuable information reference based on data analysis and extensive experience. Response time guidelines provided by the NFPA are based on the time/temperature relationship and the fire propagation curve. Simply put, the sooner a team responds to a fire, the lower the risk of death or injury and the lower the extent of property loss.

The NFPA minimum response standards differ between fire hall zones. NFPA presents standards as urban, suburban, rural, and remote, as follows,

- Urban: (>1,000 residents/sq mile); 15 staff in 9 minutes 90% of the time
- Suburban: (500 – 1,000 residents/sq mile); 10 staff responds in 10 minutes 80% of the time. This standard would apply to the immediate Ganges Village area.
- Rural: (< 500 residents/sq mile) 6 staff respond in 14 minutes 80% of the time
- Remote: (> Travel 8 miles) No standards established due to the high variability in degrees of "remoteness"; 4 staff respond

Response time standards are comprised of three stages,

- Dispatch (i.e. Dispatch centre emergency call receipt to dispatch page): 1.0 minute. Fire/Rescue meets this standard.
- Turnout (i.e. Dispatch page time to leaving fire hall with vehicle): 1.0 minutes. Fire/Rescue does not meet this standard with Volunteers for Fire Hall #1. The estimated turnout time is 5.0 minutes, 4.0 minutes above the standard.
- Travel (i.e. Fire hall to incident location): The number of minutes for travel time varies with the designation (e.g. Rural would be 12.0 minutes for a total response time of 14.0 minutes)

The table below provides the results of trial runs conducted in October 2006 from each of the three fire halls to named areas. Combined Dispatch and current estimated Turnout time totalling 6.0 minutes have been added to Total Response Time. The time trial tests were conducted driving efficiently but routinely in daytime traffic. Code 3 response times would be reduced.

Response Time Trial Results

Fire Hall Origin	Travel Time	Total Time (+6.0 min. Dispatch/Turnout)
Fire Hall #1 to…		
- Fire Hall #3	5:40	11:40
- Whims Rd/ North End	9:18	15:18
- Fernwood/ North End	9:55	15:55
- North Beach/ North End	13:55	18:55
- Fernwood Dock	11:10	17:10
Bowling Alley to…		
- Fire Hall #3	3:40	9:40
- Whims/North End	7:18	13:17
- Fernwood/North End	7:55	13:55
- North Beach/ North End	11:55	17:55
- Fernwood Dock	9:10	15:10

Fire Hall #1		
- Cusheon Lake/Fulford Ganges	4:45	10:45
- Stewart Rd/Cusheon Lake	7:15	13:15
- Stewart/ Jasper	9:35	15:35
- Jasper/ Jennifer	10:49	16:49
- Stewart/ Beaver Point	11:50	17:50
- Bullman/ Beaver Point	13:50	19:50
- Bridgeman/Beaver Point	16:30	22:30
- Forest Ridge/ Beaver Point	18:05	24:05
- Dukes Rd.	6:35	12:35
- Hall #2	11:40	17:40
Fire Hall #2		
- Isabella Pt/ Fulford Ganges	0:50	6:50
- Isabella Pt/ Musgrave	1:40	7:40
- Isabella Pt./ Mountain	6:00	12:00
- Musgrave/Dubois	4:45	10:45
- Beaver Pt/ Stewart	5:45	11:45
Fire Hall #3		
- Broadwell/Vesuvius	2:53	8:53
- First Channel Ridge Gate	6:04	12:04
- Sunset/Channel Ridge Dr.	6:02	12:02
- Southey Point	13:17	19:17

Recommendation: Response Times

- Establish Response Time Targets Matched to Identified Zones

The Plan proposes the separation of response times into three response zones with defined response time targets:

- Zone #1: Ganges, Dukes Rd north to Central
- Zone #2: Fulford Dukes Rd south
- Zone #3: Central north

The recommended response time targets approach the National Fire Protection Association (NFPA 1720) recommended rural standards for communities to strive to achieve and maintain as they grow. NFPA standards are neither mandated nor legally required.

It is important to note that response time "targets" are targets and not implied guaranteed service levels. Response times can be adversely affected by a number of factors, including other incidents in progress, weather, road conditions, road construction, and the location of the incident (e.g. terrain, access).

Allocation of time for a 14.0 minute response target time is presented as follows, based on Fire/Rescue's current largely volunteer staffing model,

- Dispatch (i.e. Dispatch centre call receipt to dispatch page): 1.0 minute
- Turnout (i.e. Dispatch page time to leaving fire hall with vehicle): 5.0 minutes
- Travel (i.e. Fire hall to incident location): 8.0 minutes

Target Response Times by Zone

Zone Number/Response Target By Zone	Fire/Rescue Target Response Times	NFPA Minimum Response Standards
Zone #1 Ganges, responds to all zones	6 staff respond in 14 minutes 80% of the time	Suburban (500 – 1,000 residents/sq mile): 10 staff respond in 10 minutes 80% of the time
Zone #2 Fulford, back-up Ganges, Central, all structure fires, other incidents as required	6 staff respond in 14 minutes 80% of the time	Rural: 6 staff respond in 14 minutes 80% of the time Remote: > 8 miles; no set response times due to variables (4 Staff)
Zone #3 Central, back-up Ganges, Fulford, all structure fires, other incidents as required	6 staff respond in 14 minutes 80% of the time	Rural: 6 staff respond in 14 minutes 80% of the time Remote: > 8 miles; no set response times due to variables (4 Staff)

Within the 10 year time period of the Strategic Plan, the one square mile area of Ganges may have more than 1,000 residents qualifying this area for the NFPA urban response standard, which is 15 staff in 9 minutes, 90% of the time.

Zone & Neighborhood Coverage by Fire Hall

Fire Hall Number & Name	Zone Number & Primary Area Served (Note: Major incidents require vehicles from several fire halls to respond)
Fire Hall #1 Ganges, Fulford & Central	Fire Hall #1 responds to all incidents; volunteers respond directly to Fire Hall #1 and/or directly to the incident with or without emergency vehicles depending on their proximity to the location.
Fire Hall #2 Fulford	Volunteers respond directly to the incident with or without emergency vehicles depending on their proximity to the location; Fire Hall #1 responds.
Fire Hall #3 Central	Volunteers respond directly to the incident with or without emergency vehicles depending on their proximity to the location; Fire Hall #1 responds.

Capital Assets & Staff Resources

Fire/Rescue services are achieved by 30 volunteers, led by a career Fire Chief and supplemented by an Administrative Assistant and five additional career fire fighters: a Deputy Chief, Assistant Chief, Training Officer/Captain, a Captain and a Fire Fighter. In addition to incident response, career staff carry out a wide range of administrative duties including training, public education, inspections, vehicle, equipment and facility maintenance and other general day to day operations required to support a volunteer force.

Fire Hall #1: Ganges

- Fire Hall #1 located at 105 Lower Ganges Road opened in 1960. As the primary response hall, a crew from Fire Hall #1 responds to all structure fires and major incidents. Fire Hall #1 is at the end of its lifecycle and is obsolete. Despite several renovations its emergency vehicle parking, storage, maintenance, training facilities, and parking for fire fighters are all inadequate. Access and egress are poor. In a formal assessment carried out

in 2005, it was judged not structurally adequate to safely withstand current 1998 B.C. Building Code seismic loads for a post-disaster building. Good facilities are a proven factor in contributing toward retaining and attracting volunteer fire fighters.

Vehicles:

- Engine #1
  - 2003 E-One Typhoon
  - 1250 gpm pump
  - 700 gallon water tank
  - Crew capacity: 8
- Tender #1
  - 2000 Superior Freightliner
  - 400 gpm pump
  - 1500 gallon water tank
  - Crew capacity: 3
- Mini Pumper #1
  - 1994 Pierce Ford
  - 400 gpm pump
  - 200 gallon water tank
  - Crew capacity: 3
- Rapid Response Support Vehicle (Used by Duty Officer)
  - 2005 Ford Excursion
  - Crew capacity: 5
- Support Vehicle (Used for support and fire prevention)
  - 2006 Dodge 4x4 pick-up
  - Crew capacity: 5
- Rapid Response Support Vehicle (Used by Fire Chief)
  - 2002 Ford Explorer
  - Crew capacity: 5

Recommendations: Fire Hall #1:

- Acquire suitable land in 2008.
- Commence construction of a new Fire Hall #1 as soon as possible following land acquisition.

[Note: Preliminary work is underway to fulfill this recommendation. Three properties are being considered, see Property Comparison Matrix, **Appendix E**, p. 51, and a search continues for additional properties to consider. The building cost was estimated at $3.0 million in 2006, with additional systems and furnishings bringing the total to $5.6 million. It is anticipated the current Fire Hall #1 property would be sold, with proceeds of the sale used to partially offset new fire hall construction and fit-up costs. A temporary borrowing bylaw has been discussed, pending property selection. A referendum will be held before proceeding.]

Fire Hall #2: Fulford

Fire Hall #2 located at 2470 Fulford Ganges Road became operational in 1982 and primarily serves the southern portion of the island. Hall #2 responds to paged dispatch calls primarily with

volunteers living and/or working in the area. Manpower permitting, Hall #2 provides assistance with Tender #2 in areas not serviced by hydrants anywhere on the island, and its Engine #2 responds automatically to any structure or interface fire on the island as well. Hall #2 is equipped with a second set of extrication equipment for use in automobile and other accidents. Hall #2 has not had a seismic assessment to determine whether it is likely to withstand or be useable in the event of an earthquake.

Staff:

Volunteers are paged through the dispatch system to respond to incidents. If insufficient volunteers respond to the initial page, an additional page is made. If more volunteers respond to a page than are required, some will be instructed to stand down or stand by at their respective fire hall to provide back-up coverage in case of a second incident.

Vehicles:

- Engine #2
  - 1997 Superior Freightliner
  - 1050 gpm pump
  - 1000 gallon water tank
  - Crew capacity: 3
- Tender #2
  - 1994 Freightliner
  - 400 gpm pump
  - 1500 gallon water tank
  - Crew capacity: 3
- Mini Pumper #2
  - 1994 Pierce
  - 400 gpm pump
  - 200 gallon water tank
  - Crew capacity: 3
- When additional vehicle capacity permits, it is planned to move Engine #3 to Hall #2 for emergency response, fire fighter training, and response coverage of vehicles out of service due to scheduled maintenance. At this time there is insufficient shelter to accommodate Engine #3 at Hall #2.

Recommendations: Fire Hall #2:

- Carry out a seismic assessment of Hall #2.
- Construct a vehicle shelter for Engine #3 at an estimated cost of $50,000 prior to moving it to Hall #2.

Fire Hall #3: Central

Fire Hall #3 located at 110 Vesuvius Bay Road was constructed in 1994 and primarily serves the north end of the island. Volunteers are paged through the dispatch system to respond to incidents. Volunteers relatively close to Hall #3 respond to that hall and may be supplemented by volunteers from further away. Depending on the location of the new Fire Hall #1, Hall #3 may become redundant in its present location.

Staff:

Hall #3 is served by volunteer fire fighters, principally from the area near the hall. If insufficient volunteers respond to the initial page, an additional page is made.

If more volunteers respond to a page than are required, some will be instructed to stand down or stand by at their respective fire hall to provide back-up coverage in case of a second incident.

Vehicles:

- Engine #3
  - 1992 Pierce Dash
  - 1050 gpm pump
  - 700 gallon water tank
  - Crew capacity: 6
- Tender #3
  - 1986 Anderson International
  - 250 gpm pump
  - 1500 gallon water tank
  - Crew capacity: 3

Fresh Water Rescue Boat (Stored at Fire Hall #3)

- 2004 12' Zodiac
- 15 HP Honda motor
- Crew capacity: 2

In 2008, it is planned to put a computer work-station in each of Hall #2 and Hall #3 enabling staff or volunteers easy access to the computer system at Hall #1.

Vehicles and Equipment Status

Minor office and fire fighting equipment and infrastructure funding is available for Fire/Rescue through a $39,000 self-administered operating budget line. This approach works well for purchase of new or replacement minor capital equipment.

Vehicle capital budget items are recommended according to a replacement cycle for vehicles, consistent with Fire Underwriters Survey and NFPA guidelines as follows:

- Engines: 20 years for front line, plus 5 years in reserve
- Tankers: 20 years for front line, plus 5 years in reserve
- Dual Purpose (Light Attack Vehicle): 15 years for front line, plus 5 years in reserve
- Rapid Response Support Vehicle*: 5 years (~12,000 km/yr, best resale/trade-in value)
- Boat: 20 years

* While the lifecycle for support vehicles is set at 5 years for budget purposes, each vehicle will be evaluated on an individual basis at the scheduled replacement date. Support vehicles will be replaced or have their life extended based on annual evaluations beyond their scheduled replacement date.

Recommendations: Vehicles & Equipment (Costs are estimated in 2006 dollars)

- 2008 – Rapid Response Support Vehicle: Purchase a Support Vehicle at an estimated total cost of $70,000 (inclusive). This vehicle would replace the Fire Chief's Support Vehicle (2002) as part of the lifecycle schedule.

- 2009 – Two Dual Purpose Vehicles #1 & #2: Purchase two Dual Purpose vehicles at an estimated total cost of $400,000. These vehicles are used for smaller incidents and incidents with challenging access and would replace the two Mini response vehicles (1994) as part of the lifecycle schedule and address the overweight issue with the current Minis.
- 2010 – Rapid Response Support Vehicle: Purchase a Support Vehicle at an estimated cost of $70,000 (inclusive). This vehicle would replace the Duty Officer's Support Vehicle (2005) at Fire Hall #1 as part of the lifecycle schedule.
- 2011-Rapid Response Support Vehicle: Purchase a Support Vehicle at an estimated cost of $70,000 (inclusive). This vehicle would replace the current Support Vehicle (2006) at Fire Hall #1 as part of the lifecycle schedule.
- 2012 – Engine #3: The purchase of a Quint (see following item) will provide an enhanced service response to the extent that it will not be necessary to replace Engine #3 with a similar unit. Engine #3 will move to Hall #2 for reserve emergency response, fire fighter training, and response coverage of vehicles out of service due to scheduled maintenance. Engine 1 will move to Hall 3 to replace Engine 3.
- 2012 - Quint: Purchase a Quint for the new Fire Hall #1 at an estimated cost of $1.0 million. This multi-purpose vehicle will have a ladder capability (75') to respond to three story buildings and those buildings with three stories built on a downward slope requiring a ladder length beyond three stories.
- 2013 - Support Vehicle: Purchase a Support Vehicle at an estimated total cost of $70,000. This vehicle would replace the Fire Chief's Support Vehicle (2008) as part of the lifecycle schedule.
- 2014 – Tender #2: Purchase a replacement Tanker #2 (1994) at an estimated cost of $300,000 as part of the lifecycle schedule.
- 2015 – Rapid Response Support Vehicle: Purchase a Support Vehicle at an estimated cost of $70,000 (inclusive). This vehicle would replace the Duty Officer's Rapid Response Support Vehicle (2010) as part of the lifecycle schedule.
- 2016-Rapid Response Support Vehicle: Purchase a Support Vehicle at an estimated cost of $70,000. This vehicle replaces Support Vehicle (2011) at Fire Hall #1 as part of the lifecycle schedule.
- 2017 – Engine #2: Replace Engine #2 following its 20 years of service at a 2007 dollar cost estimate of $500,000.
- 2018 - Support Vehicle: Purchase a Support Vehicle at an estimated total cost of $70,000. This vehicle would replace the Fire Chief's Support Vehicle (2013) as part of the lifecycle schedule.

Training

Background

The Assistant Chief is the Training Branch Manager, with a Captain to assist, who fills the role of Training Officer. The training branch schedules and oversees the training of 6 career and 30 volunteer fire fighters. Training is carried out annually at the three fire halls and with each Fire/Rescue vehicle.

Due to the diverse nature of fire fighter responsibilities and the associated occupational risk, it is important that fire fighters receive training that provides and maintains the necessary skills to perform their duties safely and efficiently.

Training is also important from a legal perspective. Actions of the fire service are being subjected to increased legal scrutiny; lawsuits are increasingly being filed against fire services. Fire and rescue services minimize liability claims through well-developed training programs that meet mandatory legislated requirements and professional standards.

Both career and volunteer fire fighters receive training to the same standard. Training includes theory, with tests administered, and physical skill acquisition through practice in simulated situations. There are three training categories,

- Initial Training: Volunteer fire fighters receive an initial series of training courses that meet legislated and National Fire Protection Association (NFPA) training requirements.
- Maintenance Training: On a scheduled basis, career and volunteer fire fighters receive training and skill practice to ensure knowledge and skills levels are current and updated.
- Training for Specialty Teams: Special training is provided to some fire fighters for special situations such as auto extrication, hazardous materials, rope rescue, confined space rescue, and water rescue.

Volunteers train weekly for 3 hours on Tuesday nights (i.e. drill night) with extra certified courses offered on weekends. Fire Underwriters Survey (FUS) recommendation 10.9.2.D, attendance requirements have established new minimum standards of 100 hours of training per year and are reflected in Operating Guideline (OG) 3.06.01. Responding to FUS recommendation 10.9.2.B, the BC Fire Fighter Modular Program was started in late 2006. This program allows fire fighters to work towards receiving NFPA 1001 Fire Fighter Level I and II certification.

Fire/Rescue has revamped their fire fighter recruitment program to meet FUS recommendations 10.9.1.A and 10.9.1.C. Starting in 2007 all new fire fighters began training to NFPA 1001 standards and take part in the BC Fire Fighter Modular Program. All weekly drills have mandatory attendance requirements, and if a recruit is unable to attend for reasons beyond their control that drill session must be made-up prior to starting the next training module.

Annual Training Hours

Year	Drill Night	Optional	Total Hrs	# Members**	Average/Person
2004	3612	3751	7,363	41	180 hrs
2005	3910	3399	7,309	43	170 hrs
2006	4236	3389	7,625	44	173 hrs
2007	4256	3066.5	7,689	41	187 hrs

**Number of members exceed volunteer compliment to include those who joined

Over the years, Fire/Rescue has provided more specialized rescue training for emergency situations including, Auto Extrication, Hazardous Materials, Rope Rescue, Confined Space Rescue, and Water Rescue. Each specialty has its own regulations laid out in NFPA 1670 and has guidelines on the numbers of fire fighters that need to be trained in each discipline and the levels within those specialties.

Specialty Rescue Teams: Number of Staff Required, In Place by Level

Specialty Teams	Awareness Level: Need	In Place: Have	Operations Level: Need	In Place: Have	Technician Level: Need	In Place: Have	Team Training Schedule
Auto Extrication	Dept Wide	All	12	12	1	0	Drill Night + Weekends
Hazmat	Dept Wide	16	8	10	1	0	Weekends + (CRD)
Rope	Dept Wide	19	12	0	1	0	Drill Night + Weekends
Confined Space	Dept Wide	0	8	0	1	0	Weekends
Water	Dept Wide	20	8	0	1	0	Weekends

Ongoing skills maintenance training maintains skill proficiencies as necessary, but not less than once a year. Further training is delivered when there is a change in technology or there has been a change in operating guidelines.

The major obstacles to the provision of complete and effective training programs are space and enabling training related equipment, notably,

- Space: Training space and classroom meeting space is inadequate. FUS recommendation 10.9.4.A indicated the need for a proper training facility that allowed for both classroom and practice space and equipment. Currently,
    - Fire Hall #3 office area does not have the sufficient space to set-up a classroom.
    - Fire Hall #2's office area has been converted to live-in quarters.
    - Fire/Rescue has tried to use the truck bays in the past, but it takes time out of training for set-up and tear-down as the trucks can not stay outside overnight.
    - Storage of tables and chairs is an issue when not in use as truck bays offer no additional storage room.
    - On drill nights, Fire/Rescue normally has three separate training sessions taking place at the same time; insufficient space is available.
    - At present, platoons must try to cram into the current close quarters training area, or simply do without when it comes to certain training topics.
    - At present, specialty training requires periodic off island trips to more specialized training facilities.

- Training Equipment:
    - Audiovisual equipment is inadequate for present requirements
    - Fire/Rescue has three lap-top computers and three digital projectors; this needs review and probably expansion for multiple training sessions.
    - Long out-dated training videos presently used for drill sessions are inadequate to support training in current practices

A complete training ground including, fully stocked classrooms, SCBA/RIT trailers, confined space props, auto extrication pad, drafting pit, foam pit, and live fire props such as vehicles, LPG tanks, ground fires, dumpster fires and a burn building would enable a complete range of training programs to be efficiently conducted. Adequate external space would allow for hose layout and set-up drills, as well.

It is expected that the investment in this training facility will substantially pay for itself over time due to travel, per-diem and hourly cost savings gained from not sending volunteers and career staff off-island. (See training cost comparison sheet – Appendix F. p. 52.).

Lowering demands for time spent in off-island training will have a corresponding positive impact on volunteer retention by reducing time required to be taken from family and other pursuits. The standard to which the facility will be constructed will result in a far more environmentally favourable training facility.

Recommendations: Training

- Construct an improved and expanded training ground in 2008, ideally on the existing property of Fire Hall #2 to enable local area practical experience training for staff and volunteers. The estimated cost is $500,000. If permission is not received to proceed on existing land at the site of Hall #2, an alternative site will be required and land costs incurred.

- Purchase audiovisual equipment meeting current standards as well as current software and classroom materials to support training program delivery.

Additional Responsibilities & Challenges

Wild Land Interface

The majority of residences and many commercial properties border on wild lands and have the potential for adjacent wild land fires. The wild land interface fire risk is substantial and there have been periodic incidents and near-misses in the Gulf Islands.

Topography, wind, and generally dry summer climatic conditions contribute to the high risk. Expanding community development into and adjacent to, wild land areas further increases the risk.

Fire/Rescue has responded to the wild land interface fire risk through public education and providing Fire Smart and regulatory input to land development and construction permitting processes. It is important to note the wild land interface fire risk is a community-wide challenge that requires community-wide participation in risk mitigation.

Hazardous Materials (Hazmat)

The amount and variety of Hazmat requires both initial and ongoing upgrade staff training to the operations level for safe and effective response.

High Buildings

NFPA 101 defines a high-rise building as a building or reach requirement of more than 22.5m (75 ft.) in height where the building height is measured from the lowest level of fire department vehicle access to the floor of the highest occupancy. While Salt Spring Island does not allow buildings approaching this type of height and is unlikely to do so, topography and ladder reach

from down slope emergency vehicle location to the building roof level can be substantial and the distances can be greater than existing capacity.

As Salt Spring continues to grow it is expected that more buildings with topography causing down slope reach to the building roof to exceed existing capacity will be constructed. There will be a corresponding larger number of people exposed. The FUS report noted this evolving requirement as development progressed and stated in its recommendation 10.2.A "… an aerial ladder fire truck is not required on SSI at this time due to the current profile of building structures that are present; however depending on the profile of future growth, including the Channel Ridge development, an aerial ladder truck may be deemed required in the future."

Specialty Rescue

Teams have been created and trained for specialized responses. Operational guidelines are in place. Continual training is required to provide sufficient numbers of trained volunteers, and the appropriate level of training.

- Auto extrication
- Rope rescue
- Confined space rescue
- Water rescue
- Hazardous materials (i.e. Hazmat)

Regulatory and Risk Management Challenges

Fire/Rescue operates within the provisions of a regulatory framework initiated by federal and provincial governments and agencies (e.g. BC Fire Service Act, BC Fire Code, Provincial Emergency Plan) and Work Safe BC.

This mandatory framework is supplemented by recommended guidelines provided by several well recognized professional bodies such as the National Fire Protection Association and Fire Underwriters.

The Fire Protection District relies on a mixture of bylaws and other initiatives to ensure and encourage public safety:

- Burning Bylaw: Outlines open air burning, incinerators and the permit process.
- Wild Fire Act: Regulations specify minimum clearances from structures for burn piles and what materials cannot be burned.
- Open Burning Smoke Control Regulations: Regulations limiting burning times based on specified weather conditions favourable to adequate smoke venting.
- Subdivision Application Review: Through the Islands Trust, Fire/Rescue provides comments to the Ministry of Transportation on subdivision access, egress, turning radius, water supply, hydrants, road grade, wild land space buffers, and road width.
- Building Permit Application Review: Through the Capital regional District, Fire/Rescue provides comments on grade, road width, and fire related provisions of the Building Code
- Restrictive Covenants: Through the Islands Trust, Fire/Rescue provides input to Restrictive Covenants on development applications on appropriate roofing material, siding, fire resistant plants, screening of eaves, decks and openings to minimize accumulation of combustible material.

Within this context, Fire/Rescue faces significant challenges in enforcement. While the Board of Trustees of the Salt Spring Island Fire Protection District can approve bylaws, Fire/Rescue has no direct ability to enforce bylaw provisions through fine levies. Enforcement is only possible by referral of the infraction to the appropriate ministry for action. Examples include,

- Burn Permit infractions
- Venting machine pile fires
- Inability to levy additional fees for multiple re-inspections
- Inability to levy fees for hazardous material spill or damage cost recovery
- Correcting inspection deficiencies through the Office of the Fire Commissioner, not through local bylaws. The process is slow for a community not designated as a municipality.
- False alarms

Depending on the bylaw, enforcement is referred to the Ministries of Environment, Transportation or Community Services. In the absence of an enforcement mechanism, Bylaws serve only for education and encouragement.

The inability of Fire/Rescue to enforce fire bylaws is a significant safety concern for Salt Spring Island residents and visitors. Normal dangers in this regard are substantially magnified during the annual, prolonged dry season experienced here.

Recommendations: Bylaw Enforcement

- Fresh effort should be brought to bear on the Province and the CRD to improve fire safety conditions for residents and visitors on Salt Spring Island by delegating to Fire/Rescue the ability to enforce fire bylaws through the levy of fees and fines.
- Should this effort fail, the SSIFPD should take every possible step to alert the community to the lack of enthusiasm on the part of the Province and the CRD to successfully assist with a solution in this regard.

Management & Staff

Salt Spring Fire/Rescue relies principally on volunteer fire fighters, directed by a career Fire Chief and backstopped by five additional career fire fighters and an administrative assistant. The Fire Chief and Deputy Fire Chief are exempt from union Local 4467 of the International Association of Fire Fighters that embraces the other career fire fighters. It is anticipated that wage parity with the Saanich Fire Fighters will serve as a model at the end of the current contract in 2010.

The Fire Chief has established standards for new hiring within the Salt Spring Island Fire Protection District. All new members hired by the District must achieve the following benchmarks within a set time frame:

- First Responder Instructor with AED and Spinal Certification
- Fire Officer I through the Justice Institute
- Fire Officer II through the Justice Institute
- Fire Officer III through the Justice Institute

- NFPA Inspector Level I through the Justice Institute
- NFPA Plan Examiner through the Justice Institute
- Fire & Life Safety Educator I and II through the Justice Institute
- Fire Service Instructor I and II through the Justice Institute
- LAFC certification through the Office of The Fire Commissioner

The goal for Fire/Rescue is to have everyone equally trained for optimal service delivery, coverage, and succession purposes. In addition to initiatives of the Fire Chief, members are invited to bring education opportunities to the Chief for approval.

<u>The volunteer character of SSI Fire/Rescue is in jeopardy.</u>

Maintaining, strengthening and building the volunteer character of Fire/Rescue while continuing to improve its level of service is the most significant challenge posed in the development of this Plan.

There is no substitute for staff resources. As this Plan moves forward, if it is not possible to maintain, strengthen and build our core of volunteer fire/rescue workers, it will be necessary to change to a predominantly career fire/rescue service, supplemented with volunteers. As career staff are added, this would become very costly.

Alternative measures to meet this challenge are on the anvil to be thoroughly tested in the next two years.

A number of factors complicate this issue.

- Incident volumes have grown substantially in the past 20 years. The number of volunteers responding is declining. The decline in response to incidents is in part because it is increasingly difficult for volunteers to take time from their employment for emergency response during their normal working hours.

- As demands on their time grow, it is increasingly difficult to retain current volunteers and to attract additional volunteers. Training requires a minimum of 100 hours annually, completed every Tuesday evening for three hours and on some weekends. The commitment required for training and the demands of an increasing number of emergency calls compete for time with family activities, work and other responsibilities.

  During 2007, volunteer fire fighters put in a total of 11,617 hours. Of that total, the ten most active volunteers put in 4,619 hours, or 40%. 43 volunteers put in an average of 270 hours each. Discounting for the 6 members on leave during this period and the three radio operators who logged only 26 call hours, the average per volunteer fire fighter was 341 hours, similar to 2006. In five years the average hours per volunteer has almost doubled from a level of 185 hours in 2002.

- At about 75 square miles and a population nearing 10,000, the island constitutes the largest Fire Improvement District in B.C. The size contributes to correspondingly long volunteer response times, uncertainty about the number volunteers responding and increased risk due to extended response times.

- Far from being simple or unique to Salt Spring, the difficulties of retaining and building the compliment of volunteer firefighters is North America wide. Recent studies include: "Volunteer Firefighter Recruitment and Retention in Rural Pennsylvania, May 2006"; "Retention and Recruitment for the Volunteer Emergency Services, Challenges and Solutions, U.S. Fire Administration, (Second Edition) 2007"; a 2007 on-line virtual forum presentation on "Retention and Recruitment for the Volunteer Emergency Services".

- Can the trend in declining volunteerism be reversed? Some departments that have taken steps to deal with the problems have seen a resurgence in volunteerism. This suggests that many of the problems can be mitigated or eliminated if proper attention and resources are given to them.[1]

SSIFR Volunteer Membership Statistics – 2002 through 2007:

- Membership has fluctuated at around 40 volunteer Fire Fighters for the past five years.
- As of January 2008, SSIFR had only 31 Volunteer Fire Fighters, and two probationary Fire Fighters. Of this number, 28 are active and three are on general or medical leave.
- Nine long serving members left the department over the past five years.
- During the last five years SSIFR lost twenty-one recruits with less than one year of probation and six with two years service.
- Most common reasons for resignation are: work constraints, cost of living (moving off island) and time commitment.
- Each volunteer must maintain a minimum of 100 training hours per year to remain a well-trained fire fighter.
- As of January 2008, the average length of service of volunteer fire fighters was 7.3 years. 13 volunteers from our current membership (42%) have less then five years experience as fire fighters.
- Seven years of service are presently required to become an SSIFR Department Officer. In 2000 the average officer had between 10-15 years experience.
- For the year 2006, 16 of our members logged less than 50 call hours. Department average for 2006 was 124 call hours per fire fighter.

Volunteer fire emergency responders typically join to help others. Over time, other factors enter into why they stay. One study found that the top eight reasons for active firefighters to stay on the job were altruism, skills, thrills, work environment, management, social relations, material issues and recognition.[2] Leadership and management quality, skill development, quality of the work environment and altruism were emphasized as important factors.

Financial benefits are not the primary reason why individuals choose to become and remain volunteer firefighters, but they are not negligible as retention factor. A sense of giving back to the community and camaraderie are more important than payment.

[1] Retention and Recruitment for the Volunteer Emergency Services: Challenges and Solutions, US Fire Administration

[2] Volunteer Firefighter Recruitment and Retention in Rural Pennsylvania, May 2006

Public recognition and appreciation are fundamentally important.

A personal one-on-one approach has been found to be the best recruitment method and the importance of recruiting from all groups in the community has been noted.[3] Laying the foundation for and starting recruitment with young members of the community is fruitful. The school programs participated in by Fire/Rescue are important in this regard.

The ability to retain volunteer firefighters is influenced by the support of family and satisfaction with the fire company's leaders.[4]

Volunteer fire fighters on Salt Spring Island receive a 'points payment' of $12/hour for each hour spent in training and responding to calls. Of this amount, $3 is given to the Salt Spring Island Volunteer Firefighters Association for use in various ways, in particular those that benefit the community through charitable and other community activities. The 'points payment' level on Salt Spring is extremely modest compared to other departments. For example, in Chemainus, volunteers receive $18/hour in points payment with no association fee.

Recommendations: Staff Resources

- With increased effort, in consultation and cooperation with volunteer fire fighters and career staff, take every possible step to maintain, strengthen and build Fire/Rescue as a predominantly volunteer-based composite service. In a general climate of weakening of volunteer fire/rescue services across North America this will require fresh and imaginative efforts for success on Salt Spring.

In 2008, benefiting from studies and experience elsewhere, as well as the view of volunteers and staff, various alternative approaches will be discussed and agreed for testing with the earliest possible start. In doing so, full credit is given to the Chief and his career and volunteer colleagues for the foundation that has been laid for fresh initiatives and for the experience they bring to the table. Much has been accomplished in the past. What is needed is a renewed commitment on the part of the Board of Trustees, the business community and the community at large to work with the SSIFPD to address critical needs of volunteer fire fighters.

Initiatives and alternatives to be explored in the immediate future – individually and in combination – include:

- Determine and implement ways to increase community awareness of and appreciation for volunteer fire fighters.
- Critically examine potential leadership initiatives.
- Increase hourly 'points payment' for training, services and response to calls.
- Paid-on-call benefits for some/all services.
- Social benefits – RESP contributions; dental plan; RRSP contributions.
- Increase primary school presentations.
- Increase the number and quality of presentations at high school level; to the Scout organization and similar places where young people at or approaching 18 years of age are likely to be present.

[3] EIIP Virtual Forum Presentation, September 2007.
[4] Volunteer Firefighter Recruitment and Retention in Rural Pennsylvania, May 2006

- As volunteers, particularly on a one-one-basis have generally been found to be the most effective recruiters, work with our volunteers to determine what actions Trustees might take to improve and backstop their recruitment efforts.
- Critically examine whether it is possible to reduce or otherwise adjust the volume of calls involving all or large numbers of volunteers.

It will be necessary to monitor progress closely. If, in spite of all efforts to the contrary, it is not possible to maintain and strengthen the volunteer character of the department it will be necessary to increase the career component of Fire/Rescue.

To improve incident response times without additional career staff will demand both success in the overall volunteer effort and considerable extra initiative and effort.

If a transition is required to a predominantly career fire/rescue service, supplemented volunteers, the transition could be gradual or rapid, according to whether it is determined to maintain present service levels or to increase them.

One model for an alternative to a primarily volunteer department would be full time staffing of Fire Hall #1 with 4 person coverage, 24 hours per day, year-round. Volunteers would still play important roles, by no means simply to cover periodic absences of career staff. Volunteers would continue to respond to all three fire halls for major incidents and to incidents in the areas of Fire Hall #2 and Fire Hall #3. 24/7 staffing of Hall #1 would greatly enhance Fire/Rescue performance and would greatly facilitate the achievement of NFPA recommended response time targets.

While the cost of such a transition is substantial, the benefits in terms of improved service are also substantial.

- The 14.0 minute response time target would be improved by ~4.0 minutes through decreased turnout time; staff would be available at Fire Hall #1 to begin immediate turnout. The 4.0 minute gain would mean response would be faster and the distance reached within the 12.0 minute travel time would be extended.
- Allocation of time for a 14.0 minute response target time is presented as follows, based on Fire/Rescue's current largely volunteer staffing model,
    - Dispatch (i.e. Dispatch centre call receipt to dispatch page): 1.0 minute
    - Turnout (i.e. Dispatch page time to leaving fire hall with vehicle): 1.0 minute (from 5.0 minutes)
    - Travel (i.e. Fire hall to incident location): 12.0 minutes (from 8.0 minutes)
- The increasing challenges of attracting and retaining volunteers able to respond would be substantially mitigated
    - Relying on necessarily longer volunteer response times and being unsure of the quantity of volunteers responding would be substantially reduced
    - The ongoing challenge of attracting and retaining an active volunteer base given the substantial and increasing time commitments for training and increasing response volume would be reduced
- Combined with the relocation of Fire Hall #1 to the north of Ganges, career fire fighters would, with the ~2.0 minutes gain from fire hall relocation combined with the ~4.0 minute gain from reduced turnout time, mean that the more densely populated northern area would be provided response times within target. The earlier contemplated fire hall near Channel Ridge as mentioned in the FUS report would be unnecessary.

- While relocation of Fire Hall #1 just north of Ganges will improve travel time by ~2.0 minutes northward, response in a southern direction will be adversely affected by the same ~2.0 minutes. However, given the implementation of the career fire fighter recommendation, the decreased turnout time of 4.0 minutes will result in a net 2.0 minute improvement in response southward.

The Fire Underwriter's Survey (FUS) report anticipated the need for enhanced fire and rescue services for the Channel Ridge development when it reaches full build-out, which is projected to include 1,200 residents. This is projected by the developer to be completed within the next 5 years. Progress will be monitored and the Plan adjusted accordingly

The Plan recommends retaining Fire Hall #3, proceeding with relocating Fire Hall #1 on a property north of Ganges village. If Fire Hall #1 is staffed with career fire fighters (one engine crew of 4 fire fighters 24/7), the response time gain to Channel Ridge will improve by the reduced travel time (~2.0 minutes) and reduced turnout time for volunteers (~4.0 minutes) for an anticipated total response time improvement of ~6.0 minutes.

Compared to current service levels, 24/7, year-round staffing at Hall #1 would:

- Provide significantly improved response times to Channel Ridge such that they are within response time targets
- Avoid the cost of an additional fire hall and costs associated with serving the north east side of the island
- Increase the northward range of residences within the recommended response time target of 14.0 minutes by ~6.0 minutes
- Increase the southward range of residences within the response time target of 14.0 minutes by ~2.0 minutes even with the northward relocation of Fire Hall #1, due to the anticipated 4.0 minute decrease in turnout time with career fire fighters

See Appendix C for Response Time Maps with improved service levels.

Administration & Board of Trustees: Meetings & Process

The administration meets with the Board of Trustees in a public meeting on the third Monday of each month. Interim reports can be presented; working meetings can be held; and if needed, motions presented to facilitate Fire Department/District work between public meetings.

Costs to Taxpayers

Insurance Savings

In individual situations, money spent by taxpayers for fire protection can be offset in part, in whole, or more than offset by savings in fire insurance costs.

The Fire Insurance Underwriters Survey (FUS), last carried out in 2005 has a direct bearing on residential and commercial fire insurance rates. By extension the FUS exerts significant influence on the services and equipment that Fire/Rescue strives to provide within the Salt Spring Island Fire Protection District.

The Residential Dwelling Protection Grade (DPG) is given a numerical scale from 1 (highest rating) to 5 (little or no public fire protection). According to the FUS, while different insurers have different policies and rating systems, "Insurers typically provide a reduction of approximately 60% when a communities fire insurance grading DPG is changed from unprotected (level 5) to semi-protected (level 3B to 4). …. Insurers typically provide a reduction of approximately 32% when a communities fire insurance grading DPG is changed from semi-protected to fully protected."

The second grade assigned by the FUS is the Public Fire Protection Classification. This grade is calculated from a comprehensive evaluation of the community and fire defense capabilities. The grade is a number between 1 and 10, with 1 being superior fire protection and 10 being unprotected. The PFPC grade of a community is a factor that most insurance companies use to set insurance premium rates for all buildings that are not single family dwellings. There are many other significant factors that affect insurance premiums in commercial properties, such as construction (combustible, noncombustible); building size; building value; type of occupancy; and type of business.

The 2005 FUS stated that "fire department operations and services on Salt Spring Island have improved significantly from the former 1990 assessment." The PFPC grades assigned were

- Class 6 in recognized hydrant protected areas (formerly class 7)
- Class 9 in areas not recognized as hydrant protected ` (no change)
- Class 10 in areas outside SSIFPD boundaries (formerly not classified)

The Dwelling Protection Grades assigned to the SSIFPD by the FUS remained the same as in 1990, "*despite being eligible for improvement. This is due to the lack of water supply system evaluations occurring during the assessment.*" (Ref. FUS, p.4)

The following water supply systems were recognized by FUS for fire insurance grading purposes:

- North Salt Spring WWD
- Beddis WWD
- Highlands Water Utility

Several (though not all other) water supply systems were not recognized by the FUS as a result of requests from those responsible for individual systems that their emergency water supplies not be evaluated:

The FUS has assigned Salt Spring Island a grade of 6 in its PFPC grading system. Of improvement the FUS states "Class 5 represents a lesser level of protection for a municipality with a full-time fire department, but is very respectable for a volunteer of composite fire department, and is considered to be achievable for the Salt Spring Island Fire Protection District."

Because individual insurance companies are reluctant to reveal exact details of their rate structure and in any case set their rating structures in different ways, it is not possible to quantify for the island as a whole the saving in insurance costs that would be achieved by an improvement in our PFPC grade from 6 to 5. Savings are possible, particularly for those commercial clients

that compare rates offered by various insurance companies. For example, one commercial client on Salt Spring was advised that there would be no change in their insurance rate for a grade improvement from 6 to 5. Another commercial client was advised that they could expect a saving of about 6 per cent.

The FUS states that "The relative fire insurance classification of Salt Spring Island's water supply systems can not be improved until such time as a reassessment of these systems occurs. Because of this, the overall fire insurance grading classification for SSIFPD will be difficult to improve upon, despite any improvements that are made in fire, rescue or prevention programs."

It is to be hoped all water supply systems will cooperate in the next FUS and that the result will be that the FUS considers Salt Spring eligible for an improvement in grade, together with such other factors as it may take into account. The costs to taxpayers in undertaking such improvements as the FUS may request would result in improved water services which may be partially offset by insurance savings.

The complete FUS may be consulted on-line by clicking on the SSIFPD Trustees Section in the left hand column of the web site www.saltspringfire.com.

Property Tax Considerations

The existing long term debt that the SSIFPD carries covers all outstanding capital bylaw expenditures. Estimated costs, for the purposes of this plan, are detailed in the accompanying debt repayment schedules (Appendix H and I) on a net cost per $1000 assessed property value and using an average island property value of $500,000.

Salt Spring Island is currently the largest fire improvement district (based on area, population and total residential property assessments) in BC. The average 2007 fire taxation rate is $0.47 per $1000.00 assessed property value. This tax rate covers the operating budget for Fire District Services. It does not include long term debt based on capital expenditures. The existing long term debt is diminishing annually, and in 2007 cost taxpayers an additional $0.06 per $1000 of assessed property value. Other improvement districts in the province currently pay varying rates per $1000 of assessed property value, from $0.00 (which would allow for no fire service) to a high of $13.29 (in Ocean Falls). The average, based on the 43 improvement districts in the province, is just under $0.97 per $1000.

Implementing the recommendations in the 10 Year Strategic Plan will have an impact on taxes as indicated in the Appendices on Property Assessment Tables, Long Term Debt Repayment Tables and Career Staffing Costs.

Appendices

- **Appendix A: Salt Spring Island Fire/Rescue Mission & Values; Plan Objectives**
- **Appendix B: Minimum Fire Fighting Personnel Recommended According to Level of Risk**
- **Appendix C: Response Time Maps**
- **Appendix D: Public Fire Protection Classification: Community Comparisons**
- **Appendix E: Property Comparison Matrix**
- **Appendix F: Training Cost Comparisons**
- **Appendix G: Staffing Costs**
- **Appendix I: Property Assessment Tables**
  - **1996 to Current**
  - **10 Year Projections**
- **Long Term Debt Repayment Tables**

Appendix A

Salt Spring Island Fire/Rescue's Mission & Values Statements, Objectives of the Plan 2008-2017

Mission
To provide a high level of Life and Property Safety through Public Education, Prevention Services, Fire Control, Emergency Medical Services and Environmental Preservation

Values Statement
We value the following principles and believe that they establish the foundation upon which we should build an effective emergency service team in order to provide service of the highest order to the people of Salt Spring Island. The foundation upon which these values rest is teamwork in all we do and say.

- **Honesty and Integrity:** Do what is right, legally and morally, all the time.
- **Accountability:** Take personal responsibility for our words and deeds all the time.
- **Professionalism:** Act professionally and courteously in our business dealings all the time.
- **Cooperation:** Exhibit respect and support for each other, other organizations and the public all the time.
- **Responsive:** Be alert to the physical and emotional needs of each other and the public all the time.
- **Safety:** Watch out for our safety and the safety of the public all the time.
- **Community:** To preserve and protect the values that makes Salt Spring Island a unique place to live and work.

Objectives of the 10 Year Plan for the Salt Spring Island Fire Protection District 2008 - 2017

The objectives of the 10 Year Plan 2008 – 2017 are:

- **Primarily Volunteer Fire/Rescue Service**: To take every possible step to maintain, strengthen and improve the volunteer character of the Fire/Rescue Service.
- **Customer Satisfaction**: To ensure a high level of community satisfaction with the services delivered.
- **Response**: To establish Board of Trustees support for measurable emergency response performance targets, inclusive of dispatch time, turnout time, and travel time.
- **Fire Prevention**: To ensure inspection services are provided on a timely basis at the appropriate frequency to minimize incident occurrence and to ensure fire investigation findings are used in future fire prevention and public education program activities.
- **Staff Training**: To ensure career and volunteer staff maintain current and appropriate levels of knowledge, skills and practical experience to safely perform responsibilities
- **Public Education**: To promote public awareness and appropriate risk management behaviours through provision of education opportunities and communication.
- **Emergency Program Support**: To ensure Fire/Rescue has the capacity to support the Capital Regional District's Emergency Program requirements and to provide effective emergency program preparedness and response services.

- **Public Safety**: To ensure appropriate topic-specific bylaws are in place to cost-effectively maximize public safety and minimize incident severity and property loss and to work toward obtaining authority for bylaw enforcement.
- **Risk Management**: To ensure services provided meet mandatory regulatory requirements, risk management assessment requirements, and strive towards the best practices and minimum standards of professional bodies.
- **Strategic Management**: To establish a comprehensive strategic management framework that guides development of annual work plans, operating budgets, capital budgets for facilities and vehicles, staff resources, and that incorporates performance measures supporting continuous service delivery improvement. The Plan will be a 'rolling plan', established with a 10 year timeframe and updated at least every 2 years.
- **Staff & Board of Trustees Relationship**: To ensure Fire/Rescue staff and the Board of Trustees share a common vision and commitment to realize that vision through effective working relationships that simultaneously acknowledge and mutually respect their sometimes separate and sometimes shared realities.
- **Enforcement Capability as a Fire Protection District**: In conjunction with the Board of Trustees, to seek to maximize the potential for enforcement of bylaws and to support non-regulatory means of encouraging compliance with safe practices in the community.

Appendix B

Minimum Fire Fighting Personnel According to Level of Risk

Effective and efficient operations at the scene of fire emergencies depend on the arrival of sufficient trained personnel to perform all of the duties and tasks required to control a fire event. Tasks that must be performed can be broken down into two key components, life safety and fire flow.

Life safety tasks are based on the number of building occupants, their location, status and ability to take self-preservation action. Life safety tasks involve the search, rescue and evacuation of victims.

The fire flow component involves delivering sufficient quantities of water to extinguish the fire and creating an environment within the building that allows entry by fire fighters. It does not include water flows that might be needed to protect exposures such as adjacent buildings, protect fire fighters or apparatus or for combating small spot fires that erupt, such as those ignited by sparks and 'candling' in the 2007 Bullock Lake fire.

The tasks include, command, scene safety, search and rescue, fire attack, water supply, pump operation, ventilation, salvage and overhaul, along with Rapid Intervention Teams.

The number and types of tasks needing simultaneous action in a particular incident will dictate the minimum number of fire fighters required to combat different types of fires. In the absence of adequate personnel to perform concurrent action, the command officer must prioritize the tasks, completing some on chronological order rather than at the same time, reducing overall fire emergency effectiveness.

The following risk definitions and fire ground staffing data are based on the **International** Commission of Fire Accreditation, modified to suit our own unique needs. The personnel numbers are based on professional experience and are recommended rather than required levels of personnel.

Low Risk- Fires involving small sheds and other outbuildings, vehicles, grass fires and similar fires characterized by sustained fire flows typically less than 250 IGPM.

Moderate Risk- Fires involving single family dwellings and equivalently sized commercial office properties. Required fire flows range between 250 IGPM to 1,000 IGPM.

High Risk- Fires involving larger commercial properties requiring sustained attack fire flows between 1,000 IGPM and 2,500 IGPM.

Maximum Risk- Fires in building with unusual hazards such as high-rise buildings, hazardous materials facilities, very large buildings and high risk life properties such as nursing homes and hospitals. Though they may not require large sustained attack fire flows they do require more personnel to perform tasks required for effective control

Task/Function	Maximum Risk	High Risk	Moderate Risk	Low Risk
Attack Line	8	6	4	2
Search & Rescue	4	2	2	
Ventilation	4	2	2	
RIT	8	6	4	2
Pump Operator	1	1	1	1
Water Supply (a)	3	3	1	1
Utilities Support (b)	1	1	1	
Command/Safety Officer (c)	2	2	2	1
Forcible Entry (d)	*			
Salvage (d)	*	*	*	
Overhaul (d)	*	*	*	
Communications (e)	1	1	1	
Operations Sector Chief (f)	1			
Logistics (f)	1			
Planning (f)	1			
Staging (g)	1			
Rehabilitation (h)	1			
Division/Group/Sector Supervisors (i)	2			
Evacuation (j)	10			
Stairwell Support (k)	10			
Total Personnel Recommended	**59**	**24**	**18**	**7**

(a) Based on the need for Tender Operators.
(b) Transport of materials and supplies.
(c) Command and safety can be handled by one person at Low Risk but at any higher risk a minimum of two are required. At the Village Resort in 2007, we had two sector officers and two safety officers and could have used more.
(d) These tasks during Moderate in Maximum Risk situations are best undertaken by teams that will not take away from Fire Attack and/or Search and Rescue.
(e) Handled at this time by amateur radio volunteers or fire fighters on light duty.
(f) All of these functions should have been filled at the 2007 Village Resort Fire.
(g) Helps ensure the correct mix of personnel and equipment is on hand at an emergency scene as the Incident Commander needs them.
(h) Presently handled by BCAS personnel, but they are not always available. At the Village Resort Fire in 2007, BCAS were extremely busy even with a minimum of 3 personnel dedicated to this task.
(i) An officer is usually assigned to each task or sector, such as Search & Rescue, Fire Attack, Ventilation or Sector Officers.
(j) Fire Fighters remove victims to safe area, where they can be then removed to designated areas by Stairwell Support staff. Evacuation Fire Fighters are in full SCBA.
(k) Moving hose lines and equipment, evacuees.

Critical Tasking

Critical tasks are those activities that must be conducted in a timely manner by fire fighters at emergency incidents in order to control any given situation, stop loss and to perform necessary tasks required for a medical emergency.

Fires-Critical tasking for fire operations is the minimum number of personnel to perform the tasks required to effectively control a fire in the listed risk category. Major fires, requiring a second alarm, page or call for mutual aid will require additional personnel and apparatus.

Emergency Medical Response-Critical tasking for emergency medical incidents is the minimum number of personnel to perform the tasks required such as patient care and record keeping as mandated under legislation.

Residential Single Family Dwelling Structure Fire

Task/Function	Number of Personnel
Command/Safety	2
Pump Operations	1
Attack Team	4
Search & Rescue	2
Ventilation	1
Rapid Intervention Team #	4
Other (hydrant/water supply/logistics) *	2
Total	**16**

* Based on two Tender Operators
# Worksafe BC Sec. Reg. 31.23. (3) (4) (5)

Multi Residential moderate Risk Commercial Structure Fire

Task/Function	Number of Personnel
Command/Safety/Sector #	3
Pump Operations	1
Attack Team	4
Search & Rescue	2
Ventilation	2
Rapid Intervention Team	4
Other (hydrant/water supply/logistics) *	3
Total	**19**

Based on one each Incident Commander & Safety Officer and Sector Officer but probably two Sector Officers would be required
* Based on three Tender Operators

Maximum Risk Commercial, Hospital, School, Care Home

Task/Function	Number of Personnel
Command/Safety/Sector #	4
Pump Operations +	1
Attack Team	4
Search & Rescue	4
Ventilation	4
Rapid Intervention Team @	8
Stairwell Support	8
Evacuation	6
Staging	2
Communications	2
Other (hydrant/water supply/logistics) *	3
Total	**46**

Based on one Incident Commander, one Safety Officer and two Sector Officers. May need four sector officers to ensure allowable span of control

+ If tandem pumping is required, such as in the 2007 Village Resort Fire this number increases rapidly. We had 3 pump operators at the Village Resort Fire, 2 at the 2007 Murikami and Seclusion Lane fires.

@ As numbers of personnel doing interior work increase, so does the need for rescue for Rapid Intervention Team personnel. Two in Two Out rule under Worksafe BC regulations.

* Based on three Tender Operators, water supply and communications personnel.

Grass/Brush Fire Urban Setting

Task/Function	Number of Personnel
Command/Safety #	1
Pump Operations	1
Attack Team	4
Water Supply *	4
Other (communications, logistics)	1
Total	**11**

Incident Commander can usually handle both functions at smaller incidents.

* Based on three Tender Operators and a Water Supply Officer

Wildland Fire-Moderate Risk

Task/Function	Number of Personnel
Command/Safety/Sector	3
Pump Operations #	4
Attack Team	8
Water Supply *	4
Communications/logistics	2
Total	**21**

Based on a pump operator for four pieces of apparatus simultaneously attacking the fire situation.
* Based on three Tender Operators and a Water Supply Officer

Wildland Fire-High Risk

Task/Function	Number of Personnel
Command/Safety/Sector	5
Pump Operations #	8
Attack Team	12
Water Supply *	4
Rapid Intervention Team	4
Communications/logistics	3
Total	**36**

Based on four vehicle pump operators and four portable pump operators with porta-tanks or alternate water supplies.
* Based on three Tender Operators and a Water Supply Officer
NOTE: these are large scale incidents and this manpower quota is what is needed at any given time that active fire fighting is taking place. As well BC forest Service would supplement our crews but they do not do Structural Fire Fighting.

Vehicle Fire

Task/Function	Number of Personnel
Command/Safety	1
Pump Operations	1
Attack Team	2
Other (traffic control, water supply) *	3
Total	**7**

* Based on one Tender Operator and two flag/traffic control persons

Marine Incident Involving Fire

Task/Function	Number of Personnel
Command/Safety/Sector	3
Pump Operations	1
Attack Team	4
Rapid Intervention/Back Up Team	4
Planning/Logistics	1
Communications	1
Other (water supply/evacuation)	7
Total	**21**

NOTE: Based on single pump operator, in larger incidents more than one would be needed. Evacuation was major headache at recent incident, eating up resources moving marina occupants from harms way (lack of RCMP to facilitate task) Stretching over 1000 feet of hose also ate up staff, tiring them quickly. May need more resources to allow crews to get to Rehab.

First Responder

Task/Function	Number of Personnel
Record/FR Report Documentation	1
Patient Care	2
Total	**3**

NOTE: There is mandatory paper work that must be completed for every FR call with additional paper work if the Automatic External Defibrillator is utilized. One person has to be dedicated to handling this paperwork and four persons for patient care. If CPR is initiated, personnel tire very quickly and replacement personnel may be necessary.

Motor Vehicle Incident/Crash

Task/Function	Single Vehicle	Multi Vehicle
Command/Safety	1	1
Patient Care/Extrication	3	6
Fire Protection	1	1
Traffic Control	2	2
Total	**7**	**10**

NOTE: Patient Care/Extrication shows one fire fighter per vehicle doing full spinal protocols. If more than one patient, a fire fighter must be assigned to complete spinal protocols. This allows for two fire fighters to facilitate extrication, but we usually ending up having to utilize more personnel. Vehicle stabilization roof removal, glass removal and steering wheel pulls are examples of task that may be needed.

Inland Water Rescue

Task/Function	Number of Personnel
Command	1
Rescue	2
Vehicle operator/back up/patient care	3
Total	**6**

Technical Rescue-Rope

Task/Function	Number of Personnel
Command/Safety	1
Rescue Team	6
Back Up/Support Team/Haul Team	5
Total	**12**

NOTE: Includes Operations Team Leader, Edge Person, Two Rescuers, 1 Safety Line FF and a Belay Line FF.

Technical Rescue-Confined Space

Task/Function	Number of Personnel
Command/Safety	1
Rescue Team	5
Back Up/Support Team	6
Total	**12**

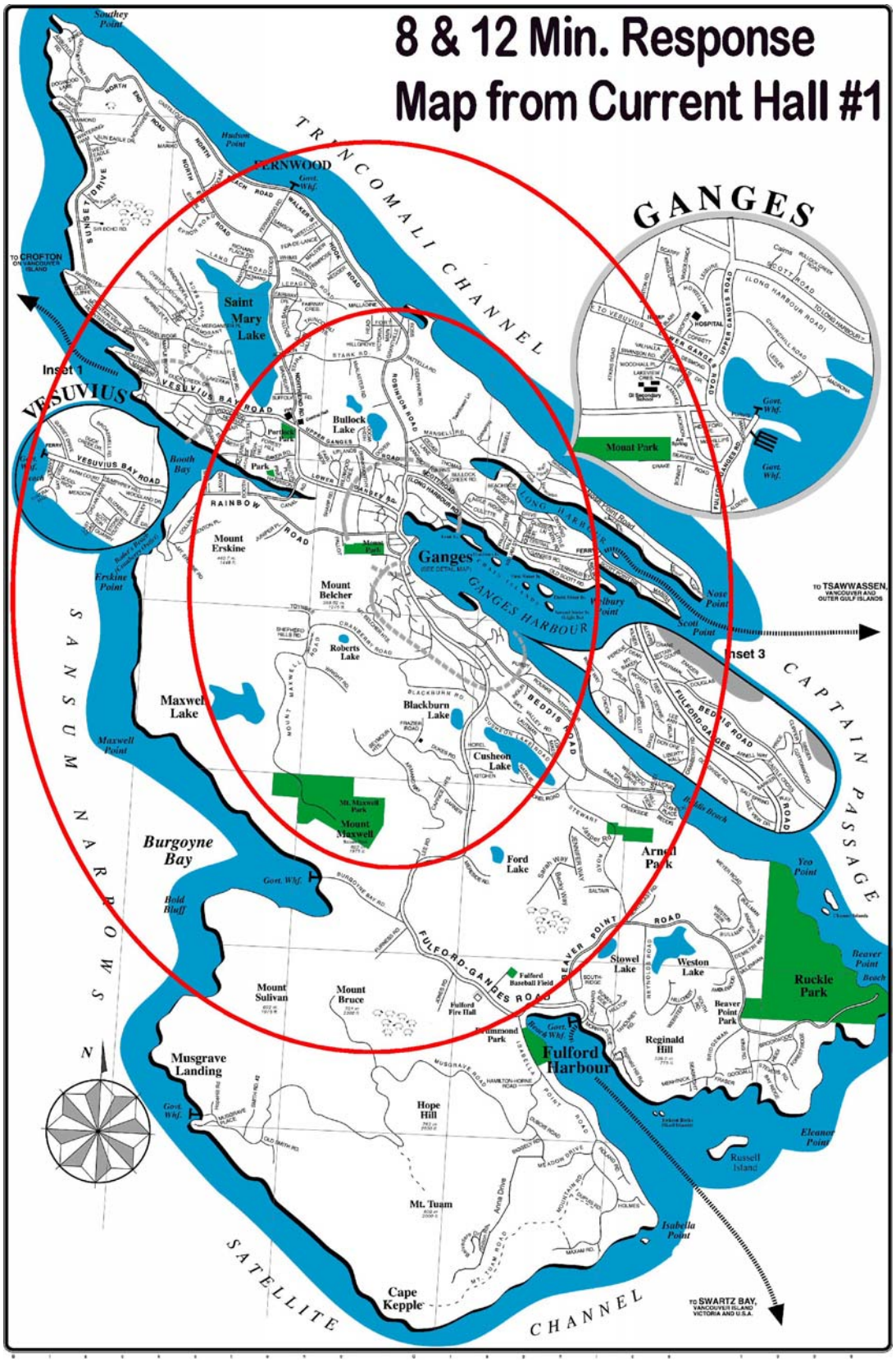
Hazardous Materials-Low Risk (Awareness & Operations Level)

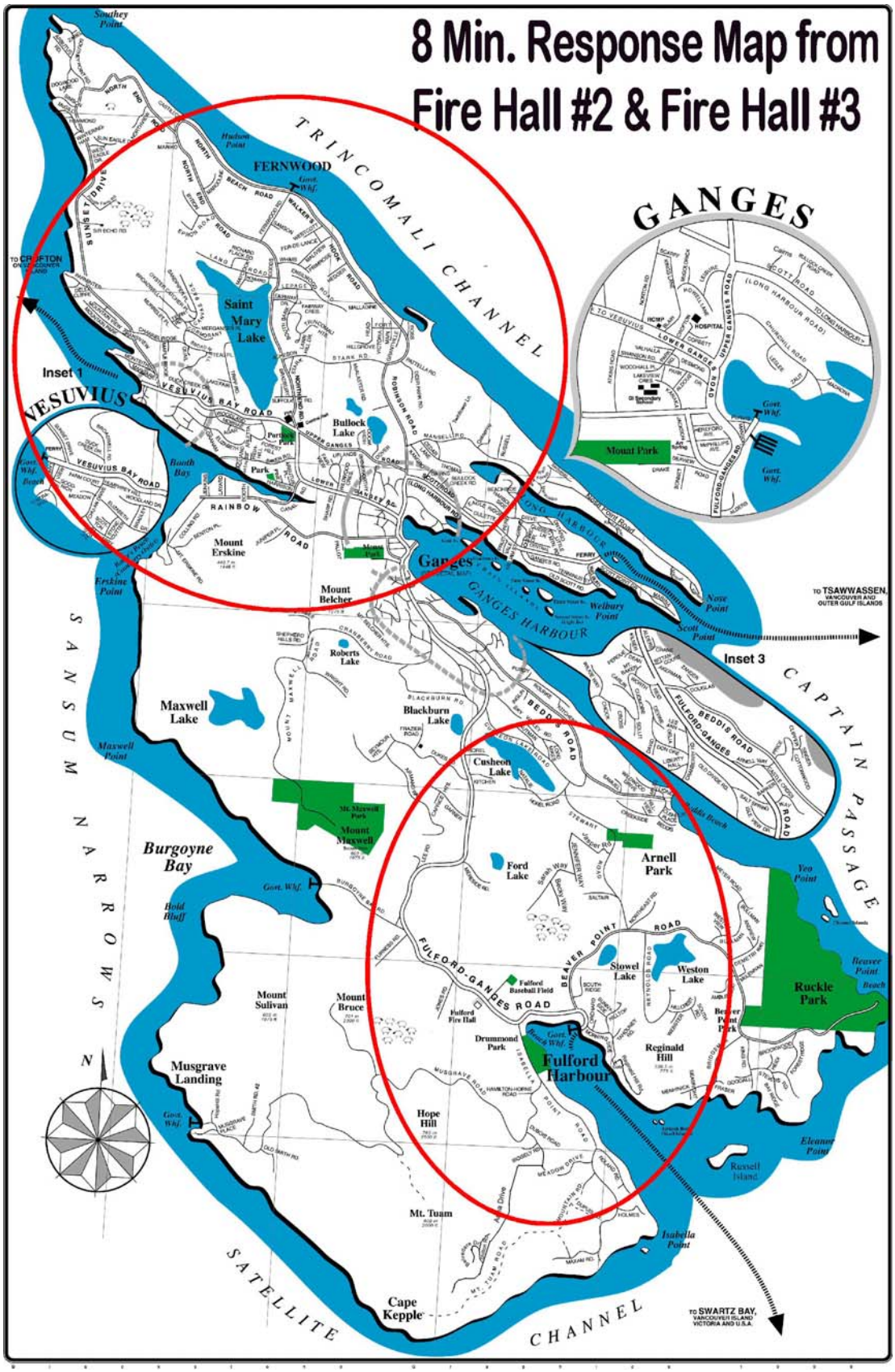
Task/Function	Number of Personnel
Command/Safety	1
Entry Team	2
Support/Back Up Team	2
Total	**5**

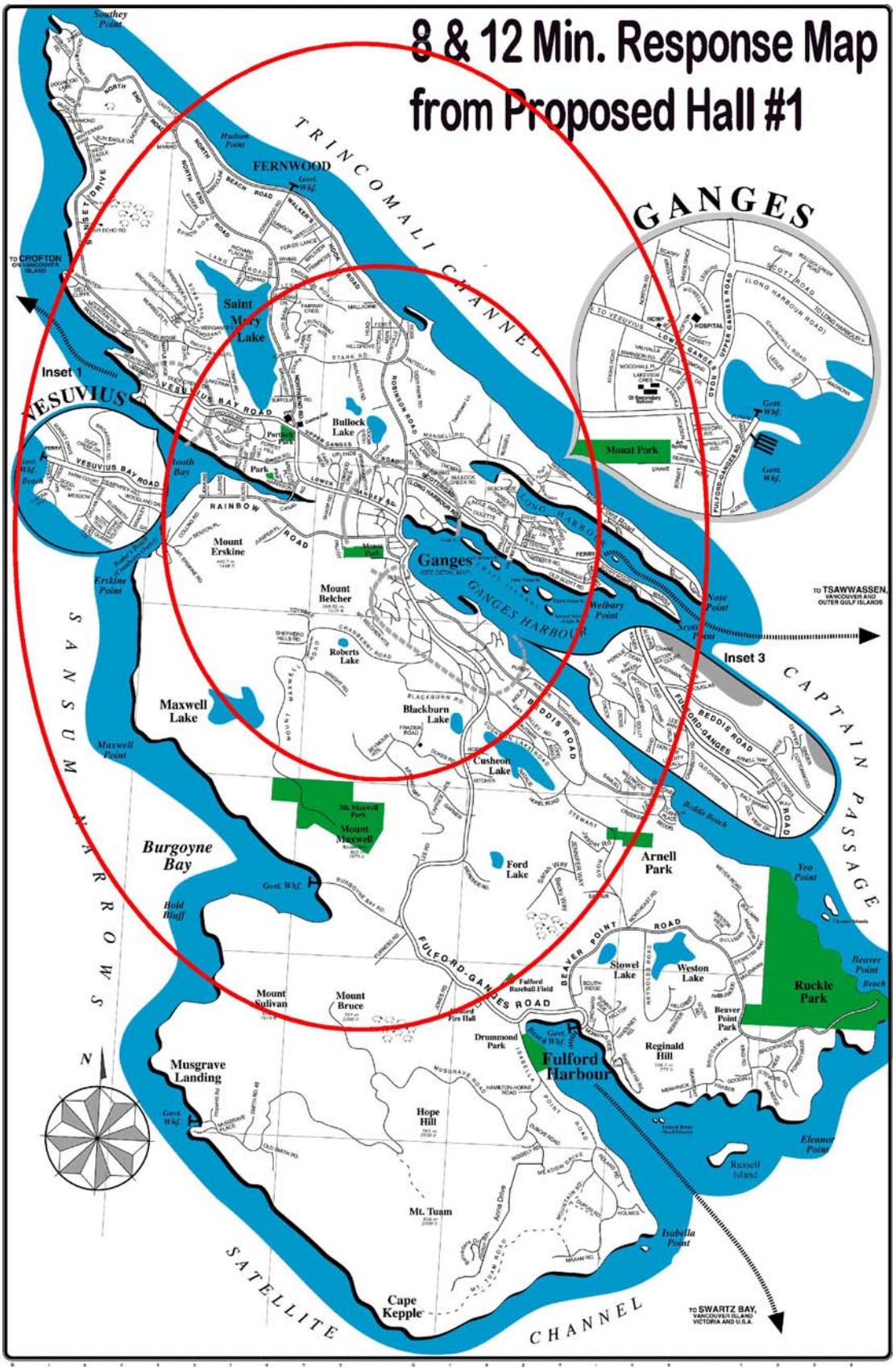
Hazardous Materials-Moderate/High Risk (Awareness & Operations)

Task/Function	Number of Personnel
Command/Safety/Sector	3
Entry Team	4
Back Up Team	2
Decontamination	2
Support	4
Total	**15**

Appendix C
Response Time Maps




8 Min. Response Map from
Fire Hall #2 & Fire Hall #3
TRINCOMALI CHANNEL
GANGES
FERNWOOD
Saint Mary Lake
Inset 1
VESUVIUS
Bullock Lake
Mount Erskine
Ganges
Mount Belcher
GANGES HARBOUR
Inset 3
CAPTAIN PASSAGE
SANSUM NARROWS
Maxwell Lake
Blackburn Lake
Cusheon Lake
Burgoyne Bay
Mount Maxwell
Ford Lake
Arnell Park
Mount Sullivan
Mount Bruce
Musgrave Landing
Hope Hill
Mt. Tuam
Cape Kepple
SATELLITE CHANNEL
Slowel Lake
Weston Lake
Ruckle Park
Reginald Hill
Fulford Harbour
Drummond Park
Russell Island
Isabella Point
Eleanor Point
Beaver Point
Yeo Point
Welbury Point
Scott Point
Nose Point
Erskine Point
Maxwell Point
Bold Bluff
Booth Bay
Hudson Point
Southey Point
Mount Park
TO CROFTON
TO TSAWWASSEN,
VANCOUVER AND
OUTER GULF ISLANDS
TO SWARTZ BAY,
VANCOUVER ISLAND,
VICTORIA AND U.S.A.
N


8 & 12 Min. Response Map
from Proposed Hall #1
TRINCOMALI CHANNEL
GANGES
FERNWOOD
Saint Mary Lake
Inset 1
VESUVIUS
Bullock Lake
Mount Park
Inset 3
Mount Erskine
Ganges
Mount Belcher
GANGES HARBOUR
Roberts Lake
Maxwell Lake
Blackburn Lake
Cusheon Lake
Mount Maxwell
Burgoyne Bay
Ford Lake
Arnell Park
Slowel Lake
Weston Lake
Ruckle Park
Mount Sullivan
Mount Bruce
Drummond Park
Reginald Hill
Fulford Harbour
Musgrave Landing
Hope Hill
Mt. Tuam
Cape Kepple
SATELLITE CHANNEL
SANSUM NARROWS
CAPTAIN PASSAGE
TO CROFTON
TO TSAWWASSEN
TO SWARTZ BAY
N

Appendix D

Public Fire Protection Classification: Community Comparisons

The 2005 Fire Underwriters Survey (FUS) report included the gradings assigned to other BC communities with populations similar to Salt Spring and up to 20,000 residents due to the increase in Salt Spring's population during the tourist season. FUS gives departments a Public Fire Protection Classification (PFPC) rating from 1, the best, to ten, the worst. The SSIFPD rating improved one level and is now rated standard in class with other communities with similar populations that have good progressive fire protection programs. (FUS, p.7)

Community Comparisons (2005 FUS Report with Salt Spring population adjusted to reflect Statistics Canada figures for 2006)

Municipality	Population	PFPC Class
View Royal	8045	6
Sechelt	8488	6
Salt Spring Island	**9640**	**6**
Sooke	9730	6
Whistler	9754	5
Nelson	9784	5
Coldstream	9896	6
Lake Country	10064	7
Quesnel	10417	6
Kitimat	10449	4
North Saanich	11103	7
Parksville	11245	7
Dawson Creek	11290	5
Sidney	11495	6
Summerland	11776	6
Williams Lake	11833	6
Comox	12394	5
Terrace	12565	5
Powell River	13680	6
Colwood	14825	7
Prince Rupert	15020	5
Squamish	15390	5
Pitt Meadows	16001	6
Central Saanich	16451	6
Salmon Arm	16466	5
Esquimalt	17038	7
Fort St. John	17280	6
Oak Bay	18357	4
Cranbrook	19608	5
White Rock	19735	5

Appendix E:

Property Comparison Matrix

	121 Norton Rd.	255 Lower-Ganges Rd.	154/156 Kings Lane (Bowling Alley)
IMPORTANT FEATURES PROPERTY SHOULD HAVE:			
Connected to "City Water" system	√	√	√
Connected to "City Sewer" system	√	√	√
Minimum required acres (based on property attributes)	√	√	√
Zoned other than ALR	√	√	√
Meets NFPA minimum Suburban response standards	√	√	√
Ability to meet NFPA minimum Urban response standards	√	√	√
Located within the established boundaries	√	√	√
Address the Channel Ridge response time	√	√	√
No Communications interference	√	√	√
LEEDS (environmental management)	⊗	√	√
Appropriate Access and Egress	√	√	√
Relatively flat useable land	√	√	√
Direct Access to a Major Road	√	√	⊗
In Area with Less Density	√	⊗	√
Limited Pedestrian Traffic	√	√	√
Proximity away from Seniors Home or School	√	⊗	⊗
Unconditional Sale Agreement	⊗	⊗	√

Appendix F: Training Cost Comparisons

	Training Costs On-Island	Training Costs Off-Island	Variance
Per Diem Costs for Annual Courses Identified on Strategic Plan:			
Confined Space Rescue Awareness Level (10 groups of 4 people over 2 days)		$ 14,002.00	($14,002.00)
Confined Space Rescue Operations Level (2 groups of 4 people over 4 days)		$ 4,640.40	($4,640.40)
Confined Space Rescue Technician Level (1 groups of 1 people over 5 days)		$ 1,075.20	($1,075.20)
Haz Mat Awareness Level (10 groups of 4 people over 2 days)		$ 14,002.00	($14,002.00)
Haz Mat Operations Level (2 groups of 4 people over 4 days)		$ 4,640.40	($4,640.40)
Haz Mat Technician Level (1 groups of 1 people over 5 days)		$ 1,075.20	($1,075.20)
Live Fire Awareness Level I (10 groups of 4 people over 2 days)		$ 14,002.00	($14,002.00)
Live Fire Awareness Level II (10 groups of 4 people over 2 days)		$ 14,002.00	($14,002.00)
Pumps & Pumping Operations Level (10 groups of 4 people over 4 days)		$ 23,202.00	($23,202.00)
Technical Rescue Awareness Level (10 groups of 4 people over 3 days)		$ 18,602.00	($18,602.00)
Technical Rescue Operations Level (3 groups of 4 people over 4 days)		$ 6,960.60	($6,960.60)
Technical Rescue Technician Level (1 groups of 1 people over 5 days)		$ 1,075.20	($1,075.20)
Vehicle Rescue Level I (10 groups of 4 people over 2 days)		$ 14,002.00	($14,002.00)
Vehicle Rescue Level II (10 groups of 4 people over 2 days)		$ 14,002.00	($14,002.00)
Volunteer Points Payments @ $12/hr	$ 85,152.00	$ 212,880.00	($127,728.00)
Volunteer Lost Wages Reimbursements @ $16/hr		$ 113,536.00	($113,536.00)
Volunteer Child Care costs estimate		possible	
Capital Asset Long Term Debit Annual Repayment of $500,000 over 15 year maximum	$ 50,800.00	$ -	$(50,800.00)
**** Take Note:**			
Costs itemized do not include the actual course fees for either scenario since there will be a cost regardless of courses being held on- or off-island, however there is an understanding that there will be a discounted course fee for courses held on-island. This would result in further savings for on-island courses.			
The lost wages is for Fridays and Mondays only due to traveling to course location; there are no lost wages calculated for weekend courses.			
**** Unquantifiable Costs:**			
Volunteer turn over and/or difficulty recruiting due to unwillingness/inability to spend this much time off-island away from their families/jobs			
Reduction of resources/manpower to attend incidents while volunteers off-island attending courses			
Additional wear & tear on vehicles used for traveling			
	$ 135,952.00	$ 471,699.00	($335,747.00)

Appendix G: Staffing Costs

The information in this appendix is incomplete and its usefulness is correspondingly limited. There are various costs associated with a compliment of volunteers such as 'points payments', training, clothing and equipment costs which are not shown here. The career staff costs shown below relate to a hypothetical, rather than presently planned scenario. They illustrate the cost of moving to 24/7 staffing at the main fire hall in a transition period of four years.

Career Staff Costs. Staff costs are based on current annual rates of pay at the entry salary level inclusive of benefits rounded to the nearest thousand dollars. The union contract expired in 2006. The union is continuing based on the previous contract were still in force pending settlement by comparative areas.

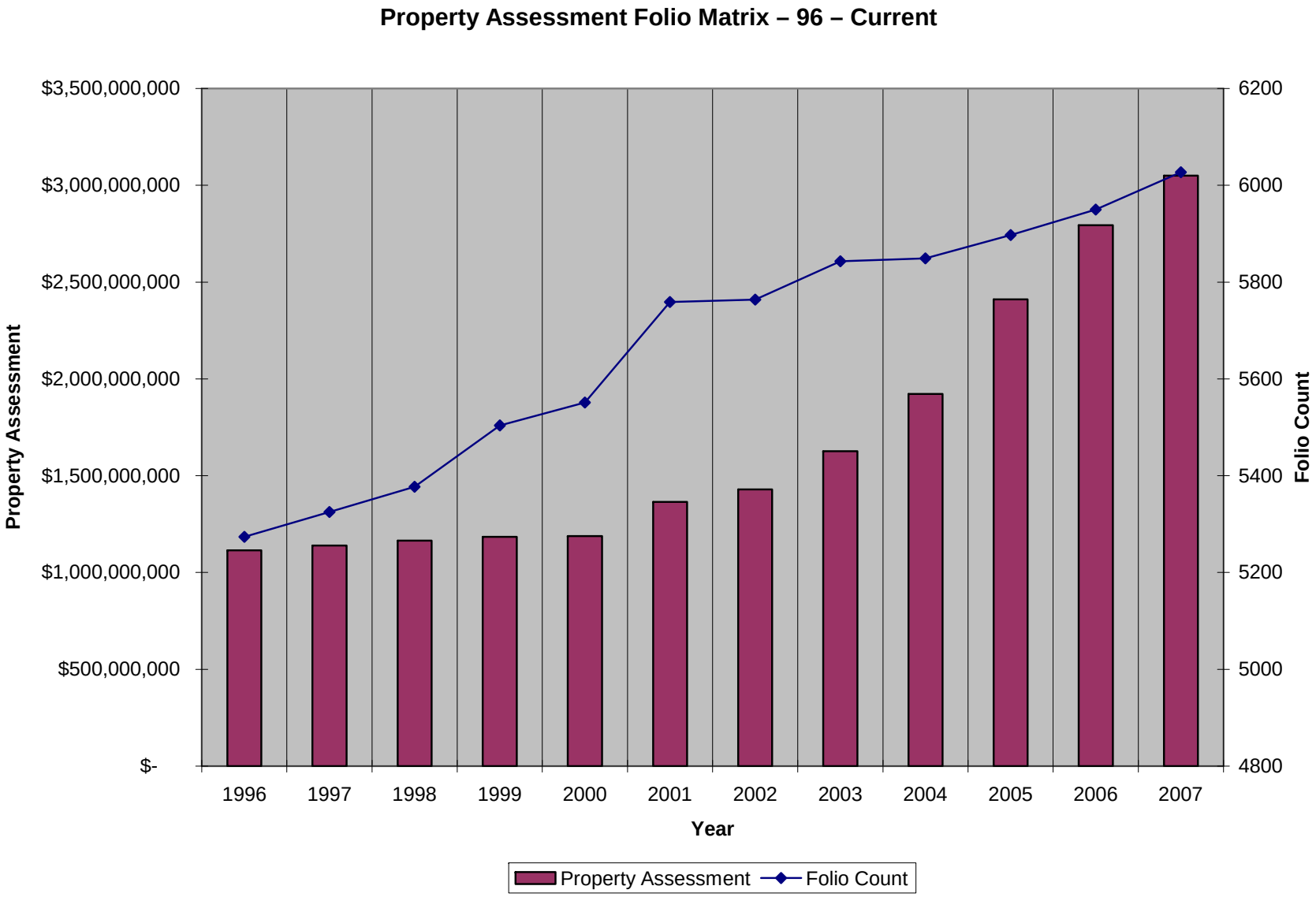
A transition toward a model of a mainly career fire/rescue staff, supplemented by volunteers could be a gradual process. Achieving 24/7 staffing of hall #1 with career staff would result in both a significant improvement in response times and overall service. The details and costs of that move are generally:

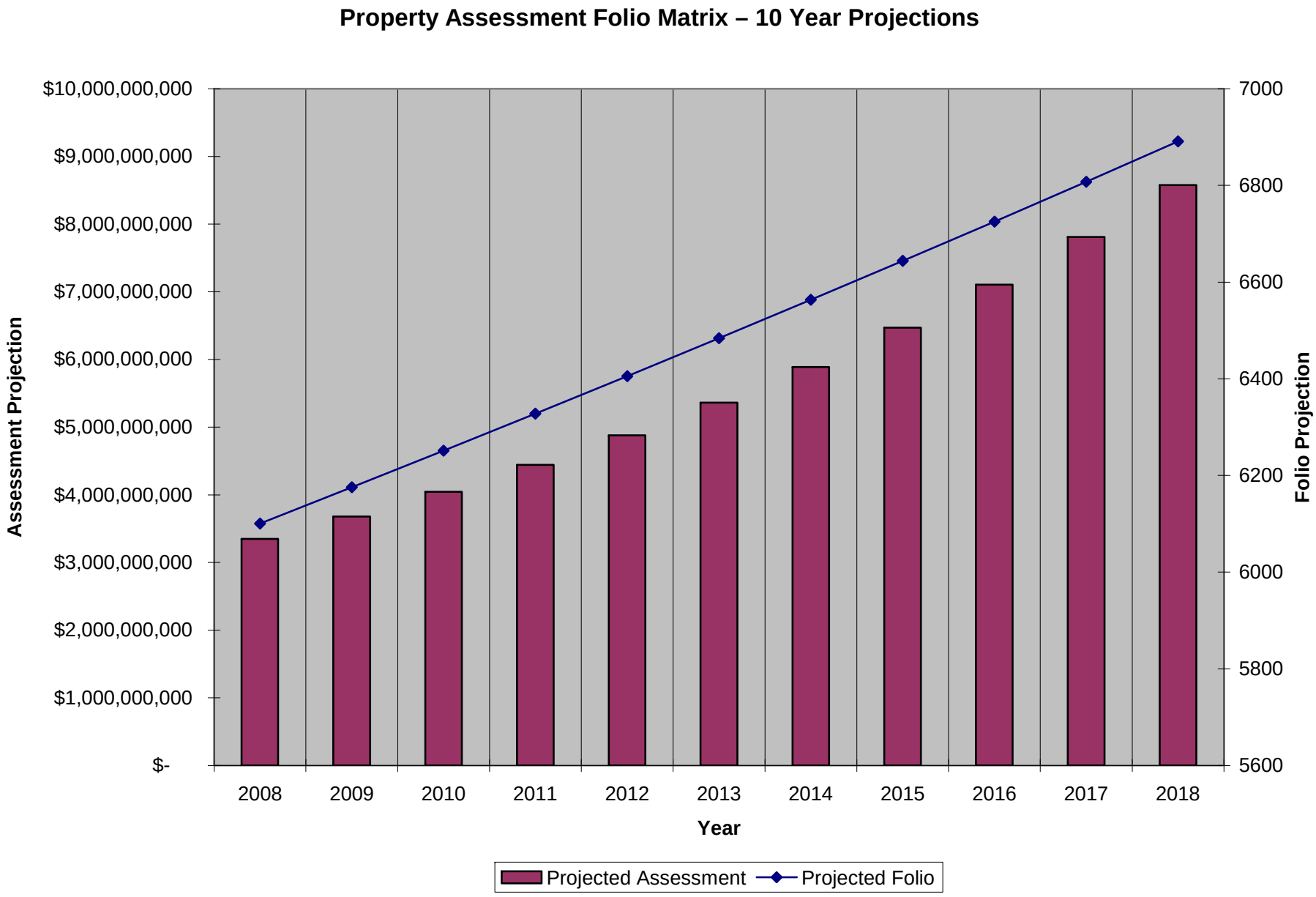
- Transition Year 1: Hire 9 Fire Fighters at an estimated annual cost of $729,000 to be stationed at the new Fire Hall #1
- Transition Year 2: Hire 4 Fire Fighters at a estimated annual cost of $324,000 to be stationed at Fire Hall #1
- Transition Year 3: Hire 4 Fire Fighters at an estimated annual cost of $324,000 to be stationed at Fire Hall #1.
- Transition Year 4: Hire 3 Fire Fighters at an estimated annual cost of $243,000 to be stationed at Fire Hall #1.

Staff Costs for Transition to 24/7 Year Round Staffing of Fire Hall #1 with Career Fire Fighters

YEAR	*DESCRIPTION*	*Career Staff*	*Volunteers*	*Total Costs*	*EST. COST TO TAXPAYERS (based on avg. $500,000 property value per 2007 gross property values)*	*EST. COST TO TAXPAYERS (per $1,000 property value using 2007 gross property values)*
		NOTE: career staff at known 2010 contract dollars				
-----	Chief, Deputy Chief, Asst Chief, 3 career firefighters with volunteers	$ 562,000.00	$ 165,000.00	$727,000.00	$119.01	$0.238024894
-----	no changes proposed	$ 562,000.00	$ 165,000.00	$727,000.00	$119.01	$0.238024894
Transition Year 1	Chief, Deputy Chief, Asst Chief, 12 career firefighters with reduced calls to volunteers	$1,291,000.00	$ 95,000.00	$1,386,000.00	$226.89	$0.453786111
Transition Year 2	Chief, Deputy Chief, Asst Chief, 16 career firefighters with reduced calls to volunteers	$1,615,000.00	$ 61,000.00	$1,676,000.00	$274.37	$0.548734142
Transition Year 3	Chief, Deputy Chief, Asst Chief, 20 career firefighters with reduced calls to volunteers	$1,939,000.00	$ 27,000.00	$1,966,000.00	$321.84	$0.643682174
Transition Year 4	Chief, Deputy Chief, Asst Chief, 23 career firefighters with reduced calls to volunteers	$2,182,000.00	$ 27,000.00	$2,209,000.00	$361.62	$0.723242077

Appendix H: Property Assessment Tables




Property Assessment Folio Matrix – 10 Year Projections
$10,000,000,000
$9,000,000,000
$8,000,000,000
$7,000,000,000
$6,000,000,000
$5,000,000,000
$4,000,000,000
$3,000,000,000
$2,000,000,000
$1,000,000,000
$-
Assessment Projection
7000
6800
6600
6400
6200
6000
5800
5600
Folio Projection
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Year
Projected Assessment
Projected Folio

Appendix I: Long-Term Debt Repayment Tables

Existing Long Term Debt Repayment

Take Note: 2007 gross property value used; not adjusted for future value/density increases

YEAR	PAYMENT (Includes Principal, Interest & Admin Fee)	EST. COST TO TAXPAYERS (based on avg. $500,000 property value per 2007 gross property values)	EST. COST TO TAXPAYERS (per $1,000 property value using 2007 gross property values)
2008	$ 169,200.88	$ 27.74	$ 0.05548206
2009	$ 130,985.45	$ 21.48	$ 0.04295097
2010	$ 130,985.45	$ 21.48	$ 0.04295097
2011	$ 130,985.45	$ 21.48	$ 0.04295097
2012	$ 116,506.60	$ 19.10	$ 0.03820327
2013	$ 116,506.60	$ 19.10	$ 0.03820327
2014	$ 97,607.53	$ 16.00	$ 0.03200614
2015	$ 97,607.53	$ 16.00	$ 0.03200614
2016	$ 65,742.41	$ 10.78	$ 0.02155736
2017	$ 65,742.41	$ 10.78	$ 0.02155736
2018	$ 65,742.41	$ 10.78	$ 0.02155736
2019	$ -	$ -	$ -

Project	Proposed Additions to LTD	YEAR	ESTIMATED ANNUAL PAYMENT (Includes Principal, Interest & Admin Fee)	EST. COST TO TAXPAYERS (based on avg. $500,000 property value per 2007 gross property values)	EST. COST TO TAXPAYERS (per $1,000 property value using 2007 gross property values)
Training Tools & Resources for Fulford Fire Hall	$ 500,000.00	2008	$ 50,796.48	$ 8.33	$ 0.016656
#1 Fire Hall Land Purchase & Building Construction	$5,600,000.00	2008	$ 473,848.54	$ 77.69	$ 0.155378
Support Vehicle (FC)	$ 70,000.00	2008	$ 17,049.42	$ 2.80	$ 0.005591
Two Dual Purpose Vehicles #1 and #2	$ 500,000.00	2009	$ 50,796.48	$ 8.33	$ 0.016656
Support Vehicle - Duty Officer /Command	$ 70,000.00	2010	$ 17,049.42	$ 2.80	$ 0.005591
Support Vehicle - Utility Pick Up	$ 70,000.00	2011	$ 17,049.42	$ 2.80	$ 0.005591
Quint #1	$1,000,000.00	2012	$ 101,592.94	$ 16.66	$ 0.033313
#2 Fire Hall Vehicle Shelter for Engine 3	$ 50,000.00	2012	$ 12,178.16	$ 2.00	$ 0.003993
Support Vehicle (FC)	$ 70,000.00	2013	$ 17,049.42	$ 2.80	$ 0.005591
Tender #2 Replacement	$ 300,000.00	2014	$ 30,477.89	$ 5.00	$ 0.009994
Support Vehicle - Duty Officer /Command	$ 70,000.00	2015	$ 17,049.42	$ 2.80	$ 0.005591
Support Vehicle - Utility Pick Up	$ 70,000.00	2016	$ 17,049.42	$ 2.80	$ 0.005591

Estimated Long Term Debt Repayment Over Next 10+ Years

Take Note:
2007 gross property value used; not adjusted for future value/density increases

YEAR	PAYMENT (Includes Principal, Interest & Admin Fee)	EST. COST TO TAXPAYERS (based on avg. $500,000 property value per 2007 gross property values)	EST. COST TO TAXPAYERS (per $1,000 property value using 2007 gross property values)
2008	$ 227,616.83	$ 37.32	$ 0.074637
2009	$ 731,095.83	$ 119.87	$ 0.239731
2010	$ 781,892.31	$ 128.19	$ 0.256388
2011	$ 798,941.73	$ 130.99	$ 0.261978
2012	$ 801,512.30	$ 131.41	$ 0.262821
2013	$ 903,105.24	$ 148.07	$ 0.296134
2014	$ 896,384.33	$ 146.97	$ 0.293930
2015	$ 926,862.22	$ 151.96	$ 0.303924
2016	$ 894,997.10	$ 146.74	$ 0.293475
2017	$ 894,997.10	$ 146.74	$ 0.293475
2018	$ 882,818.94	$ 144.74	$ 0.289482

Estimated Long Term Debt Repayment Over Next 10+ Years

Take Note: Adjusted for estimated future value/density increases

YEAR	PAYMENT (Includes Principal, Interest & Admin Fee)	EST. COST TO TAXPAYERS (based on avg. $500,000 property value per projected gross property values)	EST. COST TO TAXPAYERS (per $1,000 property value using projected gross property values)
2008	$ 227,616.83	$ 33.97	$ 0.067940
2009	$ 731,095.83	$ 99.32	$ 0.198641
2010	$ 781,892.31	$ 96.69	$ 0.193382
2011	$ 798,941.73	$ 89.93	$ 0.261579
2012	$ 801,512.30	$ 82.13	$ 0.262421
2013	$ 903,105.24	$ 84.24	$ 0.295683
2014	$ 896,384.33	$ 76.11	$ 0.293483
2015	$ 926,862.22	$ 71.63	$ 0.303461
2016	$ 894,997.10	$ 62.96	$ 0.293028
2017	$ 894,997.10	$ 57.32	$ 0.293028
2018	$ 882,818.94	$ 51.46	$ 0.289041