SURREY
CITY OF PARKS

Corporate Report

NO: R202

COUNCIL DATE: September 10, 2007

REGULAR COUNCIL

TO:	**Mayor & Council**	DATE:	**Sept. 4, 2007**
FROM:	**Fire Chief, Surrey Fire Service** **Chief Superintendent, RCMP Surrey Detachment** **Crime Analyst, RCMP Surrey Detachment**	FILE:	**0360-20**
SUBJECT:	**Surrey Crime Reduction Strategy – EFSI Program Update and Resolution Related to the Sale of Hydroponics Equipment**		

RECOMMENDATION

It is recommended that Council:

1. Receive this report as information;
2. Endorse the resolution attached as Appendix "A" related to the regulation of the supply and sale of hydroponics equipment; and
3. Authorize the City Clerk to forward a copy of the subject resolution to the Union of British Columbia Municipalities (UBCM) for consideration at its annual Conference.

INTENT

Section 2.2 of the Surrey Crime Reduction Strategy focuses on Detecting Crimes and Apprehending Offenders. This section recommends that the City:

- Continue to enhance the Electrical Fire Safety Inspection (EFSI) program in relation to identifying and eliminating electrical safety hazards due over-consumption of electricity, which is often evidence of a marijuana grow operation; and
- In conjunction with the Solicitor General develop a process to restrict the possession of hydroponics equipment used in marijuana grow operations.

This report provides an update on the implementation of these recommendations and seeks Council authorization to forward a resolution to the UBCM respecting the regulation of the sale of hydroponics equipment.

DISCUSSION

This report is divided into two sections as follows:

1. EFSI Program

1.1 Description of Hazards Related to Marijuana Grow Operations

The findings of Plecas, Malm, and Kinney (2005)[1] indicate that a significant increase in the number, size and sophistication of illegal marijuana growing operations in British Columbia took place over a seven-year period from January 1, 1997 to December 31, 2003. As a consequence of indoor marijuana cultivation British Columbia experienced a total of 419 fires between 1997 and 2003. The number of incidents of fires within indoor grow operations increased from 3.1% in 1999 to 4.7% in 2003 (Plecas et al., 2005). Specifically within Surrey, the data revealed that the likelihood of a grow operation catching fire was one in 22 – simply put, residences containing grow operations were 24 times more likely to catch fire than other residences in the City.

The risk of fire and serious damage to private property resulting from marijuana grow operations in part relates to the propensity for marijuana grow operators tampering with electrical equipment to obtain electricity required to cultivate marijuana.

A further exposition of the risks associated with marijuana grow operations (refer to Table 1 below) was provided by Richard van Leeuwen, a Forensic Electrical Engineer, based on his considerable experience in the analysis of electrical failures and observations of electrical by-passes within marijuana grow operations.

[1] Plecas, D., Malm, A. & Kinney, B. (2005). *Marijuana growing operations in British Columbia revisited*. Retrieved January 2, 2007, from http://www.ucfv.ca/pages/Special/Marihuana_Grow_Ops_in_BC_Study.pdf

Table 1 – Common hazards found within marijuana grow ops

	Description of Common Hazards
1	Inadequate electrical protection of fuses and circuit breakers.
2	Electrical energizing of the ground within 10 metres of the ground rod, typically placed at the side of the grow op when a by-pass is utilized.
3	Improper installation of electrical systems resulting in tripping, shock and fire hazards.
4	Presence of deliberate booby traps to thwart law enforcement efforts.
5	Failure to properly enclose electrical bypasses resulting in exposed fire and shock hazards.
6	Overloading of electrical conductors resulting in an increased risk of electrocution to individuals standing in water at the site, such as fire protection personnel, police officers, by-law officers, etc.
7	Lack of monitoring of grow operations results in fires being well established before they are noticed, which poses additional dangers to neighbouring properties.

Given the enormity and severity of the grow operation problem, law enforcement efforts have been largely reactive. The problem has been further compounded by the added hindrance posed by the intricacies of criminal law and the delays within the justice system as a whole. Law enforcement officers often know where the grow operations are located, but are powerless to take action. In cases where action has been taken the penalties have not been a sufficient deterrent and the risks to the community have continued unabated for the most part.

1.2 Emergence of EFSI

The development of the EFSI initiative stemmed from the recognition that grow operations pose a significant fire risk and public safety threat and as such deserve serious attention by fire and electrical safety officials in addition to the police. The EFSI initiative operates under the Safety Standards Act, which permits an inter-agency team to conduct electrical inspections of houses that are consuming higher than normal levels of electricity. This team consists of one electrical inspector, one fire fighter, and two police officers, whose role is to keep the peace and ensure the security of the inspection team.

1.3 Enhancement of EFSI

The City of Surrey has emerged as a leader by pioneering the development of the EFSI concept, implementing the pilot study and accelerating its movement forward through assisting with training for staff in other jurisdictions. To further increase the effectiveness of the program Surrey staff have been instrumental in the development of new legislation (Bill 25) and the revision of the Controlled Substance Property Bylaw. Bill 25 enables all local governments to obtain residential power consumption records from BC Hydro and other electricity distributors for residences where unusually high power consumption is recorded in the most recent billing period.

In January of 2007 the Surrey EFSI team was expanded to contend with nearly 1,000 addresses obtained from BC Hydro that met the criteria of unusually high consumption as defined by Bill 25. Additionally, the revision of the Controlled Substance Property Bylaw, 2006, No. 15820 has enabled recovery of the costs incurred by the City and remediation of homes to ensure heath and safety of the occupants of these residences.

1.4 Outcomes of EFSI

Table 2 – EFSI Activities from January 2007 to June 30, 2007

Activity	Number
# Locations Inspected	348
# Notices to Repair Electrical Deficiencies Issued	299
# Children in Locations with High Power Consumption	32

Prior to posting notices to inspect properties, the electrical and fire safety members of the EFSI Team screen the addresses provided by BC Hydro to eliminate locations where large quantities of electricity may be used for legitimate reasons such as seasonal electric space heating, large homes, and other types of legitimate businesses.

EFSI inspections conducted during the first half of 2007 resulted in the identification of electrical deficiencies within 86% of homes inspected, or nearly 9 out of every 10 residences. The combined efforts of the EFSI team and the RCMP resulted in addressing 392 locations that were identified as public safety concerns in the first half of 2007 and 1,008 locations since March 2005.

Furthermore, the likelihood of children residing within residences consuming abnormally high levels of electricity has dramatically declined since the EFSI program was first introduced. Throughout 2004 to 2006 nearly 1 in 4 locations inspected by the EFSI teams had children present. During the first 6 months of 2007, locations with children present had decreased to approximately 1 out of every 10 residences. The increased media attention directed toward the number of children found at these locations last Fall appears to have had a positive effect.

Table 3 – EFSI Activities from March 15, 2005 to June 30, 2007*

Activity	Number
# Locations Inspected	699
# Notices to Repair Electrical Deficiencies Issued	604
# Children in Locations with High Power Consumption	187

* the data reflects a total of 81 weeks of operation as there were periods the EFSI team did not operate, which included vacation and training periods

As stated earlier the development of EFSI stemmed from the increased risk of fire posed by improper electrical wiring commonly found in marijuana growing operations. The following table documents by year (between 2003 and June 2007) the percentage of fires caused by electrical deficiencies in comparison to all fires that occurred in Surrey.

Table 4 – Percentage of Residential Fires Attributed to Electrical Deficiencies by Year

Year	Percentage
2003	**8.7 %**
2004	**6.5 %**
2005	**6.1 %**
2006	**3.8 %**
2007	**1.7 %**

* 2007 figure reflects data from January 1, 2007 to June 30, 2007.

Preliminary data suggests that the program has contributed to a drop in fires caused by grow operations. In 2003, grow operation-related fires in Surrey had climbed to about 15 per year (8.7% of all residential fires). In 2006, the first full year of the EFSI program, grow operations caused 9 fires (3.77% of all residential fires), a 40% decrease from 2005. To the end of June in 2007 the City has experienced only 2 fires as a result of grow operations.

Power consumption information has proven to be a reliable indicator of electrical deficiencies within residences with nearly 9 out of 10 locations inspected requiring repairs.

1.5 EFSI Program Evaluation

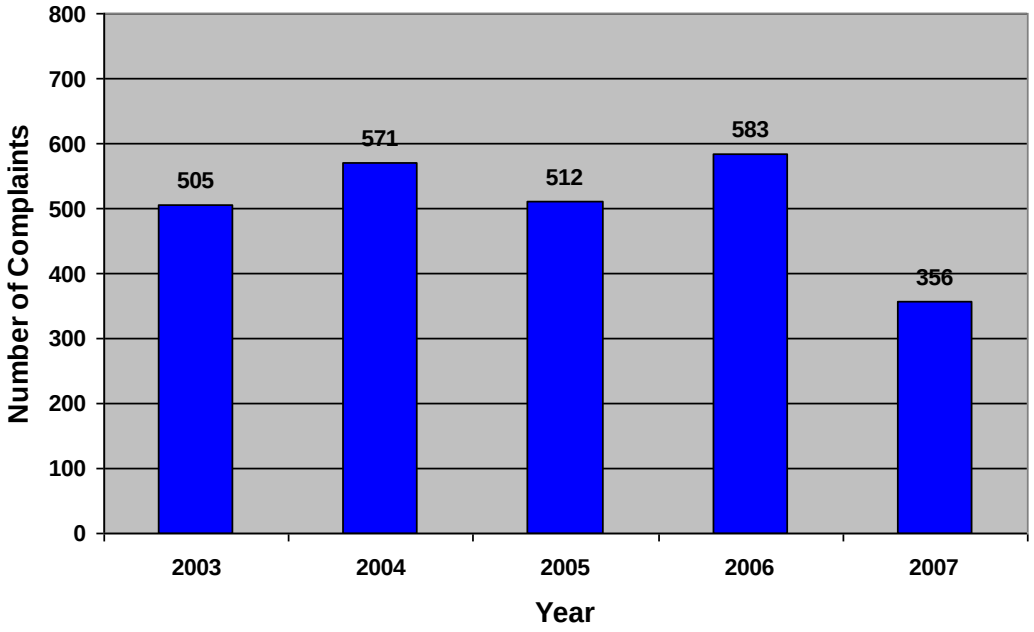
In the Fall of 2006, officials within the Fire Department and RCMP agreed to endorse a research proposal aimed at studying the "probable" re-establishment of marijuana growing operations in cases attended to by EFSI in comparison to those attended to using traditional enforcement tactics. The study provides an opportunity to determine what changes have taken place generally in the nature and extent of marijuana growing operations in Surrey since the research of Plecas et al (2005). Preliminary findings from the research suggest re-establishment of marijuana growing operations between the two tactics has been dramatically mitigated since the introduction of the City's Controlled Substance Property Bylaw. The findings from the evaluation will be available for full release in October 2007.

1.6 Analysis of Marijuana Grow Operation Statistics for EFSI and RCMP

An examination of BC Hydro consumption data, received between July 27, 2006 and June 25, 2007, showed that as of July 18, 2007 sixty-five percent (65%) of locations were no longer grow operations (refer to Appendix C for a geographical representation of EFSI activity). These cases had either been attended to by the EFSI team or ceased to meet the criteria outlined within the provisions of Bill 25 (i.e. the residences were no longer consuming greater than 93Kw of hydro power per day).

The above finding is supported by RCMP projections, refer to Figure 1, that the number of marijuana production-related complaints, in the form of tips, will experience a 39% decline in 2007 in comparison to 2006. When these figures are considered in totality, it is safe to conclude that a notable decline in cases of marijuana production has taken place in Surrey.

Figure 1 – Marijuana Production Complaints by Year



* Note that the actual figure for marijuana production from January 1, 2007 to June 30, 2007 was 178. This figure was doubled to reflect an estimate for the remainder of the year.

1.7 Future Outlook of EFSI Efforts

The Surrey EFSI program has garnered considerable interest from government agencies and police and fire departments across the province, Canada and the United States. The City has hosted numerous training sessions for Lower Mainland and Vancouver Island community officials who have either established or are in the process of establishing an EFSI team. City officials have also been involved in delivering a number of presentations within BC, Ontario and the United States. In the coming months additional presentations will be made to other organizations such as the BC Crime Prevention Society.

The present challenge is maintaining momentum by championing additional changes where needed and incorporating an ongoing evaluation process to ensure the long-term integrity of the program. Currently, the EFSI model is being applied throughout the region and many locations within the province. It is anticipated that over time this will have a widespread impact on residential marijuana grow operations province-wide.

Moreover, the involvement of BC Hydro in addressing the safety risks of grow operations in residential neighbourhoods has resulted in the development of interactive smart metering infrastructure. It is anticipated that these meters will be implemented over the next five years and will enable improved identification of theft of hydro power and provide real time patterns of power consumption.

2. Regulation of the Supply of Hydroponics Equipment

2.1 Background

The distribution of electrical components for the purpose of illegal drug production contributes to electrical safety hazards within the community. Limiting access to this equipment to legitimate users only will help to mitigate the risk posed by electrical safety hazards that are associated with the improper installation of such equipment related to grow operations and will more importantly act to reduce the number of marijuana grow operations in B.C. The need for regulation of hydroponics equipment was noted in 2003 in a report that was developed by the National Coordinating Committee Working Group on Marijuana Grow Operations. The report contained a number of recommendations. The following is an excerpt from the report:

"… provinces, territories and municipalities, where appropriate, be encouraged to develop and implement legislation and/or bylaws that would provide greater control over the proliferation of grow operations, such as, restricting access to the marijuana sub-culture by regulating hydroponics retailers, "pot shops" and other retailers who specialize in the sale of equipment used in marijuana grow operations"

A similar concern was expressed in 2005 by the Lower Mainland Local Government Association (LMLGA), which ultimately led to a request by the Union of BC Municipalities that the Province amend Section 59 of the Community Charter to more clearly articulate local government's authority to impose requirements on businesses that sell goods, which may endanger public health or safety (refer to Appendix B). Needless to say targeting the outlets that sell hydroponics equipment has been advocated for some time by a variety of stakeholders.

2.2 Provincial Public Safety Task Team

Concerns regarding the number of hydroponics equipment stores in British Columbia were recently brought to the attention of officials within the Ministry of Public Safety and Solicitor General and Office of the Fire Commissioner by the Fire Chiefs Association of British Columbia (FCABC). As a result, a meeting was held on April 11, 2006 to discuss the issue further. Subsequent to the meeting the Office of the Fire Commissioner agreed to facilitate the continuing study of this matter and a Public Safety Task Team was established to explore alternatives to effectively address the issue.

The Public Safety Task Team is co-chaired by the Office of the Fire Commissioner and the City of Surrey Fire Chief, who represents the Fire Chiefs Association of BC (FCABC). The Task Team includes representatives from both public and private agencies, which have a vested interest in public safety and/or knowledge in related topics. The team is focussed on the identification of emerging issues that contribute to the production of illegal drugs that create a risk to public safety, developing options and making recommendations to government.

2.3 Preliminary Findings of the Public Safety Task Team

- The Task Force requested data from BC Hydro regarding the total annual aggregate electrical power consumed by marijuana grow operations and cited a number of publicly

available references related to marijuana grow operations and the increasing Hydro needs in British Columbia. BC Hydro responded with the following;

" *In support of your objective of demonstrating energy demand impact of grow ops, it is BC Hydro's high level estimate that the total electricity consumption by grow ops, including both paid consumption and theft, is likely over 1,000 GWh per year. To put this figure into context, 2006 total domestic demand for electricity by all customers of BC Hydro was 52,440 GWh."*

- To add further perspective to the above findings, the Task Force retained a specialist in planning and engineering economics from Banjar Management Inc. Banjar Management Inc. has considerable experience in planning hydro generation projects. Banjar Management Inc. reported that:

    - BC Hydro presently sells 52,400 GWh of energy per year with some 15,700 GWh being sold to residential customers;
    - The estimated 1,000 GWh of electricity consumption related to grow-ops represents over 6% of the energy supplied by BC Hydro to all of its residential customers;
    - The residential electricity price is $64/MWh making grow operation consumption equivalent to about $64 million per year, much of which may be stolen;
    - The equivalent annual grow-op consumption was projected ahead to the year 2020 and it was concluded that it represents a present value amount approaching $600 million;
    - Grow-op consumption if it continues to increase at current trends will reach a level of 1,100 GWh per year in B.C. by 2012; and
    - This level of generation would be comparable to the East Toba Montrose Creek hydro project, which has an estimated capital cost of $660 million."

- Research by Bauman, Plecas, Taylor, Neal and Huitson (2006) revealed that British Columbia has fifty times the number of hydroponics equipment shops in comparison to the Washington State and thirty times the number found in Alberta. Site visits conducted by EFSI personnel and the RCMP verify the existence of hydroponics equipment in most marijuana grow operations.

The findings of Richard van Leeuwen (2006), identified commonly used electrical devices within marijuana growing operations. The three elements that were identified as distinctive, and not normally found in residential structures, were:

1. 1000 watt high intensity discharge lamps[2];

2. 1000 watt ballasts[3] (or transformers); and

3. electrical timers[4].

[2] Lamps are essential to grow plants indoors and have been observed by police officers and EFSI team members in every grow operation. The common manufacturers of 1000 watt HID lamps are Sylvania, Philips and possibly GE.
[3] The ballasts used in the majority of grow operations that have been seen have not had any labels, due for most part to fire damage.

- An inventory of the equipment and related brands commonly found in grow operations was compiled for the seized equipment located at the Seized Property Management Directorate warehouse[5]. The random sample included equipment seized from 284 marijuana grow operations within the lower mainland. This constituted approximately one-third of all the equipment held in the warehouse (for further details related to the study refer to the research of Garis & Plecas, 2006). The purpose of the analysis was to determine whether or not any particular brand was over-represented in terms of year and jurisdiction. As expected, no relationship whatever existed between brand and year or brand and jurisdiction. The findings for the three common electrical devices, noted above, were as follows:

  Timers - Timers were seized in 89% of cases considered. The most common brand seized was "Intermatic" (96%).

  Lights - Where lights were seized, the most common brands were Sylvania (71%), Phillips (68%), Eye Hortilux (55%), and General Electric (43%). Collectively, these four brands constituted 94% of all 3456 lights identified. No other brand was seized more than 1% of the time. Also noteworthy was the fact that 93% of lights seized were 1000 watt lamps.

  Transformers (or ballasts) – Transformers were seized in 83% of cases considered. The most common brands seized were Magnatek, Venture, Advance, Sylvania, and HPS. Collectively, these five brands made up 80% of the 4161 transformers inventoried.

The above findings demonstrate that hydroponics equipment shops in British Columbia are grossly over-represented in relation to neighbouring jurisdictions. Additionally, the data suggest that the electronic devices commonly found within marijuana growing operations share some further commonalities with regard to manufacturers (i.e. Intermatik, Sylvania, Phillips, etc.). If hydroponics equipment is regulated (either from the point of sale or by the manufacturer or both), such action will assist in ensuring that it is safely installed for legitimate purposes in appropriate locations.

It is disturbing to realize that while the general population has been active in implementing energy conservation measures to protect and conserve our precious energy resources, power consumption for the purpose of marijuana production has escalated, placing significant demand on power generation systems in British Columbia. The capital investment related to hydro generation capabilities being absorbed by grow-ops is in the hundreds of millions of dollars.

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[4] Timers are required to regulate the time that indoor plants are exposed to the light. All timers observed have been manufactured by Intermatic.

[5] Garis, L. & Plecas, D. (2006). An Analysis of Marihuana Grow Equipment Seized From Lower Mainland Operations. University College of the Fraser Valley.

2.4 Resolution for UBCM Consideration

Based on the significance of hydroponics equipment in propagating the ill effects on society of marijuana grow-ops, the resolution attached as Appendix A to this report has been overwhelmingly endorsed by the following agencies;

- British Columbia Fire Prevention Officers Association;
- British Columbia Fire Chiefs Association; and
- British Columbia Police Chiefs Association.

It is recommended that Council endorse this recommendation and authorize the City Clerk to forward a copy to the Union of British Columbia Municipalities (UBCM) for consideration at its annual Conference.

CONCLUSION

The goal of keeping Surrey and all communities safe from marijuana grow operations is at the heart of strategies such as EFSI and the regulation of the sale of hydroponics equipment.

Single-pronged approaches to addressing marijuana-growing operations, such as reliance on the enforcement efforts of the Police, have proven ineffective in the face of high numbers of marijuana growing operations and insufficient criminal justice responses by the Court system. The introduction of EFSI has helped to alleviate some of the volume-related stressors placed on the Police. While EFSI addresses the threat to potential victims of marijuana cultivation within the community, namely the neighbours and neighbourhoods, the Police continue to contend with the offenders responsible for illicit production. The introduction of regulations related to the sale of hydroponics equipment will offer another approach through which further reductions in the number of marijuana grow operations may be achieved.

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Appendix A

Proposed UBCM Resolution Related to the Regulation of the Sale of Hydroponics Equipment

Background:

A multi-pronged approach is needed to reduce the many public safety threats – including fire and electrocution – related to residential marijuana grow operations in B.C. A number of Greater Vancouver communities have established Electrical and Fire Safety Inspections in an attempt to reduce these threats. The next necessary step is to address the equipment side of grow-ops – namely, the hydroponics equipment prevalently used in residential marijuana grow operations.

Research by Plecas et al. (2002 and 2006) shows that:

- British Columbia has 50 times the number of stores that sell hydroponics equipment in comparison to Washington State and 30 times the number in Alberta;
- B.C. saw close to a 50% increase in the number of stores selling hydroponics equipment between 2000 and 2004;
- Hydroponics equipment found in marijuana grow operations is frequently poorly installed, which increases the likelihood of it causing a fire;
- A house containing a marijuana grow operation is 24 times more likely to catch fire than a typical house; and
- Grow operations in BC consume nearly 6% of the electricity consumed by all residential properties combined (i.e., the equivalent consumption of 100,000 single family homes).

Based on the above, it is recommended that the UBCM adopt the following resolution, focused on introducing regulations related to the sale of hydroponics equipment in British Columbia.

Resolution:

"WHEREAS residential marijuana grow operations pose significant threats to public health and safety, including fire and electrocution;

AND WHEREAS hydroponics equipment is commonly used in residential marijuana grow operations;

AND WHEREAS incorrect installation and use of hydroponics equipment increases the likelihood of fire and electrocution;

THEREFORE the Union of BC Municipalities requests that the Province of British Columbia enact legislation that would act to regulate the sale of hydroponics equipment by ensure that:

- *Hydroponics equipment is only sold to licensed retailers; and*
- *Purchasers of hydroponics equipment have a valid electrical permit prior to the purchase of hydroponics equipment."*

Appendix B

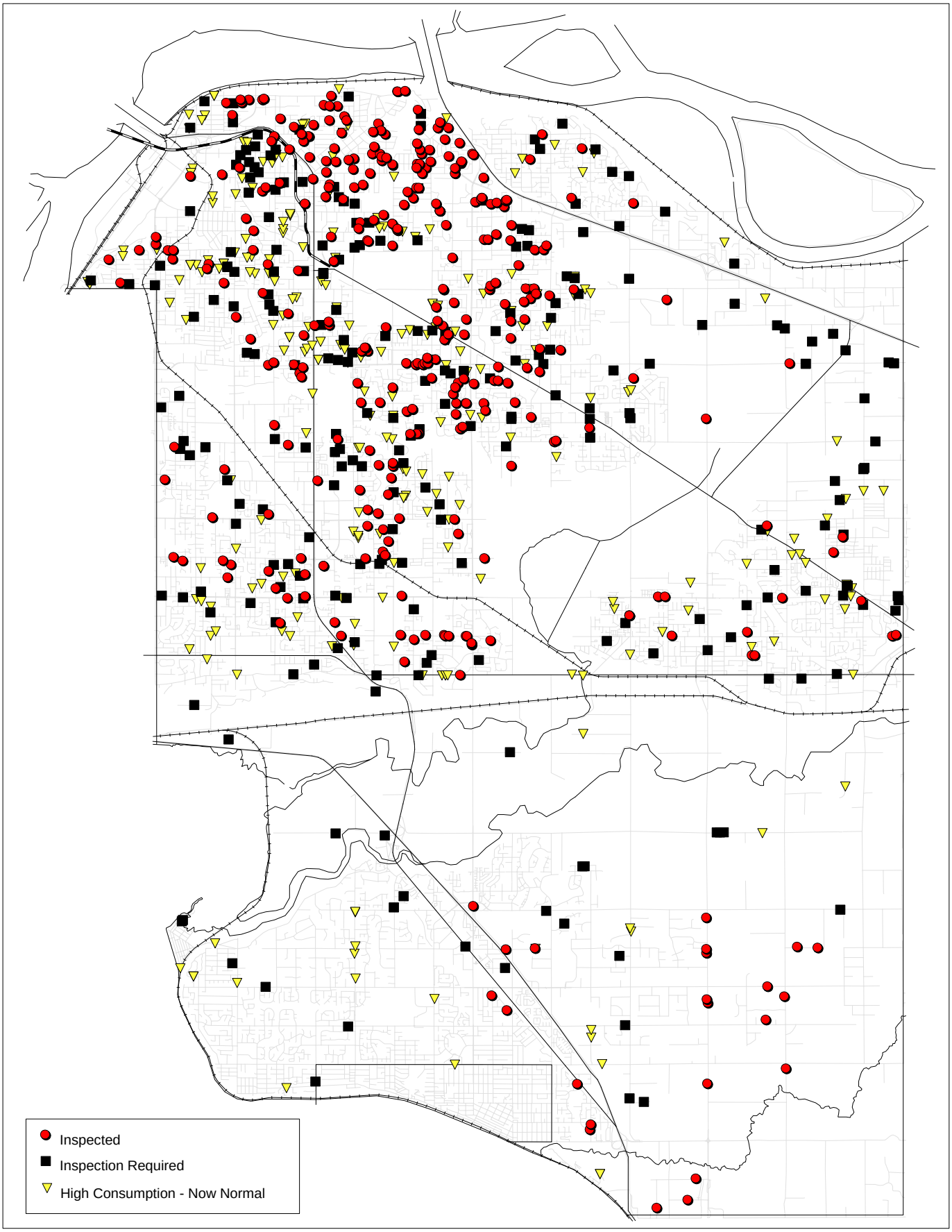
LMLGA Resolution

WHEREAS there is increasing concern over public health and safety and increased related local government costs as a result of the expansion of marijuana grow operations and methamphetamine laboratories into residential neighbourhoods;

AND WHEREAS there is an increase in the sale of special equipment and supplies used to grow marijuana indoors and produce methamphetamines and an increase in the number of hydroponic and drug paraphernalia stores in the province:

THEREFORE BE IT RESOLVED that the Union of BC Municipalities request that the Province amend Section 59 of the *Community Charter* to more clearly articulate local government's authority to impose requirements on businesses that sell goods in the community which may endanger health or public safety.

APPENDIX C


Inspected
Inspection Required
High Consumption - Now Normal