Motor Vehicle Theft: An Analysis of Recovered Vehicles in the Fraser Valley

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November 2007

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Executive Summary

Motor vehicle theft is one of the most commonly reported crimes in Canada. In British Columbia, an estimated 48 vehicles are stolen every day. Vehicles are typically stolen for three reasons: recreation, transportation, or profit. Vehicles stolen for recreation primarily involve youth attempting to establish status among peers. This form of motor vehicle theft involves joyriding or stealing a vehicle for fun. Vehicles stolen for transportation are often stolen for a single-trip. These vehicles may also be stolen for use in other offences, such as break and enter. Vehicles stolen for profit are either stolen directly for resell or in order to sell the vehicle's individual parts. These vehicles may also be falsely reported stolen for the purposes of insurance fraud by the vehicle's owner.

Research on motor vehicle theft has primarily focused on its motives, the methods used by auto thieves, and the profile of auto thieves. There has been a lack of research specifically on the recovery of stolen vehicles. The current study analyzed 2,335 police reports of vehicles stolen from the Fraser Valley cities of Abbotsford, Chilliwack, and Mission. The analysis also included vehicles reported stolen in other jurisdictions, but subsequently recovered in Abbotsford, Chilliwack, or Mission.

Nearly half (49 per cent) of all stolen vehicles were taken from the owner's house. Most stolen vehicles (85.5 per cent) were taken by damaging the vehicle's ignition system. Cars were stolen more frequently than trucks, comprising nearly two-thirds (62 per cent) of the current sample. On average, stolen vehicles were 13 years old. Dodges (14.5 per cent) and Fords (13.7 per cent) were the most commonly stolen vehicles.

Almost all (89 per cent) vehicles reported stolen in the current study were eventually recovered by police. Slightly more than one-third (35.5 per cent) of stolen vehicles were recovered in residential areas. Other locations included rural (16.8 per cent) or remote areas (11.2 per cent), in addition to business areas (14.7 per cent). Given that only 5.6% of vehicles were stolen from rural and remote locations, but nearly one-third (28 per cent) of stolen vehicles were recovered in rural and remote locations, further analyses were conducted with 305 vehicles that met this criteria. The most common location for vehicle recoveries in remote and rural locations was Burma Road in Mission (9.8 per cent). The results suggest that Burma Road may be somewhat of a "hot spot" for the dumping of stolen vehicles.

The majority (81 per cent) of recovered vehicles had some degree of damage upon recovery. In total, 3.6% of vehicles were destroyed completely, while 5.3% were burned. Vehicles that were recovered in rural or remote dumpsites were significantly more likely to be damaged than vehicles recovered in non-rural or remote locations. Over two-thirds (68.7 per cent) of destroyed vehicles were dumped in a rural or remote location. Similarly, over half (56.1 per cent) of burned vehicles were dumped in rural or remote locations.

Much of the motor vehicle theft analyzed in the current study could likely be categorized as motor vehicle theft for transportation. The vast majority of vehicles stolen in the Fraser Valley were also recovered there. Further, many vehicles were recovered in the same jurisdiction from which they were stolen. A small proportion of vehicles recovered in the Fraser Valley were vehicles stolen from neighbouring or otherwise nearby jurisdictions. It is possible that the lack of available transportation between Lower

Mainland and Fraser Valley cities may result in thieves stealing vehicles in order to travel to the Fraser Valley.

Over one-quarter (28 per cent) vehicles stolen in the Fraser Valley were subsequently recovered in rural or remote areas. Specifically, 11.2% of stolen vehicles were recovered from remote dumpsites. It is not reasonable to presume that transportation would be the motive for theft in these cases. Instead, it is plausible that some of these vehicles are reported stolen for the purpose of committing insurance fraud. Many of the vehicles recovered in rural and remote dumpsites were damaged, possibly indicating an attempt to cover up the identity of the vehicle's owner or other evidence indicative of fraud. To prevent, or at least increase, the potential to substantiate suspicions of insurance fraud, the results of the study suggest that utilizing stationary surveillance cameras may be beneficial in known dumpsites. By using stationary cameras along access roads to more frequently used rural and remote dumpsites, investigators will have access to documented photographs that may support claims that a person has engaged in insurance fraud through falsely reporting a motor vehicle theft.

The results of the current study identified several potential areas for future research. The current study provided much needed information regarding the nature of vehicle theft and recovery in the Fraser Valley; however, future research should seek to expand the understanding of the role of insurance fraud; in particular, as it relates to remote dumpsites. This is especially important, given that the high rate of vehicle recovery in the current study (89 per cent) indicated a lack of theft for profit. Secondly, research should focus on the identification of risk factors for motor vehicle theft. In other words,

future research should seek to identify those factors that most likely contribute to vehicle

theft and recovery.

Introduction

Motor vehicle theft is one of the most commonly reported crimes in many Canadian jurisdictions. Specifically in British Columbia, the Insurance Corporation of British Columbia (ICBC) has recently indicated that, on an average day, 48 vehicles are stolen in British Columbia (www.icbc.com). For the most part, research on motor vehicle theft has focused on the motivations behind the act, the various methods employed by thieves, and, more recently, the profile and criminal development of motor vehicle thieves. However, there is a paucity of research examining the characteristics of stolen vehicles that are recovered and, in particular, the recovery sites in which they are found. Given this, this report will examine the phenomenon of motor vehicle theft in a Canadian context using data collected from police reports of stolen vehicles in three cities within the Fraser Valley, British Columbia. Specifically, this report will include an analysis of dumpsites and the recovery of vehicles from within the Fraser Valley of British Columbia.

Definitions of Motor Vehicle Theft

In general, research has identified three forms of motor vehicle theft: (1) recreational theft; (2) theft for the purpose of transportation; and (3) theft for profit (Challinger, 1987). Motor vehicle theft for recreational purposes typically involves joyriding or stealing a vehicle for fun with no real destination or other motive in mind. This category of motor vehicle theft is often engaged in by youth looking to obtain status among their peers or who experience some psychological/physical thrill associated with engaging in or participating in a motor vehicle theft. Motor vehicle theft for transportation involves stealing a vehicle for a single-trip, transportation associated with or facilitating the commission of another offence, such as a break and enter, or the theft of a vehicle for

longer-term personal use. Motor vehicle theft for profit typically involves stripping the car of its parts for reuse or resale, more organized chop-shop organizations that may involve organized crime, the retagging or re-identification of cars (giving a stolen car the identify of a wrecked vehicle) for export, or insurance fraud (Challinger, 1987; Clarke and Harris, 1992). For the most part, vehicles stolen for profit are typically associated with adult organized offenders who belong to a network of criminals. Vehicles stolen for their parts are often taken to chop-shops where they are "stripped" or dismantled and then discarded, their parts used either as a replacement for the thief's own car or are sold in the underground market for profit (Fleming, Brantingham, & Brantingham, 1994). Additionally, stolen vehicles may be exported to other countries and resold for profit in illicit vehicle markets.

Research in the early 1990s suggested that over half of the incidences of motor vehicle theft in Canada could be classified as theft for profit as the stolen vehicles were stripped of their parts, had their vehicle identification numbers switched, or were exported to other countries (Clarke and Harris, 1992). Specifically, Canadian statistics indicated that 20,000 cars a year may be stolen exclusively for the purpose of export (Corelli, 1998). Moreover, Gant and Grabosky (2001) argued that three-quarters of all motor vehicle thefts in Canada are motivated by opportunistic car thieves looking for immediate transportation or for the purpose of joyriding. These researchers suggested that only 25% of motor vehicle theft could be attributed to professionals stealing vehicles for profit.

When stolen for profit, popular vehicle parts include sound equipment, wheels, and core mechanical and body components (Gant and Grabosky, 2001). Problematically for the public, theft of vehicle parts appears to be a relatively low-risk and high-return crime. For

example, in 1998, one offender was caught and convicted for every 40 vehicles stolen. Moreover, only one in 115 caught and convicted offenders were sentenced to a period of incarceration (Gant and Grabosky, 2001). It would appear, therefore, that the benefits of engaging in motor vehicle theft outweighed the costs associated with participating in this offence.

Gant and Grabosky (2001) also characterized motor vehicle theft for profit into five specific categories: (1) vehicles may be stolen in order to resell their parts or to replace, rebuild, or upgrade other vehicles; (2) stolen vehicles may be resold or used to barter for other goods, such as illegal drugs; (3) stolen vehicle parts may be used to repair other vehicles; (4) stolen parts from a number of different vehicles could be used to create hybrid cars; and (5) stolen vehicle parts may be used to either change the appearance of or to upgrade other vehicles. Regardless of the specific intended use of the stolen vehicle parts, for a variety of reasons, vehicles stolen for their parts are more often older vehicles. One explanation for this phenomenon is that the parts required by older cars may no longer be produced, thereby creating a need to obtain the required parts by other means. Alternatively, older vehicle parts may be cheaper than new parts, resulting in increased demand for older parts to be used in repair (Gant and Grabosky, 2001; Fleming, Brantingham, & Brantingham, 1994).

Gant and Grabosky (2001) contended that, in the past, it was easier for stolen vehicle parts to enter the legitimate market as they were not necessarily easily identifiable as being stolen. This led to further victimization as individuals unknowingly bought stolen parts. In order to better respond to this specific niche of the stolen vehicle issue, Gant and Grabosky (2001) suggested that manufacturers be required to label all components of a

vehicle and that the government design and implement a national vehicle write-off system and a national vehicle wrecks register. The implementation of these two mandatory registries would allow for a better tracking of wrecked cars and their parts. Finally, they suggested a mandatory, uniform process for the dealing in second hand vehicle parts so that both legitimate and stolen vehicle parts could be identified and tracked.

Motor Vehicle Theft in British Columbia

In 1994, Fleming, Brantingham, and Brantingham produced a comprehensive analysis of motor vehicle theft in British Columbia. This research was very timely, given that between 1977 and 1992, motor vehicle theft in British Columbia more than doubled, rising from less than 12,000 incidents per year to over 24,000 (Fleming, Brantingham, & Brantingham, 1994). In fact, in 1992, British Columbia had the second highest rate of motor vehicle theft compared to all other Canadian provinces. It should be noted, however, that British Columbia also had the highest rate of recoveries of stolen cars (91 per cent) compared to the national average (73 per cent) (Fleming, Brantingham, & Brantingham, 1994).

Much of what is known about motor vehicle theft in Canada is derived from the research of Fleming et al. (1994). Using interviews with criminal justice officials, including youth court judges, probation officers, custody staff, and police, interviews with young offenders, interviews with victims, and a file analysis, Fleming et al. (1994) identified that young offenders often engaged in motor vehicle theft and that they typically stole older Japanese models, such as Hondas, because the vehicles had a vulnerable door and ignition lock which made them easier to steal. This finding suggested that, at least for a proportion of young offenders who stole vehicles in British Columbia, there was an element of rational

thought in motor vehicle theft; offenders were selectively targeting particular vehicles to steal.

Interviews with criminal justice personnel highlighted several concerns regarding the manner in which the youth criminal justice system, at the time, the *Young Offenders Act*, responded to motor vehicle theft. One specific concern was that youth received light, if any, sanctions for motor vehicle theft. Their perspective was that many youth were diverted out of the justice system or sentenced to probation. This tendency was perceived to have resulted in a lack of both general and specific deterrence as youth were believed to be aware of their risk of conviction and the lax penalties associated with being convicted of a motor vehicle theft (Fleming, Brantingham, & Brantingham, 1994).

Fleming and colleagues interviewed incarcerated young offenders convicted of motor vehicle theft. Through this process, they identified a trend in which a relatively small number of youth were responsible for a relatively large proportion of all motor vehicle thefts in the Lower Mainland of Vancouver. Specifically, sixteen young offenders reported stealing an average of 2.8 vehicles a week, resulting in approximately 146 cars stolen a year per youth.[1] Youth also reported that underground parking lots offered the best opportunity for motor vehicle thefts, followed by car dealerships and shopping mall parking lots. In terms of general prevention, these convicted young offenders indicated that they would be deterred by vehicle alarms and steering locks.

Through surveying approximately 500 known victims of motor vehicle theft, Fleming and colleagues (1994) concluded that nearly half of the vehicles stolen were, as reported above, older Japanese models. Further, they identified that 95% of vehicles

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[1] These findings excluded three particularly prolific offenders whose inclusion in the analysis substantially skewed the results.

reported stolen were eventually recovered, suggesting that these vehicles were not stolen for profit. Instead, it is likely that these vehicles were stolen for use in transportation or for committing additional crimes.

In approximately 20% of the cases, the victim's vehicle was stolen with their own keys; either the victim left the key in the ignition or the offender found the key's hidden location somewhere on or near the vehicle. In terms of general crime prevention, less than 10% of victims reported that their vehicles had an anti-theft device, such as an immobilizer or a steering lock. With respect to the location and time of the motor vehicle theft, nearly two-thirds of victims (63 per cent) reported that the theft occurred from the victim's home and the theft usually occurred (70 per cent) at night. These results were supported by a subsequent analysis by Bromley and Thomas (1997) of auto theft in Wales. These researchers concluded that many vehicle crimes occurred when it was dark outside. Similarly, Clarke and Harris (1992) noted that the greatest vulnerability for car theft ranges between dusk and dawn.

Young offenders in the Fleming et al. study (1994) also stated that vehicles were most vulnerable to theft while parked on a street (36 per cent), in a private driveway (20 per cent), in an underground garage (16 per cent), or in a ground-level parking lot (11 per cent). These results were similar to estimates provided by Clarke and Harris (1992), where vehicle thefts were most common on the street outside the victim's home (37 per cent), from non-commercial parking lots (19 per cent), and from other street locations (16 per cent). Shopping centres were also identified as 'hot spots' for motor vehicle theft as these vehicles are typically left unattended for long periods of time.

Fleming and colleagues (1994) were also interested in obtaining information regarding the extent to which cars were damaged as a result of motor vehicle theft. Results indicated that quite often, victims' vehicles were stolen using "crude force" resulting in a substantial amount of damage. In approximately 90% of the cases, victims reported that their vehicle sustained some damage in the course of the theft; in one-third of these cases, victims reported that the damage to the vehicle was beyond repair.

At the time this research was conducted, Fleming and colleagues found that there was little support for the presence of organized, profit-motivated adult offenders. However, this research was published in 1994. As a result, the current realities of motor vehicle theft may be very different, at least in the context of the Lower Mainland of British Columbia. Current anecdotal reports suggest that much of the motor vehicle theft in the Lower Mainland of British Columbia can be attributed to the use of methamphetamine (e.g. www.baitcar.com) and there is, as mentioned above, a growing concern about the association between motor vehicle theft for profit and organized crime.

Approaches to Reduce the Occurrence of Motor Vehicle Theft

There are many criticisms of the criminal justice system's response to auto thieves. These criticisms are typically based on the arguments that the criminal justice sanction does not fit the seriousness of the offence and does little to deter most offenders. According to Ayers and Levitt (1998), if a small number of individuals are responsible for a disproportionate amount of crime, incapacitating these offenders in prison should reduce the amount of motor vehicle theft.

Others have argued that it is incumbent on the owners of motor vehicles to "target harden", or increase the security of their vehicle to more effectively deter theft. Target

hardening may involve the use of car alarms, immobilizers, or steering wheel locks. Immobilizers prevent the car from starting by turning off a car's electrical parts (e.g. the starter or fuel system). The only way to bypass this system is with the use of a special key (www.icbc.com). In 1998, immobilizers were made mandatory on all new cars produced in the United Kingdom (Brown and Thomas, 2003). However, as new cars are equipped with this security feature, there is some concern that this could result in the displacement of motor vehicle theft to older models that are less secure.

Brown and Thomas (2003) used Home Office Car Theft data from the United Kingdom in 1997 and 2000 to test two theories related to the association between the security of cars and motor vehicle theft. First, the time-lag theory suggested that, given sufficient time, all new security measures, such as immobilizers, will be defeated by thieves. As a result, the introduction of new security features would not have a long-term effect on overall motor vehicle theft rates. In contrast, the second theory, the reduced-pool theory, suggested that new security measures would result in reduced levels of motor vehicle thefts as rates would decrease with each subsequent year of production as more and more vehicles would have security measures built into them.

The results of this study indicated support for the reduced-pool theory in that there was a decline in theft of vehicles aged three to 13 years. The largest year of production in which there was a decline in theft rates was 1995, the year in which legislation introduced the mandatory inclusion of immobilizers. In addition, there was a displacement effect upon older cars, which the authors argued would be short-term, until these older cars were out of service and replaced with those fitted with immobilizers. In effect, these results

supported the effectiveness of vehicle security devices, such as immobilizers (Brown and Thomas, 2003).

Still, the research suggests that such measures have varying success. For instance, Ayers and Levitt (1998) examined the success of "Lojack", a radio transmitter that is hidden somewhere on a motor vehicle. If the vehicle is stolen, police use the Lojack system to locate and retrieve the vehicle. Research on the Lojack system in the United States suggested that it has been successful; in several cases, Lojack has contributed to the disruption of chop shops and an increase in arrest rates. In some cases, Lojack has been attributed with a threefold increase in arrest rates (Ayers and Levitt, 1998). The city of Boston reported a 50% decline in motor vehicle theft since the introduction of the Lojack system. Although there was some evidence that Boston was already entering a period of decline with respect to motor vehicle theft, some of this decline was attributed to the Lojack system (Ayers and Levitt, 1998). According to these researchers, four years following the introduction of Lojack, the rate of motor vehicle theft per capita declined by over 17% compared to no decline in areas without the Lojack system. They argued that with each additional year that Lojack is operational, there is a corresponding 10% decline in the rate of motor vehicle theft. In addition, the authors presented estimates that for every three Lojack systems installed, motor vehicle theft decreases annually by one, with no evidence of displacement (Ayers and Levitt, 1998).

The success of programs such as Lojack can be increased with the implementation of additional measures, such as reduced insurance. In Massachusetts, the installation of a Lojack system was promoted by providing a 20% discount on comprehensive car insurance. If the Lojack system was combined with an additional anti-theft device, the

discount was increased to 35% (Ayers and Levitt, 1998). In summary, Ayers and Levitt (1998) argued that Lojack is a cost-effective approach to the reduction of motor vehicle theft. However, Clarke and Harris (1992) criticized this conclusion, suggesting that the Lojack system costs between $600 and $800 to purchase, install, and maintain. This cost restricts its use to wealthier people or those owning newer and more expensive vehicles. In effect, Lojack systems displace motor vehicle theft to those who can least afford to prevent it.

A popular and well publicized program in British Columbia to combat motor vehicle theft is the Bait Car program. By equipping vehicles commonly targeted by auto thieves with Global Positioning Systems and audio and video recording devices, police track and arrest auto thieves in the process of stealing a vehicle (www.baitcar.com). The bait car technology is linked to a communications operator who can notify police when a bait car has been stolen. While police respond to the theft, the communications operator has the ability to remotely disable the vehicle's engine, simultaneously locking the thieves within the vehicle (Arizona Auto Theft Study, 2004).

Clarke and Harris (1992) suggested that "gotcha cars", similar to bait cars, have presented only a small risk to offenders. They stated that there was only a small chance that an offender would target one of these cars on any given day, and that police surveillance of motor vehicle theft hot spots would likely be a more efficient approach to reducing vehicle thefts. However, research with the Bait Car program, as implemented in Arizona, indicated that media attention to bait cars resulted in increased public awareness which had a deterrent effect to auto thieves (Arizona Auto Theft Study, 2004). Further, findings from the Minneapolis Police Department suggested that the bait car program

resulted in a reduction of more than one-third (37 per cent) of motor vehicle theft incidences (Arizona Auto Theft Study, 2004). According to the Bait Car program website (www.baitcar.com), the Bait Car program has also been successful in British Columbia. Since its introduction in 2004, motor vehicle thefts province-wide decreased by slightly more than one-third (35 per cent).

Although not necessarily useful in preventing motor vehicle theft, the utility of automated licence plate recognition (ALPR) systems have also been discussed in connection with identifying stolen vehicles. ALPR utilizes either stationary roadside cameras or cameras mounted on police vehicles linked to computerized databases containing information on stolen vehicles. As cars pass by a fixed or mobile ALPR station, the camera photographs the vehicle's licence plate and compares the image against the information stored in the database. However, Clarke and Harris caution that this system has a very low hit rate, approximately 1.5 cars per 10,000 photographs. Similarly, Cohen, Plecas, and McCormick (2007) recently concluded that the implementation of ALPR technology in mobile police vehicles in British Columbia was not an effective nor an efficient method for identifying stolen vehicles as less than one per cent of hits in this study resulted from stolen vehicles.

Another approach to motor vehicle theft is target hardening. Bromley and Thomas (1997) compared motor vehicle theft rates in two Welsh cities to assess the environmental effects of enhanced security measures in car parks. Specifically, they examined several multi-storey and open air car parks. Open air car parks were identified as conducive to motor vehicle theft because they allowed for easier escape from the scene, they did not tend to have roving patrols, and they lacked Closed Circuit TV (CCTV). Their analysis

suggested that rates of motor vehicle theft could be reduced by a variety of simple measures, such as controlled exits, restricted pedestrian access, increased lighting, and painting the walls lighter colours. Although the authors found that the use of CCTV decreased motor vehicle theft, this measure was not as effective when not combined with the additional aforementioned security measures.

There is some evidence to support the conclusion that increased welfare rates are associated with reduced motor vehicle theft. Welfare is a hotly debated topic with opponents arguing that it "legitimizes failure" and undermines individual responsibility, while proponents argue that it reduces the strains of poverty and diminishes many social problems (Hannon and Defronzo, 1998). In examining the motor vehicle theft rates from 406 large American metropolitan areas in 1990, Hannon and Defronzo identified that welfare rates were significantly and negatively related to the rates of motor vehicle theft, indicating that as welfare increased, motor vehicle theft decreased. Hannon and Defronzo's analysis also suggested that the strongest positive predictor of motor vehicle theft rates was the percent of poor families who were headed by females. Therefore, their analysis suggested that one way to decrease motor vehicle theft in economically poorer areas was to increase the welfare rates provided, in particular, to female-headed families (Hannon and Defronzo, 1998).

An analysis by Akins (2003) provided support for the argument that increased police presence could mediate the amount of motor vehicle theft. However, the results of this analysis were in an unexpected direction as police strength appeared to be positively associated with motor vehicle theft. These results suggested that by increasing police presence in areas characterized by segregation and deprivation, motor vehicle theft rates

actually increase. However, research by DiTella and Schargrodsky (2004) suggested the opposite effect. In comparing motor vehicle theft rates in neighbourhoods in Buenos Aires before and after a terrorist incident that resulted in a heavy police presence, DiTella and Schargrodsky (2004) found that the motor vehicle theft rates in the immediate area were reduced. However, this effect did not last beyond one or two blocks. Taken together, these results suggested that for motor vehicle theft to be significantly decreased, police would have to substantially increase their presence throughout the city, which would likely result in a short-term increase in motor vehicle theft rates as more perpetrators would be apprehended.

Motor Vehicle Thieves

Youth and young adults are commonly associated with the theft of motor vehicles (e.g. Clarke and Harris, 1992). For example, Akins (2003) suggested that there is a correlation between the proportion of the population that is male and between the ages of 15 to 29 years old and rates of motor vehicle theft. This relationship was supported by Canadian statistics indicating that youth were disproportionately responsible for auto thefts. In 2001, youth 12 to 17 years old accounted for nearly half (42 per cent) of Canadians charged with motor vehicle theft (Wallace, 2003). However, this research involved an analysis of charge data, rather than conviction data. More recent research (see Plecas, McCormick, and Cohen, in submission) identified that auto thieves, according to the police files of suspected auto thieves, are more appropriately described as adult males. The discrepancy in statistics may be due to the finding by Plecas and colleagues that auto thief suspects are rarely charged with an auto-theft related offence.

Most of the young offenders who were interviewed by Fleming, Brantingham, and Brantingham (1994) were characterized by a multi-problem profile, including frequent family moves, troubled parent and teacher relationships, frequent use of alcohol and other drugs, and involvement in crime. On average, these youth began stealing cars at age 13, usually after participating numerous times as a passenger in a stolen vehicle. The youth in this study identified reasons why they engaged in motor vehicle theft, including joyriding, for transportation, or for parts (Fleming, Brantingham, & Brantingham, 1994). However, less than one-third of these young offenders stole a vehicle for a theft ring. This suggested that most youth motor vehicle theft for profit was characterized by youth criminal activity unconnected to organized crime. Youth also reported that they stole cars to assist in the commission of other offences, such as Break and Enter.

Based on these findings, Fleming, Brantingham, and Brantingham (1994) created a three-fold typology of youth motor vehicle thieves. They identified that the "acting out joyrider" was most likely to be emotionally disturbed and using motor vehicle theft as a means to gain status with peers. These youth were extremely dangerous on the road and the least likely to be deterred. The "thrill-seeker" youth was typically on drugs and using motor vehicle theft as a source of funds. These youth more typically used the vehicle to commit additional crimes. Finally, the "instrumental" youth stole vehicles for money. These youth were the most actively involved in motor vehicle theft, were the most rational of the three types, and tended to take the least amount of risk in their theft.

Although the literature suggests that many car thieves are youth who steal cars to joyride, more recent data suggests that this is not always the case. A recent analysis by Plecas, McCormick, and Cohen (in submission) identified that the majority of identified

auto thieves in Surrey, British Columbia between 2001 and 2002 were adult offenders, who were, on average, 26 years of age. Their results supported an earlier analysis by Zapotichny (2003) who identified the average age of auto theft offenders to be 28 years old.

Cherbonneau and Copes (2006) recently conducted a study on the strategies employed by adult auto thieves to minimize their chances of police apprehension. Informal threats to successful motor vehicle theft are those deriving from the owners of the targeted vehicle, general bystanders who may witness an attempted or successful motor vehicle theft, or any forms of surveillance that may record the theft of a vehicle. Formal threats tend to occur while driving a stolen car, such as encountering a police officer. Formal and informal threats are both unpredictable and more or less likely to occur. Given that contact with the police or informal threats are at least a possibility if not a probability in some jurisdictions, the authors proposed that auto thieves must devise methods to avoid or reduce this occurrence.

To examine the strategies employed by auto thieves, Cherbonneau and Copes (2006) conducted interviews with 54 auto thieves, many of whom identified a profit motive for their participation in this offence type. The results suggested that auto thieves tended to be more concerned with formal threats. In fact, many were not concerned with the range of potential informal threats present during the actual theft of the vehicle. Offenders suggested that the best strategy to evade apprehension by the police while driving a stolen vehicle was to present an "illusion of normalcy". Basically, these offenders suggested that the best strategy was to "hide in the open", to engage in impression management and act as though there was nothing untoward with them driving the vehicle.

Offenders suggested that they adjusted their driving style to obey traffic rules to avoid giving police a reason to pay the vehicle or the driver any attention. Others, however, believed that strict observation of traffic laws was unnatural and uncommon and, therefore, likely to garner the attention of the police. Several offenders also reported that they modified their appearance to better fit into the environment. For some offenders, this meant dressing up when stealing more expensive cars. Others simply targeted vehicles that already fit their appearance (Cherbonneau and Copes, 2006).

These offenders also realized that it was in their best interest to avoid causing damage to the vehicle. Damage caused while breaking into a car is easily noticed by the police, and some offenders used strategies such as only breaking into the passenger side and then driving in the right hand lane, to prevent exposing the damage they have caused to passing police cars. Other offenders limited the breaking of glass to small windows towards the back of the car. Some attempted to steal cars with fake keys because the damage caused to the steering column of a vehicle to drive it without a key is often quite extensive and noticeable (Cherbonneau and Copes, 2006).

Using keys to steal vehicles is a relatively new phenomenon that research is just beginning to explore. In a second study, Copes and Cherbonneau (2006) conducted interviews with 27 auto thieves to explore their strategies for obtaining keys used in motor vehicle thefts. Their results identified four types of offenders: (1) the alert opportunists; (2) the active searchers; (3) the forceful auto thieves; and (4) the manipulators. The alert opportunists did not specifically set out to steal a car, but took advantage of opportunities that presented themselves, such as a vehicle owner leaving their car running while they ran into a store. Many of these offenders stole cars for transportation; typically they were

spontaneous individuals who became stranded as a result of their late-night partying (Copes and Cherbonneau, 2006). The active searchers set out with the specific intention of stealing a car. These individuals stole whatever car they could find that had a key in it; they did not restrict their theft to vehicles that were personally appealing to them. These offenders also commonly stole vehicle keys in the course of burglarizing a house or business. Similar to alert opportunists, active searchers were alert to opportunities, such as temporarily abandoned running vehicles.

Forceful auto thieves used force to steal vehicles. These offenders could also be characterized as carjackers. Recently reported increases in carjacking have been attributed to the improved methods of vehicle security employed by manufacturers and owners. Given that vehicles are now more secure from theft, some auto thieves have resorted to stealing the vehicle directly from the owner while the owner occupies the vehicle (Copes and Cherbonneau, 2006). Other forceful auto thieves do so in order to escape a situation. Still others use force because they did not have the necessary skill base to steal the car more covertly. Finally, some forceful auto thieves reported drugging their victims and stealing their keys when they were no longer alert (Copes and Cherbonneau, 2006). The last group of offenders is the manipulators. These offenders were well skilled in forgery and fraud, and were experts at manipulating others. These offenders typically targeted auto dealerships and vulnerable individuals using two main methods to obtain access to the car. The first scenario involved the "slight-of-hand" technique in which the offender switches keys while test driving making a quick imprint of the key in a plastic mould. These offenders then had someone make up a version of the key using the mould. Later, they would return to steal the vehicle using the forged key. The second method involved the

targeting of vulnerable individuals, such as drunks or drug addicts. For instance, "rock renting" is the term used to refer to the renting out of a vehicle through the payment of a small amount of crack cocaine. If these offenders fail to return the borrowed car, the owner will be unlikely to turn to the police for assistance (Copes and Cherbonneau, 2006).

Copes and Cherbonneau (2006) also discussed the use of master keys, which are keys cut with a universal groove signature. These keys fit into a wide variety of models, and offenders who are in possession of them can simply continue to attempt to open a car with the key until they are successful. Some offenders use close-cousin keys which involve the filing down of keys that can be used in cars with worn ignition disks. Close-cousin keys also work particularly well with Japanese models, such as Hondas and Toyotas. These keys do not work as well in cars equipped with immobilizers, as they do not have the necessary electronic component that permits the vehicle engine to start (Copes and Cherbonneau, 2006).

In sum, there are many different kinds of motor vehicle thieves and a variety of different methods to both steal vehicles and remain undetected. Still, there is much that can be learned about motor vehicle theft by examining and analysing stolen vehicles that have been recovered.

Vehicle Recovery

Although most stolen vehicles are recovered by the police, there is little information regarding the nature of vehicle recovery. In Canada, in 2001, approximately one quarter of all stolen vehicles (24 per cent) were not recovered by police. Of those that were recovered, more than two-thirds (69 per cent) were damaged in some way. A small proportion (4 per cent) was completely destroyed, primarily by fire (Wallace, 2003).

Although the location of vehicle recovery was not documented, Wallace (2003) identified that some information pertaining to the motivation of vehicle theft could be drawn from the location of recovery. For instance, vehicles used in the context of joyriding were often recovered close to the location of the original theft and within two days of being stolen. Vehicles used for transportation were likely to be abandoned upon arrival at a particular destination; theoretically then, these vehicles would be abandoned some distance away from the location of the original theft. Vehicles stolen in the context of committing another crime were also likely to be abandoned, and, in this case, they were more likely to be damaged, for example, through burning. The Arizona Auto Theft Study also identified that stolen vehicles used in the context of other criminal offences were commonly abandoned and burned to cover up evidence of additional offences. Lastly, vehicles stolen for profit would either be unrecovered, as they may be shipped out of province or country, or may be recovered with parts or accessories missing (Wallace, 2003).

Some "stolen" recovered vehicles that were stripped and burned were actually incidences of insurance fraud. When a vehicle owner can no longer afford to make payments on the car, they may decide to fake a theft of the vehicle in order to receive insurance money. The Arizona Auto Theft Study (2004) indicated that between 10% and 20% of auto theft was actually some form of insurance fraud, and that these owners would strip and burn their vehicles in order to provide evidence to support the claim that the vehicle had been stolen.

Research on the recovery sites of stolen vehicles is severely lacking. What little research has been done in this area suggests that the theft itself tends to be an urban crime.

Krimmel and Mele (1998) reported a pattern in New Jersey where vehicles were often stolen in one jurisdiction and abandoned in an outlying jurisdiction. However, little information about these outlying jurisdictions or locations of the vehicle recovery was given.

In order to develop a more comprehensive picture of the nature of vehicle theft and recovery in British Columbia, this report analyzed stolen vehicle recovery data from the Fraser Valley. Given that there is very little available research on the recovery sites for stolen vehicles, the current analysis specifically focused upon the nature of the recovery site.

Analysis of Fraser Valley Vehicle Recovery Data

The current study involved an analysis of Fraser Valley auto theft data. More specifically, this analysis focused on the jurisdictions of theft and of recovery of stolen vehicles. The study data was taken from a review of all auto thefts and recovered stolen vehicles reported to police between 2005 and 2006 in the three main cities in the Fraser Valley of British Columbia; Abbotsford, Chilliwack, and Mission (located approximately 40 miles from Vancouver). Auto-theft related files were identified by police and research assistants reviewed and coded all of the relevant information onto a standardized coding sheet. Information collected included the date of theft, location of theft, location of recovery (if any), and damage to the vehicle. In addition to coding police files of vehicles reported stolen to police from Abbotsford, Chilliwack, and Mission in 2005 and 2006, research assistants also coded files where stolen vehicles from these three areas were recovered outside of these Fraser Valley cities. Research assistants also coded police files for vehicles recovered in Abbotsford, Chilliwack, and Mission, but which were stolen from outside these

three jurisdictions. Coded data was entered into a database for analysis using the Statistical

Program for Social Sciences (SPSS).

In total, 2,335 vehicles were reported stolen in these three cities over the two years.

Information on the location of the theft was available for 2,270 cases. As indicated by Table

1, when comparing the frequency of theft from Abbotsford, Chilliwack, and Mission, many

more thefts were reported in Abbotsford; this was not surprising given that Abbotsford is

the largest of these three cities and would theoretically have more vehicles that could

potentially be stolen. Given that the focus of the current analysis was on vehicles stolen

from the Fraser Valley, it was not unexpected to find that Abbotsford, Chilliwack, and

Mission accounted for nearly all (87.5 per cent) of the thefts reported. However, also

included in Table 1 are a number of thefts reported in several other jurisdictional areas of

the Lower Mainland. As mentioned above, in these cases, stolen vehicles were recovered in

Abbotsford, Chilliwack, or Mission and, as such, were included in the analysis.

Table 1: Jurisdiction of Reported Motor Vehicle Thefts

Jurisdiction	*Number*	*n = 2,270*
Abbotsford	947	41.7%
Chilliwack	646	28.5%
Mission	392	17.3%
Surrey	67	3.0%
Langley	55	2.4%
Ridge Meadows[2]	43	1.9%
Coquitlam	29	1.3%
Other	91	4.0%

Vehicles were most often stolen from the victim's residence (49 per cent) followed

by a business location (17.4 per cent), and a residential area, but not specifically a home

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[2] Ridge Meadows refers to the joint cities of Maple Ridge and Pitt Meadows

(9.3 per cent) (see Table 2). Somewhat surprisingly, given that these vehicles are left unattended for relatively long periods of time, shopping mall lots and public transit lots locations accounted for a small proportion of motor vehicle theft (4.9 per cent).

Table 2: Type of Place of Vehicle Theft

Place of Theft	Number	n = 1,692
Home	829	49.0%
Business	294	17.4%
Residential Area	158	9.3%
Dealership	14	8.0%
Other Residence (e.g. Apartment)	132	7.8%
Rural Area	91	5.4%
Other	60	3.5%
Shopping Centre	56	3.3%
Public Transit	27	1.6%
Industrial Area	25	1.5%
Remote Location	3	0.2%
Gas Station	3	0.2%

Vehicles were primarily stolen through the use of an ignition punch or another alteration of the ignition (85.5 per cent). Only a small proportion of vehicles were stolen through the use of the actual keys for the vehicle (14.5 per cent).

Description of Stolen Vehicles

Cars were the most commonly stolen vehicle (62 per cent), followed by trucks (38 per cent) in the current study. On average, stolen vehicles were 13 years old (built in 1993); however, the most common year of stolen vehicles was 1991. The age range of vehicles was quite wide with vehicles as old as 1954 to brand new models being stolen. The most popular types of vehicles stolen were Dodges (14.5 per cent) and Fords (13.7 per

cent), and the most common colour of stolen vehicle was white (16.7 per cent). A very small number (2.4 per cent) of stolen vehicles were rentals.

Vehicle Recovery

Nearly all stolen vehicles (89 per cent) were reported recovered. Information pertaining to the jurisdiction in which the stolen vehicle was recovered was available for 1,899 cases (81 per cent) (see Table 3).

Table 3: Jurisdiction of Vehicle Recovery

Jurisdiction	*Number*	*% of Total*
Chilliwack	609	32.1%
Abbotsford	550	29.0%
Mission	425	22.4%
Other	122	6.4%
Surrey	77	4.1%
Langley	60	3.2%
Ridge Meadows	38	2.0%
Coquitlam	18	0.9%

In most cases, vehicles were recovered in the same jurisdiction that they were stolen from (e.g. stolen from Abbotsford and recovered in Abbotsford) (see Table 4). Furthermore, when not recovered in the same jurisdiction in which they were stolen from, vehicles stolen from the Fraser Valley tended to be recovered in other jurisdictions in the Fraser Valley (e.g. stolen from Abbotsford and recovered in Chilliwack). In addition, a small number of vehicles that were recovered in the Fraser Valley were vehicles stolen from neighbouring or otherwise nearby jurisdictions, such as Langley or Maple Ridge.

Table 4: Stolen Vehicles Recovered in Abbotsford, Chilliwack, and Mission

Jurisdiction of Theft	% Recovered in Abbotsford	% Recovered in Mission	% Recovered in Chilliwack
Abbotsford	52.3%	14.4%	13.6%
Mission	12.1%	55.9%	8.1%
Chilliwack	12.2%	4.6%	65.0%
Langley	58.2%	18.2%	21.8%
Ridge Meadows	16.3%	67.4%	16.3%
Coquitlam	27.6%	51.7%	20.7%
Surrey	36.4%	27.3%	36.4%
Other	31.1%	35.6%	32.2%

It is possible that the lack of alternative transportation options which exist between these areas contributed to vehicles being abandoned in these jurisdictions. Although the cities of Langley and Abbotsford are geographically close to each other (approximately 30 kilometres separate the two cities) and are connected by several main roads and a highway, there is a distinct lack of public transit connecting the two jurisdictions. In effect, there is no public transportation by way of public bus between Langley and Abbotsford, with the exception of the Greyhound Bus Lines. Many of the vehicles recovered in Abbotsford stolen in Langley may, therefore, have been stolen due to a need for quick transportation between these two cities. Similarly, while Maple Ridge/Pitt Meadows and Mission are not geographically close to each other, they are connected by way of a main highway that facilitates transport between the two. However, although public transit is available between these two cities, it is much slower than transportation by a car or truck. Although buses are available, the trip between these two locations by bus takes approximately two hours (www.translink.bc.ca), whereas the same trip by vehicle will take approximately 30 minutes (www.mapquest.ca).

Common to Abbotsford (36.4 per cent), Chilliwack (36.4 per cent), and Mission (27.3 per cent) was the recovery of vehicles reported stolen in Surrey. Given that there is no quick bus route between Surrey, a major urban centre, and these three Fraser Valley cities, these results suggest the possibility that at least one-third of the vehicles recovered in the Fraser Valley stolen from Surrey are taken for the purposes of personal transportation.

In terms of the length of time it takes police to recover a stolen vehicle, vehicles were most commonly recovered within 24 hours; however, on average, stolen cars remained missing for nearly 11 days before they were recovered, with a range of less than 24 hours to over 800 days (slightly more than two years). Approximately 81% of recovered vehicles were damaged; a small proportion of these were either burned or completely destroyed (see Table 5).

Table 5: Condition of Recovered Vehicle

Condition of Recovered Vehicle	*% of Total*
Damaged	72.5%
Totaled	3.6%
Burned	5.3%
Involved in Accident	2.4%
Involved in Police Pursuit	2.7%
Involved in Other Crime	4.5%
Plates/Tags Recovered	73.4%

A small number of vehicles were involved in police pursuits and/or accidents, and less than 5% were known to be used in another crime. In nearly three-quarters (73.4 per cent) of these cases, the vehicle plates and/or vehicle tags were recovered.

Information about the type of location in which vehicles were recovered was available for 1,147 vehicles (49 per cent). Approximately one-third of vehicles (35.5 per cent) were recovered in a residential area (see Table 6). Other common locations where vehicles were recovered included rural (16.8 per cent) or remote areas (11.2 per cent), as well as in business areas (14.7 per cent).

Table 6: Location of Vehicle Recovery

Place of Recovery	*Number*	*n = 1,147*
Residential Area	407	35.5%
Rural Area	193	16.8%
Business	169	14.7%
Remote Location	129	11.2%
Home	78	6.8%
Other	59	5.1%
Shopping Centre	44	3.8%
Other Residence (e.g. Apartment)	42	3.7%
Industrial Area	15	1.3%
Public Transit	7	0.6%
Gas Station	3	0.3%
Dealership	1	0.1%

Given that only 5.6% of vehicles were stolen from a rural or remote location, it is interesting to note that nearly one-third (28 per cent) of stolen vehicles were recovered in a rural or remote location. This suggests that rural and remote areas are commonly used as recovery sites for stolen vehicles. Given this finding, a more detailed analysis was conducted on rural and remote dumpsites.

Rural and Remote Dumpsites

An analysis on rural and remote dumpsites for recovered stolen vehicles was performed on 305 vehicles. Over half of the rural and remote dumpsites (55.1 per cent)

were identified as "other" meaning that no specific information was provided in the file about the location of the dumpsite. The next most common dumpsite for all stolen vehicles was Burma Road in Mission which accounted for nearly one-tenth (9.8 per cent) of all rural and remote dumps (see Table 7). Although Chilliwack Lake Road accounted for nearly 5% of all remote and rural stolen vehicle dumps, no other single location accounted for more than 4% of dumpsites for stolen vehicles.

Table 7: Location of Stolen Vehicle Recovery in Rural and Remote Dumpsites

Rural/Remote Place of Recovery	Number	% of Total
Other	168	55.1
Burma Road	30	9.8
Chilliwack Lake Road	15	4.9
Stave Lake Road	13	4.3
Sumas Mountain	11	3.6
Cheam Reserve	10	3.3
Sylvester Road	10	3.3
Norrish Creek	9	3.0
Lost Creek	9	3.0
Keith Wilson Road	6	2.0
Ballum	4	1.3
Chilliwack Mountain Road	4	1.3
Gill Road	4	1.3
Florence Lake	3	1.0
Army Forest	2	0.7
Foly Lake/Creek	2	0.7
Sleepy Hollow	2	0.7
Bench	1	0.3
Chelais Reserve	1	0.3
Vedder	1	0.3

These results suggest that Burma Road may be somewhat of a "hot spot" for stolen vehicles dumped in rural and remote locations. The most common jurisdiction of theft for the 30 vehicles that were dumped in this location was Mission which contributed nearly one-third

of the vehicles dumped in this location (see Table 8). Other popular jurisdictions of theft for vehicles dumped on Burma Road were Maple Ridge/Pitt Meadows, Coquitlam, and Abbotsford.

Table 8: Sources of Stolen Vehicles Dumped on Burma Road

Place of Theft	*Number*	*% of Total*
Mission	9	30.0%
Ridge Meadows	7	23.3%
Coquitlam	5	16.7%
Other	4	13.3%
Abbotsford	3	10.0%
Chilliwack	1	3.3%
Langley	1	3.3%
Surrey	0	0.0%

There appeared to be some patterns with respect to the dumping of vehicles stolen from jurisdictions outside of the Fraser Valley. In effect, two-thirds of vehicles recovered in the Fraser Valley stolen from Coquitlam were dumped in a rural or remote location (see Table 9). Similarly, over half of the vehicles recovered in the Fraser Valley that were stolen from Maple Ridge/Pitt Meadows (53 per cent) were dumped in a rural or remote location.

Table 9: Source of Theft for Vehicles Recovered in Rural and Remote Sites

Place of Theft	*Number Recovered in Jurisdiction*	*Number Recovered in Rural/Remote Site*	*% of Vehicles Recovered in Rural/Remote Sites*
Coquitlam	18	12	66%
Ridge Meadows	38	20	53%
Surrey	77	23	30%
Other	121	30	25%
Langley	60	12	20%
Mission	403	71	18%
Chilliwack	575	92	16%
Abbotsford	545	45	8%

It is interesting to note that the vehicles stolen in Abbotsford, Mission, and Chilliwack least frequently ended up being dumped in rural or remote locations. A possible reason for this is that, as hypothesized above, vehicle thefts from these three cities are the result of a personal need for transportation out of the Fraser Valley.

Vehicles recovered in rural and remote dumpsites were more often destroyed or burned when compared to vehicles recovered in other locations. Looking specifically at those vehicles that were destroyed or burned, a significant relationship was found with the type of location of recovery, whether rural/remote or non-rural/remote. Of those vehicles that were destroyed (n = 67), over two-thirds (68.7 per cent) were dumped in a rural or remote dumpsite. This relationship was significant (x^2 (1) = 174.67, p =.000) suggesting that stolen vehicles that are subsequently destroyed beyond repair are significantly more likely to be dumped in a rural or remote location than stolen vehicles that are not destroyed. Similarly, of those vehicles burned (n=98), over half (56.1 per cent) were dumped in a rural or remote location. This relationship was also significant (x^2 (1) = 154.19, p = .000) suggesting that stolen vehicles that are burned are significantly more likely to be dumped in a rural or remote location than stolen vehicles not destroyed by fire, possibly in order to increase the difficulty of identifying the vehicle and its owner.

It is likely that those engaging in insurance fraud dump their "stolen" vehicles in rural and remote locations in order to delay the discovery of the vehicle. This conclusion is supported by a comparison of the length of time taken to recover a vehicle when examining rural and remote dumpsites with urban recovery locations. Vehicles recovered in rural and remote locations (n = 322) took significantly longer to be recovered by police compared to vehicles recovered in non-rural and remote dumpsites (n = 2,013), t (276.28) = -3.68, p

<.00. On average, rural and remote vehicles were recovered slightly less than one month after being reported stolen (27.12 days) compared to just slightly over a week (7.67 days) for non-rural and remote vehicle recoveries. When comparing only remote recoveries (i.e. very isolated locations; n = 129) with rural and non-rural and remote recoveries (n=1,018), the difference was even larger. Specifically, non-rural and remote vehicles were recovered, on average, in 9.64 days compared to, on average, 44.99 days for remote vehicle dumps; t (104.68) = -2.98, p <.00.

Discussion

Many of the results reported in this analysis can be explained by reference to a need for transportation in and out of the Fraser Valley. The results show that while vehicles stolen in Abbotsford, Chilliwack, and Mission are often found in the same jurisdiction they are stolen from, the next most common recovery location was in other cities not easily accessed by public transportation. However, this is not to say that improved transportation between these cities would result in fewer vehicle thefts. It is likely that those individuals who steal vehicles for personal transportation would likely still continue to steal vehicles even if public transportation was improved. In other words, while some thieves may primarily steal vehicles for personal transportation, it is not necessarily because there is a *lack* of transportation, but because it is their preferred method of travel.

One of the central findings from this study was that vehicles stolen from Coquitlam, Maple Ridge/Pitt Meadows, and Surrey were more frequently abandoned in rural and remote dumpsites when compared to vehicles stolen from Abbotsford, Chilliwack, and Mission. Following Wallace's (2003) suggestion that vehicles stolen for joyrides are most often abandoned close to where they are stolen, the current results indicate that vehicles

recovered in the Fraser Valley were not primarily stolen for reasons associated with joyriding. Instead, the results suggest that vehicles stolen in areas such as Coquitlam, Maple Ridge/Pitt Meadows, and Surrey may be more often stolen for use in transportation from one jurisdiction to another. More likely, given that these vehicles were being abandoned in remote areas that were relatively inaccessible, the finding that these vehicles were more often dumped in remote sites as compared to vehicles stolen from within the Fraser Valley suggested that the owners of these cars were possibly engaging in insurance fraud. This conclusion was further supported by the results indicating that non-rural and remotely dumped vehicles were recovered significantly sooner than remotely dumped vehicles; therefore, dumping "stolen" vehicles in remote areas likely facilitates insurance fraud, as the failure to quickly recover the individual's vehicle may give support to their insurance claim.

Nearly three-quarters of recovered vehicles were damaged in some way. A small proportion of these vehicles were burned or otherwise damaged beyond repair. It is possible that thieves attempted to burn or otherwise destroy the vehicle to eliminate any evidence of the theft. It is also possible that these stolen vehicles were cases of insurance fraud. Many of the vehicles that were damaged or burned were found in rural and remote areas. One possible explanation for this result is that a substantial proportion of motor vehicle theft was associated with insurance fraud. Previous research has implied that insurance fraud committed by vehicle owners may contribute to the number of vehicles recovered from rural and remote dumpsites (Arizona Auto Theft Study, 2004). It is certainly possible that the same phenomenon was observed by this study; however, in the

current study, it was not possible to determine what proportion of vehicle thefts were suspected and subsequently substantiated to be insurance fraud.

Conclusion

Research on motor vehicle theft has primarily focused on theft hot spots and the methods and motivations of stealing vehicles. Little attention has been paid to the nature of recovered vehicles. Examining the nature of recovered vehicles may provide policy makers with some insight into the causes of motor vehicle theft and why vehicles are being abandoned within their jurisdictions. The results of the current study suggest that vehicles recovered within the Fraser Valley may be stolen primarily for the purposes of personal transportation.

Recording information pertaining to the location of the recovery may also highlight potential dumping "hot spots". For instance, vehicles abandoned in Mission were frequently left along Burma Road which runs through a rural/remote area. The fact that many stolen vehicles were left in this location may indicate the need for increased police surveillance in and around this area. However, given the constrained resources of many police departments, a more reasonable option may be the deployment of stationary cameras along these remote roads to record traffic travelling in and out of relatively remote areas. Stationary cameras can be programmed to send an alert when activated by the presence of a vehicle, thereby notifying either police or a professional security company of the possible presence of a stolen vehicle. While it is possible that resources may still constrain police or security from responding, at the very least, stationary cameras would be able to provide photographic evidence of vehicles. In other words, if two vehicles enter a remote area and only one returns, stationary cameras would be able to provide

photographic evidence of the license plate which could subsequently inform the police investigation. Similarly, given that many stolen vehicles left in rural or remote locations were subsequently damaged through burning or other means, it is possible that vehicles dumped in this location were used either in secondary crimes or were insurance fraud cases.

The results of the current study identified several potential areas for future research. The current study provided much needed information regarding the nature of vehicle theft and recovery in the Fraser Valley. However, although the results indicated the possible presence of insurance fraud in several of the vehicles that were stolen and recovered in the current study, future research is needed in this area. In effect, future research should seek to gain a better understanding of insurance fraud, specifically as related to the use of remote vehicle dumpsites. This is especially important, given that the high rate of vehicle recovery in the current study (89 per cent) indicates a lack of theft for profit. Secondly, research should focus on the identification of the main risk factors associated with motor vehicle theft. In other words, future research should seek to identify what factors most commonly contribute to vehicle theft and recovery.

It is essential that research on what can be learned from recovered stolen vehicles continue as this information can provide policymakers and criminal justice agencies such as the police with empirical evidence upon which to build their response to motor vehicle theft. By analyzing the nature of vehicle theft and recovery, greater insight can be gained into the motivations of vehicle theft in a particular area and may suggest methods or strategies to improve the prevention of and the police response to motor vehicle theft.

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