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The CPTED Journal is the journal of the International CPTED Association, officially registered as the International Society for Crime Prevention Through Environmental Design. It has been published once a year. This issue is produced by Alternation, an international consultancy in community development and crime prevention (www.alternation.ca).

The mission of the journal is in accordance with article 2 of the ICA by-laws: to “promote and facilitate education and research in crime prevention through environmental design” and “to provide an international and regional forum for the advancement of the principles of crime prevention through environmental design.”

Articles contained herein do not necessarily represent the views of the International CPTED Association.

Foreword

There are excellent examples of CPTED work in this issue of *The CPTED Journal*. They show the remarkable creativity that can only emerge from tackling similar problems from different cultural viewpoints around the world – in this single issue alone we hear from South America, Australia, North America, and Europe.

Glen Lyons and **Marilyn Arber** present Calgary's Safe Streets, Safe City crime prevention plan. This led up to the 2006 Safe City, Safe Streets international conference which the ICA helped present and plan. Their article shows how to implement large scale crime prevention planning through community collaboration. As with all endeavors, some initiatives are doable, some are not. They document both. They discuss the role of politics, the media, and the importance of holistic models when launching such an ambitious plan.

Paul van Soomeren shows us Dutch examples of regulated street prostitution zones – tippelzones – through creative urban design solutions. When the design solutions were overrun by illegal immigrant prostitutes, he also describes the politics that can result from unintended consequences. We see once again that physical design solutions cannot operate outside of social context.

Macarena Rau investigates social housing in Santiago, Chile and shows us how natural surveillance relates to the “ability to see, be seen, and feel trust in the urban space....it grants the urban inhabitant the responsibility of urban safety and gives it a role of power and conscience”. But she notes that in traditional CPTED and natural surveillance there are conceptual voids yet to be filled.

Dustin Dickout's study on drinking areas in Calgary, Canada, provides a different perspective, this time using second generation CPTED and threshold capacity. He draws on Jacobs' conclusions that in some places “nightspots are overwhelming the very life of the area...they have concentrated too many strangers, in all too irresponsible a mood, for any conceivable city society to



handle naturally”. A decade ago Calgary shut down one such area. Now it faces another. Dickout says that while Calgary's earlier plan had merit, (“too much nightlife creates too many unsolvable problems”) this thinking is too narrow and specific to address the real life issue in a meaningful way.

Hiroyuki Iseki from UCLA's Institute of Transportation Studies shows us some of his crime hotspot research on Los Angeles bus stops. He agrees with van Soomeren's deduction that “for an effective CPTED, it is important to conduct an analysis on one form of crime and its preventive

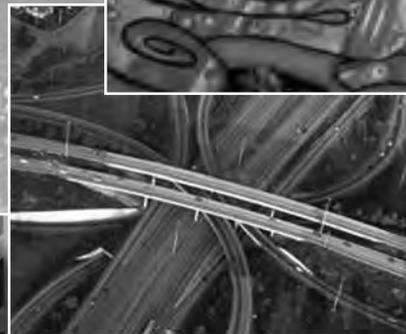
responses in a specific environment, taking into account both social and physical conditions.” His work shows how crime mapping can contribute to that. These are concepts with which the modern CPTED practitioner should be familiar.

On the recent death of urban philosopher **Jane Jacobs**, it is timely that *The CPTED Journal* ends with a look to the future. In the last article, CPTED and the Social City, **Gerry Cleveland** and **Gregory Saville** draw on Jacobs’ early work to discuss CPTED’s legacy and prospects for the 21st Century. They outline three stages of CPTED development, 1st Generation Basic, 1st Generation Advanced, and 2nd Generation and show how all three should be our goal. They provide two new successful case studies of pioneer-

ing work in 2nd Generation CPTED, one in a troubled Canadian neighborhood in Toronto, the other in remote Aboriginal communities in Western Australia.

This will be the final issue of *The CPTED Journal* in this format. In future the ICA will publish conference proceedings. I would like to express my appreciation to all the dedicated people, especially those who served on the editorial board, who worked so hard over the past 4 years to create this vehicle for emerging international CPTED work. Thank you all.

Gregory Saville,
Editor
The CPTED Journal



Design against kerb-crawling Tippelzones (vice zones)

By Paul van Soomeren

Research by DSP-groep: <http://www.dsp-groep.nl> – for the City of Amsterdam. Summary paper funded by the EU Commission Hippocrates 2002 programme and The European Designing Out Crime Association – <http://www.e-doca.net> - in collaboration with Salford University UK Caroline Davey.

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Original version December 2003
by Sander Flight (DSP-groep) and Paul van Soomeren (DSP-groep).
Editing by Caroline Davey Salford University, Salford UK January-March 2004. Updates made by Paul van Soomeren July 2004.

Synopsis

This paper examines the Dutch phenomenon of regulated street prostitution in designated areas called 'Tippelzones' (vice zones). These are zones where street prostitution is allowed and certain facilities, such as medical services and a 'living-room', are available to the prostitutes. The careful design and management of these areas has enabled city councils and police to alleviate problems of violence and nuisance associated with prostitution, benefiting both prostitutes and local residents. In Amsterdam, the success of the zone in attracting prostitutes coupled with a failure to tackle the growing numbers of illegal immigrant prostitutes resulted in the zone becoming unmanageable and in its eventual closure. This paper concludes that steps have to be taken in the management of such areas to prevent a 'Tipping Point' being reached and crime and other problems escalating.

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Introduction

This paper deals with the Dutch phenomenon of regulated street prostitution in designated areas called 'Tippelzones'. These are zones where street prostitution is tolerated by the police and certain facilities, such as medical services and a 'living-room' are available to the prostitutes. These Tippelzones exist in several Dutch cities, the better-known ones being Keileweg in Rotterdam, Kanaalweg in Utrecht, Bornholmstraat in Groningen, Imstenraderweg in Heerlen and Theemsweg in Amsterdam.

In December 2003, after fierce debate, the decision was taken to close the Amsterdam Tippelzone, mainly because of the high percentage of illegal immigrant prostitutes working there. Other cities, such as Rotterdam, The Hague and Heerlen, have also decided to close the zones or are rethinking their strategies as a consequence. At the same time as the Dutch are closing some of the zones, other countries such as the UK are looking into the possibility of opening them. The Dutch response to the problem of street prostitution is therefore of interest to other European countries and there are aspects of the design and operation of the zones that can still serve as examples of good practice.

Prostitution in the Netherlands: A brief history

In the Netherlands, prostitution has been legal since the times of Napoleon, but the organization of prostitution has officially always been prohibited. This ban on the organization of prostitution led to the practical Dutch approach of the official red light district in which prostitutes were allowed to rent a small room and big window. As

long as the public order was not disturbed the official policy was not to intervene and to tolerate prostitution (Savornin Lohman, 1999). The Dutch word used here is 'gedogen' or cultural tolerance, though this translation is not precise. As

Ellen Goodman explained in her column in the Boston Globe (April 1997):

"If the word is not easily translated, perhaps it is because the concept is so Netherlandic, so not-American. Gedogen describes a formal condition somewhere between forbidden and permitted. It is part of the [Netherlandic] dance of principle and pragmatism. [In The Netherlands,] drugs are gedogen. They remain illegal, but soft drugs like marijuana and hash are available in duly licensed coffee shops that dot [Amsterdam]."

This explains why next to the coffee shops in the Netherlands there are also the world famous red light districts, like the one in Amsterdam.

In the sex business the street prostitutes are an underclass of mostly drug-addicted or illegal immigrant women 'working the streets', which in Dutch is called 'tippelen'. Besides women, there is also a substantial group of transsexual men, mostly from Eastern European countries or Central America. In the Amsterdam Tippelzone, an estimated ten per cent of prostitutes working were in this category. Their presence could be a typical Amsterdam phenomenon, however, as one of the two big academic hospitals in Amsterdam specializes in transgender operations.

Since street prostitution almost inevitably leads to a lot of nuisance in the form of littering, noise from kerb-crawling cars, etc. this activity is forbidden in most local bylaws and city ordinances. This, however, does not mean that this mode of prostitution has disappeared. While prostitution in the official red light districts was controlled relatively easily, the problem of women working the streets attracting kerb crawlers had always been a more problematic part of 'normal' city life. When in The Netherlands during the end of the seventies and the start of the eighties, more and more heroin-addicted women began to work the streets in order to earn enough money to sup-

Presentation for The International CPTED Conference, September 13-17th 2004, Brisbane Australia

Organization	DSP-group
Location	Amsterdam, Netherlands (in comparison with a few other Dutch cities like Rotterdam, The Hague, Groningen. Heerlen and Utrecht)
Trigger	Concern about the nuisance and violence associated with prostitution
Causes of crime	<ul style="list-style-type: none"> • Economic motivations • Vulnerable status of prostitutes
Objectives of intervention	<ul style="list-style-type: none"> • To reduce littering • To restrict curb crawling to designated areas (planned displacement) • To reduce levels of violence towards prostitutes
Intervention enablers	<ul style="list-style-type: none"> • Development of 'Tippelzones' • Good design developed • Cooperation of police and other groups
Tensions	<ul style="list-style-type: none"> • Protests from local residents • Attracts prostitutes to an area • Creates opportunities for prostitution • Linked with illegal trafficking of women • Successful zone in Amsterdam unable to cope with volume of users
Impact	<ul style="list-style-type: none"> • Development of several good practice examples • Failure of some zones is calling into question the whole approach • Tippelzone in Amsterdam did not attract drug-addicted prostitutes (target group) • After closing down the Amsterdam Tippelzone several prostitutes start working in other cities (Utrecht) resulting in overcrowded zone
Lessons learned	<ul style="list-style-type: none"> • Good design can help reduce problems associated with prostitution • Planned displacement of Kerb-crawling is possible combining opportunity approach (design of Tippelzone) and repressive police action (chase and arrest elsewhere in the city) • The co-operation of the police is required to ensure zones are used • Dealing with drug-addicted prostitutes remains difficult • Zones can become unmanageable if not controlled • Zones may attract illegal immigrant prostitutes and promote trafficking of women • Action should be taken to address problems before a 'tippin point' is reached, and prostitution-related crime escalates • Displacement to zones in other cities after closing down Tippelzone Amsterdam

port their addiction, the presence of street prostitutes began to cause an increasing number of problems in the neighborhoods where they worked.

In the year 2000, the law that prohibited brothels was repealed, 17 years after the first proposal was made in parliament. Since the lifting of the ban, owners and managers of brothels had to comply with a number of rules and regulations. For instance, they have to screen their employees more carefully (no illegal immigrants and no minors are allowed to work). They also have to supply the employees with certain services, such as proper hygienic working conditions—similar to labour-laws in other areas of economic activity (e.g. the health and safety act). Brothel-owners lose their permit if they employ illegal prostitutes or minors. The exploitation of voluntary prostitution was legalised, but the exploitation of involuntary or illegal prostitution was punished more severely. This change may have had a negative side effect, as specific groups of prostitutes, mostly those without a working permit, moved from the brothels and windows into street prostitution, where there was less risk of being 'uncovered' by officials checking the compliance of official brothels with the new regulations.

Condoms, used needles, pimps, drug dealers and customers (kerb crawlers) became major nuisances in areas frequented by prostitutes. Most local authorities reacted to these problems with repressive activities, but this almost never had the desired effect of bringing down the number of prostitutes working the streets: it merely displaced their working area to other or adjacent neighborhoods. As will be shown below in Amsterdam this 'chase and arrest policy' was officially changed in the mid eighties.

Designing out kerb-crawling nuisance and violence to prostitutes: The invention of the Toppelzone

To prevent kerb crawling nuisance, but also to supply the prostitutes with a safer working environment, and provide them with some medical services, the so-called called, 'Toppelzones' were opened in some of the bigger Dutch cities. Within these areas, medical services dealt with unwanted pregnancies, sexually transmitted diseases and

Figure 1

Red light district of Amsterdam

Recent research on the situation of prostitution showed that in 30% of the Dutch communities prostitution does exist, especially in the bigger cities and in border areas (with Germany and Belgium).

In 12 cities there is the type of 'window prostitution' mentioned above, where daily 2000 prostitutes work. Next to that there are about 600 to 700 sexclubs and apartments where on a daily basis 3500 to 4000 prostitutes work. All in all the research calculated that on a given day at least 6000 prostitutes work in The Netherlands. Among them there is a relatively small group of street prostitutes: an average of 320 women are working the street daily; approximately 5% of all prostitutes.



drug addictions and legal advice was made available. These initiatives started in the mid-eighties and continued into the mid-nineties.

A Toppelzone is almost always located in a non-residential, often rather deserted area, where one or more of the following three functions are available:

1. A pick up area, where the prostitutes offer their services and negotiate with clients (kerb crawlers);
2. An "afwerkplaats" or 'service area', where sexual services are provided.
3. A 'living room', where only prostitutes can enter and where health and welfare officials may be present.

It took a while to invent and design the best solution to the problem and at first these three functions were not combined.

In 1982 the first "living room project" for addicted prostitutes opened in Amsterdam: the Mirjam house named after Mirjam who led the Jews from slavery in Egypt to the Promised Land with her brothers Mozes and Aäron. It was run by Roman Catholic nuns. From 1985 this house was subsidized by the Council, the ministry for Health and the Church (approx. € 50.000, – a year each).

In 1984, the city council of The Hague was the first to nominate a non-residential area as an official street working pick up zone. In the same year, the council of Utrecht decided to open an official

pick up zone and opened a small centre for street sex workers, called the living room. Although the zone had freed residential areas from kerb crawlers, the people in the neighborhoods around the zone were now complaining about the fact that sex workers and their clients were performing sexual acts and leaving their litter. Consequently, the city chose to create a 'working area' (where sexual services were rendered) at a distance of one kilometre from the pick-up zone and consisting of separated car parks.

Although the 'working area' was established to protect public order and prevent nuisance in surrounding neighborhoods, it also greatly benefited the safety of the prostitutes. They no longer had to travel with their client to desolate places to provide sexual services. In the working areas, other sex workers and the police were nearby in case of danger. Utrecht was the first city to open a 'tippelzone' combining the pick up/street working zone, a living room/health centre and a working area. The combination of these three elements became

popular in other cities as well, and the 'Tippelzone' was invented.

A total of eight Tippelzones were developed in the Netherlands. Besides Amsterdam, there are Tippelzones in Arnhem (De Poorter and Voster, 2001), Den Haag, Groningen (Den 1999), Heerlen (Bieleman, 2002), Nijmegen, Rotterdam and Utrecht. Some of these zones started as tolerance zones, but others were officially appointed as a Tippelzone from the start. In each case, however, the process of choosing a location was an arduous one because of moral objections to street prostitution among politicians and protests from residents. Almost every zone had to be moved at least once because of these factors, before a more permanent location was decided upon. These problems were confounded by the fact that a Tippelzone too far away from residential areas most often proved not to be a viable solution because of the distance prostitutes and customers had to travel to get there. There was also the problem of drug addiction among prostitutes. Drugs and drug dealing are pro-

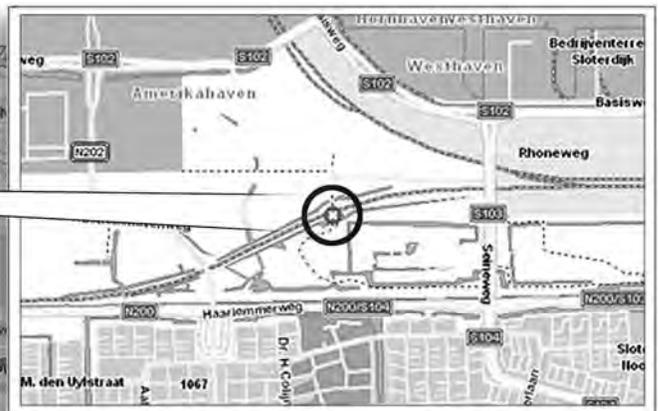
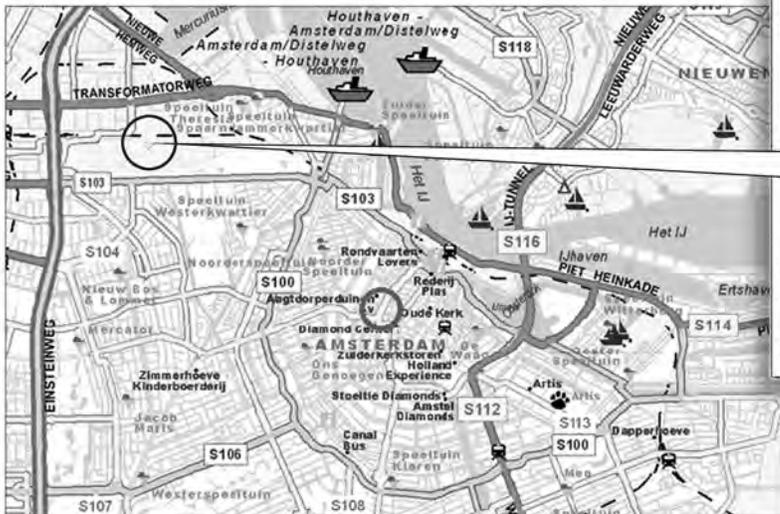


Figure 2
Location of Tippelzone relative to city of Amsterdam
 (Western harbour area; left upper corner of the map)

Figure 3
Tippelzone Amsterdam

NB: Note that there are no residential areas nearby, only infrastructure (e.g. railroads, highways, etc) Design Four of the eight Tippelzones in Dutch cities are used as normal streets during the day. This is the case in Utrecht, Den Haag, Groningen and Nijmegen. The other four cities have a zone that is closed and fenced off during the day and open during evening and night hours. The Tippelzone in Amsterdam is an example of the latter category. It consists of a fenced-off area with two U-shaped roads connected in the middle (see figure 4). The first loop is an area where customers can look at, negotiate with and pick-up prostitutes. Bus shelters provide protection from bad weather and this part of the zone is fairly well lit (see figure 5).

hibited in the zones, which effectively meant that to make a Toppelzone a suitable working place for drug-addicted prostitutes, the zone had to be within an acceptable distance of the places where drugs were sold. Since drugs were almost always sold in city-centres, railway stations or other crowded areas, the Toppelzones were placed as close to these facilities as possible.

In cities where an official Toppelzone has been decided upon, city bylaws and ordinances forbidding working the streets and kerb crawling tend to be more strictly enforced. In this way, street prostitution is pushed towards the Toppelzone. Without enforcement in other areas, most Toppelzones would probably have remained relatively empty parking lots. This process of planned displacement is well documented in Amsterdam as well as in Groningen (175.000 inhabitants most northern part of the Netherlands) where a pre/post evaluation research – 1997/1999 - was done interviewing residents in the unofficial old area and the new official Toppelzone as well as interviewing businesses

and prostitutes and using police and health statistics (Den, 1999).

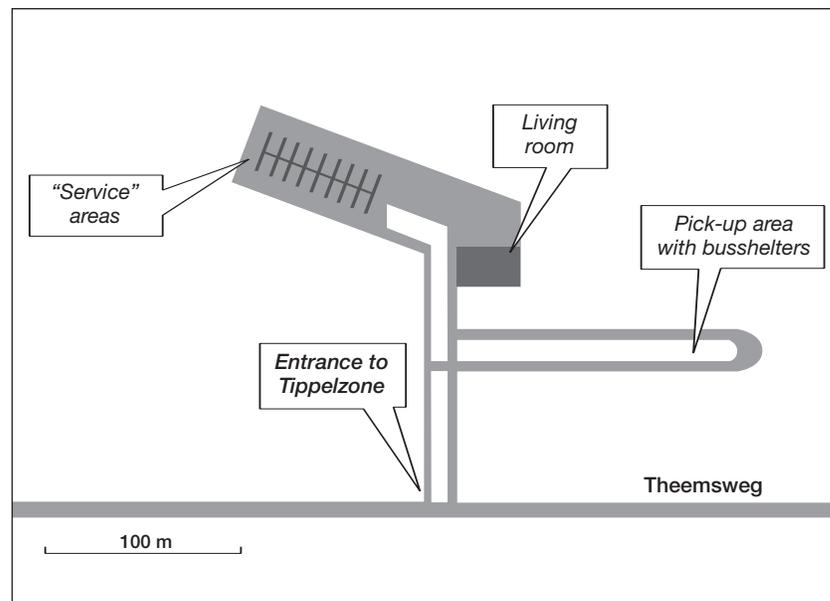
The Amsterdam Toppelzone

In the eighties, kerb crawling was a problem in some downtown areas in Amsterdam. Problems centred around the southern part of the city centre (Utrechtsestraat/Amstelveld) near the Central National Bank about one kilometre away from the well-known red light district near the Central Station. In this area the Mirjam house mentioned above was opened in 1982 to help addicted street prostitutes 7 days a week from 8 am till 8 pm. The prostitutes worked the streets in a small zone where the police had decided to look the other way regarding prostitutes. This policy resulted in an influx of prostitutes from other cities. Residents started complaining about the noise at night, the littering and prostitution itself. One of the most invasive consequences of street prostitution in a residential area is the fact that kerb crawlers regard

Figure 4

Layout of the Amsterdam Toppelzone

Following the 'pick-up loop', there is a shelter, the so-called 'living room', which houses a number of services for the prostitutes. In Amsterdam, this is a two-storey building with an entrance at the front for the prostitutes and an entrance at the rear for care-workers and other staff. The most important part of this building is the actual living room where prostitutes can buy some food, non-alcoholic drinks and condoms. They can also take a shower, use the restrooms or just relax on the couches or chairs. Two nights a week, a medical doctor is present in the living room where prostitutes can go to get information or help concerning medical issues. Upstairs, an observation room has been built where police, care-workers or researchers can study the proceedings outside without being seen by customers or prostitutes. In the back of the building, some offices are present for administrative purposes and there are some storage facilities.



There is an alarm-button in the living room that enables lights to be switched on all over the zone in the case of an emergency. This will floodlight the entire zone so as to prevent clients or prostitutes that cause problems, aggressive pimps or others from being able to hide or escape unseen. During its seven years of operation, this facility has only been used a few times.

any woman there walking at night as a prostitute. In 1985 the Council of Amsterdam adopt a motion stating the city was not only responsible for the public order – and hence a chase and arrest policy for addicted street prostitutes – but the city also had a responsibility for the health and well being of these prostitutes (Potters 2004).



Figure 5

Toppelzone Amsterdam The “pick-up” loop with bus shelters

In 1985, the street working zone shifted to the rather dark, windy and generally unpleasant strip at the back of the central station and the Mirjam house living room moved to the same spot. There were fierce protests of a few residents living there (Potters, 2004). Due to planned building activities around the Central Station (Korthals Altes and Smits, 2000) the zone had to be moved once more – about half a kilometre east. Again there were protests by residents.

In October 1994, after more than five years of preparation and planning, the local authorities decided to have an official Toppelzone in operation by the end of 1995. In October 1995, the city council agreed on the final location: a desolate road in the western harbour area of Amsterdam



Figure 6

The parking spaces as seen from within the Amsterdam Toppelzone

The police play a vital role in ensuring the safety of all Toppelzones. They check the zone a few times each night and are available for prostitutes or care-workers if they need them. The police can enter the living-room, but an understanding has developed that the police do not arrest illegal immigrant prostitutes in the living-room. The presence of the police is crucial to help maintain a safe working environment because they give a strong signal to violent customers, pimps and drug dealers. They also act to prevent prostitutes from soliciting for customers outside of the zone. In Amsterdam, a special team of 12 police officers was added to the local police force when the zone opened. On top of their normal duties, they were given the task to monitor proceedings in and around the zone, as well as building up a relationship with care-workers and prostitutes.

called the Theemsweg (see figures 2 and 3). From January 1996, the zone was open daily from 9 pm. until 6 am and all street prostitution outside of this designated area was forbidden. The day after the opening, more than a hundred residents from neighborhoods south of the zone took to the streets in protest, but the Toppelzone remained open.

Next to the living room are 24 "afwerkplekken" or service-areas. Each compartment is fenced off on three sides by aluminium plates, mounted in such a way that they do not reach the ground. This is to avoid giving the impression of complete seclusion and thus improves safety. Each compartment has a litterbin to the left of the car, which effectively prevents the driver from opening the door on the driver's side whilst parked (see figure 6). The door on the prostitute's side, however, can be opened giving her the opportunity to leave the car if needed. There is a special, smaller "afwerkplek" for customers arriving by motorcycle or even by bicycle.

Facts and figures on the Toppelzone Amsterdam

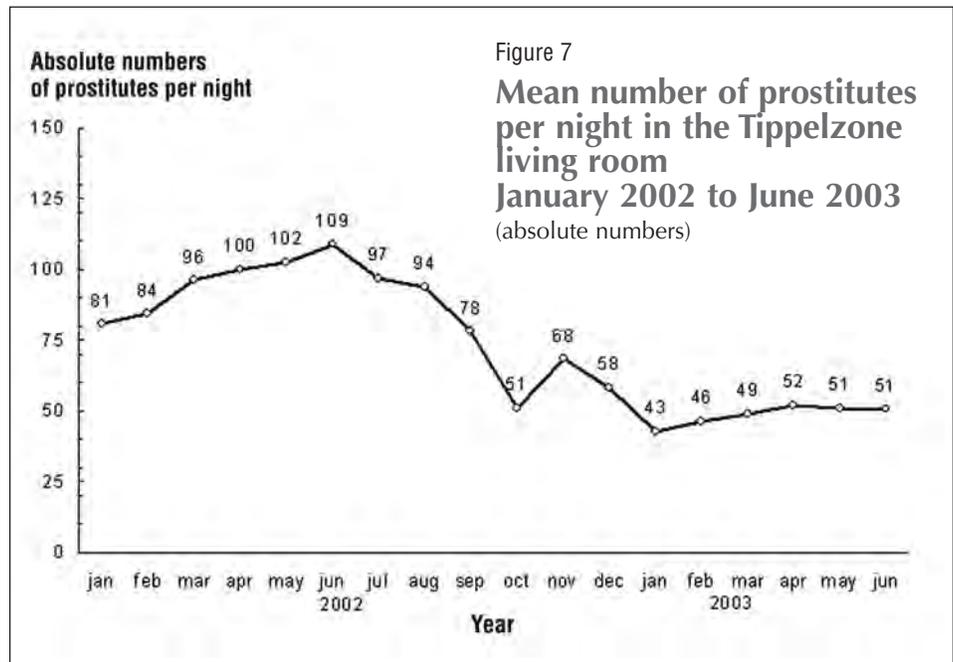
The zone was designed to accommodate a maximum of around eighty prostitutes at any one time. However, the number of prostitutes working the Amsterdam Toppelzone each night varied from zero to over one hundred and fifty during the busiest nights.

The number of cars per night has been fairly constant over the years. Counts and estimates show that there are between 500 and 1,500 car movements each night. It is estimated that half of these are made up of visitors returning for a second run before choosing a prostitute or going elsewhere. It is not known how many of the visitors are 'serious' customers and how many are just there to watch.

The average price for the standard service (S&F – oral sex and intercourse) is EUR 25. This price can, however, vary drastically with the number of prostitutes present. If there are only two prostitutes working, prices increase rapidly, but during busy nights, some would even charge as little as EUR 10 to get a customer.

The average prostitute makes an estimated EUR 80 per night. Popular prostitutes can earn much more, depending on the competition and the clientele.

In an attempt to tackle these problems, a new set of measures was introduced, including more policing in the zone, and the possibility for the police to give prostitutes without proper papers, so-called 'verblijfsverbod', prohibiting them from entering the zone for a period of fourteen days. To make this possible, a city by-law had to be amended as the zone was formally no different from a normal street, making it practically impossible to prohibit anyone from entering. In addition, a maximum number of prostitutes were set, although this was never enforced.



There were a number of highlights worth noting in the Toppelzone from 1996-2002. During the first few months of 1996, the zone was yet to become crowded. Only twenty to thirty prostitutes worked there each night. The police arrested prostitutes still working behind the Central Station or at one of the other traditional locations in the Eastern part of the harbour. From the start, the police noted the high percentage of illegal immigrants working in the zone. Research confirmed this: in 1996, one year after the opening of the zone, an evaluation was carried out (Amsterdam, 1996). This evaluation showed, among other things, that most of the prostitutes working in the zone were not addicted to heroin or other drugs. Since one of main goals of opening the zone was to move all drug-related street prostitution from the city-centre to the Toppelzone, this was generally regarded as a negative outcome. At the time, however, it was not considered enough reason to close the zone. This decision was influenced by other research showing that the addicted prostitutes had not become hidden, and that care-workers in other parts of the city still remained in contact with the vast majority of addicted prostitutes through traditional channels.

Another reason for the continued support of the Toppelzone was another outcome revealed by

the same evaluation: a lot of women who had previously worked in less visible areas of street prostitution (illegal immigrants, many of them in the process of a transgender operation), did come to the zone. This finding was, in 1996, regarded as a positive result: the zone seemed to offer a much valued venue to reach these previously 'invisible' prostitutes and offer them much needed information and help. This group of prostitutes proved to be extremely vulnerable to violent customers, sexually transmitted diseases and other problems as their illegal immigrant status and lack of knowledge of their rights prevented them from seeking help from officials. Their vulnerability limited their potential to negotiate with customers substantially. All in all, the initial developments on and around the zone were positive.

Despite the initial vehement protests, there were hardly any complaints from people or organisations located in the vicinity of the zone, which surprised many of those involved in the Toppelzone initiative.

In February 1998, the closing time for the zone was moved from 6 am to 3 am because there was hardly any business after this time and the health and maintenance officials were expensive during those hours.

In September 1998, the number of prostitutes

and the number of kerb crawlers increased exponentially. There was even pressure to open a second Toppelzone in Amsterdam, but local authorities were against the idea. Interestingly though, there were still few drug-addicted prostitutes working the zone, as they continued to prefer the centre of Amsterdam. One of the consequences of the clamp down on street prostitution was that they seemed to work on their own much more and a lot of them started to take customers to hotel rooms or their own private home.

Between 1999 and 2002 there was a constant struggle between two sides of thought. One group of people—mainly the police—argued that the zone was a breeding zone for the illegal trafficking of women (often from Eastern Europe) violence, blackmail and kidnapping (European Commission, 2001). In their view, the Toppelzone should be closed. The other group of people—mainly care workers—said that closing the Toppelzone would only result in a dispersion of prostitution all over the city, thereby making invisible to the authorities and health-care work the dangers and problems, but not reducing them. The mayor of Amsterdam later summarized this as a 'diabolical dilemma'.

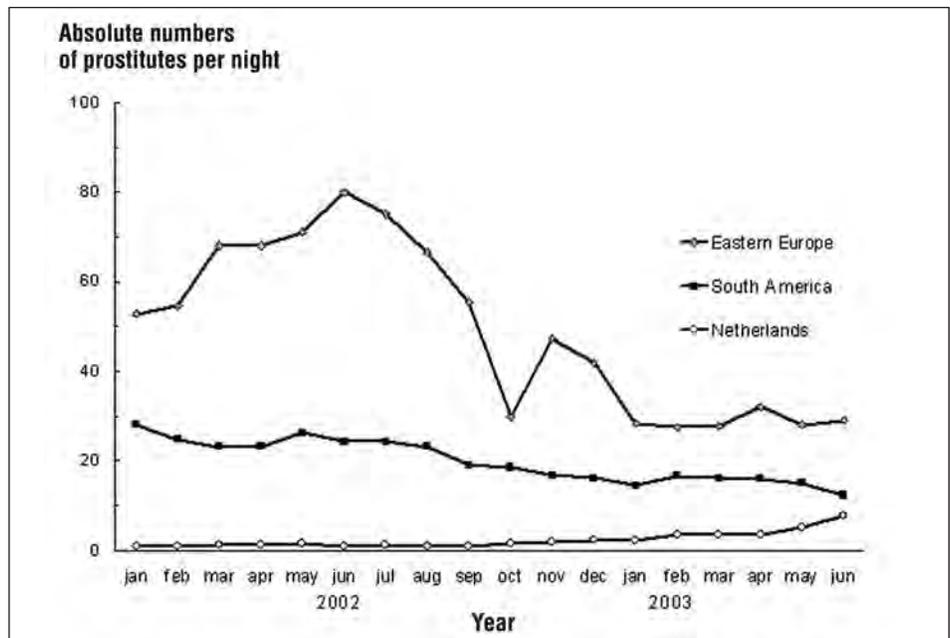
Crisis and shut-down

During the summer months of 2002, according to both the police and staff of the living room, the situation at the zone became impossible to han-

dle. During busy nights, the number of prostitutes working at the zone could number up to 150, when it was originally designed to accommodate a maximum of around 80 (see figure 7). This led to dangerous situations in the zone and to intolerable levels of competition among prostitutes. Fights for customers started among prostitutes, and customers and pimps alike took advantage of this chaotic situation. Care workers from the living room alerted the authorities, including the police, and asked them to help find a new balance. The number of prostitutes was considered to be too high for the zone and the number of incidents of trafficking women was alarming. The illegal status of most of the prostitutes presented too many possibilities for extortion, mistreatment and exploitation of these women.

The most visible and drastic actions taken, however, were two large-scale police raids in September 2002 and January 2003—the effect of which can be observed in figure 8. During these actions or 'sweeps', the police checked the legal status of all prostitutes in the zone. Illegal immigrant prostitutes were immediately transported to the airport and flown back to their home countries. Following the first sweep, 97 prostitutes were repatriated mainly to Bulgaria, Albania and Romania. After the second sweep, 67 women were flown home, mainly to Bulgaria, Romania and Ecuador. In the time between these large-scale actions, the police checked hundreds of women during regular shifts and banned many of

Figure 8
**Country of origin
 prostitutes: January 2002
 to June 2003**
 (absolute numbers per night)



Source (figure 7 and 8): *Cijfers Huiskamer, dagregistratie 2002 en 2003*; see: *Flight, Van Heerwaarden & Lugtmeijer, Evaluatie Toppelzone Theemsweg Amsterdam; extra beheersmaatregelen, DSP-groep: Amsterdam (2003)*.

them from the zone for a designated number of days. The police actions had a notable effect on the East European group of women especially (see figure 8).

As a result, the number of prostitutes in the zone fell dramatically, from an average of over a hundred, to about fifty per night. Research clearly showed that the percentage of illegal immigrant prostitutes, however, did not drop in parallel (Flight, Van Heerwaarden & Lugtmeijer, 2003). This fact, combined with the finding that the number of incidents did not decline, led the city council, after much heated and often emotional debate, to support the mayor's decision to close the zone. Therefore, in December 2003, after a year of discussion and evaluation, the Toppelzone was closed.

To prevent displacement of street prostitution to other areas, an agreement was made with the police to actively pursue street prostitution anywhere in the city focussing on prostitutes as well as fining kerb crawlers. In a report from June 2004 (Amsterdam, 2004) police figures as well as information from other sources show the amount of displacement and side-effects, such as a move from street prostitution into escort services. Reliable figures on violence against prostitutes are not available. The overwhelming problem with this type of research is of course, the invisibility of prostitution in these other areas. Especially the most vulnerable groups of prostitutes will avoid contact with authorities, including health care services. Nevertheless the research results are interesting and they show no displacement in Amsterdam.

The figures on kerb crawlers fined by the police also show a reduction (see total below) especially at the Central Station. This result is easy to explain since by the end of 2003 building activities started there for a new bus station, road tunnel and underground line.

Information from the Amsterdam health authorities (outpatients' clinic for prostitutes and passers-by) and from the organization once running the living room in the former Toppelzone indicate a shift to prostitution in hotel rooms, phone/escort prostitution and displacement to several spots in the city where individual prostitutes or very small groups change their working spots in a mercurial fashion. Most certainly there

Police registration number of cases street prostitution

Police district	First 2003	First 4 months 2004	difference
District 1 (North)	0	2	+ 2
District 3 (Center)	454	369	-85
District 4 (East))	0	4	+ 4
District 5 (South)	0	0	0
District 6 (New West incl Toppelzone)	14	3	-11
District 7 (Southeast)	0	0	0
District 8 (Old West)	7	5	2
Amsterdam total	475	383	-92

Source: Amsterdam 2004 page 1

Number of fines for kerb crawlers (police figures)

Spot	First month 2003	First 4 months 2004	Difference
Central Station (rear)	249	148	-101
West of Central Station	118	151	+ 33
Haarlemmer Houthuinen	16	41	+ 25
Other spots in the city	83	26	- 57
Total	466	366	-100

Source: Amsterdam 2004, page 2

is displacement to Toppelzones in other cities most notably to the Toppelzone in Utrecht (less than an hour from Amsterdam by car or train).

However, the overall picture shows an astonishing disappearance of the problems Amsterdam was facing with street prostitution in mid 2003. Especially the huge international influx of prostitutes from Eastern Europe and South/Middle America seems to have vanished. More local oriented prostitutes are working in hotel rooms, use mercurial changing pick up spots or work in Utrecht. Since the Toppelzones in The Hague and Rotterdam will be closed in 2005 the local authorities in Utrecht have sounded the alarm. July 9th 2004 a national paper published an article show-

ing that the number of prostitutes in the Utrecht Toppelzone at the Europaweg doubled from 35 to 70. Authorities from Utrecht asked Amsterdam and Rotterdam to do something about this but their response was not over enthusiastic saying that further research and talks were needed.

The Toppelzone in Amsterdam has been put on hold for a year. It was mothballed waiting for the decision to be taken by the city council at the beginning of 2005. Main while the zone is temporarily leased out to a driving school thus making some money for the city

Concluding remarks

The approach taken by the Dutch was pragmatic. If you cannot defeat prostitution using police control and regulation, then seek a solution that minimises the harmful aspects for all the stakeholders—prostitutes, residents, etc.

The Dutch developed a design comprising a pick up area, working area, living space coupled with controls that worked well and created a healthier, safer and more secure environment for the street prostitutes in which to work. This was combined with policing practices that 'encouraged' women to work within the zones. In this way, the Dutch demonstrated how design and management procedures can reduce nuisance and violence associated with prostitution.

It should be noted, however, that the main target group, drug-addicted prostitutes, stayed in the city centre—although they were not out of reach of healthcare services. In addition, a new group of transgender prostitutes surfaced, many of whom were illegal immigrants. Over time, the zone started to attract pimps and women on a European and even worldwide scale, becoming a pull factor in its own right. In this sense, one could argue that the zone was generating opportunities for prostitution and perhaps making the profession attractive to a wider group of people.

The success of the Toppelzone appears to have been its downfall, as the number of prostitutes using the zone increased exponentially and the

zone could no longer be controlled. The numbers of prostitutes using the area were monitored, and research highlighted a growth in illegal immigrant prostitutes. However, the implications of these changes were not identified soon enough for alternative courses of action to be considered. Thus, the problems became so severe that the only course of action open to the authorities appeared to be closure.

The effects of the closure seem to be a vanishing of the influx of international prostitutes from Eastern Europe and South/Middle America, a change of working methods of the local oriented prostitutes (phone/escort, hotel, changing pick up spots) and a displacement of street prostitutes from Amsterdam to Utrecht with the possible effect of this Utrecht Toppelzone running in trouble and closing down. From a world perspective the sudden international influx of prostitutes resulted in the closure of the Toppelzone in Amsterdam and this closure might have the domino effect of closing down the Toppelzone in Utrecht. Parallel with the economic globalisation and flash money being tele-banked around the world we might have seen the effects of the globalisation of another market here: crime and prostitution.

Interestingly, the UK is considering developing areas that are tolerant to prostitution. This case study shows how design and management practices can help concentrate prostitution in a zone. Furthermore, well-designed zones certainly help improve the safety and health of prostitutes, whilst reducing the nuisance for surrounding neighborhoods. However, prostitution zones need to be carefully monitored and emerging trends identified. Action to address potential problems, such as the influx of illegal immigrant prostitutes, needs to be taken early on, before a 'Tipping Point' is reached. Tipping Point Theory examines sudden, often exponential changes and identifies the small cumulative factors that precede such transformations (Saville, 1998, Gladwell, 2000). In some cases, there may be a need to alter or adjust practices that have helped encourage use of a zone. For example, police may need to be more proactive in dealing with illegal immigrant prostitutes and focus efforts on identifying and punishing individuals involved in the illegal trafficking women. ■

Action to address potential problems, such as the influx of illegal immigrant prostitutes, needs to be taken early on, before a "Tipping Point" is reached.

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Edited by

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December 2003

Update: **Paul van Soomeren**,

July/August 2004

The authors wish to thank **Marieke van Doorninck** from the Dutch Institute for Prostitution Issues for her work on the history of Dutch prostitution and Toppelzones.

Coming events in the CPTED community

North American CPTED events

EVENT: Basic CPTED Training
DATE: July 19 – 21, 2006
LOCATION: The Stratosphere Hotel
Las Vegas, Nevada, USA
WEBSITE: www.nicp.net

EVENT: Law Enforcement Training and
Transformation in the 21st Century
DATE: September 6 – 8, 2006
LOCATION: Folsom Lake College
Folsom, California, USA
WEBSITE: www.pspbl.com/conference.htm

EVENT: Basic CPTED Training
DATE: September 20 – 22, 2006
LOCATION: Rosen Plaza Hotel
Orlando, Florida, USA
WEBSITE: www.nicp.net

EVENT: CPTED Training, 1st and 2nd
Generation
DATE: September 12 – 13, 2006
LOCATION: Saskatoon City Hall
Saskatoon, SK, Canada
WEBSITE: www.saskatoon.ca

EVENT: The 17th International Problem
Oriented Policing Conference
DATE: September 25th-27th, 2006
LOCATION: Monona Terrace Convention Center
Madison, Wisconsin
EMAIL: events@popcenter.org
WEBSITE: [www.popcenter.org/about-conference
06.htm](http://www.popcenter.org/about-conference06.htm)

EVENT: Basic CPTED Training
DATE: November 29 – December 1, 2006
LOCATION: The Stratosphere Hotel
Las Vegas, Nevada, USA
WEBSITE: www.nicp.net

Asia-Pacific CPTED events

EVENT: SSCP Workshop 2006
DATE: July 10, 2006
LOCATION: Holiday Inn Adelaide
Adelaide, SA, Australia
WEBSITE: www.ismcp.org

EVENT: EDSEC-2006
DATE: July 11 – 13, 2006
LOCATION: Holiday Inn Adelaide
Adelaide, SA, Australia
WEBSITE: www.ismcp.org

Examining the relationship between transit facilities and crime using GIS: An entry point for CPTED analysis

By Hiroyuki Iseki

The study of the spatial distribution of crime is one field in which mapping is increasingly useful. As GIS (Geographic Information Systems) technology improves, it has aided crime mapping and analysis by, among other things, removing less effective and dated methodological techniques, such as static pin-mapping. In this paper, I present how GIS can facilitate analyses regarding the relationship between crime and the built environment near transit facilities, which can focus efforts for **Crime Prevention Through Environmental Design (CPTED) on transit crimes**. The study draws upon three data sources: 1) crime data from the Los Angeles Metropolitan Transportation Authority (LAMTA), Los Angeles County Sheriff Department, and local municipal city police departments, 2) transit ridership data from the LAMTA, and 3) built environment data within and near transit facilities obtained from field work and observation. Two highlighted applications of GIS in crime mapping and analysis in this paper are: 1) to combine data across units of analysis to more effectively display geographic crime patterns and provide data for regression analysis that examines the relationship between the built environment and crime incidents, and 2) to visualize geographic and temporal variation of crime incidents to identify *crime hot spots*.

Background

The progress in GIS technology in recent years has provided a powerful tool to present spatial and temporal patterns of crime to facilitate analysis on

the relationship between crime and the built environment. Such analysis often provides solid empirical evidence on effectiveness of CPTED both before and after interventions. For instance, crime displacement can be tracked following intervention(s) using GIS, thus realizing at least one beneficial purpose for GIS for CPTED practitioners.

GIS is an evolving, and when properly used, effective technology. As a tool, it is capable of presenting data to enable understanding of spatial patterns of information in maps. The use of GIS applications to process data enables us to examine the spatial relationships across multiple geographic themes, such as city streets, census zones, parks, etc., thus providing more information to further understand the environmental, social, political, and legal contexts in which neighborhood problems exist. GIS provides useful technical functions which, among others, can export data to statistical software for further quantitative analysis using descriptive statistics and regression analysis. Also, GIS can perform spatial functions such as hot spot analysis and spatial correlation analysis; two more useful technical tools that can aid promote understanding of the geography of crime.

Specifically, this paper focuses on how GIS provides a useful tool to identify spatial relationships between crime and built environment features, such as bus stops and rail stations. Discussions on the uses of examining GIS data will follow, as this is particularly relevant for an international CPTED community still newly discovering the potential for this technology. Additionally, density maps of the hot spot analysis will reveal how to

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overcome some limitations of conventional crime mapping, and allow for the visualization of geographic and temporal variation of crime incidents to identify *crime hot spots*. This paper demonstrates these two advantages in crime analysis in the studies conducted previously.¹

Literature review of crime mapping analysis

Many scholars in the field of crime mapping and analysis are interested in the spatial distribution of crime and its causes. At a macro scale, such as regional and citywide scales, ecological research

conducted by the social ecology theorists examine socio-economic factors, usually defined as census tracts or block groups, on crime (Swartz, 2000). Socio-economic factors usually include demographics, economic status, family structure, education level, and occupation that are assumed to influence crime incidents.

While social ecology theorists usually focus on socio-economic factors, there are studies that examine the relationship between the built environment and crime at a meso scale, more often around the census block group level, including environmental variables as well as demographic and socioeconomic variables. These environmental factors often include land use, transportation facilities, structural density, level of urbanization, and street environment. Brantingham, Brantingham, and Wang (1991) argue that such factors impact the travel time and distance within which offenders may seek crime opportunities, and therefore affects the spatial distribution of crime incidents.

There is also a group of studies that examine the relationship between crime and the physical environment at the micro level, such as the neighborhood, building, and house, recognizing that macro and meso scale analyses ignore the variation within studied areas. These studies focus on the effects of immediate physical and built environment on the crime level at specific sites and locations. Factors for this type of analysis include adjacent

building, land use, commercial establishments, street environment and configuration, and the presence of guardianship (Loukaitou-Sideris et al., 2001). Importantly, CPTED is generally considered most effective performed at the micro level.

What is a hot spot?

While there is no widely accepted definition of hot spots, hot spots are geographic locations/areas where a high level of crime concentration can be found relative to levels of crime at other locations/areas.

Hot spots are subject to the scale of a map in the sense that it is a relative measure (Crime Mapping Research Center, 1999). A location or an area is considered a hot spot because the number of crimes at the location/area is relatively higher than those at other locations/areas. This relative measure of hot spots changes by the geographic scale of analysis. While an entire city with a large number of crimes can be identified as a hot spot relative to other cities, there are high and low crime districts within this city.

Hot spots are also subject to the *type* of crime. Hot spot analysis distinguishes street crime from domestic crime, white-color crime, organized crime, or terrorism crime (Crime Mapping Research Center, 1999). This distinction is important since there are spillover effects of high crime spots or some environmental characteristics that affect the likelihood of street crime.

Identifying hot spots helps crime prevention efforts more effectively target high-crime areas, so that enforcement resources and community efforts may be deployed more efficiently. However, GIS requires some technical know-how and, most certainly, the skill of inquiry in order to “ask” the important questions of the technology and available data. Different mapping methods vary in their ability to detect hot spots. A few are reviewed below, and displayed in the case studies.

Computer pin maps

Pin maps are a static map of jurisdictions with stuck pins representing individual crimes. These types of maps are a conventional mapping technique that has been used in crime analysis in many police departments. Pin maps using a GIS or any computer software can make a task of plotting crime locations on a base map less labor-intensive

While there is no widely accepted definition of hot spots, hot spots are geographic locations/areas where a high level of crime concentration can be found.

and more flexible than in the past (Crime Mapping Research Center, 1999, Eck et al., 2000). However, computer pin maps still have two major shortcomings. First, points on a computerized base map serve as pins, and each represents a single crime. When there are many crimes in a studied area, a map in which points are stacked on each other does not distinguish a location with one crime from another location with multiple crimes. Second, even if points are not superimposed on each other, a map can get too crowded to understand, defeating the purpose of the map. Finally, visual interpretation of crime distribution and identification of hot spots can be very subjective without standard measurement techniques.

Point maps

Point maps are different from pin maps in a sense that points can represent the different numbers of crimes by different sizes of a point. Eck, Gersh, and Taylor (2000) introduce repeat matching mapping in which they aggregate multiple crimes occurring at the same address into one record, sort new records by the number of crimes, and select a threshold value for mapping to show as many events as possible with the fewest number of points. This technique overcomes the first problem of pin maps, but does not necessarily solve the second problem. In most cases, crime records at the same location are aggregated to a point. Point maps are, however, useful in micro level analysis to examine the effects of site specific physical environment on crimes.

Density maps

In density mapping, which is also called a grid cell method, cells sized at constant intervals contain crime density scores that are overlaid on a thematic map. Two major advantages of density maps over other methods are: 1) density maps solve the problem of stacked points and crowding, and 2) they provide smooth and regular geographical transitions over a study area (Crime Mapping Research Center, 1999).

ArcView Spatial Analyst gives two options to calculate density from point data: *simple* and *kernel* density methods. Both methods use a search circle from each cell (or grid) in order to identify crime points associated with a particular cell. The user

specifies the cell size and radius of the search circle. The *kernel* method produces a density map with a smoother appearance than the *simple* method.

While these methods are quite useful in visualizing and analyzing crime patterns, standard criteria are not well established to determine the radius of the search circle, the cell size, the threshold value for determining hot spots, the size of hot spots, and a method to compare densities over time. The lack of standard density crime method is evident by the amount of contemporary research still devoted to the topic (McLafferty et al., 2000).

In a crime hot spot analysis, the spatial statistical measures of underlying social and environmental processes that generate crimes in a small area can serve as hot spot indicators (Roncek and Montgomery, 1995). All methods of hot spot mapping should produce similar maps if there are underlying and recognizable point clusters. However, some methods require users to define search criteria, such as cell sizes or search radii, and variations in these parameters can significantly affect results in the analysis (Williamson et al., 1999). Given the limited data with which is an incontrovertible challenge for GIS-based crime analysis, it is essential to remember that GIS analysis is best performed as a complementary role for CPTED, not as a substitute.

Empirical studies

The purposes of original studies were: 1) to examine the relationship between crime and the built environment at and around bus stops (Loukaitou-Sideris et al., 2001, Liggett et al., 2001), and 2) to examine the effects of the light rail (Green Line) opening on crime in the adjacent neighborhoods (Liggett et al., 2003). GIS's capability of processing, mapping, and analyzing crime data contributed substantially to visualizing and understanding the spatial distribution of crime data for both studies.

Data and data sources

Bus Stop Crime Study: Bus stop crime data were obtained from Los Angeles Metropolitan Transit Authority (LAMTA) Transit Police and the Los

For CPTED practitioners... understanding why crime decreases is as important as understanding why crime increases.

Examining transit facilities and crime

Angeles Police Department (LAPD) that collected all reported incidents of crimes against people at or near bus stops in Los Angeles for the period from January 1994 to December 1998. Table 1 shows the data collected for the studies. The data attributes included the type of crime, the day, and the time of day. Bus ridership data, average weekday and weekend passenger boardings and alightings per bus stop, were obtained from LAMTA.

buildings, vacant lots, the amount of street traffic, the existence of bus shelters, visibility, lighting, street and sidewalk width, on-street parking and traffic levels, etc.) within 150 feet from all selected bus stop intersections. Again, as integral as GIS can be for CPTED, a thorough CPTED analysis must go beyond computers. Such field work is often essential.

Green Line Crime Study: Crime data for the analysis were collected for the ten year period from 1990 to 1999 from police departments for the six cities intersected by the Green Line light rail line.ⁱⁱⁱ These six cities were Downey, Los Angeles, Hawthorne, El Segundo, Manhattan Beach, and Redondo Beach (Figure 1). All data sets contained information for the type of crime, date and time of incident, crime type code, description of crime, and location.

In both studies, crimes were categorized into three groups based on the Federal Bureau of Investigation (FBI) classification schemes with an assumption that different types of crime were affected differently by various factors.

Type 1 crime included criminal homicide, forcible rape, robbery, aggravated assault, larceny theft, burglary, and arson. Grand auto theft is an FBI type 1 crime, but was categorized separately into the “auto-related type 1” crime in the analysis.

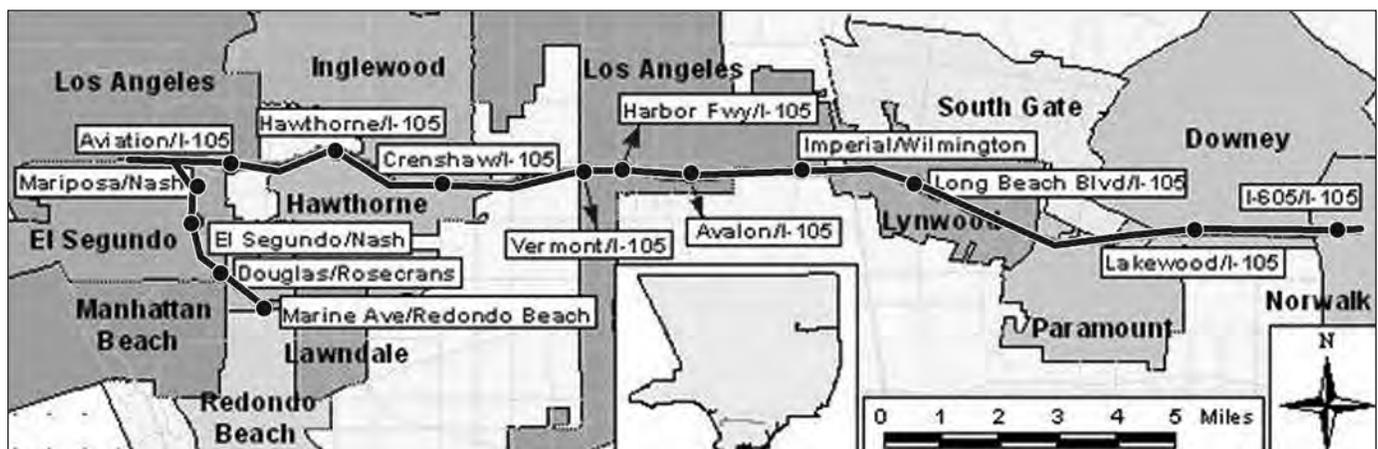
Type 2 crime included less serious crimes against people and properties, such as petty theft, pickpocket, jewelry snatching, public nuisance or public offence such as public drinking, lewd or disorderly conduct, vagrancy, non-aggravated

Data collected for the studies

Bus Stop Crime Project	Green Line Station Crime Project
Crime data	Crime data
Bus ridership data by bus stop	Street GIS line file
Environment inventory data from the field work	Green Line light rail line GIS line file
Street GIS line file	Interstate highway GIS line file
Bus stop GIS polygon file LAPF reporting district GIS polygon file	City and LAPD reporting district boundary GIS polygon file
Interstate highway GIS line file	(Census demographic data)
Los Angeles County GIS polygon file	(Census block group GIS polygon file) ¹

In order to examine the relationship between crime and the built environment surrounding bus stops, observational field work was conducted to collect environmental inventory data (e.g. the surrounding land uses, the presence of dilapidated

Figure 1
Los Angeles Green Line stations and adjacent cities



assaults, drug violation, etc. One problem with crime data was that crime classification, especially for type 2 crimes, varied among different jurisdictions.

In this Green Line Crime Study, the spatial distribution of crimes and its temporal change were examined using ArcView Spatial Analyst. ArcView Spatial Analyst uses *simple* or *kernel* smoothing to generate crime density scores in grids and identify clusters of crimes (hot spots). As mentioned in the previous section, there is no standard method in the field to determine the radius of the search circle, the cell size, a threshold value for determining hot spots, and the size of hot spots. In this analysis, the search radius of 0.1 mile was selected to maximize the visual effectiveness of maps to identify hot spots on a trial-and-error basis.

Another objective in the hot spot analysis was to examine the change in the spatial distribution of crime in the studied area. In order to compare the crime density before and after the Green Line opening, the level of crime records was normalized for the time span of each period prior to calculating the crime density. In the final step, the difference in the crime density before and after the Green Line opening was computed.

Analysis and presentation

Bus Stop Crime Study: Figure 2 is a typical pin map that shows geocoded crimes and the bus ridership level at the selected intersections where LAMTA bus stops were located in the studied area. While it clearly depicts locations of transit-related crime, it can be misleading in that some crimes are stacked on each other. This problem undermines the visual representation of the real crime concentration. This is especially problematic in the historic core in downtown where many crime incidents were recorded based on cross streets instead of addresses. To better represent the distribution of crime incidents, individual crimes can be aggregated for a different unit of analysis.

Figure 3 is a point map that shows the crime level and the number of liquor store at the selected intersections where LAMTA bus stops were located. The presence of liquor stores was one statistically significant variable (along with visibility, litter, and bus waiting time) ^V in a regression analysis conducted using SPSS (Liggett et al., 2001). In this

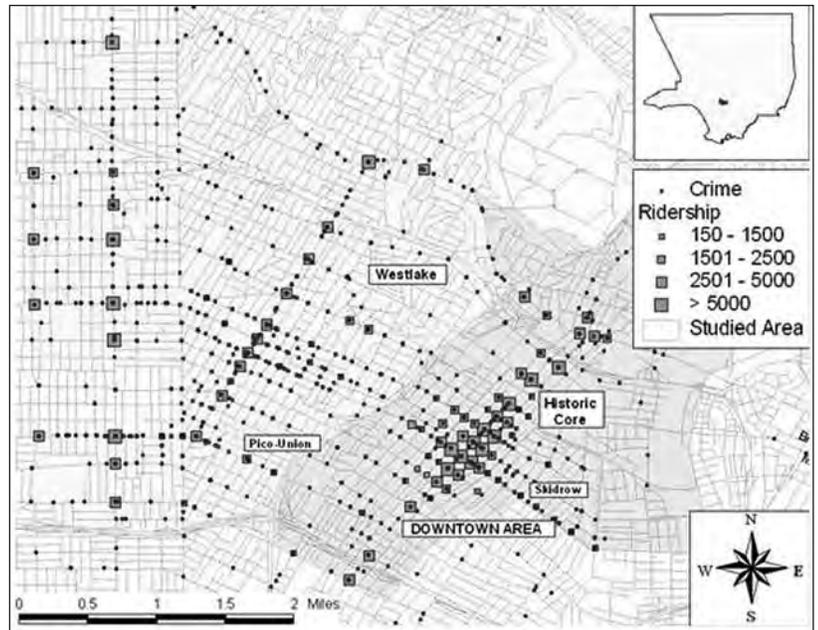


Figure 2
Bus transit crime and ridership levels for selected bus stop intersections

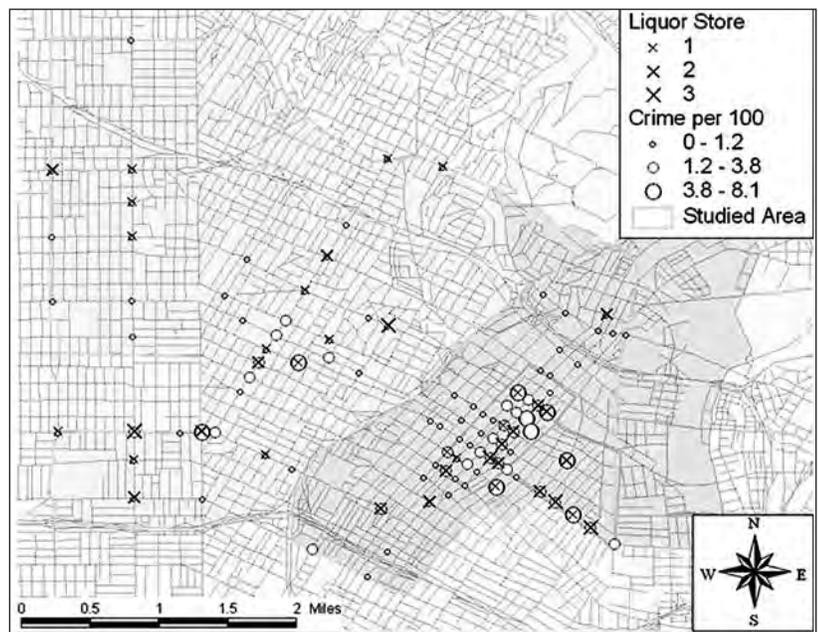


Figure 3
Crime level and liquor store at selected bus stop intersections

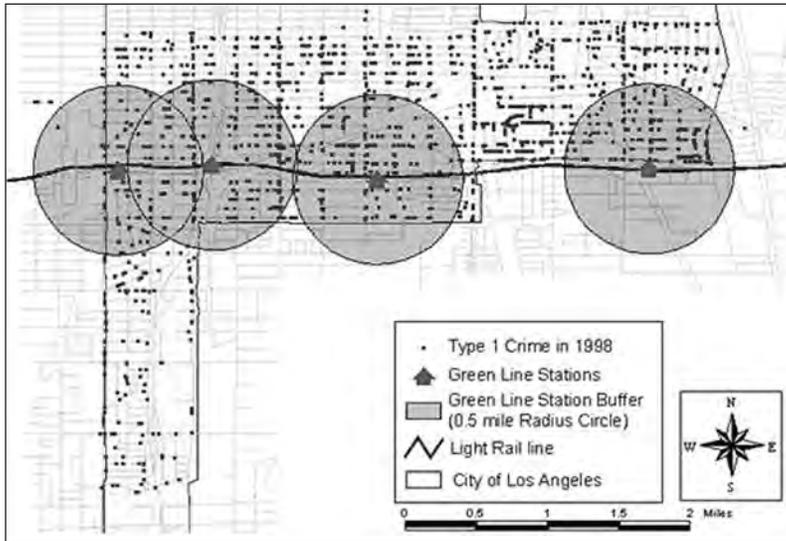


Figure 4
Pin map of crime incidents in 1998 along the Green Line in central LA

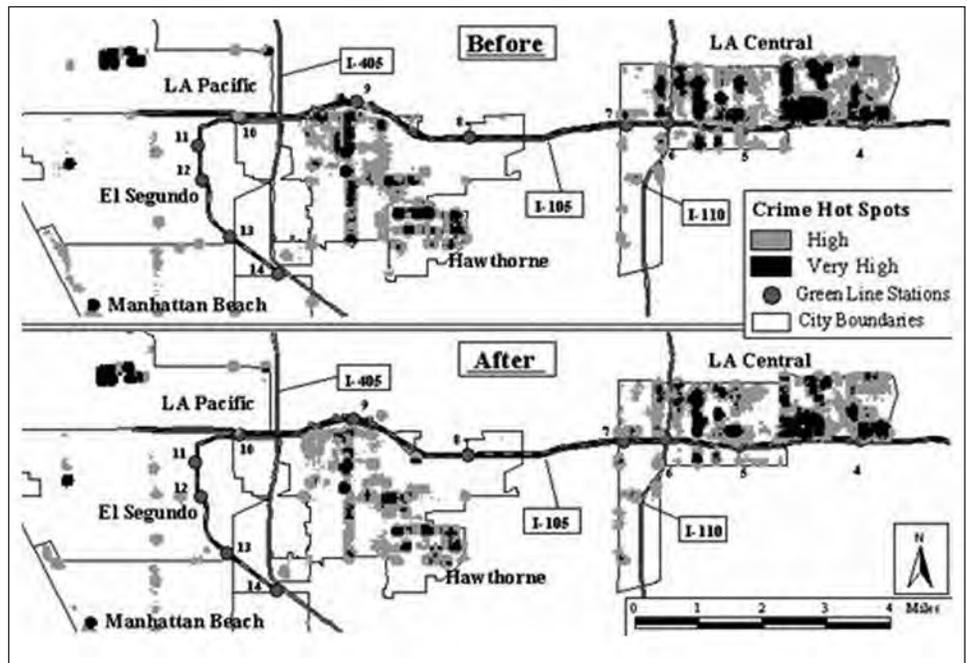
map, individual crimes and ridership from multiple bus stops were aggregated for analysis at the intersection level. This solves a problem of stacked data points in a pin map, and allows us to show the level of crimes using graduated symbols. Thus, Figure 3, because it provides more detailed information, allows for a greater level of analysis and direction for further inquiry. Notice that there are liquor stores with high crime, as might be expected, but there are also areas of low crime that have

liquor stores. Why? How might we answer this question? Additional GIS data may be helpful, but the context specific information that is of most use at the micro level can be obtained from CPTED risk assessments and problem analyses of the liquor store areas. Indeed, GIS mapping is an effective entry point for neighborhood level analysis, allowing us to start with maps containing broad levels of data and systematically refining our search parameters to focus on smaller areas which, at some point, are best studied with field work. In addition to the GIS analysis, the collection of small scale, contextually-specific physical and social environmental data can aid both 1st and 2nd Generation CPTED.

Green Line Crime Study: Figure 4 is an example of a pin map, which shows geocoded crime incidents in 1998 along the Green Line light rail line in Central Los Angeles. The map does not represent the distribution of crime very well because points at which more than one crime occurred look the same as those where, in fact, only one crime occurred. Crime looks more spatially uniform in this representation than it actually is.

Figure 5 shows average crime densities of a hot spot analysis to show the level of non-auto type 1 crime density before and after the Green Line opening in Los Angeles. Figure 5 includes the western part of City of Los Angeles in addition to Central LA depicted in Figure 4. In comparison

Figure 5
Crime density change before and after the Green Line opening



to Figure 4, Figure 5 can more effectively show the variation in crime density across the studied area by three different grid colors. Dark grid cells show “very high” concentration of crime incidence, gray grid cells show “high” concentration, and white grid cells show low or no concentration. GIS is capable of taking the difference between these two maps to show spots of significant change in crime incidents over time. This is done in Figure 6 in which the upper map shows hot spots of crime increase, where the lower map indicates areas where crime has decreased. Dark cells represent a significant increase or decrease in crime density in these maps. Again, a simple change in the type of map used (from pin map to density map) can increase the level of analysis and yield more insight to the problem areas, which may be tracked over both place *and* time.

Figure 5 shows that a high concentration of type 1 crime existed in the LA Central area before and after the introduction of the Green Line, although a significant decrease in crime density occurred in some areas (Figure 6). The follow-up field work of the “hot spots” areas found that crime density increases were related to public housing development in the LA Central area, and that the concentration of crime in the city of Hawthorne was primarily along the commercial corridor of Hawthorne Boulevard, which runs south from Hawthorne/I-105 station (Figure 1), as well as in the southeast corner of the city (Liggett

et al., 2003). Figure 6 shows these two areas in Hawthorne experienced a decrease in crime density since the opening of the Green Line. This could provide further study for CPTED practitioners, as understanding why crime decreases is as important as why it increases. GIS is a useful technology for tracking fluctuations in crime. Might crime have been displaced? Subsequent analysis upon specific crime types might reveal such a thing. 4.

Conclusion

This paper discussed advantages of using GIS in crime mapping and analysis, and explored available technological methods to facilitate analysis of crime incidents in relation to the built environment and especially transit facilities. The paper demonstrates with concrete examples that GIS can be used to move beyond traditional methods of crime pin mapping by providing tools for better analysis of geographic crime patterns. It also enhances researchers’ capacity to conduct more advanced quantitative and spatial analysis by changing a unit of analysis and calculating crime density. Although GIS is not designed to provide complete street-level data for comprehensive micro-level analysis, it can be very useful as an entry point for CPTED analysis and as a tool for monitoring crime patterns over space and time.

Changing a unit of analysis is important to planning and management, since meaningful geograph-

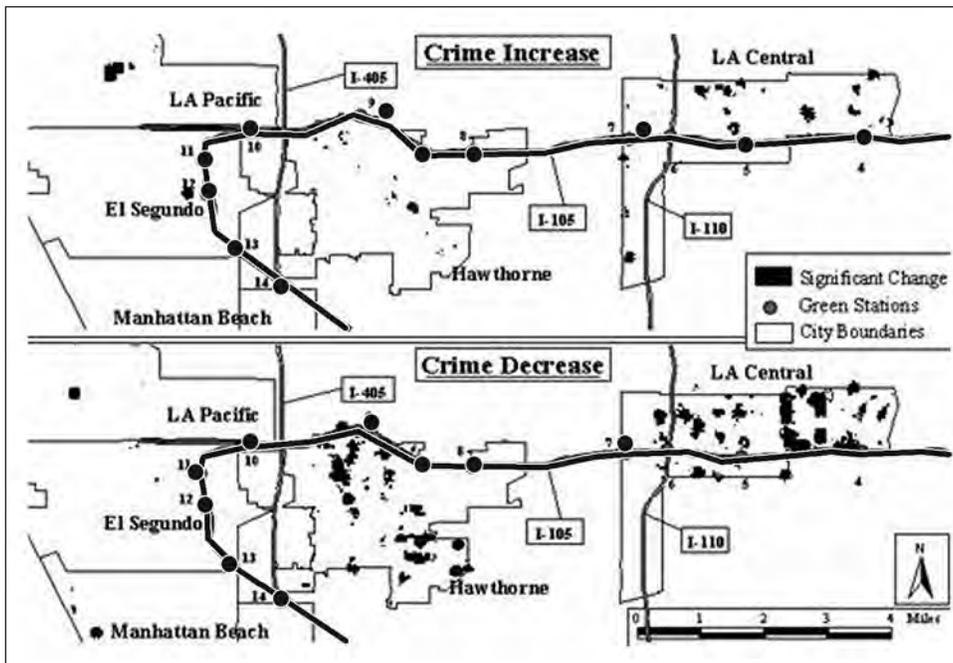


Figure 6
Crime density change
after the Green Line
opening

ic levels are required in policy making and planning. The unit of analysis does not necessarily have to be a political jurisdiction. The unit of analysis used in the studies in this paper is based on transit facilities. Transit agencies have interests in abating crime in order to increase security for transit users, and have separate funding and planning units to take adequate measures for the transit-related crime prevention. Other user-defined units may be selected, or created, based upon the needs of the study.

Crime density maps were created to identify crime hot spots and significant temporal changes before and after the Green Line openings for the Green Line Crime study. While this technique has an advantage in creating smooth surfaces from point data, there are a few parameters that have to be determined by users. Future research will be needed for objectively deciding the cell size and the search radius for the crime density analysis if, in fact, this is a necessary goal. ■

References and on-line resources

Notes

i. This paper is based on crime mapping and analysis conducted in a series of collaborated studies to examine transit crimes (Loukaitou-Sideris, Liggett, Iseki, and Thurlow, 2001; Liggett, Loukaitou-Sideris, and Iseki, 2001; Loukaitou-Sideris, Liggett, and Iseki, 2002; Liggett, Loukaitou-Sideris, and Iseki, 2003).

ii. Census demographic data and block group shape files were important components in one of the Green Line crime studies, in which the relationship between demographics in the adjacent areas along the Green Line and crime at the stations were examined (Loukaitou-Sideris, Liggett, and Iseki, 2001).

iii. The Green Line operates in thirteen political jurisdictions: Norwalk, Downey, Paramount, South Gate, Lynwood, Los Angeles, Inglewood, Hawthorne, El Segundo, Manhattan Beach, Redondo Beach, Lawndale, and the unincorporated areas of Los Angeles County.

iv. For sophisticated methods of using GIS to evaluate transportation census data, see Hess and O'Neill (1999).

v. Liquor store indicated the presence of a liquor store nearby intersections. Litter was a level of littering on streets as an indicator of civility. Visibility indicated whether bus stop intersections were visible from surrounding establishments. Bus waiting time was used as a measure of pedestrian presence in the vicinity of bus stops and was calculated using the average lapsed time between two

consecutive buses weighted by the number of boardings. The first two variables had a positive sign in a regression model while the latter two variables had a negative sign.

Acknowledgments

The analysis methods discussed here were created by the author for studies conducted in collaboration with Robin Liggett and Anastasia Loukaitou-Sideris. I would like to thank Hyun-Gun Sung and Rieko Matsumura for their assistance, and thank Doug Houston for valuable comments.

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2nd generation CPTED: A community based approach to creating safer nightlife spaces

By Dustin Dickout

Drinking establishments such as bars, dancehalls, and saloons have served as central gathering places throughout our social history (Bianchini, 1995; Chatterton and Hollands, 2003) (Figure 1). Even though décor styles, music tastes, and trendy cocktails change, nightlife's essence remains constant. This time and space is associated with fun and pleasure. Unfortunately, nightlife's darker side co-exists with its fun and playful exterior, and threatens to obscure the positive edge it can bring to cities. The communities and neighbourhoods adjacent to nightlife areas tend to experience the residual, fall-out effects from nightlife. Commonly reported incidents, in and around bars, include brawls, weapons' possession, drug trafficking, property damage, and environmental degradation.

The positive and negative aspects of the nightlife question are difficult, but not impossible, to reconcile. Nightlife can be both safe and fun, but what must be considered first is that nightlife takes place within a community. Whether it is a residential, business, artistic, or social community, there are many people involved. This translates into a myriad of perspectives, often conflicting ones, striving to be heard and accounted for. This article introduces a planning model, which facilitates more equitable and democratic discussion forums pertaining to nightlife, and includes all the affected participants. In doing so, new community-driven solutions will emerge, based on the collective needs, desires, and values of its people.

2nd Generation CPTED theory has the capacity



Figure 1
William Hogarth's Tavern 1735

and scope to manage and address the complexities inherent to nightlife planning (Saville and Cleveland, 1997). 2nd Gen is an inclusive and community-minded theory. It operates on the belief that communities and participants should be planned 'with' and not 'for' (Brassard, 2003). This collective planning approach, where all participants are invited to participate, encourages the development of holistic and context specific solutions. When communities are planned with, they are equipped with the necessary tools and knowledge to understand their problems. Once a community acquires this skill-set, it has the resources to solve the current crisis and tackle any future problems should they arise.

2nd Gen measures the health and well being of communities according to four abstract indicators.

This is an abridged version of **Dustin Dickout's** Master's Degrees Project at the University of Calgary's Faculty of Environmental Design. Dustin can be reached at dustindickout@yayhoo.ca.

These are: capacity, culture, connection, and cohesion and when applied, they evaluate the strengths and weaknesses of a particular community. The 4C's do not function as isolated entities; rather they operate as inter-twined and cooperating units within community. In the Case Study Context, the Beltline community in Calgary, Canada, is studied in relation to nightlife and the 4 C's.

The adaptable planning model

Planning has outgrown its need to write comprehensive and extensive urban plans for the overall utilitarian efficiency of urban systems. 2nd Generation CPTED's appeal is twofold: it has (1) the ability to approach planning issues through a context specific lens, and (2) the capacity to forge inclusive partnerships among the participants. Most contemporary planning problems are localized. For example, nightlife is locally concentrated, often in spaces no larger than a few city blocks. 2nd Generation CPTED applies at the neighbourhood level because the

participants are invited to participate in the process (Saville and Cleveland, 2003). When participants are involved, they understand the forces shaping their community. Issues are approached from the perspective of the affected community, thereby tailoring a set of solutions specific to needs and desires of that community and its people.

The five strengths

The 2nd Gen planning model exhibits five key strengths: communication, equity, local knowledge, community empowerment, and trust. At the outset of the planning forum, (1) open, two-way communication is promoted and encouraged. By promoting open dialogue, (2) equitable relationships form between the planner and community and (3) new methods of learning and knowing emerge. Personal insights and local knowledge are as valuable as professional expertise, and are not discounted because they are abstract, experienced, or felt by an individual. When community members feel their input directly impacts the final out-

come, (4) they become empowered. With this strength, people take the initiative to solve their problems themselves. Lastly, these factors are achievable because the (5) notions of participant trust and respect are upheld from the beginning to the end of the process.

Communication

Open communication between the participants is imperative. Jurgen Habermas states: "the actors seek to reach an understanding about the action situation and their plans of action in order to coordinate their actions by way of agreement" (Seidman ed., 1989; 143). 2nd Gen encourages participants to communicate their own ideas and be involved throughout the planning process. When participants freely contribute their thoughts and feelings, situational objectives emerge (Harper and Stein, 1992). The end result is clarity among the participants about what the real issues are. Once everyone involved understands the true nature of a community problem, people can move forward and develop place-focused strategies (Healey, 1999).

Equity

It is natural for people to want to be involved in planning their communities. 2nd Gen creates equitable discussion forums. The people-focussed strategy emphasises the importance of inter-personal relationships and skills and relies less on 'expert' analysis and document-oriented methodologies (Sandercock, 1998). A participant driven dialogue resolves the power issue because the planner becomes a participant in the process, and does not remain the detached expert. When equitable relationships between public and planner are forged, the needs and values of a community are less distorted (Harper and Stein, 1995; Innes, 1995). Participant involvement, built on equity, intensifies the breadth and scope of the process because it enables more creative and holistic solutions to develop (Healey, 1999).

Local knowledge

By stressing participant based communication strategies, new methods of problem solving can emerge. In order to provide equitable planning

By stressing participant based communication strategies, new methods of problem solving can emerge.

solutions for communities, 2nd Gen practitioners seek out local knowledge. Experiential accounts, told by the people familiar with their neighbourhood, illuminate a community's idiosyncrasies (Sandercock, 1998). Local knowledge depicts a clearer interpretation of why people do what they do, and reflects their intentions, beliefs, and values (Harper and Stein, 1995). The affected peoples' day-to-day experiences are relevant and invaluable; what they reveal determines future courses of action. Furthermore, local knowledge benefits those processing and analyzing the information. If an important perspective is missing or left out, these stories can be re-visited and the process re-worked and re-designed if necessary (Innes, 1995).

Community empowerment

2nd Gen facilitates community empowerment. When communities are planned with and their knowledge directs the planning process, they come to understand the dynamics and forces shaping their community (Brassard, 2003). Ultimately, a community's people are responsible for their own health and well-being. 2nd Gen practitioners help people to solve their problems from the inside out. Granted most issues (nightlife) require outside support, but this model equips communities with the necessary knowledge, tools, and skills in order for them to fend for themselves. The ultimate goal of 2nd Gen is to create community environments that possess the capacity to resolve their own problems on their own terms (Saville and Cleveland, 1997; 8). This means that people are armed with the tools and resources (both inside and outside the community) needed to comprehend the nature of the present problem, and to recognize and manage any future ones.

Trust and respect

At the heart of 2nd Gen, lie the notions of participants respect and trust. For a planning exercise to be successful, those involved must trust and respect each other. If they are absent, the process falters leaving the issue unresolved and the participants feeling alone and isolated. An individual's ability to contribute to the process in a meaningful and productive way is compromised if trust and respect are neglected (Brassard, 2003). But once they established and maintained, people can work together towards

to resolve disputes, include all affected participants, and re-build neighbourhoods (Harper and Stein, 2003). When people sense this, they truly empower themselves because interactive relationships have solidified (Healey, 1999). Trust and respect glue communities together, and when people are united, they can move toward solutions which best fit with a people and their neighbourhood.

Case study context

The case study context¹ is located in the Beltline, an inner-city community in Calgary, Canada (Map 1). It is bounded by the CPR (Canadian Pacific Railway) tracks on the north, 17th Avenue SW on the south, 14th Street SW on the west, and the Bow River on the east. The Beltline is described as Calgary's 'trendy hot spot' and one of the City's oldest neighbourhoods (Scotton, 2000).

The Beltline is an appropriate nightlife laboratory for two reasons; at present, 1) numerous entertainment options are available which cater to various consumer styles and tastes and 2) the community experiences the fall-out effects from areas over-populated with bars and nightclubs. Two documented scenarios depict situations when neighbourhoods within the Beltline have exceeded their threshold capacity for nightlife: Electric Avenue (1980's and 1990's) and 1st Street SW or Radio Block (Present Day).

How nightlife districts develop

Nightlife establishments tend to cluster in small neighbourhood pockets – often no larger than one or two blocks. What follows is a simplified description about how easily and quickly nightlife establishments can overpower a neighbourhood. One or two anchor tenants open their doors and become successful. Other operators are attracted to the area hoping to take advantage of the proximity to the other venues and consumer popularity. With continued replication, the other commercial uses, which define a neighbourhood's character, are forced out. When this occurs, a once eclectic community becomes commercially monotonous (Jacobs, 1961). In the early stages of development, a nightlife area accommodates the needs and desires of a wide cross-section of people. However, as the market saturates (too many establishments), opera-

tors struggle to survive. In order to remain competitive, operators are forced to conform their formats to satisfy popular tastes, and lower their product and admission prices². Jane Jacobs, from her observations of Greenwich Village, describes the outcome of this community phenomenon: “Nightspots are today overwhelming the street, and are also overwhelming the very life of the area...they have concentrated too many strangers, all in too irresponsible a mood, for any conceivable city society to handle naturally” (Jacobs, 1961; 245).

Nightlife districts develop in accordance with a city’s bylaws and policies. The operators open bars and nightclubs in areas where permitted. In

direct action to control the proliferation of nightlife activity, and in 1993, passed the Electric Avenue Mini-Plan, which removed its operational capacity through deliberate and systematic means. The Plan details the step-by-step dismantling of the district⁴, and by 1996, Electric Avenue existed only in people’s nostalgic memory. The policy outlines the enforced statutes, which made nightlife operations illegal along 10th, 11th, and 12th Avenues between 4th and 6th Streets SW.

The Mini-Plan rests on the hunch that too much nightlife creates too many unsolvable problems. The policy creators were correct in this assumption, but their thinking was too narrow and specific to address the real nightlife issue in a meaningful way. Yes, the Plan achieved its main objective – to shut-down Electric Avenue, but it only addressed the symptoms, and in doing so, the bars and nightclubs have migrated to areas unaffected by the policy blanket, thereby perpetuating the problem. A similar phenomenon to Electric Avenue, has re-surfaced along 1st Street SW, or Radio Block. Eight establishments cluster on the block face between 12th and 13th Avenues SW (Figure 2, Map 1). The strip has been dubbed ‘Electric Street’ because of its similarities to the historical avenue, but 1st Street SW is not nearly as concentrated as the deceased grandfather. That being said, the neighbourhood is earmarked as a nightlife district. Every problem is magnified here. Incidents involving public intoxication, noise, violence, property damage, and neighbourhood degradation occur regularly. The community is overwhelmed because their situation appears hopeless; residents sense their safety is compromised, and feel the governing civic bodies ignore their concerns. To gain a deeper understanding of Radio Block’s ailments in relation to nightlife, the community will be examined according to the 4C’s of community: capacity, cohesion, connection, and culture (Saville and Cleveland, 2003).

Capacity – Nightlife concentrations can be a positive aspect of city life. For one, establishments are not isolated from each other. A balance is maintained between the competitive interests of the industry and there is a diverse assortment of nightlife options available to the consumer (Alexander et al., 1977). There is also safety in numbers - many people, translates into many pairs of eyes subconsciously looking out for danger. All these things enable a city to nurture a vibrant and



Calgary’s case, nightlife is governed by the Restaurant/Drinking Establishment³ bylaw (City of Calgary, 1980). Every type of liquor establishment (restaurant, pub, cabaret) is lumped together under one designation. This vague definition facilitates over-concentrating because it fails to differentiate between the types of use – e.g. restaurants have less impact on surrounding neighbourhoods than bars or nightclubs. In addition, the operating conditions are incredibly flexible within these legislative boundaries. For example, if an operator is approved for a restaurant license, he or she could change to a bar/nightclub format without the need for further approvals.

Electric Avenue and Electric Street

During the 1980’s and early 1990’s, Electric Avenue stretched between 4th and 6th Streets SW (Map 1). The Avenue, notorious for its ‘free-for-all’ atmosphere, boasted 24 bars and nightclubs at its peak (City of Calgary, 1993). The City of Calgary took



Figure 3

The alleyway behind Radio Block, 2003

Figure 4
Boarded up exterior windows, 2003



dynamic night scene. But each neighbourhood has a threshold limit for nightlife activity. How much is too much— too many patrons, too many establishments, and too much crime?

These numbers are not pre-determined, for one neighbourhood might support 10 bars, another 19, and yet another 1 large establishment⁵ may exceed its carrying capacity. Tipping points, coined by Malcolm Gladwell, cannot be pinpointed because each scenario is unique (Gladwell, 2000; 12). However, it is apparent when a neighbourhood has tipped because residents sense they have lost ownership in their community and control over what happens there.

An estimated 2000-3000 patrons frequent the

Figure 2

Friday night on Radio Block



clubs along Radio Block on Friday and Saturday evenings. The residual effects of this mass influx of people are detrimental to the adjacent neighbourhood. On this block, there exist several 'Broken Windows', which are seemingly insignificant quality of life crimes denoting the impression that no one cares about the community and thought to encourage more serious crime (Gladwell, 2000; 146). The alleyway directly behind the clubs is clogged with garbage, used condoms, and drug paraphernalia and smells of urine and excrement (Anonymous, 2003) (Figure 3). Another example is where one operator failed to repair exterior damages to the establishment after an incident occurred on the premises. A group of patrons, who had been ejected, smashed the nightclub's street-facing windows. Instead of replacing them, the windows were boarded up and painted black (Such, 2004) (Figure 4). Radio Block has even been the location of two killings that occurred within a 6-month period⁶.

Cohesion – The supportive relationships among community members are weak or non-existent in the neighbourhood of 1st Street SW. Little, if any,

Its residents do not define Radio Block's cultural identity. The neighbourhood's profile is only associated with nightlife.

meaningful dialogue transpires between the residents and other space users. The local residents feel helpless and detached from their community; they have no sense of ownership because they have lost the power to control what happens. These concerns are valid as their rites to enjoy a 'good' life are compromised. Even when they voice their concerns, their pleas go unnoticed. One resident stated: "We have phoned the bar on numerous occasions, and they have turned the music down somewhat. When I phoned last night, there was a new manager, and he told me that we live in a bar district and we bet-

ter get used to it or move," (Anonymous, 2002). This demonstrates that mutual respect does not exist between the participants. This indifferent response may deter this resident from being proactive next time, thereby further alienating him/her from the community dynamic. Jane Jacobs says that "The suspicion of others and fear of trouble outweigh any need for neighbourly advice and help to be sought," (Jacobs, 1961; 67). The affected residents are denied the opportunity to openly participate

in their own community even though, in many cases, they lived here prior to its designation as a nightlife district.

Connection – "Nothing is more helpless than a city street alone, when its problems exceed its powers" (Jacobs, 1961; 123). In neighbourhoods, like Radio Block, the residents feel severed from the rest of the city – police resources are inadequate, the operators seemingly disregard the adjacent residential needs, and the civic bodies are unsure what constitutes the best course of action. Radio Block is stigmatized; it is earmarked as a place where crime is expected to occur and personal safety may be compromised. Even though past interventions sought to re-connect the participants, they were short-term measures and missed the opportunity to establish lasting community stability.

For example, in fall/winter 2002, *Operation Street Sweeper*⁷, an 8-man task force was established to patrol the Radio Block neighbourhood between 12th and 17th Avenues SW. The objective was to reduce violent crimes along the strip primarily during the operating hours of the nightlife establishments. Six

months after its inception, violent crime had been reduced by 67%. Prior its inception, stabbing incidents occurred on a weekly basis.

In order to encourage more cooperation between the participants, Operation Street Sweeper employed a partnership approach. Instead of the police operating solely as an enforcing presence, which tends to promote resistance, they used proactive measures to demonstrate that safety is everyone's responsibility. Through collaboration and group interaction, the participants came to understand each other's perspectives. For instance, the residents identified the goals and objectives of the business owners and vice versa. The benefits to re-connecting the participants were immediately apparent. Not only did the extreme viewpoints gain insight into the other perspectives, but also the antagonists worked together. For example, the police and bar staff are typical antagonists. Bar staff expect the police to 'clean up the mess', yet stay away from the establishments at any other time. However, during Operation Street Sweeper, the police and bar staff worked together. Door personnel usually know when two rival groups are present in their establishment – the task force would be notified and invited on-site to diffuse the situation.

Despite Operation Street Sweeper's success, the program was discontinued due to new management focus and re-directed funding. The nightlife participants inside and outside the community were briefly re-introduced but these supportive relationships were not maintained. Because there were no long-term commitments to nurturing these supportive relationships, the bonds connecting the participants broke, once the task force relocated. Soon after the project was abandoned, the crime returned to the levels prior to the introduction of Operation Street Sweeper.

Culture – Its residents do not define Radio Block's cultural identity. The neighbourhood's profile is only associated with nightlife. The operators and clubbers migrate here from other areas of the city, conduct their business or go clubbing, and then leave (Such, 2004). Those people frequenting the Radio Block establishments are unaware that other things aside from the nightlife exist – that people live nearby. They have no attachment to or shared history with the neighbourhood residents.

The space users create a unique environmental context. Understanding this uniqueness helps to

determine what will constitute the appropriate action procedures for future endeavours (Saville and Cleveland, 2003; 4). A neighbourhood cannot forge a culture, if the people living there feel powerless to instigate change. Nothing positive can occur if nightlife activity overwhelms a community, where no internal cohesion exists among the participants, and it is cut-off from the surrounding city. Once these major issues are addressed, people can determine nightlife's role in their community according to their expectations, desires, and values.

Conclusion

Although nightlife positively impacts cities, it creates many seemingly 'unsolvable' community problems as well. By applying a planning model like 2nd Generation CPTED for nightlife planning, each individual perspective pertaining to nightlife can be adequately represented. The purpose is simple – to involve the participants in the events shaping their communities and to create safer nightlife spaces for everyone. ■

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Endnotes

1 This is the abridged version of previous research conducted by Dustin Dickout. The Masters Degree Project titled: Embracing the Dark: Planning for Nightlife in the Beltline was completed in 2004.

2 This statement does not represent all situations. Some operators maintain their individuality and keep true to their original concepts in areas where many similar bars and nightclubs exist.

3 In May 2004, there was an amendment made to this bylaw. Instead of restaurant/drinking establishment, the new title read: restaurant licensed – drinking establishment (Derworiz, 2004). It declared that an operator must seek either a restaur-

rant licence where minors are permitted to enter, or a drinking establishment designation. The purpose is to ensure operator responsibility and to achieve some consistency to the application process.

4 Once the Electric Avenue Mini-Plan took effect, no establishments over 1500 ft² were granted approval status, venues exceeding 140m² of floor space were deleted as an allowable use, separation distances of 150m between venues were enforced, and existing establishments in excess of 120m² were defined as non-conforming issues (City of Calgary, 1993).

5 In Calgary, there is a third example of where nightlife establishments negatively impact the surrounding community. The Roadhouse, a west-

ern style cabaret, is located at the intersection of 9th Avenue and 8th Street SW, just beyond the Beltline's northern border. It has 8300 ft² of entertainment space and the capacity for 543 patrons (plus queue numbers). Since the cabaret opened in January 2003, the 3000 residents living in an adjacent apartment complex have noticed a decline in their overall quality of life.

6 The two stabbing incidents resulting in the death of two young men happened in August 2003 and January 2004.

7 The information detailing the objectives of Operation Street Sweeper were gathered during an interview with Sergeant David Landolt on April 27, 2003. He headed the task force.

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Sad passing of Jane Jacobs.
May 4, 1916 - April 25, 2006

The International CPTED Association extends its deepest sympathy and condolences to the family and friends of urban renewal pioneer, Jane Jacobs.

Jane Jacobs passed away on Tuesday, 25 April 2006, at the age of 89. Born in Scranton, Pennsylvania, she lived in Canada for most of the past 40 years and was awarded [The Order of Canada](#) in 1996 and [The Order of Ontario](#) in 2000. Perhaps her most recognized book, [The Death and Life of Great Cities](#), was first published in 1961, and the

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Safe streets – safe city: A community based crime prevention project

By Glenn F. Lyons and Marilyn Arber

Calgary is a young, prosperous, and growing city that is approaching one million people. Located in the eastern foothills of the Rocky Mountains, Calgary is headquarters to Canada's energy industry. The industry's head offices are concentrated in Downtown Calgary where some 120,000 people work within a one square mile area. While very few people live in the Downtown, the surrounding communities remained attractive places to live. As Calgary continues to grow, however, some of these neighbourhoods are struggling to respond to an increasing list of "big-city" challenges. The efforts of one such community, Calgary's Beltline, is described in this article.

The Beltline is a high-density, mixed-use community located immediately south of Downtown and the Canadian Pacific Railway line. Some 16,000 people work in the Beltline and another 18,000 people live there. The community contains a variety of uses including: an office strip adjacent to the Downtown; a number of street-oriented retail and entertainment areas including the nationally recognized 17th Avenue; a series of high-rise apartment districts located between the commercial areas; and the Calgary Stampede's exhibition grounds. There are also significant amounts of vacant land in the eastern portion of the community, adjacent to Stampede Park.

The Beltline Initiative

In 2002, the Beltline's two community associations and three local business revitalization zones joined together to form the Beltline Initiative. They hired



Lyons Venini and Associates Ltd. to prepare a community revitalization strategy. The report, entitled "The Beltline Initiative: Rediscovering the Centre," was released in May 2003. The goal of the Initiative is to double Beltline's population to 40,000 people over the next twenty years. The Beltline would become a more diverse and vibrant urban community similar to those that might be found in Manhattan or Vancouver's West End. One of the report's recommendations calls for the formulation of a community based crime prevention strategy, as crime and the fear of crime are seen as the single greatest impediment to achieving revitalization strategy's objectives.

The crime prevention initiative

The Community Life Improvement Council (CLIC) offered to manage the project. CLIC was

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formed in 1997 by Downtown and Inner City residents in response to street prostitution problems. CLIC provides a local forum for communities, social agencies and the Calgary Police Service to discuss the crime and social issues that they collectively face. Over the years, CLIC has both broadened its focus and begun to seek more proactive approaches to problem solving. The proposed crime prevention strategy was seen as a means for the organization to move forward in those directions.

CLIC applied for and received a grant from the Province of Alberta to undertake the project. Lyons Venini and Associates was hired to manage the project and a team of locally-based professionals were recruited to assist in the work. The team included: Glenn Lyons, Dr. Sue McIntyre, Dr. John Winterdyk, Dr. Richard Levy; and Julie Tittlemore. Marilyn Arber of CLIC joined the team, acting as the client. The Calgary Police Service, the ward alderman and local member of the Legislative



Assembly were approached to provide support for the process. Members of the Beltline Initiative and social agencies associated with CLIC also provided assistance during the process.

Getting started

Work began in November 2003. An open house was held in which over 150 residents and business owners attended. Drug trafficking, street prostitution, drunks, panhandlers and the homeless were identified as issues to be addressed in the strategy. Specific problem locations were also identified. Residents and business owners predictably called for a greater police presence and faster response times. They also suggested that creating a greater sense of community would help to improve the situation in their neighbourhoods. This unexpected response calling for crime prevention through

community and social development has become a cornerstone of the efforts in the Beltline.

The project team reviewed recent crime statistics for the Beltline, comparing them both to the City as a whole and Cliff Bungalow/Mission -- another high-density, mixed-use Inner City community which is located immediately south of the

	Beltline	Mission	Calgary
Homicides	6	0	3
Sexual Assaults	72	34	82
Assaults	1452	600	733
Robberies	133	51	145
Break & Enters	339	480	928
Theft	1446	874	2954
Vice	671	0	33
Drugs	841	189	197
Weapons	151	154	133

Beltline and away from the Downtown.

In comparison, the Beltline has approximately twice the number of assaults as either Mission or Calgary as a whole. It also has dramatically more vice arrests and more than four times the number of drug arrests. The homicide rate comparisons were dismissed because of the small number of incidents involved (e.g. one in the Beltline in 2003). The other statistic that attracted the project team's attention was the number of homeless in Calgary, which has increased from 600 in 1992 to 2,600 in 1994. Calgary's emergency shelters and related social services are concentrated in the Downtown and the Beltline. The homeless spend much of their spare time on the streets in these areas.

Key issues

The project team identified key issues to focus on, namely:

- ◆ Drugs,
- ◆ Street Prostitution,
- ◆ Problem Bars and Rowdiness,
- ◆ Problem Houses and Apartments,
- ◆ Poverty and Homelessness, and
- ◆ Graffiti and Vandalism.

These are viewed as chronic problems which will never be entirely eliminated. Many of them have root causes involving poverty, mental health and addiction – problems that the criminal justice system is least able to address. For the Beltline, crime and social disorder reduction must be seen as the goal and the task must be defined as one that has no end.

It was clear from the outset, that the community must take the lead role in responding to its own problems. While the three levels of government, the criminal justice and social support systems can play important roles in responding to the Beltline's problems, none of them would take responsibility for coordinating the collective response. The community must, of necessity, attract attention to its problems, identify opportunities for improvement, and build coalitions of support to marshal needed resources.

It was also recognized that the report's recommendations would be judged both in the media and the political arena. Issues involving social and criminal justice have deep ideological roots and cross many jurisdictional lines. Obtaining both the support and advice of key politicians, in this case the local legislator, Harvey Cenaiko MLA, and Alderman Madeleine King, would be critical to the process.

Recommendations

Twenty-nine recommendations are offered in the report which attempt to address key issues and problem locations identified through the planning process. They include a curious mix of broadly-based and location-specific recommendations which require action at various levels: local, municipal, provincial, and national.

In some cases, the recommendations are so broad reaching that CLIC and the Beltline Initiative members cannot hope to implement them on their own. The recommendations involving poverty and homelessness provide examples of these. Raising the provincial minimum wage, financial support for the severely handicapped and the basic federal personal income tax exemption are called for in the report. In these instances, it is hoped that other groups pressing for such changes can make use of these recommendations and their link to crime prevention priorities. It is worth not-

ing, however, that the Province has recently increased, after a lively public debate, both the minimum wage and aid to the severely handicapped.

In other cases, the recommendations call for a "carrot and stick" response. For example, interrupting the street drug sales by arresting and prosecuting drug dealers to the full extent of the law is recommended, while drug treatment is proposed for offenders who commit crimes (e.g. theft) in order to support their addictions.

Demand management techniques are also proposed in response to some problems. The report, for example, calls for more "john stings" and greater consequences for their behavior (e.g. seizure of their cars), while also proposing increased investment in social programs to help young men and women abandon their involvement in prostitution. Limiting the size and number of bars in the community and the establishment of a bar owners code of conduct were other recommendations contained in the plan.

Many of the recommendations attempt to find new ways for the police, community and social agencies to work together. A return to zone based policing and beat patrols and introduction of public para-policing similar to the neighbourhood wardens program in the United Kingdom are proposed. Location specific initiatives involving CPTED 2 techniques and use of the Civitas model to manage these efforts are also recommended.

Public response

The report: "Safe Streets – Safe City: A Crime and Disorder Reduction Strategies for the Beltline Communities of Victoria and Connaught," was released at a press conference in November 2004. A few days later, the report was also presented to the community in an open house in which more than 100 persons attended.

Harvey Cenaiko, MLA and Alderman Madeleine King both attended the press conference and the open house, speaking in support of the plan and its recommendations. The Calgary Police Service not only attended the events, but

The *Calgary Herald* provided extensive coverage of the report's findings on the day of the press conference, referring to it as "leading edge."

also told reporters, community residents and business owners that they had begun implementing some of the plan's recommendations even before their public release.

The media's response was immediate and, with one exception, highly supportive. The Calgary Herald provided extensive coverage of the report's findings on the day of the press conference, referring to it as "leading edge." Calgary's other local newspaper, the Sun, criticized the report for offering a NIMBY response to appease local residents. All of Calgary's television channels covered the event. Follow up coverage continues to be both timely and, with few exceptions, positive.

What's happening

Six months have now passed since the release of "Safe Streets – Safe City." This is a critical time period for any new initiative. Within this period, credibility is either established and recommendations are generally accepted or not. The first

implementation steps will either have been taken or the momentum will be lost. In this case, progress is being made on many but not all fronts. A summary of the progress or lack thereof follows.

The first recommendation was to expand Calgary's base of knowledge about crime prevention. To this end, CLIC has formed a partnership with the Canada West Foundation to host a "Safe Streets – Safe City" conference in April 2006. Financial support has already been received from the Province of Alberta, the City of Calgary, local corporations and foundations. The conference will include presentations from established speakers from throughout the world and panelists from

other Western Canadian cities.

A number of the policing recommendations have already been implemented. The Province, at the recommendation of the new Solicitor General, the Hon. Harvey Cenaiko, provided funding to the City of Calgary to hire additional police officers. The Police Service has returned to

a zone-based policing system in District One which includes both the Downtown and the Beltline. Eight police officers are now available to patrol beats in these areas; they just started their patrols in June.

Community support officers

One of the more surprising responses involves the para-policing proposal. The City of Calgary approved a budget request for para-policing pilot project in the Beltline shortly after the release of "Safe Streets – Safe City." The Province of Alberta has since offered to double the number of officers involved in the project and patrols are to be extended into the Downtown's East Village. The Community Support Officers (CSOs), as they are called, began their patrols in June and will continue until December. Members of the "Safe Streets – Safe Cities" project team have been hired to evaluate the pilot project and extensive contact with community and business residents will occur as part of this process.

The eight CSOs are uniformed municipal by-law enforcement officers. They have special constable status under Alberta legislation. They are able to enforce municipal by-laws which include many nuisance-type infractions, but they will not respond directly to criminal activities. The CSOs will relieve the pressure on the police to deal with these situations. Because of their numbers, the CSOs will cover the Beltline and East Village with an intensity never seen before. The hope is that CSOs on patrol will become the "eyes and ears" of the police, the point of initial contact with the community, and an important component of the disorder reduction strategy.

What's not happening

There are areas where little or no progress to date has been made. In some cases, work is being undertaken but the results are not as yet forthcoming. In other cases, the initial efforts have not as yet been made. CLIC and its partners have called for action on more fronts than they are capable of implementing at any given point in time. Some of the proposals are being pursued by other parties; others must wait for another day.

Bill 206 for example, which would allow the

The City of Calgary approved a budget request for a para-policing pilot project in the Beltline shortly after the release of "Safe Streets – Safe City."

authorities to seize the automobile of a “john” charged with committing a prostitution-related offense, is nearing proclamation. Changes to the Alberta Transportation Act are required before the law can be implemented. In support of the new legislation, CLIC completed a review of alternate measures programs that could be implemented in lieu of automobile seizure (a requirement of Bill 206). CLIC has recommended the introduction of a community conferencing pilot project; but the proposals are very recent and subsequent action has yet to be taken.

No progress has been made in responding to drug related offenses. Police pressure on street dealing in the Beltline has increased, but much work will be required before a special drug court with the power to mandate treatment and the resources to fund such treatment will be created in Calgary. Little progress has been made in response to local bar problems. Proposals to limit the size and number of establishments have been tendered in “Safe Streets – Safe City,” but they are not fully supported by the local community. Police, by-law, and liquor control enforcement activities continue but they remain less coordinat-

ed than they should be. Discussions with bar owners are occurring, but a move toward a comprehensive code of conduct does not appear to be on the immediate horizon.

All things considered, however, the response to “Safe Streets – Safe City” has been a positive one. Work is proceeding expeditiously, but there remains much to be done. ■

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Index of past articles in *The CPTED Journal*

Volume 1, Issue 2, 2005/2006

**Design Against Kerb-Crawling
Tipplezones (Vice Zones):
European Experiences in
Displacement**
by Paul van Soomeren

**Examining the Relationship
between Built Environment
and Crime Incidents Using GIS**
by Hiroyuki Iseki

**A Community Based
Approach to Creating Safer
Nightlife Spaces: 2nd Gen
CPTED in Action**
by Dustin Dickout

**Safe Streets – Safe City:
Strategies from A
Neighbourhood Diagnosis**
by Glenn F. Lyons and
Marilyn Arber

**Civic Safety and Residential
Urban Space: Natural
Surveillance in Community
Appropriation Limits**
by Macarena Rau

**CPTED and the Social City:
The Future of Capacity
Building**
by Gregory Saville and Gerry
Cleveland

Volume 3, Issue 1 2004

**Second Generation
CPTED at Work: Building
Community Culture Bridges
in Parisian Belleville**
by Veronique Levan

**Where Teaching Ends and
Learning Begins: A Problem
Based Learning Model for
CPTED Education**
by Chuck Genre

**Reducing Private Violence
Against Women in Public
Housing: Can Second
Generation Make a Difference?**
by Walter S. DeKeseredy, Alvi
Shahid, Claire Renzetti, and
Martin D. Schwartz

**Can 'Over Lighting' Increase
the Fear of Crime?**
by Stephen Postlethwaite

**Homicide and the Physical
Environment: Assessing
the CPTED Approach**
by Morton Gulak

Volume 2, Issue 1, 2003

**Community CPTED:
A Case Study of a Housing
Estate in South Wales (UK)**
by Paul Cozens, Dave Adamson
and David Hiller

**A Useful Tool for the
Construction of Safe
Communities in Latin America**
by Macarena Rau

**CPTED and Public Health:
A Natural Partnership**
by Julie Samia Mair and
Michael Mair

**Stories in a Park,
Second-Generation CPTED
in Practice: Reducing Crime
and Stigma Through
Community Storytelling**
by Wendy Sarkissian

**Integrating the Planning
Process and Second-Generation
CPTED**
by Anna Brassard

Volume, 1, Issue 1, 2002

**The Sustainability of CPTED:
Less Magic, More Science!**
by Randall I. Atlas

Community CPTED
by Sherry Plaster Carter

**A New Risk Assessment Model
for CPTED: Minimizing
Subjectivity**
by Phil McCamley

**The CPTED Evaluation Model
Using Space Syntax Theory**
by Joowon Kim and
Youngki Park

Civic safety and residential urban space

By Macarena Rau

Natural surveillance in community appropriation limits

The present exploratory essay deals with the subject of civic safety in relation with the delinquency in the residential urban space of four social housing compounds or “villas” located in the Puente Alto district of Santiago, Chile. In order to approach this subject, a theoretic framework was built following the main lines of thought from authors such as Jane Jacobs and her *Death and Life of Great American Cities* written in 1962, a pioneer piece of work in its time, Oscar Newman’s *Theory of Defendable Space*, Bill Hillier’s *Theory of Spatial Syntax and the Situational Theory of Crime* with the CPTED strategy. The principle of natural surveillance was used to state the investigation problem that arose from the ideas pointed out in the previous lines of thought, a principle that acts as an inhibition mechanism for “chance crime” and fear perception. Every author has mentioned it, but with different emphasis. From this debate, a research question is raised about what the relationship might be between the urban form of the social housing compounds of Puente Alto and the spatial crime location and how natural surveillance connects them. In this real case and its context, the local community concept becomes interesting since each one of them exercises natural surveillance in a different way. This is why it has been necessary to delve deeply into the type of communities that inhabit the space under study. Furthermore, natural surveillance is not carried out in the same way throughout the urban space of

each area, as the analysis shows, but instead depends on what this article describes as the appropriation limit.

The civic safety and urban space problem in Chile

Civic safety is on the national public debate. There are several authorities and experts on the subject with different visions that are yet to undertake the relation between civic safety and urban space in a more precise way. The attempts to define and approach it are diverse, but generally fall into vague definitions, diagnosis, simplistic solutions and reductionism of a problem that involves to great lengths, social and spatial aspects that concern all urban inhabitants. According to the Ministry of Interior by Civic Safety, it is understood: “Ensemble of life and citizen goods protection systems with regards to risk or threats caused by diverse elements like psychosocial ones or linked to urban development.” So, it is known that such relation exists, but it’s functioning and the main social and physical variables involved have not been described exhaustively and precisely in specific.

This is why establishing and exploring the relation between Civic Safety and Urban Space is a pressing need, from both an academic and public policy perspective for Chile and around Latin America.

The models

From the beginning of last century, the relation existing between Civic Safety and Urban Space has been studied in countries outside the Latin

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American region. A pioneer in this area is the University of Chicago's - the "Chicago School" - early investigation into the geography of crime and youth vandalism in that city from the 1920's to the 1950's.

Another breakthrough on the matter is Jane Jacobs's 1962 book *Death and Life of Great American Cities*. Aside from the debate started by this publication, branded by some as simplistic and romantic and by others as relevant and of local scale, was a starting point for diverse actors who began to propose and work on the Civic Security and Urban Space issue. In it Jacobs states that in order to attain a safe and healthy life in the communities, the contact between neighbors and public space users is fundamental, and for this the urban space must provide certain permeability characteristics that will allow it. That is to say, Jacobs highlighted the relation between the design of urban space and social conduct patterns.

In 1972, Oscar Newman defines the theory of Defensible Space. In it, Newman pleads for a clear marking out of boundaries between public and private space, which leads to an excluding and confining urban model and residential areas with clear access controls. Subsequently the investigations of the Spatial Syntax group of the Bartlett School in London appear in regard to the matter. They establish the relation between Civic Security and the possibility of contact between the inhabitants of an urban space in its flow system. They define the community as the group of people formed by the co-presence in the urban space and define it as virtual community.

The Situational Crime Theory rises from another perspective. In it the spaces vulnerable to crime are analyzed from the rational perspective of the aggressor, that is to say, that in order for there to be a crime, there must be a vulnerable victim, a favourable environment and a willing aggressor.

Despite the diverse lines of thought, every model states that natural surveillance means the ability to see, to be seen, and feel trust in the urban space because of its characteristics and the people who inhabit it. This approach grants the urban inhabitant the responsibility of its own urban safety experience and for that reason gives it a role of power and conscience regarding its environment, something that, up to date, does not exist in Chile.

Civic safety and residential urban space in Puente Alto

The Puente Alto district is the largest one in continental Chile, both in surface and in number of people. According to the latest National Census, the district has 550.000 inhabitants and presents the highest demographical growth, a 43.2% of the total of the country's districts. In addition, it finds itself amongst one of the districts with the highest crime and fear perception levels in Chile, according to several national surveys. These social and territorial characteristics, added to its peripheral location in relation to downtown Santiago, make the Puente Alto district an interesting study case in order to explore the civic security and urban space problem.

It also important to consider that the crime rate and fear perception are not equally distributed throughout the district (Figure 1 and 2). The Social housing Villas, built by SERVIU at the beginning of the nineties stand out among this, they concentrate high crime rates, especially residential robbery, located to the district's south-west almost at Maipo river banks.

There are four villas chosen for the study case , this due to the variety present in the types of social

Figure 2

Location of villas Caleuche, Volcan, San Jose, 2 and 3, and Altos del Maipo in the study area



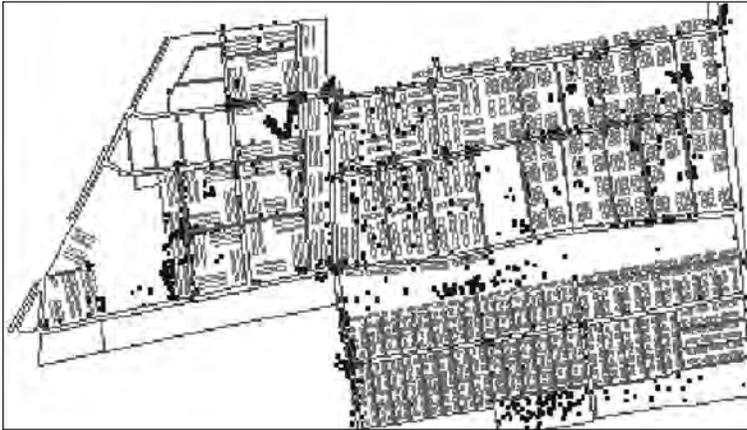


Figure 4

Spatial boundaries of fear of crime and robbery locations in study area

Figure 5
Spatial boundaries of robbery locations in study area



housing and urban configuration. The villas Caleuche, Volcan San Jose II and III and Altos del Maipo, are built on the basis of pairs of housing blocks that face each other and the last one is constituted by two-story twin houses. Also the villas of the block pairs are located in a different way in the territory. El Caleuche has patios, Volcan San Jose III in small corridors and Volcan San Jose II also in interior patios. The Altos de Maipo villa has passageways and cul de sac streets. Many of the passageways have been closed by the neighbors to protect themselves. These villas are jointed one to the other by means of barren spaces that show poor intents of being recreational areas.

However, despite the spatial and typological description of the villas under study, the questions regarding the civic security issue still persist:

Who does the surveillance? Who is in control of the urban space and where?

We recognized that it is relevant to first understand and learn from the local villas under study—the inhabitants' own perspectives regarding the real security problems they face.s.

Local scale

A key point when exploring this case is the understanding that the local security experience and the urban space are unique and unrepeatable regarding the villas under study and the communities that inhabit them. Therefore, to further understand and explore this relationship, local information must be gathered on the subject and restrict the scope of the study. According to the foregoing, it was only chosen to study robberies and perception of fear in public spaces.

For this purpose, a survey instrument was designed that sought to tackle the inhabitants' fear issues, crime incidents and use of public space associated to fear. All of this linked to a map, where the inhabitants themselves represented the occurrence.

When the community was surveyed in 2002, we discovered that it was not an easy task to carry out due to the threats received by the surveyor group.

Finally, the survey was applied and with all the information gathered myth breaking and real understanding insofar as to what social variables and to what urban space was civic security really linked to and how, were accomplished. As an example of this, it was observed that in El Caleuche villa, the micro drug dealers act as the neighbors' protectors just as long as they are not given in. Thus, the community's security falls into the hands of the micro traffic leader and his network, instead of the Puente Alto district police force.

It was also observed that, as a research methodology, it was necessary to analyze the robbery phenomenon separate from fear perception, since they had different spacial characteristics.

It was understood that the security concept varies from community to community and that in villas under study, there were a number of sub-communities that did not fall into the administrative boundaries of the urban space, but followed virtual boundaries that were part of common knowledge and experience among them. These spatial boundaries were located in those places where robberies took place in public spaces, (Fig 5) that is, up to where the resident communities exercised their natural surveillance mechanism. This is why they were named community appropriation limits. However, these limits failed to explain fully the spatial location of the perception of fear.

Territory under surveillance

The discovery of the existence of this space named community appropriation limit, leads us to the following question:

What physical and social variables characterize these limits? And, what relation do they have with fear perception?

The answer to the appropriation limit was found in survey responses. One resident described that only inhabitants within his block were considered his community. Therefore, every community was defined by a bond of mutual acquaintance, trust and rapport and these communities exercised the natural surveillance mechanism up to the limit of the territory considered as their own.

The community appropriation limit presented similar spatial characteristics in its travel and places considered strategic. Among the characteristics there were: very clear visual field (Figure 6), therefore the urban space configuration did allow a comprehensive natural surveillance and restricted visual control. That is to say, there was little visual control from inside the house towards the space limit. Garbage accumulation could be observed as well as high graffiti levels. Activities were transient like sale of French fries in the street corners, fairs or public transport.

Then, the space limit in which all the public space robberies happened, did promote natural surveillance in the public space but not from the resident communities. The question to be asked is: who is in control of the limit if the resident communities are not.

Community in the limit of community appropriation

The community appropriation limits are travelled and inhabited by different people and communities in transit. Therefore, legitimate local controls are not exercised over those limits and they are not controlled by opportunistic criminals.

Diverse communities that inhabit the limit were observed: mobile communities in transport exchange places, pedestrian communities seeking services, pedestrian flow in lookout space between communities, religious communities and transport exchange, youth and children communities between 2 gang communities, religious communities and barren site, square and youth community from El Caleuche, barren site and community in transit, resident community and uncivilized behaviour in green areas. All these are transient, that is to say, if they exercise the territorial reinforcement principle, they do it temporarily, which makes it easier for the aggressors to have control over the limits.

Regarding fear perception, concentrations of this exist in this limit which could relate to the fear of being victim of a crime. Nonetheless there are other concentrations linked to spaces destined for recreation that would be associated to environmental factors like lack of illumination and uncivilized activities such as drug and alcohol consumption in this space.

Key lessons learned

1. The study of the relations between civic safety and urban space must begin from a profound understanding of a community's local scale.
2. There is a larger influence between safety and city "production" / local community context, than between safety and urban design;
3. To study such relationships it is advisable to separate fear perception from crime occurrences, especially in a country like Chile in which fear perception is greater than the actual occurrence of crime;
4. There are conceptual voids that must be filled, such as adding community appropriation limits, in future explorations of civic security and urban space. ■

CPTED and the social city: The future of capacity building

Gregory Saville and Gerry Cleveland

What better time to envision a CPTED future than by reflecting on the recent passing of famed urban philosopher Jane Jacobs¹. It is time to review her pioneering work that planted the seeds for the CPTED movement. As Jacobs argued from the very beginning, the goal has been to strengthen the social forces that make a place safe and secure.

Revisiting Jane Jacobs

“It is sufficient, at this point, to say that if we are to maintain a city society that can diagnose and keep abreast of deeper social problems, the starting point must be, in any case, to strengthen whatever workable forces for maintaining safety and civilization do exist - in the cities we do have. To build city districts that are custom made for easy crime is idiotic. Yet that is what we do (Jacobs, 1961/31)”

Even Oscar Newman, the founder of defensible space – who often disagreed with Jacobs on how to strengthen those social forces – agreed in his later work it was the social interaction between people that influenced the degree to which residents control their environment (Newman, 1980; 1996).

Safety, in the original version of the theory, pivots on minimizing opportunities for crime by influencing how people interrelate to each other in physical places. Jacobs was interested not only in reducing crime opportunities, but also in improving the social conditions of neighborhood life that generate crime motives²



Photo 1

All her life, Jane Jacobs fought against land use structures that destroy opportunities for neighborhood cohesion

Jacobs' famous three point formulation became the foundation for the CPTED that followed:

1. She said a city street must have a clear demarcation between public and private space, what later became known as heir-archy of space – territorial reinforcement;
2. She said there must be eyes on the street – natural surveillance, and;
3. She said areas need to be well used with good land use diversity, what later evolved into more advanced CPTED planning strategies.

Newman (1972) later added a few other archi-

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tectural features to Jacob's points:

He said access into and out of a building or area must be controlled – access control;

He said an area must have a positive “milieu”, it must be clean and well kept, what later evolved into management and maintenance, also known as the broken windows theory³.

These basic strategies were established decades ago and they have changed little in the intervening years. We call them First Generation CPTED and summarize them into four strategies:

First Generation CPTED – Basic strategies

1. Territorial reinforcement
2. Natural surveillance
3. Access control
4. Image (management and maintenance)

There are variations on these themes. For example, some synthesize these to three strategies and

that supports first generation CPTED strategies. However, he also reveals that many studies show mixed results, or results that suggest other social factors are at play.

Advanced First Generation CPTED

Throughout the 1980s and early 1990s a new group of researchers emerged – environmental criminologists. There were many names given to work in their field including routine activities theory, situational crime prevention, and the geography of crime⁴. Their contributions are considerable. They found a whole new constellation of physical and situational factors to reduce crime opportunities. Each brought their own strategies to the table:

From environmental criminology (Brantingham and Brantingham, 1981) emerges pattern theory regarding the geographical distribution of crime locations and high crime boundary effects between conflicting land use types – most noticeably viewed through the lens of computerized crime mapping and hotspot analysis

From situational crime prevention (Clarke, 1992) emerges research on displacement effects (or, as it turns out, lack thereof). Clarke also created the situational prevention matrix with strategies for deflecting offenders, decreasing crime rewards, increasing crime risks, and others

From routine activity theory (Cohen and Felson, 1979; Felson, 1987) emerges opportunities for crime at the junction of a suitable target, a motivated offender and the absence of a capable guardian. In practical terms this translates into compatible land use strategies such as careful placement of movement predictors (roads, walkways, paths) away from high risk areas and providing protective measures (lighting, CCTV or security patrols).

There are many types of advanced strategies and they continue to evolve. A few common one's include:

First Generation CPTED – Advanced strategies

1. Movement predictors
2. Displacement controls
3. Deflecting offenders
4. Compatible land uses
5. Boundary effects

All first generation strategies share common features. They aim to prevent crime by minimizing



Photo 2

1st Generation CPTED such as lighting, access control, and signage can create a modern day fortress

imbed image into territorial reinforcement. Others claim that all basic CPTED strategies fall under the single rubric of territoriality because of a shared aim to reinforce territorial control.

In spite of semantic nuances, basic first generation CPTED remains theoretically the same as it was in the 1970s. In fact, practitioners still carry on today as though there is nothing new under the sun. In some ways this is justified. For example, a comprehensive review of first generation CPTED by Cousins (2005) describes the empirical evidence



Photo 3

Improper management and maintenance obstructs territorial feelings and defensible space for a neighborhood

physical opportunities for offenders. Most are offender-based, though a few might be arguably construed as minimizing impacts on victims. None of the strategies aim to minimize the motives for crime.

In all these strategies there is a clear trajectory away from strengthening the social forces that make a place safe and secure. True, they may offer an effective short-term solution. But there is nothing particularly social about lighting a pathway or deflecting offenders. Territorial control that allows residents to take ownership of a place doesn't just happen. It requires social context. Mapping offence patterns and removing suitable targets might be a good initial step, but these strategies do little about the social interactions between people to influence how residents might control their environment. Motive reduction is not the purpose first generation CPTED, it is the goal of Second Generation CPTED.

Creating healthy and safe communities

Interestingly, in recent years there has been a subtle shift by situational crime prevention toward social interaction and motive reduction. For example, the revised situational matrix includes

“removing excuses” and “reducing provocations”, strategies that are clearly social in their implication. The reason offenders have excuses or become provoked, by definition, relates to their motive to commit crime in the first place.

In truth, the ingredients for safe and healthy neighborhoods are not a mystery. Such places have similar characteristics. They have a full range of citizen participation (Checkoway and Finn, 1992; Saville and Clear, 2000). They have community dialogue and partnerships (Barton, 1993; National Institute of Justice, 1996) and they have a full measure of, and programs for, social cohesiveness (Brower, 1996; Schorr, 1997). They have a distinct local culture and a diverse population with ample opportunities for positive interactions (Langdon, 1994; Aberley, 1994; Adams and Goldbard, 2001). They have the capacity to provide numerous occasions for residents to work together to reduce opportunities and motives for crime (Wekerle and Whitzman, 1995; Gilligan, 2001). These characterize a safe neighborhood. These are the factors that Second Generation CPTED seeks to cultivate in rebuilding dysfunctional communities. They hearken back to the original values espoused by Jane Jacobs.

Dysfunctional neighborhoods, on the other hand, are places of violence and disorder. They contain significant crime hotspots and risks for victimization (Skogan, 1990; Spellman, 1993). They are places of low social cohesion and high fear, for example places where school absenteeism is rampant, where residents infrequently speak to neighbors, or where people are too afraid to go outside at night (Markowitz et al, 2001; Gibson et al, 2002).

Such places foster both physical opportunities and ample motives for crime. When crime happens, there is no local capacity to respond in an effective fashion (Baba, 1989; Foster, 1995). There are few opportunities for positive and respectful social interactions between people and groups within the community (Green et al, 1998).

Second Generation CPTED seizes on Jane Jacob's original formulation that a sense of neighborliness and community is at the core of safe streets (Colquhoun, 2004). It incorporates a wide range of social crime prevention strategies in a holistic way, but it takes the lessons of First Generation CPTED and does so in specific situa-

tions in local places.

Previous social prevention programs took aim at crime through job creation and economic revitalization. Second Generation CPTED does not discount such ideas, but many of those are large-scale, long-term strategies. Instead, Second Generation CPTED focuses on the specific social and cultural dynamics existing in each individual neighborhood. To do this it employs four strategies, known as the four C's:

Second Generation CPTED

1. Social Cohesion
2. Connectivity
3. Community Culture
4. Threshold Capacity

Where First Generation CPTED aims to enhance territorial control and defensible space, Second Generation CPTED extends that by building local capacities and social cohesion. People are not likely to have strong territorial feelings unless they develop a sense of shared standards for positive behavior and neighborliness. They must actually care about the people and place where they work, play, and live, and they cannot limit that caring just to their shared public places.

Competent and balanced crime prevention practice must expand into the private areas of community life if it is to become truly holistic. Only when prevention expands to encompass the four "C"s can sustainable safety emerge from those shared standards of behavior that bring people together for a common purpose.

Social cohesion

Just as territoriality is the core of First Generation CPTED, social cohesion is the core of Second Generation CPTED. To encourage a safe community it employs a wide range of strategies. These range from emotional intelligence (Goleman, 1995; Salovey, 1990), to the literacy of conflict training, such as showing how to have respectful disagreements without resorting to violence (Cleveland and Saville, 2003).

Cohesion strategies enhance relationships between residents. Neighborhood Watch may create a network of watchers, but it does not teach problem-solving or conflict resolution to those who live in the neighborhood. That is the same reason why the traditional CPTED strategy called

"activity support" rarely creates long term social cohesion.

A few of the characteristics that define social cohesion include:

- ▶ Participation in local events and organizations
- ▶ The presence of self-directed community problem-solving
- ▶ The extent to which conflicts are positively resolved within the community, e.g. restorative justice programs (Zellerer and Cannon, 2002; 2006 forthcoming)
- ▶ Existence of anti-violence and awareness education, e.g. training programs teaching residents how to support women victims of domestic assault and help abusive men become peaceful (DeKeseredy et al, 2004)
- ▶ Extensive friendship networks with positive relations.

Social cohesion further breaks down into two sub-categories: Social Glue and Positive Esteem.

Social Glue involves strategies that bring members of the community together to take responsibility for their street, block, organization, or town. For example neighbors may plan social events or learn new methods they can themselves use to deal with crime (such as First Generation CPTED).

An effective social glue strategy is problem-based learning (PBL). This educational technique has its roots in adult education where facilitators support stakeholders to develop their own hands-on training seminars. They learn prevention principles by crafting actual solutions to real problems in their own neighborhoods, all the while creating links between each other. The links that the learners subsequently forge using PBL have the value of including the very people who have influence to make positive changes.

In the mid 1990s, Saville and Atlas applied this method in Reno, Nevada during traditional CPTED training. The participants identified their own neighborhood problems on which they applied their new CPTED skills. Through this process they learned the city did not have a long-term CPTED planning policy and so they created one. It was approved by city council and today members of that original group conduct on-going CPTED training and participate regular CPTED reviews for development proposals.

Positive Esteem relates to the personal charac-

teristics that people within the neighborhood need for cohesion to occur. Primary among these are conflict resolution and self confidence skills. As Jacobs notes, when community participants are deficient at resolving conflicts they frequently retreat into their own homes. This can cause social alienation and isolation. If they resolve conflicts in negative ways, such as physical altercations, this leads to violence. That is when conflict resolution skills and self esteem programs apply. There is an example of this approach in the Western Australia Aboriginal capacity building project below.

Another self-esteem strategy for cohesion includes emotional intelligence training. Emotional intelligence (Salovey and Mayer, 1990; Goleman, 1995) provides methods to enhance individual competencies in self-awareness and conflict resolution.

Connectivity

Connectivity means the neighborhood has positive relations and influence with external agencies, such as government funding sources. For the CPTED practitioner who employs 2nd Generation CPTED, this means teaching grant-writing skills, establishing linked web-communities, and fostering neighborhood empowerment teams for participatory planning.

It is critical a neighborhood does not operate in isolation (Barton and Silverman, 1994). There are important lessons for problem-solving from other neighborhoods. There must be a mechanism to connect and communicate with media outlets to publish success or solicit public support. This means that every organization or neighborhood needs connectivity outside itself. Practitioners should teach participants how to make connections with other groups with similar problems and to forge political links with various levels of government.

Some characteristics of connectivity include:

- ▶ Existence of networks with outside agencies, e.g. shared websites, formal activities with outside neighborhoods and organizations
- ▶ Grant-writers or access to grant-writing services
- ▶ Adequate transport facilities (ride-sharing, bicycle paths, public transit) linking to outside areas

Community culture

CPTED practitioners sometimes forget what is significant about Jacob's "eyes on the street" is not the sightlines or the streets, but the eyes. We don't need neighborhoods of watchers; we need a sense of community where people care about who they are watching. Community culture brings people together in a common purpose. This is how local residents begin to share a sense of place and why they bother to exert territorial control in the first place (Adams and Goldbard, 2001).

A few of the characteristics that define culture within a community include:

- ▶ Presence and effectiveness of gender and minority equality strategies
- ▶ Gender-based programs, e.g. violence against women
- ▶ Prevalence of special places, monuments, historical place-making such as landmarks
- ▶ Community traditions and cultural activities, e.g. art fairs, music festivals

For example, Westville is a neighborhood just outside the central core of New Haven, Connecticut. Surrounded by high crime hotspots, the neighborhood is constantly at risk of increasing crime. However for years community organizers encourage local artists to run art festivals and street fairs (www.westvillect.org/wvra/index.html). Working together in 2003 they obtained a historic preservation designation, thereby protecting the neighborhood from impending roadway expansion and the deterioration of walkable streets. Businesses now organize to clean up streets. A walkable and safe street can contribute to a sense of community and help people enjoy the public realm in positive ways. Art festivals and street fairs are cultural events that bring people together in common purpose. These efforts not only help prevent crime but they also have the added benefit of developing a shared sense of purpose and belonging that arises from those efforts.

DeKeseredy reminds us that a major shortfall in traditional CPTED is that it ignores the violence occurring beyond the public street, for example domestic violence against women in public housing projects (DeKeseredy et al, 2004). "Ninety percent of more than 1.27 million U.S. public housing households are headed by women...and that exploratory research shows that many of them are

frequently and severely abused by males intimates and acquaintances” (DeKeseredy et al, 2004:28). No crime prevention strategy can be considered holistic if it ignores such a large portion of the crime problem. He suggests that Second Generation CPTED can address this shortfall by moving beyond gender-neutral CPTED initiatives. In fact it must also move beyond minority-neutral CPTED initiatives. The Western Australia Aboriginal project below provides an example of how to do this.

Threshold capacity

Jacobs believed neighborhoods are interconnected, complex social ecosystems. Second Generation CPTED also seizes on the concept of social ecology by establishing balanced land uses and social stabilizers. Stabilizers include safe congregation areas or events for young people while minimizing destabilizing activities that tip an area into crime, such as illegal pawn shops and abandoned buildings.

The concept of the tipping point is another threshold idea (Saville, 1996; Saville and Wong, 1994). This refers to the capacity of any given activity or space to properly support the intended use. Too many abandoned homes in a neighborhood have been shown to act as a magnet for certain types of crime (Spelman, 1993). Too many bars in a small area can generate an exorbitant number of bar related problems like assaults, drunk driving, and disorder incidents (Saville and Wong, 1994).

Some characteristics of capacity include:

- ▶ Human-scale development, land use density and diversity
- ▶ Balance of social stabilizers, e.g. community gardens, street entertainment, street food vendors for downtown lunches, fairs and outdoor markets
- ▶ Crime generators below critical threshold, e.g. number of abandoned homes per neighborhood, number of bars in an area.

Case Study #1

Revitalizing a Toronto housing project

One of the first full scale efforts to combine Second with First Generation CPTED was in the San Romanoway apartments in a lower income community in north Toronto. The community has a long tradition of crime and respondents to a victimization survey portrayed a community in

crisis (Rigakos, 2002).

A Toronto parapolice company headed by ICA member Ross McLeod provides security services in the San Romanoway Project. In 2000, the property owners were convinced to institute prevention and community-building strategies in a report called the San Romanoway Foundation Document. Between in 2001 preliminary work began to outline this collaborative action research agenda. It marked the first time in Canada that such a comprehensive Second Generation CPTED strategy, in combination with security initiatives and first generation CPTED, was implemented on such a large scale.

San Romanoway comprises high rise apartments with 4,000 residents living in over 800 units in North Toronto. The site includes a recreation center with a swimming pool, though the pool had been inoperable for some time. The three 20 storey tower blocks are designed in a bleak, modernist style with brick and cement exteriors. Most units have a single balcony. There were no gardens or landscaped areas on site except for an area of grass berms obstructing sightlines at the south-west corner.

The grounds were littered, access lights were inoperable, and there were abandoned vehicles in the underground parking lots. The post boxes within the building were located in an alcove creating an entrapment area and elevators were in a state of disrepair. Many locations along walkways were unlit and in other locations lights were broken. These observations reinforced the serious problem with image and poor territoriality on site.

Preliminary recommendations included improving the lighting, installing border fencing to reinforce access control, and improving the on site maintenance to enhance image. Recommendations also included second generation strategies such as regular meetings to build local cohesion between residents, activities on site such as community gardens, and social programs.

The property owners were reluctant to spend their own resources to implement the security or first generation CPTED changes. However, a tennis court and some fencing was improved. Funds from an outside agency were obtained to build a community garden and also construct a safe playground area for children. This reinforced community culture at the site. Other cultural programs

included a cultural dance group, tennis clubs, and a homework club.

Connectivity infers a neighborhood should encourage connections with external agencies and San Romanoway was no different. Local politicians were brought into the project and appeared during media photo opportunities. Eventually over \$500,000 federal grant funds were directed to San Romanoway, mostly for Second Generation CPTED initiatives.

These initiatives include social cohesion programs such as an anger management program, youth mentoring, and computer classes in a new computer room. As well they funded a full time teacher and social worker to help students expelled from school.

The Second Generation CPTED strategies began in 2002 and continued through 2004. A follow up study discovered that residents now work together and participate in a non-profit organization called the San Romanoway Revitalization Association to coordinate activities on site. The study also found there were decreases of crime in a number of categories: 23 percent in violent crimes, 31 percent in robberies and 37 percent in sexual assaults. There has also been a 21 percent decline in burglaries. At the same time residents reported their daily interaction with others residents on site increased from 9 to 15 percent in the same time period (Rigakos, 2004).

Case Study #2

Engaging Aboriginal youth in Western Australia

Another project where Second Generation CPTED strategies had impact is an Aboriginal education program in Western Australia. Starting in 2002, this program focuses on the social cohesion component of 2nd Generation CPTED (in this case renamed capacity building). The objective was to reduce absenteeism by truant students, as well as enhance the overall involvement in community problem-solving.

There is little point in creating safe physical environments in First Generation CPTED if those who live in those environments choose not to participate in community life. This is particularly the case with young people and the schools they attend. It's not surprising we associate a large majority of social disorder and crime problems

with disaffected young people who drop out of school. They find academic activities too boring and quite disconnected to their own lives. Therefore, engaging young people is a crucial component of any community-building strategy, especially where truancy and absenteeism are rampant. Building social cohesion through community involvement of disaffected participants – especially disaffected young people – obviously represents a major test of any program's viability.

Within the education sphere, a high level of absenteeism serves as a significant indicator of the difficulty Aboriginal families face today. Aboriginal students, on average, miss almost one day of school each week. This translates to missing over a year of schooling by the end of primary school and over two years by the end of secondary school (MCEETYA-2001). The failure of Aboriginal students to engage with the schooling process is a significant factor in limiting the access to opportunity that many in the Aboriginal community face. The causes of such a high levels of absenteeism are both varied and complex and no easy solution exists to remedy the problem.

To reduce the problem and enhance the positive esteem aspects of cohesion in these communities, individual competencies (personal capacities) of Aboriginal students, parents and educational staff had to be developed before any improvements were likely to occur.

The projects

In addition to the learning sessions, participants undertake problem-based learning (PBL) projects that they implement in their schools, families, or communities. The PBL projects must reflect real life community needs and attempt to resolve issues or problems of importance to participants or other Aboriginal community members. A previous issue of *The CPTED Journal* provides details on PBL as a method for implementing CPTED (Genre, 2004).

To ensure responsiveness to participant's needs and interests, all facilitators must prepare work that is specifically relevant to the areas in which they deliver the material. There is little sense offering drug information strategies and crime reduction workshops if Education workers have a focus that lies elsewhere. In most instances, the projects by the

participants and the involved agencies include:

- ▶ Emotional and Multiple Intelligence awareness Goal setting, assertiveness, conflict resolution and situational control
- ▶ Literacy
- ▶ Substance Abuse
- ▶ Problem Based Learning
- ▶ Preliminary outcomes: the Kimberley Region

Project personnel collected initial evaluation data for one project area, the Kimberly region. Preliminary results are encouraging. Between 2004 and 2005, there was improvement in 21 of 27 schools, in both primary and secondary grades. One school experienced an improvement in attendance of 31.5%⁵.

These preliminary results suggest the reversal of a long term serious trend towards lack of involvement by Aboriginal students in their own learning. Aboriginal staff describes being more inclined to take leadership roles and engage with students and staff more readily. In addition, they are now more receptive to managing and developing school and community projects. To use the terminology of one participant, "we are no longer sitting in the back seat of education at our school. We are driving the bus."

There is still a need for more data to assess the ongoing impact on attendance, suspensions, and student participation. In addition, there is a need to monitor the overall cohesion, social conditions and crime patterns within the community as the program proceeds.

Conclusion

Second Generation CPTED has become an essential ingredient in the program toolbox of every CPTED practitioner, community worker or urban development professional. For too long our focus has been one-dimensional and too removed from Jacob's original formulations for safer communities. We may live in physical structures and neighborhoods that we build, but our lives are subject to much more than strategies like better locks and lights. Our lives are successful – or not – based on the quality of our relationships. Any strategy to improve the quality of life and reduce crime that forgets these fundamental truths has little to offer those communities looking for safer, and sustainable, futures. ■

IN MEMORIAM



Jane Jacobs

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Endnotes

- 1 Jane Jacobs died in April, 2006 at 89. In 1961 she wrote arguably one of the most influential books on urban planning, *The Death and Life of Great American Cities*, which CPTED writers frequently cite as their source for new ideas. Jacobs showed how planning and architecture creates crime opportunities.
- 2 Even in her last book in 2004, *Dark Age Ahead*, she continues to argue about the social impact of dysfunctional neighborhoods. "No functioning community. That is, finally, the gist of it."
- 3 The Broken Window theory later formulated by Wilson and Kelling also adds enforcement strategies of street based incivilities for maximum effect.
- 4 Researchers in each of these fields will justifiably argue that theirs is the primary theoretical umbrella under which others fall. Or they may argue that their theory emerges from other theoretical strains and do not belong under the CPTED umbrella. We yield to this theoretical turf struggle and offer here only a simplified model that we attribute to environmental criminology. Nonetheless, we maintain that all these theories, including environmental criminology, are variations on the opportunity reduction theme and followed Jacob's early writing.
- 5 Statistics compiled by Aboriginal Education District office. Kimberley District office.



The CPTED Journal

The journal of the International
CPTED Association,
officially registered as the
International Society for Crime Prevention
Through Environmental Design

Volume 1, Issue 2
Spring 2006

ISSN 1448-7446