# APPENDIX A

Twenty Five Techniques of Situational Prevention by Clark (1993)

Twenty Five Techniques of Situational Prevention by Clark (1993)

| Increase the Effort | Increase the Risks | Reduce the Rewards | Reduce Provocations | Remove Excuses |
|---|---|---|---|---|
| 1. Target Harden<br>Steering column locks and immobilisers<br>Anti- robbery screens<br>Temper- proof packaging | 6. Extend guardianship<br>Take routine precautions: go out in group at night, leave signs of occupancy, carry phone<br>"cocoon" neighbourhood watch | 11. Conceal targets<br>Off –street parking<br>Gender –neutral Phone directories<br>Unmarked bullion trucks | 16. Reduce frustrations and stress<br>Efficient queues and polite service<br>Expanded seating<br>Soothing music /muted lights | 21. Set rules<br>Rental agreements<br>Harassment cods<br>Hotel registration |
| 2. Control access to facilities<br>Entry phones<br>Electronic card access<br>Baggage screening | 7. Assist natural surveillance<br>Improved street lighting<br>Defensible space design<br>Support whistleblowers | 12. Remove targets<br>Remove car radio<br>Women's refuges<br>Pre paid cards for pay phone | 17. Avoid disputes<br>Separate enclosures for rival soccer fans<br>Reduce crowding in pubs<br>Fixed cab fares | 22. Post instructions<br>"No Parking"<br>"Private Property"<br>" Extinguish camp fires" |
| 3. Screen exits<br>Ticket needed for exit<br>Export documents<br>Electronic merchandise tags | 8. Reduce anonymity<br>Taxi driver Ids<br>"How is my driving?"decals<br>School uniforms | 13. Identify property<br>Property marking<br>Vehicle licensing and parts marking<br>Cattle | 18. Reduce emotional arousal<br>Controls on violent pornography<br>Enforce good behaviour on soccer field<br>Prohibit racial slurs | 23. Alert conscience<br>Roadside speed display boards<br>Signature for customs declarations<br>"Shoplifting is stealing" |
| 4. Deflect Offenders<br>Street closures<br>Separate bathroom for women<br>Disperse pubs | 9. utilize place managers<br>CCTV for double-deck buses<br>Two clerks for convenience stores<br>Reward vigilance | 14. Disrupt markets<br>Monitors pawn shops<br>Controls on classified ads<br>License street vendors | 19. neutralize peer pressure<br>"Idiots drink and drive"<br>"It is ok to say no"<br>Disperse troublemakers at school | 24. Assist compliance<br>Easy library checkout<br>Public lavatories<br>Litter bins |
| 5. Control tools/ weapons<br>Smart guns<br>Disabling stolen cell phones<br>Restrict spray paint sales to juveniles | 10. Strengthen formal surveillance<br>Red light cameras<br>Burglar alarms<br>Security guards | 15. Deny benefits<br>Ink merchandise tags<br>Graffiti cleaning<br>Speed humps | 20. Discouraging imitation<br>Rapid repair of vandalism<br>V-chips in TVs<br>Censor details of modus operandi | 25. Control drugs and alcohol<br>Breathalysers in pubs<br>Server intervention<br>Alcohol free events |

Source: Wortley & Mazerolle 2008

# APPENDIX B

The effects of lighting on crime: American and British evaluations

**Table 1: Street lighting evaluations not meeting inclusion criteria**

| | Author, Publication Date, and Location | Reason for Not Including | Programme Other Interventions | Sample Size | Follow-up and Result |
|---|---|---|---|---|---|
| ***1*** | *Hack (1974), Norfolk, Virginia, USA* | *Crime not measured (fear of crime measured)* | *None* | *n/a* | *n/a* |
| ***2*** | *Siemon and Vardell (1974), Dade county, Florida, USA* | *No control area used* | *None* | *1 public housing, project (Larchmont Gardens)* | *9 months; class I crimes: -22.9% (245 to 189); class II crimes: -51.4% (72 to 35)* |
| ***3*** | *Krause (1977), New Orleans, Louisiana, USA* | *No control area used* | *None* | *1 commercial area* | *9 months; commercial night time burglary (mean monthly difference): -1.4* |
| ***4*** | *Kushmuk and Whittemore (1981), Griswold (1984), Lavarakas and Kushmuk (1986), Portland, Oregon, USA* | *None comparable control area (rest of city)* | *Multiple (e.g. security surveys, clean up days)* | *1 commercial strip and adjacent streets* | *34 months; commercial burglary decreased, other crimes no change (time series analysis)* |
| ***5*** | *Bachner (1985), Camillus, New York, USA* | *No control area used* | *none* | *1 parking lot of shopping mall* | *<1 year; vehicle break ins: " virtually eliminated"* |
| ***6*** | *Davidson and Goodey (1991), Hull, England* | *No control area used* | *none* | *1 residential area (Dukeries)* | *6 weeks; percentage of victimisations: +9.5% (63% to 69%)* |
| ***7*** | *Virj and Winkel (1991), Enkhuizen, the Netherlands* | *Crime not measured (fear of crime and perceived risk of victimisation measured)a* | *none* | *n/a* | *n/a* |
| ***6*** | *Atkins, Hussain and Storey (1991), Wondsworth, England* | *Number of crimes too small. Victim survey response rate before= 37%* | *none* | *1 relit area, 1 adjacent non relit area* | *12 months: reported crime: 14.5% (7480 to 6399) VS: 7 weeks: relit crimes -35.9% (39 decreased to 25); control crimes -69.2% (13 to 4)* |
| ***9*** | *Ramsay and Newton (1991), Hastings, England* | *Number of crimes too small* | *none* | *1 relit area, 1 control area* | *7 month: recorded crime in relit area +40.0% (15 to 21); control crimes +30.6% (85 to 111)* |

| | Author, Publication Date, and Location | Reason for Not Including | Programme Other Interventions | Sample Size | Follow-up and Result |
|---|---|---|---|---|---|
| ***10*** | *Challinger (1992), South Australia and Northern Territory, Australia* | *No control area used* | *Multiple (e.g., target hardening security staff)* | *35,000 public pay phone* | *3 years; b vandalism:- 19.0% (1373 to 1112)* |
| ***11*** | *Nair, Ditton and Philips (1993), Glasgow, Scotland* | *No control area used and crime not measured (fear of crime measured)* | *Multiple (e.g., paths widened , entry phones)* | *n/a* | *n/a* |
| ***12*** | *Tilley (1993), Salford, England* | *No control area used* | *none* | *3 businesses* | *12 months; total crimes: -72.4% (29 to 8)* |
| ***13*** | *La Vigne (1994), Austin, Texas, USA* | *No control area used* | *none* | *38 convenience stores* | *n/a; thefts of gasoline: -65%* |
| ***14*** | *Ditton and Nair(1994), Glascow and High Blantyre,Scotland* | *No control area used* | *none* | *1 residential area in both sites* | *3 months; 2 sites combined: total personal victimisation: - 50.0% (12 to 6); total vehicle victimisation: - 95.7% (23 to 1); total police recorded crime: - 14.0% (57 to 49)* |
| ***15*** | *Painter (1994), 3 areas in London, England, Edmonton Tower Hamlets Hammersmith and Fulham* | *No control area used (for all 3 sites)* | *None (for all 3 sites)* | *1 street and 1 pedestrian footpath, 1 street, 1 street* | *6 weeks; total crime (at night): - 85.7% (21 to3) 6 weeks: total crime at night - 77.8% (18 to 4) 12 months; total crime (at night): 2 to0* |
| ***16*** | *Nair, Mc Nair and Ditton (1997) Glasgow, Scotland* | *No control area used* | *none* | *1 carriage-way* | *2 years; pestering/ following: - 48.2% (112 to 85); sexual proposition: - 54.2% (24 to 11); assault/ mugging: 3 to 1; sexual assault: 1 to 0 (all at night)* |

a Respectively, the questions asked were: "'To what extent do you feel safe here?'" and "'How likely do you think it is that you could be molested here?'" (Vrij &
Winkel, 1991, p. 211).
b Follow-up period not specified for street lighting intervention. Notes: n/a. = not available or not applicable. VS = Victim Survey.

Source : Farrington and Welsh ( 2002)

**Table 2: American Street lighting evaluations meeting inclusion criteria**

| | Author, Publication Date, and Location | Context of intervention | Type of intervention (other interventions) | Sample Size | Outcome measures and data source | Research design |
|---|---|---|---|---|---|---|
| ***1*** | *Atlanta Regional(1974) Commission, Georgia* | *City Center (high robbery)* | *Improved (4X) street lighting (none)* | *E=selected streets in census tract 27, C= rest of streets in census tract 27* | *Crime (robbery, assault and burglary); police records* | *Before-after, experimental – control; before and after; periods= 12 months* |
| ***2*** | *Department of Inter-governmental Fiscal Liaison (1973, 1974) Milwaukee, Wisconsin* | *Residential area and commercial area (older residents)* | *Improved (7X) street; lighting; and property offences)none* | *E= 1 area (3.5 miles of streets), C=1 adjacent area* | *Crime (property and person categories); police records* | *Before- after. Experimental-control; before and after; periods= 12 month* |
| ***3*** | *Inskeep and Goff (1974), Portland, Oregon* | *Residential neighbourhood (high crime)* | *Improved(2X) street; lighting; (none)* | *2 E areas; 2 A areas; C= surrounding areas* | *Crime (burglary, assault and burglary); police report* | *Before - after; experimental-control; before and after periods= 6 or 11 months* |
| ***4*** | *Wright et al. (1974)Kansas city, Missouri* | *Residential and commercial areas (high crime)* | *Improved street lighting; (none)* | *E= 129 relit blocks in 4 relit areas; C=600 non-relit blocks in same areas* | *Crime (violent and property offences); police records* | *Before – after Experimental-control; before and after periods= 12 months* |
| ***5*** | *Harrisburg Police Department(1976), Harrisburg, Pennsylvania* | *Residential and commercial areas* | *Improved street lighting (none)* | *E=1 high crime area; C=1 adjacent area* | *Crime (violent and property offences); police records* | *Before-after; experimental-control; before and after periods= 12 months* |
| ***6*** | *Sternhell (1977), New Orleans, Louisiana* | *Residential and commercial areas* | *Improve street lighting (none)* | *E= 2 high crime areas; C=2 adjacent areas* | *Crime(burglary, vehicle theft and assault); police records* | *Before-after; experimental-control; before period=51months ;after period=29 month* |
| ***7*** | *Lewis and Sullivan (1979), Fort Worth, Texas* | *Residential neighbourhood* | *Improve (3X) street lighting; (none)* | *E=1 high crime area; C=1 adjacent area* | *Crime (total); police records; before and after* | *Before-after; experimental-control; periods=12 months* |
| ***8*** | *Quinet and Nunn (1998), Indiana police, Indiana* | *Residential neighbourhood* | *Improved street lighting; police initiatives)* | *E=2 multi Block areas; C=2 areas with no new lights* | *Calls for service (violent and property crime); police records* | *Before-after, experimental-control; before and after period= 6-9 months* |

Source : Farrington and Welsh ( 2002)

**Table 3: British Street lighting evaluations meeting inclusion criteria**

| | Author, Publication Date, and Location | Context of intervention | Type of intervention (other interventions) | Sample Size | Outcome measures and data source | Research design |
|---|---|---|---|---|---|---|
| ***1*** | *Poyner (1991), Dover* | *Parking garage(in town centre)* | *Improved lighting (at main entrance/exit); fencing, office constructed)* | *E= 1parking garage; sC= 2 open parking lots close to E* | *Crime (total)and theft of and from vehicles); police records* | *Before-after, experimental-control; before and after periods= 24 months* |
| ***2*** | *Shaftoe (1994), Bristol* | *Residential neighbourhood* | *Improved(2X) street lighting; none* | *E=2 police beats; C=2adjacant police beat* | *Crime (total); police records* | *Before- after; experimental-control; before and after periods= 12 months* |
| ***3*** | *Poyner and Webb(1997), Birmingham* | *City- centre market* | *Improved lighting (none)* | *E= 1 market; C=2markets* | *Thefts; police records* | *Before-after; experimental-control; before and after periods= 12 months (6months in each of 2 years)* |
| ***4*** | *Painter and Farrington (1997, 2001a), Dudley* | *Local authority housing estate* | *Improved (2X) street lighting (none)* | *E=1 housing estate; C=1 adjacent estate* | *Crime (total and types of offences); victim survey and self reports* | *Before-after, experimental-control and statistical analyses; before and after periods=12 months* |
| ***5*** | *Painter and Farrington (1999b), Stoke-on-Trent* | *Local authority housing state* | *Improved (5X) street lighting;(none)* | *E=1 housing estate; A=2adjacent estates; C=2 none adjacent estates* | *Crime (total and types of offences); victim survey* | *Before-after; experimental-control and statistical analyses; before and after periods= 12 months* |

Source : Farrington and Welsh ( 2002)

# APPENDIX C

Outdoor lighting equipments

**Outdoor Lighting Equipments**

Equipment should be evaluated, selected based upon its characteristic advantages and disadvantages and applied correctly to provide lighting that is appropriate for specific functions. Lighting design requirements and standards, streetscapes and aesthetic needs for both day time and night time urban environment and energy efficiency are dominant factors in selecting the lighting fixtures. According to Gerken et al. (2003) lighting components can be grouped together in terms of their functions and they are generally described as the optical system, the electrical system, and the structural system.

The optical system comprises of the light source (lamp), reflector, refractor, and housing which comprise a luminaire. The electrical system is made up of the ballast, wiring, photocells, and other minor components. The structural system supports the luminaire and associated equipment and is comprised of the mounting brackets, pole, and foundation.

Optical system

*Lamps*: the most important element of illumination system is the light source.

*"Lamp is the source made in order to produce an optical radiation usually visible" (Tichelen et al., 2007. P.22)*

According to IESNA's definition's of the lamp as "An electric light source is a device, which transforms electrical energy, or power (in watts), into visible electromagnetic radiation, or light (lumens). The rate of converting electrical energy into visible light is call luminous efficacy and is measured in lumens per watt" (IESNA 2000, www.darksky.org).

A lamp is the principal determinant of the visual quality, economy, efficiency and energy conservation and is selected on the basis of cost and performance (Gerken et al., 2003). Cost factors include purchase price, installation cost, and maintenance cost, energy efficiency and useful life. Performance factors include colour, lumen output and maintenance of lumen output (OLCR, 2001).

Several types of lamps have been used for street lights since 19 century. Incandescent, Fluorescent, Low Pressure Sodium (LPS), High Intensity Discharge (HID), Mercury Vapour (MV), Metal Halide (MH), High Pressure Sodium (HPS), Induction. Today, street lighting commonly uses high-intensity discharge lamps, often HPS high pressure sodium lamps. Such lamps provide the greatest amount of Photopic illumination (well lit condition that allows human and animals colour perception) for the least consumption of electricity (Perth and Kinross Council, 2008).

To select a lamp, the colour of lighting should be considered where pedestrians are concerned. Good colour rendering helps objects appear naturally and pleasant to the public. Criminologists believe that to provide good quality street lighting, white colour lamps are preferable to be used rather than the traditional yellow/orange lamps as it allows better recognition of colours of clothing, hair, eyes of potential offenders. Colour rendition is more difficult under yellow-orange light source of sodium vapour. Considerable majority of people find it preferable and more pleasant (Philip, 2008).

Benefits of using white light are as follows:

> *" It can give better colour rendering which helps better identification for police and residents; It can effect to reduce fear of crime; It can increase reaction time of drivers by up to 50% which can improve road safety; Encourages and aids mobility of pedestrians during the cover of darkness; Improves the night time street scene and the overall quality of life of its residents and perhaps most relevant" (Perth & Kinross Council, 2008)*

Ease and accuracy of colour rendition translate into a more attractive night time pedestrian atmosphere. They make streets feel safer and more attractive to pedestrians. For these reasons, the Crime Prevention through Environmental Design (CPTED) process favours white-blue street lighting over yellow-orange lighting (Salt City Street Lighting Master Plan, 2006).

Table 1 lists a variety of lamps for outdoor lighting currently available, with their performance characteristics:

Table 1.0 Overview of common street lighting types

| Factor | Incandescent | Metal Halide | High Pressure Sodium | Induction |
|---|---|---|---|---|
| Efficiency (lumens/watt) | 8-18 | 38 -75 | 72 – 115 | 64 - 73 |
| Lumen/Maintenance | 90 (85) | 75 (65) | 90 (70) | 75 (50) |
| Lamp Life/(hours) | 750 – 2000 | 10,000 – 20,000 | 18,000 – 24,000 | 100,000 |
| Energy Use | High | Medium | Low | Low |
| Colour Rendition | Very Good | Very Good | Moderate | Very Good |

Efficiency: lamp output efficiency at 50% lifetime of lamp
Lumen maintenance: percent of initial lamp output at 50% lifetime of lamp and at end of lamp lifetime (in parentheses)
Lamp life: approximate typical lifetime of lamps in hours
Energy use: indicator of energy costs
Colour rendition: relative ability of average observer to accurately perceive colours under the light types shown

| | |
|---|---|
| Incandescent | Very inefficient and short life, street lights should be retrofitted for more energy efficient options |
| Mercury Vapour | street lights should be retrofitted for more energy efficient options |
| High Pressure Sodium | Energy efficient but poor colour rendering quality, shouldn't be used if colour rendering is important |
| Low Pressure Sodium | Very Energy efficient but very poor colour rendering quality |
| Metal Halide | Energy efficient and provide good colour rendering quality, |
| Fluorescent | Energy efficient and good colour rendering |
| Induction | Efficient, good colour and long life but limited availability and less optical control |
| LED | Long lasting, Durable, Cool, Mercury- free, More efficient, Cost effective, Light for remote areas |

Source : NYSERDA ( 2002)

*Luminaire:* A luminaire is defined as a complete unit consisting of a lamp, together with the parts designed to distribute the light and shape it into desired pattern on the roadway, to position and protect the lamp, and to connect the lamp to the power supply. Components that make up a luminaire include reflector, refractor and the housing.

*"luminaire is apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes, except the lamps themselves, all parts necessary for fixing and protecting the lamps and, where necessary, circuit auxiliaries together with the means for connecting the lamps to the electric supply" (Tichelen et al., 2007.P.22)*

Classification of light distributions is made on a plan view of a roadway which has superimposed on it a series of lines parallel with the roadway and another series transverse to the roadway (SUDAS, 2008). These lines, which are spaced in multiples and fractions of the mounting height, are referred to as Longitudinal Roadway Lines (LRL), and Transverse Roadway Lines (TRL), as shown in Figure 1

The spacing of luminaires is often influenced by the location of utility poles, block lengths, property lines and the geometric configurations of the terrain features (IESNA, 2000). In order to avoid glare, light tress pass and light pollution, glare shields may be added to control light distribution. There are four types of optical system or shielding the luminaires that provide different degrees of control.

These include the following: Non-cut off, semi-cut off, cut off and full-cut off. Shielding is to reduce the lighting that escapes to the night sky and reduce glare. (Eley associates, 2002)

*Non-cut off optics*, allow light to be emitted in all directions and there is no limitation on light distribution at any angle;

*Semi-cut off optics*, allow most of the light to be emitted below 90 degrees, but some light (up to 5%) to be emitted above 90 degrees

*Cut off optics* has more controlled lighting than semi-cut off. Less than 2.5% of the light is allowed to escape the fixture above 90 degrees;

*Full-cut off* optics put light on the ground below the fixture only. Full-cut off optics does not emit light above 90 degrees;

Improved lighting programs usually consist of replacing the lamps and luminaires that is designed to efficiently provide appropriate lighting.

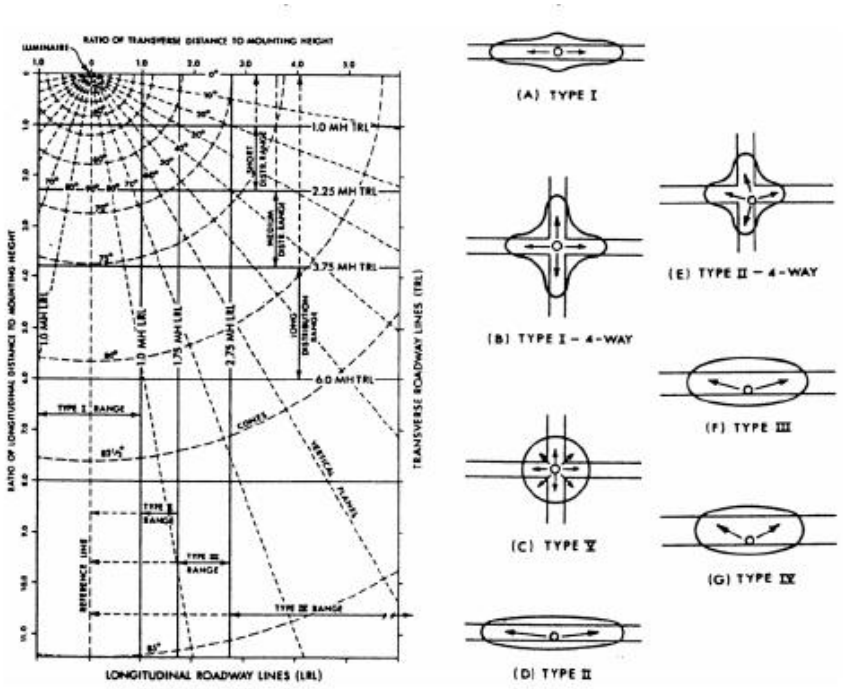



Figure 1.0: Light distribution patterns
Source: SUDAS (2008)

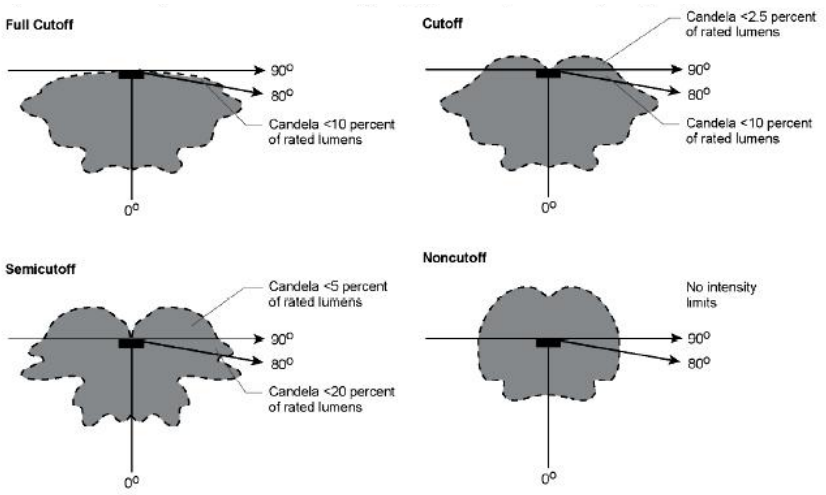



Figure 2.0: Cut off Luminaries
Source: Eley associates (2002)

Structural System

*Pole:* light poles are a significant visual element of lighting system in both day time and night time. They have a typical technical and economical life span from 30 to 50 years. “They are available in a variety of shapes, materials and finishes. They should be selected according to short or long term costs, functional considerations and aesthetic concerns” (Herculaneum Master Plan, 2006)

Different types of light poles consist of Concrete, Galvanized, Painted Steel, Weathered and Decorative Wood, Weathered Steel poles.

Poles are chosen based on their functional and aesthetics appropriateness. Proper height and spacing is important, as it can affect the illumination intensity, uniformity of light distribution and can reduce energy and maintenance costs.

Pole spacing depends on the character and geometry of the road way, physical features, availability of maintenance and overall lighting objectives. In order to support the luminaire and pole structure, the foundation must be designed to support the weight of the structure as well as resist wind loads and vibrations.

Electrical System

*Cables and Wires:* Under grounding overhead utility wires has been suggested as a key to achieving adequate street lighting. (Weaver,1997)

There are some advantages and disadvantages of underground eclectic facilities as follows:

Improving aesthetic, lowering tree trimming cost, reducing live wire contact, fewer outages during normal weather, fewer momentary interruptions, improved utility relations regarding tree trimming, fewer structure impacting sidewalks are some of potential benefits of underground electric system (Brown, 2007).

Stranded asset cost for existing overhead facilities, environmental damage including soil erosion and disruption of ecologically sensitive habitat, utility employee work hazards, during vault and manhole inspections, increase exposure to dig-ins, longer duration interruptions and more customers impact per outage, susceptibility to flooding , storm surges and damage during post storm clean up, reduced flexibility for both operations and system expansions, reduced life expectancy, higher maintenance and operating cost, higher cost for new data bandwidth are the potential disadvantages of underground electric facilities (Brown 2007, Quanta Technology, 2009).

But studies have shown that the public found the landscape impacts of overhead lines unacceptable and it has been widely acknowledged by electricity industry (Cowell, 2003).

*Controllers:* Outdoor lighting is usually operated as needed from sunset to sunrise. Therefore, the objectives and equipments should be employed to control unnecessary usage of lighting.

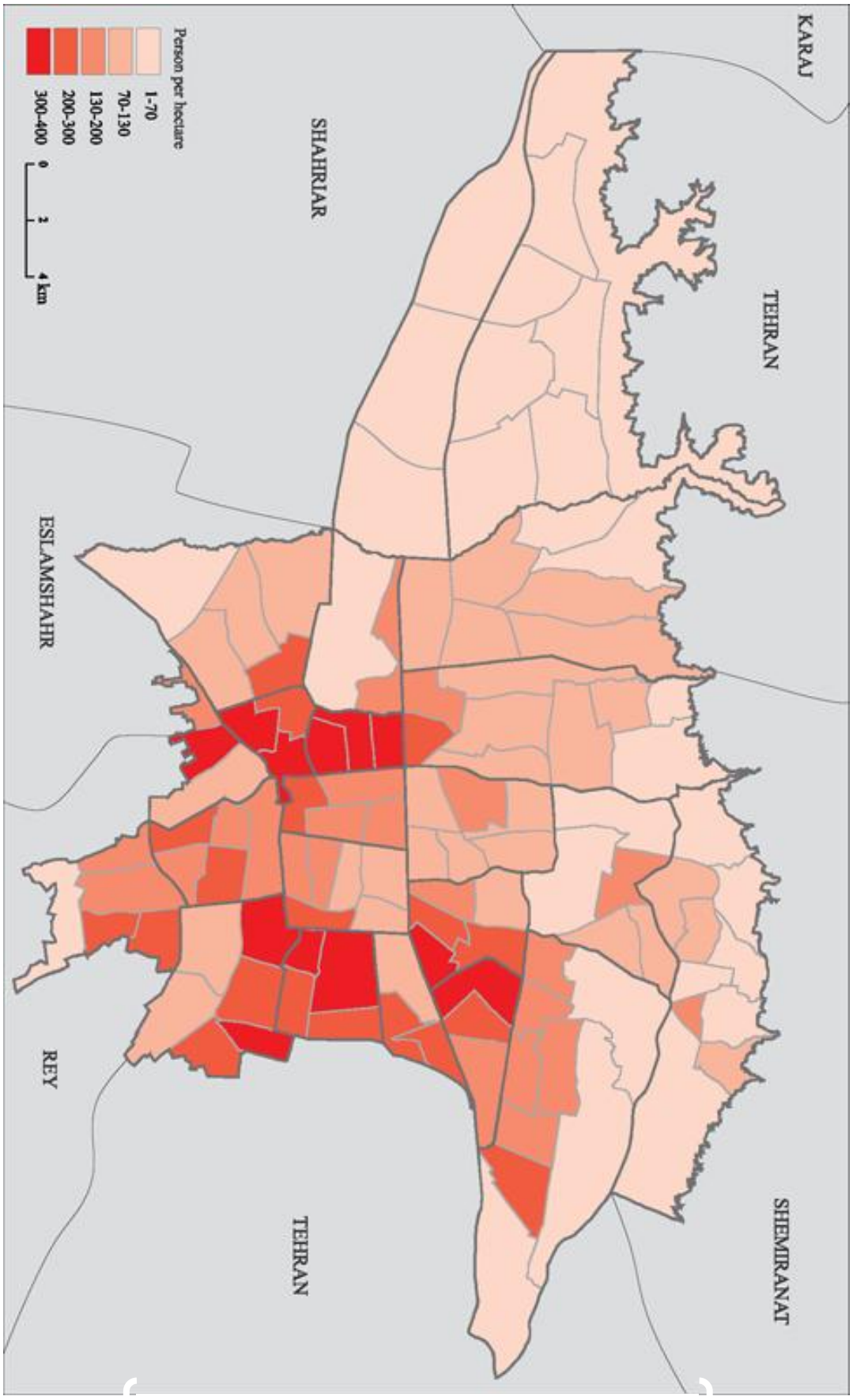
*Timers prevent* outdoor lights from being left on during the day and provide other operating hour options if lighting is not needed throughout all hours of darkness

*Motion detector* turn on the light when on object moves within the range of the sensor; the time the light remains on can be adjusted, typically up to 30 minutes and vary in price base on their sensitivity.

*Photocell sensors* can either turn lights on and off or be connected to a dimmer that gradually adjusts lighting levels.

# APPENDIX D

Population density of Tehran urban areas




Population density of Tehran
Source: http://atlas.tehran.ir/Default.aspx?tabid=161

# APPENDIX E

Questionnaire Survey (Persian and English version)

**Faculty of the Built Environment University of Malaya**

Date: .....  Questionnaire No: .....

Guide: please check the most appropriate box for your best answer and please answer frankly to all the questions

If you have any inquiries, please ask the person in charge

***(In Persian version of the questionnaire, the word "vandalism" has been clarified)***

| 1 | General | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 1-1 | How do you concern your safety in the neighborhood where you live? | | | | | |
| 2-1 | How do you concern your safety in the neighborhood where you study? | | | | | |

| 2 | From your point of view, how is the effectiveness of the following factors on your perception of safety in your neighborhood? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 2-1 | The responsibility of the residents toward what is happening in their neighborhood | | | | | |
| 2-2 | The presence of the police in the neighborhood | | | | | |
| 2-3 | The clean and well maintained buildings without any evidences of vandalism | | | | | |
| 2-4 | The clean street furniture such as bus stations or dust bins without any evidences of vandalism | | | | | |
| 2-5 | The high quality of the outdoor lighting in the area | | | | | |
| 2-6 | The presence of more people in the neighborhood | | | | | |

| 3 | How do you (or your family) concern about being the victim of the following types of crime? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 3-1 | Having your home damaged or vandalized | | | | | |
| 3-2 | Having your vehicles damaged or vandalized | | | | | |
| 3-3 | Having the public properties damaged or vandalized | | | | | |
| 3-4 | Any damages to the landscapes and green areas in your neighborhood | | | | | |
| 4 | How can any of these factors discourage you of going out at night? | Very low | low | average | high | Very high |
| | | 1 | 2 | 3 | 4 | 5 |
| 4-1 | The fear of crimes such as theft, murder .... | | | | | |
| 4-2 | The absence of people in the streets | | | | | |
| 4-3 | The darkness of the streets | | | | | |

| 5 | How is your perception of safety in these places? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 5-1 | Dark places | | | | | |
| 5-2 | Lit places | | | | | |

| 6 | How agree are you with these sentences? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 6-1 | You feel safer in well lit places because of better visibility | | | | | |
| 6-2 | You feel safer in well lit places because of the presence of more people in the streets | | | | | |
| 6-3 | Your perception of the safety in a place doesn't related to the lighting level in a place | | | | | |

| 7 | How agree are you with this sentence? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 7-1 | Vandalism is a crime | | | | | |

| 8 | From your point of view, how any of these actions can stop someone from committing vandalism? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 8-1 | Calling the police | | | | | |
| 8-2 | Warning the vandal/vandals of their act | | | | | |
| 8-3 | If he/she is seen by any residents or pedestrians in the streets | | | | | |
| 9 | From your point of view, how any of these factors can encourage someone to commit vandalism? | Very low | low | average | high | Very high |
| | | 1 | 2 | 3 | 4 | 5 |
| 9-1 | Anger | | | | | |
| 9-2 | Family problems | | | | | |
| 9-3 | Boredom | | | | | |
| 9-4 | Show off to friends | | | | | |
| 9-5 | Revenge | | | | | |
| 9-6 | The enjoyment of taking risk | | | | | |

| 10 | From your point of view, how the vandalism rate would be in any of these time periods? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 10-1 | Early at night (6 pm to 12 midnight) | | | | | |
| 10-2 | Night time (12 mid night to 6 am) | | | | | |
| 10-3 | Early day time (6 am to 9 am) | | | | | |
| 10-4 | Day time (9 am to 6 pm) | | | | | |

| 11 | From your point of view, how the vandalism rate would be in any of these places? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 11-1 | Crowded places | | | | | |
| 11-2 | Not crowded places | | | | | |

| 12 | From your point of view, how the vandalism rate would be in any of these places? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 12-1 | Dark places | | | | | |
| 12-2 | Dimly lit places | | | | | |
| 12-3 | Lit places | | | | | |

13. Do you agree that improved outdoor lighting can prevent vandalism? Yes ○ No ○

| 14 | How agree are you with these sentences about vandals? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 14-1 | Vandals vandalize in places where the risk of being seen in low | | | | | |
| 14-2 | Vandals vandalize in places where the vandalized property can be seen by other people | | | | | |

| 15 | General | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 15-1 | How much have you participated in any anti vandalism programs? | | | | | |
| 15-2 | How much would you like to participate in any anti vandalism programs? | | | | | |

| 16 | From your point of view, how any of this factors can discourage a person of committing vandalism? | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 16-1 | The presence of the police | | | | | |
| 16-2 | The presence of people | | | | | |
| 16-3 | Darkness of the area | | | | | |
| 16-4 | brightness of the area | | | | | |
| 16-5 | punishment | | | | | |
| 16-6 | CCTV | | | | | |
| 16-7 | Anti vandalism programs in the society | | | | | |
| 16-8 | Anti vandalism programs at schools | | | | | |

**17**. Are you satisfied with the outdoor lighting system in your neighborhood in general? Yes ◯ No ◯

| 18 | How do you (or your family) satisfied with: | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 18-1 | Level of outdoor lighting in your neighborhood | | | | | |
| 18-2 | The level of light pollution | | | | | |
| 18-3 | The maintenance of outdoor lighting equipments | | | | | |

| | Considering the pictures, please answer the following questions | Very low | low | average | high | Very high |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| **19** | From your point of view, how safe is the neighborhood in Pic 00A? | | | | | |
| **20** | How vandalism is likely to happen in pic 001 | | | | | |
| **21** | How vandalism is likely to happen in pic 002 | | | | | |
| **22** | How vandalism is likely to happen in pic 003 | | | | | |

**23**. Sex: (Please circle one) Male☐ Female☐

**24**. Your parents' education (Father): Not educated at all ☐
Under diploma ☐
Diploma/degree ☐
Master/PhD ☐

**25**. Your parents' education (Mother): Not educated at all ☐
Under diploma ☐
Diploma/degree ☐
Master/PhD ☐

**26**. Education background: .....

**27**. Your parents' income level: Less than 500,000 T ☐
500,000 to 1,000,000 T ☐
More than 1,000,000 T ☐

**دانشکده معماری و طراحی محیط دانشگاه یو ام مالزی**

*بررسی تاثیر کیفیت نور خیابان بر میزان آسیب و تخریب خیابانی توسط جوانان در تهران – ایران*

شماره پرسشنامه : .....

تاریخ : .....

**توضیحات :** لطفا جواب مورد نظر را با علامت * نشان دهید و به تمام سوالات صادقانه پاسخ دهید و در صورت هر گونه ابهام سوال کنید.

* منظور از **آسیب رسانی به اموال دولتی و خصوصی** در اینجا ، ارتکاب به نوشتن روی دیوار ساختمانها ، ایستگاه های اتوبوس ، خراشیدن بدنه اتومبیل ها ، نوشتن یا خراشیدن یا شکستن درختان ، شکستن شیشه ساختمان دیگران ، آتش زدن یا شکستن مبلمان خیابان از قبیل تیر چراغ برق ، سطل زباله ، تابلو خیابان ها ، تابلو برق و مشابه میباشد.

**بخش اول**

| ۱ | | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۱-۲ | میزان احساس امنیت شما در محله ای که در آن زندگی میکنید چقدر است؟ | | | | | |
| ۱-۳ | میزان احساس امنیت شما در محله ای در آن تحصیل میکنید چقدر است؟ | | | | | |

| ۲ | **از نظر شما هر کدام از این عوامل تا چه میزان در ایجاد احساس امنیت برای شما در محله سکونتتان موثر است؟** | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۲-۱ | احساس مسئولیت ساکنین محله نسبت به آنچه در محله میگذرد | | | | | |
| ۲-۲ | حضور پلیس در محله | | | | | |
| ۲-۳ | وجود ساختمانهای تمیز عاری از هرگونه خرابی بدنه ساختمان یا شکستگی یا وجود دست نوشته روی دیوارها | | | | | |
| ۲-٤ | سالم و تمیز بودن وسایل عمومی نظیر ایستگاه های اتوبوس ، سطل زباله ، چراغ برق | | | | | |
| ۲-٥ | میزان روشنایی در خیابان های محله | | | | | |
| ۲-٦ | حضور افراد بیشتر در خیابان های محله | | | | | |

| ۳ | **نگرانی شما نسبت به هر یک از مسائل زیر در محله اتان چقدر است؟** | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۳-۱ | آسیب رسانی به منزل مسکونی اتان نظیر نوشتن روی دیوار یا شکستن شیشه منزل توسط دیگران | | | | | |
| ۳-۲ | آسیب رسانی به خودرو خانواده نظیر خراشیدن بدنه یا شکستن قطعات ماشین توسط دیگران یا پنچر کردن ماشین و نظایر آن | | | | | |
| ۳-۳ | آسیب رسانی به وسایل عمومی نظیر خراب کردن ایستگاه های اتوبوس یا شکستن شیشه آنها و یا شکستن سطل ها زباله شهرداری یا نیمکت های خیابانی و نظایر آن | | | | | |
| ۳-٤ | آسیب رسانی به فضای سبز محله مسکونی اتان نظیر شکستن شاخه درختان یا آتش زدن آنها | | | | | |

| ٤ | هر یک از عوامل زیر تا چه میزان ، میتواند مانع بیرون رفتن شما در شب شود؟ | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ١ | ٢ | ٣ | ٤ | ٥ |
| ٤-١ | ترس از وقوع جرائمی نظیر دزدی ، باج گیری توسط افراد ولگرد . .... | | | | | |
| ٤-٢ | عدم حضور افراد و خلوتی خیابان ها | | | | | |
| ٤-٣ | تاریکی خیا بان ها | | | | | |

| ٥ | میزان احساس امنیت شما از بودن در مکان های زیر چگونه است؟ | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ١ | ٢ | ٣ | ٤ | ٥ |
| ٥-١ | مکان تاریک | | | | | |
| ٥-٢ | روشن | | | | | |

| ٦ | میزان موافقت شما نسبت به هر یک از جملات زیر تا چه اندازه است؟ | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ١ | ٢ | ٣ | ٤ | ٥ |
| ٦-١ | شما احساس امنیت بیشتری در مکان های روشن میکنید به علت دید بهتری که دارید | | | | | |
| ٦-٢ | شما احساس امنیت بیشتری در مکان های روشن میکنید به علت حضور افراد بیشتر | | | | | |
| ٦-٣ | احساس امنیت شما در یک مکان ارتباطی با روشنایی یا تاریکی آن مکان ندارد | | | | | |

| | | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ١ | ٢ | ٣ | ٤ | ٥ |
| ٧ | به نظر شما نوشتن روی دیوار ساختمان دیگران یا شکستن شیشه ایستگاه اتوبوس تا چه اندازه جرم محسوب میشود؟ | | | | | |

| ٨ | به نظر شما هر کدام از این برخوردها تا چه میزان میتواند مانع ادامه یک فرد از آسیب رسانی بیشتر به ساختمان یا وسایل عمومی شود؟ | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ١ | ٢ | ٣ | ٤ | ٥ |
| ٨-١ | اطلاع به پلیس | | | | | |
| ٨-٢ | تذکر به فرد خاطی | | | | | |
| ٨-٣ | دیده شدن فرد خاطی توسط عابرین یا همسایگان | | | | | |

| ۹ | به نظر شما هر کدام از این عوامل تا چه حدی عامل و مشوق یک فرد به آسیب رسانی به اموال دیگران است؟ | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۹-۱ | عصبانیت | | | | | |
| ۹-۲ | مشکلات خانوادگی | | | | | |
| ۹-۳ | بیکاری | | | | | |
| ۹-٤ | خودنمایی در جمع دوستان | | | | | |
| ۹-٥ | انتقام گرفتن از کسی | | | | | |
| ۹-٦ | لذت بردن از ریسک و خطر کردن | | | | | |

| ۱۰ | به نظر شما میزان آسیب رسانی به اموال دیگران یا اموال دولتی در هر یک از زمانهای زیر چگونه است؟ | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۱۰-۱ | اوایل شب (ساعت ٦ بعد از ظهر تا ۱۲ شب) | | | | | |
| ۱۰-۲ | در طول شب (ساعت ۱۲ شب تا ٦ صبح) | | | | | |
| ۱۰-۳ | اوایل روز (ساعت ٦ صبح تا ۹ صبح) | | | | | |
| ۱۰-٤ | طول روز (ساعت ۹ صبح تا ٦ بعد از ظهر) | | | | | |

| ۱۱ | به نظر شما میزان آسیب رسانی به اموال دیگران در هر یک از مکان های زیر تا چه اندازه است؟ | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۱۱-۱ | مکان های خلوت | | | | | |
| ۱۱-۲ | مکان های شلوغ | | | | | |

| ۱۲ | به نظر شما میزان آسیب رسانی به اموال دیگران در هر یک از مکان های زیر تا چه اندازه است؟ | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۱۲-۳ | مکان های روشن | | | | | |
| ۱۲-٤ | مکان های تاریک | | | | | |
| ۱۲-٥ | مکان های نیمه روشن ، نیمه تاریک | | | | | |

۱۳ – به نظر شما افزایش میزان روشنایی در یک مکان میتواند مانع از آسیب رساندن یک فرد به آن مکان شود؟ بله ○ خیر ○

| ۱٤ | میزان موافقت شما نسبت به هر یک از جملات زیر در مورد افرادی که مرتکب آسیب رسانی به اموال دیگران میشوند تا چه اندازه است؟ | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۱٤-۱ | افرادی خاطی ترجیح میدهند که حین ارتکاب آسیب رسانی توسط دیگران دیده نشوند | | | | | |
| ۱٤-۲ | افراد خاطی مایل هستند که در مکانی مرتکب آسیب رسانی شوند که آن مکان توسط دیگران دیده شود | | | | | |

| ۱۵ | | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۱۵-۱ | تا کنون تا چه میزان در جلوگیری از آسیب رسانی افراد به محل مسکو نی اتان نقش داشته اید؟ | | | | | |
| ۱۵-۲ | تا چه میزان حاضرید در جلوگیری از آسیب رسانی افراد در محله مسکونی اتان مشارکت کنید؟ | | | | | |

| ۱٦ | به نظر شما هر کدام از این عوامل تا چه حد میتواند بازدارنده فرد از آسیب رسانی به اموال دیگران یا اموال دولتی شود؟ | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۱-۱٦ | حضور پلیس | | | | | |
| ۲-۱٦ | حضور افراد دیگر | | | | | |
| ۳-۱٦ | تاریکی مکان | | | | | |
| ٤-۱٦ | روشن بودن مکان | | | | | |
| ٥-۱٦ | تنبیه و جریمه | | | | | |
| ٦-۱٦ | دوربین های مدار بسته | | | | | |
| ۷-۱٦ | برنامه های آموزشی و آگاهی به افراد از طریق تلویزیون و یا رسانه ها | | | | | |
| ۸-۱٦ | برنامه های آموزشی در مدارس برای بچه ها | | | | | |

**۱۷- به طور کلی از سیستم روشنایی محله مسکونی اتان راضی هستید؟ بله◯ خیر◯**

| ۱۸ | | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۱-۱۸ | تا کنون تا چه میزان در جلوگیری از آسیب رسانی افراد به محل مسکو نی اتان نقش داشته اید؟ | | | | | |
| ۲-۱۸ | تا چه میزان حاضرید در جلوگیری از آسیب رسانی افراد در محله مسکونی اتان مشارکت کنید؟ | | | | | |
| ۲-۱۸ | میزان نارضایتی از تابش نور خیابان به منزل که باعث ناراحتی شما میشود | | | | | |
| ۳-۱۸ | میزان رضایت از رسیدگی به سیستم روشنایی (تعمیر و تعویض لامپ و غیره) | | | | | |

| | **لطفا با توجه به عکس های شماره ۱۰۱ تا ٤۰۱ پاسخ دهید:** | بسیار کم | کم | متوسط | زیاد | بسیار زیاد |
|---|---|---|---|---|---|---|
| | | ۱ | ۲ | ۳ | ٤ | ٥ |
| ۱۹ | به نظر شما میزان امنیت در محله ، در عکس شماره ۰۰A چقدر است؟ | | | | | |
| ۲۰ | به نظر شما تمایل یک فرد برای آسیب رساندن به مکان شماره ۰۰۱ چقدر است؟ | | | | | |
| ۲۱ | به نظر شما تمایل یک فرد برای آسیب رساندن به مکان شماره۰۰۲ چقدر است؟ | | | | | |
| ۲۲ | به نظر شما تمایل یک فرد برای آسیب رساندن به مکان شماره۰۰۳ چقدر است؟ | | | | | |

# APPENDIX F

Observation survey: photos

Picture 1001 - 001

Picture 1014 - 005

Picture 1019- 009

Picture 1003 - 002

Picture 1015 - 006

Picture 1020 - 010

Picture No. 5110- 003

Picture No. 1017- 007

Picture No. 1024- 011

Picture No. 1006- 004

Picture No. 1018- 008

Picture No. 1025- 012


Picture 1002 - 013

Picture 1009- 018

Picture 1004 - 014

Picture 1010 - 019

Picture 1005 - 015

Picture No. 1011- 020

Picture No. 1007- 016

Picture No. 1012- 021

Picture No. 1008- 017

Picture No. 1013- 022

Picture 1016 - 023

Picture 1027- 028

Picture 1021- 024

Picture 1028 - 029

Picture 1022 - 025

Picture No. 1029- 030

Picture No. 1023- 026

Picture No. 1030- 031

Picture No. 1026- 027

Picture No. 1031- 032

Picture 1033 - 033

Picture 1047- 038

Picture 1035- 034

Picture 1048 - 039

Picture 1037 - 035

Picture No. 5111- 040

Picture No. 1045- 036

Picture No. 5112- 041

Picture No. 1046- 037

Picture No. 5113- 042

Picture 5116 - 043

Picture 5121- 048

Picture 5117- 044

Picture 5123 - 049

Picture 5118 - 045

Picture No. 5124- 050

Picture No. 5119- 046

Picture No. 5122- 051

Picture No. 5120- 047

Picture No. 5125- 052

Picture 5126 - 053

Picture 5131- 058

Picture 5127- 054

Picture 5133 - 059

Picture 5128 - 055

Picture No. 5134- 060

Picture No. 5129- 056

Picture No. 5137- 061

Picture No. 5130- 057

Picture No. 5139- 062

Picture 5141/2 - 063

Picture 5146- 067

Picture 5141/2- 063

Picture 5147 - 068

Picture 5143 - 064

Picture No. 5148- 069

Picture No. 5144- 065

Picture No. 5149- 070

Picture No. 5145- 066

Picture No. 5150- 071

Picture 5151 - 072

Picture 5155/6- 076

Picture 5152- 073

Picture 5158 - 078

Picture 5153 - 074

Picture No. 5161- 079

Picture No. 5154- 075

Picture No. 5162- 080


Picture No. 5155/6- 076

Picture No. 5168- 081

Picture 5225 - 082

Picture 5234- 087

Picture 5227- 083

Picture 5235 - 088

Picture 5228 - 084

Picture No. 5236- 089


Picture No. 5232- 085

Picture No. 5237- 090

Picture No. 5233- 086

Picture No. 5238- 091

Picture 5242 - 092

Picture 5247- 097

Picture 5243- 093

Picture 5248 - 098

Picture 5244 - 094

Picture No. 5249- 099

Picture No. 5245- 095

Picture No. 5250- 100

Picture No. 5246- 096

Picture No. 5251- 101

Picture 5254 - 102

Picture 5260- 107

Picture 5255- 103

Picture 5261 - 108

Picture 5256 - 104

Picture No. 5262- 109

Picture No. 5258- 105

Picture No. 5263- 110

Picture No. 5259- 106

Picture No. 5264- 111


Picture 5265 - 112

Picture 5175- 117

Picture 5266- 113

Picture 5287 - 118

Picture 5267 - 114

Picture No. 5288- 119

Picture No. 5268- 115

Picture No. 5289- 120

Picture No. 5269- 116

Picture No. 5291- 121

Picture 5292 - 122

Picture 5297- 127

Picture 5293- 123

Picture 5298 - 128

Picture 5294 - 124

Picture No. 5301- 129

Picture No. 5295- 125

Picture No. 5302- 130

Picture No. 5296- 126

Picture No. 5303- 131

Picture 5305 - 132

Picture 5311- 137

Picture 5306- 133

Picture 5312 - 138

Picture 5307 - 134

Picture No. 5313- 139

Picture No. 5308- 135

Picture No. 5315- 140

Picture No. 5310- 136

Picture No. 5316- 141

Picture 5317 - 142

Picture No. 4147- 146

Picture 5319- 143

Picture No. 4148- 147

Picture 5320 - 144

Picture 4149- 148

Picture 1044 - 145

Picture 5173 - 149

Picture 5239 - 150

Picture 5251- 151

Picture 1032 - 152

Picture 1034- 153

Picture 1036 - 154

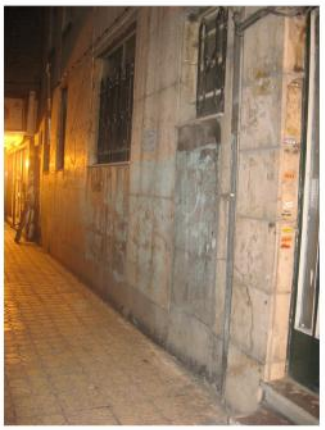
Picture No. 1038- 155

Picture No. 1039- 156

Picture No. 1040- 157

Picture No. 1041- 158

Picture No. 1042- 159



Picture No. 1043- 160

## PUBLICATIONS

### a) Papers Published in 2009-2010

Rezaee S., SP Rao & Arbi E. (2010). Vandalism in Tehran, Iran: Influence of some of the Urban Environmental Factors. Journal of Design and the Built Environment (JDBE). Volume 6. June 2010.

Rezaee S. (2009). A review on the effects of improved lighting to prevent crime. 4TH Asian Post Graduate Seminar, University Malaya. Faculty of the Built Environment. 14-16 April, 2009.

Rezaee S. (2009). The effects of Urban Environmental Factors to Prevent Vandalism in Tehran, Iran. International Conference on Communication for Sustainable Tomorrow. University Saint Malaysia. School of Communication. 9-11 December 2009.

Rezaee S., SP Rao & Arbi E. (2010). Vandalism In Urban Areas: Tehran, Iran. 5TH Asian Post Graduate Seminar, University Malaya. Faculty of the Built Environment. 1-2 November 2010

### b) Papers Submitted for Publication

Rezaee S., SP Rao & Arbi E. (2010). A Field Study of Perceptions by Juveniles on Vandalism in Tehran , Iran. *Pertanika* Journal of Social Sciences and Humanities (JSSH). University Putra Malaysia