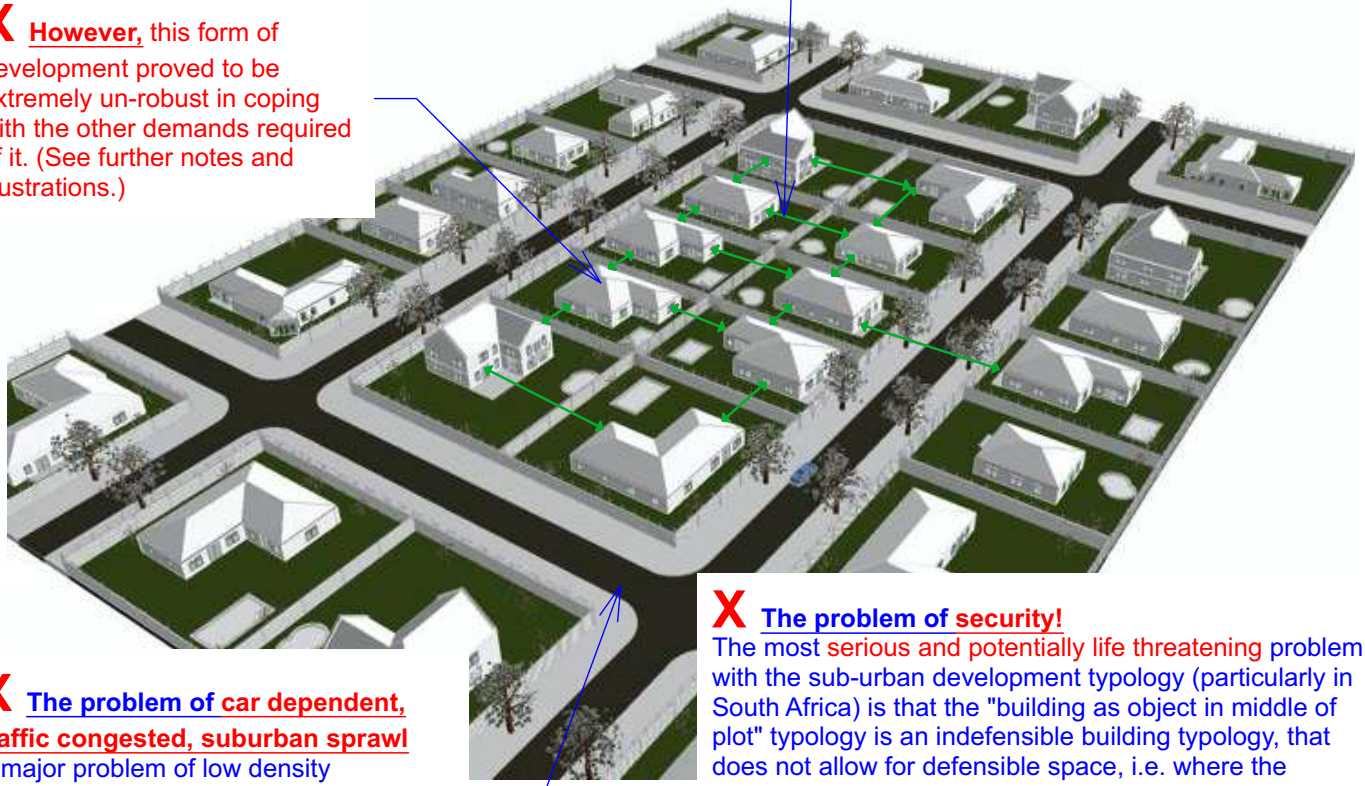
X Problems with sub-urban typology

Sub-urban conception of planning legislation!
The old Modernist "garden-city" conception of how best to do "town planning" was the belief in instituting planning laws that stipulated a low density sub-urban form of development. Buildings were required to sit in middle of plots by onerous street, side and back building lines and by doing so it was believed that this was the best way to protect for issues of over crowding, need for adequate sunlight, outdoor living space and sound and visual privacy.

(The legacy of this thinking still pervades as with SR1 plots bigger than 650m2 still being subject to side and back building lines)

X The problem with the sub-urban model
The problem with the sub-urban development typology is that it is entirely dependent on being low density to work at all. This is because the degree to which it does provide a measure of outdoor living space, visual and sound privacy is simply dependent on the degree to which the development is low density, and not for any design reasons.

X However, this form of development proved to be extremely un-robust in coping with the other demands required of it. (See further notes and illustrations.)



X The problem of car dependent, traffic congested, suburban sprawl
A major problem of low density development is that it makes traveling great distances necessary and at the same time public transport less viable because densities are low, hence therefore requiring individualised motorised transport that in turn creates the car dependent, traffic congested, suburban sprawl city with all the concomitant knock-on detrimental effects to the quality of life: such as up to 40% of awake hours and 40% of income spent on travel; environmental degradation; economic impoverishment; etc.

X The problem of security!
The most serious and potentially life threatening problem with the sub-urban development typology (particularly in South Africa) is that the "building as object in middle of plot" typology is an indefensible building typology, that does not allow for defensible space, i.e. where the building can be used as the device to define public front as distinct from a secure private back inaccessible from the street except through a garage or a "poort".

X This has lead to desperate measures with people thinking the only way to secure their properties was by razor wire, electric fences, and higher and higher walls built on the street boundaries or by buying into a so called "gated community".

X The truth is that neither solves the problem satisfactorily and in actual fact only **makes the problem worse for all!**

FHVRRA Designing for Safety
Sub-urban (30% Coverage)- as shown with 600m2 plots & 900m2 corner plots.

X Problems with sub-urban typology

X The problem of security!

The problem with the "Modernist" sub-urban "garden-city" conception of how to do "town planning" was that forcing buildings to sit in middle of plots by onerous street, side and back building lines creates an indefensible building typology, i.e. one that does not allow for defensible space as had been done pre "Modernism" since even before Roman times whereby the building is used as the device that defines public front as separate from and screened off from private secured backs.

This has lead to people building higher and higher walls on the street boundaries and then adding more and more razor wire, electric fences, CCTV cameras, and paying huge amounts each month to security companies to do their street surveillance for them and so on, all to try and restore some safety and security!

X No "eyes on street" surveillance

Anybody breaking into cars in the street, accosting people in the street, hijacking residents as they wait for their security gates to open, jumping over the perimeter walling, or whatever the case may be, can do so without being seen by residents from the comfort and security of their own homes.

There is no effective "neighbourhood watch" of the public realm.

X The tragic truth and irony is that none of this solves the problem satisfactorily and in actual fact only **makes the problem worse for all!**

X Compromised Public Space

Street interface dead and unsafe, walled in corridors with little or no "eyes on street" surveillance.

The street has become a "muggers alley".

X Compromised Private Space

Private space abutting public space, therefore in conflict. No inherent security provided by building fabric, resulting in high walls and electric fences built abutting street in an attempt to restore privacy and security.

X Problems with sub-urban typology
(How NOT to densify! "Bloated" Sub-urban Typology)

X How NOT to densify!

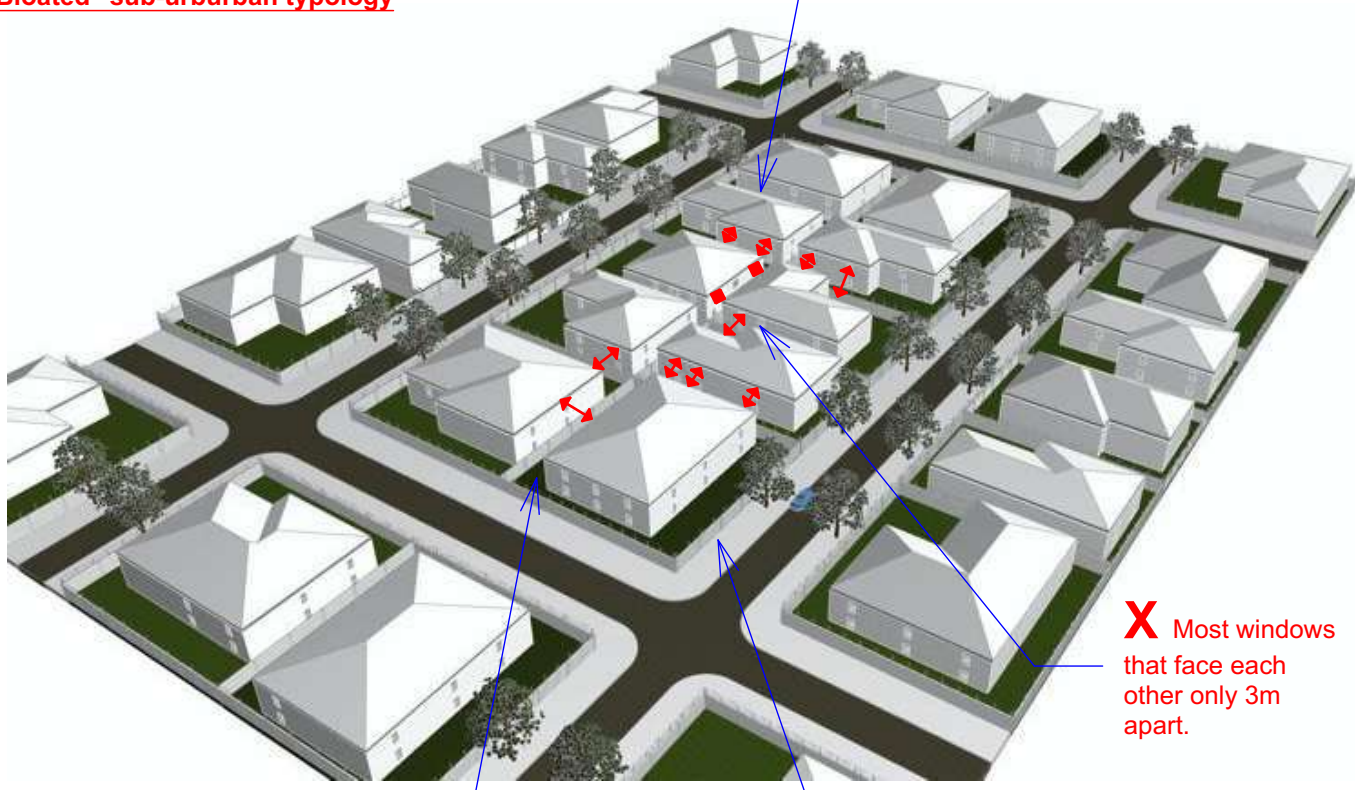
As noted previously, the problem with the sub-urban development typology is that **it is entirely dependent on being low density to work at all**. This is because the degree to which it does provide a measure of outdoor living space, visual and sound privacy is simply dependent on the degree to which the development is low density, and not for any design reasons.

This means it is the very worst basis on which to densify!!!
The result is the worst of both

"Bloated" sub-urburban typology

X Compromised Living

- X Compromised visual and sound privacy.
- X Compromised views and sunlight.
- X Compromised building cost efficiency.
- X Compromised use of site.
- X Compromised security.



X Most windows that face each other only 3m apart.

X Compromised Private Space

Private space abutting public space, therefore in conflict. No inherent security provided by building fabric, resulting in high walls and electric fences built abutting street in an effort to restore privacy and security.

X Compromised Public Space

Street interface dead and unsafe, walled in corridors with little or no "eyes on street" surveillance.

X Note how badly compromised this form of development is even though by urban standards the degree of densification shown is still relatively low, The illustration shows the plots developed only to a coverage of 50% and only to a bulk factor of only 1, as double storey units.

FHVRRA Designing for Safety
Sub-urban (50% Coverage)- as shown with 600m2 plots & 900m2 corner plots

✓ Virtues of Perimeter Block Urbanism as a typology

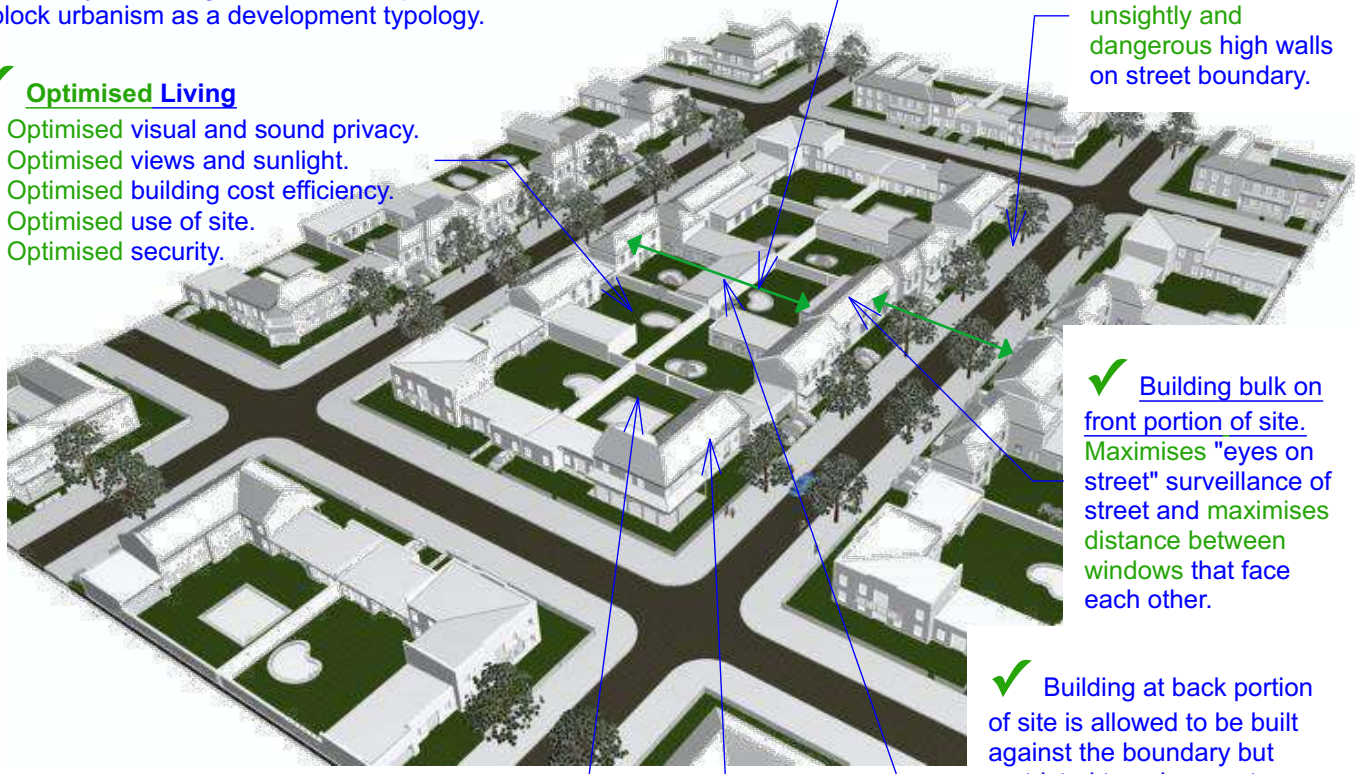
Urban development typology vs the same density done using the "bloated" suburban development typology
Note how when an urban development typology is employed, sound and visual privacy, access to sunlight, usable private open space and security is staggeringly better than when the same densities and coverage is done using the "bloated" suburban typology for the same plot sizes. (See previous illustration)

Urban typology vs low density sub-urban development typology
Note also that levels of sound and visual privacy, access to sunlight, usable private open space achieved are actually still higher than for low density sub-urban developments on the same plots sizes, and this is despite the increased density. This is the "win win" of perimeter block urbanism achieved because of the design efficiency and design robustness of perimeter block urbanism as a development typology.

✓ Windows that face each other 23m apart. (Compared to only 3m apart when the sub-urban typology is used to try and achieve the same densities on the same size plots.)

✓ No need for unsightly and dangerous high walls on street boundary.

✓ **Optimised Living**
- ✓ Optimised visual and sound privacy.
- ✓ Optimised views and sunlight.
- ✓ Optimised building cost efficiency.
- ✓ Optimised use of site.
- ✓ Optimised security.



✓ Building bulk on front portion of site. Maximises "eyes on street" surveillance of street and maximises distance between windows that face each other.

✓ Building at back portion of site is allowed to be built against the boundary but restricted to only one storey. Maximises back privacy and security and maximises distance between windows that face each other.

✓ **Optimised Private backs**
Secure, private outdoor space, as garden outdoor living et cetera, protected by continuous "perimeter block" building fabric.

✓ **Optimised Public fronts**
Positive street interface keeps streets safe with "eyes on street" surveillance. Continuous building frontage protects private backs, therefore no need for unsightly and dangerous high walls on street boundary.

FHVRRA Designing for Safety
Perimeter Block Urbanism - as shown with 600m2 plots & 900m2 corner plots with 50% coverage

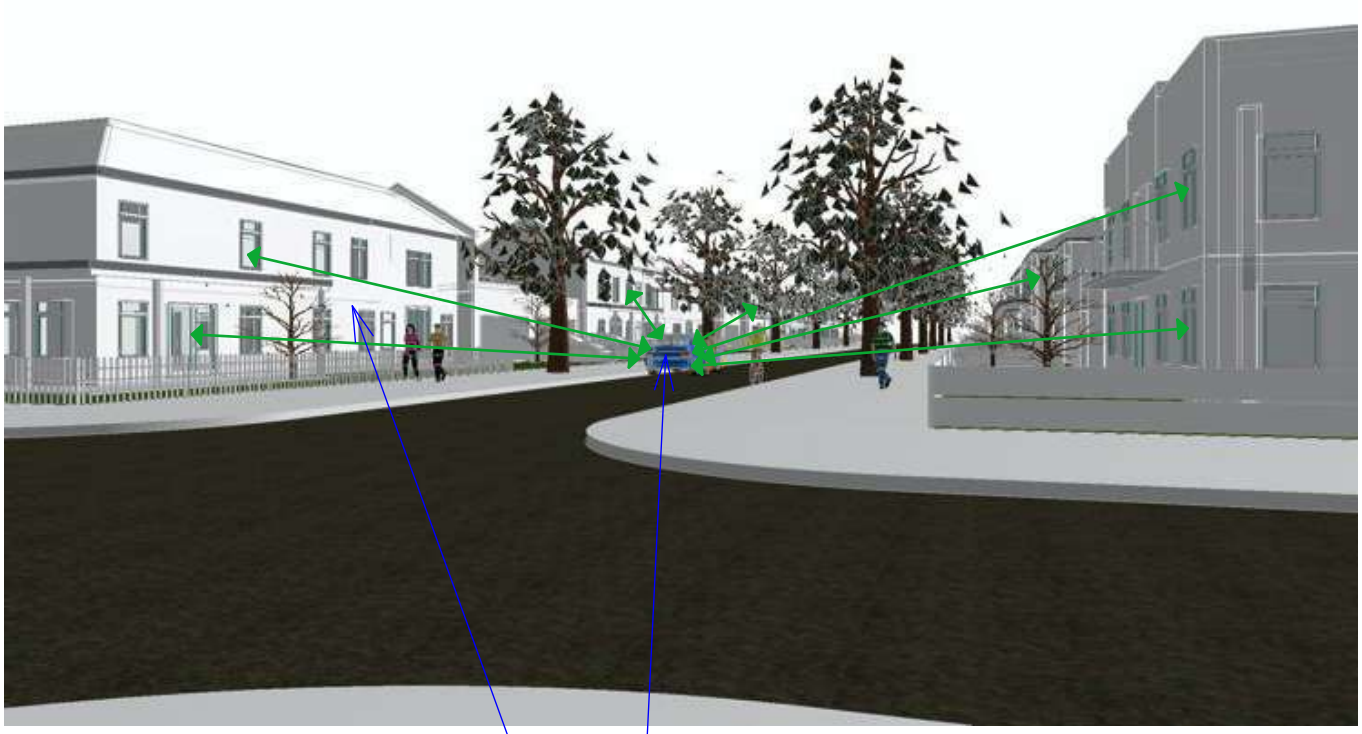
✓ Virtues of Perimeter Block Urbanism as a typology

✓ The problem of security - SOLVED

Note how the most serious and potentially life threatening problem (as in South Africa) with the sub-urban development typology is so dramatically reversed simply by going back to the old tried and tested way this problem has been solved for centuries. That is buildings addressing the street positively, "standing shoulder to shoulder", to serve as the device that distinguishes public front as separate from secure private backs.

✓ Public fronts are kept secure by virtue of the fact that everyone can see what goes on in the public realm.

✓ Pricate backs are kept safe and secure simply by being inaccessible from the street except via access through a building (be that a garage or some other gate or "poort").



✓ Positive public fronts

Positive street interface keeps streets safe with "eyes on street" surveillance.
Continuous building frontage protects private backs.
The street has become a "community".
Simple robust security without the need for razor wire, electric fences, and higher and higher walls. Street layouts can be democratic, permeable and efficient. No need for people to barricade themselves into so-called "gated community" ghettos.

✓ "Eyes on street" surveillance

Anybody attempting to break into cars in the street, accost people in the street, or break in through a front door or window, can be seen doing so by the entire neighbourhood community. This is true "neighbourhood watch" where ordinary citizens young and old can check out a disturbance in the street from the comfort and security of their own homes simply by going to a window and peering through the curtains. This is "neighbourhood watch" as it should be, keeping watch of "the public realm" and not into other peoples private back gardens.

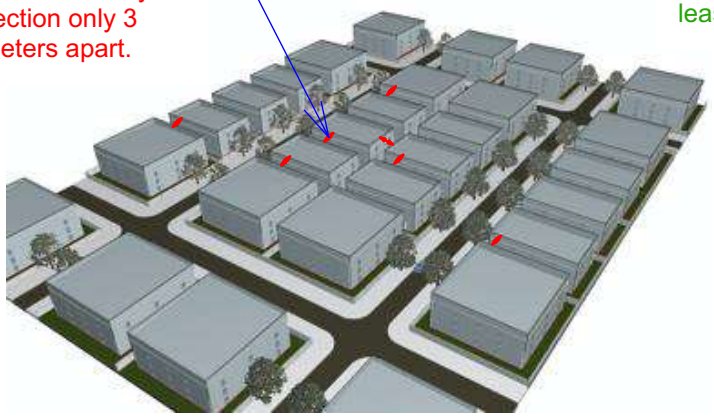
FHVRRA Designing for Safety
Perimeter Block Urbanism - as shown with 600m2 plots & 900m2 corner plots with 50% coverage - Street view

Building Envelope - Comparative Analysis

The illustration below is of the same typical 600m2 sites 20m wide x 30m deep (corner plots 900m2 30x30m built to building lines of 3m). On the left is shown permissible building envelope as per the sub-urban development typology. On the right is shown permissible building envelope as per the perimeter block urban development typology. Note that permissible building envelope does not mean that the entire building envelope can be built up simultaneously such that the backs of properties can be covered boundary to boundary. Restrictions on coverage or bulk factor ("floor factor") still apply preventing this.

Sub-urban development typology

X Permissible building envelope for multi-storey section only 3 meters apart.



Urban development typology

✓ Permissible building envelope for multi-storey section at least 20 meters apart.

X Extremely compromised use of space.

X Because of the need to accommodate high density the distance between buildings gets reduced to a minimum. This effectively defeats the whole "Garden City" idea of buildings surrounded by spacious garden landscape.
X As buildings are forced to sit central in each plot, the remaining out door space is fragmented into residual side space corridors between the buildings.
X Buildings prohibited from straddling the street frontage allows burglars easy access to back of properties where they can not be seen breaking and entering.
X Requires costly high wall perimeter security fence/ walling which cuts the buildings off from the street and makes the street unsafe. (People typically hijacked in the street as they wait for their driveway security gate to open.)
X This building typology necessitates that windows and doors face neighbours.
X All windows and doors tend to face opposing neighbours deflecting sound outwards towards neighbours.

✓ Therefore inherent efficient use of space.

✓ Buildings can abut side and rear boundaries at ground level and can straddle street frontage on upper floors in the front half of the site.
✓ Private outdoor living is achieved without the need for high walls to be built to screen off the street.
✓ As neighbour's buildings serve as back boundary walls there is often no need for additional boundary walls. (Because when buildings are built against boundaries there are no doors or windows facing neighbours, hence no issues of compromised privacy and security.
✓ On adjacent sides and on single storey sections there is no overshadowing of neighbouring doors and windows as windows and doors face away from common walls.
✓ Street and street frontage protected by automatic neighbourhood watch "eyes on street" (Anyone trying to break in from the front can be easily seen from all angles.)
✓ All ground floor windows and doors tend to face into private garden courts deflecting sound inwards.

FHVRRA Designing for Safety
Perimeter Block Urbanism - as shown with 600m2 plots & 900m2 corner plots built to building lines

✓ How to densify, converting suburbia to perimeter block urbanism

✓ How to densify!

Illustrated, is how the original low density suburban buildings (shown in white) can be added to (shown as buildings with grey roofs) to create the same high functioning safe and secure perimeter block urbanism of the same bulk and coverage of the previous example.

NOTE: If this is to be achieved, the granting of rights to increase density, i.e. for additional bulk and coverage (be that for bigger houses or for second or even third dwellings) **NEEDS to be subject to it being developed on an urban typology as in accordance with the basic principles of perimeter block urbanism and good urban design.**

If this is not done then the project fails!

✓ Windows that face each other at the same distance apart or better than that achieved with low density suburbia. (Compared to only 3m apart achieved with the "bloated" sub-urban typology for the same densities on the same size plots.)

✓ No need for unsightly and dangerous high walls on street boundary.

✓ Building bulk on front portion of site. Maximises "eyes on street" surveillance of street and maximises distance between windows that face each other.

✓ **Optimised Living**

- ✓ Optimised visual and sound privacy.
- ✓ Optimised views and sunlight.
- ✓ Optimised building cost efficiency.
- ✓ Optimised use of site.
- ✓ Optimised security.

✓ Building at back portion of site is allowed to be built against the boundary but restricted to only one storey. Maximises back privacy and security and maximises distance between windows that face each other.

✓ **Optimised Private backs**

Secure, private outdoor space, as garden outdoor living et cetera, protected by continuous "perimeter block" building fabric.

✓ **Optimised Public fronts**

Positive street interface keeps streets safe with "eyes on street" surveillance. Continuous building frontage protects private backs, therefore no unsightly and dangerous high walls on street needed.

FHVRRA Designing for Safety

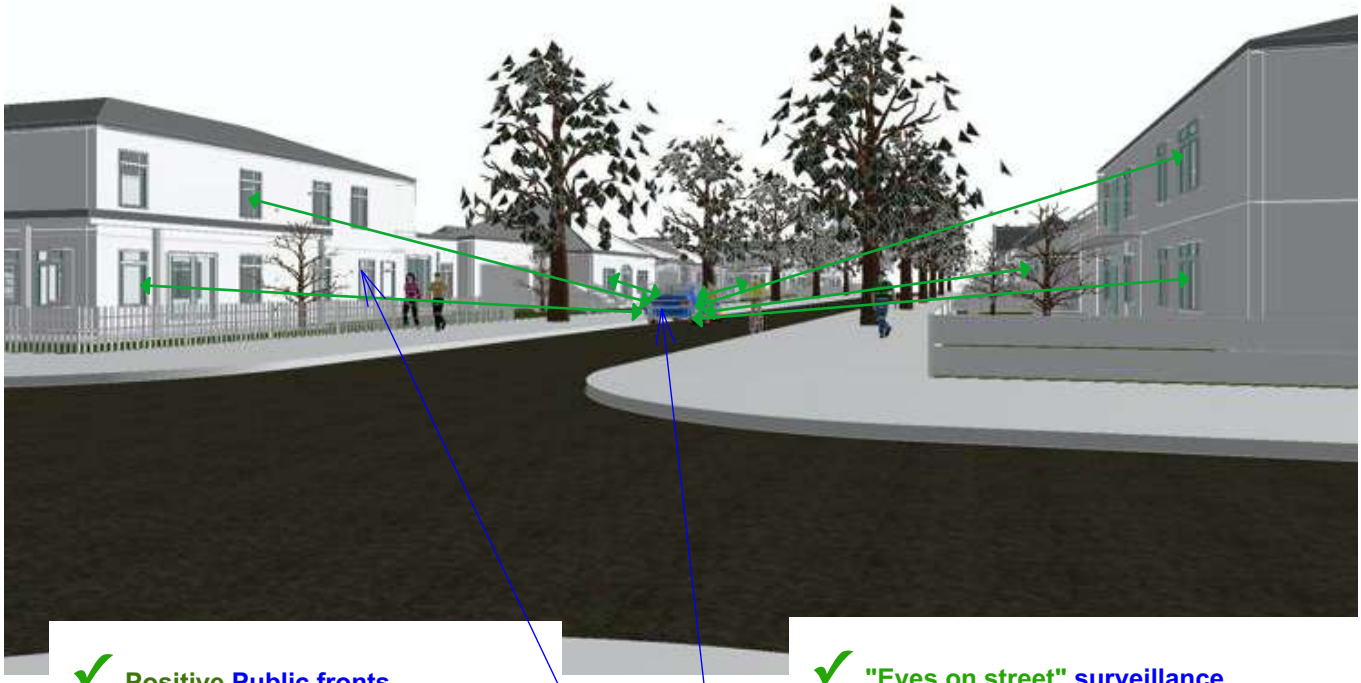
Sub-urban converted to Urban - showing 30% coverage increased to 50% coverage

✓ How to densify, converting suburbia to perimeter block urbanism

✓ How to densify!

Illustrated, is a street view of that same model of the previous illustration showing how low density suburbia can be converted into high functioning safe and secure perimeter block urbanism of the same bulk (bulk factor of 1) and coverage (coverage of 50%) of the previous example.

NOTE: To achieve this, the granting of rights to increase density, i.e. for additional bulk and coverage (be that for bigger houses or for second or even third dwellings) **needs** to be subject to being developed on an urban typology **as in accordance with the basic principles of perimeter block urbanism and good urban design**, i.e. such that the extra build bulk be massed at the front part of the property and used to straddle the street frontage to create the continuous building frontage to secure the private backs and that such a buildings be designed to respect the street with "eyes on the street' surveillance with **no visually impermeable high walls built on the street boundary**.



✓ Positive Public fronts

Positive street interface keeps streets safe with "eyes on street" surveillance. Continuous building frontage protects private backs.
The street has become a "community". Simple robust security without the need for razor wire, electric fences, and higher and higher walls. Street layouts can be democratic, permeable and efficient. No need for people barricade themselves in so-called "gated community" ghettos.

✓ "Eyes on street" surveillance

Anybody attempting to break into cars in the street, accost people in the street, or break in through a front door or window, can be seen doing so by the entire neighbourhood community. This is true "neighbourhood watch" where the neighbourhood can keep watch from the comfort and security of their own homes. This is "neighbourhood watch" of what they should be keeping watch of, i.e. of "the public realm" and not into other peoples private back gardens.

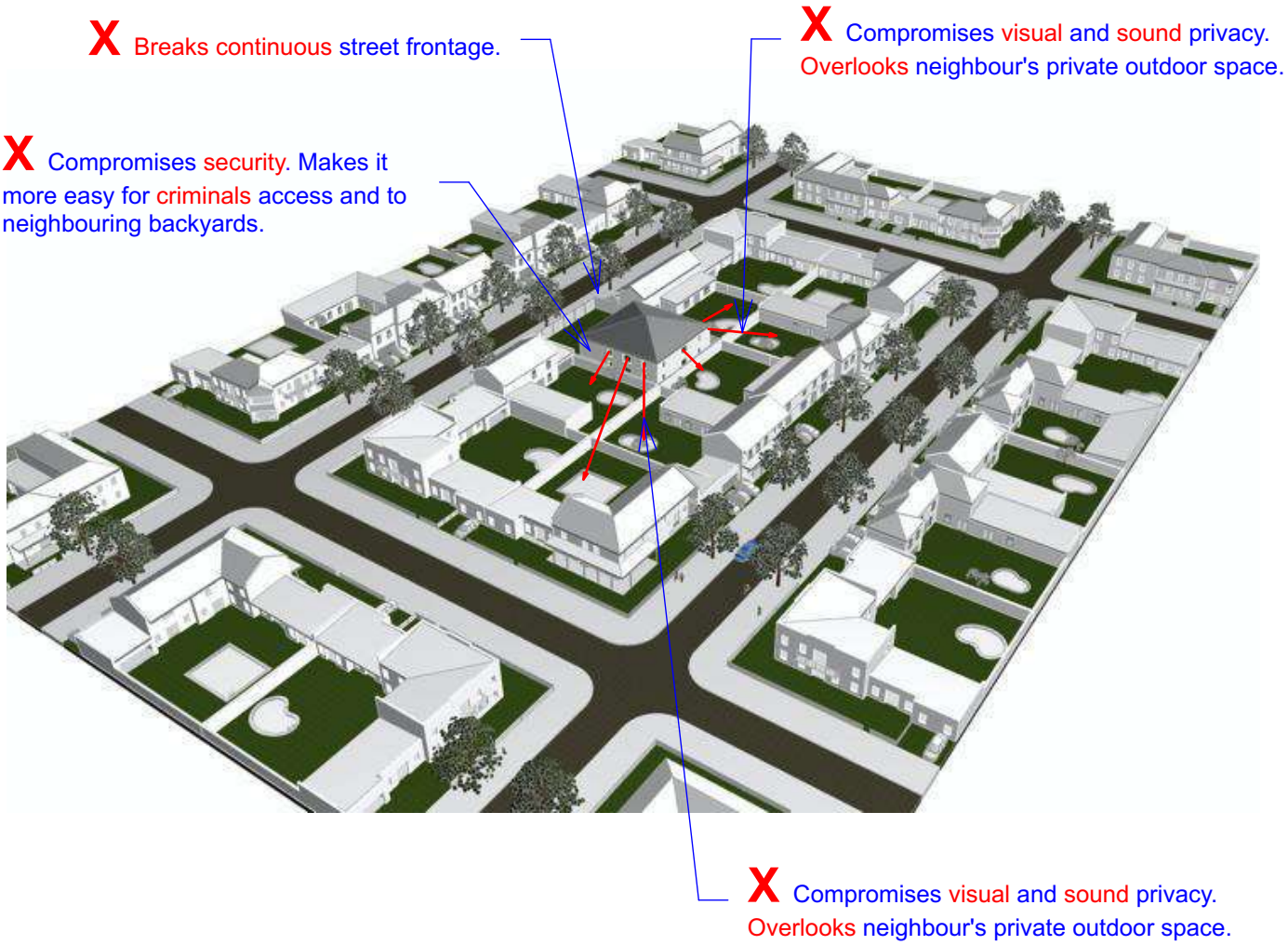
X Problems caused by building above one storey at back of plots

X **Suburban double storey building at back of plot**

X Breaks continuous street frontage.

X Compromises security. Makes it more easy for criminals access and to neighbouring backyards.

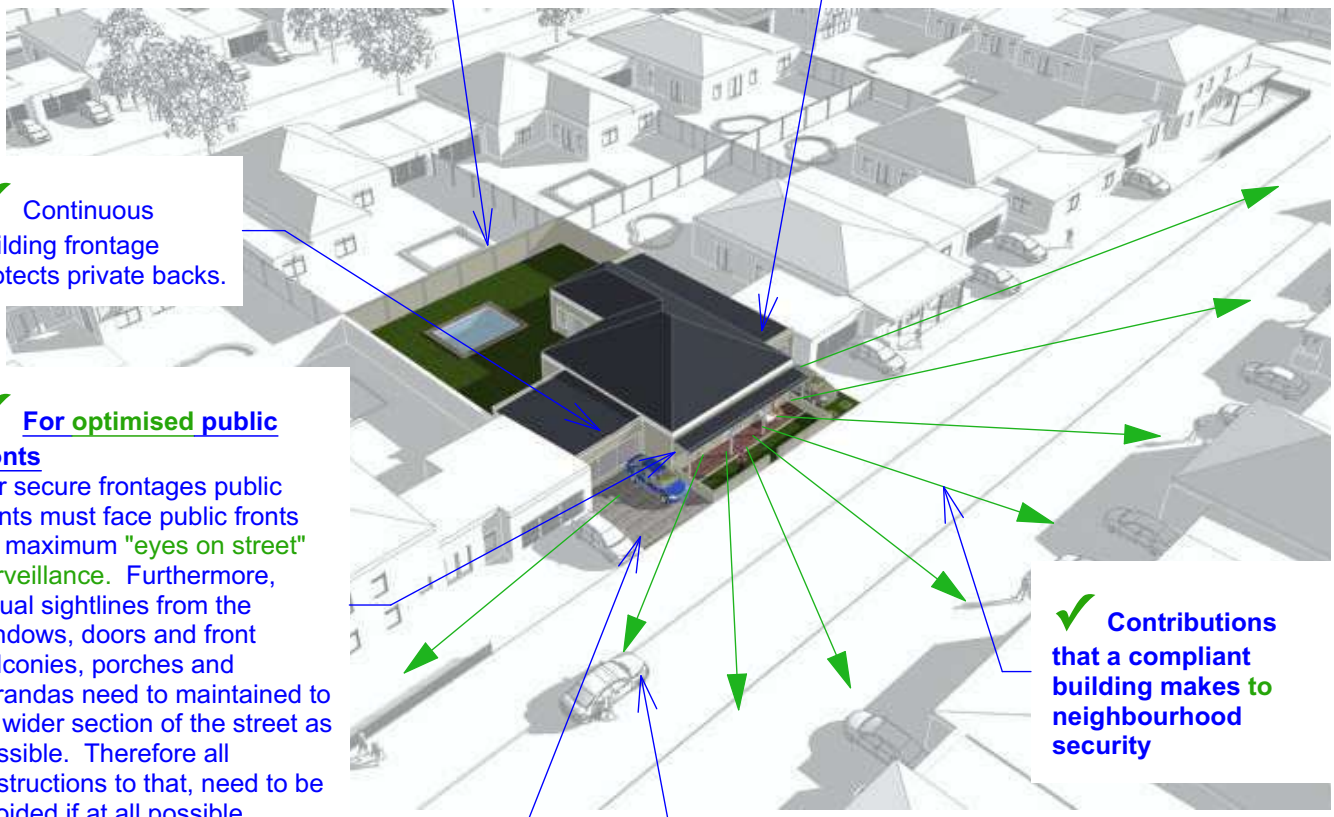
X Compromises visual and sound privacy. Overlooks neighbour's private outdoor space.



✓ Contribution that a compliant building makes to neighbourhood security

✓ **For optimised private backs**
For secure, private outdoor living, private backs must abut other private backs so the **high walls** between them are of mutual benefit, enhancing both privacy and security for both.

✓ **High walls** or **infill building**
Straddling the site across the street frontage at this point, in line with the street building line, is to be encouraged as it protects private backs.



✓ Continuous building frontage protects private backs.

✓ **For optimised public fronts**
For secure frontages public fronts must face public fronts for maximum "eyes on street" surveillance. Furthermore, visual sightlines from the windows, doors and front balconies, porches and verandas need to maintained to as wider section of the street as possible. Therefore all obstructions to that, need to be avoided if at all possible.

✓ **Contributions that a compliant building makes to neighbourhood security**

High walls or any other type of walling or fencing with limited visual permeability therefore **should not be allowed** on the street boundary or anywhere forward of the front street building line (typically 3,5m for SR1)
Visually permeable palisade railing or clear view fencing on front boundary is no problem.

✓ **Maximised "eyes on the street" surveillance** significantly decreases crime because of significantly increasing the chance of criminal behaviour being detected. Anybody attempting to break into cars in the street, accosting people in the street, or break in through a front door or window can be seen doing so by the entire neighbourhood community.

Massing study only,
(Architecture shown is only notional)

Designing for safety

Understanding basic principles on how to design for safety and security in our homes and streets

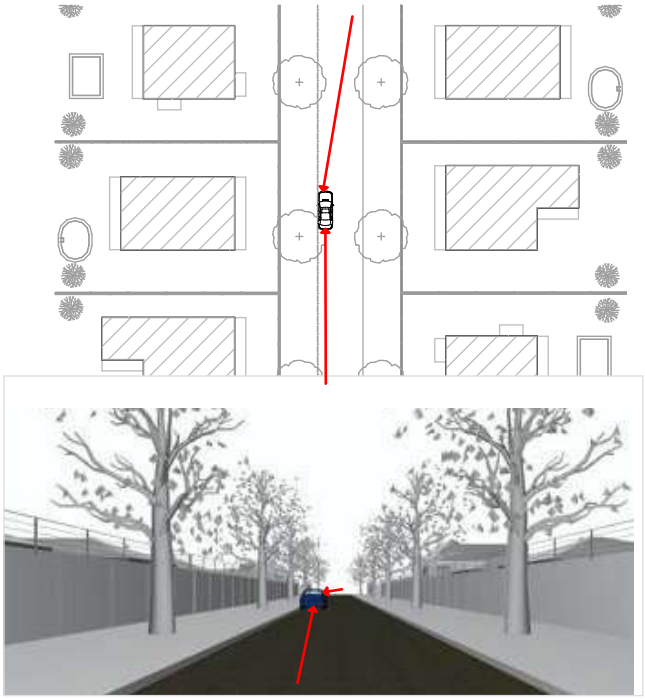
"Eyes on street" factor

Safe Streets - Comparative Analysis

It is widely accepted that our safety in our homes is linked to safety in our streets. Safe streets are where the neighbourhood can watch. Following is a way to estimate the "eyes on street factor"

Poor

Neighbourhood surveillance



• **Street interface dead and unsafe**. Streets as walled in corridors with little or no "eyes on street" surveillance. Street has become a "muggers alley".
• **Facilitates criminal behaviour going undetected.** Anybody breaking into cars in the street, accosting people in the street, hijacking residents as they wait for their security gates to open, jumping over the perimeter walling, or what ever the case may be, can do so without being seen by residents from the comfort and security of their own homes.

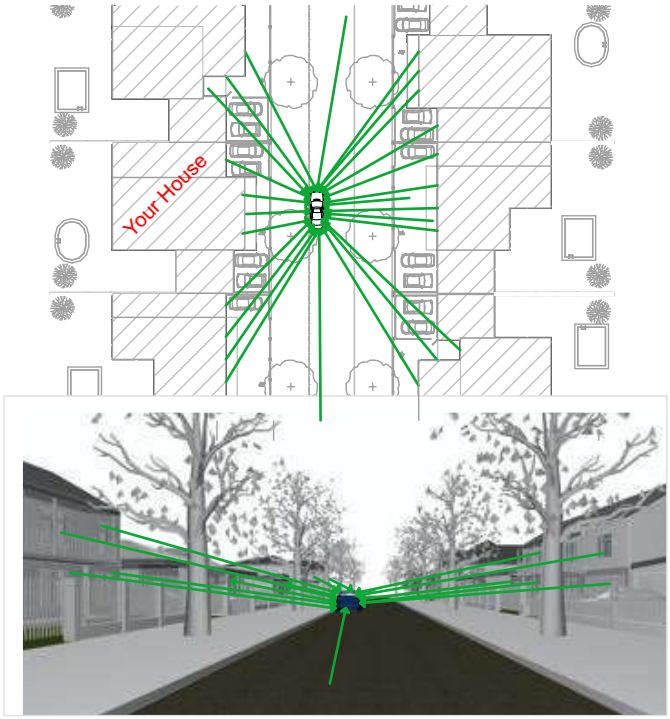
There is no effective "neighbourhood watch" of the public realm. Therefore extremely compromised safety.

X Poor "eyes on street" surveillance.

"Eyes on street" calculations (as calculated for the car in front of your house)	
Your contribution	
From your front garden	0
From your balcony/stoep/verandah	0
From your windows & doors	0
Total	0
Your neighbours contributions	
From their front gardens	0
From their balcony/stoep/verandahs	0
From their windows & doors	0
Total	0
Street contributions	2
"Eyes on street" in front of your house - **Total**	2

Good

Neighbourhood surveillance



• **Positive street interface.** Keeps streets safe with "eyes on street" surveillance. Continuous building frontage protects private backs.

• **Significantly increases the chance criminal behaviour being detected.** Anybody attempting to break into cars in the street, accosting people in the street, or break in through a front door or window can be seen doing so by the entire neighbourhood community. This is "neighbourhood watch" where the neighbourhood should be keeping watch i.e. of "the public realm" and not into one's private back gardens.

There is effective "neighbourhood watch" of the public realm. Therefore extremely enhanced safety.

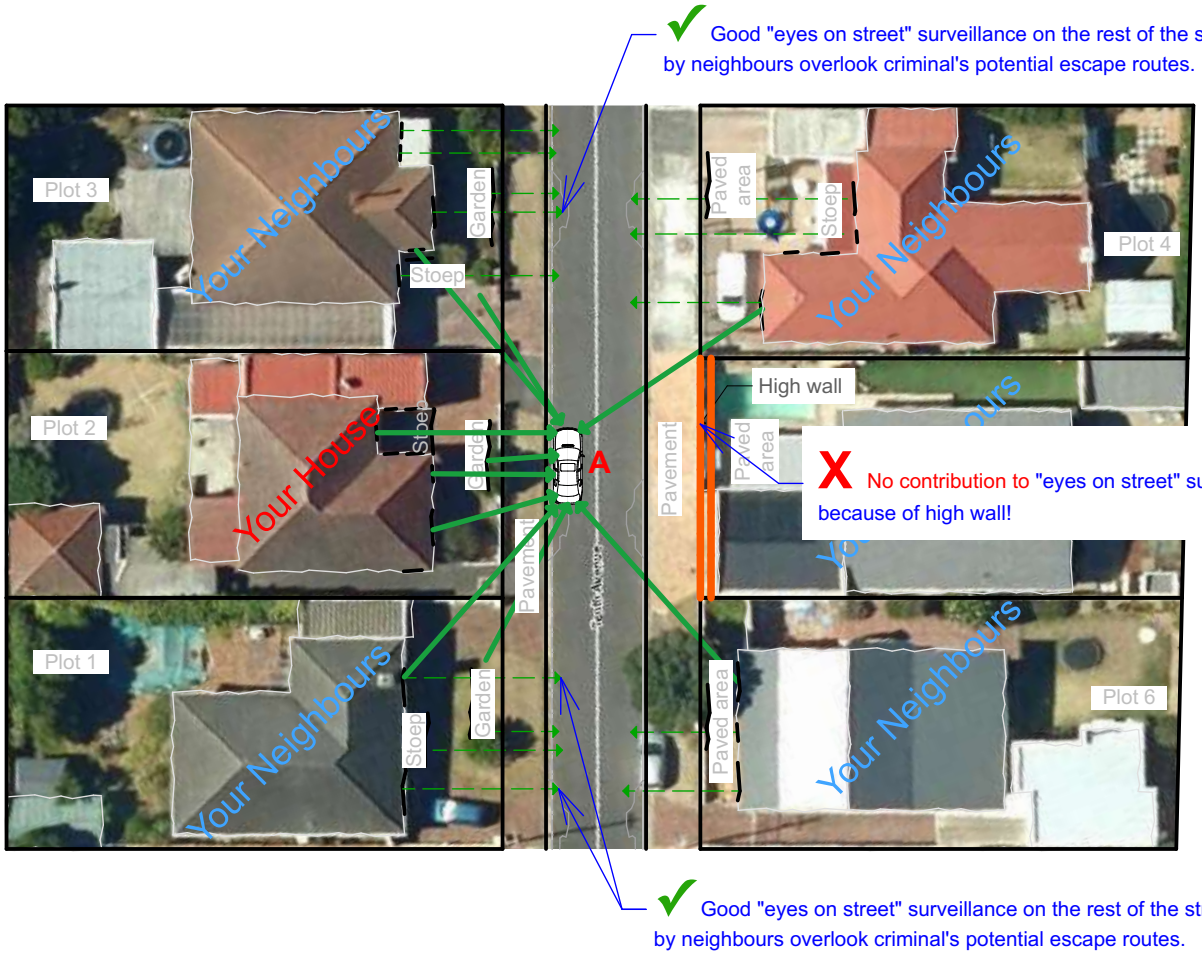
✓ Good "eyes on street" surveillance.

"Eyes on street" calculations (as calculated for the car in front of your house)	
Your contribution	
From your front garden	1
From your balcony/stoep/verandah	1
From your windows & doors	4
Total	6
Your neighbours contributions	
From their front gardens	6
From their balcony/stoep/verandahs	6
From their windows & doors	17
Total	29
Street contributions	2
"Eyes on street" in front of your house - **Total**	**37**

"Eyes on street" Factor
Safe streets - Comparative Analysis (Urban converted)

Calculate your "Eyes on street" factor - Worked example

Your contribution, Neighbours contribution and Street contributions



"Eyes on street" calculations (as calculated for the car in front of your house)	
Your contribution	
From front garden	1
From balcony/stoep/verandah	1
From windows & doors	3
Total	5
Your neighbours contributions	
From their front gardens/paved area	4
From their balcony/stoep/verandahs	4
From their windows & doors	6
Total	14
Street contributions	2
"Eyes on street" in front of your house - **Total**	**21**

Instructions

• Draw a rough sketch over example sketches of your street frontage that show stoeps, verandahs, windows, doors that face the street vs boundary walls that obscure views of the street.

• Stand in position marked A (representing a pedestrian or a parked car vulnerable to attack).

• Put yourself into the mind of a criminal assessing the odds of getting away with committing the crime of accosting the person walking along your pavement at that point; or breaking into the car; or climbing over the boundary fence; or hijacking one as one enters one's driveway. Count "eyes on street" i.e. from how many potential places could someone see the criminal behaviour from, windows overlooking the street, from the garden, from a stoep or verandah etc. should a car alarm go off or someone shout for help.

• Fill in the table and comment on your contribution, vs your neighbour's contribution to your and your neighbour's safety and security.

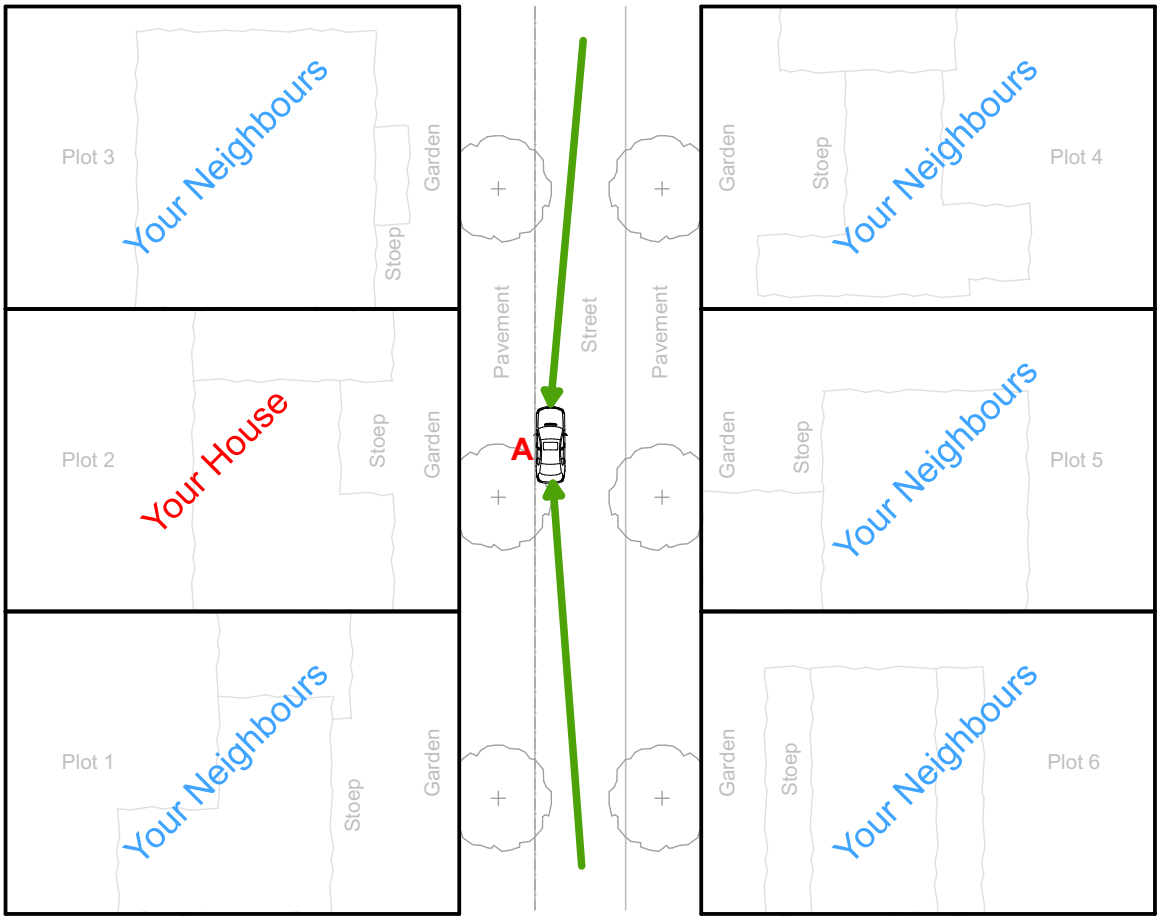
Findings.

• Plot 2, My house contributes well to "Neighbourhood watch" security.
• Fortunately most of my neighbours contribute well too.
• Unfortunately my neighbour opposite contributes nothing…!

"Eyes on street" Factor
"Eyes on street" Factor calculations (Worked example)

Calculate your "Eyes on street" factor

Your contribution, Neighbours contribution and Street contributions .



"Eyes on street" calculations (as calculated for the car in front of your house)	
Your contribution	
From front garden	
From balcony/stoep/verandah	
From windows & doors	
Total	
Your neighbours contributions	
From their front gardens	
From their balcony/stoep/verandahs	
From their windows & doors	
Total	
Street contributions	
"Eyes on street" in front of your house - **Total**	

Instructions

• Draw a rough sketch over example sketches of your street frontage that show stoeps, verandahs, windows, doors that face the street vs boundary walls that obscure views of the street.

• Stand in position marked A (representing a pedestrian or a parked car vulnerable to attack).

• Put yourself into the mind of a criminal assessing the odds of getting away with committing the crime of accosting the person walking along your pavement at that point; or breaking into the car; or climbing over the boundary fence; or hijacking one as one enters one's driveway. Count "eyes on street" i.e. from how many potential places could someone see the criminal behaviour from, windows overlooking the street, from the garden, from a stoep or verandah etc. should a car alarm go off or someone shout for help.

• Fill in the table and comment on your contribution, vs your neighbour's contribution to your and your neighbour's safety and security.

Your findings, comments.

"Eyes on street" Factor

Calculate your "Eyes on street" Factor