Rodney DISTRICT COUNCIL

Rodney's urban design and how it WILL encourage walking

Real world

Masdar – Abu Dhabi

Big picture and the public realm

THIRD DRAFT

building on opportunity

URBAN DESIGN, THE RMA, AND WIN-WINS IN THE DEVELOPMENT PROCESS

Rodney DISTRICT COUNCIL

RDC making a positive difference

RESPONDING TO THE COAST, EDGES, WATERWAYS, AND LINKAGES

The connection between people and our coast, distinctive vegetation, landforms and unique waterways is a defining characteristic of our identity. The retention and integration of these elements into a development is a key method of providing character and a sense of amenity for users. It is also one of the best ways of meaningfully improving ecological values and environmental protection. If done properly these will commonly combine to deliver higher, consistently stable property values over time.

It is now common for development to 'back' onto these valuable features where they are typically fenced off (for the privacy and security of property owners); their value is reduced through poor interfaces along the edges; they become enclosed out of the public eye; and their accessibility to the general public is reduced. Another critical reason for incorporating such features into development relates to safety. Development that provides good connections and 'frontage' to these features provides an opportunity for activity to result in the see-and-be-seen principle of natural surveillance. This has been demonstrated to be a successful crime deterrent.

LANDSCAPING CAN ENHANCE IDENTITY

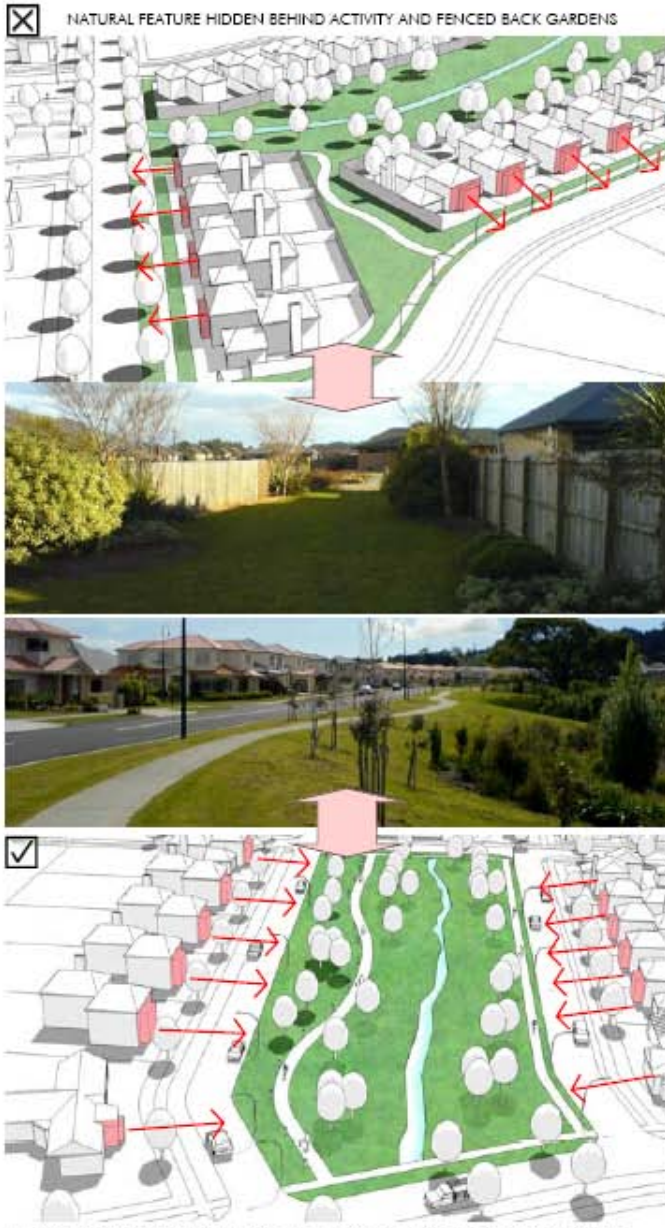
Street trees should be provided on all roads with a species type reflecting local character and vegetation where appropriate. They contribute to micro-climate, pedestrian amenity and shade, identity, and are increasingly looked at in the context of climate change and potential carbon credits (such as for the mitigation of the effects of vehicle emissions). Careful species selection is important to ensure adequate passive surveillance and clean sightlines. Contact the Council for more assistance with species choice.

ENVIRONMENTAL EFFECTS TO WATCH OUT FOR INCLUDE:

- → **Retained flora contributes to habitat, improving biodiversity and amenity for residents and users.**
- → **Careful species selection having regard to crime avoidance principles (such as ensuring dense foliage is located above eye level) improves safety for users of features by ensuring they are within sight of activity and other people.**
- → **As areas intensify and 'infill' over time, the loss of vegetation can place significant pressure on street trees and vegetation in reserves to serve as the only available biodiversity corridors for many birds and other fauna. The species-selection of street trees should accordingly reflect an appropriate consideration of this function.**
- → **Poorly integrated features will be less used. This loss of potential activity represents an inefficiency that is an effect on the community's social and economic well-being.**
- → **Effective pedestrian-friendly environments help reduce vehicle use, emissions, and congestion on roads.**

MORE INFORMATION / RELEVANT TO:

- Best Practice Subdivision Guideline, Kapiti Coast District Council;
- Looking after the Natural Environment, Rodney District Council;
- The Value of Public Space: How High Quality Parks and Open Spaces Create Economic, Social, and Environmental Value, CABE, UK;
- Vision Rodney & Long Term Plan, Rodney District Council (character, identity, and sense of place).



SITE ANALYSIS AND RESPONSE

SITE AND CONTEXT ANALYSIS

The most critical element of successfully designing to avoid, remedy, or mitigate adverse effects lies in understanding how a proposal will react and interact with its environment. A quality site and context analysis is a fundamental tool in this.

The reality of many quality designs is that most of the 'concept' is in fact nothing more than a logical response to what is already going around that design. The most inspiring, successful, liveable built environments across history as well as today are the ones that allow intuitive, easy use. They are compatible with the surrounding built form while still incorporating enough identity and originality to make a clear statement about who, where, and what the users are all about.

An important part of a quality context analysis relates to the 'intended' outcomes of the District Plan and other strategic policies (the Auckland Regional Growth Strategy for example). Early discussions with the Council to affirm a common view of what the combined package of policies mean for a development will help inform the best use of a site.

ENVIRONMENTAL EFFECTS TO WATCH OUT FOR INCLUDE:

- → **Site and context analysis will identify where reverse sensitivities and operational conflicts will or may arise.**
- → **Identified adverse effects will be much more than basic site-related ones of site coverage and intensity, building height and so on. Sustainable management is more related to how a development will actually 'work' with and within the environment around it.**
- → **Analysis will identify many 'incremental' adverse effects that are very difficult to quantify (i.e. how much will one additional vehicle trip resulting from an inefficient road layout contribute to the death rate associated with the Auckland Region's air pollution?). But these can still in most cases be easily avoided through sensitive, sensible design.**
- → **Opportunities to deliver positive effects will also be made obvious through a quality analysis.**

MORE INFORMATION / RELEVANT TO:

- Section 88 and the First Schedule of the RMA - An Assessment of Effects on the Environment;
- Rodney District and Auckland Regional Growth, Land Transport, and Economic Development Strategies (+others);
- Local climate, soil, and vegetation information (contact the Council ph 0800 426 5169);
- Best Practice Subdivision Guideline, Kapiti Coast District Council;
- Good Solutions Guide for Medium Density Housing, North Shore City Council.

SITE ISSUES	POSSIBLE RESPONSES INCLUDE
1. Topography and landform	Take advantage of height for varied building forms and visual interest. Use slope to advantage such as semi-basements, elevated living courts, and far-field visual outlook. Consider flooding issues and surface water constraints. Design to respond and follow landform rather than dominate or conflict with it.
2. Natural features, significant vegetation and solar orientation	Consider retaining significant trees in public or communal open space. Incorporate trees into private spaces or streets. Ensure building platforms and construction needs can viably protect features. Reflect natural features in the design of buildings. Design to allow sunlight into living rooms and outdoor areas. Locate outdoor areas away from wind or provide landscaping, or construct wind screens. Ensure streets provide a comfortable micro climate by managing street trees and orientation.
3. Adjacent land uses	Design buildings to respond positively to and fit with the existing character feel of an area. Look to integrate 'fronts and backs' with existing uses to minimise user conflict and nuisance. Development intensity should respond as appropriate. Density should occur where adjacent amenities and character can support it.
4. Movement	Ensure the relationship between local and through movement does not detract from the immediate area, as too much of either and not enough of the other will result in inefficient traffic movements or unviable service catchments. Where possible provide multi-mode journey choices, as this decreases the dependency on private vehicles. Promote the intrinsic relationship between, access, permeability and movement choice. Understand wider movement patterns and ensure roads respond to this context while supporting the local condition.
5. Features of cultural significance	Consider celebrating or respecting features. Reflect local heritage or cultural meaning into building design. Incorporate into open spaces.
6. Key view paths to and from the site (including privacy issues)	Consider how outward views can be utilised. Add highest visual interest where the development will be most visible from the outside. Consider existing buildings, 'fronts and backs', and privacy issues.
7. Site shape	Consider how to respond to the site's shape in an efficient manner.
8. Location of infrastructure networks and connections	Ensure site layout meets requirements of underground infrastructure lines and overland flow paths. Make efficient connections to existing infrastructure services

TRANSPORT AND MOVEMENT

CONNECTED ENVIRONMENTS

The first deliberate cul-de-sacs relied on a combination of dead-ends and carefully designed curves to limit visibility and actively discourage non-residents from entering. They remain popular today, usually supported by a perception that they deliver greater levels of privacy and safety than other roads. This can be self-reinforcing: the consequential channelling of all traffic onto the few connected routes available can further a perceived association of connectedness with heavy traffic nuisance and high vehicle speeds.

The number of vehicles using roads today has implications for the 'channelled' network created by a cul-de-sac pattern on key arterials and collectors. It can prematurely worsen congestion effects and can lower amenity for people living along those roads - an externality adverse effect of cul-de-sac layouts. Providing a network that allows multiple routes and real choice for all modes (with residential blocks of no greater than 120m length) remains the best approach to avoid adverse effects and provide for wellbeing.

CASE STUDY EXAMPLE (theoretical):

A single cul-de-sac that requires 40 lots on average just 100m of additional driving for every trip that could have been avoided with a more connected layout (assumed around 10 trips per day on average) would result in:

- → *a cumulative 40km additional driving each day, 14,600km per year, or 292,000km in the first 20 years of use - not even half of the expected lifespan of the buildings within that subdivision.*
- → *That 292,000km would equate to around $87,600.00 of household expenditure on vehicle operating costs that could have been put to more beneficial use (in gross 2007 cost, excluding GST and 20yrs of inflation).*
- → *It also equates to around 130 tonnes of CO^2 released into the environment*.*

These adverse effects can typically fail to be avoided, remedied, or mitigated at all. Vehicle Kilometres Travelled indexing is a relatively straight forward exercise but is dependent on a range of factors. Applicants should provide their own calculations to ensure the right balance of assumptions is made to the circumstance and all effects are taken into account.

** Key assumptions for this conservative calculation include $0.30/km VOC obtained from the 2002 EEM (private vehicles in low speed 30-50km/h use) and corrected for 2007. CO2 emissions calculated pursuant to LTNZ's Economic Evaluation Model of VOC*0.0015.*

ENVIRONMENTAL EFFECTS TO WATCH OUT FOR INCLUDE:

- → **Easier access to shops, services, and amenities will improve their patronage by customers and mean the subdivision better enables social and economic wellbeing.**
- → **In inefficient layouts cumulative environmental degradation occurs.**
- → **Unnecessary expenditure on transport equates to household income lost from the local economy (including economic multipliers / spinoffs that would have occurred from increased local spending or saving / investing).**
- → **Passing traffic at the right speed and volume decreases opportunities for crime to occur and improves safety. Good design and urban structure can still deliver connected roads that behave and feel like cul-de-sacs to residents.**

MORE INFORMATION / RELEVANT TO:

- Best Practice Subdivision Guideline, Kapiti Coast District Council;
- Liveable Arterials Plan, Auckland City Council;
- Manual for Streets, Department for Transport (UK).

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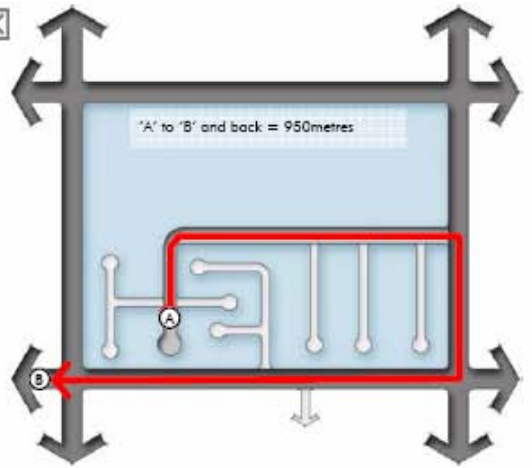

THREE STEPS FORWARD, TWO STEPS BACK - Through movement and connectivity is deliberately avoided. Inefficient movements are required which can be a disincentive for pedestrians particularly in adverse weather conditions. Minimal route choice if any is available.

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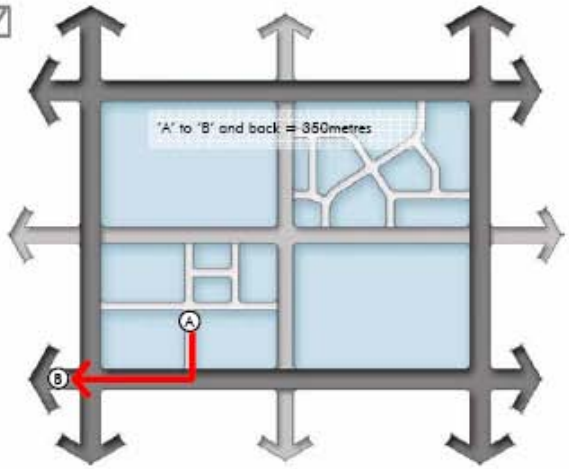


MAXIMISED CONVENIENCE - Connectivity is provided in numerous configurations that allow a range of routes both on and off the main roads. Potential congestion effects are avoided, remedied, or mitigated and safety benefits arise through the interaction between passing traffic and site users.

THIRD DRAFT

CONNECTING TO THE STREET

For residential environments to promote wellbeing they should deliver an adequate connection to streets and public spaces. This will ensure outcomes that convey a sense of safety, interest, activity, quality, and value. Emphasising the front door to stand out from the dwelling (preferably including a canopy or other cover) helps direct visitors and organise on-site planning. A direct path or connection between the front door and the street should be provided to help reinforce this and make it less plausible for strangers to wander around sites feigning confusion as (for instance) they look for a point to force entry.

To support this connection or 'frontage', houses should be located as close to the street as possible, maximising other open space on the site behind a house available as private outdoor recreational space. Maximising the amount of glazing from an active living room (a kitchen, dining room, lounge, or family room) on the front elevation helps reinforce a sense of surveillance and security to and from the street / public space. This again helps ensure a sense of personal safety for all users. It also stimulates interest and activity in building facades for pedestrians. These outcomes are precluded when garaging dominates a frontage. Aside from visual blandness garages are solid and typically 'inactive' - if crime occurs outside one there is less chance of a perpetrator being seen or even heard. They are also a de-facto storage space, often presenting clutter to the street and affording little privacy of property for residents every time the door opens. Garages should for these reasons be to the side or rear of houses, set back behind the building line.

Lastly, maintaining a clear visual connection is important to deliver a sense of interest and quality. The use of solid fencing will be almost guaranteed if outdoor living spaces are in front of a house - they will be needed for basic on-site privacy. Accordingly outdoor spaces function best when to the side (set back from the front elevation) or rear of a house, with the building forming a visual barrier to the public realm. Solid fences around the sides and rear are appropriate. When a house minimises the front yard it is more viable for this to be used as a visual buffer space, allowing a shorter fence of 1.0m or less to be erected.

ENVIRONMENTAL EFFECTS TO WATCH OUT FOR INCLUDE:

- → **The provision of regular 'eyes on the street' will help discourage crime and improve perceptions of safety for road users (and sites). This is essential for community wellbeing and helps improve pedestrian use of space.**
- → **All buildings should clearly connect to the street which in turn helps to foster a sense of community and 'place'.**
- → **Site efficiency is improved when all users can clearly interpret how and where they should move.**
- → **Security of private property (including cars parked on the street) is improved and potential effects are better managed when land uses are at a proximity and orientation where the potential for criminals to be seen or apprehended increases to the point that opportunistic crime is discouraged.**

MORE INFORMATION / RELEVANT TO:

- What to Look For When Buying a Terraced House or Apartment, North Shore City Council;
- The Home Buyer's Guide, Alex Ely & CABE (UK);
- Best Practice Medium Density Housing Guideline, Kapiti Coast District Council.

NEGATIVE CONNECTION - DOES NOT ENABLE COMMUNITY WELLBEING

☒

POSITIVE CONNECTION - ENABLES COMMUNITY WELLBEING

☑

THIRD DRAFT

CAR PARKING AND STRONG STREET FRONTAGE

The provision of large at-grade car parking areas between the public realm and land uses will lower character and pedestrian amenity. They can often be proposed along at a frontage, reflecting a perception that a vehicle-oriented customer catchment will not be engaged without a number of obvious, clearly located dedicated spaces for them. This connection between drivers on the street and parking spaces is often justified due to our overall low density settlement pattern. But providing this is only one dimension of well-being: it will not be enabled if development serves passing traffic but fails to contribute to 'place' and appeal to other modes (most obviously pedestrians). At grade parking is often preferred as it tends to be overwhelmingly cheaper per space than structured or underground parking.

Visually obvious and conveniently accessible parking spaces can be accommodated readily at the side or rear of uses. Often one aisle of parking along the frontage for very short-stay, courier drop off, and operation mobility cardholder spaces will still allow an effective street connection to occur. Safety in parking areas is an overriding concern. Tools such as clear signage and sightlines, logically located activity anchors or generators, and the careful location of long and short term parking are valuable.

NON-EXCLUSIVE ON-STREET PARKING IS VALUABLE

The role of on-street parking is important in centres. Aside from providing good pedestrian buffers from traffic and noise they help businesses connect with customers, and can be shared between multiple uses. A key issue for town centres is that often there are more than enough parking spaces available, but they can be mostly privatised for the exclusive use of each business. When vehicles are unable to find a parking space it is rare for every possible space to be actually occupied, or occupied by appropriate users. Providing obviously located pools of parking for general use can be highly beneficial in centres.

THINKING ABOUT THE LONG TERM

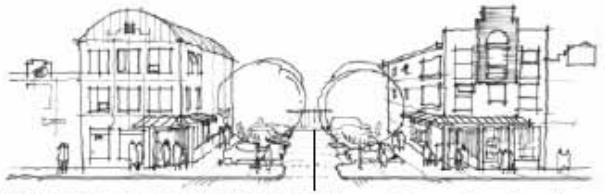
Strategically, large parking areas can have a role as land-banks for the future. As land values increase the eventually viable redevelopment of large at-grade car parks into smaller, multi-level structures with new land uses can be amongst the easiest and most reliable way of intensifying centres.

ENVIRONMENTAL EFFECTS TO WATCH OUT FOR INCLUDE:

- → **The accessibility of all uses to as many potential users as conveniently possible is an important element of the efficient use of resources and wider wellbeing. But when the bias given to any one movement mode becomes over-emphasised it can negatively prejudice other modes, lowering appeal and typically making the most vulnerable modes the least viable: people will not walk through a wide, vehicle right-of-way carriageway that is used by 100 cars as readily as one of the same width, design, and relationship to land uses that is instead only used by 10 cars. Ideally each mode will have a dedicated connection to the street.**
- → **Parking needs should be assessed against the context of how parking spaces will actually be used in reality, rather than a purely mechanical 'quantum' basis where every parking space is assumed to have equal utility.**

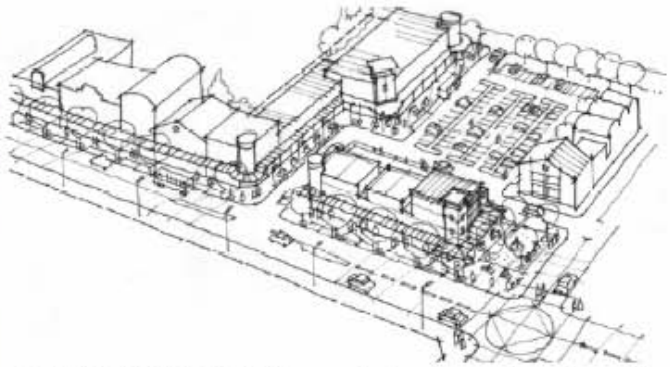
MORE INFORMATION / RELEVANT TO:

- Towards Excellence in Growth Centres, Manukau City Council;
- Good Solutions Guide for Mixed Use Development, North Shore City Council;
- Street Frontage Guideline, Waitakere City Council.



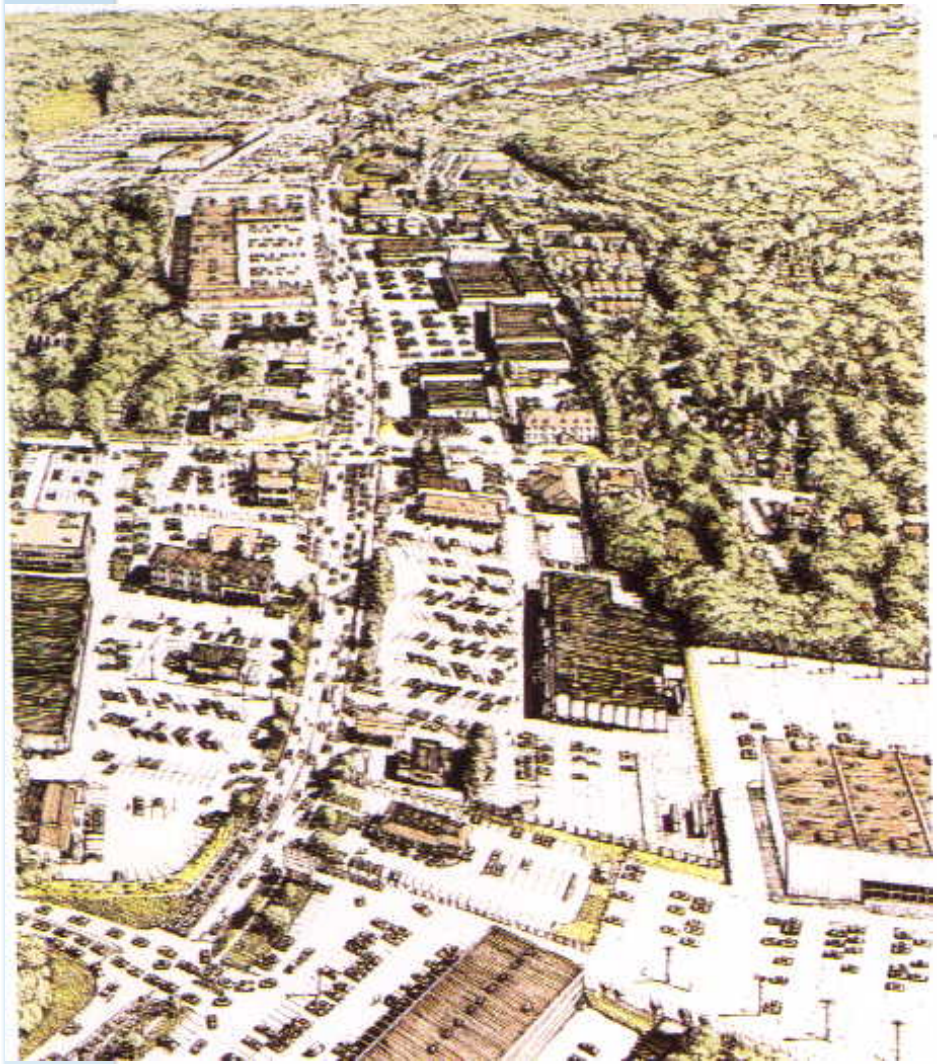
MINIMISE FOOTPATH DISRUPTION - Pooling parking to the sides of uses and sharing vehicle access / manoeuvring can give more land for development. It can also help justify a reduction in the individual parking requirement on each site.

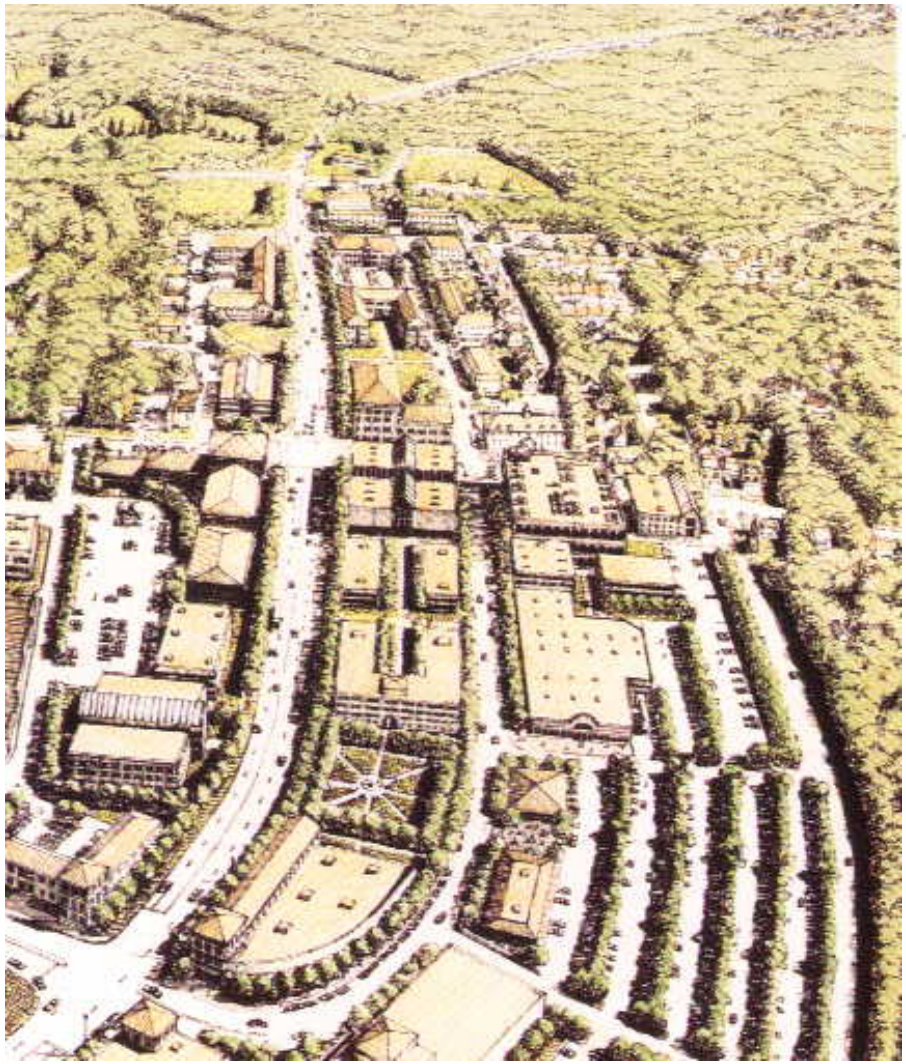
MAXIMISE MAINSTREET CONTINUITY - Providing parking behind uses accessed by narrow lanes (4m maximum width) can minimize disruption of street-based business uses. This helps maintain pedestrian amenity.



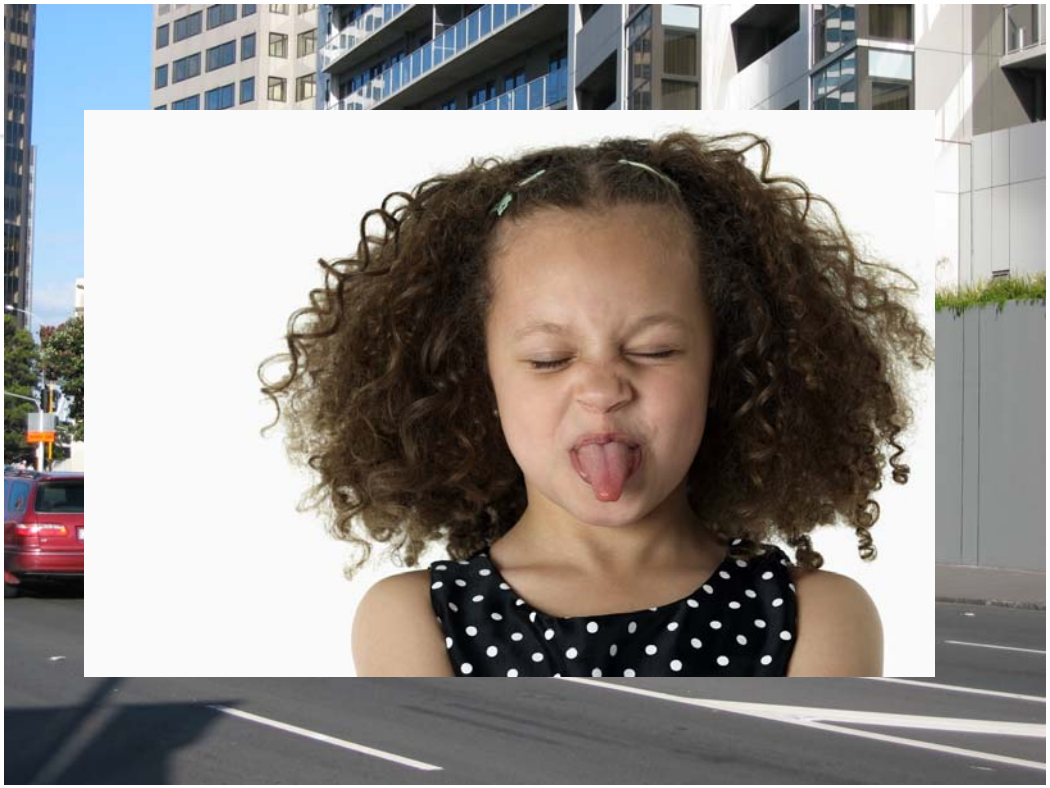
COMPREHENSIVE EFFICIENCY - Large scale planning can allow pooled parking areas to be highly screened by development within a block.

Streets please!!!!!





Public realm

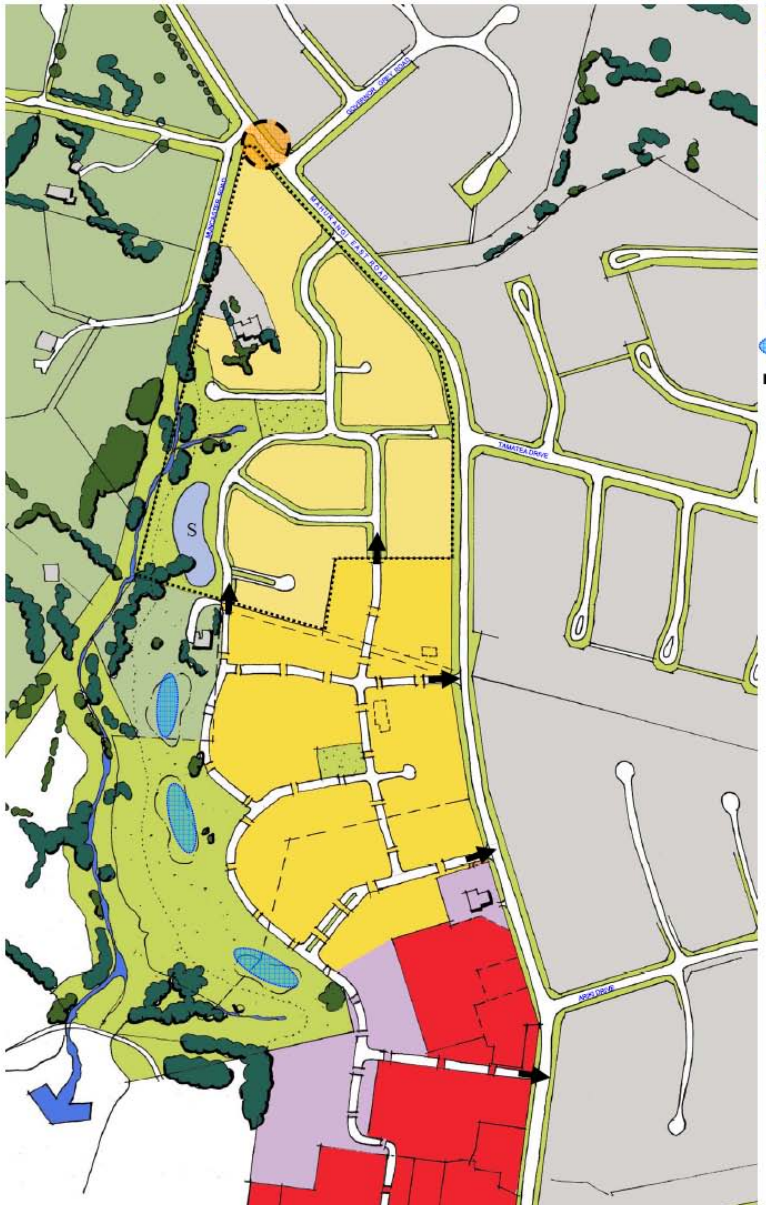


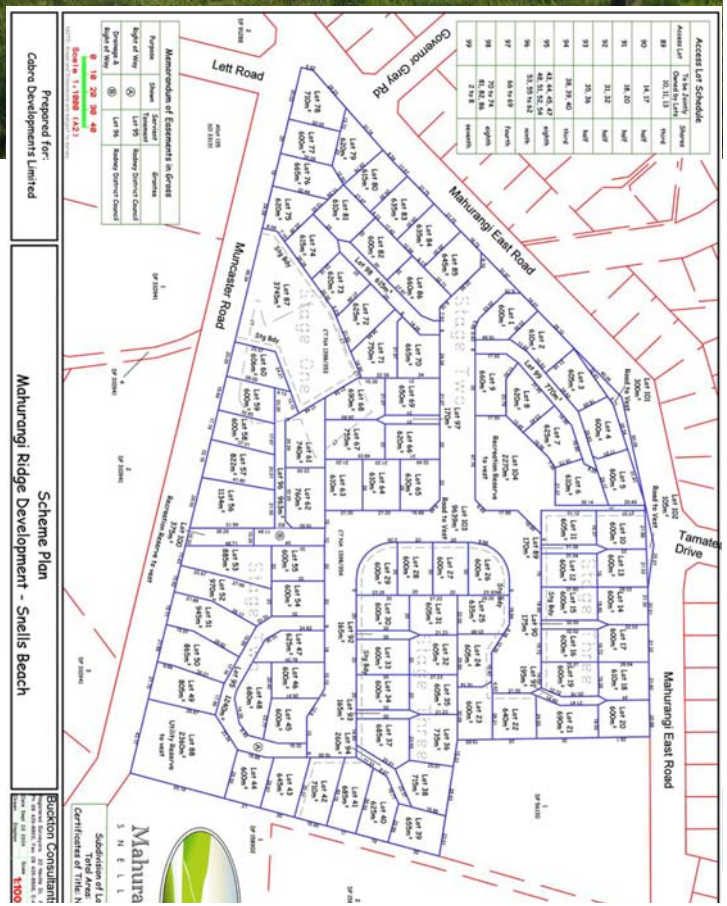
First 3m is CRITICAL

Public realm

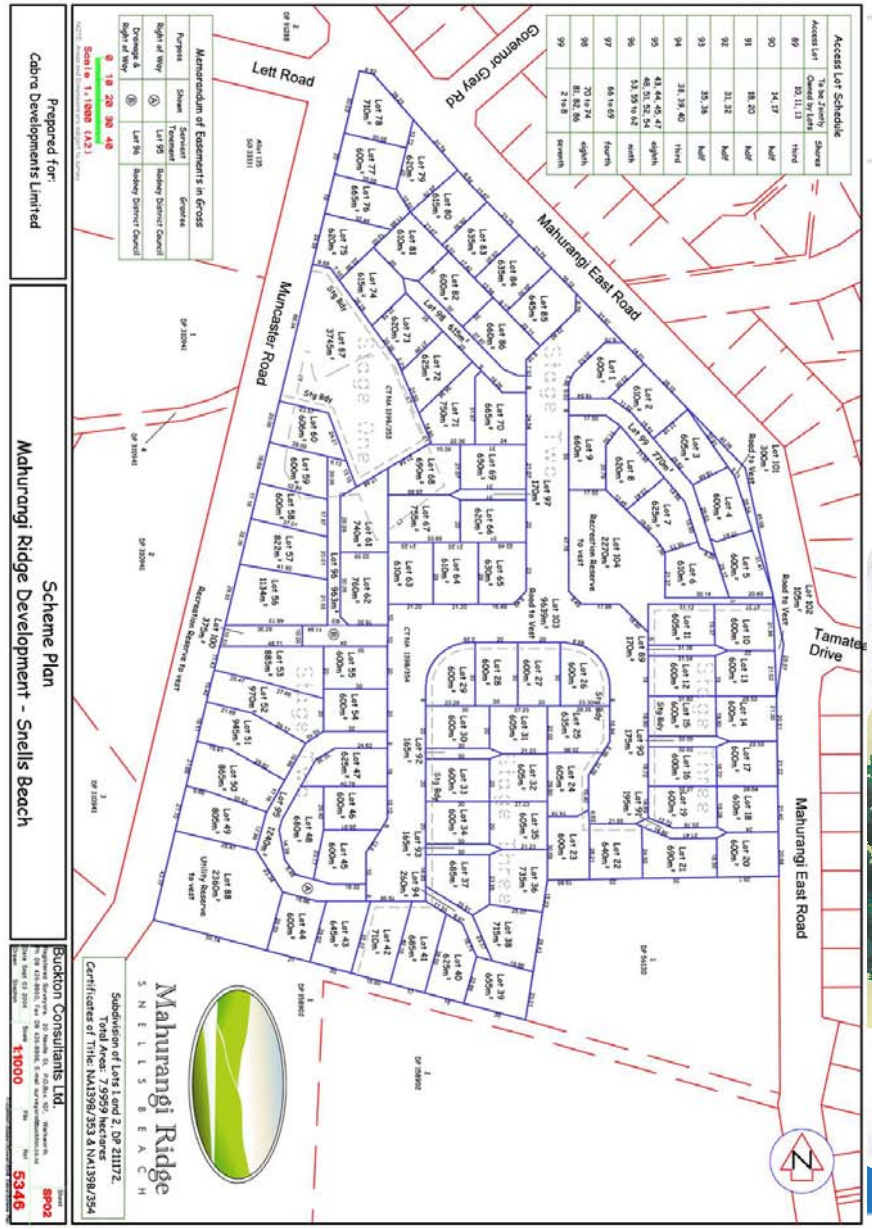
Maintenance = high quality public realm = Yum

The BIG picture

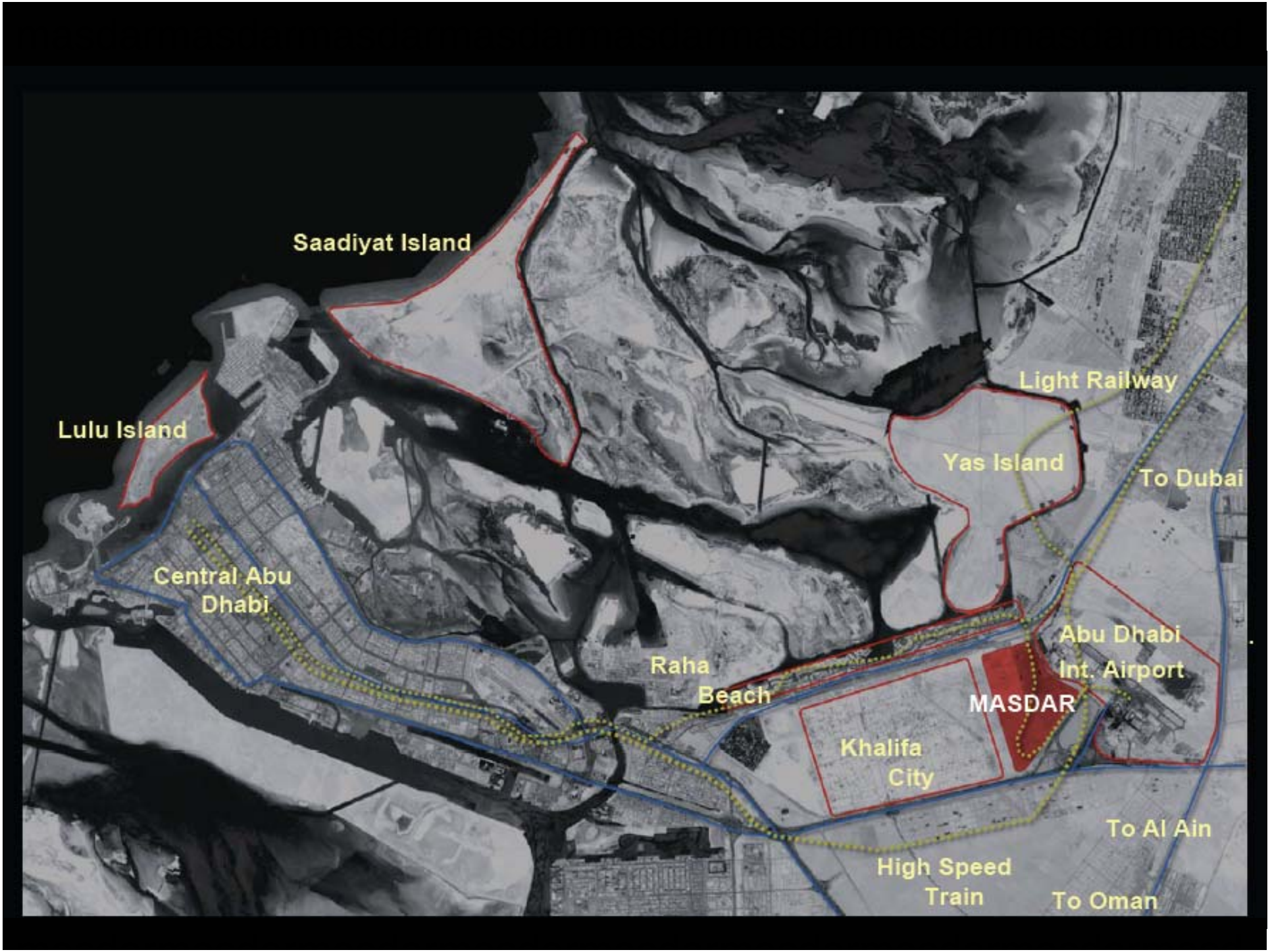


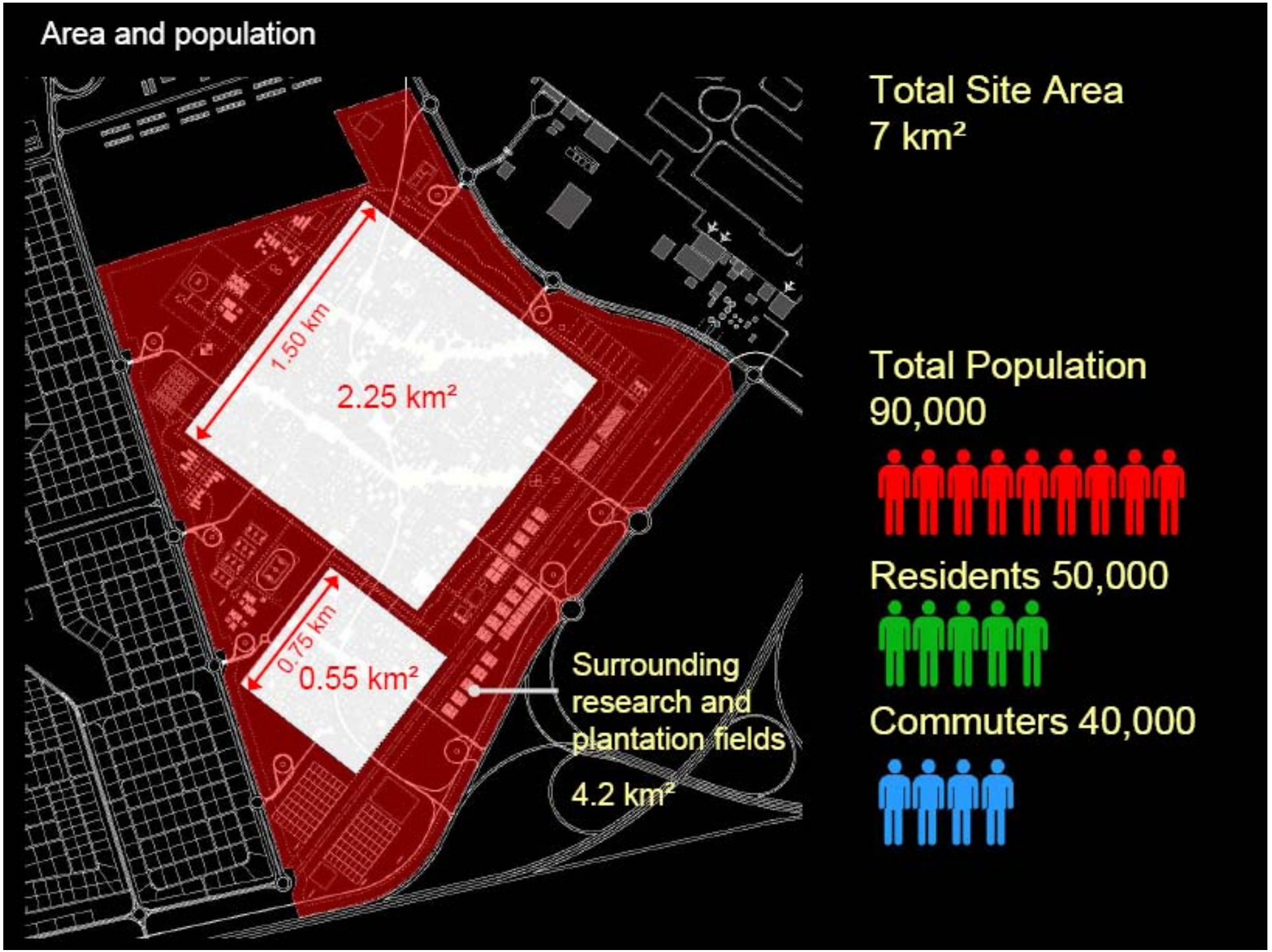


The detail 87- 83 = 4




Zero Carbon
Zero Waste
MASDAR
“The Source”


Saadiyat Island
Lulu Island
Light Railway
Yas Island
To Dubai
Central Abu Dhabi
Raha Beach
Abu Dhabi Int. Airport
MASDAR
Khalifa City
To Al Ain
High Speed Train
To Oman

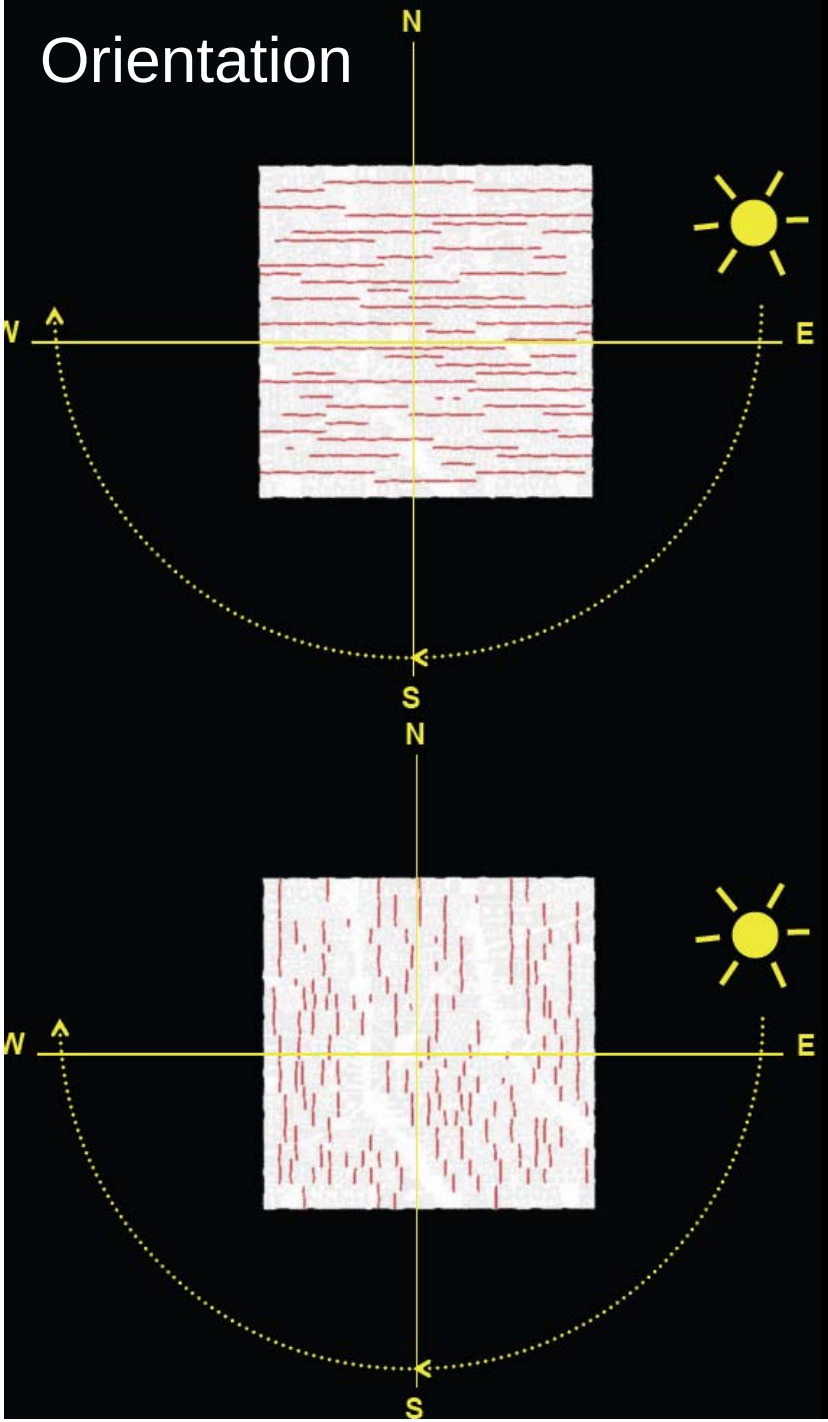

Area and population
1.50 km
2.25 km²
0.75 km
0.55 km²
Surrounding research and plantation fields
4.2 km²
Total Site Area
7 km²
Total Population
90,000
Residents 50,000
Commuters 40,000

Site – Scale comparison

MASDAR - 135 People / ha

Venice - 115 people / ha

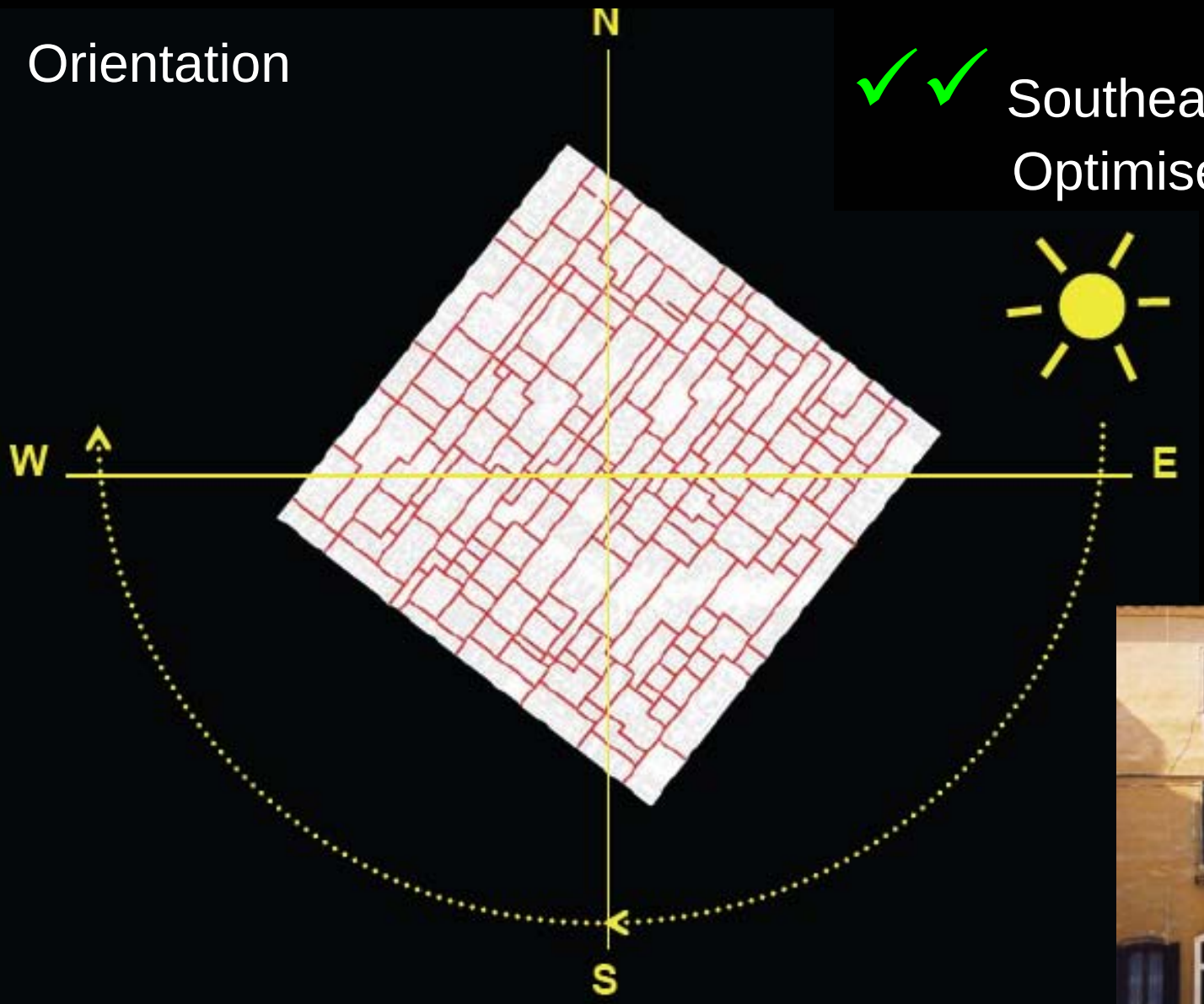
Orientation



X East- West
Maximum heat gain through sun exposure

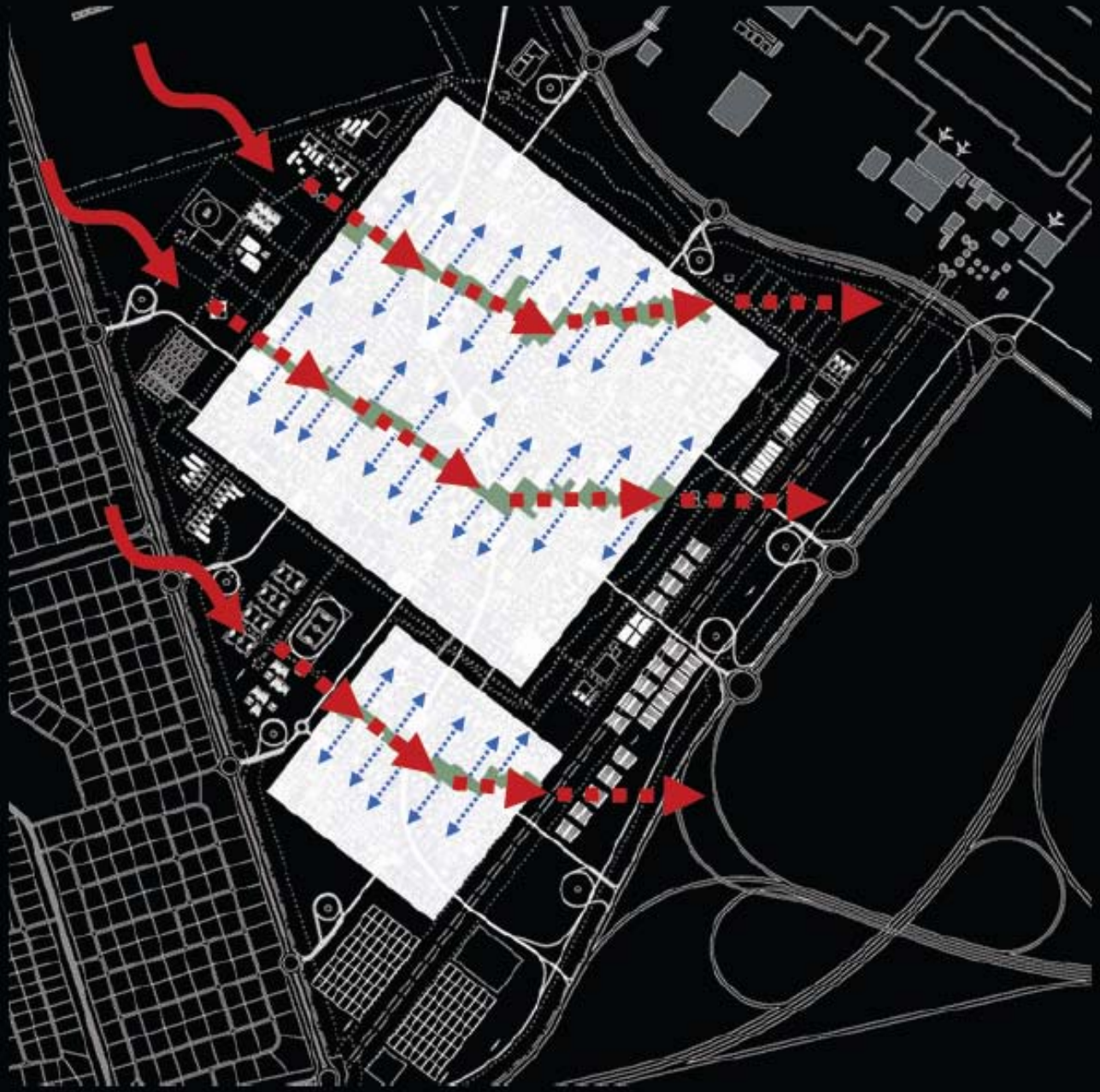
✓ North – South
Minimum heat gain through natural shading

Orientation



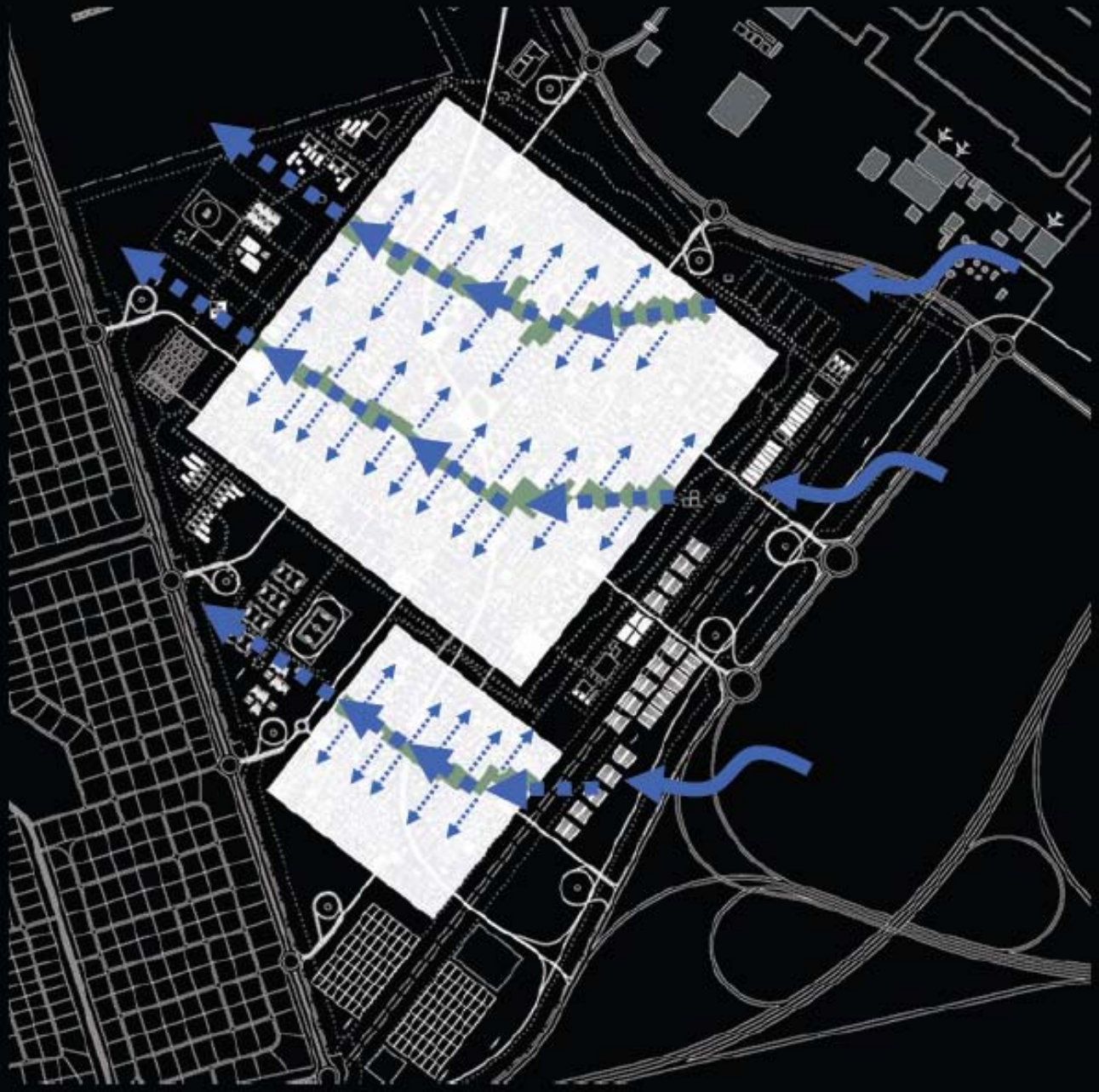
✓✓ Southeast – Northwest
Optimised Orientation

Linear Parks – Daytime wind



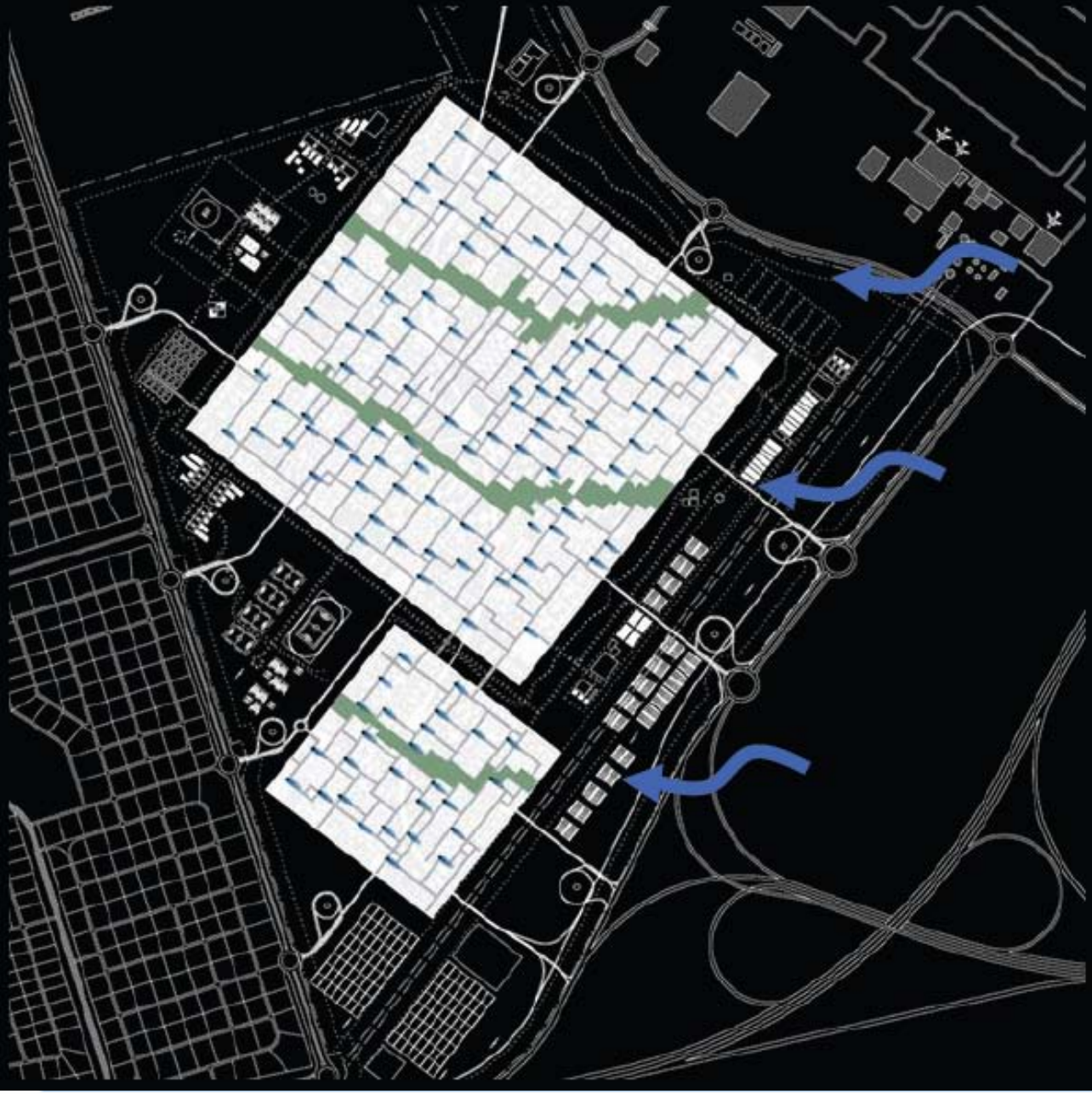
Hot Winds cooled over linear parks provide refreshing street ventilation.

Linear Parks – Night time wind



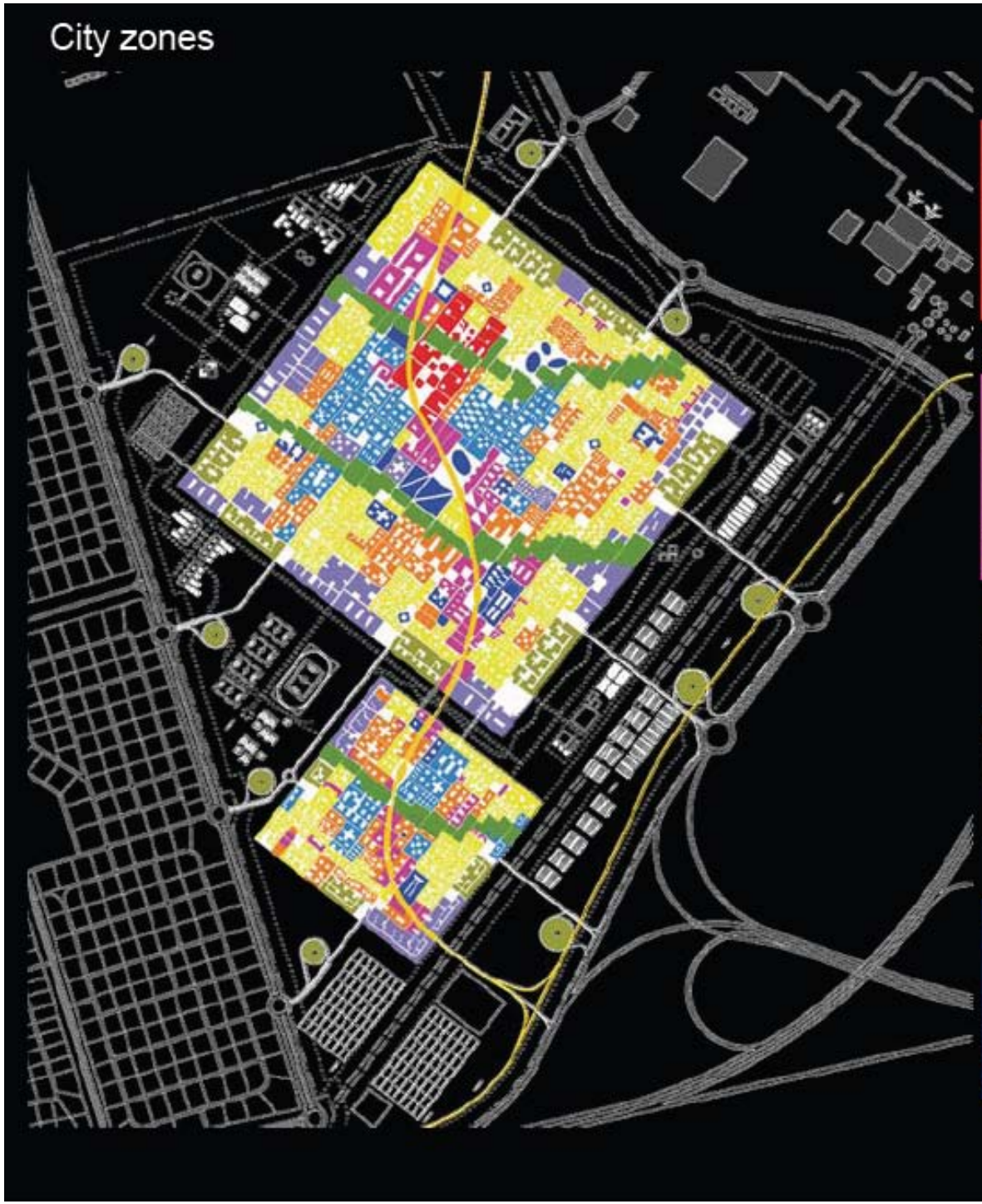
Cooling of the city through fresh night breeze.

Wind towers – open, cooling the streets



Night-time Cool Winds

City zones



University

Special Economic Zone

Commercial

Technology Park

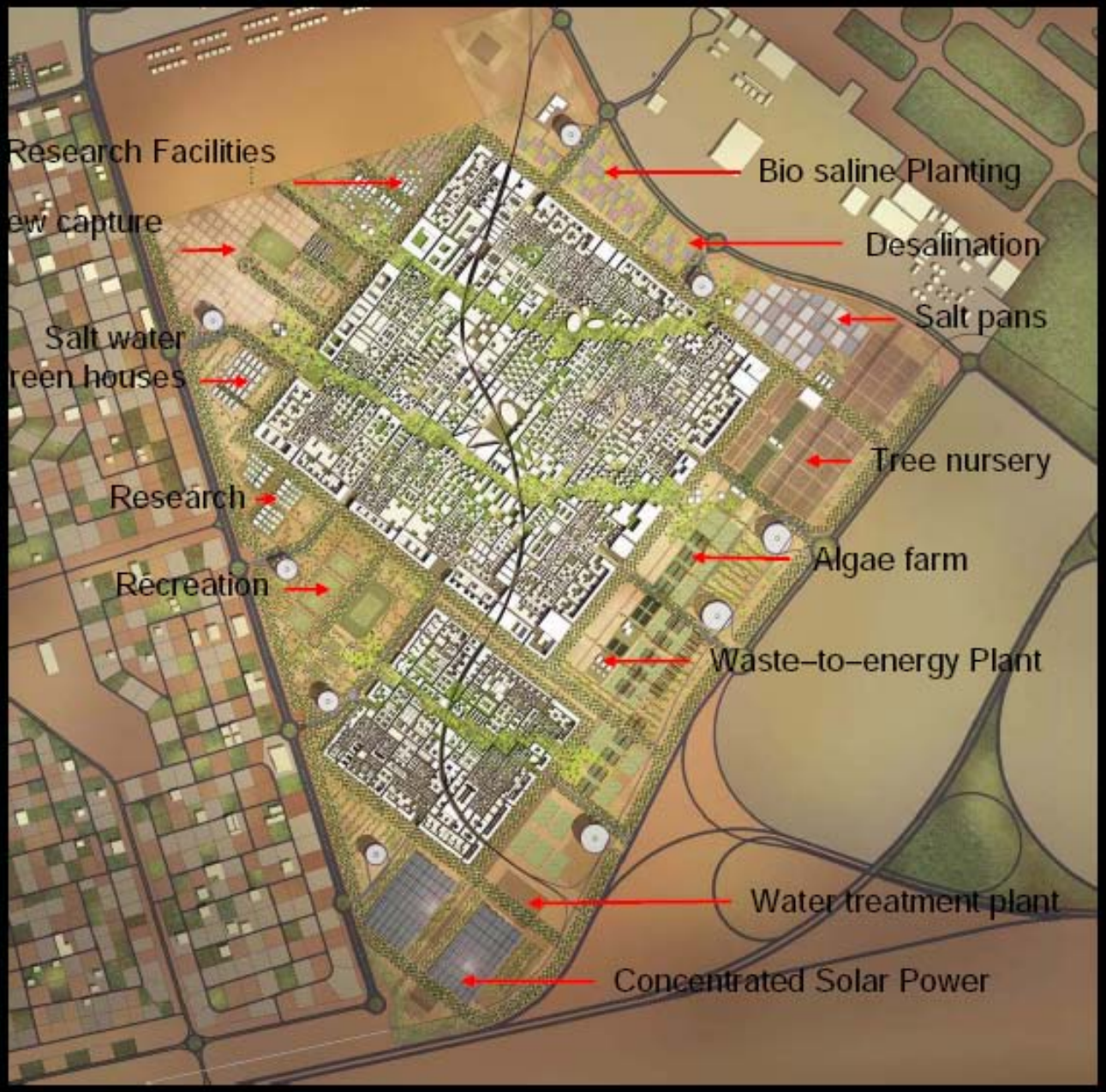
Residential

Car Parking

Entertainment/Hotel

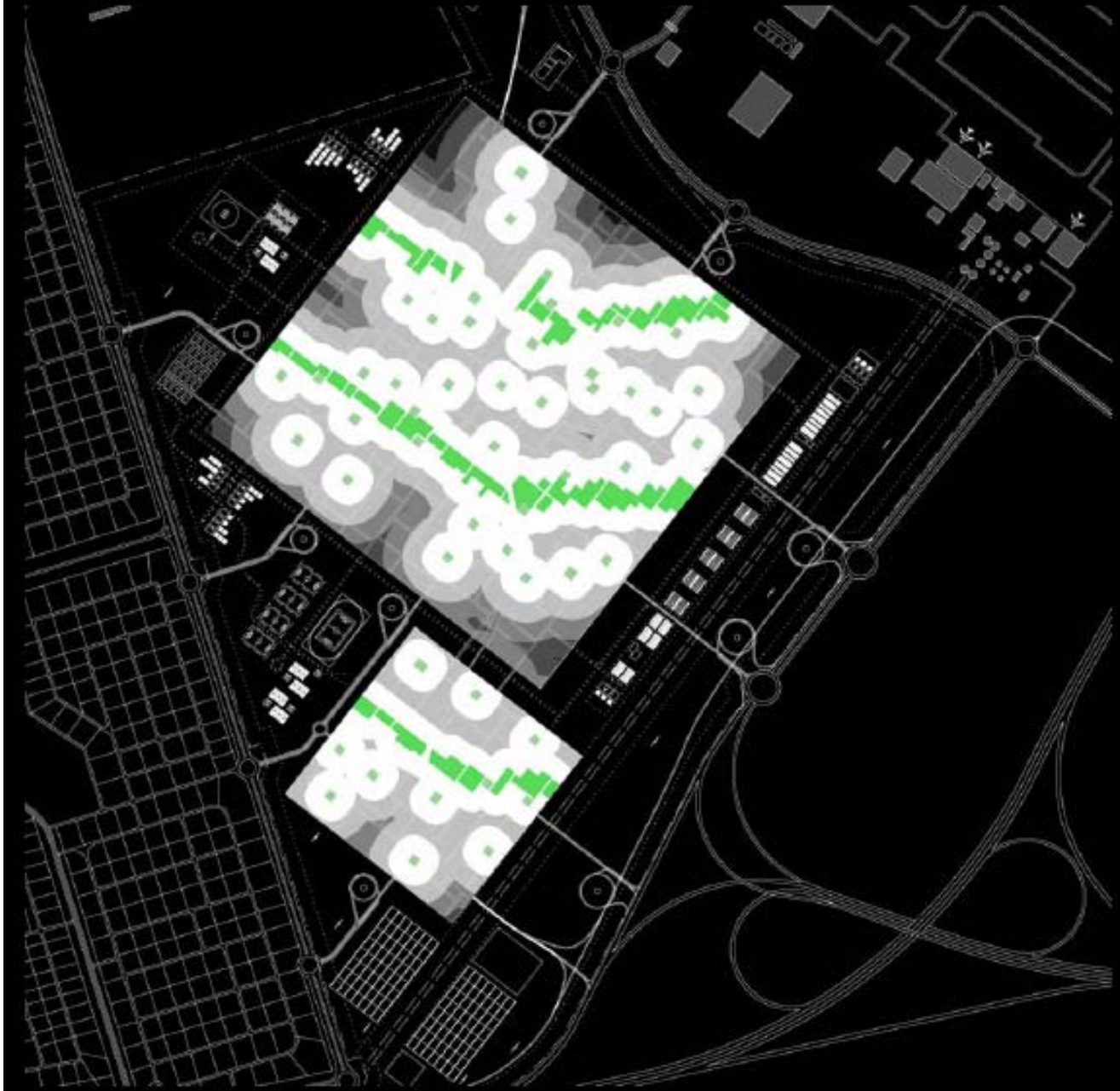
Parks

Landscape strategy



Street

Accessible green spaces – Walking distance



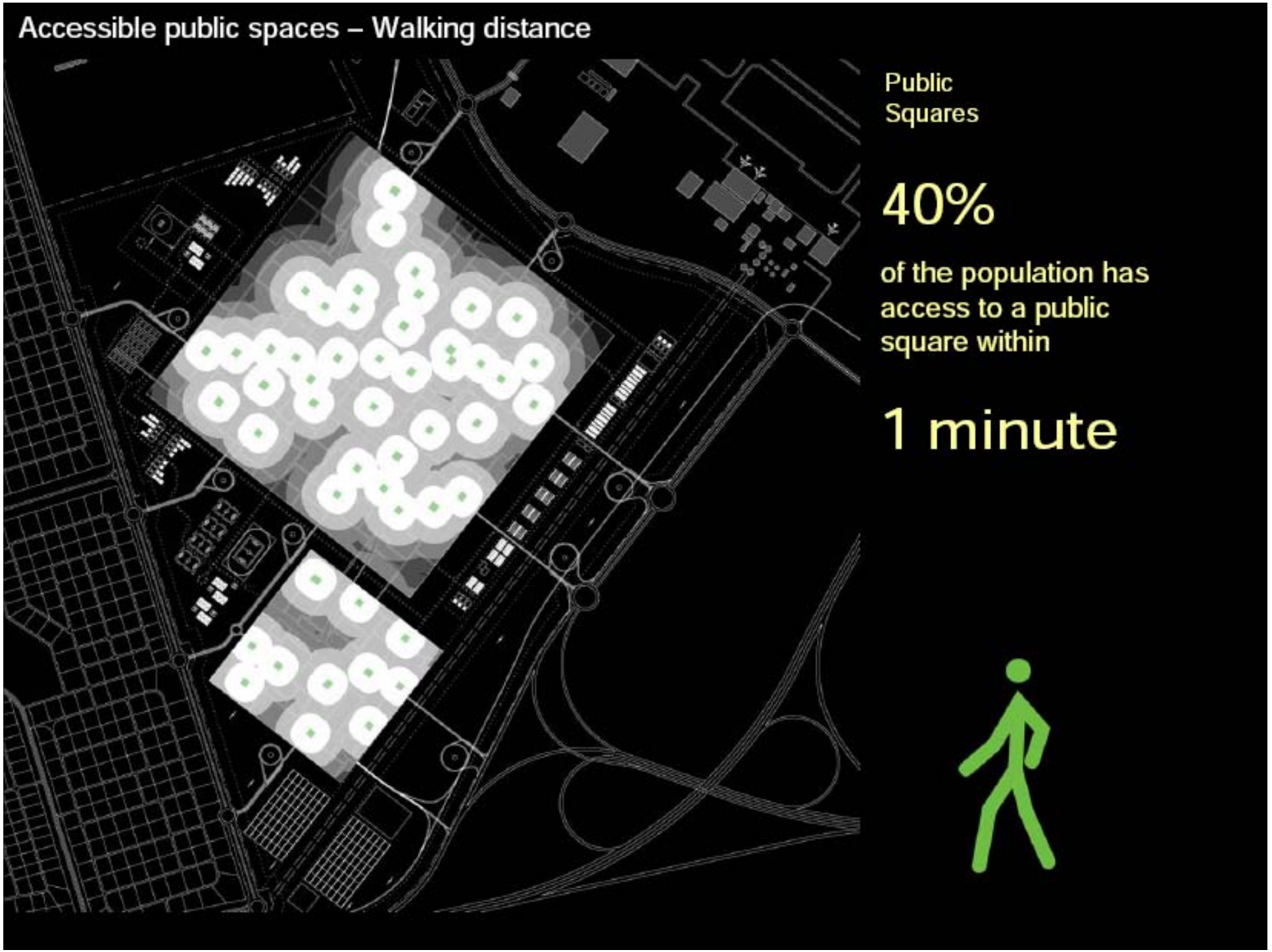
All green public spaces

56%

of the population has access to green space within

1 minute

Accessible public spaces – Walking distance



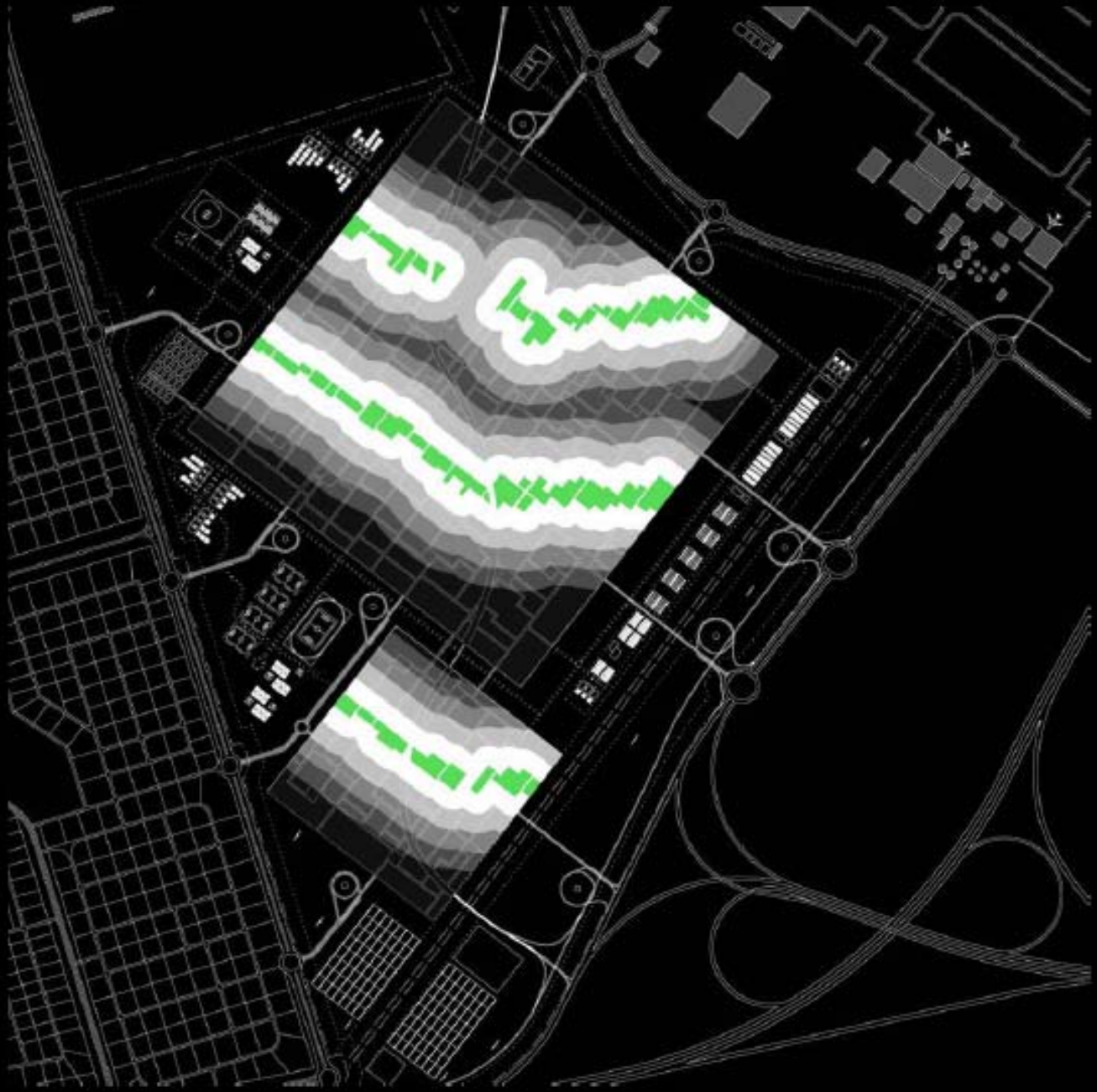
Public
Squares

40%

of the population has access to a public square within

1 minute

Accessibile green spaces – Walking distance



Green linear Park

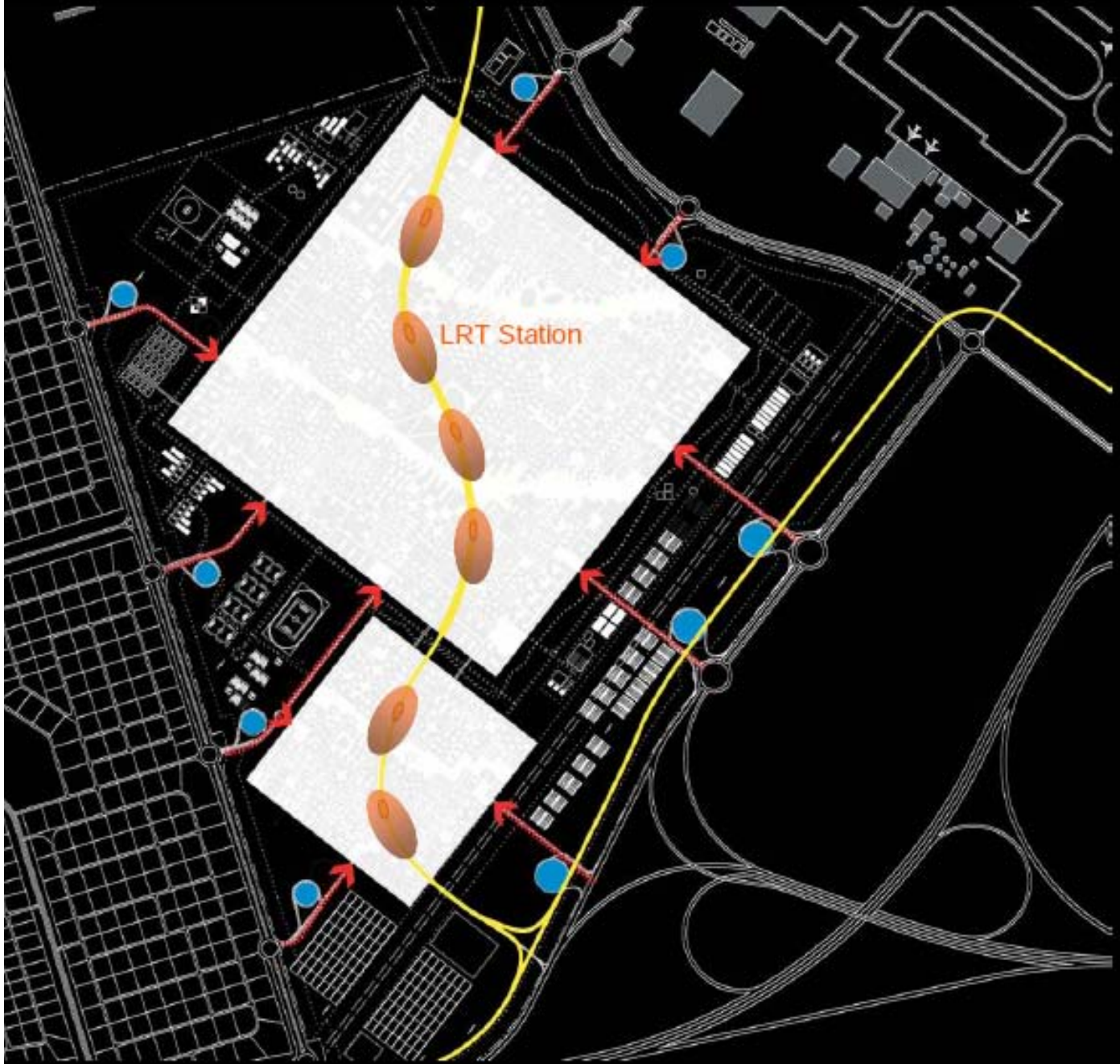
29%

of the population has access to a linear park within

1 minute

Central Plaza

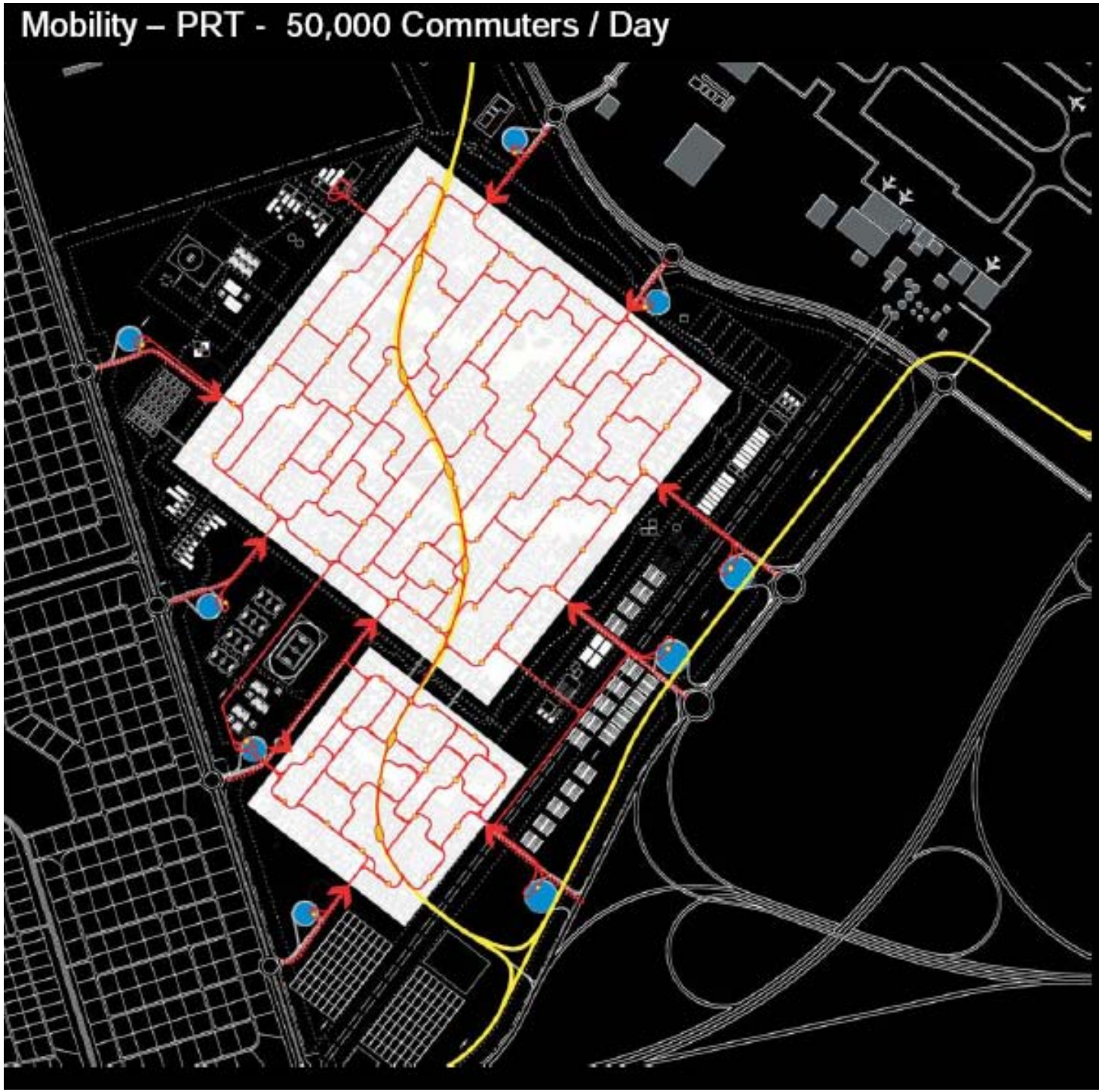
Mobility – Light Rail Transport - 50,000 Commuters / Day



Car free City

LRT

Mobility – PRT - 50,000 Commuters / Day



Car free City

PRT

Rodney
DISTRICT COUNCIL

Is it possible ?