Servicing backyard dwellings with electricity in the City of Cape Town

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Introduction

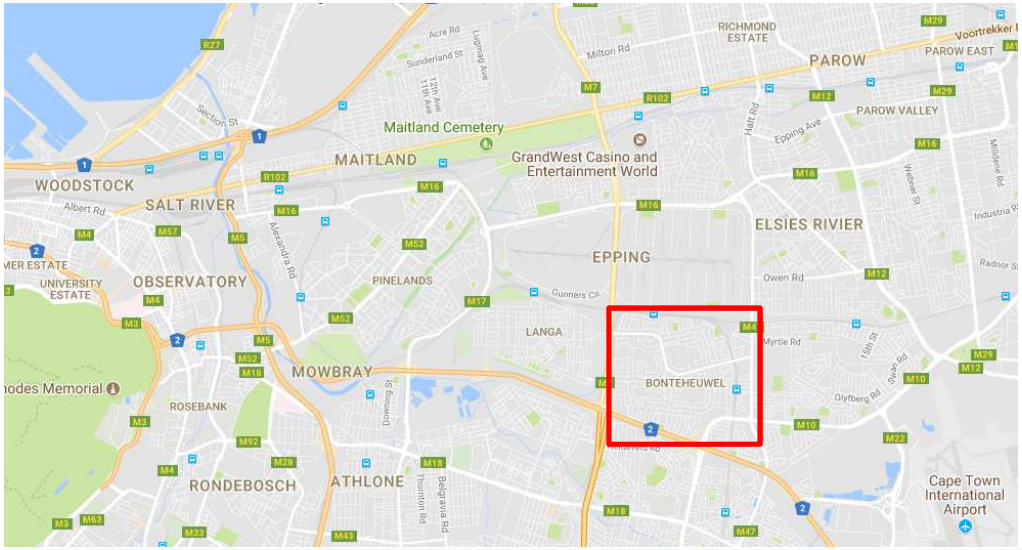
- 20% of SA population housed informally
- Services available if located close to a formal dwelling – backyard dwellings
- Informal densification impacts on service providers
- Need to address densification
- Improved service to residents
- Information sharing

Design phase – general approach

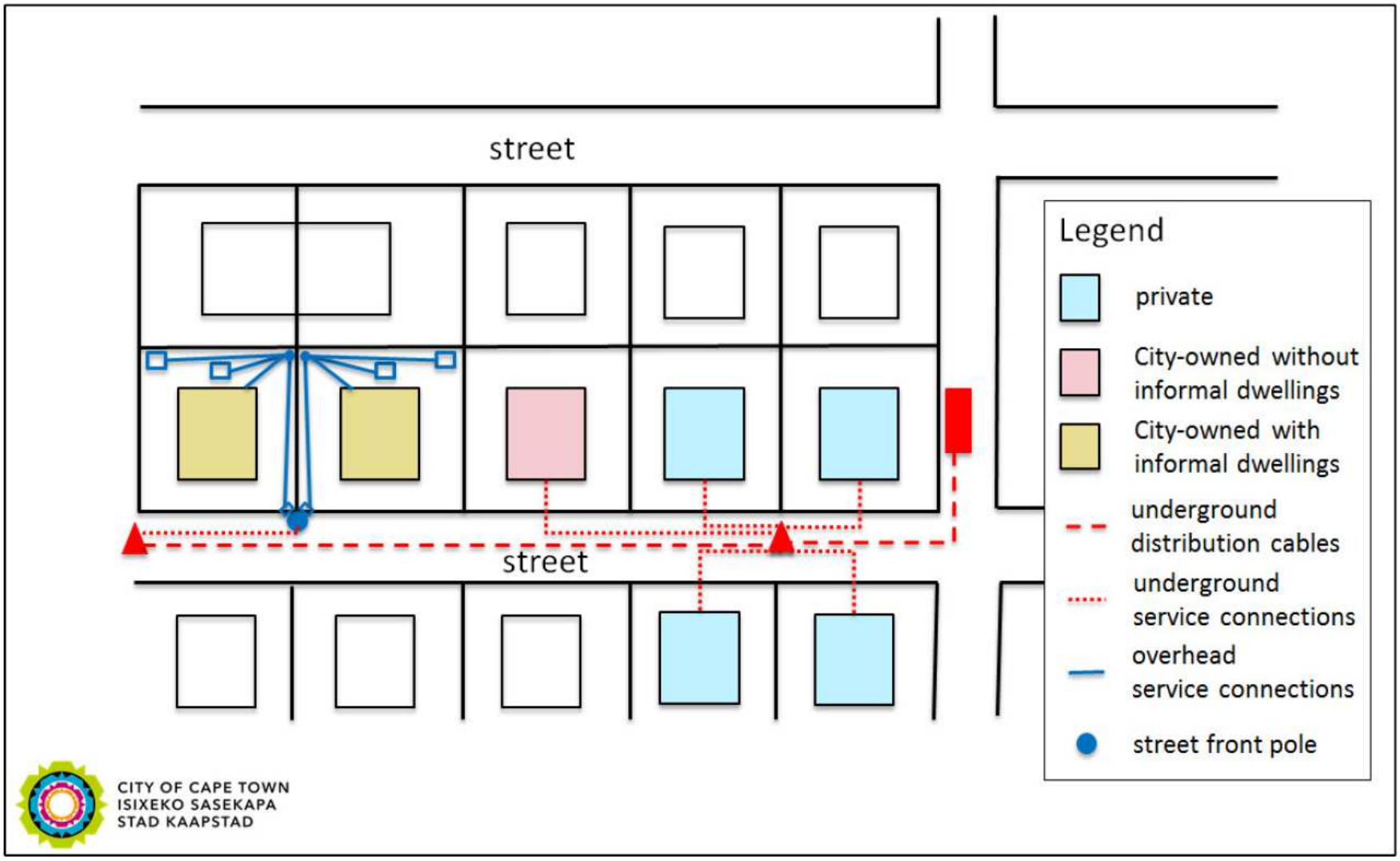
Approach	Strength	Weakness	Impact limiters
Re-active	No upfront work to upgrade installed infrastructure.	Network overloading will arise by an increase in maintenance events.	Monitor load growth.
Pro-active	Result will be a stable network.	Upgrade required to an installed, operational network (capital expenditure and widespread trenching in the area).	This work could be scheduled to coincide with network replacement based on operational aspects.
		Allowance for a maximum number of informal units needs to be well informed.	Careful selection of planned backyarders per property.

Design phase – Bonteheuwel case

- Undergrounding of shared (‘mid block’) overhead network planned
- High prevalence of backyard dwellings (35% of total)
- The community indicated tolerance to such a change
- Established guidelines and policies to institutionally enable this work for CoCT properties



Design phase – design brief



Design challenges – combination of ADMD

- Statistical modelling tools (SANS 507 - Herman/ Beta) based homogenous dwelling types
- Two dwelling types per CoCT service connection

- 1 x main dwelling + 3 x informal dwellings

  = 4 x 1.5 kVA

Consumer	After diversity maximum demand	a	b	c
Main Dwelling	2.66 kVA	0.98	2.41	40 A
Backyard dwelling	1.13 kVA	0.74	5.34	40 A
Combined dwelling (freestanding case)	1.5 kVA	0.63	3.17	40 A

Implementation – vandalism

- Cu replaced with Al as far as practical
- Progressive energizing of network

Further actions

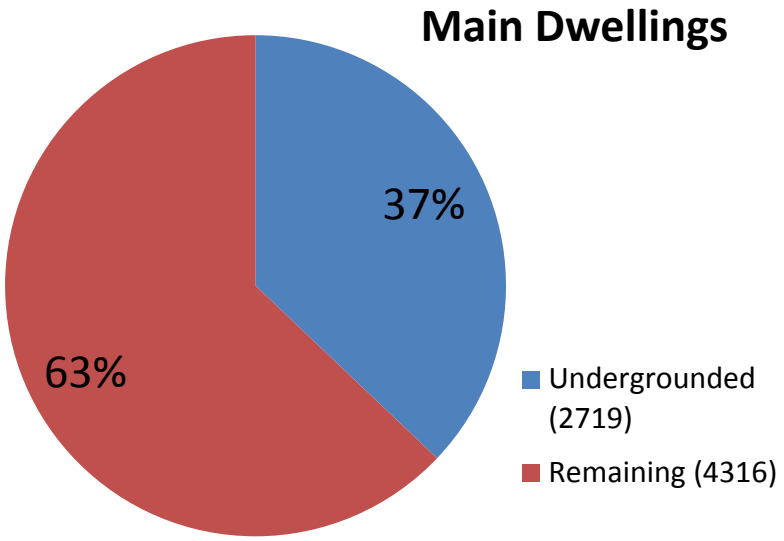
- Consumer(s) migrated to new network
- Vandalism reduced

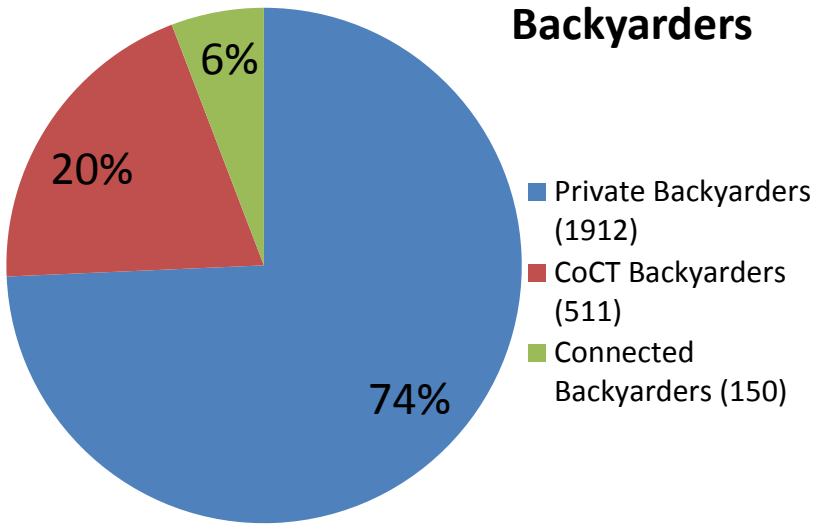
Implementation – community liaison

- Community engaged on a one-on-one basis with liaison officers
  - Up front information sharing
  - Progress in the area
  - Notice of shut downs
  - Arranging access to property/dwelling
- Early warning of community dissatisfaction
- Instrumental to safety of workers

Current project statistics

2014 – current (3 years)





Aspect	Cost
Capital outlay to date	R101 million
Cost to electrify one property (1 main & 3 backyard dwellings)	R37 100

Conclusion

- Project still in progress
- Provision of electricity costly
- Life cycle costs, enhancing the community
- Benefit of pilot projects and the sharing of information