# MTLS

The Modular Traffic Light System — the world's first impact-safe traffic light, engineered and owned by Nucleus.



Developed in 2005 in direct response to the toll rigid steel traffic infrastructure takes in road accidents, MTLS replaces it with lightweight, modular segments that collapse safely on impact — proof that Nucleus builds and owns intellectual property, not just implements it.

First installed in 2007 at one of Johannesburg's highest-collision intersections — Sandton Drive and Grayston Drive — MTLS was formally approved by the Johannesburg Roads Agency in November 2008, following a 12-month pilot project, and has since been tested and installed internationally, including with Dubai's Roads & Transport Authority.

| 6–8 | 7 yrs | 18 min | 100,000 hrs |
|---|---|---|---|
| collisions/year at Sandton Drive & Grayston Drive before MTLS | in place at that intersection with just one accident since | total erection time for a full signal setup, Dubai RTA test | LED lamp lifetime, vs. limited-life incandescent lighting |

## Why pole safety matters

Independent road safety research consistently shows fixed roadside poles are disproportionately dangerous: pole crashes have been found to be up to six times more likely to result in a fatality than the average crash, with poles ranking among the most frequently struck roadside objects across studies from the US, UK, Sweden, Canada and Australia.

*Sources include Pilkington (1988), Jones & Baum, and Mak & Mason (1981), as cited in a 1999 international report to the Motor Accident Commission, University of Adelaide.*

## Recognised design excellence

**SABS Design Excellence Award**
2008 winner, and featured in "SABS 40 Years of Design Excellence in South Africa."

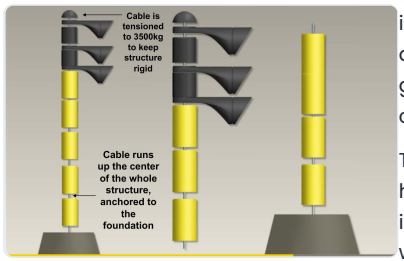
**Endeavor Entrepreneur Finalist**
2009 — represented South Africa in Miami among over 20,000 entrants worldwide.

**Smithsonian Institution, New York**
Invited to exhibit at the Cooper Hewitt Museum for the triennial "Why Design Now!" exhibition.

**SA Innovations Book Feature**
Selected by Professor Mike Bruton (Innovation Fund) to feature in a book on South African inventions and innovations.


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## Built to fail safely




MTLS replaces a rigid steel pole with modular segments strung on a steel cable, tensioned to 3,500kg to keep the structure rigid in normal use. The cable runs up the centre of the whole pole and anchors to the foundation — so on impact, the segments give way and collapse rather than transferring the full force of a collision into the vehicle and its occupants.

The same modular format is open architecture: segments can house traffic signal heads, LPR or general surveillance cameras, illuminated street signage, or advertising — configurable to what a site actually needs, from a single intersection to a full highway lighting corridor.

## Proven, not just designed



**JOHANNESBURG**

Four MTLS units in daily operation at the Sandton Drive & Grayston Drive intersection — the pilot site behind the JRA's formal approval.



**DUBAI RTA**

Tested alongside conventional steel signal poles for Dubai's Roads & Transport Authority.

**18 minutes**

total time to erect a full MTLS signal setup on site.

## Cost & maintenance

- No 5-ton truck or large repair crew needed after an accident
- No re-pouring the concrete foundation after impact
- Zero maintenance — no galvanizing, painting, or cutting
- Rapid repairs mean far less intersection downtime

## Security capability

- Open architecture houses LPR or general surveillance cameras
- Live video feeds to a central surveillance destination of choice
- Stolen or suspicious vehicles flagged to law enforcement in real time
- Turns everyday traffic infrastructure into proactive community policing



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