TOWARDS ROADS AND STREETS FULFILLING THEIR POTENTIAL AS ECONOMIC ARTERIES

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7 July 2016
1. Roads are the blood vessels of urban settlements
2. Importance of safety and efficient vehicle movement
3. Transport planning must involve land use planners and vice versa
4. Roads and streets are a lifeline for the poor
5. Aesthetic and social value of roads and streets
6. Urban developments and transport trends since World War II
7. Summary
8. Dangers of ignoring reality in favour of best practise
9. Components of the ‘3rd way’
   9.1 Complete Streets
   9.2 Roadside Development Environments
   9.3 Service / Frontage Roads
10. Conclusion
PURPOSE OF PAPER

• Roads’ primary purpose is economic

• Three devices:
  – Complete Streets approach
  – Roadside Development Environments (RDE); and,
  – Service/frontage roads.

• Implications for access management guidelines
1  ROADS ARE THE BLOOD VESSELS OF URBAN SETTLEMENTS

• Roads for cars or streets for livelihoods

Informal trading, Main Road, Burgersfort
What do WE say when we see people trading by the side of the road?

• “Oh good, here’s a livelihood opportunity that doesn’t involve crime;

• How convenient, and hopefully, affordable;

• They shouldn’t be here, why aren’t they in the nearest shopping centre?

• This looks dangerous, is it dangerous? …haven’t seen anyone knocked down - yet:…”. 
ROADS ARE THE BLOOD VESSELS OF URBAN SETTLEMENTS cont.
Growing realisation amongst urban and transport planners:

Transport/travel is a derived demand

Key goal of sustainable urban planning =

Reduce the need to travel:

to have:

- less infrastructure
- less energy
- less time

devoted to travelling
A NOTE ON THE IMPORTANCE OF SAFETY AND EFFICIENT VEHICLE MOVEMENT

Not trying to argue that safety and efficient vehicle movement is not important:

However:...

- 1st sustainable transport and land use options
- 2nd road network’s economic functionality
- 3rd modal split in favour of public and non motorised transport optimised
- 4th efficient private motor vehicle movement and its safety
For transport planners:…

- to fulfil economic and social roles UNDERSTANDING nature of the land use patterns (origins and destinations) is key

For land-use planners awareness of universal first principle realities:

- driver reaction time at various operating speeds

- sound reasons why intersections should be spaced according to given vehicle operating speeds along a particular section of road
4 ROADS AND STREETS ARE A LIFELINE FOR THE POOR

transport engineers to always remember this:...

• signalized intersection traders;

• arterial kerbside informal furniture markets;

• door to door, spur of the moment, stopping points of mini-bus taxis; and,

• hole in the back wall shops facing onto higher order limited access arterials.

• a world post the GFC and COP 21
5 AESTHETIC AND SOCIAL VALUE OF ROADS AND STREETS

- Limited access arterial roads
- Back walls of houses turning their back on the main streets
- Unsafe
- Featureless
- Unwelcoming open tunnels
- Straight, wide, closed off arterial roads provide ideal locations for deadly gang fights, car getaways and street racing
6 URBAN DEVELOPMENT AND TRANSPORTATION TRENDS SINCE WORLD WAR II

- Suburbanisation (the Baby Boomers): the 1960-1970s
- Decentralisation (generation X) the 1980-1990s
- Information (millennials) the 2000s
MAJOR CHANGE:

Land use development patterns are rearranging themselves in terms of deficiencies in the current transport networks and services to:...

REDUCE THE NEED TO TRAVEL!!!
6.1 TRANSPORTATION (Generation Y - in SA Born Frees) Post 2010 Into The Future?

Two pronged shift:

1. Implementation of state of the art public transport systems

2. Public transport oriented urban policy
   - Transit Oriented Development (TOD)
   - Corridors of Freedom: Johannesburg
   - Voortrekker Road Corridor Program: Cape Town
6.2 TRANSPORTATION (GENERATION Y - IN SA THE BORN FREES) POST 2010 INTO THE FUTURE?...: cont.

- “Generation Y”

- US school leavers no longer aspire to owning motor cars!!!...

- Shock waves through international automobile industry

- Portland 2012: 3 schemes – 900 cars - 20 000 subscribers
7 SUMMARY

- Transportation and economic policy crossroads has been reached.
- SA feeling this more than elsewhere
- Extraordinarily dispersed urban patterns
- Major cities and towns, e.g. Stellenbosch, experiencing exponential private motor vehicle congestion
- Queuing theory - system suddenly becomes unstable after small incremental increase beyond critical threshold
- 2008 global financial crisis (GFC) structural inflexion point
- Natural environmental resources consumption patterns from oil, gas, water and land decreasing
- People leaving formal sector to seek informal employment – all income groups - how many go to office?
  - how many go by public transport?
  - how many walk or cycle?
7 SUMMARY cont.

Transport routes in SA experiencing major pressure from immediate economic opportunities they offer:

- alongside the kerb
- in abutting urban and suburban areas

Access guidelines that do not take these realities into consideration:

- Ineffective
- impossible to enforce
- may create even more dangerous situations
“Best Practise”

- to optimise mobility of road based motor vehicles, especially on higher order roads:

- intersection spacing should be further rather than closer

- parallel parking and direct access across the curtilage of higher order roads prohibited

- single functional, road either for mobility or access, but not mixture of the two
Two possible outcomes:

- **Success:**
  - high levels of private motor vehicle ownership
  - congestion is limited
  - guidelines are rigorously enforced
  - high level of voluntary compliance

- **Anarchy:**
  - same starting point as the first but degenerates
  - socio-economic needs of people are great and desperate
  - insufficient strict enforcement
8 THE DANGERS OF IGNORING REALITY IN FAVOUR OF “BEST PRACTISE.” cont.

The need for a 3rd way:

“Both and”:

- achieve the primary aims of access management, not only safety
- promote economic activity
THE COMPONENTS OF THE "3rd WAY"

- Complete streets
- Roadside development environments
- Frontage / service roads
9.1 COMPLETE STREETS

Historic concerns and views of transport planning:

- Road cross-section only accommodate private motor vehicle and freight transport, pedestrian sidewalks.
- Scant attention to cycling and public transport facilities.
- High level of access seen as inappropriate on higher-order roads.
- More frequent intersection spacing cause of more traffic accidents.
- Hoardings and large signs discouraged - danger of distracting motorists.
Complete Streets:

- More comprehensive view of what is possible in street cross-sections

- Roads and streets - areas of economic opportunity and employment creation, i.e. places rather than lines

- Road cross-sections accommodate many modes of transport

- Single integrated design exercise private motor vehicles, public transport, cycling, walking and freight and abutting land uses
Complete Streets approach considering urban form, abutting land uses, all transport modes, sympathetic geometric design (Boston, 2013)
The roadside, a major marketing opportunity:

- large billboards on pylons or sides of buildings along highways
- line shops arranged along major arterials
- street trading stalls along sidewalks and median islands
- intersections where traders actually walk in the traffic lanes to sell their wares
Why does this happen?

“In Berkeley at the corner of Hearst and Euclid, there is a drugstore, and outside the drugstore, a traffic light. In the entrance of the drugstore there is a news rack where the day's papers are displayed. When the light is red, people who are waiting to cross the street... have nothing to do, they look at the papers displayed on the news rack... Some of them just read the headlines, others actually buy a paper while they wait. This effect makes the news rack and the traffic light interdependent ... everything forms a system – they all work together”
The contradiction between access management, the road hierarchy and the strength of economic thresholds:...

Perfect access management world:

- direct small-scale transaction activities:...
  should only occur along the very lowest order streets

- larger scale activities:
  regional shopping centres, office estates, and industrial parks take indirect access off widely separated intersections on higher-order arterial roads.
Perfect access management world ignores:

- contextual economic realities currently facing South Africa
- declining levels of formal employment
- declining levels of formal education
- growing numbers of non-qualifiers for the SA social grant system including many foreigners
- very low levels of economic growth
- growing culture of financial prudence limiting access to credit
- economic demand shrinking to fewer and fewer locations
9.1 COMPLETE STREETS cont.

- small scale economic activities:…

- those with the lowest barriers to entry, will try to access the strongest possible market thresholds

- not found in quiet residential streets with few passers by

- found on the higher order arterials
9.1 COMPLETE STREETS cont.

Complete Streets - Access Management’s 3rd way

- marry non-negotiable safety aspects of access management best practice

With:...
- ensuring that road curtilage maximises access to economic activities at all scales along sections of roads

Where:...
- both needed and desirable

Obviously situations where compromise is required
9.1 COMPLETE STREETS cont.

• expand TIAs – also measure cycling, pedestrian and public transport levels of service (LOS)

• reduce operational speeds on higher order roads

• more sections of road to fall under CBD and Intermediate roadside development environments (RDEs)

• tolerate higher levels of side friction

• consider reduced LOS for motor vehicles appropriate if LOS for public transport, cycles and pedestrians improves
9.2 ROADSIDE DEVELOPMENT ENVIRONMENTS

Accounts for intensity of environments through which transport routes pass

• Urban RDEs:
  – CBD,
  – Intermediate,
  – Suburban;

• Outside of the urban edge:
  – semi-rural; and,
  – rural
• use RDEs as a consistently applied transport and land use planning tool,

• formally map RDEs to:
  - guide ‘forward’ planning
  - assess development applications

• practical bridge between transport and land use planning

• SDF and ITP should both contain maps of the same RDEs

• similar route classification terminology used in both documents
CBD and Suburban RDEs at same scale: differences in intersection spacing clearly discernible
9.3 FRONTAGE/SERVICE ROADS – THE NEW CLASS 2 AND 3 ECONOMIC AND EMPLOYMENT GENERATING ROAD CROSS-SECTION

Frontage/service roads - tool to address contradiction of:...

• higher order roads carry higher volumes of traffic - makes them more desirable as business locations

but

• to promote road safety and smooth traffic flow, access management guidelines seek to limit access from higher order routes
9.3 FRONTAGE/SERVICE ROADS – THE NEW CLASS 2 AND 3 ECONOMIC AND EMPLOYMENT GENERATING ROAD CROSS-SECTION cont.

Frontage/service roads (and one-way couplets) – provide:...

• visual exposure to passing trade along higher order roads without interfering with mobility functions

• high levels of direct access to abutting properties across the frontage road

• high levels of parking off the frontage road

• exposure to more lucrative private motor vehicle traffic

(most lucrative market compared with public and non-motorised transport modes likely to remain so for the next couple of decades)
9.3 FRONTAGE/SERVICE ROADS – THE NEW CLASS 2 AND 3 ECONOMIC AND EMPLOYMENT GENERATING ROAD CROSS-SECTION cont.

Klipfontein Road and service road, Gatesville, Cape Town
9.3 FRONTAGE/SERVICE ROADS – THE NEW CLASS 2 AND 3 ECONOMIC AND EMPLOYMENT GENERATING ROAD CROSS-SECTION cont.

Thembalethu, George: Nelson Mandela Boulevard intersecting with N2 in foreground

Informal and formal business activities and densification occurring in response to Node 2 potential

Informal activities facing NMB at rear of properties facing access internal access street
9.3 FRONTAGE/SERVICE ROADS – THE NEW CLASS 2 AND 3 ECONOMIC AND EMPLOYMENT GENERATING ROAD CROSS-SECTION cont.

Node 2: 34m cross-section Perspective

- Parking, one way northbound service/frontage road
- Northbound “sharrow” shared cycle/bus vehicle lane
- 2 - 4 storey market/GAP social housing residential above kerbside retail
- Slip lane into one way southbound parking and service frontage road
- Redeveloped building set back 3m from street boundary with stoeps colonnades to front boundary

Nelson Mandela Boulevard, Thembalethu, George
Critical elements for success:...

- nature of the link between the mobility route and the frontage road
- way finding should be clear and visual for traffic to access frontage road
- there should be visually legible intersections directly off the mobility route
10.1 ACCESS MANAGEMENT IDEALS:...

- relatively inelastic relationships between driver reaction time, operating speeds, and intersection spacing
- private motor vehicle travel is dominant - majority LSM 7 - 10
- level of service (LOS) A to be achieved
- intersection spacing must be further rather than closer apart
- parking off higher-order roads should be prohibited
10 CONCLUSION (cont.)

10.2 ACCESS MANAGEMENT CONTEXT IN SA:

- world economic order moving into a low or no growth era
- post COP 21 climate change
- SA socio-economic context of high and likely increasing levels of formal sector unemployment
- arrival of the transportation development era
- urban transport policy regime promotes transit oriented development (TOD) (new IUDF (COGTA))
10.3 NEED FOR “THIRD WAY”

- accept lower levels of service (LOS) for vehicles on all routes
- measure LOS for ALL modes of transport
- accept reduced vehicle LOS if LOS for other modes improves
- reduce designated average operating speeds throughout whole network
- break away from functional road hierarchical relationship that sees the longer a route, the higher its classification
- accept short-term, kerb-side parking opportunities outside of CBD RDEs
10.4 MIXED MOBILITY AND ACCESS - CLASS 2 + 3

Diagrams from “Activity Corridors as an Urban Strategy” for CSIR Transtek: 1989
10.5 LONG ROADS ATTRACT BUSINESS

Diagrams from “Activity Corridors as an Urban Strategy” for CSIR Transtek: 1989
• adopt the ‘Complete Streets approach’

• promote roadside development environments (RDEs) as a ‘forward’ planning tool for both transport and land use plans

• use same terminology to describe same routes in both ITPs and SDFs

• promote mixed access, mobility road cross-sections along class 2, 3 and 4 routes
Lingelihle, Cradock: Informal trading embayment on N10