

# Are We Ready for a National Road Hierarchy?

Paper Presentation to IPENZ Transportation Conference  
Tauranga, Wednesday 10 October 2007

**Andrew G. Macbeth, CPEng, FIPENZ (civil)**

ViaStrada Ltd, Christchurch



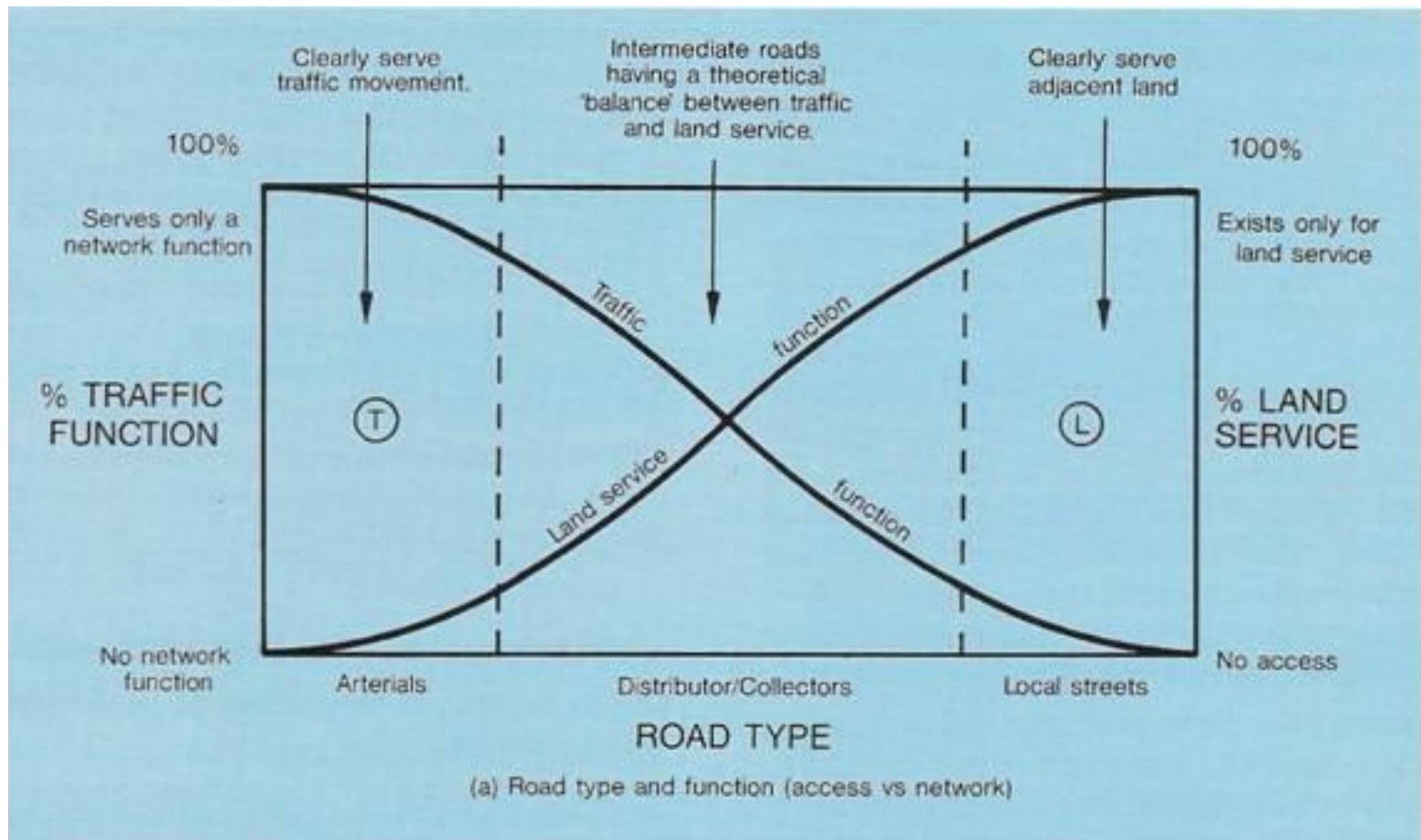
# Outline

- Introduction to road classification systems
- Incongruities in NZ's existing hierarchies
- What is the problem?
- Proposed solution
- Discussion

# Functional Road Hierarchy – Definition

- A system of classifying roads for different functions and for managing roads and traffic according to this system
- Common road class names include:
  - Arterial
  - Collector
  - Local

# Traffic vs Land Service Functions



From Austroads GTEP Part 9  
Arterial Roads Traffic Management

# Existing Hierarchies

- NZS 4404 – Subdivision Standard
- Land Transport NZ Economic Evaluation Manual (EEM)
- “Transfund” Maintenance Guidelines
- Transit SH Geometric Design Manual
- National Road Classification System (NRCS)
- District plans – all councils

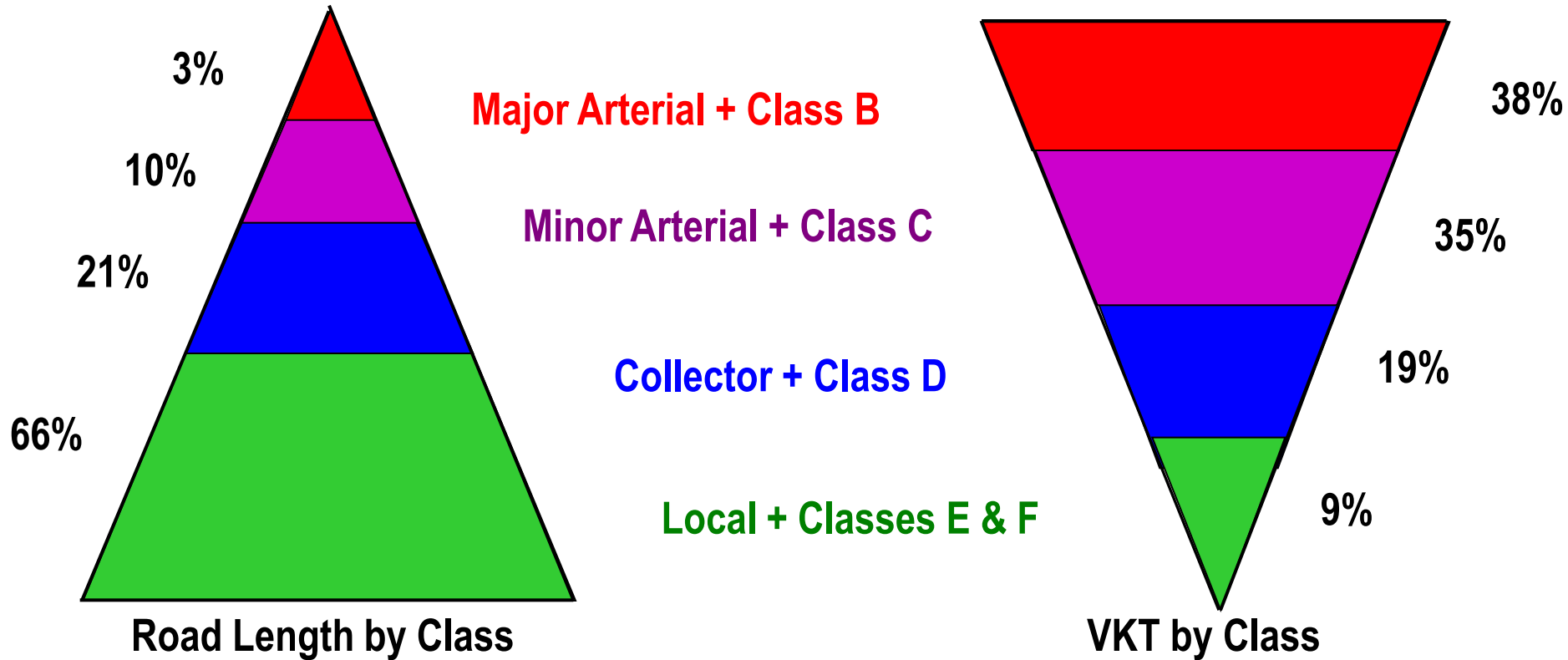
# Determining Road Class

- AADT is seen as the most objective (and quantifiable) method of determining road class
- Encourages consistency within and between jurisdictions
- Other characteristics besides AADT should be considered in classifying roads

# Other Characteristics (NRCS)

- Traffic function versus land access function
- Flow characteristics
- Desirable operating speed
- User types
- Accommodation of pedestrians
- Accommodation of cyclists
- Public transport
- Desirable connections

# Analysis of NZ Road Network



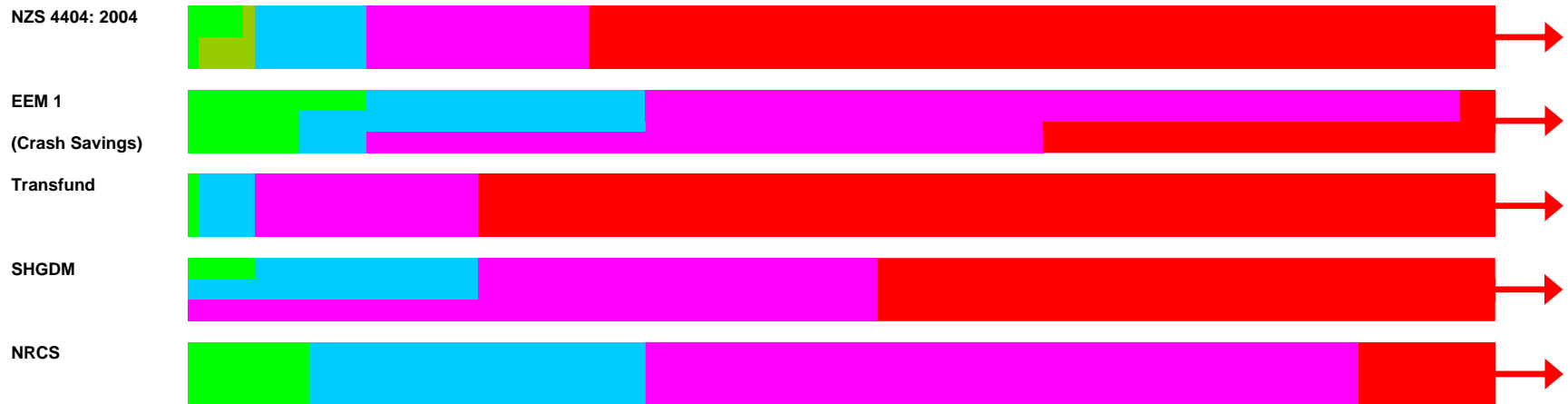
- 12 districts/cities covering 20% of NZ road length
- Evaluated using proposed NRCS



# Council Hierarchies Reviewed

- Christchurch City
- Hurunui District
- Kapiti Coast District
- Marlborough District
- Southland District
- Waimakariri District
- Hamilton City
- Invercargill City
- Manukau City
- Rodney District
- Tasman District
- Whangarei District
  
- State Highways included

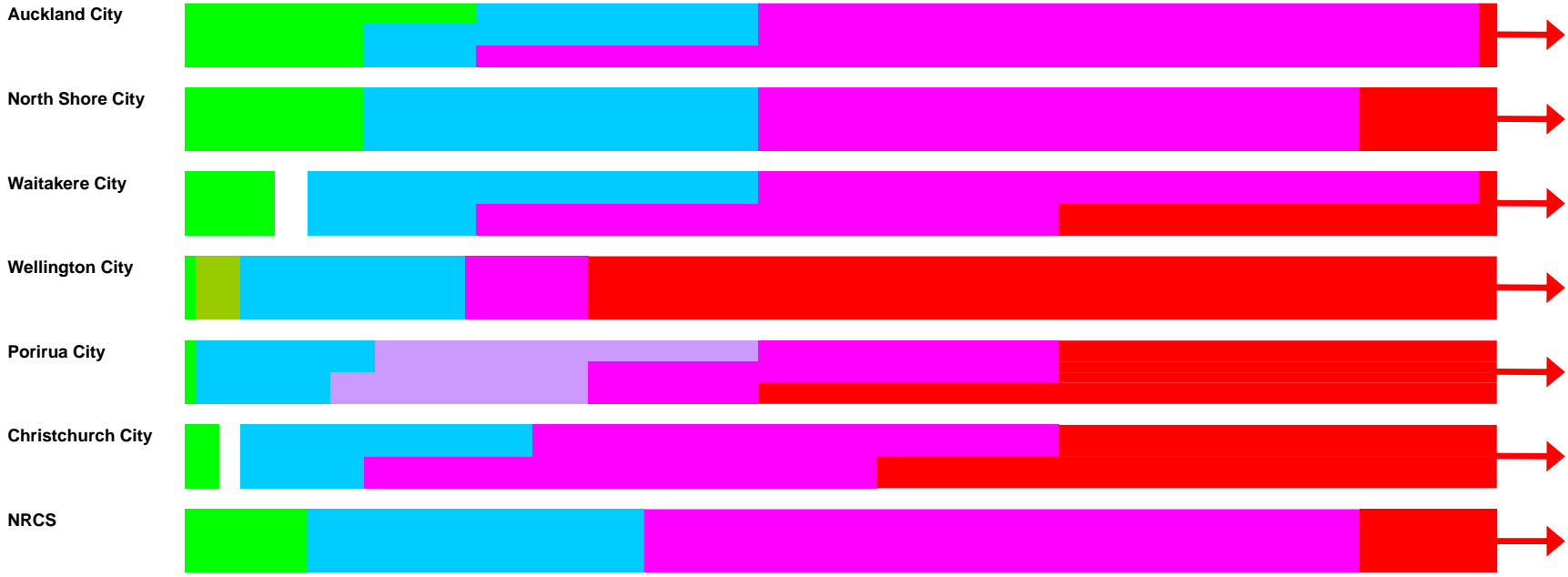
# AADT Ranges – Urban (National)



Local  
Collector  
Minor Arterial  
Major Arterial



# AADT Ranges – Urban (District/City)



# Other Council Hierarchies Reviewed

- Manukau City
  - Hamilton City
  - Lower Hutt City
  - Selwyn District
  - Waitakere City
  - Upper Hutt City
  - Dunedin City
  - Waimakariri District
- None of these specify AADT ranges

# What is the Problem?

- Urban major arterial – should probably be divided carriageway, 4 or more lanes
- > 7,000 in NZS 4404 and Wellington City
- > 20,000 in NRCS and North Shore
- Vastly more expensive to build a network to NZS 4404 – not economic
- Different driver expectations from one area to another – safety implications

# Major arterial – is 20,000 vpd right?

- 20,000 vpd is often accepted as the AADT needed to justify a four lane urban road
- Dual carriageway is safer for these kinds of volumes
- Inefficient to provide this standard for too low a volume

# Possible solutions

- Implement NRCS universally – voluntary?
- Leadership – Land Transport NZ/Transit NZ?
- What role for other agencies?
  - Standards NZ
  - MOT
  - Local Government NZ
  - RCA Forum
  - Standards and Guidelines Steering Group (SG<sup>2</sup>)

# Discussion

- Many different hierarchies in NZ
- Is this a concern?
- If so, how should we rectify this?
  - Implement NRCS universally – voluntary?
  - Leadership – Land Transport NZ/Transit NZ?
  - Role of Standards NZ, MOT, Local Government NZ, RCA Forum, SG<sup>2</sup>?
- How important/urgent is this?