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## Are we ready for a national road hierarchy?

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# Acknowledgements

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- Bill Greenwood and Lyndon Hammond – Land Transport NZ (SMS project 2007 )
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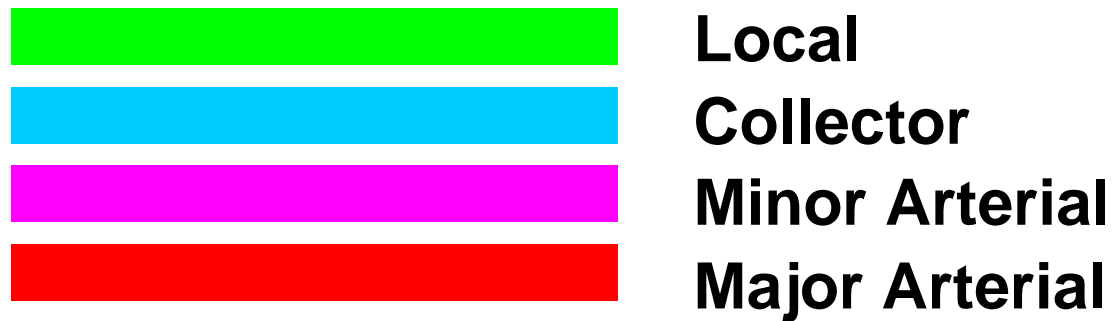
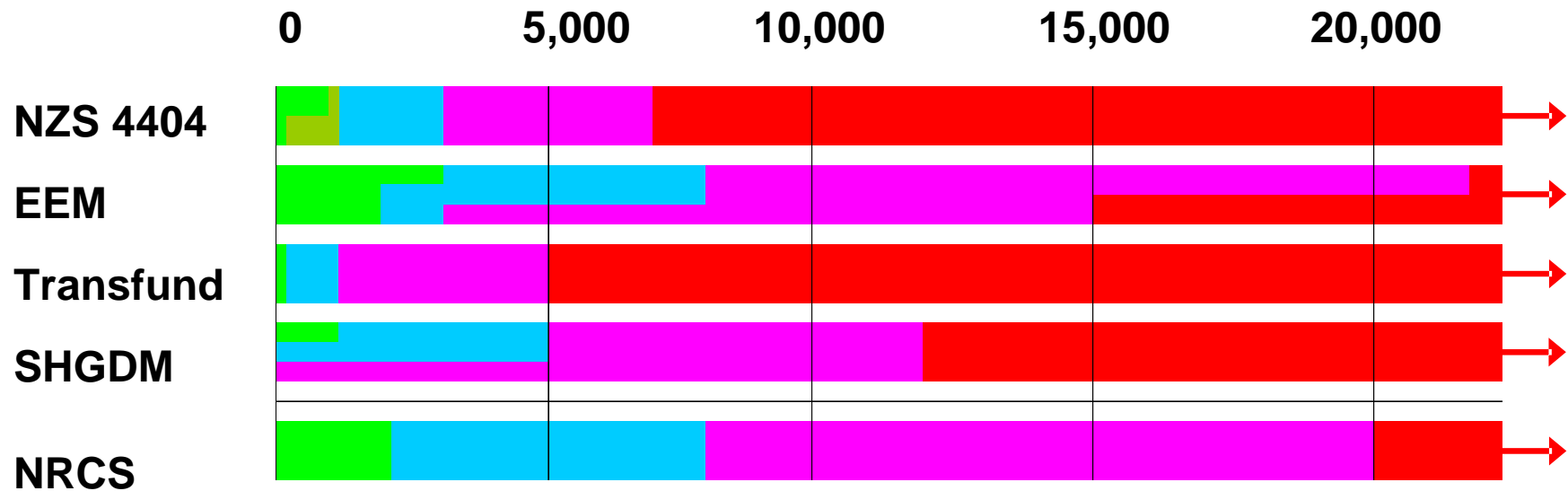
# Outline

- Introduction to road classification systems
- NZ's existing hierarchies
  - National
  - Local
- What is the problem?
- Proposed NRCS and possible solutions
- Discussion

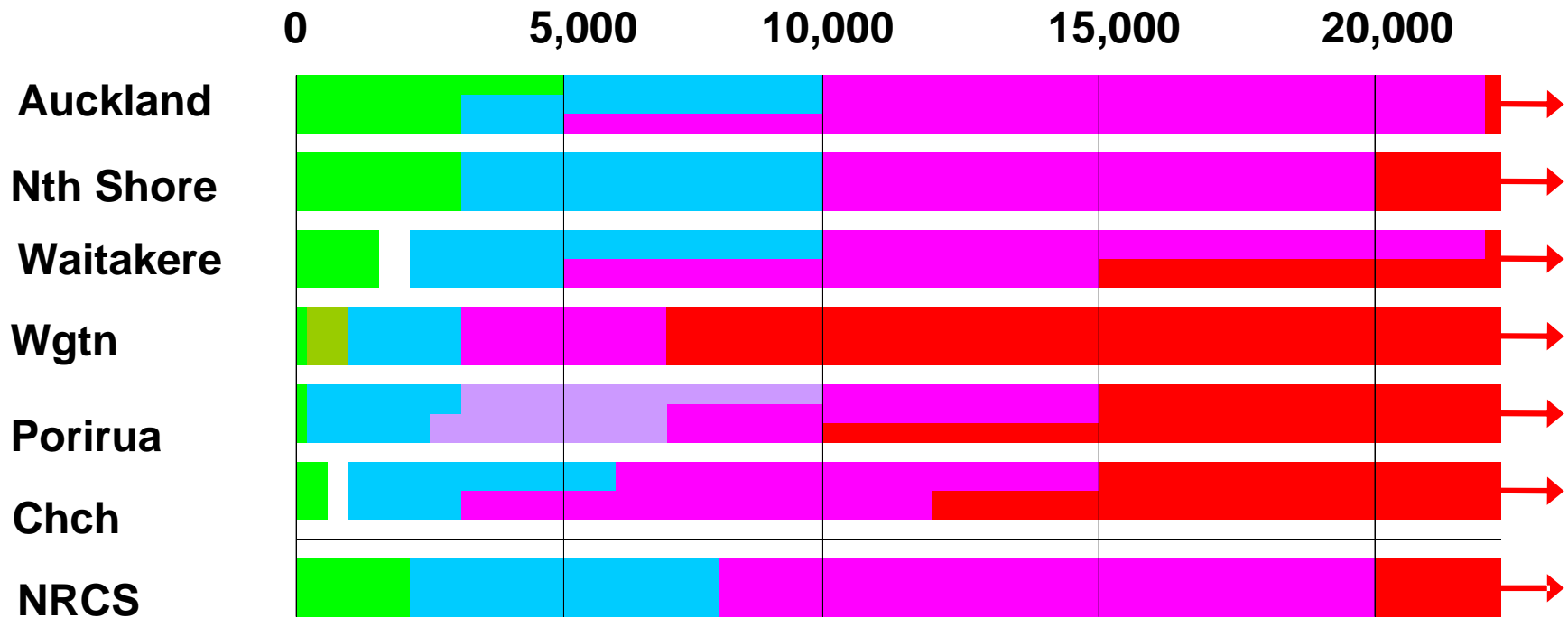
# Functional Road Hierarchy – Definition

- A system of classifying roads for different functions and for managing roads and traffic according to this system
- Basis for traffic engineering, transport planning and land use planning
- Common road class names include:
  - Arterial
  - Collector
  - Local

# AADT Ranges – Urban (National)



# AADT Ranges – Urban (District/City)



# What is the problem?

- Some cities/districts use AADT, some don't – are they both right?
- Some use overlapping ranges, some don't
- Different thresholds between systems
- Local hierarchies out of step with national
- Speed limits and design standards differ for similar roads
- Cost implications

## Example – major arterials, motorways

- 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
- Motorways start at 8,000 (SHGDM)

# Proposed AADT ranges – NRCS

<b>Class</b>	<b>Local</b>	<b>Collector</b>	<b>Minor Arterial</b>	<b>Major Artl.</b>
Urban	< 2,000	2,000 – 8,000	8,000 – 20,000	> 20,000
Rural	< 200	200 – 1,000	1,000 – 5,000	> 5,000

- Incorporated into CAS and recommended for safety management systems (SMS)

# Possible solutions

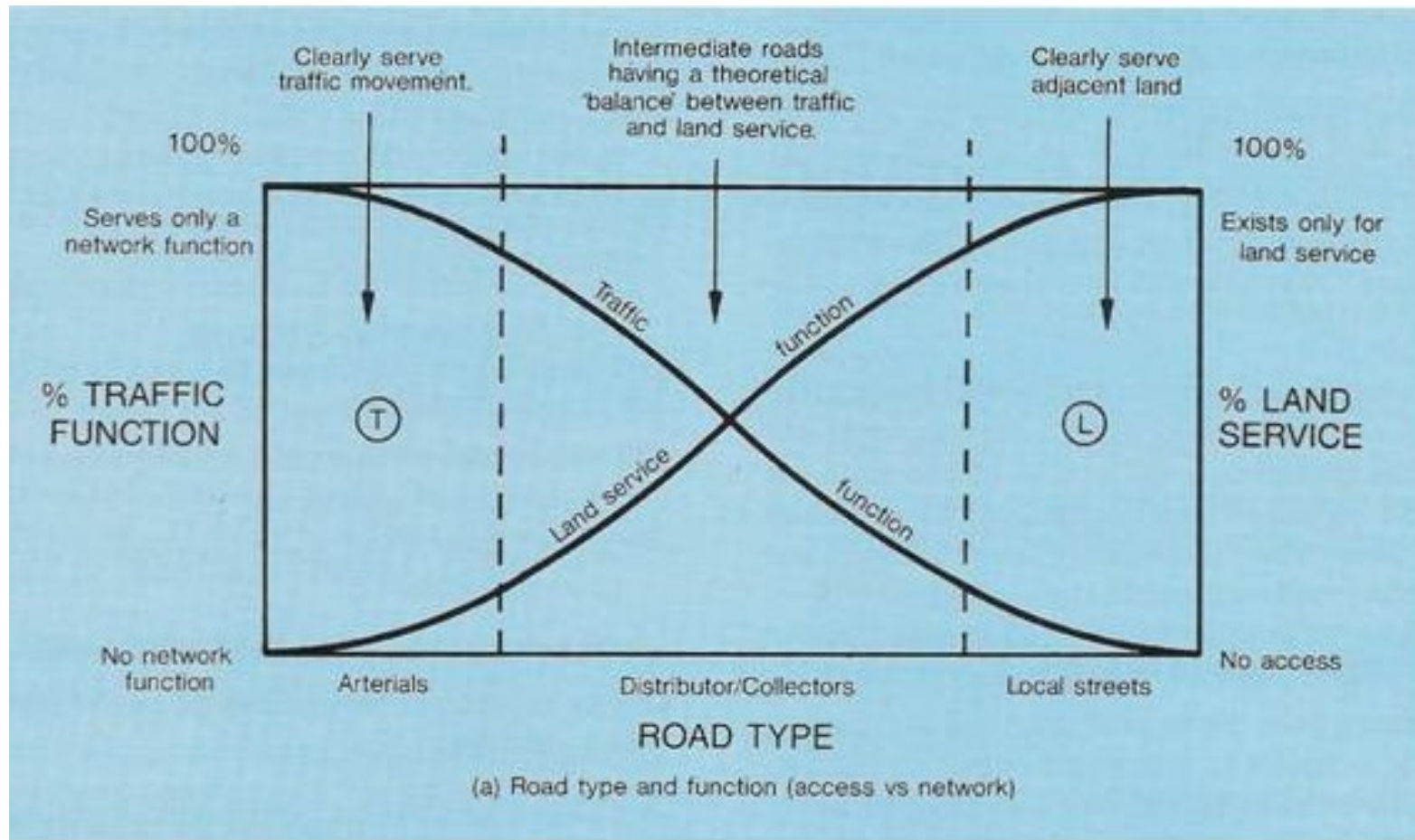
- Implement NRCS universally – voluntary?
- Leadership – Land Transport NZ/Transit NZ?
- What role for other agencies?
  - Standards NZ
  - MOT
  - Austroads
  - Local Government NZ
  - RCA Forum
  - Standards and Guidelines Steering Group (SG<sup>2</sup>)
  - IPENZ Transn. Group, NZ Planning Institute

# 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, Austroads, Local Government NZ, RCA Forum, SG<sup>2</sup>, IPENZ Transn. Group, NZ Planning Institute
  - Need a robust, consultative process
- How important/urgent is this?

# Supplementary slides

# 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

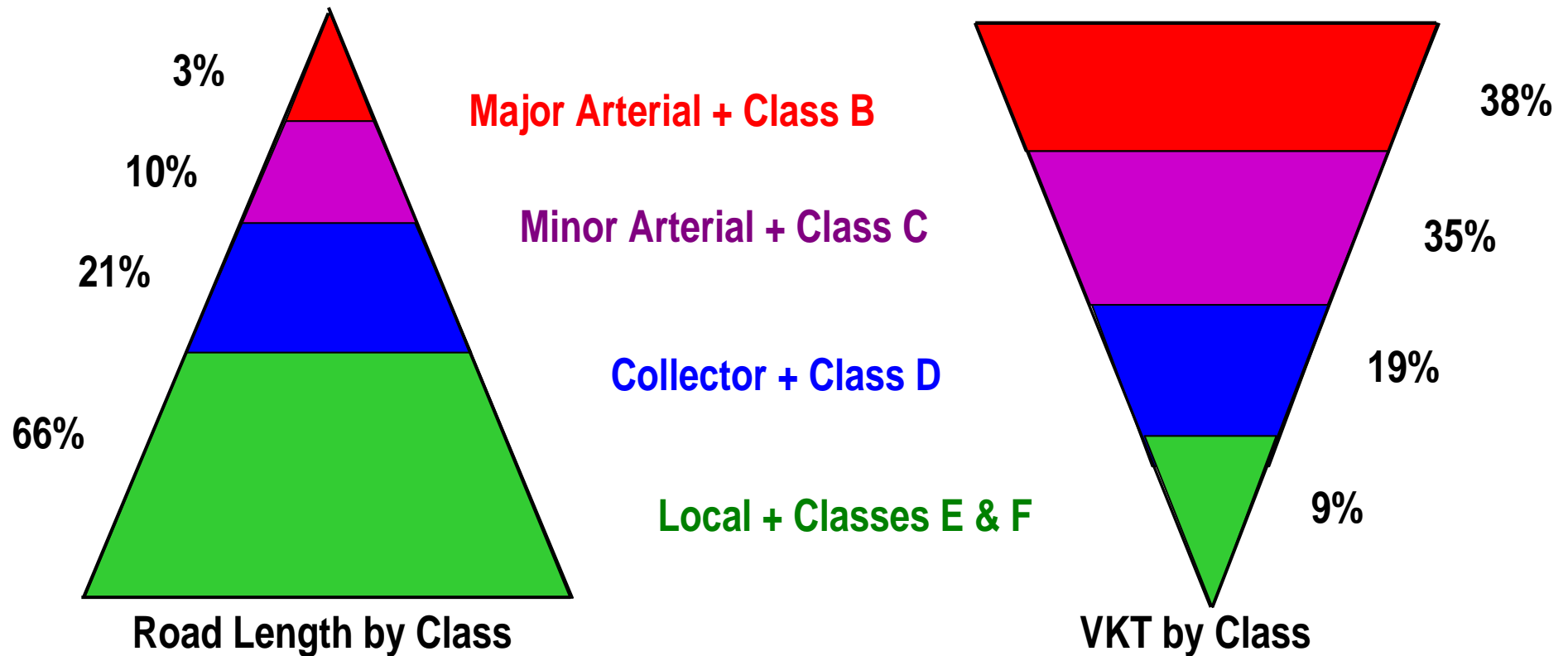
# Determining Road Class

- 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
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- State Highways included

# 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