



From Cats to a Fiddle



John Foster and
Grant Smith



The early years

- Pre 1940s
- Detroit
- Chicago (Cats)

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Development of Analytical methods

- Generation
- Distribution
- Mode Choice
- Assignment

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Development of Analytical methods Trip Generation

- Regression derived equations
- Category models

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Development of Analytical methods Trip Distribution

- Growth Factor (Frater)
- Gravity Models (Alan Voorhees)

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Development of Analytical methods

Mode Choice

- Diversion Curves
- Logit models (later)

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Development of Analytical methods

Assignment

- Early assignments – manual route choice (judgment)
- Shortest path algorithm in 1957 (Moore)
- Developed into capacity restrained late 1960s
- Equilibrium methods 1970s
- Intersection delays in the 1980s
- Dynamic assignment in 1990s
- Micro simulation in the 1990s

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Early New Zealand Studies Main Cities

- Auckland 1955
- Christchurch 1959
- Auckland Wellington & Dunedin 1962/63

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Early New Zealand Studies Provincial Centres

- Palmerston North 1963
- New Plymouth 1964
- Whangarei 1964
- Timaru 1965
- Invercargill 1967
- Hamilton 1968
- Nelson 1968

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Punched Cards

- No backspace
- No delete
- Upper case only
- 2000 cards (lines of code or data) per box
- Cards had to be kept in order

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Electric Card Punch Machine



New Zealand Studies The 1970s – Main Centres

- Christchurch 1969
- Auckland 1971
- Wellington 1971
- Hamilton 1979

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New Zealand Studies Roading Division 'demand' models

- Rotorua 1970
- Tauranga 1970
- Gisborne 1971
- Whangarei 1971
- Nelson 1974
- Wanganui 1975
- New Plymouth 1975
- Timaru 1976

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New Zealand Studies The 1980s

- Emergence of the PC
- Decline of Roding Division
- Development of proprietary software for the PC

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New Zealand Studies Software in NZ

- Trips (MVA)
- Tracks (Gabites Porter)
- Emme (University of Montreal)
- Saturn (Leeds University)

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New Zealand Studies Changes in model form

- Development of period models
- Intersection delays included
- Alignment with Census data
- 'Borrowed' parameters

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New Zealand Studies The last 20 years

- Major Centres
- Provincial centres
- More detail included
- Operational rather than strategic issues
- Micro simulation

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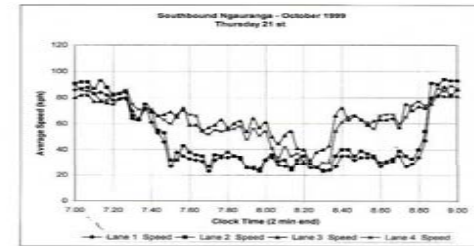
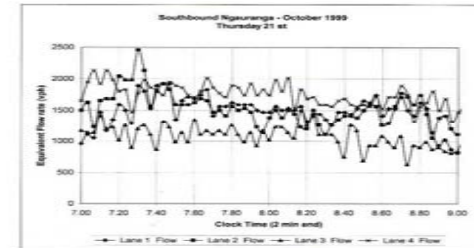


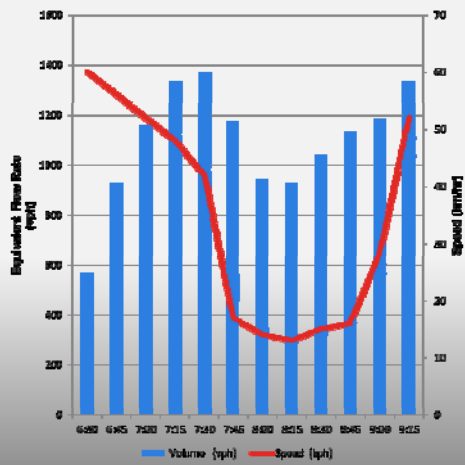
New Zealand Studies The fiddles

- Equilibrium assignment and Intersection delays
- Matrix estimation

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Concluding comments

- NZ has a continuous history of modelling
- Kept abreast of or ahead of international practice
- Models now a very commonly used tool