

# DoI Integrated Transport Modelling

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# DoI Integrated Transport Modelling

## TRANSPORT MODELLING

- the systematic representation of the large and complex real-world transport system as it exists, and as it might be

# DoI Integrated Transport Modelling

## MELBOURNE INTEGRATED TRANSPORT MODEL (MITM)

- Strategic/City-wide Integrated Travel Demand Model (highway & public transport)
- Can be applied to test and assess:
  - transport policies and strategies
  - present and future demands (e.g. congestion) on the transport system
  - road & public transport project impacts
  - long-term strategic land use & transport infrastructure initiatives
- Generate input to the project appraisal process

# DoI Integrated Transport Modelling

## MITM Transport Zoning System

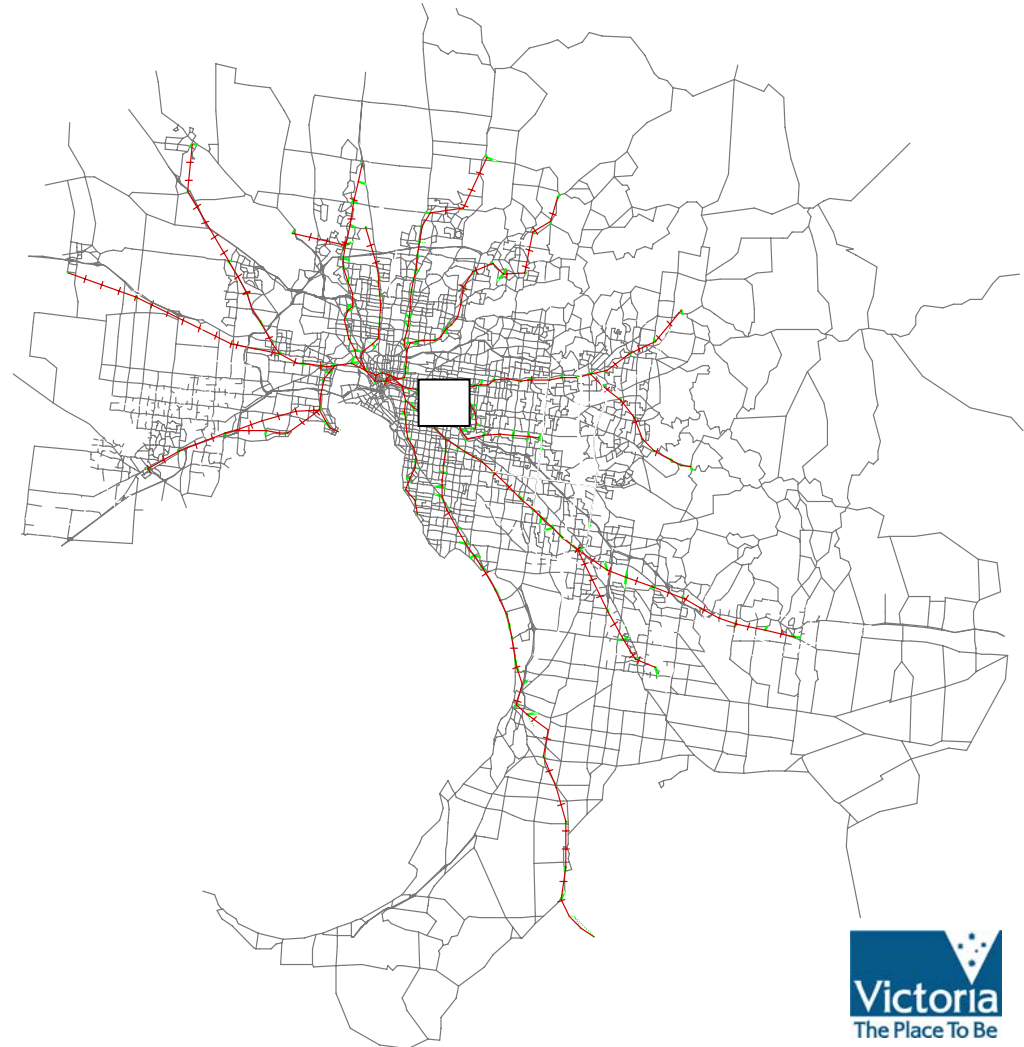
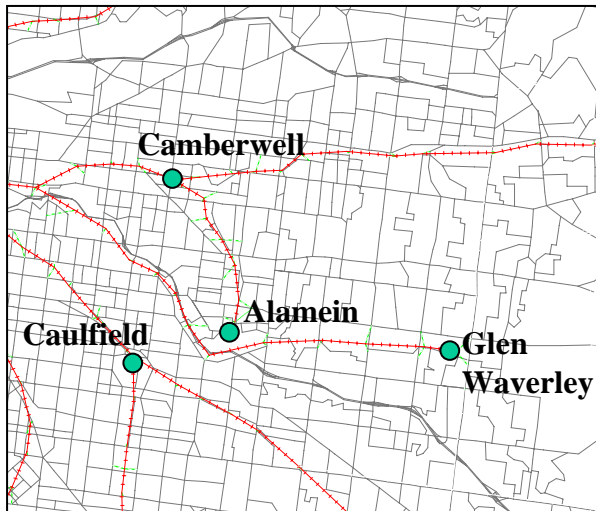
- 2,272 transport zones

## MITM Highway Network

- 35,700 links
- freeways, arterials, collectors

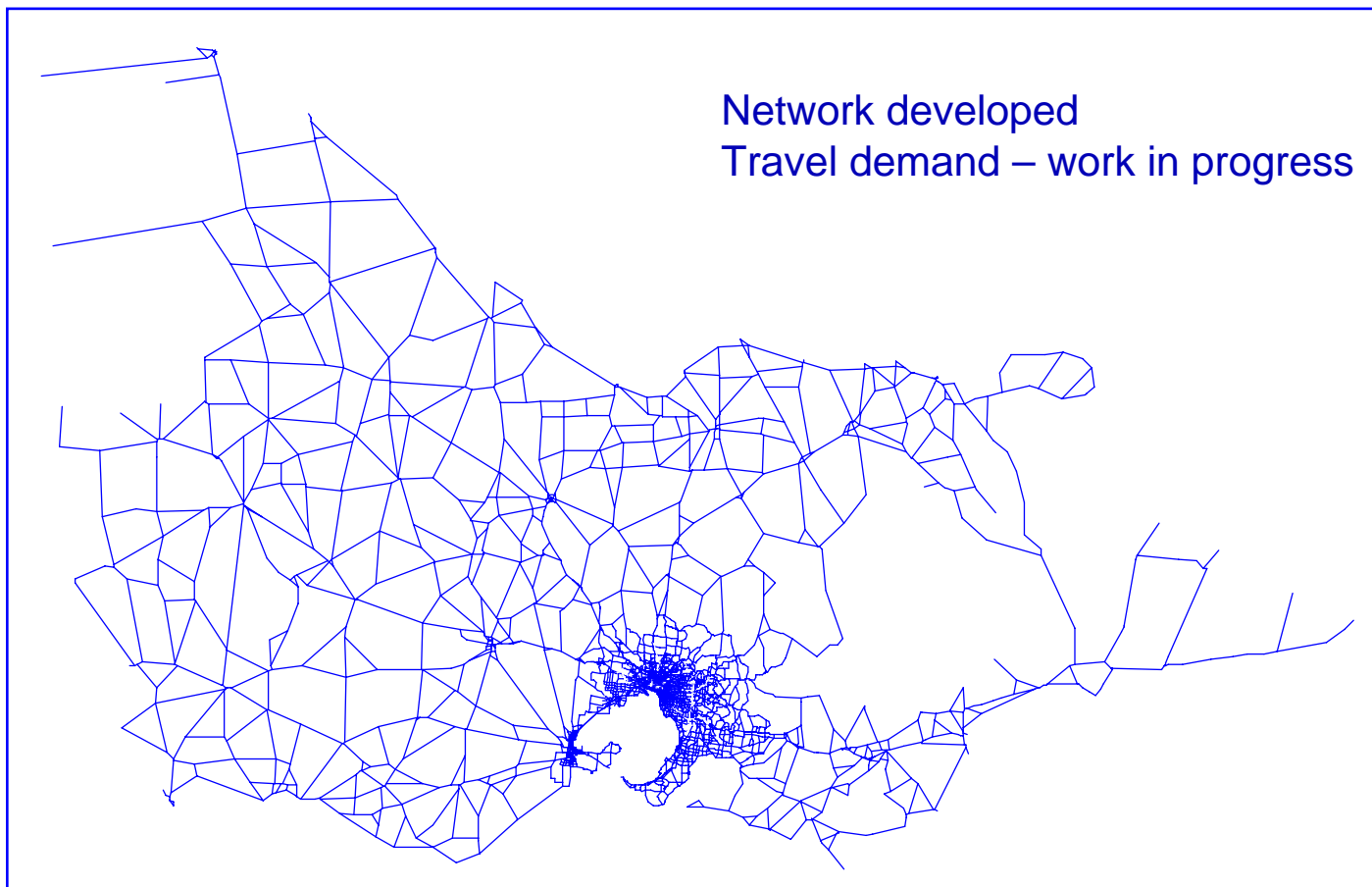
## MITM Public Transport Network

- tram, train & bus



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## STATEWIDE MODEL



# DoI Integrated Transport Modelling

*“It’s not so important where we stand, but the direction we are moving.”*

*Goethe (1749-1832)*

# Dol Freight Movement Model

## FREIGHT MOVEMENT MODEL (FMM) - PRIMARY OBJECTIVE

- Develop a practical and operational FMM for the MSD to:
  - describe the existing, Base Year freight patterns
  - identify impacts on freight movements of land-use policies
  - estimate changes in Future years, under a range of possible scenarios

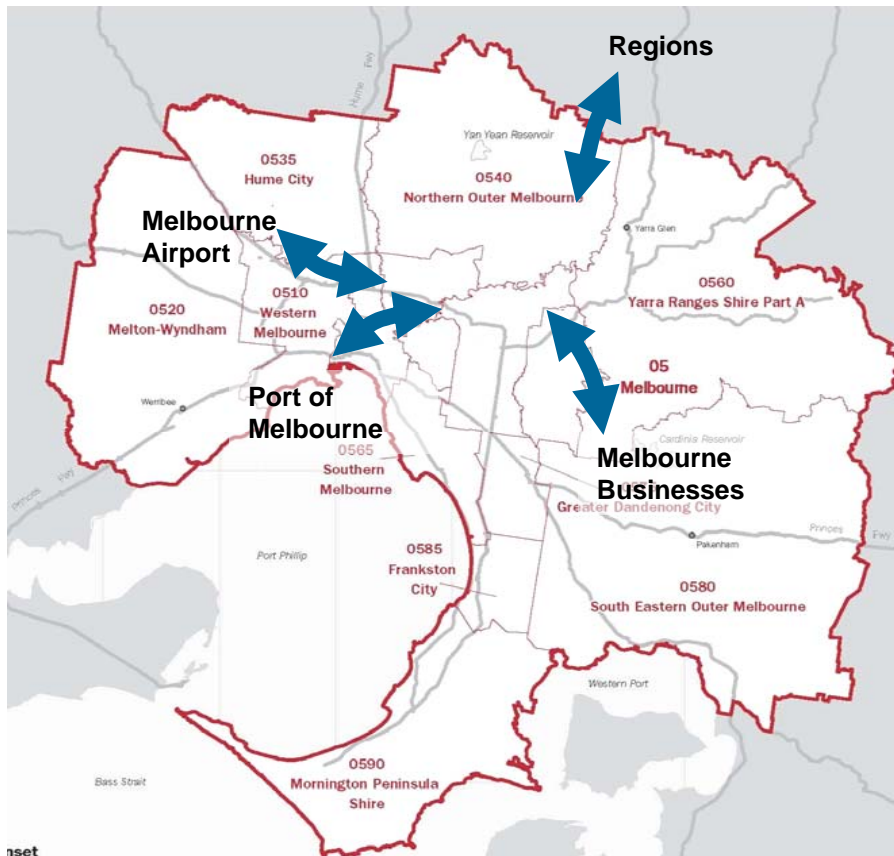
# Dol Freight Movement Model

## PRIMARY FMM CAPABILITIES

- be industry-commodity based (input from industry wrt data)
- reflect industry and supply chain structures
- have effective interfaces with MITM, DSE land-use and other databases
- generate estimates for selected time periods, industry-commodity classes & vehicle classes
- report estimates in suitable forms for users
- immediate focus on ‘heavy’ freight and HCV’s (rigid and articulated trucks)

# DoI Freight Movement Model

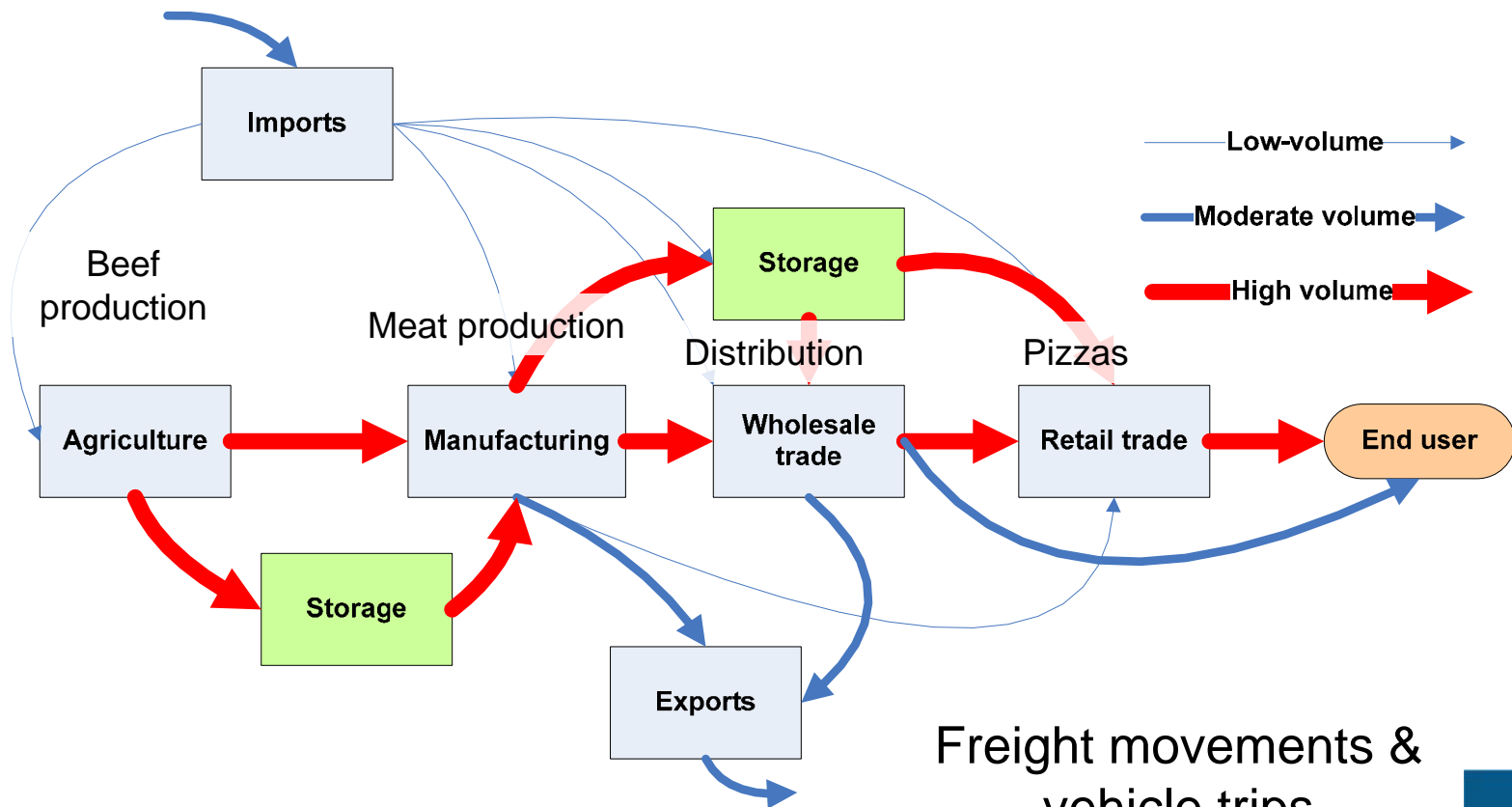
## PRIMARY COMMODITY PRODUCTION SOURCES & MOVEMENTS



- MSD based manufacturing - storage - processing businesses
- Port of Melbourne imports – exports, to/from MSD and regions
- Regional imports - exports

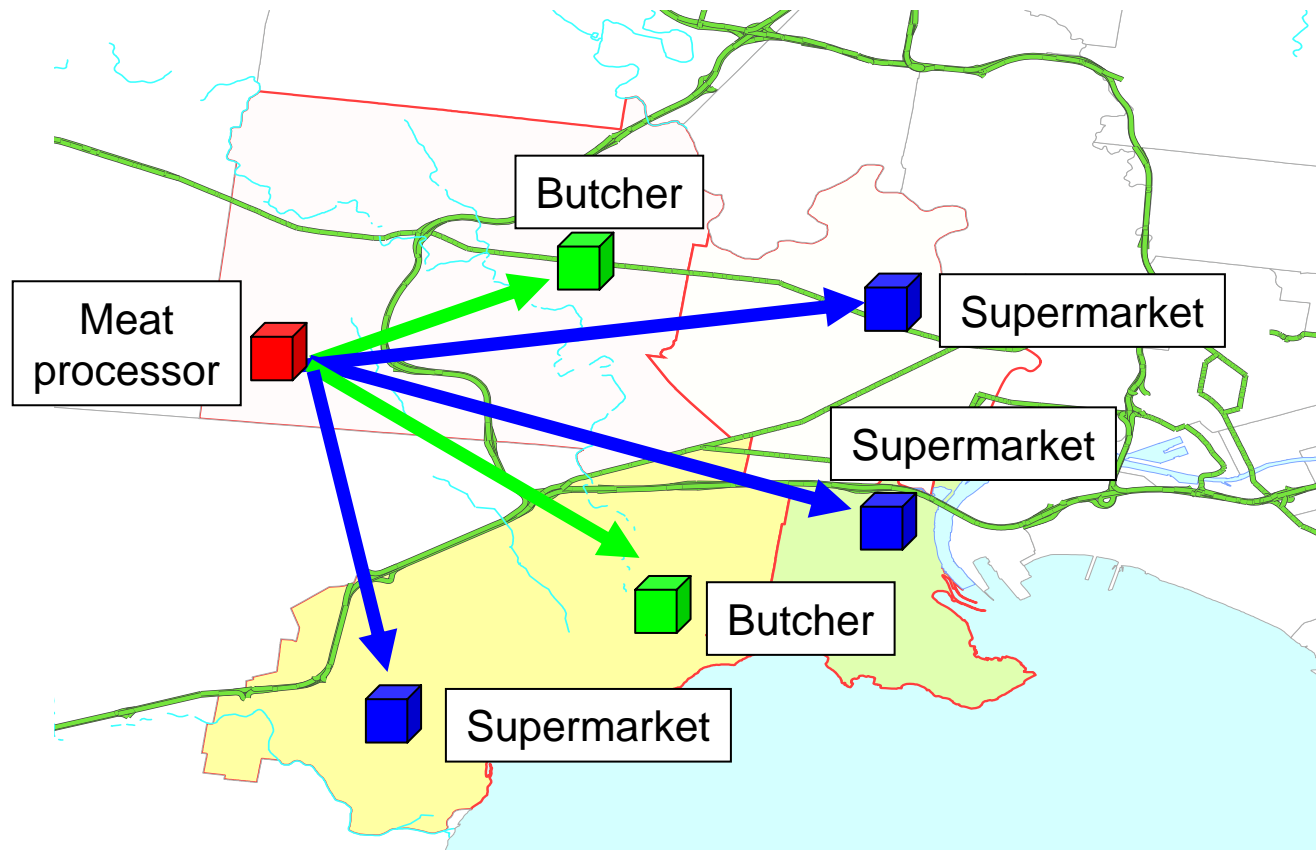
# DoI Freight Movement Model

## FOOD CHAIN – MEAT PRODUCTS



# Dol Freight Movement Model

## PRODUCTION DISTRIBUTION – MEAT CHAIN



The production and distribution models provide estimates of freight movements

# Dol Freight Movement Model

## INDUSTRY - COMMODITY & TRANSPORT MODE CLASSES

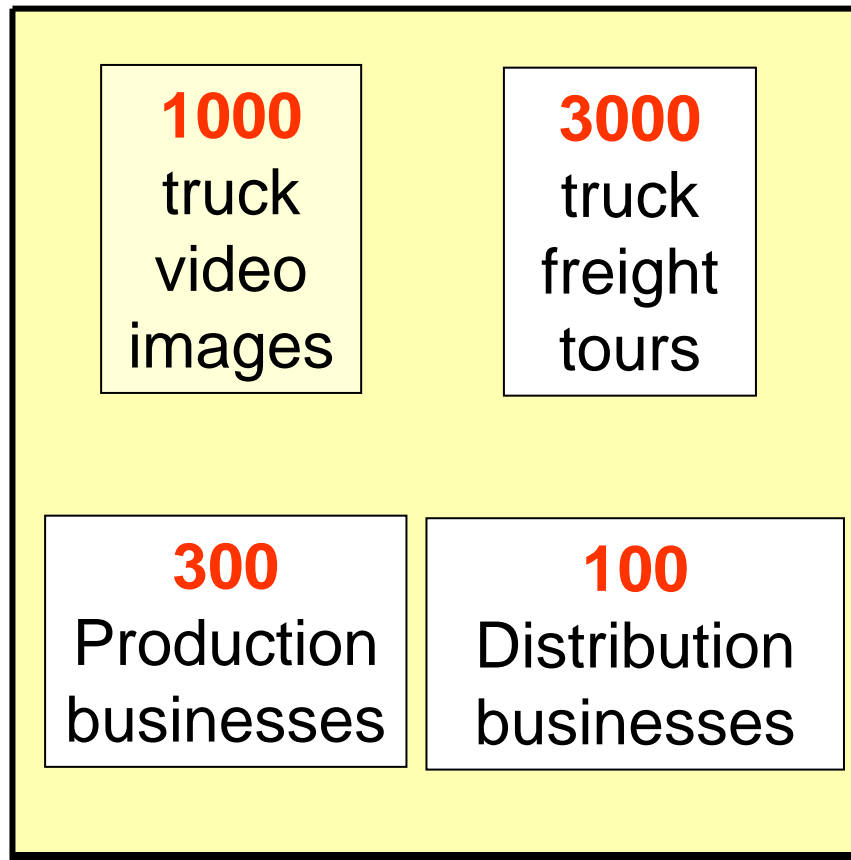
| Industry and commodity class |                    |                         |                             |
|------------------------------|--------------------|-------------------------|-----------------------------|
| FMM Stage 1                  | Industry           |                         | Commodity                   |
| I1                           | Agriculture        | Horticulture and Fruits | Vegetables and fruits       |
| I2                           |                    | Grains and Meats        | Grains and meat             |
| I3                           |                    | Dairying                | Milk, etc                   |
| I4                           | Mining             | Other Mining            | Construction materials      |
| I5                           | Manufacturing      | Food , Beverage         | Food and beverage           |
| I6                           |                    | Textiles, Clothing, etc | Textiles, etc               |
| I7                           |                    | Wood and Paper          | Wood and paper              |
| I8                           |                    | Printing, etc           | Printing products           |
| I9                           |                    | Petroleum, etc          | Petroleum products          |
| I10                          |                    | Non-Metalic Products    | Non-metalic products        |
| I11                          |                    | Metal Products          | Metal products              |
| I12                          |                    | Machinery and Equipment | Machinery and equipment     |
| I13                          |                    | Other Manufacturing     | Other manufactured products |
| I14                          | Wholesaling        | Basic Material          |                             |
| I15                          |                    | Machinery and Vehicles  |                             |
| I16                          |                    | Personal and Household  |                             |
| I17                          | Retail             | Food Retailing          |                             |
| I18                          |                    | Personal and Household  |                             |
| I19                          |                    | Motor Vehicle           |                             |
| I20                          | Transp and Storage | Transport Depot         |                             |
| I21                          |                    | Warehouse               |                             |
| I22                          |                    | Distribution Centre     |                             |

| FMM transport modes |       |           |
|---------------------|-------|-----------|
| FMM Stage 1         |       |           |
| Road-based          | LCV   |           |
|                     | Rigid | <b>M2</b> |
|                     | Artic | <b>M3</b> |
| Rail                |       |           |
| Air                 |       |           |
| Sea                 |       |           |

# DoI Freight Movement Model

## FMM DATABASE



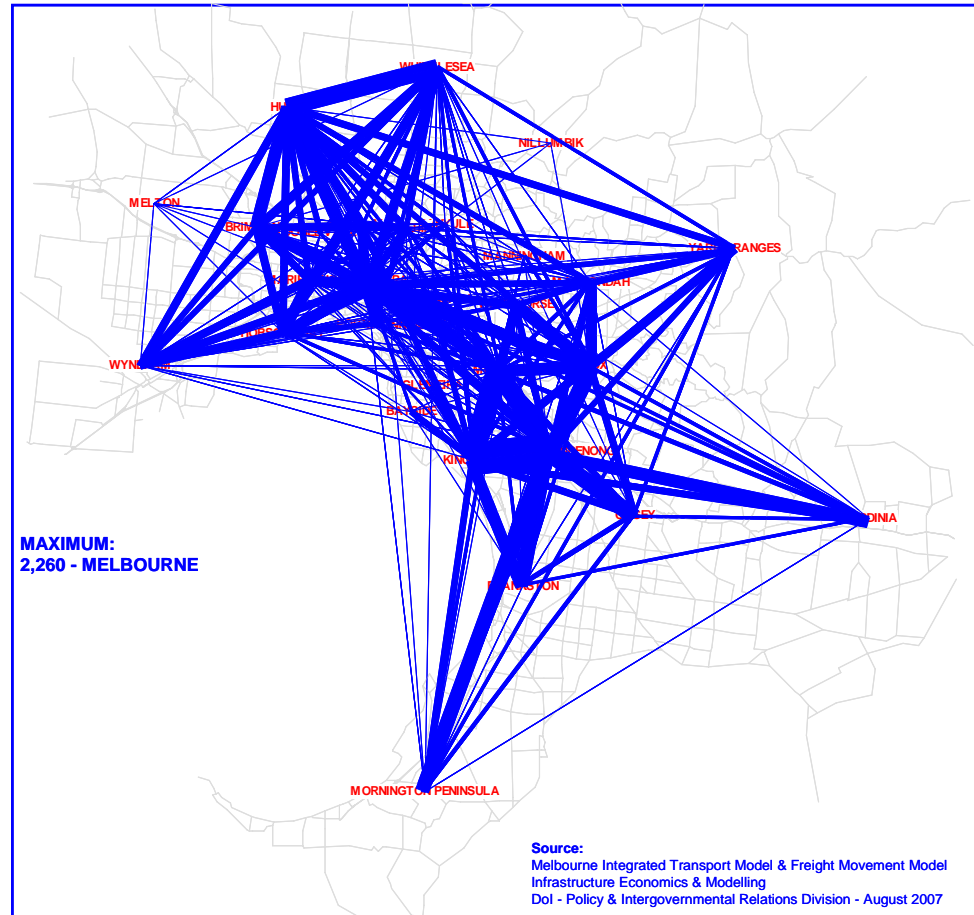
# Dol Freight Movement Model

## INTRA-MELBOURNE FREIGHT MOVEMENT – FREIGHT TRIPS

| Industry Class      | Daily          | % of Total  | AM Peak       | Inter Peak    | PM Peak       | Off Peak      |
|---------------------|----------------|-------------|---------------|---------------|---------------|---------------|
| Agriculture         | 6,262          | 3.6%        | 942           | 3,305         | 584           | 1,431         |
| Food & Beverage     | 10,051         | 5.8%        | 1,513         | 5,304         | 938           | 2,296         |
| Manufacturing       | 111,871        | 64.3%       | 16,836        | 59,040        | 10,441        | 25,554        |
| Mining              | 12,052         | 6.9%        | 1,814         | 6,360         | 1,125         | 2,753         |
| Retail              | 14,884         | 8.6%        | 2,240         | 7,855         | 1,389         | 3,400         |
| Transport & Storage | 5,819          | 3.3%        | 876           | 3,071         | 543           | 1,329         |
| Wholesale           | 12,994         | 7.5%        | 1,956         | 6,857         | 1,213         | 2,968         |
| <b>Total</b>        | <b>173,933</b> | <b>100%</b> | <b>26,177</b> | <b>91,792</b> | <b>16,233</b> | <b>39,731</b> |

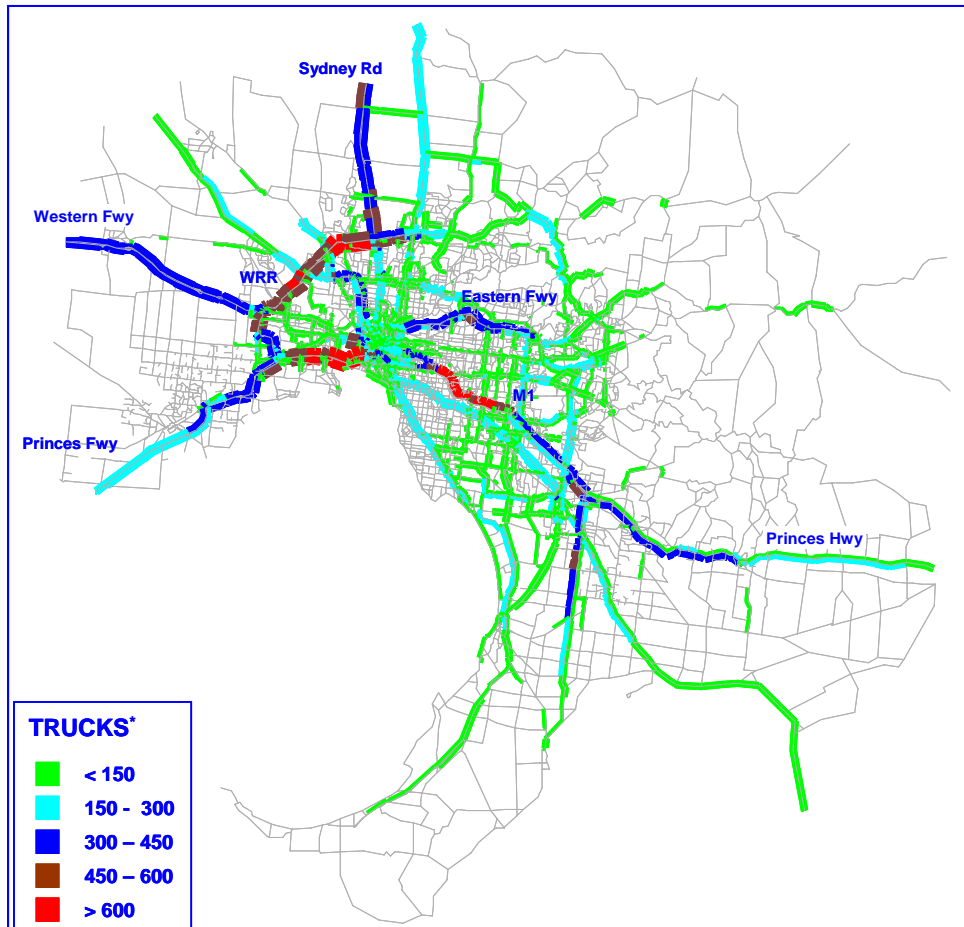
# DoI Freight Movement Model

## Intra-Melbourne Freight Movement Task (AM Peak)



# DoI Freight Movement Model

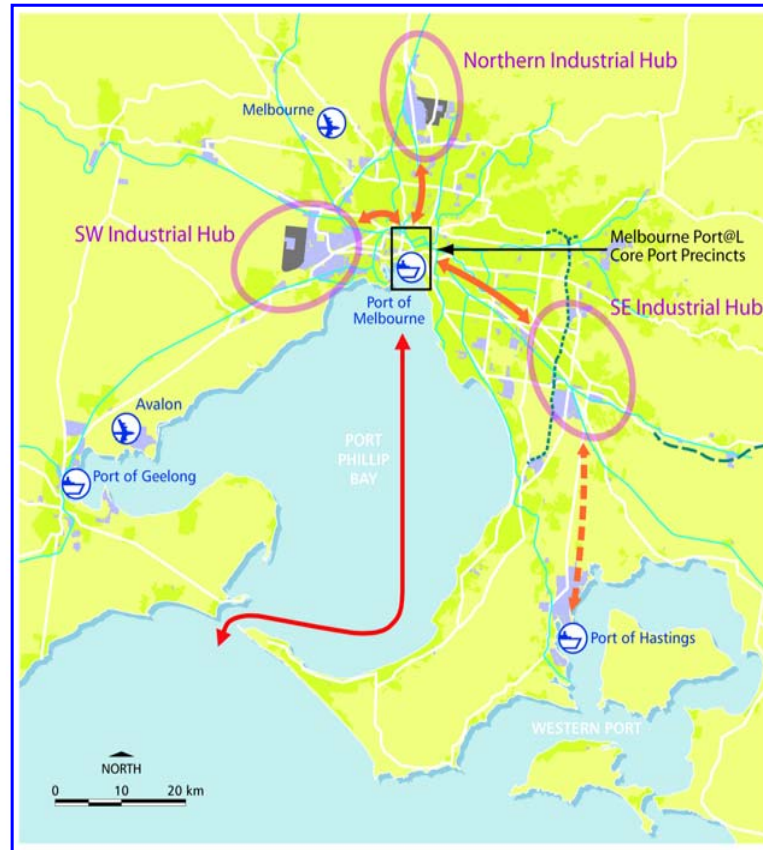
## Intra-Melbourne Freight Movement Volumes (AM Peak)



- the heavy use being made by freight traffic of the M1 (between Dandenong and Werribee), Western Ring Road (Laverton and Sydney Road), Eastern Freeway (Springvale Rd to Hoddle St) and Western Freeway (Deer Park to Bacchus Marsh).
- the freight traffic pattern is consistent with the distribution of freight activity as freight moves between and within the northern, south-eastern and western regions of metropolitan Melbourne.
- up to 300 truck movements on the highway system in the north-east region and up to 600 truck movements in the south-east of Melbourne (in the vicinity of the M1/South Gippsland Freeway interchange and the Western Port Highway) during the AM Peak.
- concentration and intensity of freight traffic on the M1 (greater than 600 trucks) between Springvale Rd and Toorak Rd during the AM Peak, as well as across the West Gate Bridge.

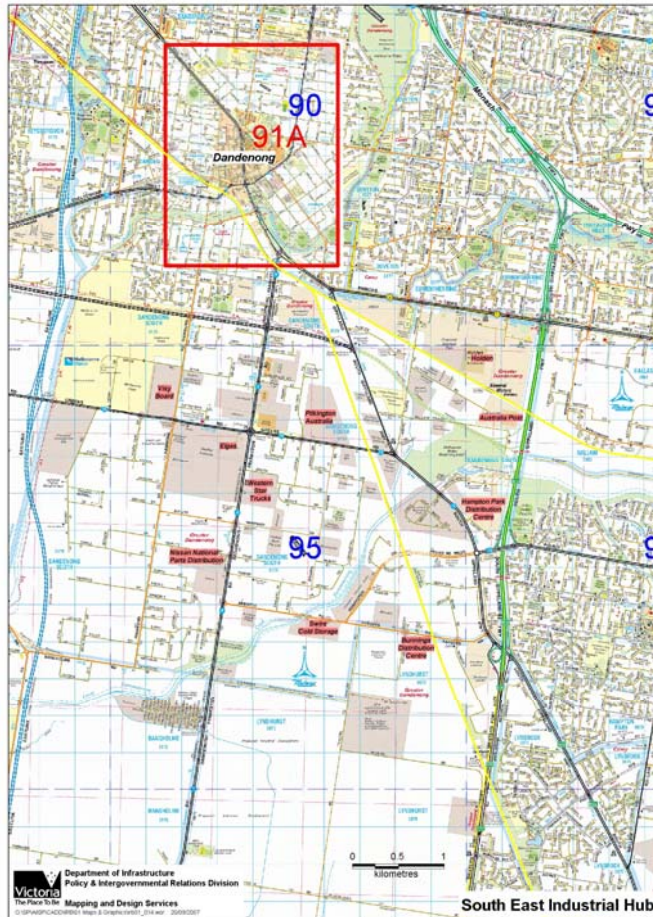
# DoI Freight Movement Model

## Metropolitan Melbourne Industrial Hubs



# DoI Freight Movement Model

## South East Industrial Hub



- 2.5% of freight from Greater Dandenong in the morning peak is destined for Melbourne LGA.
- Greater Dandenong has the highest internal freight movement activity(645 truck trips) of all the metropolitan LGA's during the morning peak

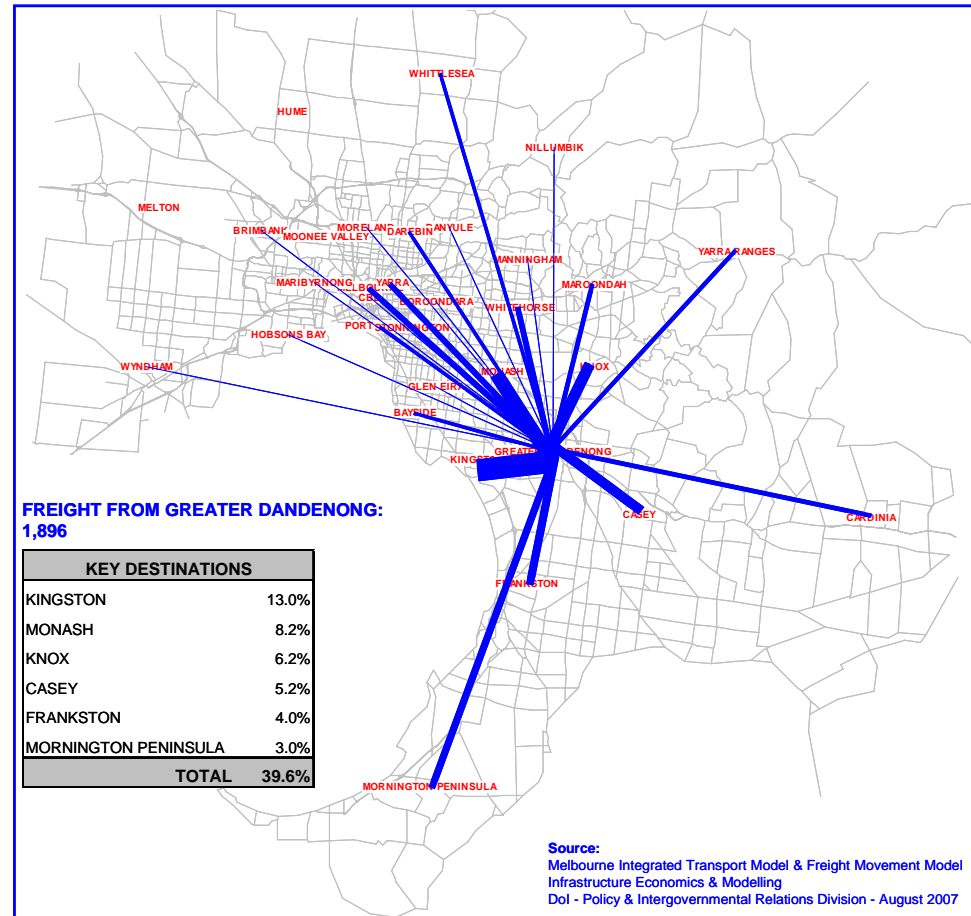
# Dol Freight Movement Model

## South East Industrial Hub

- Strong freight movement activity within the south-east region of Melbourne, specifically between the LGA's of Greater Dandenong, Kingston, Monash, Knox, and Casey.
  - 30% of all freight activity generated in the morning peak across metropolitan Melbourne.
- Greater Dandenong is the largest generator of freight movement with over 1,800 truck trips in the morning peak
  - approximately 30% of the total south-east regional freight movement.
- Nearly 40% of freight from Greater Dandenong is destined for Kingston, Monash, Knox, Casey and the Mornington Peninsula.

# DoI Freight Movement Model

## Freight Movement from Greater Dandenong (AM Peak)



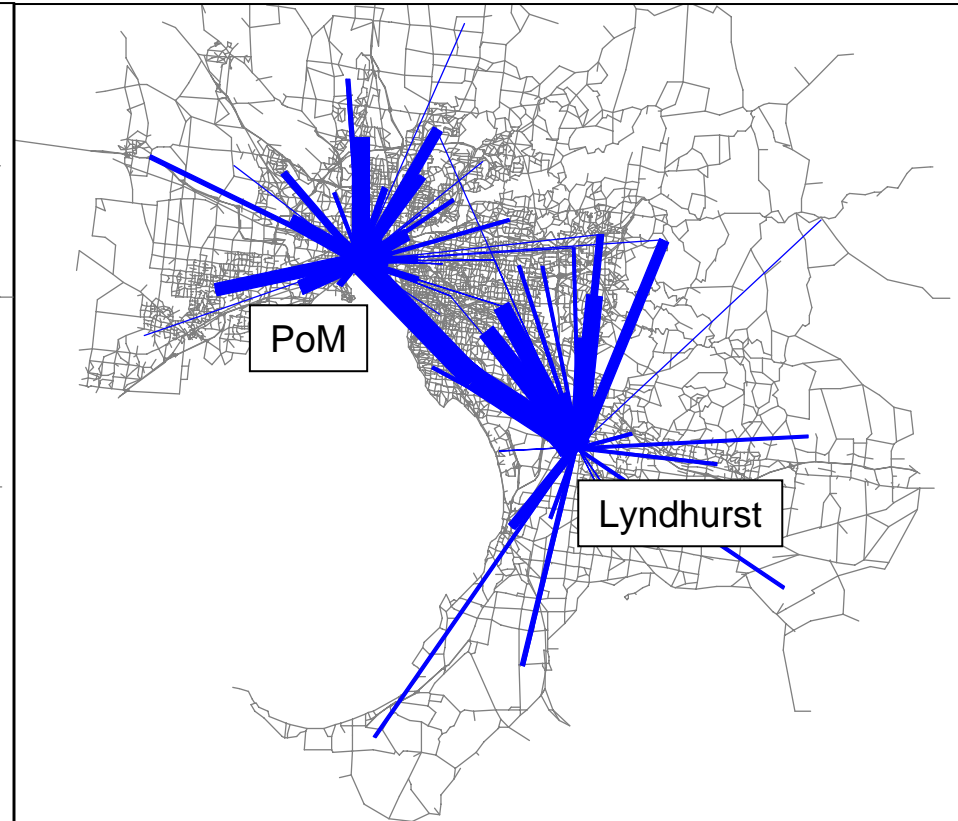
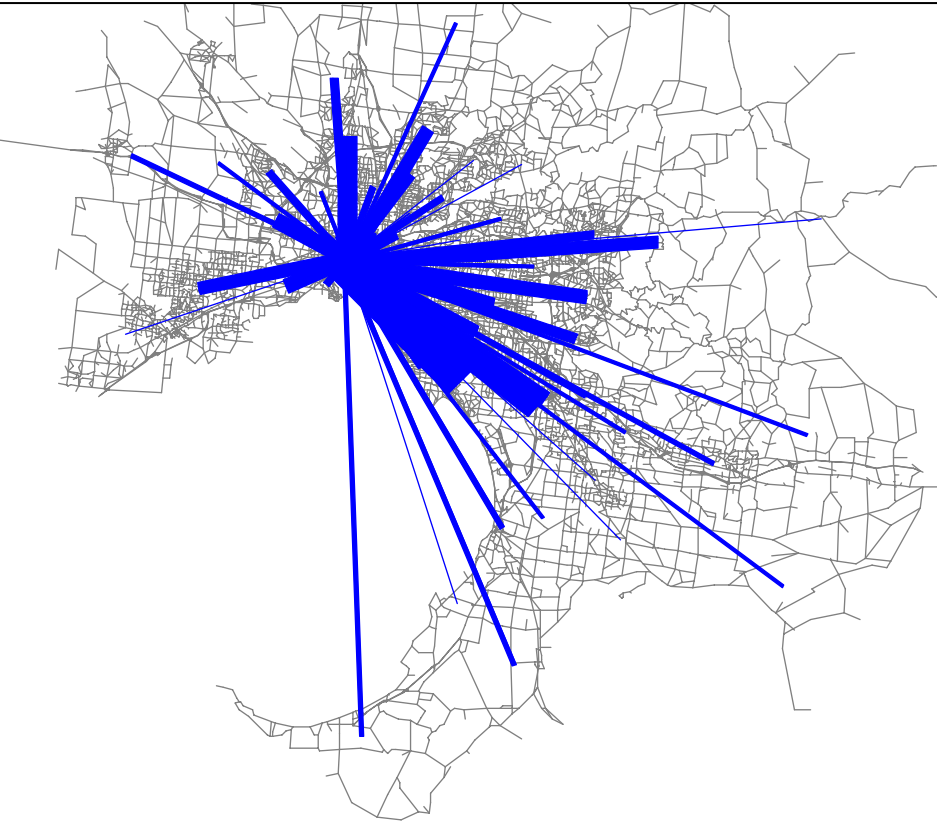
# Dol Freight Movement Model

## TESTING OF POSSIBLE FUTURE SCENARIOS

- Continuation of current trends
- Changes in:
  - MSD land-use policies and take-up
  - economic conditions, in and beyond MSD
  - type and quantify of commodity production
  - commodity production and distribution technologies
  - logistics and supply-chain structures
  - Victorian Freight Network Strategy Study

# Dol Freight Movement Model

## INLAND PORT – FREIGHT MOVEMENT IMPACTS



Port of Melbourne (current)  
Department of Infrastructure

Port of Melbourne & Inland Port