

NZ Vehicle Fleet Control

Emissions Strategy

For local
air quality
management

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Outline

- Some History
- VF ECS policies
- The Future



Environmental Externalities

- Land Transport Environmental Externalities Report (1995)
- Objective was to identify environmental costs
- Required better definition of the nature of the problems and relationships with the emissions sources



Defining the issue

- Popular beliefs such as:-
 - Old “emissions uncontrolled” vehicles are the problem.
 - Cleaner cars and strict testing of existing vehicles is the solution.
 - Based on the perception that every other country has such emissions controls - why shouldn't NZ?
- The issue was (& is), however - what is the local air quality problem?



The Real Questions are:

- What is the level of air pollution in New Zealand urban areas?
- What is the contribution of motor vehicles to these levels?
- If there is a problem and motor vehicles are the cause, what are the most cost-effective strategies to manage the problem.

This is what the VFECs is about



VFECS Policy Principles

- Impacts based
 - understand the problem before selecting solutions
 - consistent with RMA approach (global also)
- Targets
 - need to be defined, clear, quantified
 - for objective and consistent evaluation
- Localisation
 - analysis process to suit the variety of local needs & priorities



VFECS Policy Principles

- Measured
 - impacts of solutions need to be balanced against costs & constraints to the transport & urban sectors
- Effectiveness
 - achieving the improvements in practice
 - monitoring performance
- Practicality
 - for preferred options, are these: readily available; commercially proven; suitable to NZ.
- Sustainability



VF ECS - Two stage process

- Stage 1 (1996-97) used CO emissions to start investigation of relationships
 - Principle transport source is petrol vehicles (the light vehicle fleet)
 - CO air quality data most available from monitoring programmes.
- Stage 2 (1997-98) extended to address all Guideline pollutants:
 - All vehicles (whole fleet)
 - underpinned by six technical reports, *air quality targets, engines, fleet model, testing, corridor survey, ECA procedure*



VFECs Results (1998)

- Knowledge of local air quality situation defined VFECs development (measures, targets and process)
- NZ air quality good - on the whole
- Localised “corridor” peak effects prevalent
- CO, NO_x & PM measured at levels of concern
- Insufficient information on other potential pollutants

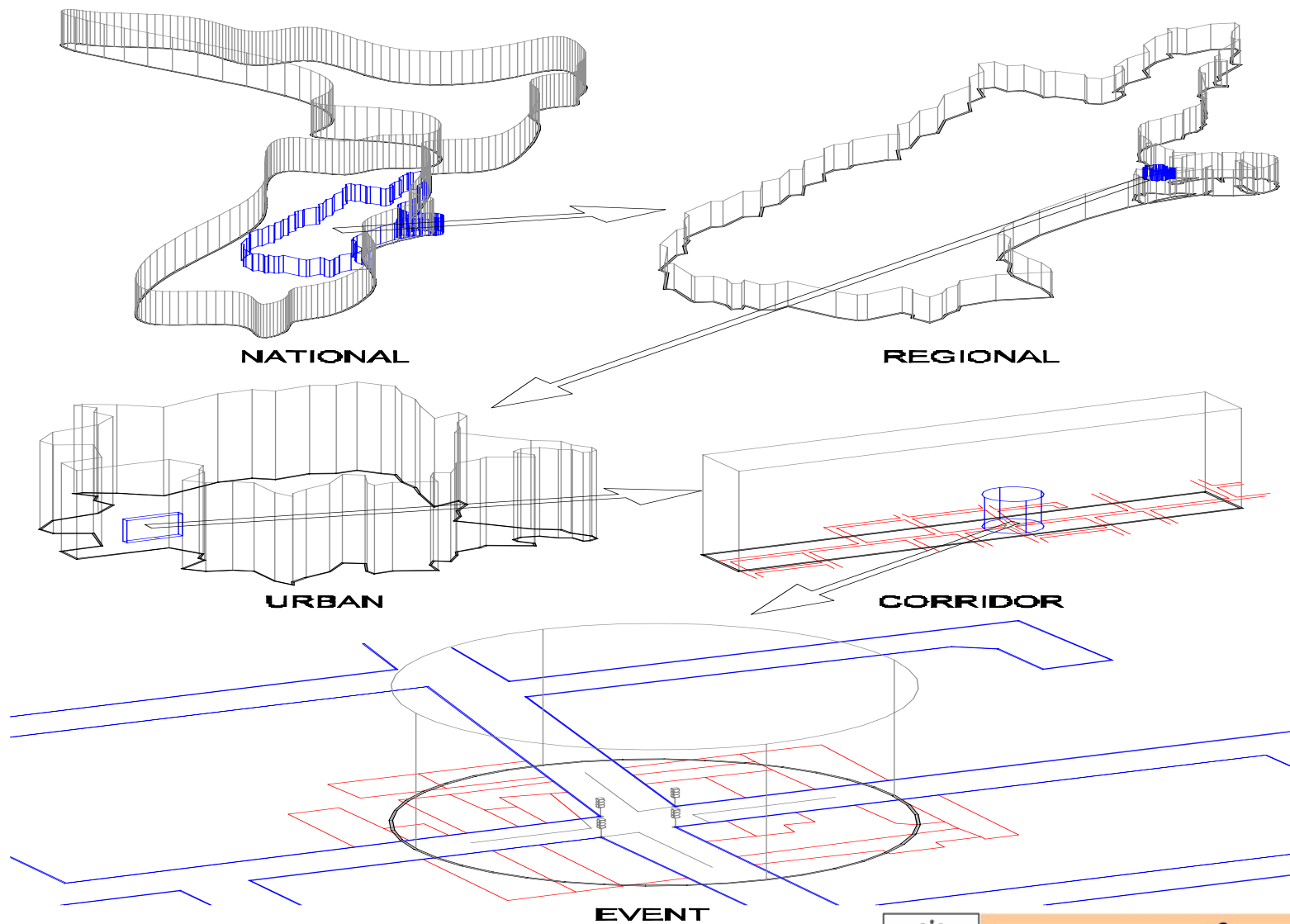


VFECS Approach

- Source apportionment (vehicles vs others)
 - NZ Vehicle Fleet Model - (policy evaluation tool)
 - NZ drive cycle emission factors (actual vs stds)
 - varying road design and congestion conditions
- Collective vehicle emissions come from
 - vehicle technology (capability vs actual)
 - road network density
 - traffic density
- Spatial implications of air quality measurements and responses (airsheds)
 - define the receiving environment



Airsheds



VFECS Approach

- Right solutions for the problems identified
- Not a “one size fits all” strategy
- Proposed a combination of policy measures
 - national level policies
 - local level policies
 - to improve air quality
 - to improve fleet performance
 - to improve traffic network performance



Agreed National Level Policy

- Smoky vehicle regulations
 - implemented 1 March 2001
 - supported by complementary measures
- Ambient Air Quality Guidelines (for monitoring & data management, plus performance indicators)
 - discussion document released Dec 2000
 - submissions closed March 2001



Agreed National Level Policy

- Proposed vehicle emission rule (new & used vehicles to internationally recognised standards)
 - Discussion document due August 2001
- Petroleum products specifications review (diesel, petrol, additives?)
 - Discussion document due August 2001
- Service industry upskilling - understanding of new technology
 - Ongoing



Agreed National Level Policy

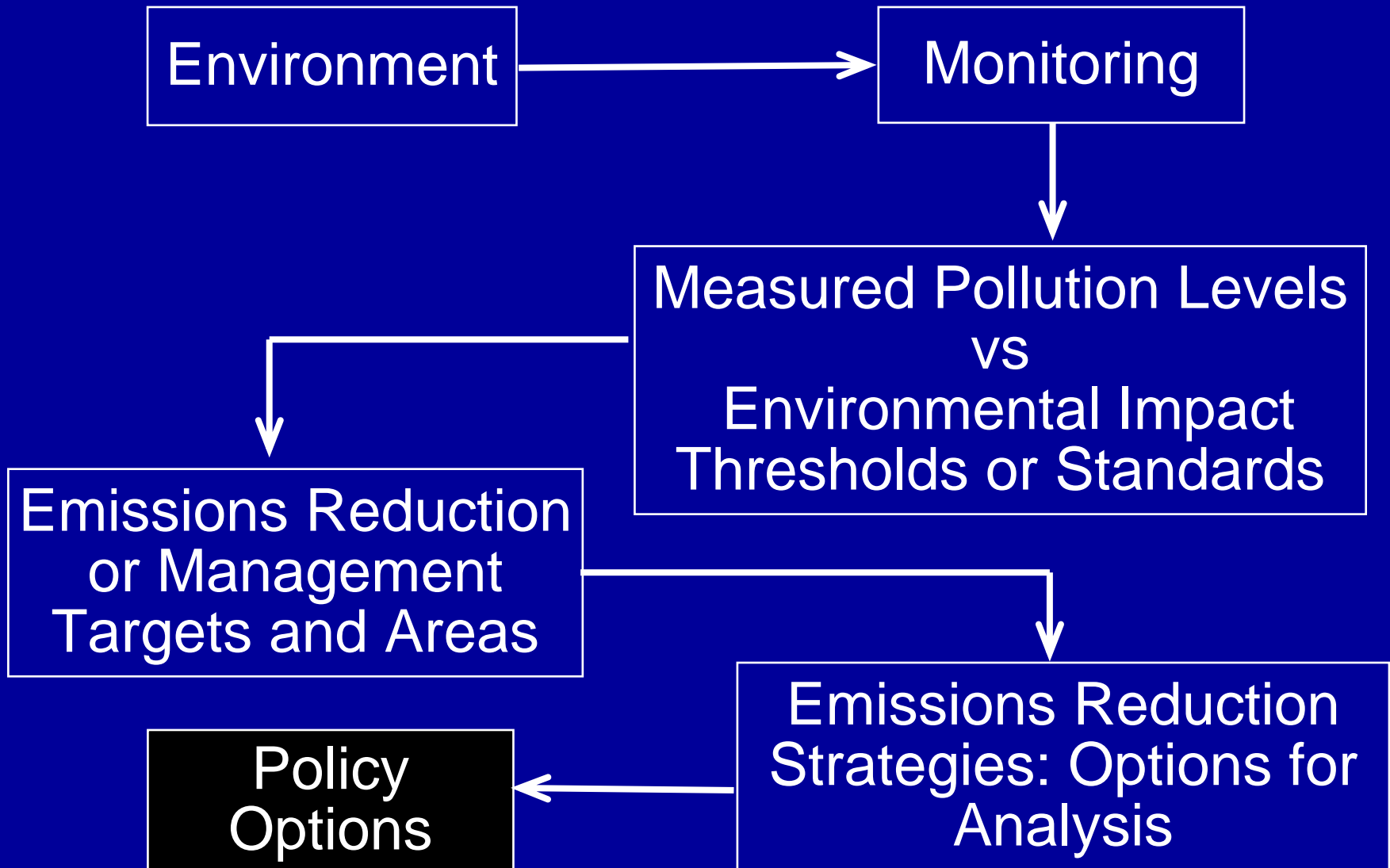
- Equip local traffic managers with emissions information
 - NZ Traffic Emissions Rates (NZ-TER) Database on CD-ROM
 - Valuable NZ data set
 - Distributes results from VFEM scenarios
 - Available since Sept 2000
- Environmental Capacity Analysis (ECA)
 - The central outcome of the VF ECS programme



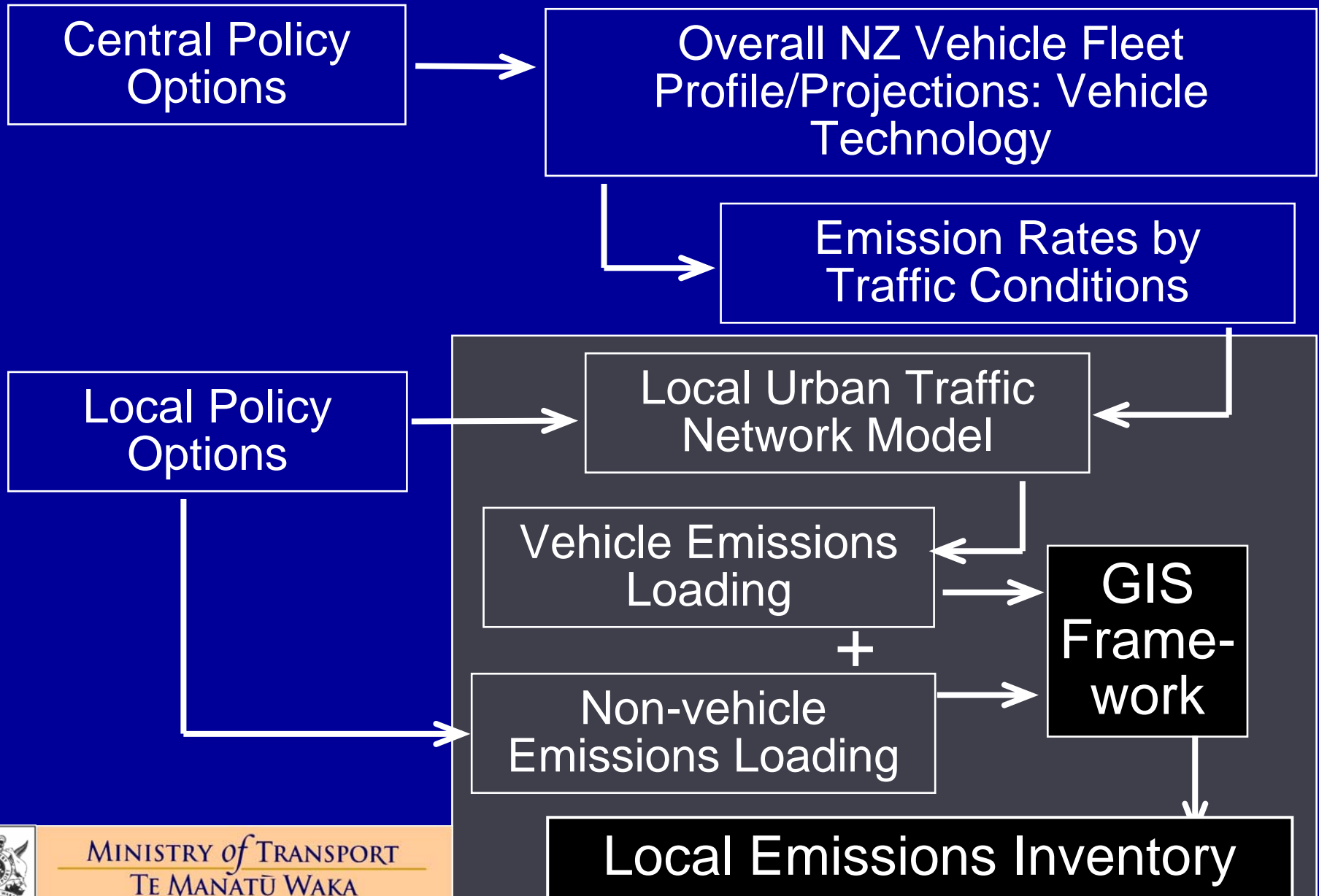
Environmental Capacity Analysis

- “Capacity” concept
 - limits to emissions activity before pollution problems
 - also, a road network management parameter
- Allows local definition of spatial profile of emissions
 - from vehicles vs other sources
 - calculates emissions loading into local airshed!
- Creates emissions inventory
- Compare this with environmental targets
- How close is the airshed to “capacity”?

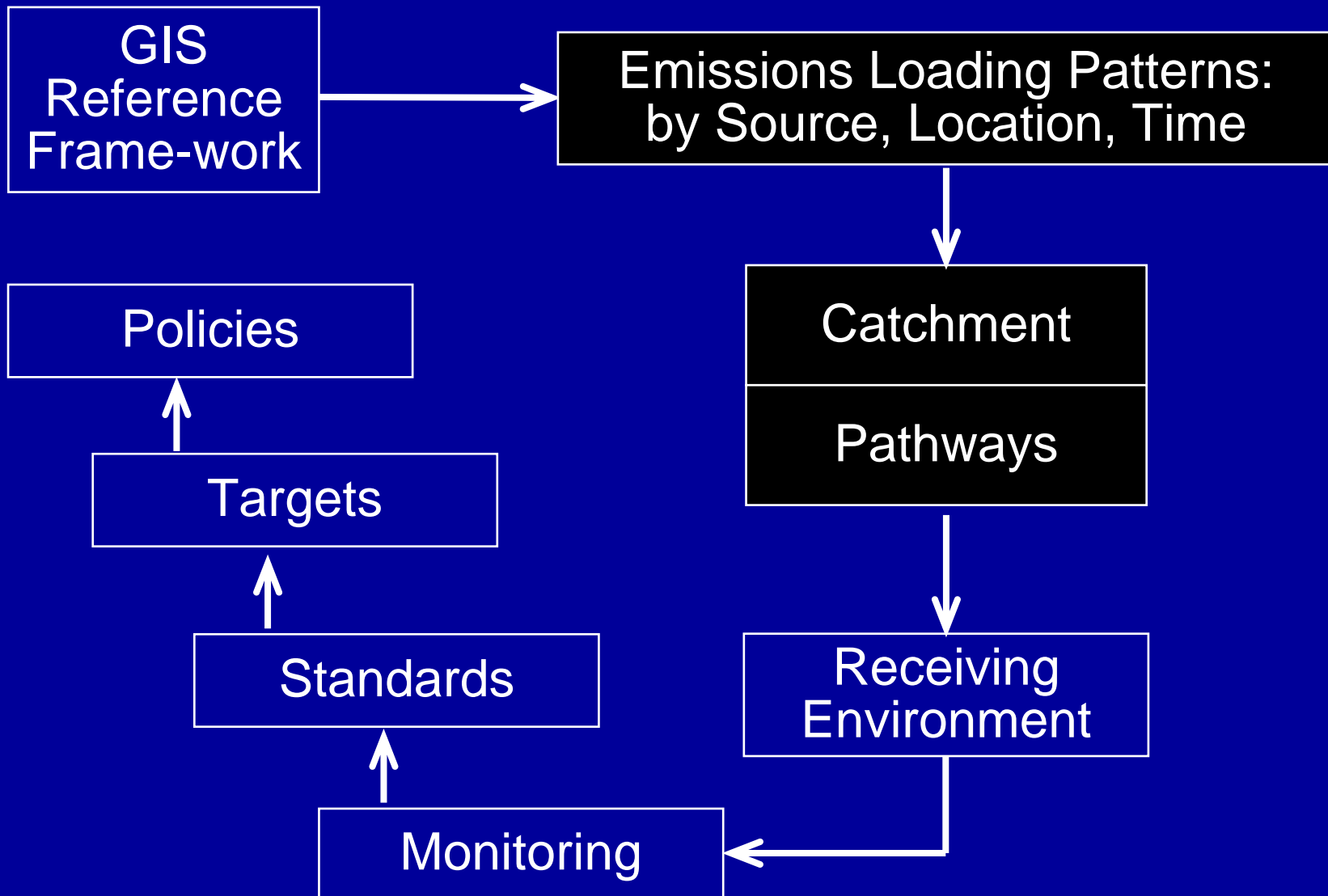
ECA - Is there a problem?



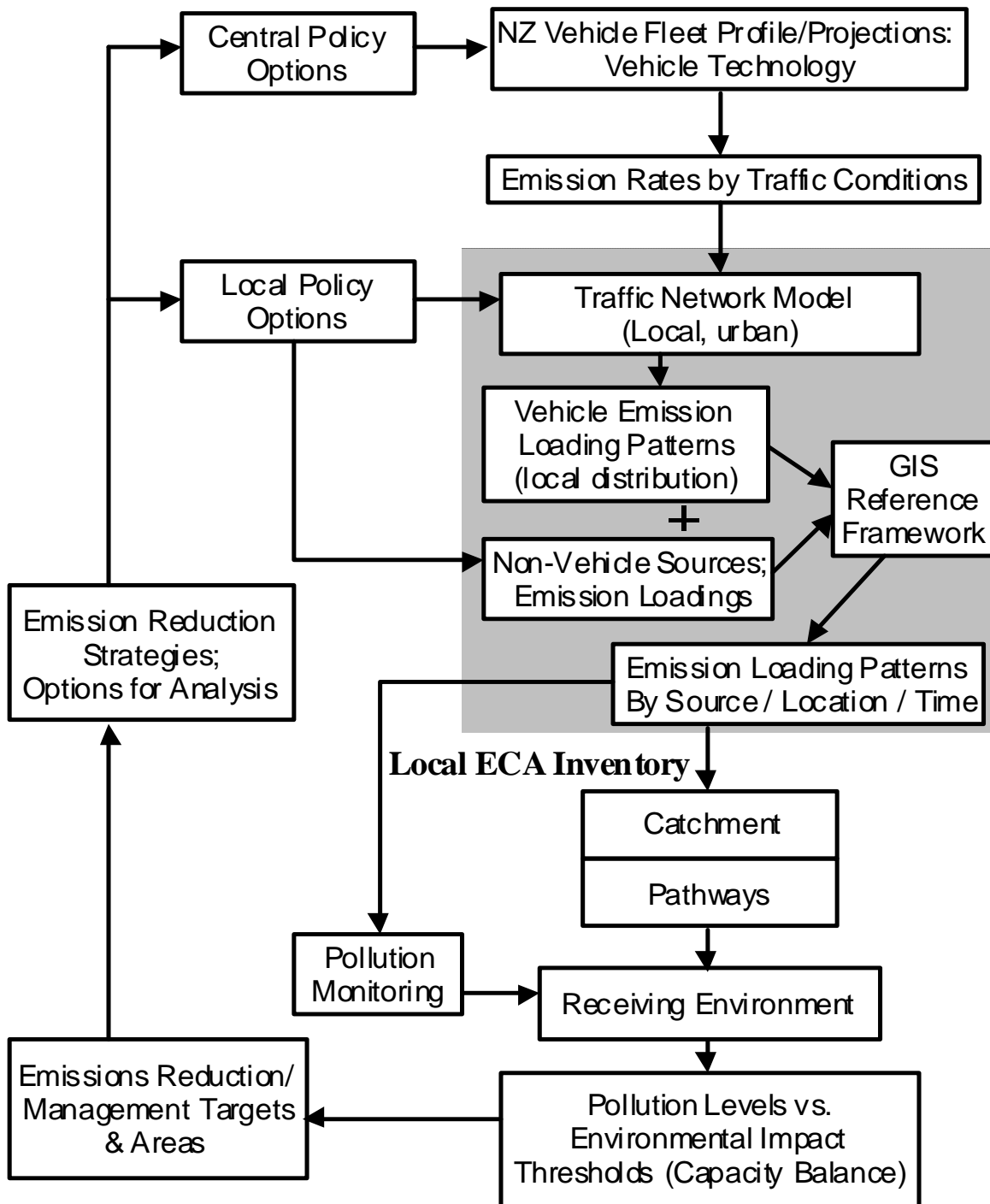
ECA - What are the options?



ECA - A local inventory?



Integrated ECA & Urban Management



ECA

- Provides a common basis for dialogue between air quality and the other urban management functions
- Consistent time & space framework
- For comparison & sensitivity analysis of policy options
- For any traffic emission problems identified
 - air
 - water
 - noise
 - greenhouse gas



VF ECS

- VF ECS is complete as a policy base
- It delivers a process for analysing local solutions
- It needs air quality targets
 - NZ Ambient Air Quality Guidelines, etc
- Now for regional councils to employ the tools & data provided and recommend through their air plans the best way forward
- Remembering, however, the RMA requirements of:
 - Section 32 (alternatives, benefits & costs)
 - Section 35 (monitoring policy)

