Session 5 : Transport

In this session we look at transport - freight and people.

All forms of Transport combined - cars, trucks, public transport, domestic flights and shipping - contribute 18% to our Greenhouse Gas emissions, the second largest after Electricity (33%). And it is growing by 10% per decade despite more efficient vehicles, and energy saving programs.

The main part of the problem is cars, vans, utes, and light trucks, making about half of those emissions (equal per year to Queensland's entire coal and gas fired electricity emissions).

This is because we have :

- some of the worst polluting cars - no greenhouse gas emission standards on cars and many active inefficient, high polluting older cars;
- high car use - 87% of us travel by car to school or work (only 5% public transport, 5% walking, 1% bike) and we have high distances travelled per person (8,800 kms national average)
- low public transport usage - despite it being at least 1/3 cheaper per kilometre than net car costs (and we have an underfunded train, tram, & bus infrastructure by world standards)

[5.1] Waiting for the Green Light - Transport Solutions to Climate Change - Climate Council

Transport solutions - improving city planning; investing in public transport; encouraging people to shift out of cars and on to public and active transport modes; and adopting technological developments such as renewable powered electric cars, buses, light rail and trains are together capable of reducing greenhouse gas pollution levels globally by 15 - 40% from business as usual, by 2050 (IPCC 2014).

So What is Your Transport Mix?

Enter km or ✓s to show your relative use of each	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Car, Ute, SUV, Van							
Tram / Bus							
Train / Light Rail							
Bike / Walk							
Car Pool / Ride Share							
Service or Delivery to you							

what about your holidays each year?

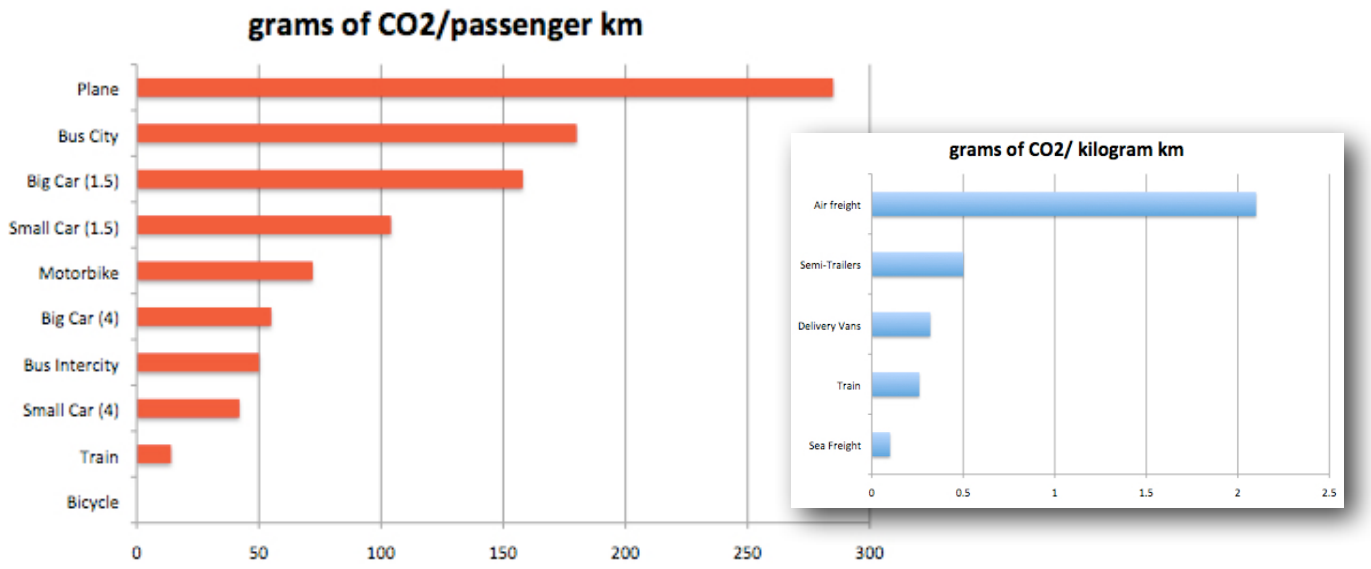
Overseas Holiday		Interstate Holiday		Local Holiday	

Urban Planning & Safety

Now go back and circle the daily transport choices that you had to make because of poor urban planning (you had no option other than use a freeway, public transport timetables don't suit, etc.) or for safety reasons (poor lighting or access, infrequent services, general safety, etc.) and an extra big tick where good planning supported your choice.

How Much GHG CO_2 Does it Produce?

Using fossil fuel creates the production of Green House Gas Carbon Dioxide CO_2
This chart takes average passenger numbers per vehicle to show CO_2 per kilometre travelled, and the smaller chart shows the CO2 per kilogram per kilometre ofr parcel freight - your online purchases add up.



Public or mass transport compares well if it is full, but our current use is pretty poor - for example the diesel powered City Bus data averages only 12 passengers a trip of stop start driving.

More about energy efficiency in transport on our website [5.1.1]

Tips for Transport Efficiency

Walk or Ride

- √ A staggering 50% of trips are less than 2 kilometres. And many bicycle trips actually take less time than the same trip by car. (Add in the exercise and proven boost to mental health!)

Driving Well (when you must use a car)

- √ Regularly check your tyre pressure. Under-inflated tyres can increase fuel consumption by 3 per cent and take 10,000 kilometres off the tyre's life.
- √ Service your car regularly. A well-tuned car can use 15 per cent less fuel.
- √ Slow down. Driving at 90 kilometres per hour uses 25 % less fuel than driving at 110 k/h.
- √ Don't idle. If you are stopping for more than ten seconds, turn your car off.
- √ Drive smoothly. Stopping and starting uses more fuel.
- √ Under 70 km/h - Open your window rather than using your air conditioner. Air conditioning can increase fuel consumption by 10 per cent. Over 70 km/h the drag caused by having your window down will use more fuel than the air conditioning.
- √ Screw on your fuel cap firmly to avoid evaporation and leaks when turning corners.
- √ Travel light. Don't use your car to store tools and sports equipment, an extra 50 kilograms of weight increases fuel consumption by 2 per cent.
- √ Remove roof racks and anything fixed to the outside of your car when they are not in use to minimise wind resistance.

Plan Ahead

√ Organise a number of small errands into one trip to save time and fuel. Consider if a phone call, email or letter would do instead. Make a shopping list in advance.

√ Use Google Maps or a local map app to explore the transport options - use the walk and transit options to compare trips - add on the car parking costs and time wasted.

√ Talk to friends and co-workers and explore ride sharing and car pooling options.

√ If you can buy a transit card, keep it topped up, it might seem like money spent. But if it means you can quickly take a public transport option it will save you, and the planet, in the long run. Also check your event ticket, many now include free public transport to reduce congestion.

Planned Spending for Better Transport

Bicycles

$ Basic Bikes - any good quality bike - but buy from a bike shop and have it fitted to your size and how you plan to use it - learn how to service it, or visit a Repair Cafe.

$$ E Bikes - as above, but learn about charging and maintenance, and learn how to ride one - it is not the same as a pedal bike, and how the power kicks in can affect your ride.

$$$ Cargo Bikes - pedal or electric, these can replace a family car, plus it is lots of family fun.

More about bikes, bike safety, and electric bikes [5.2]

Hybrid & Electric Cars

$$ Petrol Hybrids - Petrol drive cars with electric motors that support the petrol motor. They smooth out the starting and low speed running and improve fuel economy by assisting when the petrol engine's revolution (spinning) range is most fuel inefficient. They can have low speed, short run EV (electric only) options, handy in car parks. They charge their battery when driving on petrol.

$$$ Plug-In Hybrids - Electric drive cars with petrol engines that charge the battery pack, and support the electric motors under heavy load, high road speed, or when the battery is low. These can be changed from electric power sockets at home and from fast charger stations. These do not drive like petrol or hybrid cars. The petrol engine only runs in its most fuel efficient range so overall fuel efficiency if high, and general daily use can be entirely battery only.

$$$$ Electric Vehicles - Electric drive and high capacity battery cars. These are recharged from dedicated home electric sockets and special fast charge stations. The electric motor technology monitors most aspects of the car and mildly adjusts driving and braking to maximise battery range so that 200-300 kilometre trips are normal. These cars are also quick and nimble on the road. [5.5]

Car Share

Nil Car-Pooling - the most basic is to talk to friends, co-workers, or neighbours and arrange sharing around each other's cars and common destinations.

$ Ride Sharing - many commercial driver services, and some hire car services offer booking apps that allow multiple passengers to share all or part of the total trip or car hire period. More [5.3]

$ Car Share - with online booking systems and membership requirements, these range from using a private car for short trip and holiday trip use, to commercial car and van short use systems. The advantage is reduced net car ownership, no servicing and maintenance costs for the user, and fall-backs for breakdown or other road issues. More [5.4]

Holidays

Local is Best - cutting back on travel costs means more luxury and special activities, it also boosts the local economy and helps decentralise and grow regional communities.

Challenges

These are designed to be a fun way of exploring issues, making us aware of how reliant we are on the resources we have, as well as encouraging longer-term behavioural change.

For one week – keep a travel diary and then sit down and map each on Google Maps, see what walking and public transport options you might have taken. Were you surprised, or did it just make the current poor infrastructure more obvious?

On one weekend – Go to a local professional bike shop (or e-bike or cargo bike shop) and get up to date with current bike technology, design, and commuter options.

On one weekend – Plan a public transport outing. Pack a picnic and travel out and around on the networks sightseeing as you go, or plan a no-car picnic at a park or beach accessible by train or bus, or bike (- if you already ride)

For one week or more – Join or organise a local "Walking School Bus" so that groups of neighbourhood kids are supervised as they walk to school.

Anytime – even if you don't go, explore the options in local holidays. Newspapers and motoring organisation magazines often feature local destinations, trips, and sights. Have fun just planning a fun, interesting, or luxurious, local holiday.

Kids Fun - anything on wheels can be fun for kids - plan walking shopping trips with bikes, scooters, skateboards, and Yes! I even saw one family shopping in a wheelbarrow.

How much space do 200 people take up? Can you draw this?
1 train carriage (54 sqm) = 4 buses (144 sqm) = 200 cars (1500 sqm) = 1 bike path (400 sqm)

Suggested Session Plan	
Catch Up - how has everyone's week been?	10 min
Review Transport - what surprised you? how did your transport use compare? were you aware of the range of energy uses per passenger?	30 min
Efficiency Actions - which of these are you already doing? can you suggest other measures, other great ideas? how much ($) did you save?	30 min
Planned Spending - which of these have you already done? how has it worked out? what options do you think you might take up?	30 min
Challenges and Fun Ideas - suggest other ideas and activities?	10 min
Before you close Session 5, take time to reflect on how the session went, think of steps that might be taken in the next session, consider how the others are reacting and responding. Think Head, Hands, & Heart.	10 min