



# Inception Report: Main findings

Presentation put together by:  
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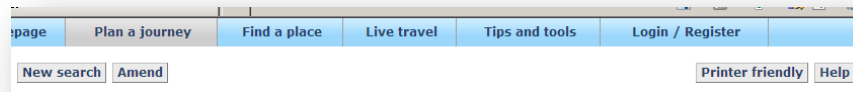
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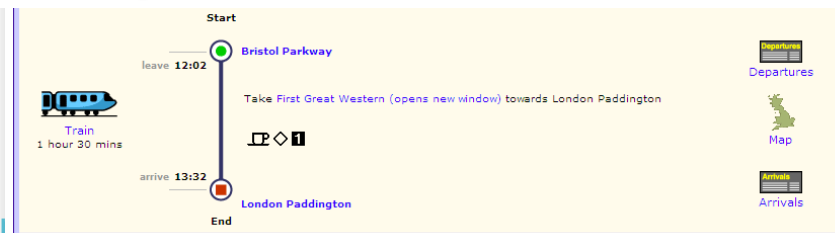
# Travel information utopia



- Individuals provided with travel information can make more fully informed choices which will be to their personal advantage and potentially that of the transport system as a whole.



**But people aren't that rational.  
They don't equally weigh all information.  
They will pick and choose.**



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# The Goal

- Change travel behaviour so as to reduce CO<sub>2</sub> produced through transport.
- Two main methods:
  - Hard measures
    - Eg. Infrastructure, accessibility, laws
  - Soft measures
    - Eg. Information, attitudes, awareness



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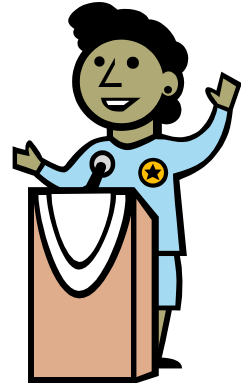


## ≡ Either way...

1. The projects must be accessible to planners and practitioners.

2. Must have support of decision makers.

3. Must have support from public.



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# ≡ **Planners and Practitioners**



- **ELTIS** ([www.eltis.org](http://www.eltis.org))
  - Wide range of information and tools for practitioners.
  - Case studies.
- **MAX-SUCCESS** ([www.epomm.org](http://www.epomm.org))
  - MAX-Explorer
    - Step-by-step query that suggests potential mobility management projects.



# Engaging the public

- For most, the public's support is necessary
  - Politicians need to know they have that support.
  - If support doesn't exist, appropriate campaigns must be used.
    - General campaigns may affect awareness and attitude, but that doesn't mean behaviour change.

Attitude

Intention

Behaviour

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# CATCH Relevance



- Whether it's a citizen or a decision maker, if the information has no meaning, it is useless.
- Must find an effective way to improve understanding and motivate change.



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# CO<sub>2</sub>, climate change, and people's reactions



- CO<sub>2</sub> is a new and abstract concept.
- Climate change is a global problem.
- Three main reactions to climate change information.



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# CO<sub>2</sub> and people's understanding



- CO<sub>2</sub> is a new and abstract concept.
  - Often presented as weight or an equivalent (e.g. Trees or the Earth)
  - Does it mean anything to most people?
  - Are they motivated to change?



# Problems with Information Presentation



- Weight – likely means very little to most people
- Equivalents – is it clear?
  - Trees: concrete item, but what is “sustainable”? Does it give the impression that just plant trees, no problem?
  - Earths: Other than the worse offenders (e.g. SUVs), is the amount of CO<sub>2</sub> produced too small to have a big impact on people?
- Comparing – tendency to average works both ways
  - Higher than average: decrease
  - Lower than average: increase

# Climate change and understanding



- Problem is framed in future -> future discounting of problem.
  - Far future concepts are thought of in abstract terms.
- Impacts are thought of as affecting “others”.
  - No direct link between actions and impacts.
  - Drops on priority list to bottom with foreign aid.
- Solutions are often framed as losses.
  - People avoid losses more than they seek gains.

# ☰ Climate change and reactions



- Three main reactions:
  - Deny
  - Token behaviour change
  - Desired behaviour change

# Deniers



- Ignore information that contradicts their choice.
  - Won't seek out websites purely related to climate change.
  - Reach them through other values (e.g. Neighbourhood quality-of-life?)
- No direct negative feedback on undesirable behaviour
  - Don't see bigger picture of their actions
  - Present as an aggregate effect on city



# Token Behaviour

- Make changes that are too small to have an impact.
  - E.g. Switch off lights at home, but continue to use cars frequently.
  - Must highlight that personal transport is one the largest contributors to CO<sub>2</sub>.
- Do unrelated “environmental” behaviour.
  - E.g. Recycle, but continue to use cars frequently.
  - Highlight appropriate behaviour changes.



# ≡ Desired Behaviour Change

- Make adjustments that result in “measurable” reductions in CO<sub>2</sub>
- Feature stories of individuals who successfully changed.
- Testimonials.
  - E.g. “I used to drive to work and always arrived home irritated. Now that I take the train, the short walk home clears my mind and I feel refreshed.”



# Information: People are different



- Motivations
- Pro-self vs Pro-social
  - Pro-social support and use PT more
- Attitudes, values
  - Associated with travel behaviour
  - Related to “World Views”
  - Especially important when structural barriers removed.
    - E.g. attitude is more important when there are competitive options to car.

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# Tools of Change

- Psychological tools exist, and are used
  - Communication
    - General
    - Individual
  - Feedback
  - Commitment
  - Prompts
  - (Dis)Incentives
  - Norms
    - Societal
    - Peer
    - Personal



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## Relevance to CATCH

- What tools are used will depend on “stage of change” of citizens and city.
  - *Low awareness*
    - General communication before project to increase acceptability
    - General communication to change attitudes towards alternative modes.
  - *Good awareness*
    - Commitment to reduce car trips/miles
    - Prompts to use alternative modes



# Travel information systems: Why do they fail?



- “Our expectations with respects to the effects of information provision on travel choices in general may be mildly optimistic...” (Chorus et al., 2006)
- Many systems are based on a naïve model of the user as a utility maximizer who compares alternatives by their attribute, but –
  - Limited cognitive abilities (memory, computation)
  - Systematic biases (gain-loss asymmetry)
  - Context dependency
- Private vs. External costs



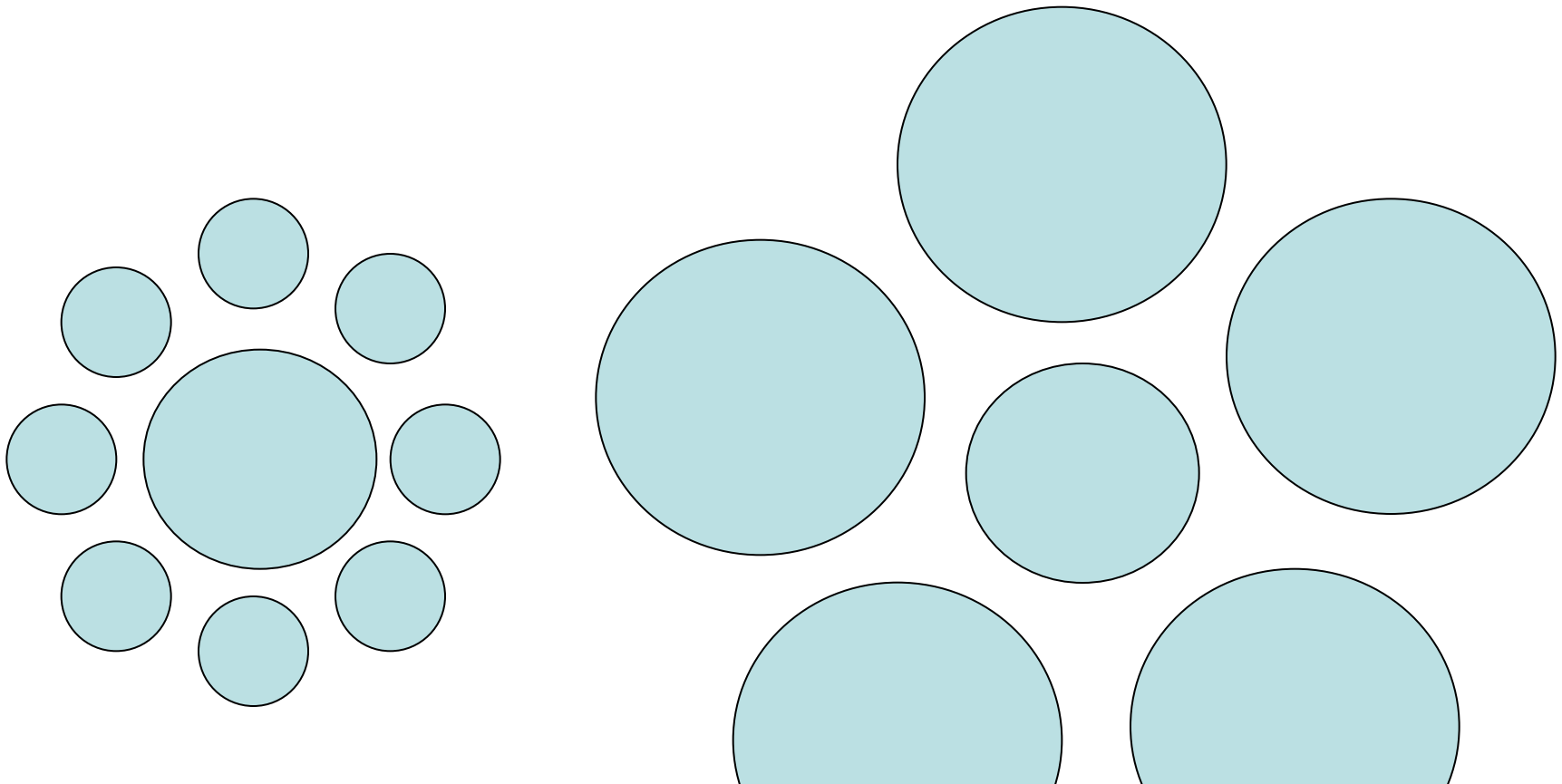
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**Our decisions are influenced by the context of the problem, not just by the alternatives and their attributes**



### **Choice Architecture**

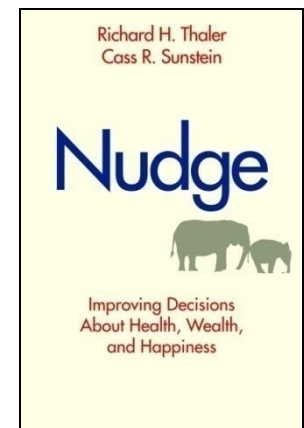
**A nudge is any small feature in the environment that attracts our attention and alter our behaviour**

# Nudge – Thaler & Sunstein



***Different ways of describing the same situation, mainly to influence the context ("Choice Architecture")***

- Gain/Loss framing



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# Strategies and potential applications

## Gain/Loss Framing



- People dislike losses much more than they like gains
- Losses have twice the psychological impact as equivalent gains
- The wording ('framing') of the information as a gain/loss might influence the decision



# Summary of findings: Behavioural Economics



- Other people's behaviour matters
- Habits are important
- People are motivated to 'do the right thing'
- People's self-expectations influence how they behave
- People are loss averse
- People are bad at computation
- People need to feel involved and effective to make a change



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# Social comparison

[Load previous session](#) [F.A.Q.](#)

## 1. Start with your home economic information



Select U.S. State

Florida



Nearest major U.S. city or region

Miami



How many people live in your household?

four

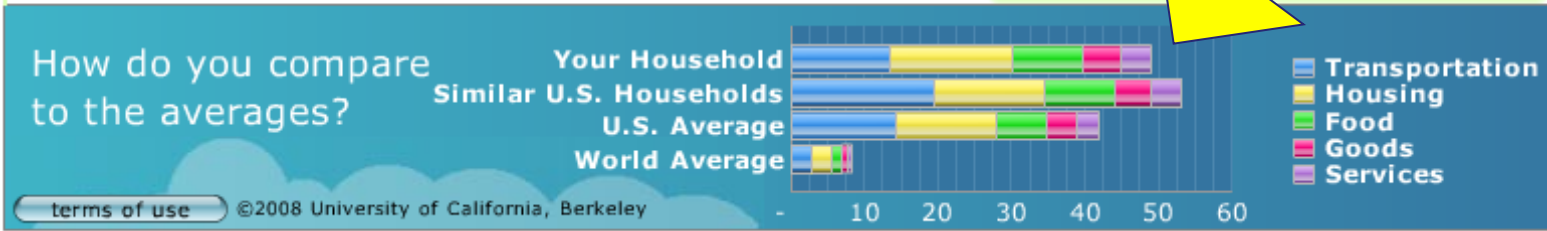
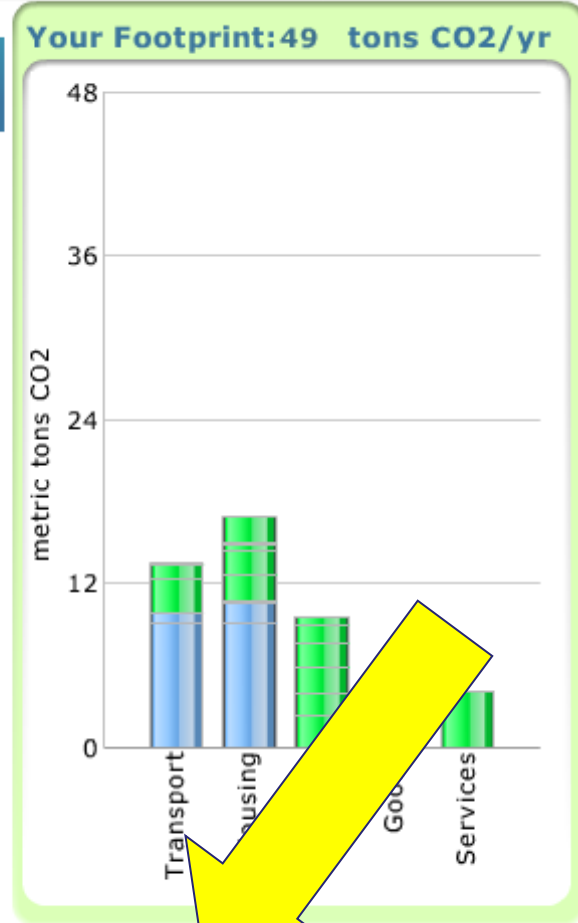


What is your gross annual household income?

\$50,000 to \$59,999

This info can not be viewed by others. [Learn more](#)

- Click "Transportation" or other links at top to continue
- Then, either keep the "default" values or enter your own



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BRISTOL

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# Putting it all together

- Recognize that people are different and through that, guide them on appropriate path through site.
- Use “What if” scenarios.
  - What if everyone behaved like me?
    - Aggregation of personal travel behaviour.
  - Allow adjustments to populations travel, see changes, follow-up information.
- Behaviour change tools incorporated throughout.

 **Thank you!**



For more information:

[www.catch-project.eu](http://www.catch-project.eu)

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[owen.waygood@uwe.ac.uk](mailto:owen.waygood@uwe.ac.uk)



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# SUPPORT SLIDES



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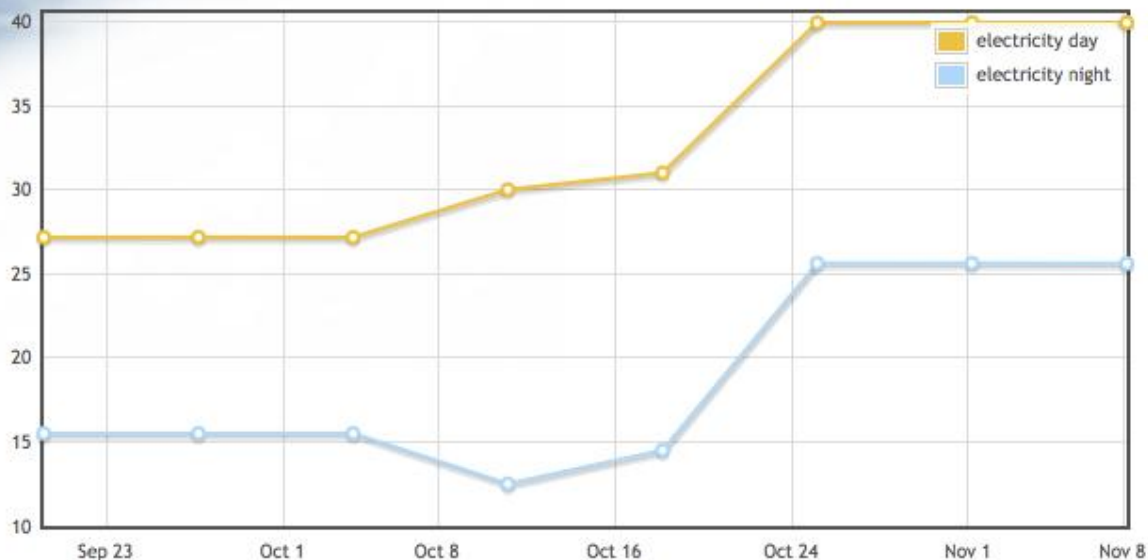


# Summary of findings: Carbon Calculators 2

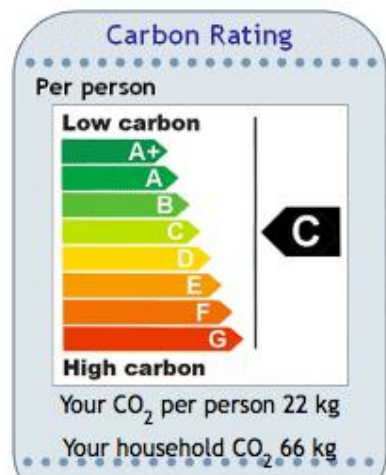


- Two main problems:
  - 1) Comprehension
  - 2) What actions to take
- Advanced, or “next generation”, carbon calculators.
  - Track changes
  - Suggest actions to individual
  - Represent results in equivalences
  - Compare results to others
- Remaining problems:
  - 1) Not likely used by general public.
  - 2) Not all recommendations used.

For week ending: 8th November, 2009 your household emitted 66 kg CO<sub>2</sub>



## Carbon rating - comparison group



Week ending: 1st November, 2009

People in your household: 3

Comparing results with: All users

Housetype: All housetypes

Total number of users in comparison: 546

Average per person = 28 kg CO<sub>2</sub>



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## Owen Waygood [Edit](#)



Bristol, Bs9 3, UNI

[Update My Profile](#)

### ABOUT [Edit](#)

[Click here to tell others about yourself.](#)

Website:

### My Carbon Tree

1 people in this tree reduced:

# 0.74

Tons of Carbon

Our Impact:

**0.00** Power plants retired

[Grow Your Tree](#)

### My Annual Carbon Reduction

**5%**

**Breakdown** | **Context**

**Carbon Reductions** ■ Usage ■ Carbon Offsets

Impact In Tons of Carbon

**17.0**

Initial Footprint

0.74

0.00

**16.3**

New Footprint

**0.74 Tons**  
(Reduction of 5%)

### FRIENDS 0 Friends | [See All](#)

[Invite Your Friends!](#)

[Invite Businesses!](#)

### GROUPS 0 Groups | [See All](#)

[Join or Create a Group »](#)

### OWEN'S ACTIVITY

Owen Waygood has pledged to Use cloth rag and air drying instead of paper towels about 1 month ago

Owen Waygood has pledged to Say no to double-bagging about 1 month ago

Owen Waygood has pledged to Reduce use of Newspapers about 1 month ago

Owen Waygood has pledged to Recycle all glass, cans, plastics, newspapers and magazines about 1 month ago

Owen Waygood has pledged to Compost food scraps about 1 month ago

Owen Waygood has pledged to Bring your own Bag to the store instead of using plastic

# Actions

- Lifestyle
- Home/Office
- Carbon Offsets

[? How to Use Actions](#)

## Lifestyle

[Return to Manager »](#)

### PENDING ACTIONS

- Bring your own Bag to the store instead of using plastic or paper bags
- Compost food scraps

#### Eat Locally Grown Foods

✓ 1. Percent:

Locally grown foods require less transportation and less packaging, and therefore have a smaller environmental impact. In addition, locally grown foods generate more income for your local community, stimulating economic growth.

2.  or

3. Date completed:

#### Eat Organic Foods

✓ 1. Percent:

Organic foods require less energy, water, fertilizers and pesticides. They are all together healthier and better for the environment.

### ACTION PREVIEWER

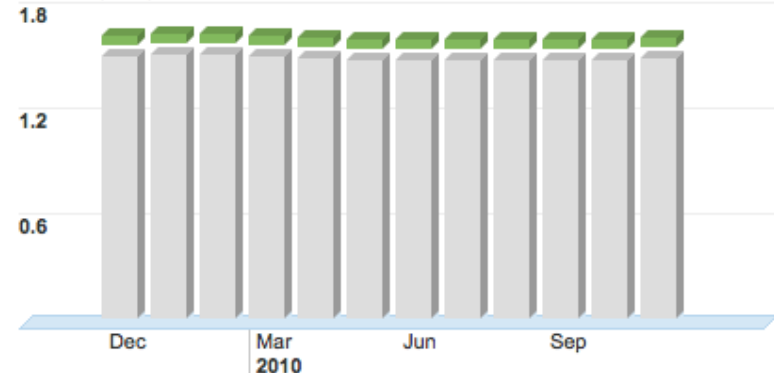
- Carbon
- Money

#### My Carbon

■ Usage ■ Reductions

TOTAL REDUCTION  
**0.09** Tons  
EACH YEAR

Carbon (Tons)



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# Summary of findings: Travel/journey planners

- 7 examined from Europe, North America, & Asia
- Only 4 had CO2 as option.
- Only one always showed.
- Only one used a form of “marginal” values rather than national averages.
  - But, only in context of user estimated occupancy.
- Cars are often average for car type, and then marginal with respect to passengers.
- Comparison issue.

# Travel Planners: travelfootprint.org 1



## Journey emissions results

### Tube - 1.7 km

London Underground  
100% occupancy (all seats full)

From: Turnam Green  
To: Embankment  
Distance: 1.7 km

Lifecycle CO2: 35.4 g

Lifecycle NOx+PM: 0.1 g

Select Comparison Travel Mode:

CAR

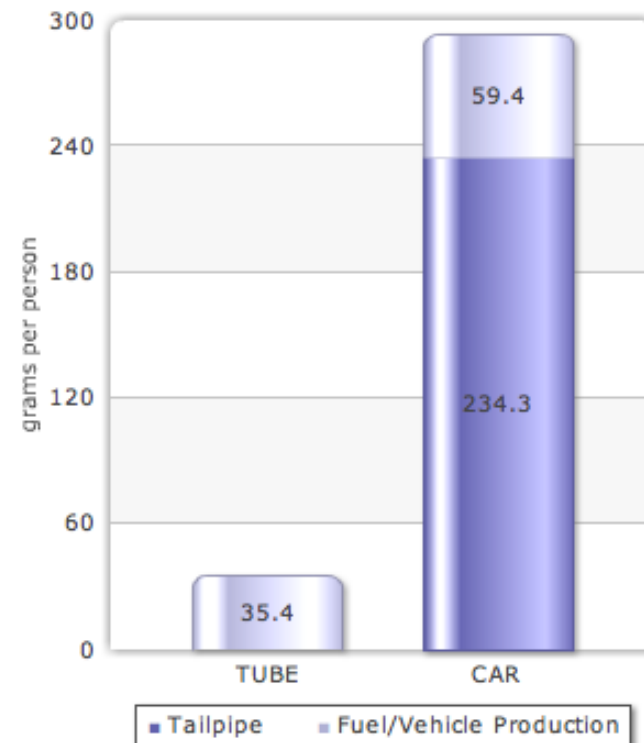
Average city-car LP gas

Driver only

« Start Again

Save Results

### Lifecycle CO2 Emissions



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# Travel Planners: travelfootprint.org 4



## Journey emissions results

### Tube - 1.7 km

London Underground

100% occupancy (all seats full)

From: Turnam Green

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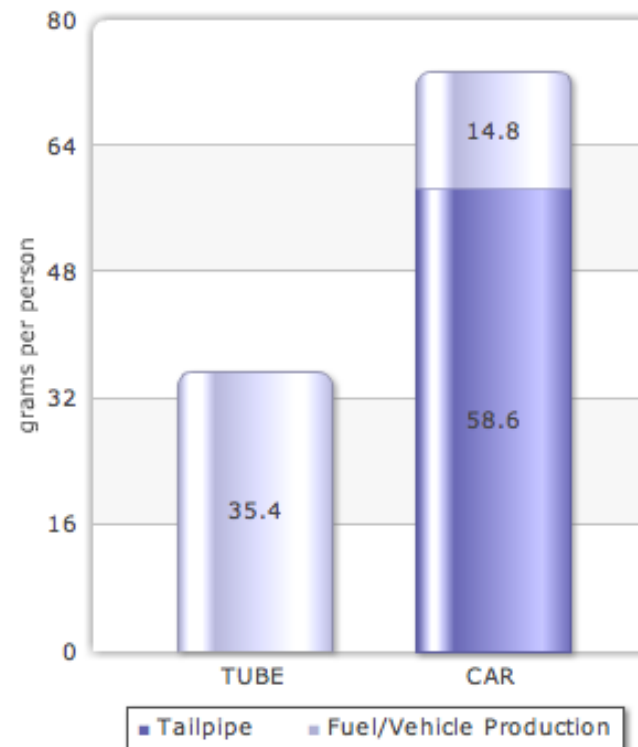
Average city-car LP gas

Driver plus 3 passengers

« Start Again

Save Results

### Lifecycle CO<sub>2</sub> Emissions





# Travel planners: Transportdirect.info 1



## CO2 emissions calculator

Full Itinerary for Sat 14 Nov 09 leaving after 13:00				
From	To	Leave	Arrive	Duration
Green Park Underground St...	Embankment Underground St...	13:03	13:12	9 mins
Travelling by: Underground, Walk				

Your journey

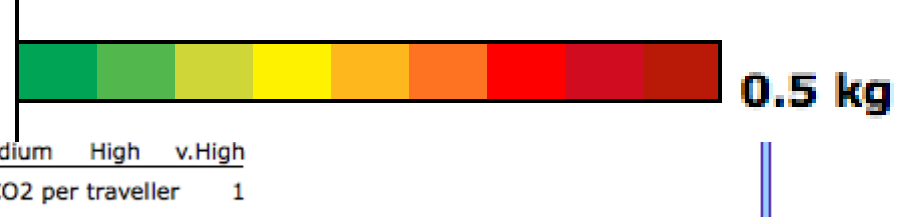


For comparison if you travelled 1.2 miles by:

Small Car only



Large Car only



Low Medium High v.High  
0 kg of CO2 per traveller 1

Your journey would create 0.3 kg of CO2 less per traveller than travelling by large car.

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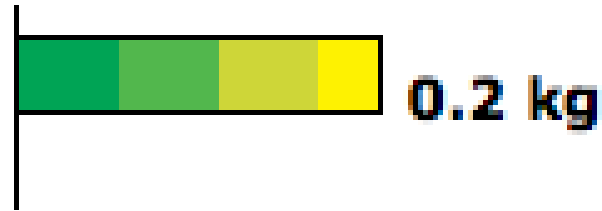
# Travel Planners: Transportdirect.info 4



## CO2 emissions calculator

Full Itinerary for Sat 14 Nov 09 leaving after 13:00				
From	To	Leave	Arrive	Duration
Green Park Underground St...	Embankment Underground	13:03	13:12	9 mins

Your  
journey



For comparison if you travelled 1.15 miles by:

Small Car  
only



Large Car  
only



Your journey would create 0.1 kg of CO2 more per traveller than travelling by large car.

# Summary of findings: Information



- People seek information when there is uncertainty.
- People use travel planners AFTER mode choice made.
  - Unlikely to affect that trip.
  - But, may affect future trips.
- Internet sources used by younger cohort.

# Information: Understanding



- Climate change
  - Future problem: abstract & discounted
  - Changes: present
- Framed as costs, losses, no control.



# Tools of Change: Applying

- Toolsofchange.com
  - For planning projects
  - Walks planner through application of those tools
- Fostering Sustainable Behavior (cbsm.com)
  - Psychologist developed site
  - Less focused on “professionals”?
  - Explains tools
  - Guides person through application

# CATCH: Purpose



- Developing a knowledge platform for stakeholders to reduce CO<sub>2</sub> produced through transport.
- Focus is on changing travel behaviour to more environmentally responsible.
- Current aim is to reduce automobile use.



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