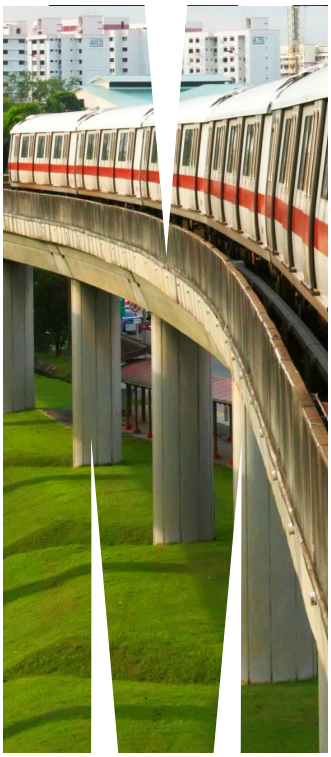
LTA Academy - Singapore
Wednesday 19th February 2020
HSO Club 7, MPR 1 Hampshire Road, Singapore

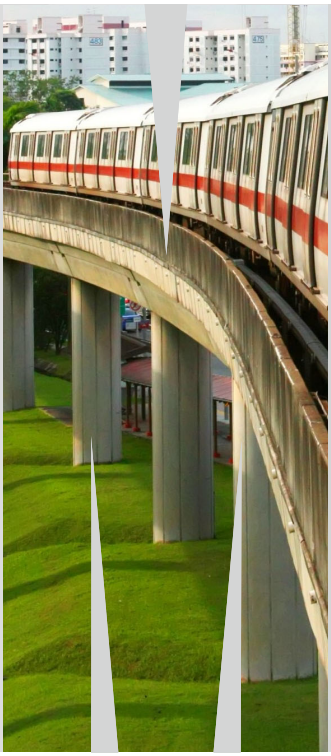
Valuing Customer Experience Infrastructure and New Approaches to Roadspace Management for Transit

Prof Graham Currie FTSE
SMRT Engineering Excellence Visiting Endowed Professor, NTU
Director
Public Transport Research Group
Monash Institute of Transport Studies
Monash University, Australia



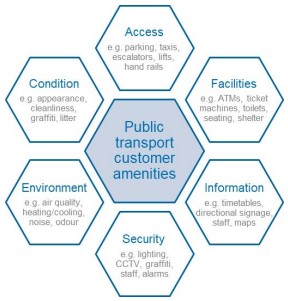
Agenda

- Introduction
- Valuing Customer Experience Infrastructure
- Roadspace Management Research



This lecture shows results of a Monash PTRG study on valuation of customer experience infrastructure – and discoveries designed to make retro-fitting bus priority more achievable

- The lecture is in two parts:
  1. **Valuing Customer Experience Infrastructure**
     - Enhancing customer experience is one of the biggest trends in public transport management
     - Advances in behavioral economics make it possible to place a $ value on the benefits of customer amenities that enhance customer experience (amenities)
     - Part 1 shows results of an international study to understand values, their adoption in transit and to define best practices in measurement
  2. **Roadspace Management Research**
     - Enginering science proves that we need to reallocate roadspace from single occupancy cars to buses and trams
     - BUT in the car based developed world - this has proven impossible in practice
     - Part 2 showcases PTRG research advances giving policy makers pragmatic ways to enact sustainable transport in car dominated cities



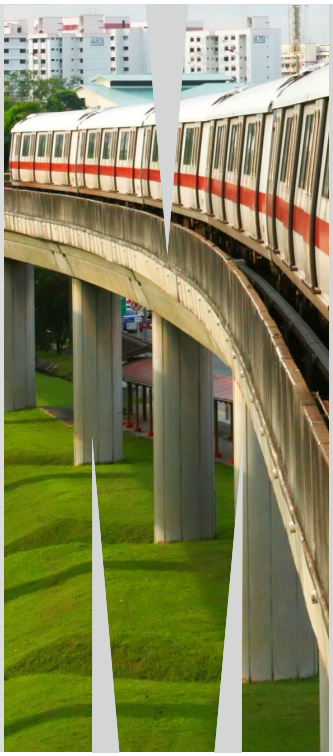
MONASH University

Agenda

Introduction

Valuing Customer Experience Infrastructure

Roadspace Management Research



MONASH University

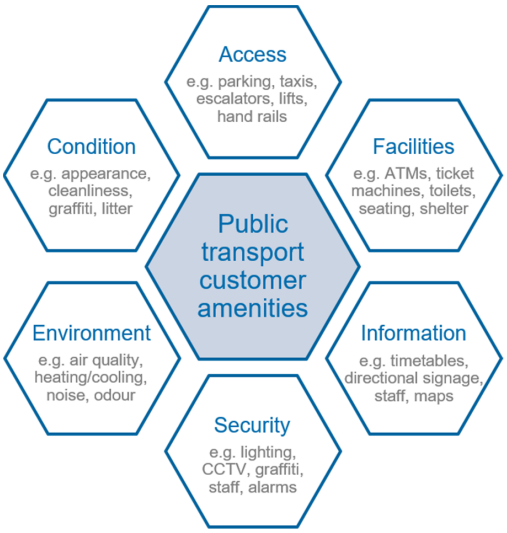
Part 1 - Valuing Customer Experience Infrastructure

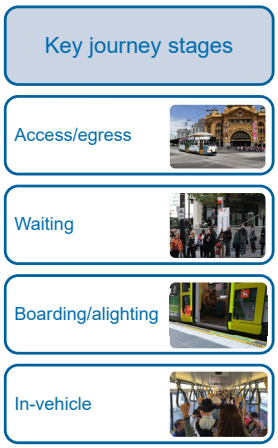
1. Introduction
2. Research/Literature Review
3. Practice Review
4. Delphi Survey of Experts

Part 1 outlines results of a study reviewing global practice in use of transit customer amenity valuation

- Customer experience infrastructure is now a major focus for world public transport planning
- This paper reviews world practice in measuring a value for these amenities
  - Overall goal is to improve world public transport industry practice
- Key Objectives in this paper:
  - What are current values?
  - What is world practice?
  - What are best practices in measurement/use?

It concerns customer amenities or what can be termed 'passenger experience' infrastructure which can be classified into one of six types





The research program was in three stages; results of each are now online

PTRG Research Program – Best Practice Approaches to Public Transport Customer Amenity Valuation

Results Access

1. Research Literature Review
   - Review of published evidence on values and methodologies
   - Types of amenities valued, range of approaches used, locations applied

De Gruyter, C, Currie, G, Truong, LT & Naznin, F 2018, 'A meta-analysis and synthesis of public transport customer amenity valuation research', **Transport Reviews**, pp. 1-23

2. World Transit Industry Practice Review
   - Survey of public transport agencies in Australia and major world cities
   - Current practices towards valuation and application of existing values

See: PTRG.info

3. International Practitioner Delphi Survey
   - Survey of 20-30 experts worldwide (consultants, academics, government)
   - Methods and best practices towards valuation of customer amenities

See: PTRG.info

All outputs including the valuation database are available on our website : PTRG.Info …

PUBLIC TRANSPORT RESEARCH GROUP

Connecting cities through our research.

ABOUT | OUR TEAM | BENCHMARKING | GRIP | PROJECTS | OUTPUTS | PARTNERS | NEWS & EVENTS | CONTACT

Best Practice Approaches to Public Transport Customer Amenity Valuation

Key aims

- To review evidence on **measured values** with regard to public transport customer experience initiatives
- To understand **current practices** in the use and adoption of these methods in Australia and internationally in public transport
- To understand **what can and cannot be measured** in terms of customer experience initiatives
- To explore **methods used to measure amenity/soft factor values**, their pros and cons and what is considered best practice.

Research components

1. **Research Literature Review:** review of published evidence on values and methodologies
2. **World Transit Industry Practice Review:** survey of public transport agencies in major world cities to assess current practices towards valuation and application of existing values
3. **International Practitioner Delphi Survey:** survey of 20-30 experts worldwide to understand methods and best practices towards valuation of customer amenities.

Access (e.g. parking, taxi, kerb access, hand rails)
Facilities (e.g. ATMs, ticket machines, vending, toilets)
Information (e.g. timetables, maps, real time, staff, signs)
Security (e.g. CCTV, lighting, staff, alarms)
Environment (e.g. air quality, temperature, noise, odour)
Condition (e.g. appearance, cleanliness, graffiti, litter)
Public transport customer amenities

Fig. 1 Classification of public transport customer amenities

Research context

- The diverse set of factors affecting the quality of public transport are commonly classified into 'hard' or 'soft' factors.
- Hard factors are physical measures that impact on journey times and reliability, but can also include fares and changes to service frequency and operating hours
- Soft factors, or customer amenities, cover a range of ancillary improvements which are not directly related to operations or service quantity but can enhance the quality of the customer experience. Examples are shown in Fig. 1.
- Considerable research has been undertaken to understand the value that public transport passengers place on hard factors, yet research into public transport customer amenity valuations is far less common, with limited synthesis of the topic.
- There is also a very limited understanding of current and best practices for valuing public transport customer amenities.

Research outputs

De Gruyter, C., Currie, G., Nazrin, F. (2017) *Best Practice Approaches to Public Transport Amenity/Soft Factor Valuation: Research Literature Review*, Public Transport Research Group, Monash University, Australia.

De Gruyter, C., Currie, G., Nazrin, F. (2017) *Public Transport Customer Amenity Valuation Database*, Public Transport Research Group, Monash University, Australia.

See: PTRG.info

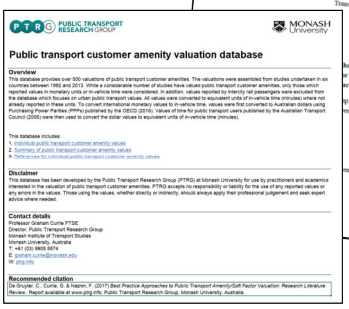
MONASH University

PUBLIC TRANSPORT RESEARCH GROUP

Best Practice Approaches to Public Transport Amenity/Soft Factor Valuation

Research Literature Review
[Revised Draft]

Prepared for Adrian Webb
Transport for Victoria



PUBLIC TRANSPORT RESEARCH GROUP

MONASH University

Public transport customer amenity valuation database

Overview

This database provides over 500 valuations of public transport customer amenities. The valuations were assembled from studies undertaken in six countries between 1992 and 2013. While a considerable number of studies have valued public transport customer amenities, only those which reported values in monetary units or in-vehicle time were considered. In addition, values reported by intercity rail passengers were excluded from the database which focuses on urban public transport values. All values were converted to equivalent units of in-vehicle time (minutes) where not already reported in these units. To convert international monetary values to in-vehicle time, values were first converted to Australian dollars using Purchasing Power Parities (PPPs) published by the OECD (2016). Values of time for public transport users published by the Australian Transport Council (2006) were then used to convert the dollar values to equivalent units of in-vehicle time (minutes).

This database includes:
1. Individual public transport customer amenity values
2. Summary of public transport customer amenity values
3. References for individual public transport customer amenity values

Disclaimer

This database has been developed by the Public Transport Research Group (PTRG) at Monash University for use by practitioners and academics interested in the valuation of public transport customer amenities. PTRG accepts no responsibility or liability for the use of any reported values or any errors in the values. Those using the values, whether directly or indirectly, should always apply their professional judgement and seek expert advice where needed.

Contact details

Professor Graham Currie PTSE
Director, Public Transport Research Group
Monash Institute of Transport Studies
Monash University, Australia
T: +61 (03) 9905 9674
E: graham.currie@monash.edu
W: ptrg.info

Recommended citation

De Gruyter, C., Currie, G. & Nazrin, F. (2017) *Best Practice Approaches to Public Transport Amenity/Soft Factor Valuation: Research Literature Review*. Report available at www.ptrg.info. Public Transport Research Group, Monash University, Australia.

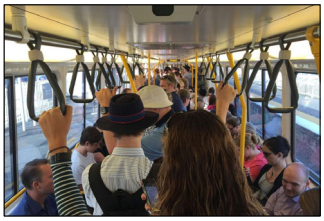
MONASH University

Part 1 - Valuing Customer Experience Infrastructure

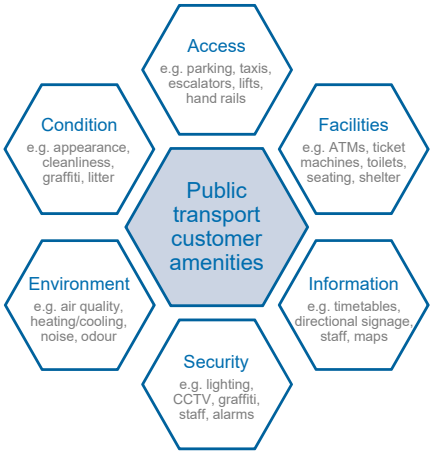
1. Introduction
2. Research/Literature Review
3. Practice Review
4. Delphi Survey of Experts

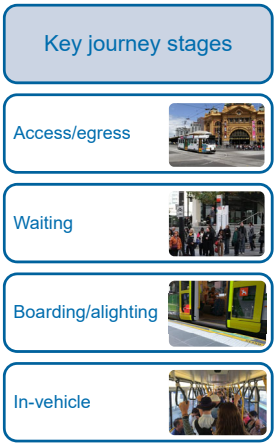
Phase 1 - Research Literature Review aim to outline previous research and published practice with six key research objectives

1. To develop a **typology** of customer amenities for key stages of the PT journey
2. To understand **methods** used to estimate & apply customer amenity values
3. To synthesise **existing values** to understand their relativities and variability
4. To identify **key issues** associated with the valuation of customer amenities
5. To understand **best practices** in valuing customer amenities
6. To identify **key knowledge gaps** in the field & opportunities for future research



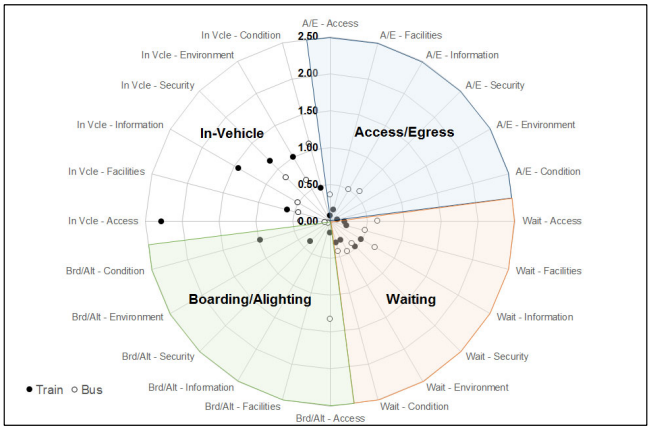
Amenities were classified into a typology of one of six types, for each key journey stage - A total of 532 individual amenity values were assembled from the literature…





- Only studies which reported values in monetary units or in-vehicle time were considered for inclusion; ratings could not be converted with much accuracy
- 532 cleaned/validated amenity values were assembled from six countries with valuation dates ranging from 1992 to 2013
- To aid comparability, all values were converted to equivalent units of in-vehicle time (minutes) where not already reported in these units

Valuation/trip were in equivalent in-vehicle minutes – all are available on the PTRG website.



Median amenity values by journey stage, amenity type and mode (train/metro, bus).

High-level summary of public transport customer amenity values, by type and mode

Amenity type	Median value (range in brackets): in-vehicle minutes		
	Train/metro	Tram/ Light Rail	Bus
Access	0.22 (0.01 – 4.39)	0.24*	0.64 (0.05–5.59)
Facilities	0.30 (0.00 – 9.40)	0.50 (0.32 – 0.55)	0.49 (0.02–13.78)
Information	0.70 (0.03 – 12.01)	0.30 (0.09 – 0.65)	0.61 (0.02–11.35)
Security	0.50 (0.02 – 13.99)	0.22 (0.09 – 1.21)	0.55 (0.02 – 9.81)
Environment	0.73 (0.03 – 6.79)	0.45 (0.22 – 0.50)	0.62 (0.00–13.43)
Condition	0.40 (0.00 – 13.99)	0.48 (0.32 – 0.55)	0.53 (0.02–13.78)

Source: De Gruyter, C, Currie, G, Truong, LT & Naznin, F 2018, 'A meta-analysis and synthesis of public transport customer amenity valuation research', **Transport Reviews**, pp. 1-23

The database and research reports are available for free download at: http://publictransportresearchgroup.info/portfolio-item/best-practice-approaches-to-public-transport-customer-amenity-valuation/ (last accessed 14 June 2018).

MONASH University

Part 1 - Valuing Customer Experience Infrastructure

1. Introduction
2. Research/Literature Review
3. Practice Review
4. Delphi Survey of Experts

The practice review aimed to understand use of amenity valuation in global practice

1. Types of public transport **projects that have been planned/delivered**
2. Typical **levels of appraisal** of public transport projects
3. **Extent to which customer amenities are included** in project appraisal
4. **Studies** undertaken to estimate the value of customer amenities
5. Extent to which customer amenity values from **previous studies have been applied**
6. **Published sources** of customer amenity values that have been used**.**

Considerable time was spent in finding the right agency and representative

City	Agency
1. Melbourne	Transport for Victoria (TfV)
2. Sydney	Transport for NSW (TfNSW)
3. Brisbane	Department of Transport and Main Roads (TMR)
4. Perth	Public Transport Authority of Western Australia (PTA) & Department of Transport (DOT)
5. Auckland	Auckland Transport (AT)
6. London	Transport for London (TfL)
7. Paris	Île-de-France Mobilités
8. San Francisco	San Francisco Municipal Transportation Agency (SFMTA)
9. Toronto	Metrolinx
10. Vienna	City of Vienna
11. Oslo	Ruter
12. Singapore	Land Transport Authority (LTA)

- Only one survey completion was sought from each city
- Agency representatives (survey respondents) were selected based on their knowledge of what their agency does in terms of public transport project appraisal

Survey was administered online during Jan-Feb 2018

- Survey administered online during Jan-Feb 2018
- 11 questions asked, taking around 20-30 minutes to complete
- In some cases, agency representatives had to liaise with others in their organisation to complete the survey as accurately as possible

General topics covered by the survey:

1. Types of public transport **projects that have been planned/delivered**
2. Typical **levels of appraisal** of public transport projects
3. **Extent to which customer amenities are included** in project appraisal
4. **Studies** undertaken to estimate the value of customer amenities
5. Extent to which customer amenity values from **previous studies have been applied**
6. **Published sources** of customer amenity values that have been used.

PT projects delivered/planned in each city are largely based on modes available

Public transport PROJECTS that have been planned/delivered with involvement from agency in last 10 years

Mode	Project type	City											Total
		MEL	SYD	BNE	PER	AKL	LON	PAR	TOR	VIE	OSL	SIN	
Train/metro	New or upgraded station/stop	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11
	New or extended line/route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11
	New or refurbished rolling stock/vehicle	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11
	Short range planning*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11
	Other		✓			✓							2
Tram/light rail	New or upgraded station/stop	✓	✓	✓		✓	✓	✓		✓	✓		8
	New or extended line/route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		10
	New or refurbished rolling stock/vehicle	✓	✓	✓			✓	✓	✓	✓			7
	Short range planning*	✓	✓	✓			✓	✓		✓	✓		7
	Other												0
Bus	New or upgraded station/stop	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11
	New or extended line/route	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11
	New or refurbished rolling stock/vehicle	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	10
	Short range planning*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	11
	Other		✓			✓							2
Ferry	New or upgraded station/stop	✓	✓	✓	✓	✓					✓		6
	New or extended line/route		✓			✓					✓		3
	New or refurbished rolling stock/vehicle	✓	✓				✓				✓		4
	Short range planning*		✓	✓	✓	✓					✓		5
	Other					✓							1
Total		14	18	13	11	16	13	12	10	12	15	8	

Train/metro & bus projects most common across cities

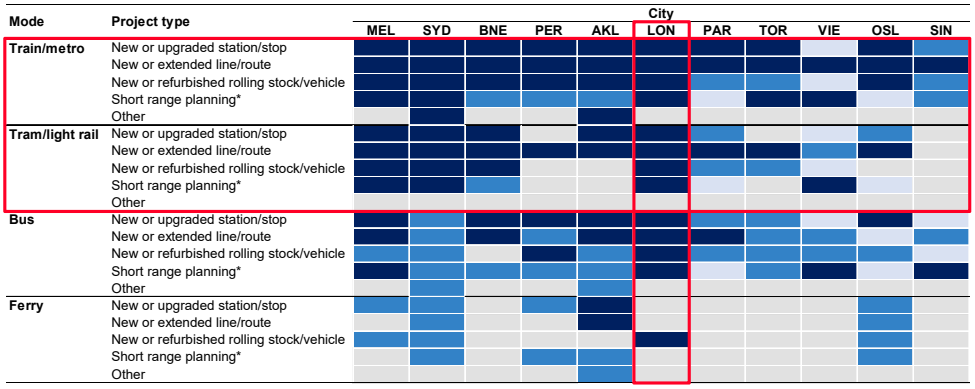
Ferry projects least common given geographical characteristics

MEL = Melbourne, AKL = Auckland, VIE = Vienna
SYD = Sydney, LON = London, OSL = Oslo
BNE = Brisbane, PAR = Paris, SIN = Singapore
PER = Perth, TOR = Toronto
* Changes in frequency, operating hours and/or fares

Sydney, Auckland and Oslo involved in the greatest number of project types

London/Australasian cities adopt advanced (economic) evaluations for rail; less for bus; Melbourne has generally 'advanced' PT appraisal practice

Typical LEVELS OF APPRAISAL of public transport projects in last 10 years



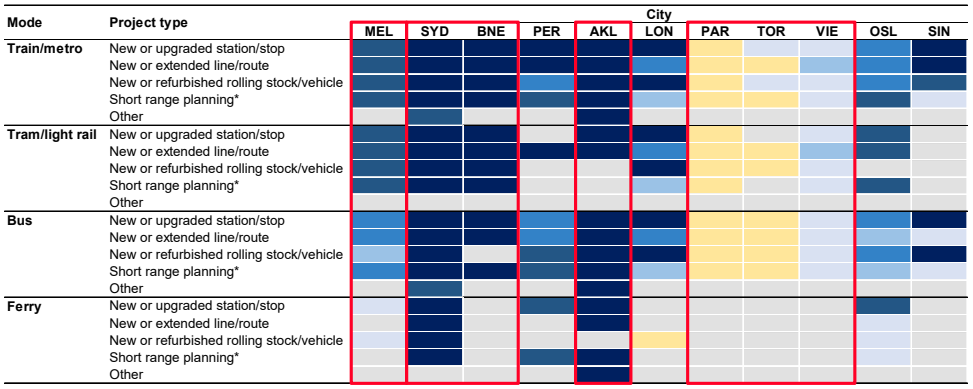
Train/metro & tram/light rail projects typically undergo more advanced appraisal

London typically adopts advanced appraisal methods across all project types

Advanced (e.g. economic evaluation)	MEL = Melbourne	AKL = Auckland	VIE = Vienna
Intermediate (e.g. financial evaluation)	SYD = Sydney	LON = London	OSL = Oslo
Basic (e.g. mostly qualitative)	BNE = Brisbane	PAR = Paris	SIN = Singapore
No appraisal or evaluation	PER = Perth	TOR = Toronto	
Project not considered / no response	* Changes in frequency, operating hours and/or fares		

Australasia includes Amenities at high shares; excluding Melbourne with lower adoption; Paris, Toronto, Vienna have low/no amenity appraisal in PT projects

Extent to which CUSTOMER AMENITIES are included in appraisal of public transport projects



Sydney, Brisbane & Auckland almost always include customer amenities in project appraisal

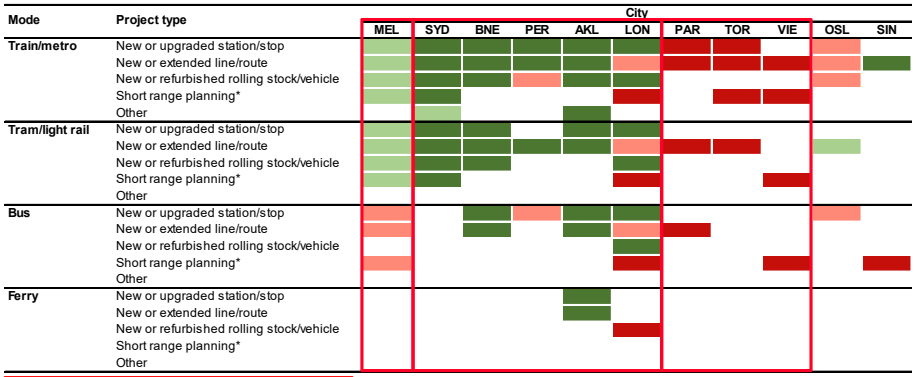
Melbourne is out of sync with most Australasian/UK practice

80-100% of the time	MEL = Melbourne	AKL = Auckland	VIE = Vienna
60-80% of the time	SYD = Sydney	LON = London	OSL = Oslo
40-60% of the time	BNE = Brisbane	PAR = Paris	SIN = Singapore
20-40% of the time	PER = Perth	TOR = Toronto	
Up to 20% of the time	* Changes in frequency, operating hours and/or fares		
Never			
Project not considered / no response			

Paris, Toronto & Vienna rarely (if at all) include customer amenities

Australasian cities (& London) include amenities in high share of Advanced appraisal; Melbourne less so; Paris/Toronto/Vienna have low amenity use in Advanced appraisals

Extent to which customer amenities are included in cities with ADVANCED level of appraisals



Australasian cities (& London) have high level (80%+) of amenities included in advanced appraisals

Melbourne out of step with amenities included in only 60-80% of advanced appraisals

- Large Negative Difference (e.g. advanced appraisal w ith customer amenities included less than 40% of the time)
- Moderate Negative Difference (e.g. advanced appraisal w ith customer amenities included 40-60% of the time)
- Small Negative Difference (e.g. advanced appraisal w ith customer amenities included 60-80% of the time)
- Negligible Difference (e.g. advanced appraisal w ith customer amenities included 80-100% of the time)
- Project not considered / no response

Paris/Toronto/Vienna don't include amenities in PT appraisal yet do a lot of appraisal work

17 customer amenity valuation studies were reported across 7 cities – Sydney, Brisbane & London do a lot; Melbourne only one

STUDIES undertaken to estimate the value of public transport customer amenities

City	Survey year/s	Public transport mode/s				Survey method/s						Who primarily undertook the valuation?		
		Train/ metro	Tram/ light rail	Bus	Ferry	Stated preference	Revealed preference	Customer ratings	Priority evaluator	Max-diff scaling	Other	Undertaken in-house	Consultant/ contractor	University/ research institute
Melbourne	2014	✓	✓	✓		✓		✓			✓		✓	
Sydney	2015	✓	✓	✓	✓	✓							✓	
	2012	✓									✓	✓		
	Annual	✓	✓	✓	✓			✓			✓	✓		
	2016	✓									✓		✓	
	2015			✓		✓							✓	
Brisbane	Ongoing	✓		✓	✓						✓	✓		
	Annual	✓	✓	✓	✓						✓	✓		
London	2016	✓	✓	✓		✓	✓			✓			✓	
	2014	✓	✓	✓		✓							✓	
	2013					✓							✓	
	2011	✓	✓	✓		✓							✓	
	2007	✓	✓	✓		✓							✓	
Paris	2005	✓				✓							✓	
	2013	✓	✓	✓		✓	✓			✓			✓	
Oslo	2015	✓	✓	✓	✓		✓				✓			✓
Singapore	2015	✓	✓	✓		✓	✓	✓					✓	
Total		**15**	**11**	**13**	**5**	**11**	**4**	**3**	**0**	**2**	**7**	**4**	**12**	**1**

- Most studies undertaken in Sydney, Brisbane & London
- Most studies undertaken within last 5 years (13 out of 17); almost all within last 10 years (15 out of 17)
- Most studies considered customer amenities for train/metro and bus; only 5 studies concerned with ferries
- Stated preference was the dominant survey method for the valuation studies
- Consultant/contractors undertook the majority of studies (12 out of 17) but some done in-house (4)

MONASH University

Part 1 - Valuing Customer Experience Infrastructure

1. Introduction
2. Research/Literature Review
3. Practice Review
4. Delphi Survey of Experts

The Delphi Survey aims to understand expert views on good practices in estimating and applying amenity valuations in public transport

Topics Covered in the Expert Survey	
Method Advantages/Disadvantages • What are the advantages/disadvantages of the measurement methods? **Method Suitability** • Which methods are more suitable for estimating PT amenity values? **Valuation Worthwhile?** • Is amenity valuation worthwhile and if yes why? **Measurement Issues** • How important are common measurement issues/problems? How often do they occur? **Overall Rating of Practice** • How good is current practice?	**Best Practices** • What are best practices in the field? **Problematic Amenities** • Are there amenities that cannot be valued? **Post-Implementation Reviews (PIR) of Values** • what share are checked? How close are PIR values to estimates? Should more PIR valuations be undertaken? **Leading Practitioners** • Leading Companies, Experts, Authorities, what share adopt amenity valuations, reasons not adopted more **Other Comments**

28 experts were contacted; 18 did the Stage 1 survey; a HIGH response rate (64%) ; 6 experts provided Stage 2 feedback on the Stage 1 report

Experts who Responded to the Stage 1 Delphi Survey
– Only those agreeing to use of their name shown

No.	Name	Organisation	Country
1	Robin Barlow	NineSquared	Australia
2	David Hensher	University of Sydney	Australia
3	John Segal	Independent Consultant	United Kingdom
4	DID NOT RESPOND		Australia
5	John Rose	University of Technology Sydney	Australia
6	Neil Douglas	Douglas Economics	New Zealand
7	DID NOT RESPOND		
8	Nils Fearnley	Institute of Transport Economics	Norway
9	Eric Kroes	Significance Quantitative Research	The Netherlands
10	John Bates	John Bates Services	United Kingdom
11	Abigail Bristow	University of Surrey	United Kingdom
12	Toby Cuthbertson	SYSTRA	United Kingdom
13	DID NOT RESPOND		
14	James Laird	University of Leeds	United Kingdom
15	Roger Mackett	University College London (UCL)	United Kingdom
16	RESPONDED BUT PREFERS NOT TO BE NAMED		
17	DID NOT RESPOND		
18	DID NOT RESPOND		
19	DID NOT RESPOND		
20	John Preston	University of Southampton	United Kingdom
21	Jeremy Shires	University of Leeds	United Kingdom
22	Stephen Stradling	Edinburgh Napier University	United Kingdom
23	Ryan Taylor	Transport for London	United Kingdom
24	Mark van Hagen	NS Rail	The Netherlands
25	DID NOT RESPOND		
26	DID NOT RESPOND		
27	DID NOT RESPOND		
28	DID NOT RESPOND		

18 valid responses from 28 experts is a 64% response rate;
we were expecting about 10 with about a 33% return rate

Stage 2 Feedback:
1 expert thought the experts selected were 'British Commonwealth' focussed; suggested Chile, Sweden, Netherlands & US could have also provided experts

Survey Results are reported by Topic Area – Stage 1 survey reports are reported in each slide and Stage 2 results via comment boxes

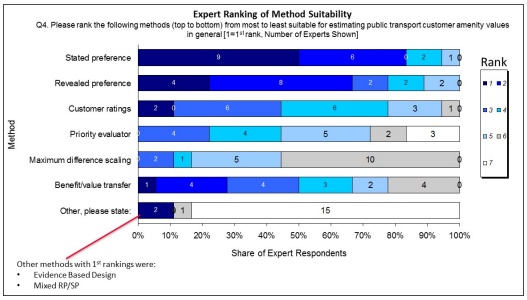
Expert Survey Result Reporting Approach

Topic Areas

- Method Advantages/Disadvantages
- Method Suitability
- Valuation Worthwhile?
- Measurement Issues
- Practice Rating
- Best Practices
- Problematic Amenities
- Leading Practitioners
- Other Comments

Stage 2 Feedback:
In general all experts supported Stage 1 results findings & thought them interesting and valuable

Stage 1 Survey Results – Majority of Slides



Stage 2 Expert Feedback – Comment Boxes on Slides

example

Stage 2 Feedback:
1 expert commented 'this' about this issue

Advantages; SP-analysis control/flexibility; RP-reality of behaviour; CR-cheap/data relativity; PE-forcing user trade-offs; MDS-negative experience & cheap; BVT-cheap/quick

Key Advantages of Methods

Method Advantages/Disadvantages

Q2. What do you believe are the key advantages of the following methods for estimating the value of public transport customer amenities?

Stated preference (SP)		Revealed preference (RP)		Customer ratings (CR)		Priority evaluator (PE)		Maximum difference scaling (MDS)		Benefit/value transfer (BVT)	
Comment	No.	Comment	No.	Comment	No.	Comment	No.	Comment	No.	Comment	No.
Enables full control of a range of variables	**6**	**Based on real observed actual behaviour**	**12**	**Can collate lots of info cheaply/simply**	**4**	**Forces users to make trade-offs**	**3**	**Captures negative as well as positives in experience**	**2**	**Cheap/quick/ practical to use**	**8**
Flexible - can measure new unobserved variables/ hard to value amenities	**4**	Avoids market research weaknesses	1	**Provides relativities/ preferences/ rankings very easily**	**4**	**Cheap/easy to collect**	**2**	**Cheaper/simpler (than SP)**	**2**	Easier to explain to client	1
Flexible - can measure new contexts/concepts	**2**	Free from bias	1	**Easy for respondents to complete**	**3**	**More realistic/ closer to money value**	**2**	Enables relative importance fond	1	No fieldwork needed	1
Has long history (accepted, valid, understood method)	**2**	Enables use and non-use valuation	1	Perceptions can be included	1	Easy for respondents to complete	1	Easy for respondents to complete	1	Leverages wider studies rather than a single local study	1
Can measure many types of customer amenities	1	Easy to use	1	Can be applied to a broader set of attributes	1			Allows non market valuation	1	Enables local conditions to be considered	1
Allows measurement of non-market values	1	Useful for package effects	1	Good when Important/ Performance combined	1						
Enables use and non-use valuation	1	full control of choices	1								
Can achieve representative samples	1										
Enables comparison of quality levels	1										
Has data/statistical efficiency	1										
Gives appearance of precision	1										
Keeps academics busy on methods no one understands	1										

Note; all experts permitted multiple points; above is a synthesis of all points made in their text responses

Disadvantages; SP-bias/scaling; RP-poor attribute control/data quality; CR-indirect valuation; PE-complexity for respondents; MDS-limited valuation; BVT-lack of transferability

Key Disadvantages of Methods

Method Advantages/Disadvantages

Q3. What do you believe are the key disadvantages of the following methods for estimating the value of public transport customer amenities?

Stated preference (SP)		Revealed preference (RP)		Customer ratings (CR)		Priority evaluator (PE)		Maximum difference scaling (MDS)		Benefit/value transfer (BVT)	
Comment	No.	Comment	No.	Comment	No.	Comment	No.	Comment	No.	Comment	No.
Too much bias/ 'Bonkers' results via bias/ scaling problems	**8**	**Causal factors unclear/ no attribute control**	**7**	**Indirect value estimation biased**	**4**	**Too complex for respondents**	**4**	**Only measures outliers not central measures**	**3**	**Loses local context/ limits on transferability to context**	**9**
Too hypothetical/ unreal study; unconstrained respondent budgets/ user view	**4**	**Poor data/ data quality/ errors**	**3**	**Too subjective**	**3**	**Difficult to set budget**	**3**	Gives no valuation	1	**Only as good as studies adopted**	**2**
Often too complex for users to understand	**3**	**Cant measure many amenity types**	**3**	**Vague/too general for respondents**	**2**	**Valuation issues over time/ currencies**	**2**	Best/worst often not symmetrical	1		
Results insensitive to local user decisions	1	Multi-collinearity	1	Too much respondent bias	1			Experimental design limits	1		
Cannot value 'transformational' change	1	Poor 'non-use' values	1	Lack of trade off testing	1						
Too expensive relative to other methods	1	Much measurement error	1								
Internet panels – users tick any boxes	1	Cant observe behaviour of interest	1								
Uncalibrated results used too often	1										
Doesn't measure complex/ psychological decision factors	1										

Note; all experts permitted multiple points; above is a synthesis of all points made in their text responses

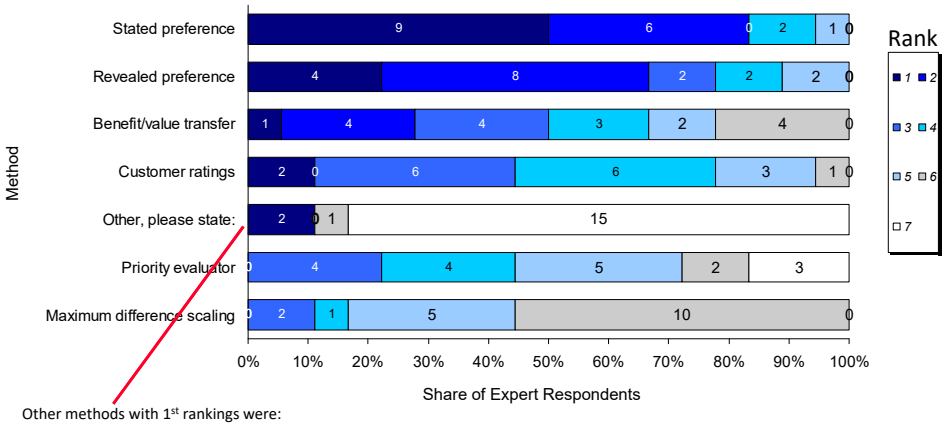
Note: comments edited to aid readability

1st rank method was SP (50% of experts) followed by RP (22%). 2nd rank method was RP (44%) followed by SP (33%). BVT ranked next; CR/BVT and Other methods rated few expert 1st ranks

Method Suitability

Expert Ranking of Method Suitability

Q4. Please rank the following methods (top to bottom) from most to least suitable for estimating public transport customer amenity values in general [1=1st rank, Number of Experts Shown]



Other methods with 1st rankings were:

- Station Experience Monitor
- Mixed RP/SP

…reasons given stress the need to support rational decisions on investment and policy for customer experience infrastructure

Valuation Worthwhile?

Reasons Why PT Amenity Valuation Worthwhile

Q5. In general, do you believe that the valuation of public transport customer amenities is worthwhile? Please provide reasons for your response below. [Selected Responses Shown]

- It values an important aspect of service that we would otherwise not be able to value, but people clearly do appreciate the infrastructure.
- if customer amenities provide a benefit…we must attempt to value them appropriately
- Allows investments to be prioritised, in terms of value for money
- understanding the valuation if amenities is important to ensure that scarce government funds are allocated to things that are most highly valued in order to maximise (or at least optimise) community outcomes. If this doesnt happen, the we are reducing overall welfare.
- If they are not valued, the implicit value given is zero.
- Important for cost benefit analysis and hence for ranking of alternative investments
- allows trade offs against other policy levers to be made.
- Even if total valuation is relatively modest (compared to impact of fares or journey time, for example) there can be potential for real gains at low cost. Also consider competition; cars continually add to customer amenities - try buying a car without air conditioning now.

Note: Above shows individual comments by separate experts – some word editing has occurred to aid readability

A range of amenity value measurement concerns/issues were identified in our previous research. Experts rated these issues…

Measurement Issues

Amenity Value Measurement Issues/Problems

Measurement issue	Description
Values Context Specific	▪ High variability makes it difficult to estimate values that are transferrable to other services/cities ▪ Differences in values may be observed by age, gender, income, location and trip characteristics
Application of 'average' values for benefit transfer	▪ Average values may be skewed towards higher/extreme values ▪ Generally not appropriate where proposals are targeted at specific groups (e.g. mobility impaired)
Absence of natural and/or meaningful units	▪ Lack of natural/meaningful units limits the transferability of valuations ▪ Metric scales are often not meaningful to respondents (e.g. decibels for noise)
Packaging effect	▪ Where values for individual amenities sum to more than the value of a package of improvements ▪ Valuations for individual amenities are typically scaled down to deal with the problem
Interaction and 'halo' effects	▪ Where improving one amenity can change the perceived value of other amenities ▪ Example is mobile phone based information which may reduce the value of information displays
Changes in customer expectations	▪ Willingness to pay for particular amenities may change over time as minimum standards increase ▪ Quality of customer amenities may need to continually evolve in order to stand still
Survey response bias	▪ Strategic response bias – respondents' overstate their valuations to influence policy ▪ Non-commitment bias – respondents' lose nothing by indicating value for certain amenities
Respondents' understanding of amenities & levels of provision	▪ Unfamiliarity with amenities can affect respondents' valuations ▪ Use of focus groups beforehand can help to ensure amenities are framed appropriately

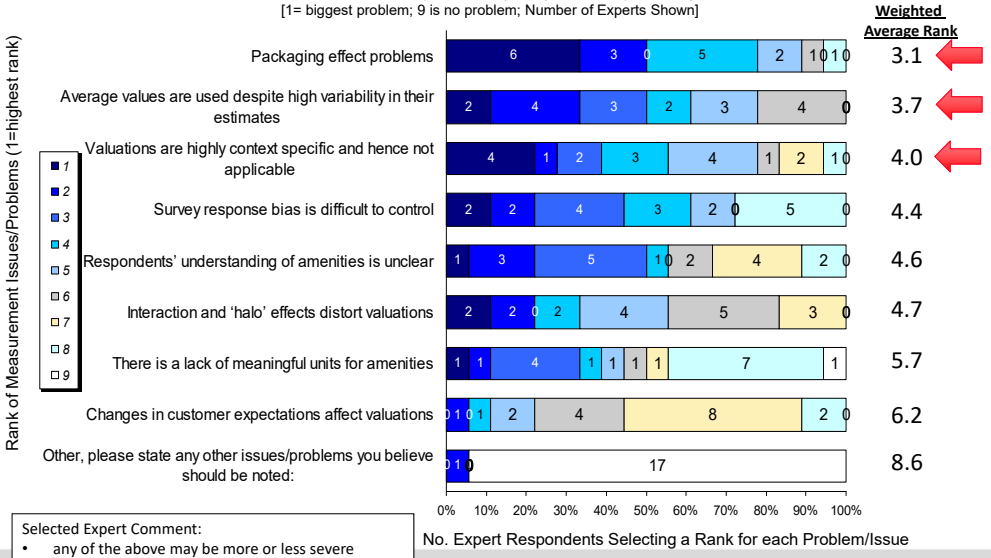
Source: De Gruyter, Currie and Naznin (2018) 'Best Practice Approaches to Public Transport Customer Amenity Valuation - Research Literature Review'

Packaging effects, use of average values & the problem of inapplicable values due to context were the highest ranked issues/problems overall

Measurement Issues

Rank of Issues/Problems with Measurement Methods

Q7. Please rank the issues/problems in terms of your view regarding their priority in limiting current practice in the field
[1= biggest problem; 9 is no problem; Number of Experts Shown]



Selected Expert Comment:
- any of the above may be more or less severe depending on the design and implementation of the study. It is therefore hard to rank them in isolation

A diverse range of 'best practices' were suggested; most comments suggest mixed methods…

Best Practices

Expert View of Best Practices – Comments Emphasising MIXED METHODS

Q9. What best practices would you recommend for valuing public transport customer amenities? Please provide reasons in your response below

- Combine several approaches so that information from different sources can help assess robustness.
- Useful to use multiple methods and compare consistency of results. Important to pay attention to different levels of detail/importance.
- SP/SC. Good control with attributes (despite some problems) and well developed methods to control for different biases.
- Methodology used by TfNSW P&G, ATAP, NZ EEM and Sydney Trains is pretty good…based on ratings for individual attributes and SP for package values with cross-section data for modes.. and time series data on ratings.
- Probably in the area of combining methods in an efficient manner ; making sure that attributes like time are included where there may be outside evidence to cross check ; making sure that concepts like reliability are explained to respondent (see work by Hollander)
- A combination of approaches - e.g., SP/RP and possibly with appropriate modelling (the modelling has been done very poorly in the past). Don't just rely on one method!
- Using mixed RP/SP methods.

Note: Above shows individual comments by separate experts – some word editing has occurred to aid readability

Half of all experts said there are no customer amenities that cannot be valued…

Problematic Amenities

Are There Amenities Which CANNOT Be Valued?

Q10. Are there are specific public transport customer amenities that you believe cannot be valued appropriately? Please state these in the space below and provide reasons for why they cannot be valued appropriately

- Nah - give me some money (and I've cheaper than anyone else by a factor of probably 5) and I can value anything for you.
- No.
- No
- NO, but you have to understand how the brain of people works..
- There shouldn't be,
- No but some are harder than others (i.e. security has a very high value but only amongst a population that feels under threat)
- No, anything can be measured if the right tools are used.
- Basically almost everything. But the packaging issue is very serious: these things tend to be not simply additive and free from context...
- Not really if we think hard enough

Stage 2 Feedback:
It should be possible to estimate implicit values for hard to describe amenities but values would be only specific to the comtext they were measured and not be transferable.

Note: Above shows individual comments by separate experts – some word editing has occurred to aid readability

…others thought transformational effects, low frequency events, ride quality, amenities with no measurement scale and wheelchair/ disabled access amenities difficult to measure

Problematic Amenities

Are There Amenities Which CANNOT Be Valued?

Q10. Are there are specific public transport customer amenities that you believe cannot be valued appropriately? Please state these in the space below and provide reasons for why they cannot be valued appropriately

Transformational effects where a lot of improvements are made and the value becomes greater than the sum of the parts. Difficult for people to comprehend and value and difficult for us to explain to get people to value. Difficult for people to value high impact but low frequency events - i.e. getting splashed by roadside puddles. People systematically value them too highly because of the large negative impact. But it is a rare almost never sort of event. Yes people would be willing to pay £5 to avoid being soaked by a passing vehicle but not every single day.

Ride quality (and the related comfort factors) has proved surprisingly difficult to value.

Where there is no established measurement scale of the amenity in question, you can only provide study-specific valuations. In general there are lots of problems with qualitative improvements

Some are very context-specific – e.g. information may often be unnecessary but critical in the context of incidents. Also comfort variables are likely to have a (travel) time-dependent value component.

Wheelchair/Disabled Access

Those that relate to amenities that are only valued by a small minority of passengers - many amenities for disabled passengers fall into this category

I suspect things like wheelchair access are difficult and better to handle through rules/laws.

Facilities to improve accessibility for disabled people are not usually given values because improvements are usually introduced because of equality legislation rather than as part of a rational decision-making process

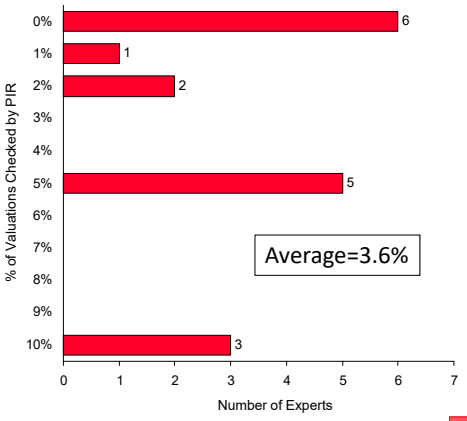
Note: Above shows individual comments by separate experts – some word editing has occurred to aid readability

Post-Implementation Review (PIR) of Amenity Values are rare (av. <4% of valuations); most experts haven't seen any - PIR values are generally less than the original amenity valuation

Post Implementation Reviews

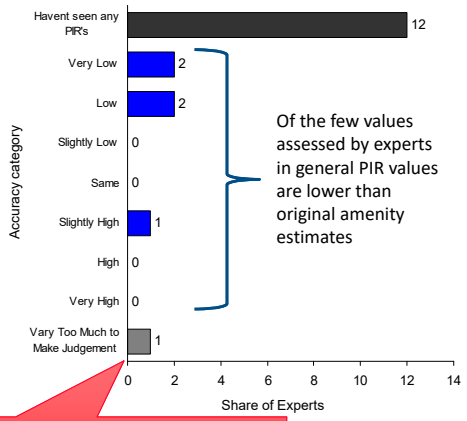
% of Amenity Valuations Checked by Post Implementation Reviews (PIRs)

Q11. In your experience, what percentage of amenity valuations are checked by post implementation reviews?



Post Implementation Review (PIR) Value vs Amenity Valuation

Q12. Of the Post Implementation Reviews you have seen, in general, how close have measured values been to estimates



Stage 2 Feedback:
How accurate are PIR's anyway? Its possible PIR values are lower because PIR measurement is wrong

Experts thought Method Complexity, Lack of Formal Appraisal and Lack of Resources major barriers constraining industry take up of Amenity Valuations

Other Comments

Reasons Why Agencies Don't Adopt Valuations

Q16. In your experience, why do some transport agencies not adopt valuations of public transport customer amenities? [Selected Responses Shown]

Methods Too Complex

- Too complicated, don't believe the results
- Differing views on the robustness of the estimates.
- Don't believe values - values don't suit the story they wish to convey
- Because they do not understand how the brain of humans work and still believe that people make rational decisions, which they do not (see the overwhelming evidence of scientist like Dan Ariely, Daniel Kahneman and Gerald Zaltman)
- Don't understand the value or too difficult to explain for a perceived small benefit. (e.g. it doesn't help them in their discussions with central agencies for funding so why do it?)
- They consider valuations to be too uncertain and open to challenge; they wish to be conservative.

Other

- History impetus, change in staff, afraid of bad press
- Never make the effort to properly value them and typically use outmodes customer satisfaction measures on a likert scale that are quite useless. Sadly they use traditional market research firms and most only know this type of metric method.

Methods Too Expensive

- Too much effort. No dedicated Dpt. to specify/oversee.
- Lack of resource
- lack of knowledge, constrained investment

Lack of Formal Appraisal in Industry

- These kinds of improvements are rarely subject to formal appraisal and budgets are prioritised according to benefit/cost. More often, amenities are specified as given requirements, e.g. in bus tender contracts and are not subject to cost-benefit consideration..
- Because they have bosses who don't care and/or are unlikely to be in the job long enough to do the work. They prefer to trust their gut instincts and don't understand the gobbledygook that comes out of academia
- Some are too pragmatic, too little research oriented
- Because decision-making processes are rarely that rational.

Note: Above shows individual comments by separate experts – some word editing has occurred to aid readability

Closing comments

- There is a VERY strong case for inclusion of amenities in appraisals
  - Melbourne is BEHIND Australian and world practice
  - If we agree Customer Experience is important, we need to justify investment in Customer Experience Infrastructure
- Multiple methods are best (SP/RP common methods)
- Resources are now available for use
  - (PTRG.Info)
  - Cite our reports and databases as proof of evidence when submitting business cases

All outputs including the valuation database are available on our website : PTRG.Info …

PUBLIC TRANSPORT RESEARCH GROUP

Connecting cities through our research.

ABOUT | OUR TEAM | BENCHMARKING | GRIP | PROJECTS | OUTPUTS | PARTNERS | NEWS & EVENTS | CONTACT

Best Practice Approaches to Public Transport Customer Amenity Valuation

Key aims

- To review evidence on **measured values** with regard to public transport customer experience initiatives
- To understand **current practices** in the use and adoption of these methods in Australia and internationally in public transport
- To understand **what can and cannot be measured** in terms of customer experience initiatives
- To explore **methods used to measure amenity/soft factor values**, their pros and cons and what is considered best practice.

Research components

1. **Research Literature Review:** review of published evidence on values and methodologies
2. **World Transit Industry Practice Review:** survey of public transport agencies in major world cities to assess current practices towards valuation and application of existing values
3. **International Practitioner Delphi Survey:** survey of 20-30 experts worldwide to understand methods and best practices towards valuation of customer amenities.

Access (e.g. parking, taxi, bicycle, walk, hand luggage)
Condition (e.g. appearance, cleanliness, graffiti, litter)
Facilities (e.g. ATMs, ticket machines, vending, shelter)
Public transport customer amenities
Environment (e.g. air quality, temperature, noise, odour)
Information (e.g. timetables, maps, signage, staff, signs)
Security (e.g. CCTV, lighting, staff, alarms)

Fig. 1 Classification of public transport customer amenities

Research context

- The diverse set of factors affecting the quality of public transport are commonly classified into 'hard' or 'soft' factors.
- Hard factors are physical measures that impact on journey times and reliability, but can also include fares and changes to service frequency and operating hours
- Soft factors, or customer amenities, cover a range of ancillary improvements which are not directly related to operations or service quantity but can enhance the quality of the customer experience. Examples are shown in Fig. 1.
- Considerable research has been undertaken to understand the value that public transport passengers place on hard factors, yet research into public transport customer amenity valuations is far less common, with limited synthesis of the topic.
- There is also a very limited understanding of current and best practices for valuing public transport customer amenities.

Research outputs

De Gruyter, C., Currie, G., Nazrin, F., (2017) *Best Practice Approaches to Public Transport Amenity/Soft Factor Valuation: Research Literature Review*, Public Transport Research Group, Monash University, Australia.

De Gruyter, C., Currie, G., Nazrin, F. (2017) *Public Transport Customer Amenity Valuation Database*, Public Transport Research Group, Monash University, Australia.

See: PTRG.info

MONASH University

PUBLIC TRANSPORT RESEARCH GROUP

Best Practice Approaches to Public Transport Amenity/Soft Factor Valuation

Research Literature Review
[Revised Draft]

Prepared for Adrian Webb
Transport for Victoria

PUBLIC TRANSPORT RESEARCH GROUP

MONASH University

Public transport customer amenity valuation database

Overview

This database provides over 500 valuations of public transport customer amenities. The valuations were assembled from studies undertaken in six countries between 1992 and 2013. While a considerable number of studies have valued public transport customer amenities, only those which reported values in monetary units or in-vehicle time were considered. In addition, values reported by intercity rail passengers were excluded from the database which focuses on urban public transport values. All values were converted to equivalent units of in-vehicle time (minutes) where not already reported in these units. To convert international monetary values to in-vehicle time, values were first converted to Australian dollars using Purchasing Power Parities (PPPs) published by the OECD (2016). Values of time for public transport users published by the Australian Transport Council (2006) were then used to convert the dollar values to equivalent units of in-vehicle time (minutes).

This database includes:
1. Individual public transport customer amenity values
2. Summary of public transport customer amenity values
3. References for individual public transport customer amenity values

Disclaimer

This database has been developed by the Public Transport Research Group (PTRG) at Monash University for use by practitioners and academics interested in the valuation of public transport customer amenities. PTRG accepts no responsibility or liability for the use of any reported values or any errors in the values. Those using the values, whether directly or indirectly, should always apply their professional judgement and seek expert advice where needed.

Contact details
Professor Graham Currie FTSE
Director, Public Transport Research Group
Monash Institute of Transport Studies
Monash University, Australia
T: +61 (03) 9905 9674
E: graham.currie@monash.edu
W: ptrg.info

Recommended citation
De Gruyter, C., Currie, G. & Nazrin, F. (2017) *Best Practice Approaches to Public Transport Amenity/Soft Factor Valuation: Research Literature Review*. Report available at www.ptrg.info. Public Transport Research Group, Monash University, Australia.

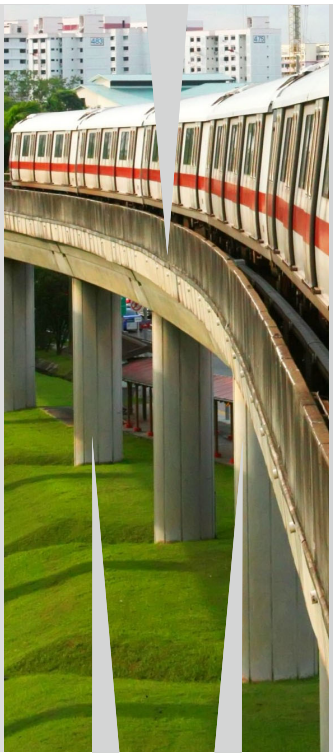
MONASH University

Agenda

Introduction

Valuing Customer Experience Infrastructure

Roadspace Management Research



MONASH University

Part 2 - Roadspace Management Research

Introduction

Perspectives

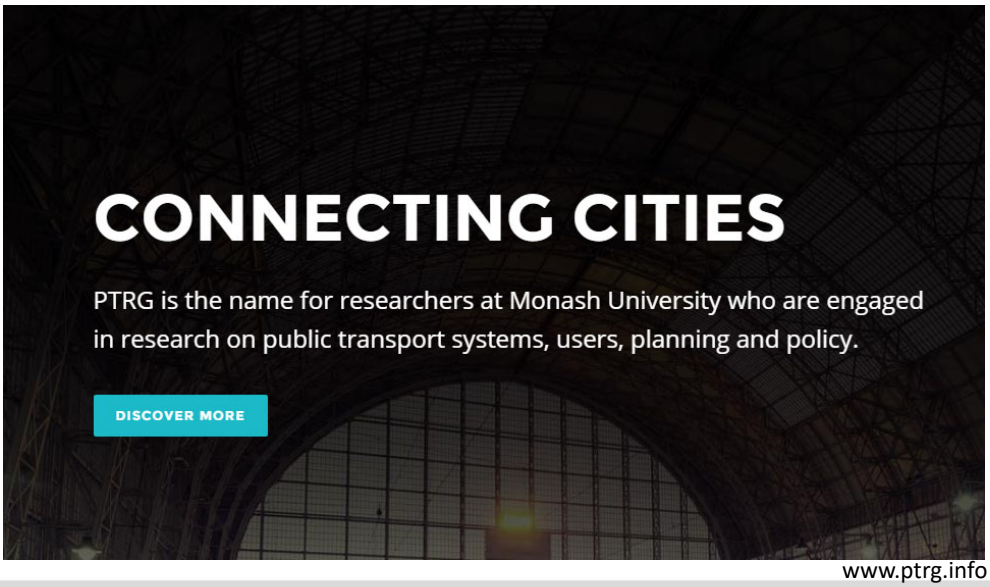
Movement and Place – for Trams

Pragmatic Priority

Part 2 outlines the results of two major research programs aimed at progressing public transport priority in Australasian and International Cities…

- The problem is :
  - we cannot implement priority because its too politically difficult to get the decisions to be made to do that;
    - we are constrained by not harming the private car (roadspace or parking) because its politically hard to do anything about that
  - The problem is not technical, technology or engineering;
    - its about the political context and how we address this to make progress

…this is the work of the Public Transport Research Group (PTRG) at Monash…



www.ptrg.info

…PTRG has about 70 researchers and has had high international impact…

Prof Graham Currie
Chair of Public Transport

Taru Jain
Research Fellow & Deputy Director

Dr Alexa Delbosc
Senior Lecturer
DECRA Fellow

James Reynolds
Research Fellow

Katerina Pavkova
Research Fellow

Wendy Walker
Website Manager

- 27 PhD students
- 52 Research associates across Monash University (e.g. ITS, MADA, MUARC), International Universities, and external experts
- 48 Masters Students; most in China
- 10+ final year civil engineering undergraduate research students per year

Laura McCarthy
Research Fellow

Dr Mike Ma
Lecturer

Laura Aston
Research Assistant


A Scientometric Analysis of Public Transport Research

Abstract

Introduction

International Awards
US Transportation Research Board Annual Meeting - Largest Transport Conference in the World (13,000 delegates)
- Best Paper in Public Transport (William M Millar Award)
  - 2012
  - 2017

World Conference on Transport Research
- Best research paper in Transport Policy 2016

ARRB Transport Research
- Research Impact Award 2017

World Review of Public Transport Research (2009-2013)
Heilig L and Vos S (2015) 'A Scientometric Analysis of Public Transport Research' Journal of Public Transportation Vol 18 No 2

Top 3rd world Universities in Public Transport Research

…PTRG runs the largest PhD research group in the world focusing on transit – 18 research programs…

1. TOD & Transit — Laura Aston
2. Big Data & Visualisation — Homayoun Rafati
3. Network Synchronisation — Rejitha Ravindra
4. Shared Mobility — Taru Jain
5. Changing Travel Behaviour — Laura McCarthy
6. Tourism & Public Transport — Victoria Radnell
7. Reliability Engineering Approaches in Best Practice Railways — Maryam Nawaz
8. Improving Gender Diversity in the Public Transport Workforce — Rachel Mence
9. Future Train — Lisa Fu
10. Designing Urban Rail to Reduce Vandalism — Amy Killen
11. Bus & Tram Priority Implementation — James Reynolds
12. Simulating Bus & Tram Priority — Samithree Rajapaksha
13. Placemaking & Street Redesign — Matthew Diemer
14. Passenger Falls in Trams — Luke Valenza
15. Transit Network Design — Nora Estgfäller
16. Future Bus — Sarah Roberts
17. The New Bus Rider — Prudence Blake
18. Road Safety Impacts of Bus Safety Inspections — Jianrong Qiu

…integrated into industry…

1. TOD & Transit — Laura Aston
2. Big Data & Visualisation — Homayoun Rafati
3. Network Synchronisation — Rejitha Ravindra
4. Shared Mobility — Taru Jain
5. Changing Travel Behaviour — Laura McCarthy
6. Tourism & Public Transport — Victoria Radnell
7. Reliability Engineering Approaches in Best Practice Railways — Maryam Nawaz
8. Improving Gender Diversity in the Public Transport Workforce — Rachel Mence

TRANSPORT FOR VICTORIA

9. Future Train — Lisa Fu
10. Designing Urban Rail to Reduce Vandalism — Amy Killen

METRO

vicroads

11. Bus & Tram Priority Implementation — James Reynolds
12. Simulating Bus & Tram Priority — Samithree Rajapaksha
13. Placemaking & Street Redesign — Matthew Diemer
14. Passenger Falls in Trams — Luke Valenza

yarra trams

transdev

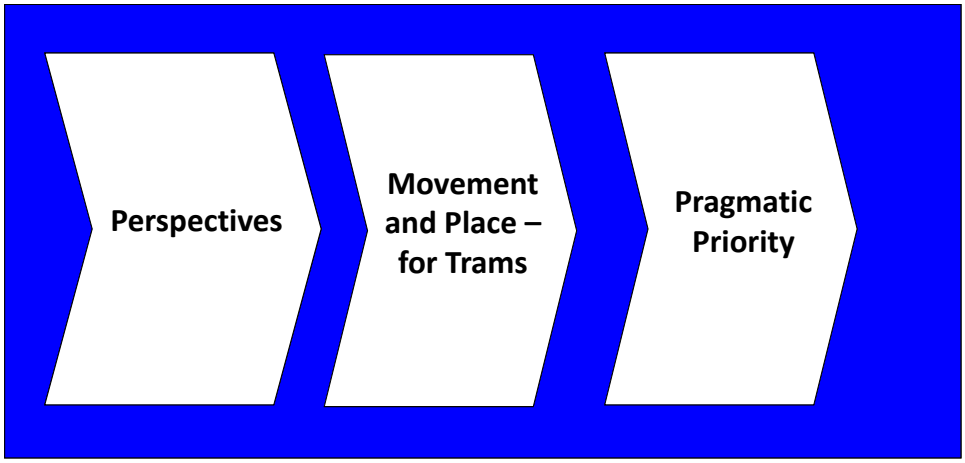
15. Transit Network Design — Nora Estgfäller
16. Future Bus — Sarah Roberts
17. The New Bus Rider — Prudence Blake
18. Road Safety Impacts of Bus Safety Inspections — Jianrong Qiu

BusVic

…including 2 projects im going to highlight in part 2…

…which is structured as follows

Part 2 - Roadspace Management Research



MONASH University

Part 2 - Roadspace Management Research

Introduction

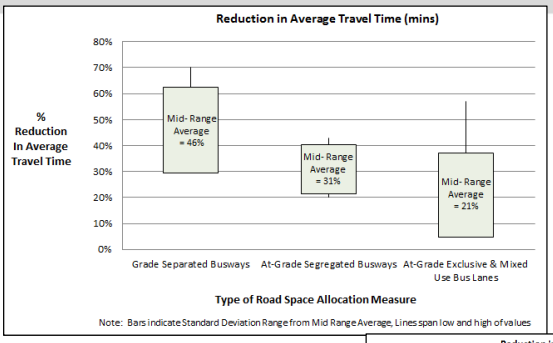
Perspectives

Movement and Place – for Trams

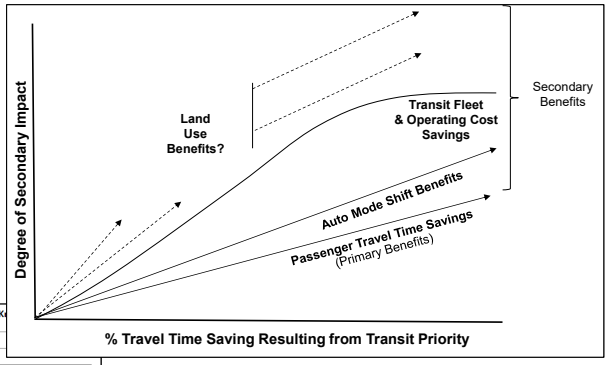
Pragmatic Priority

We all know PT is more efficient on roads due to people carrying ability

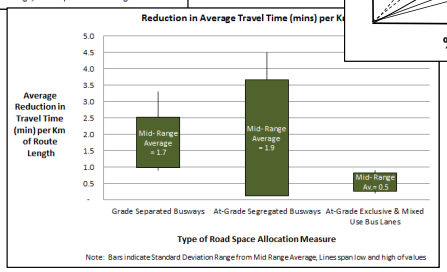
PTRG research has documented world impact and wider benefits from implementing priority…



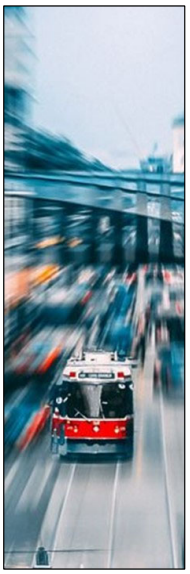
Source: Goh and Currie (2013) Before and After Studies of the Operational Performance of Transit Priority Initiatives ITS Report Feb 2013



Source: Currie G and Sarvi M (2012) 'A New Model for the Secondary Benefits of Transit Priority' TRANSPORTATION RESEARCH RECORD No. 2276, Journal of the Transportation Research Board pp 63–71



..but very little gets implemented.



.. WHY?

Questions of Governance: Rethinking the Study of Transportation Policy
Transportation Research Part A Policy and Practice 101 · May 2017

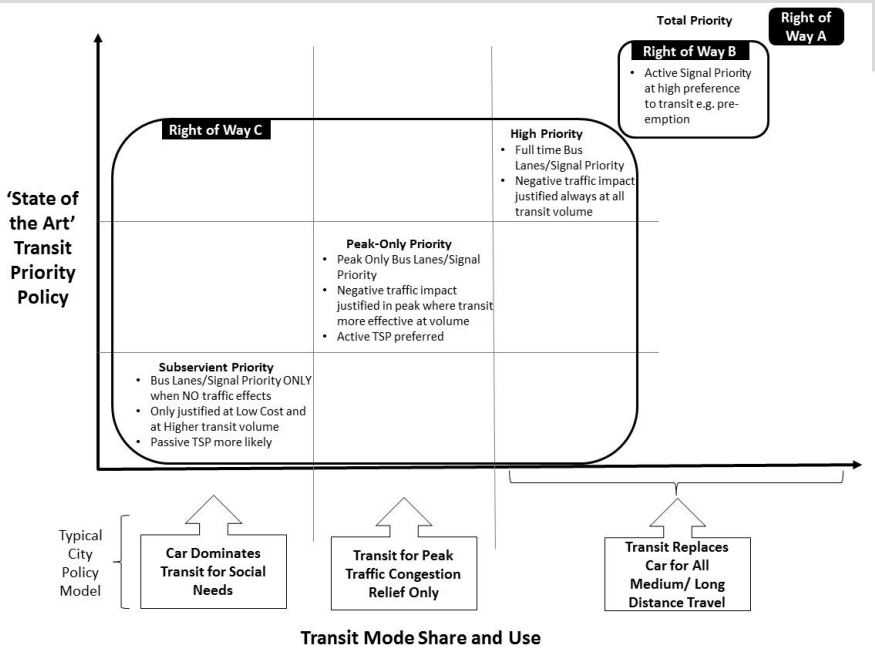
"…there is a need to … pay greater attention to context, politics, power, resources and legitimacy"

(Marsden and Reardon 2017)

.. WHY?

State of the Art – Priority Design

Source: Currie G (2016) 'Managing On-Road Public Transport in Traffic' in Bliemer M Mulley C and Moutou C Handbook on Transport and Urban Planning in the Developed World, Edward Elgar Publishing Ltd UK



MONASH University

Part 2 - Roadspace Management Research

Introduction

Perspectives

Movement and Place – for Trams

Pragmatic Priority

Topic 13 Matt Diemer – Placemaking and Trams

1. TOD & Transit
Laura Aston

2. Big Data & Visualisation
Homayoun Rafati

3. Network Synchronisation
Rejitha Ravindra

4. Shared Mobility
Taru Jain

5. Changing Travel Behaviour
Laura McCarthy

6. Tourism & Public Transport
Victoria Radnell

7. Reliability Engineering Approaches in Best Practice Railways
Maryam Nawaz

8. Improving Gender Diversity in the Public Transport Workforce
Rachel Mence

9. Future Train
Lisa Fu

10. Designing Urban Rail to Reduce Vandalism
Amy Killen

12. Simulating Bus & Tram Priority
Samithree Rajapaksha

13. Placemaking & Street Redesign
Matthew Diemer

14. Passenger Falls in Trams
Luke Valenza

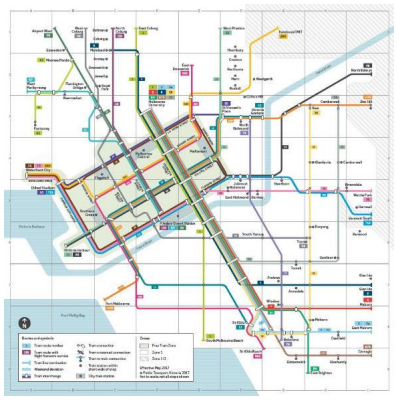
15. Transit Network Design
Nora Estgfäller

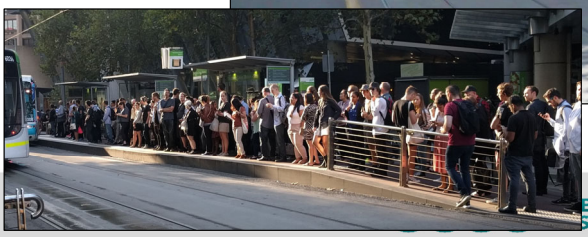
16. Future Bus
Sarah Roberts

17. The New Bus Rider
Prudence Blake

18. Road Safety Impacts of Bus Safety Inspections
Jianrong Qiu

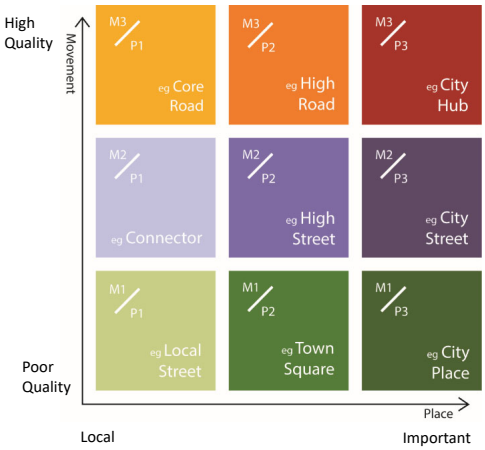
Yarra Trams need to retrofit over 1,000 platform stops into inner congested streets for disability access – how can they do this in a contested road and parking space environment and maintain place quality?





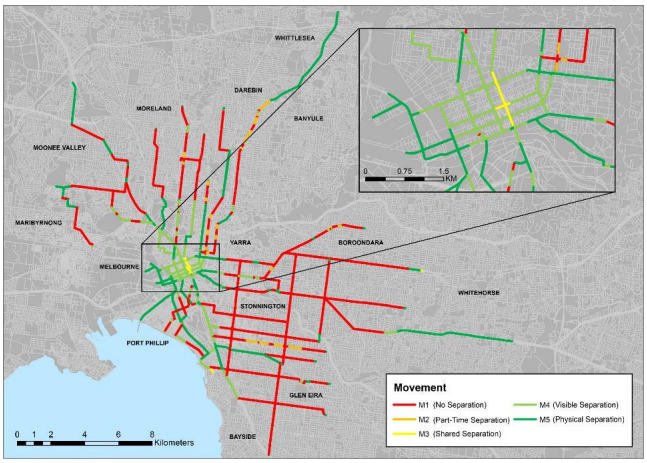
Research therefore adopted the Link (Movement) and Place framework to understand policy impacts

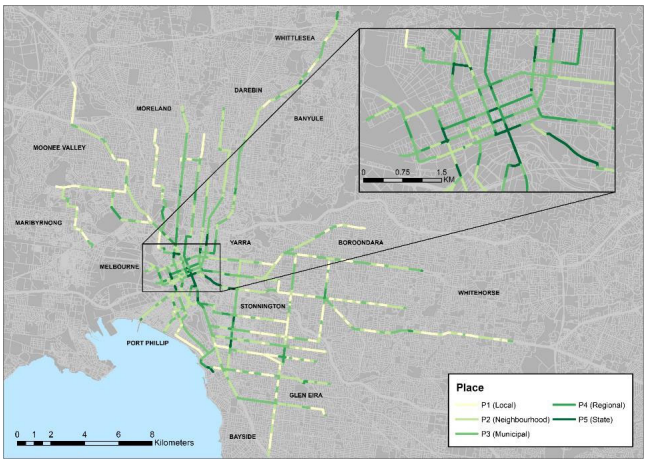
- Developed by Jones et al (2007) as 'Link & Place'
- Street segments classified by movement importance and place significance (i.e. M2 / P3)
- Grouped into categories of 'Street Types' based on placement along the matrix



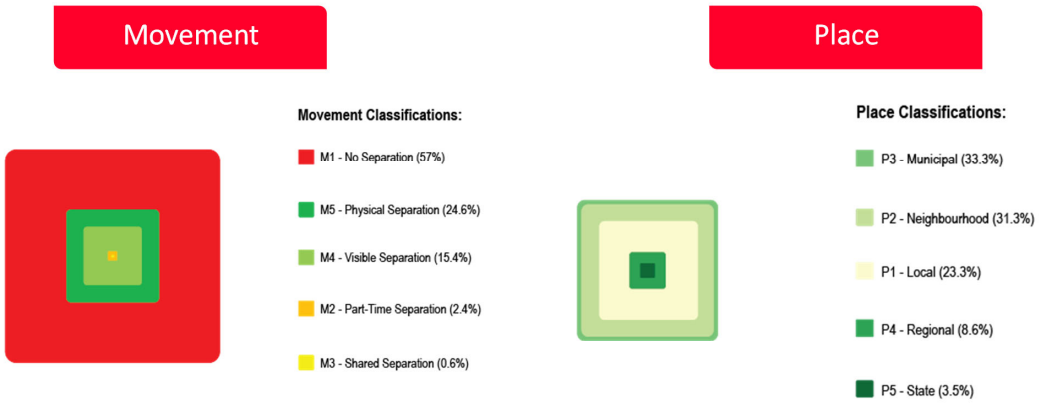
Movement and Place categories were therefore defined…

…and Tram links classified

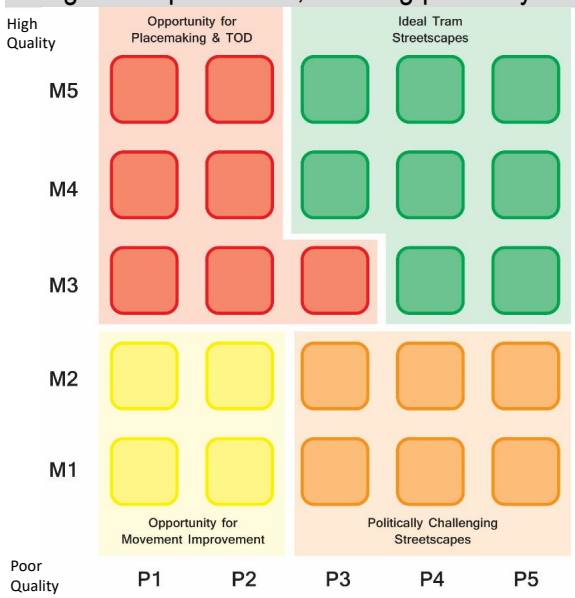


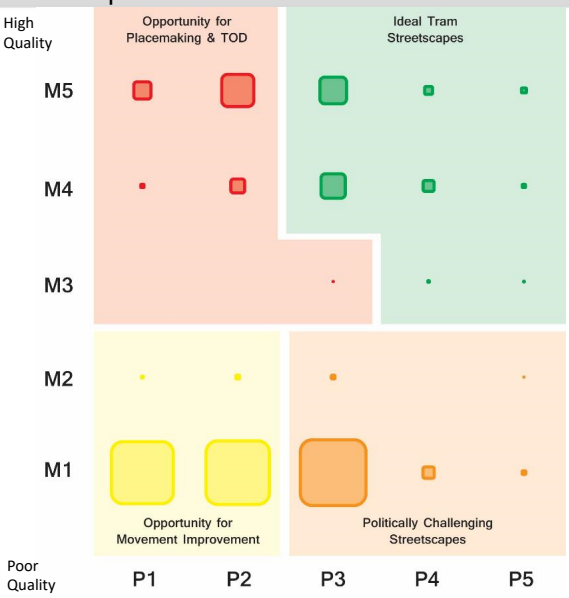


M1 No Separation movement and P3/P2 Municipal/Neighbourhood places dominate..

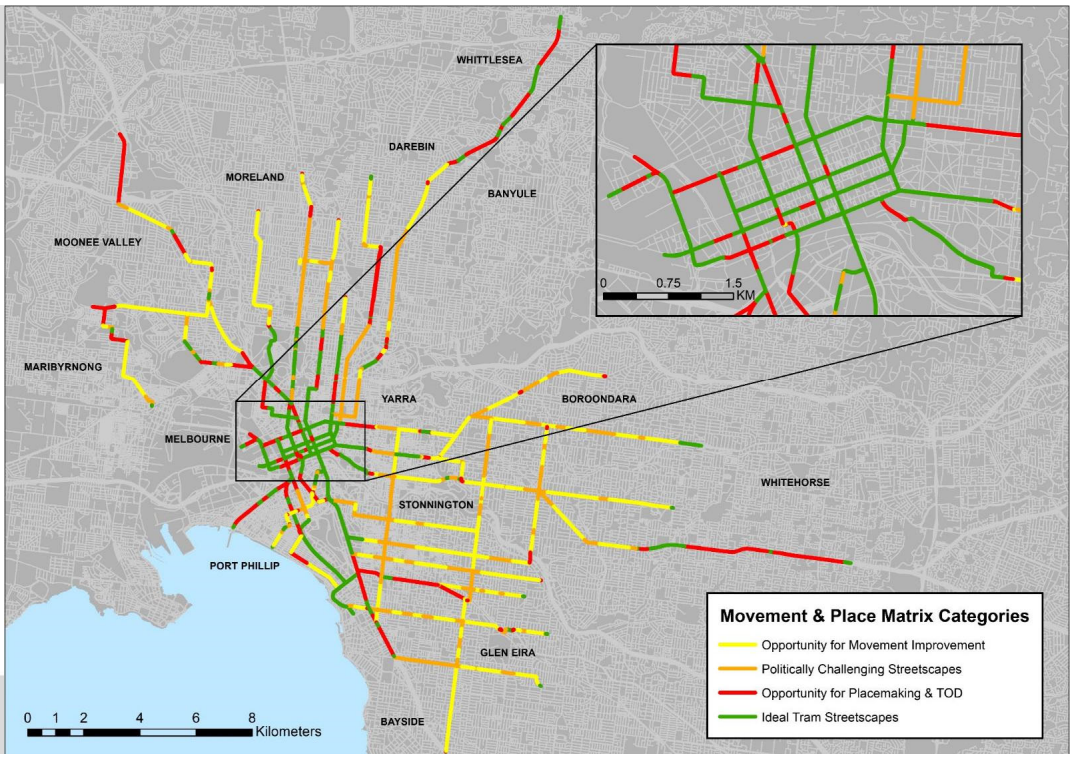


A M&P framework identified 4 categories of place type based on planning opportunities - Much room for targeted improvement, avoiding politically challenging streetscapes….





….here are where the opportunities are



MONASH University

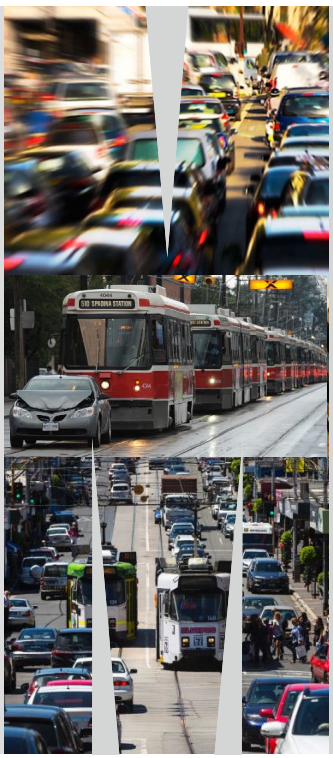
Part 2 - Roadspace Management Research

Introduction

Perspectives

Movement and Place – for Trams

Pragmatic Priority



Topic 11. James Reynolds – Pragmatic Transit Priority

1. TOD & Transit
Laura Aston

2. Big Data & Visualisation
Homayoun Rafati

3. Network Synchronisation
Rejitha Ravindra

4. Shared Mobility
Taru Jain

5. Changing Travel Behaviour
Laura McCarthy

6. Tourism & Public Transport
Victoria Radnell

7. Reliability Engineering Approaches in Best Practice Railways
Maryam Nawaz

8. Improving Gender Diversity in the Public Transport Workforce
Rachel Mence

9. Future Train
Lisa Fu

10. Designing Urban Rail to Reduce Vandalism
Amy Killen

11. Bus & Tram Priority Implementation
James Reynolds

12. Simulating Bus & Tram Priority
Samithree Rajapaksha

13. Placemaking & Street Redesign
Matthew Diemer

14. Passenger Falls in Trams
Luke Valenza

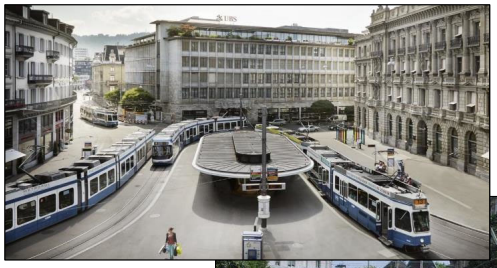
15. Transit Network Design
Nora Estgfäller

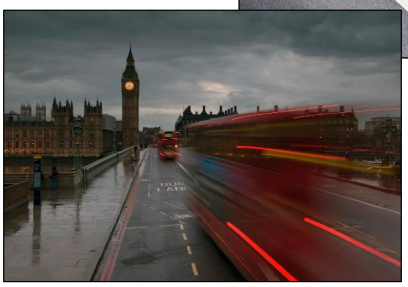
16. Future Bus
Sarah Roberts

17. The New Bus Rider
Prudence Blake

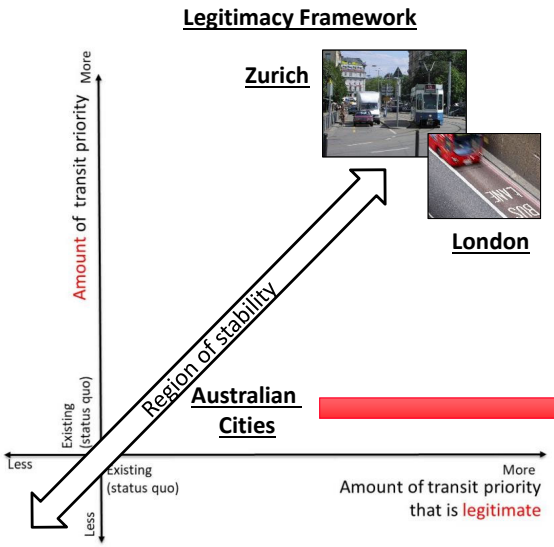
18. Road Safety Impacts of Bus Safety Inspections
Jianrong Qiu

Why can London and Zurich have top quality priority, yet car dominated cities cant?....

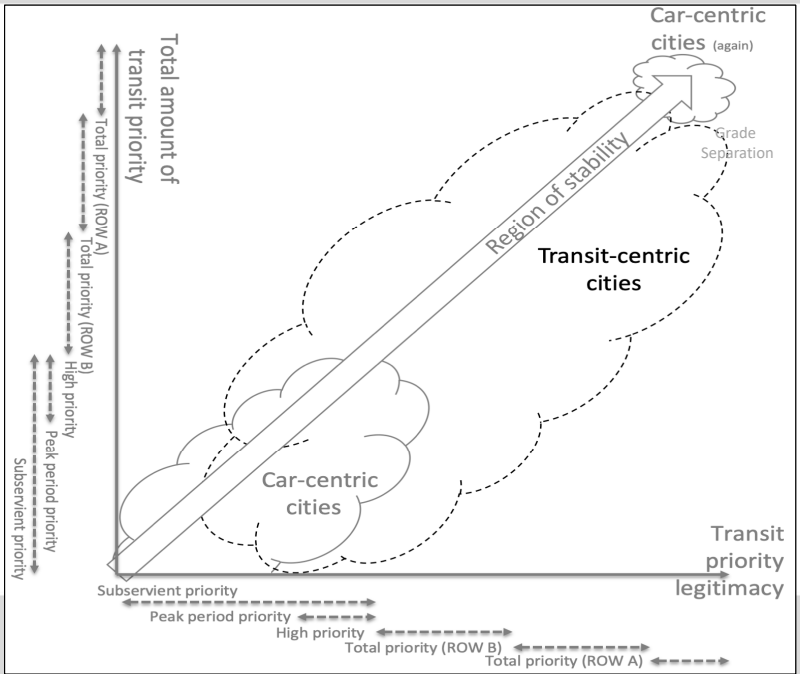


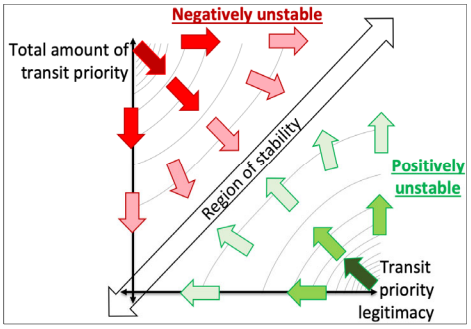


…because they have LEGITIMACY



…because they have LEGITIMACY





How can we get priority when we don't have LEGITIMACY? We identified **THREE APPROACHES AND EIGHT PRAGMATIC STRATEGIES**

Build legitimacy BEFORE implementation

AVOID IMPACTS on other road users

Build legitimacy THROUGH IMPLEMENTATION

How can we get priority when we don't have LEGITIMACY? We identified **THREE APPROACHES AND EIGHT PRAGMATIC STRATEGIES**

Build legitimacy BEFORE implementation

1. **Technical enquiry**
2. **Transport planning, and/or**
3. **Public processes or hearings**

AVOID IMPACTS on other road users

4. **Grade separation**
5. **Subservient priority**

Build legitimacy THROUGH IMPLEMENTATION

6. **Bottom-up and incremental**
7. **Pop-ups**
8. **Trials**

Technical/Public Enquiries – such as the St Clair streetcar corridor in Toronto

Build legitimacy BEFORE implementation

1. **Technical enquiry**
2. **Transport planning, and/or**
3. **Public processes or hearings**

AVOID IMPACTS on other road users

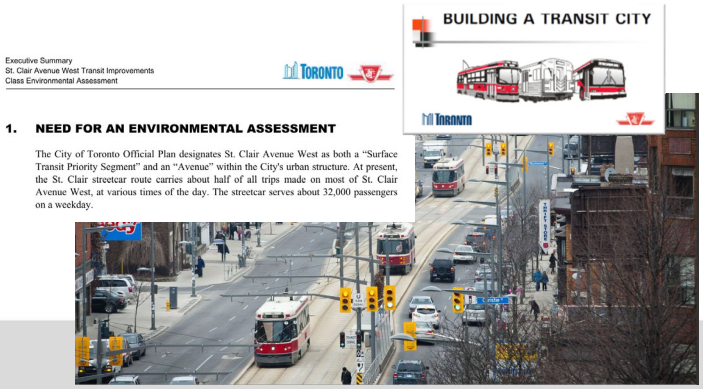
4. **Grade separation**
5. **Subservient priority**

Build legitimacy THROUGH IMPLEMENTATION

6. **Bottom-up and incremental**
7. **Pop-ups**
8. **Trials**

Mediate, arbitrate or resolve issues & build **legitimacy**

- Transport study
- Environmental effects statement process
- Planning processes
- Independent study
- Public enquiry
- Plebiscite (Switzerland only)



4. Grade Separation; Adelaide and Brisbane Busways

Build legitimacy BEFORE implementation

1. **Technical enquiry**
2. **Transport planning, and/or**
3. **Public processes or hearings**

AVOID IMPACTS on other road users

4. **Grade separation**
5. **Subservient priority**

Build legitimacy THROUGH IMPLEMENTATION

6. **Bottom-up and incremental**
7. **Pop-ups**
8. **Trials**

5. Subservient Priority; Melbourne; Eastern Freeway emergency lanes, Smartbus Road Widening and Tokyo Bus Tubes

Build legitimacy BEFORE implementation

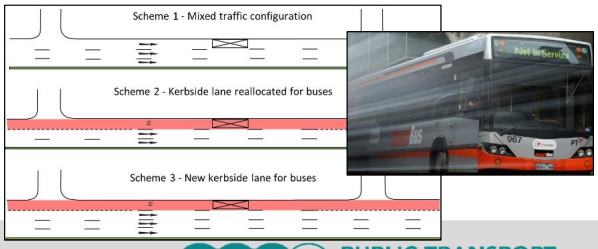
1. Technical enquiry
2. Transport planning, and/or
3. Public processes or hearings

AVOID IMPACTS on other road users

4. Grade separation
5. Subservient priority

Build legitimacy THROUGH IMPLEMENTATION

6. Bottom-up and incremental
7. Pop-ups
8. Trials



6. Bottom-up & Incremental; **Melbournes vanishing streetcar secret**

Build legitimacy BEFORE implementation

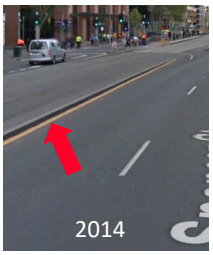
1. Technical enquiry
2. Transport planning, and/or
3. Public processes or hearings

AVOID IMPACTS on other road users

4. Grade separation
5. Subservient priority

Build legitimacy THROUGH IMPLEMENTATION

6. Bottom-up and incremental
7. Pop-ups
8. Trials



7. Pop-ups; do priority tomorrow; with traffic cones – Boston, USA

Build legitimacy BEFORE implementation

1. Technical enquiry
2. Transport planning, and/or
3. Public processes or hearings

AVOID IMPACTS on other road users

4. Grade separation
5. Subservient priority

Build legitimacy THROUGH IMPLEMENTATION

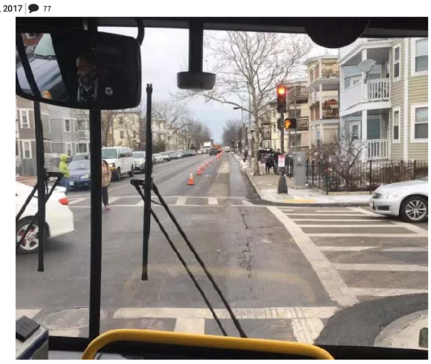
6. Bottom-up and incremental
7. Pop-ups
8. Trials

Tactical urbanism

Boston Tests Faster Bus Service Simply By Laying Out Orange Cones

The same low-cost approach that cities have used to quickly reallocate street space to walking and biking can also be used to try out transit improvements.

By Angie Schmitt | Dec 12, 2017 | 77



Boston set up a bus lane using orange cones. Photo: Jacqueline Goddard

8. Trials; Toronto King Street Trail; and the great Melbourne Clarendon Street Trial Failure; or was it Success?

Build legitimacy BEFORE implementation

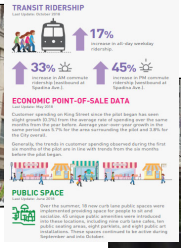
1. Technical enquiry
2. Transport planning, and/or
3. Public processes or hearings

AVOID IMPACTS on other road users

4. Grade separation
5. Subservient priority

Build legitimacy THROUGH IMPLEMENTATION

6. Bottom-up and incremental
7. Pop-ups
8. Trials



vic roads

Clarendon Street Tram Stop Works

Following a trial of traffic treatments along Clarendon Street, the State Government, City of Port Phillip, Yarra Trams and business representatives have agreed on some changes to the

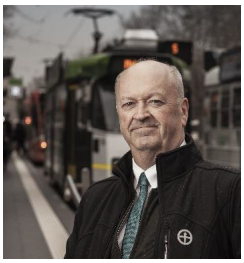
CITY OF PORT PHILLIP REPORT

STRATEGY AND POLICY REVIEW COMMITTEE
6 JUNE 2005 *POLICY AND PLANNING*

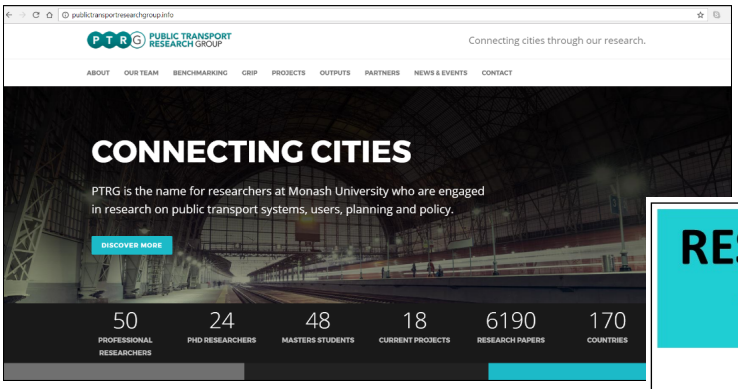
A3	CLARENDON STREET THINK TRAM TRIAL PROJECT
LOCATION/ADDRESS:	CLARENDON STREET, SOUTH MELBOURNE
RESPONSIBLE EXECUTIVE DIRECTOR:	GEOFF OULTON, EXECUTIVE DIRECTOR CITY DEVELOPMENT
AUTHOR:	PAUL SMITH, COORDINATOR SUSTAINABLE TRANSPORT
FILE NO.:	70/04/12
ATTACHMENTS:	13

Contact us via our website PTRG.INFO, LinkedIn or Twitter

Professor Graham Currie FTSE
Director, SEPT-GRIP, PTRG



Connect with us on LinkedIn twitter



www.ptrg.info

Coming Soon !!!!
The 'Researching Transit' Podcast Series

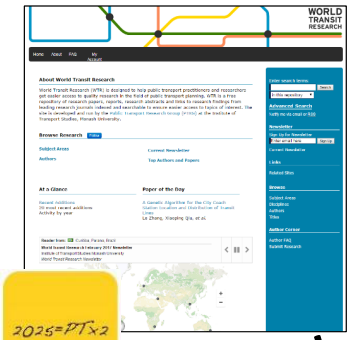
RESEARCHING TRANSIT

PTRG

PUBLIC TRANSPORT RESEARCH GROUP

Tools and Training for Transport Professionals

www.worldtransitresearch.info



2025=PTx2
UITP Showcase Award Winner

FREE!

www.ppts-course.org

https://www.monash.edu/engineering/master-transport