

Contestations in Parking Policy

Vivek M. Chandran

Presentation Structure

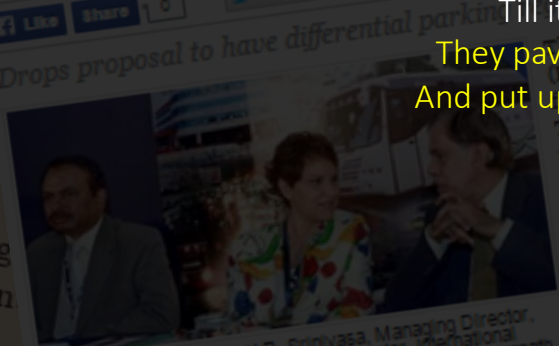
1. Introduction
 1. What is Parking
 2. Purpose of Study
2. Conceptual Framework
3. Methodology
4. Contentious issues in the Parking Policy
5. National Survey Results
6. Synthesis
7. Conclusion



Senior citizens
 Will green parks turn
 Residents write to BMC
 Richa Pinto, TNN | Jan 20, 2014

BBMP accepts watered-down version of DULT parking policy

STAFF REPORTER



Not in totality: From left) K.R. Srinivasa, Managing Director, BMC; Alessandra Gorini, youth coordinator, International Association of Public Transport, Brussels; and S.V. Ranganath, Chief Secretary, Government of Karnataka, at the seminar on public transport in Bangalore on Thursday. — Photo: K. Gopinathan

Don't it always seem to go
 That you don't know what you've got
 Till it's gone
 They paved paradise
 And put up a parking lot

- Joni Mitchell (Big Yellow Taxi)

Business
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 The A-ward
 policy. Thoug
 experts contin
 Ashok Datar, an
 issue in the city.

Drops proposal to have differential parking

The Greater Bangalore Mahanagara Palike
 approved the parking policy
 Director of Urban Land
 Transport (DUL) minus some stringent
 provisions.

"It is a beginning, though. I'm sure we can work
 on the transport system more in favour of
 public transport over the years," said
 Commissioner V. Manjula. She was speaking at
 a seminar on 'Doubling public transport share: a
 thrust to make public transport a choice for every
 citizen', organised by the International
 Association of Public Transport on Thursday.

Chief Secretary S.V. Ranganath inaugurated the
 seminar and delivered the keynote address,
 while Principal Secretary (Transport) P.B. Ramamurthy moderated the discussions.

forum, said parking was an ignored

The residents, along with councillor Vinod Shekhar, have
 been sent to Chief Minister Devendra Fadnavis, Municipal Commissioner
 Kunte and Mayor Snehal Ambekar.

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 transport

14 Metropolitan Cities*

11 Draft Parking Policies made since 2006

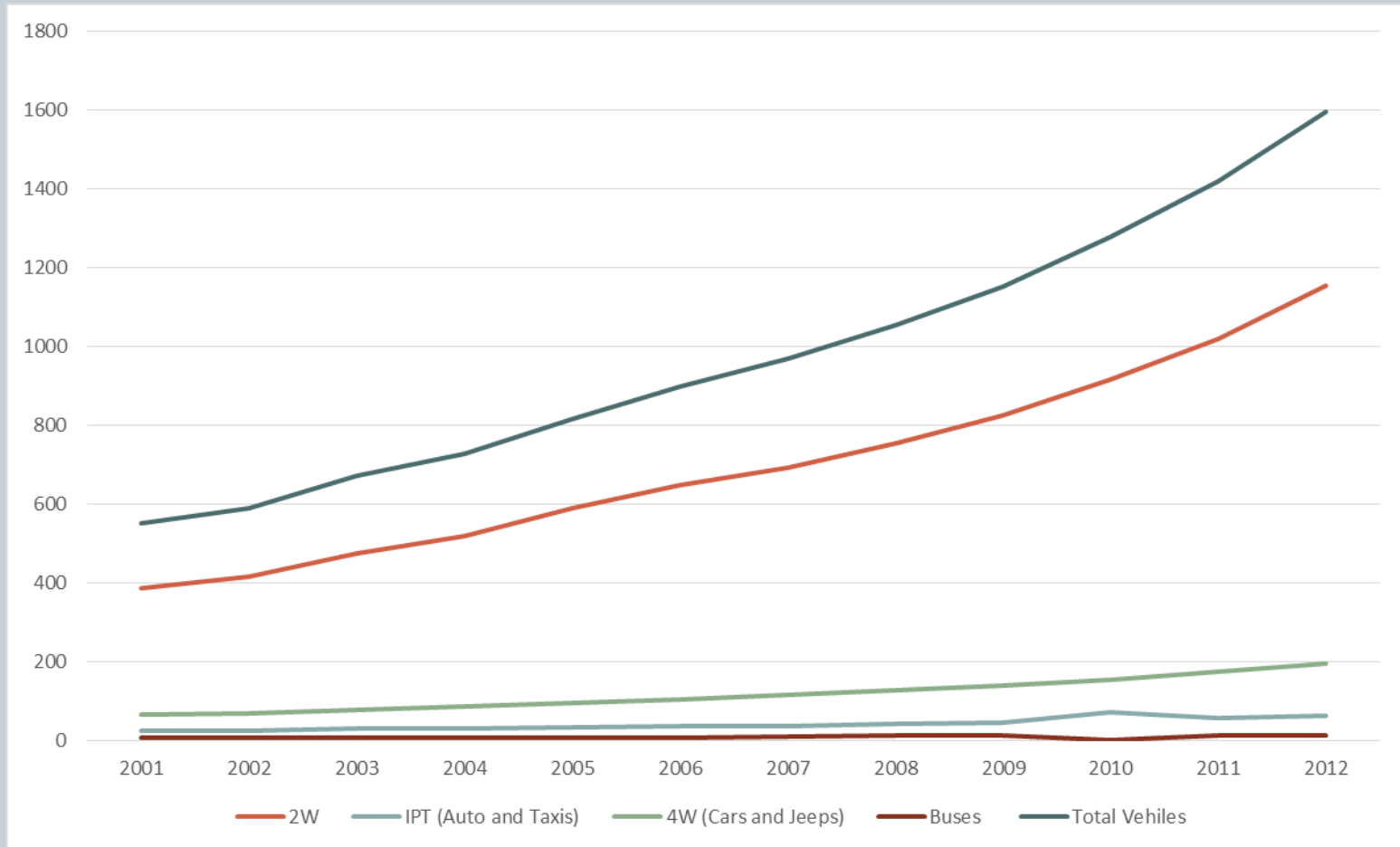
3 Approved Parking Policies (Delhi, Mumbai and Bangalore)

0 meet NUTP 2006 guidelines

9 Years since JnNURM mandated Parking Policy

10 Years since NUTP provided direction in Parking Policy

Introduction



Growth of vehicle registration in India (in lacs)

Source: India Statistical Year Book 2016, MOSPI

Introduction

Parking Space Requirements: UDPFI, 1996

S. No.	Use Premises	Permissible ECS per 100 sqm. of floor area
1	Residential	1.0
2	Commercial	1.67

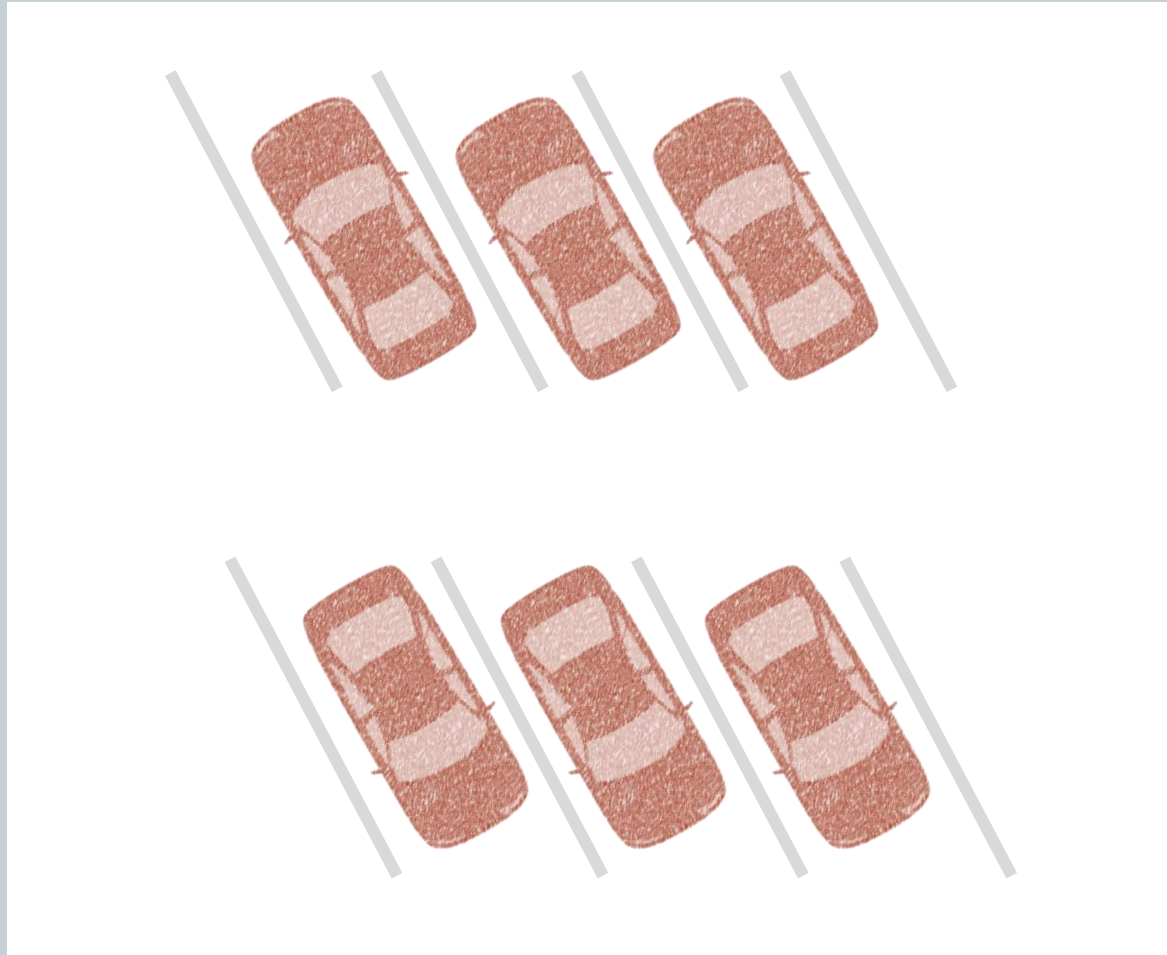
Table 8.12: Permissible ECS for different land uses

S.No.	Use Premises	Permissible Equivalent Car Spaces (ECS) Per 100 sqm. of floor area
1	Residential	2.0
2	Commercial	3.0
3	Manufacturing	2.0
4	Government	1.8
5	Public and Semi-Public Facilities	2.0

Source: MPD 2021.

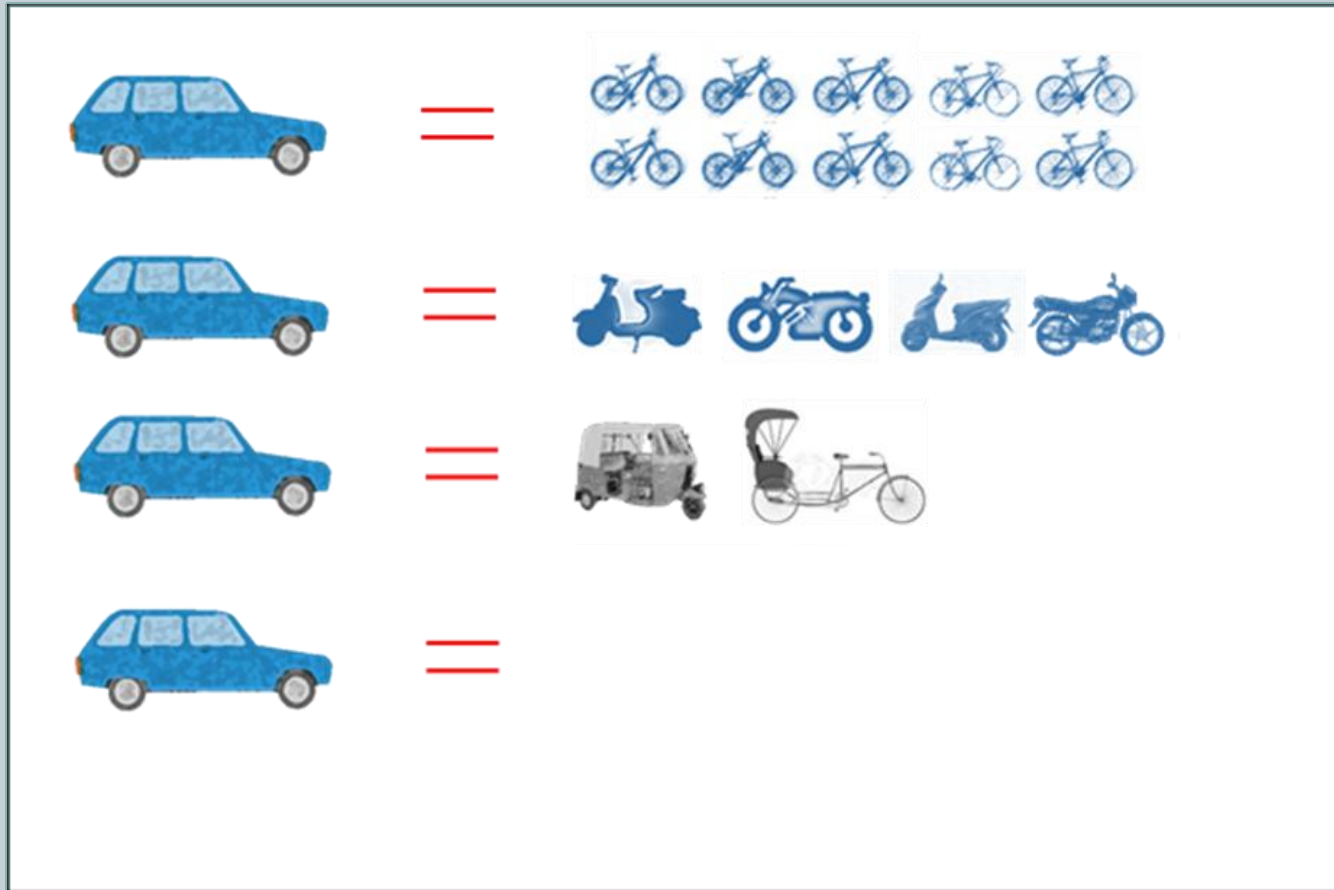
Source: URDPFI 2014

What is Parking?



Parking is a Land Use Issue

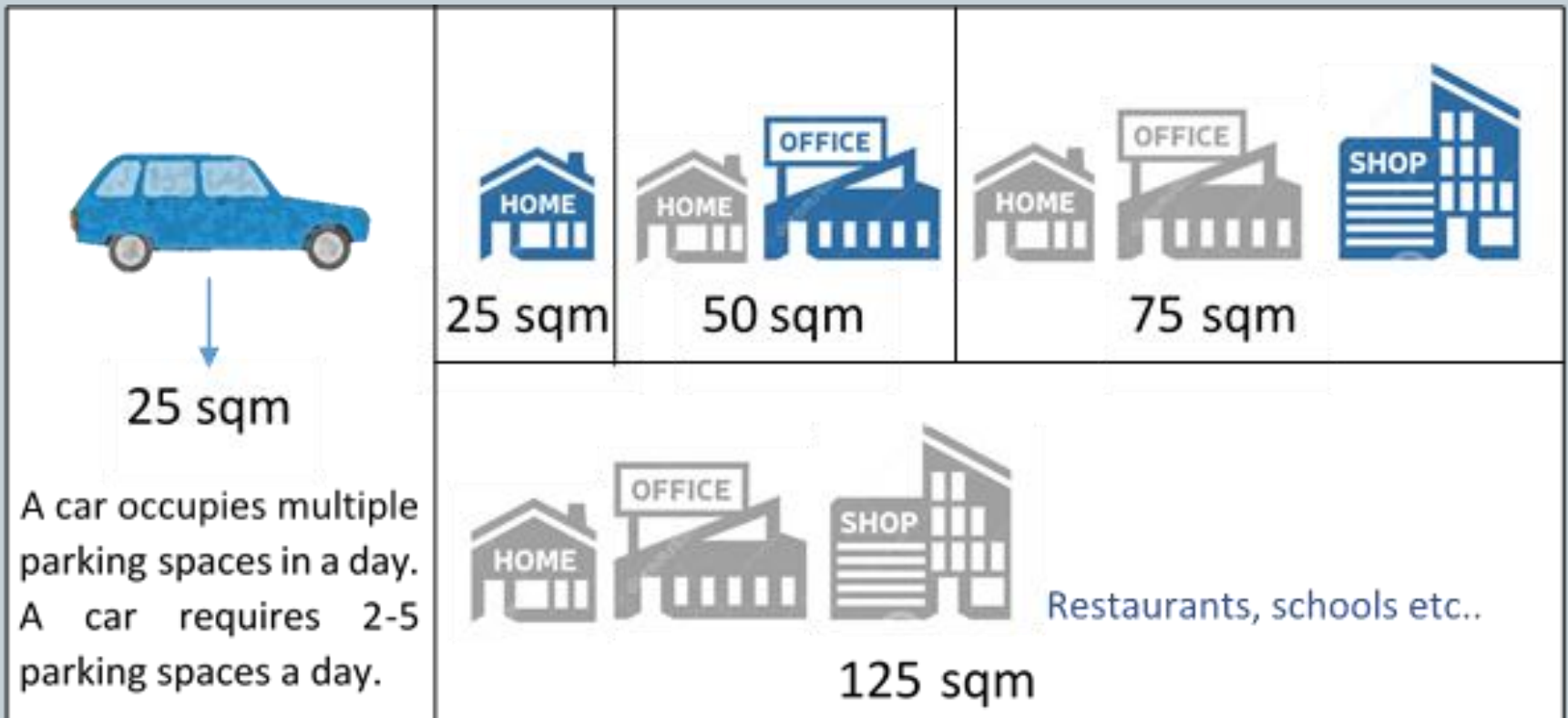
What is Parking?



What is Parking?



What is Parking?



What is Parking?



Old Madras Road



Indiranagar, Bangalore



Dickinson Road, Ulsoor

What is Parking?



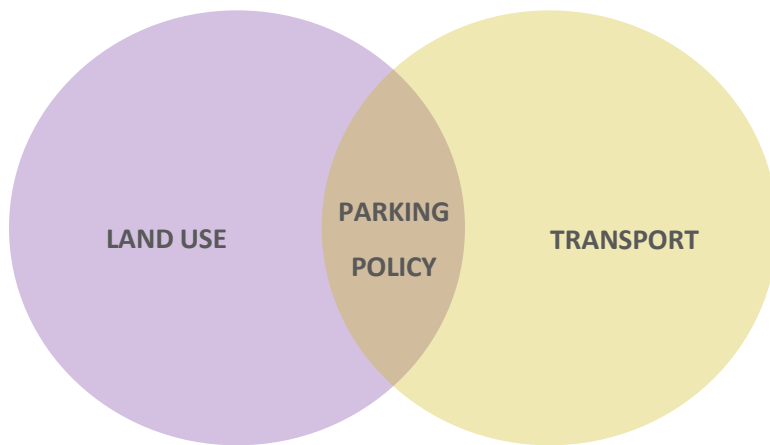
What is Parking?



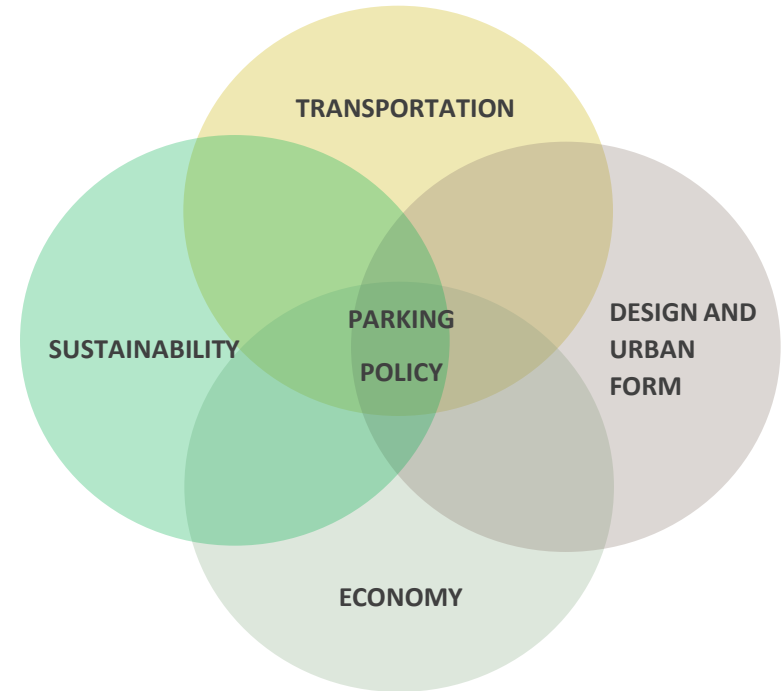
Minimum Parking Requirements

1. It masks the cost of providing parking
2. It unfairly charges non-users
3. It is an embedded cost in purchases and indirect cost as taxes
4. Reduces feasibility of some developments
5. Increases sprawl

What is Parking?

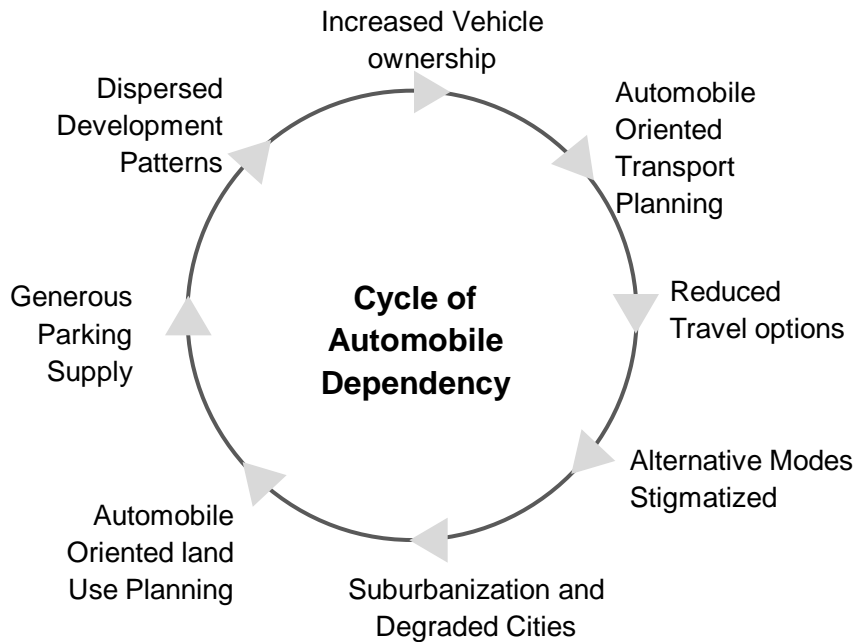


Marsden's Model of Parking Policy

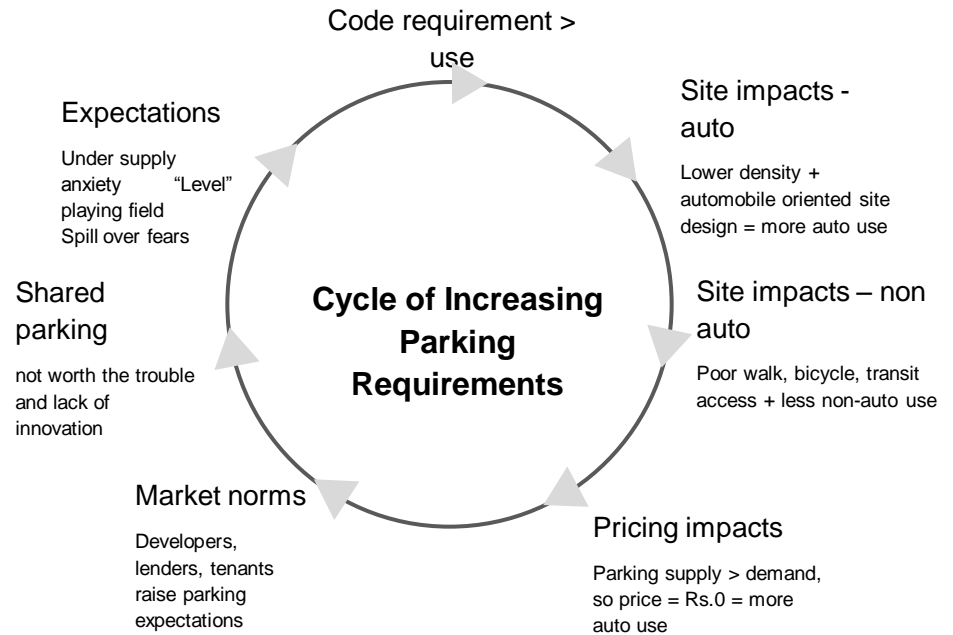


Richard Wilson's Model Parking Policy

What is Parking?



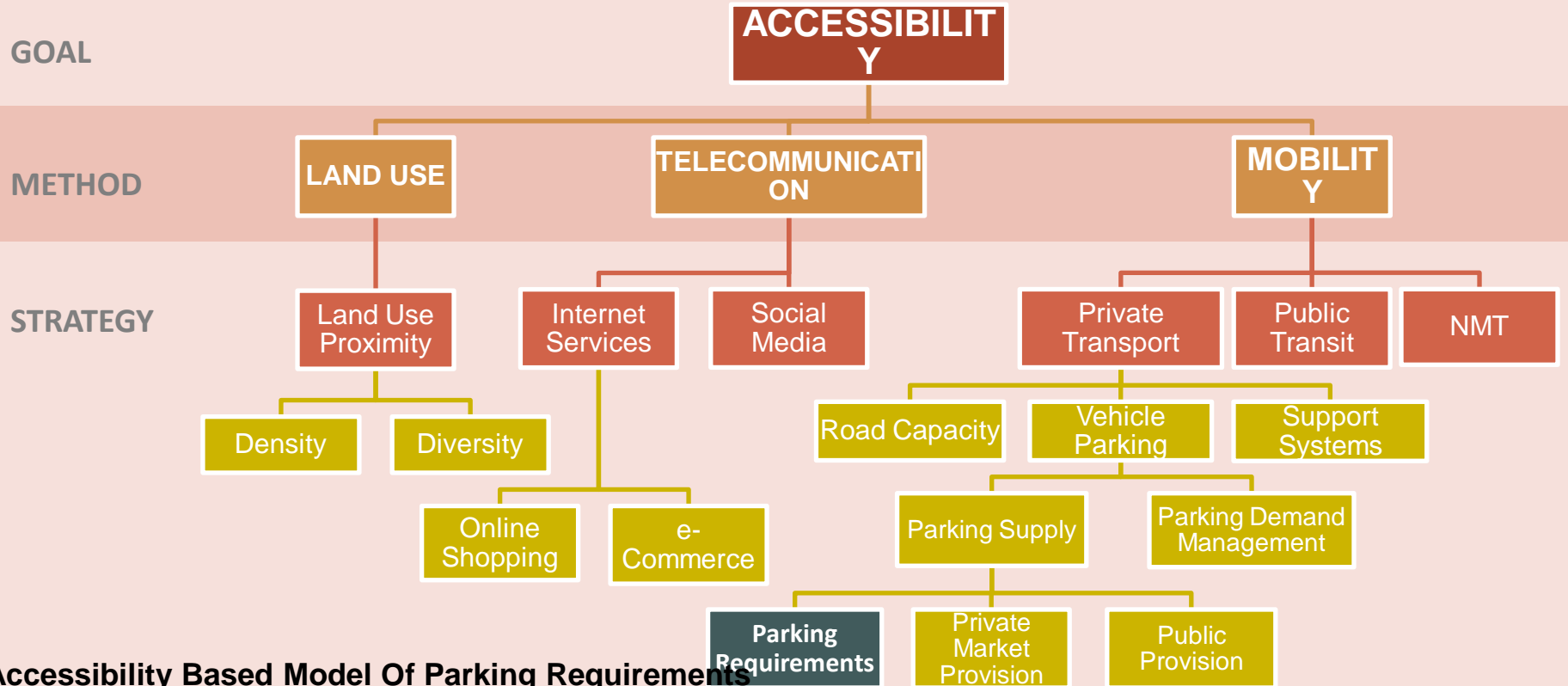
Tod Litman's – Cycle of Automobile Dependency



Richard Wilson's– Cycle of Increasing Requirements

Vicious Circle of Increasing Automobile Dependence

What is Parking?

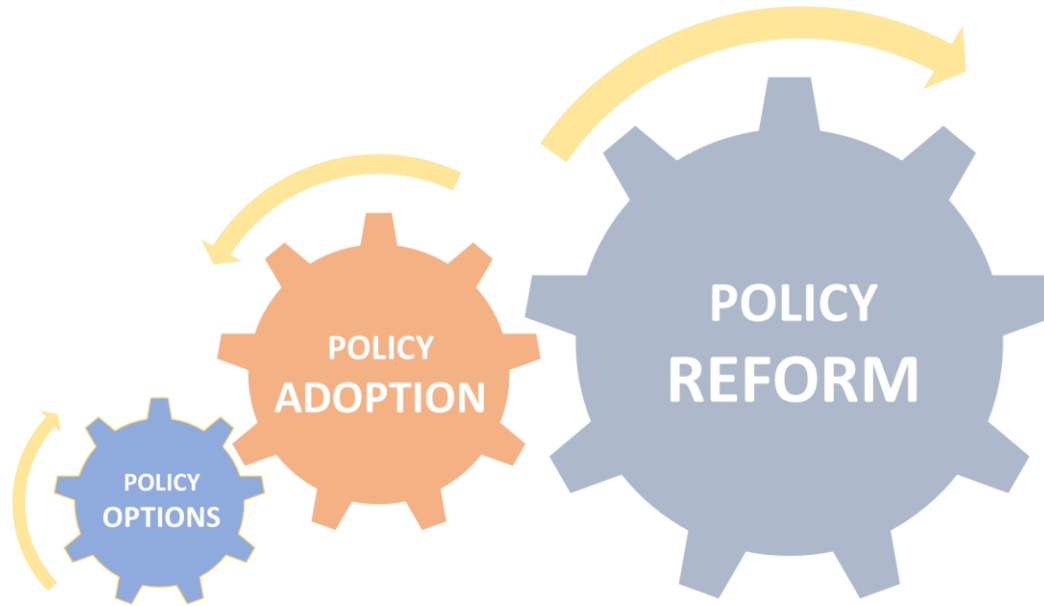


Accessibility Based Model Of Parking Requirements

Adapted from Richard Willson's Parking Reform Made Easy (Willson, 2013b)

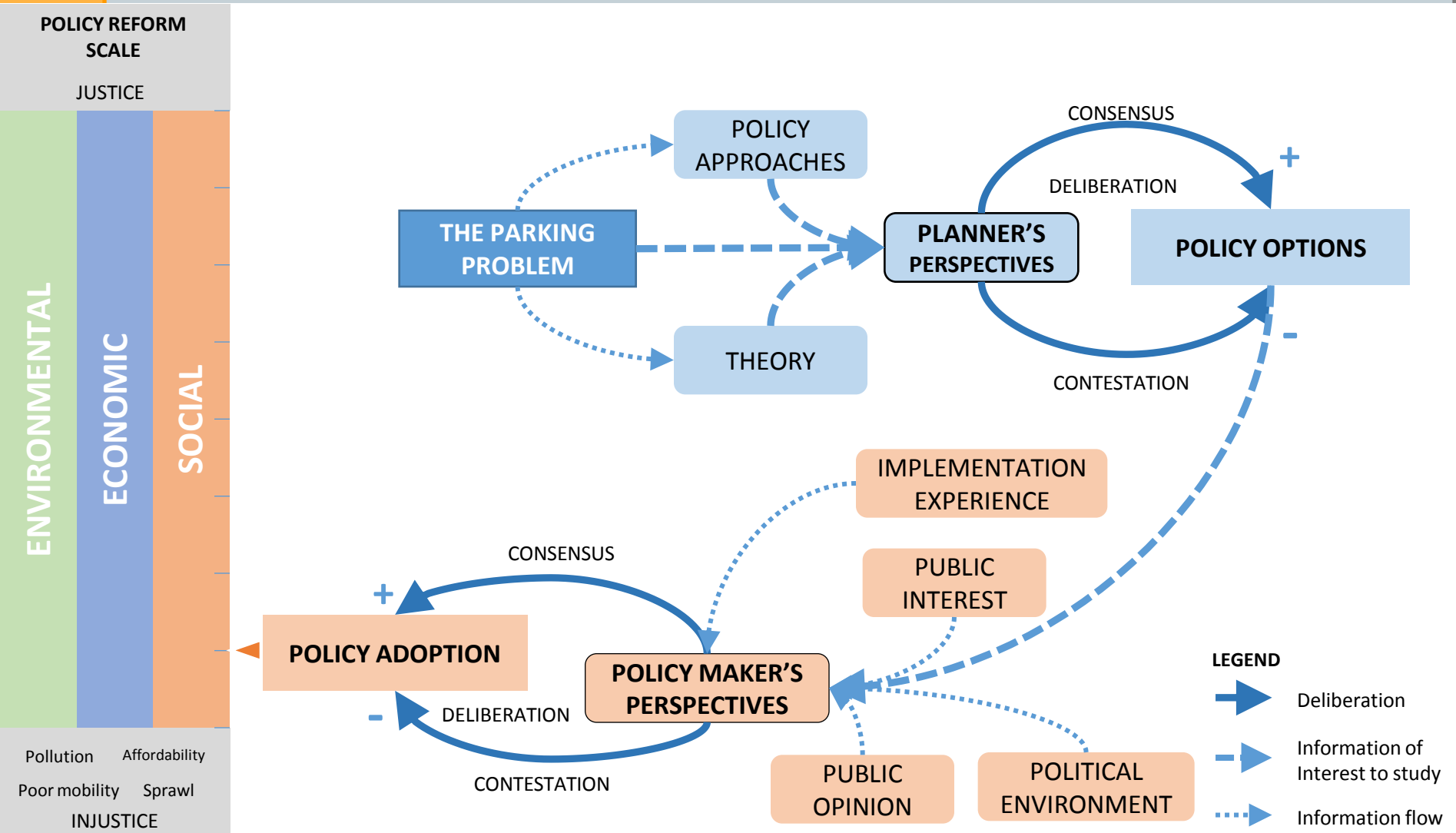


Conceptual Framework



Causal Links In The Policy Reform Process

Conceptual Framework



Study Purpose

Objective

“an exploration into whether appropriate conditions of change exist in the domain of parking reform in Indian cities”

These conditions of change depend on

1. The existence of consensus among various stakeholders and
2. High quality implementation

The following research questions try to answer the first issue

1. What are the policy issues regarding parking that lack consensus;
2. Which of these issues are the most contested among planners and policy makers in India?

Methodology

Questions	<ol style="list-style-type: none"> 1. What are the issues regarding parking policy that lack consensus? 2. Which of these issues are the most contested? 	
Issue explored	International and National Perspectives of Planners	
Method	Mixed methods – Literature and Survey	
Phases	Activity	Method
Background study	Coding of literature to identify contentious issues, in India and abroad.	Grounded Theory
Data Collection	Contentious issues probed using Questionnaire surveys. Survey of Professionals in Parking Policy domain, using the Likert Scale.	
Analysis	Using Tastle & Wierman's methods to calculate the degree of consensus among the issues probed	Quantitative
Conclusion	Identifying the issues of contestation. The patterns of response among sub-topics and deriving conceptual positions	Paul Barter's Conceptual Framework
Recommendations	Topics for further research.	

Contentious issues in Parking Policy

NATURE OF PARKING

What is Parking /
Parking Policy

Negative Externalities of
Parking

PARKING POLICY

Parking Policy
Typologies and Reform

Economic Good

Parking Problem

STRATEGIC ISSUES

Unbundling Parking

Responsibility to Supply
Parking

How much supply and
price?

Residents vs. Visitors

Park and Ride

Commerce

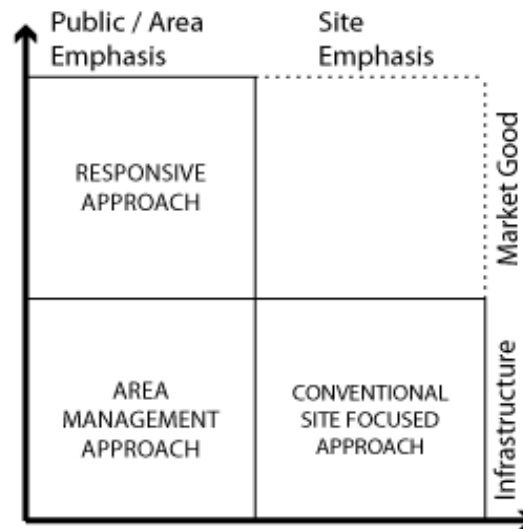
Contentious issues in Parking Policy

1. What is the **Parking Approach**?
2. What is “**The Parking Problem**”?
3. Whose **Responsibility** is it to ensure parking supply (Govt.)?
4. Should off-street parking cost and subsidies be **Unbundled**?
5. Remove **On-street parking**? Residents v. Visitors
6. Should **Park & Ride** be provided at mass transit stations?
7. Is **Parking Fee** a disincentive or revenue? How much to charge?
8. Impact of parking on **commerce**

Contentious issues in Parking Policy

Parking Approach

Is the emphasis of parking site focused or public / neighbourhood focused?



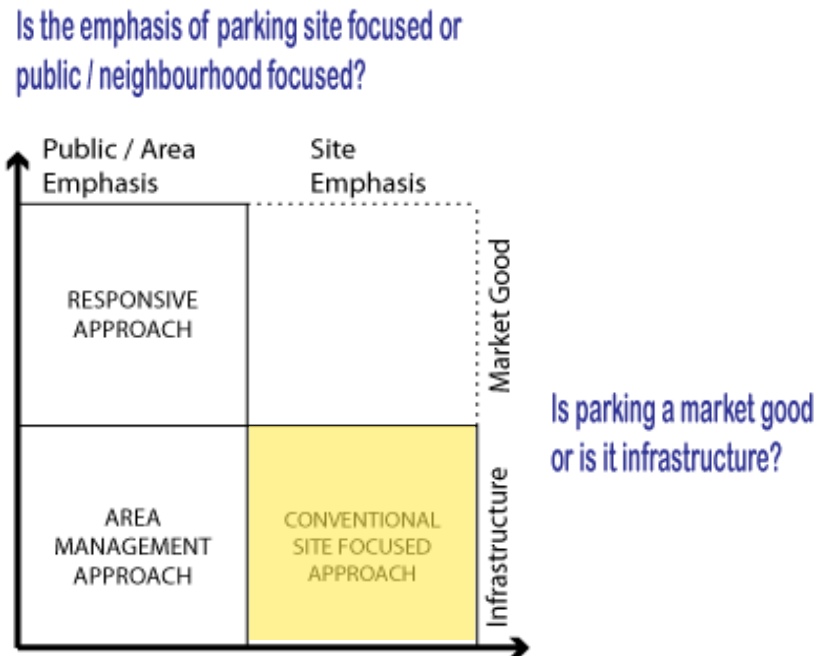
Is parking a market good or is it infrastructure?

Parking Policy Approaches | 2D Framework

Source and Diagrams adapted from: Barter, P. A. (2014). A parking policy typology for clearer thinking on parking reform.

Contentious issues in Parking Policy

Parking Approach

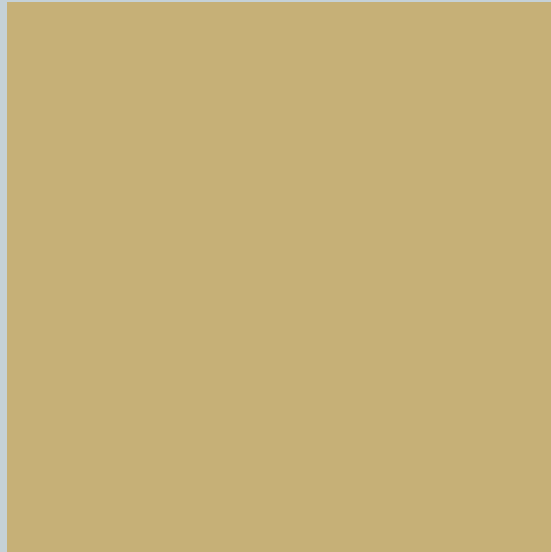


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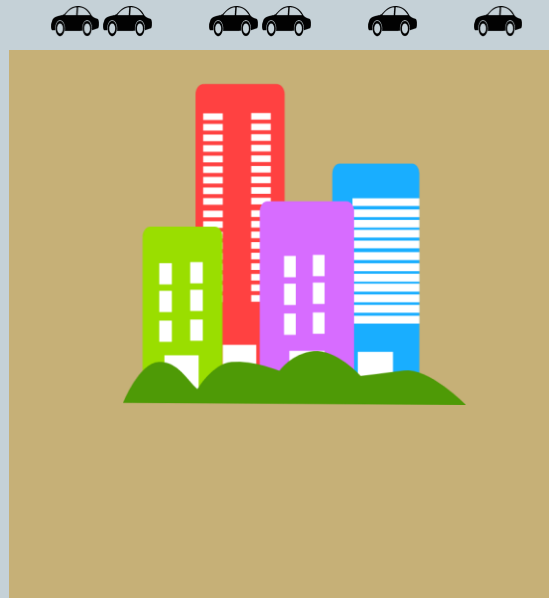
Contentious issues in Parking Policy

Parking Approach: Conventional



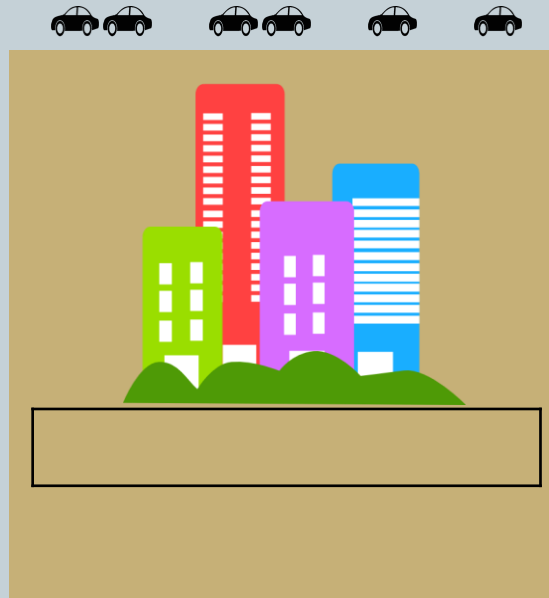
Contentious issues in Parking Policy

Parking Approach: Conventional



Contentious issues in Parking Policy

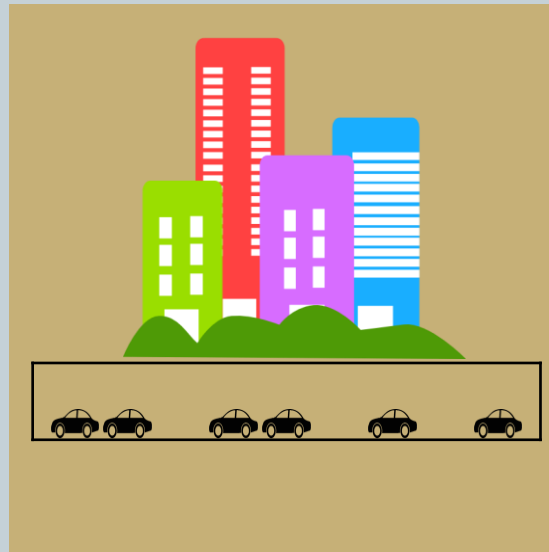
Parking Approach: Conventional



Minimum Parking Requirements
No On-street Parking charges

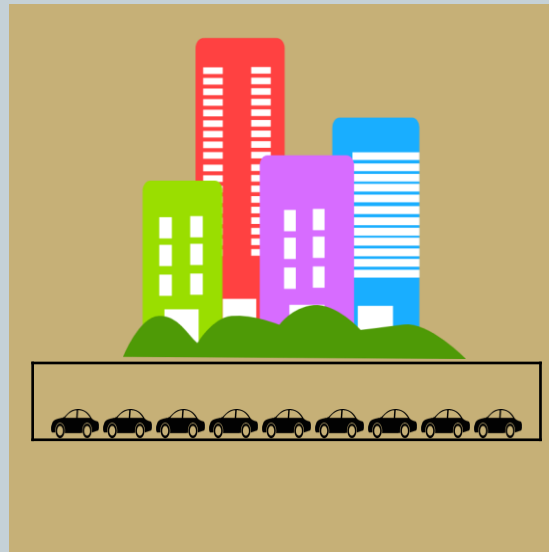
Contentious issues in Parking Policy

Parking Approach: Conventional



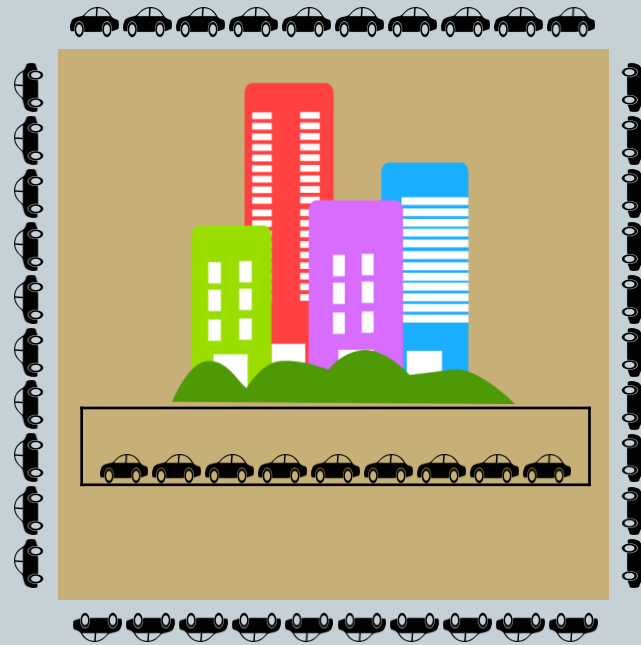
Contentious issues in Parking Policy

Parking Approach: Conventional



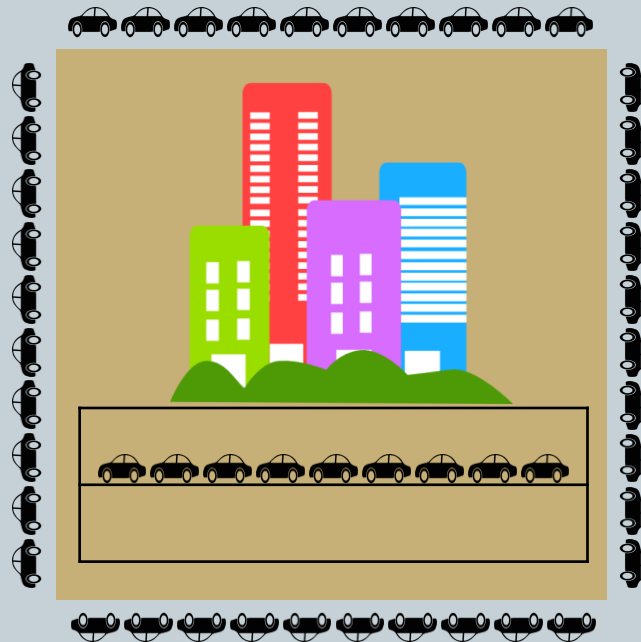
Contentious issues in Parking Policy

Parking Approach: Conventional



Contentious issues in Parking Policy

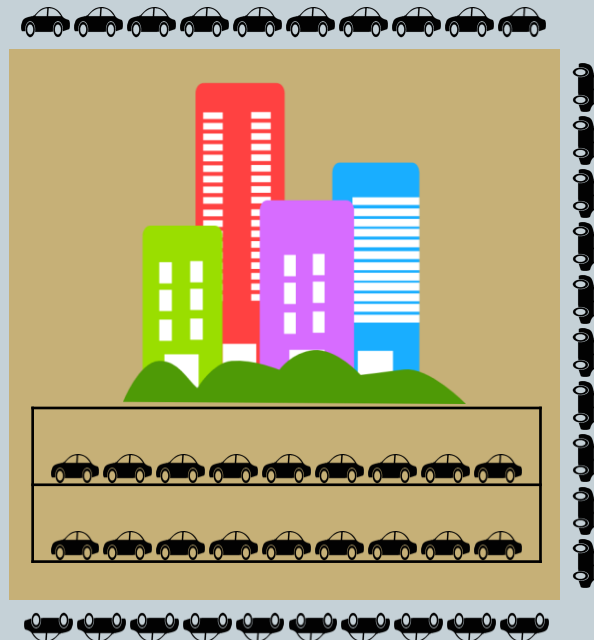
Parking Approach: Conventional



Increase Minimum Parking Requirement

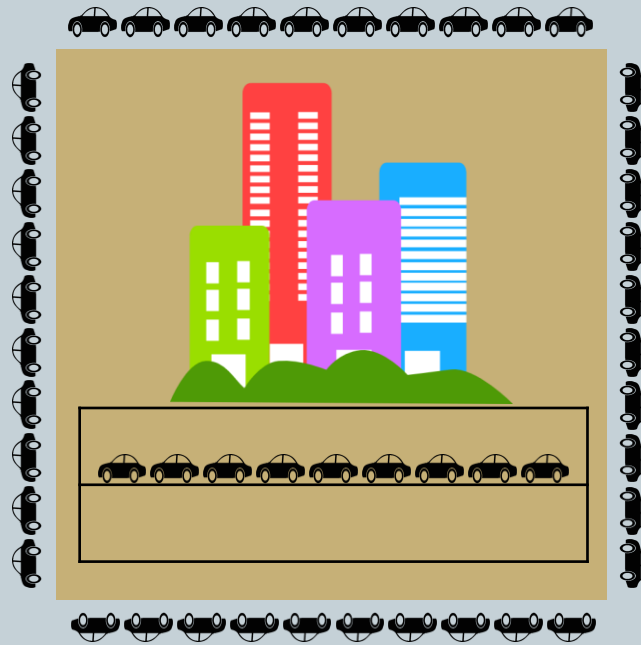
Contentious issues in Parking Policy

Parking Approach: Conventional



Contentious issues in Parking Policy

Parking Approach: Conventional



Further Increase Minimum Parking Requirements?

Contentious issues in Parking Policy

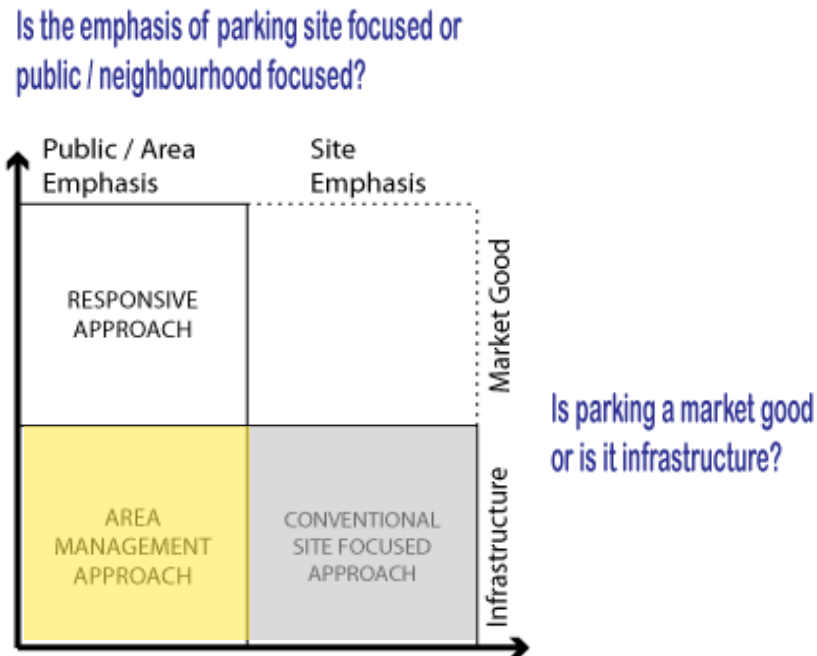
Parking Approach: Conventional

Houston, Texas



Contentious issues in Parking Policy

Parking Approach

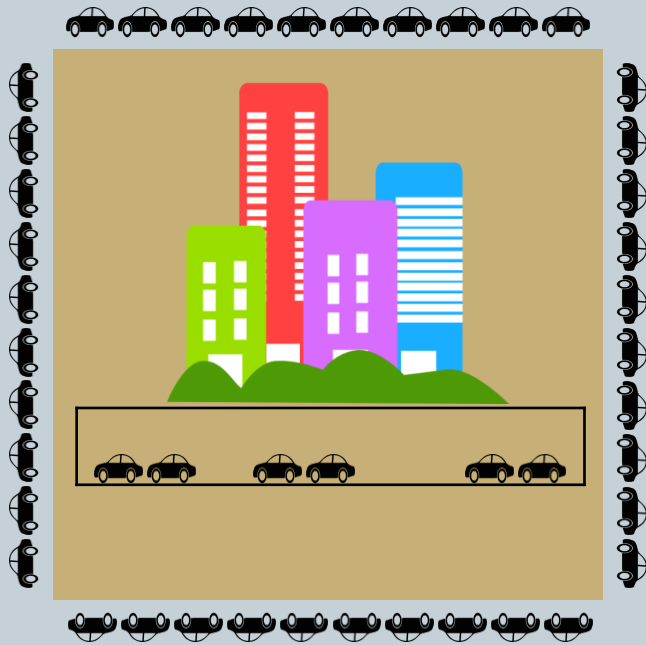


Parking Policy Approaches | 2D Framework

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Contentious issues in Parking Policy

Parking Approach: Area Management

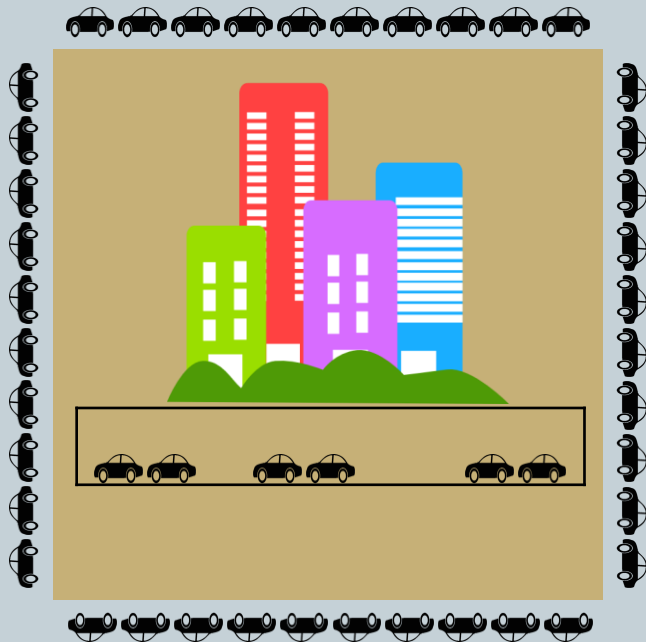


Area Management Approach: *Travel demand management the problem*

On Street Parking has its own utility, but needs management

Contentious issues in Parking Policy

Parking Approach: Area Management

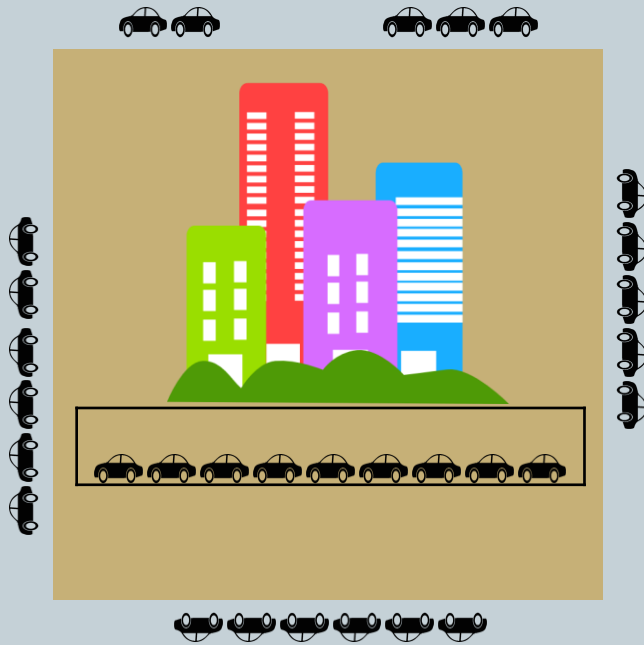


Area Management Approach: *Travel demand management the problem*

1. Charged Parking as disincentives

Contentious issues in Parking Policy

Parking Approach: Area Management

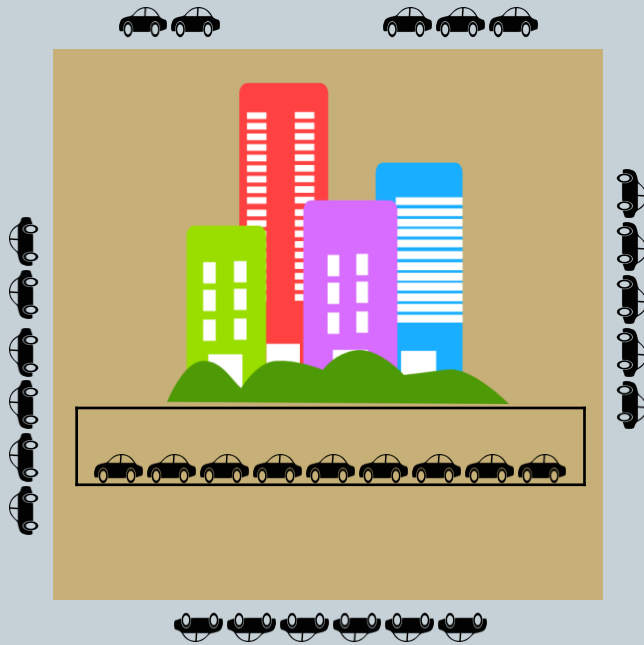


Area Management Approach: *Travel demand management the problem*

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Contentious issues in Parking Policy

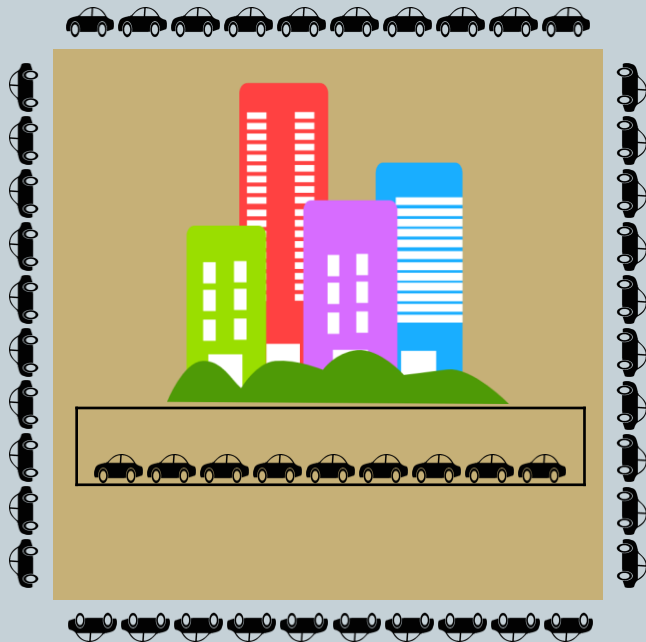
Parking Approach: Area Management



- Area Management Approach: *Travel demand management the problem*
1. Charged Parking as disincentives
 2. Parking Caps and Low minimums

Contentious issues in Parking Policy

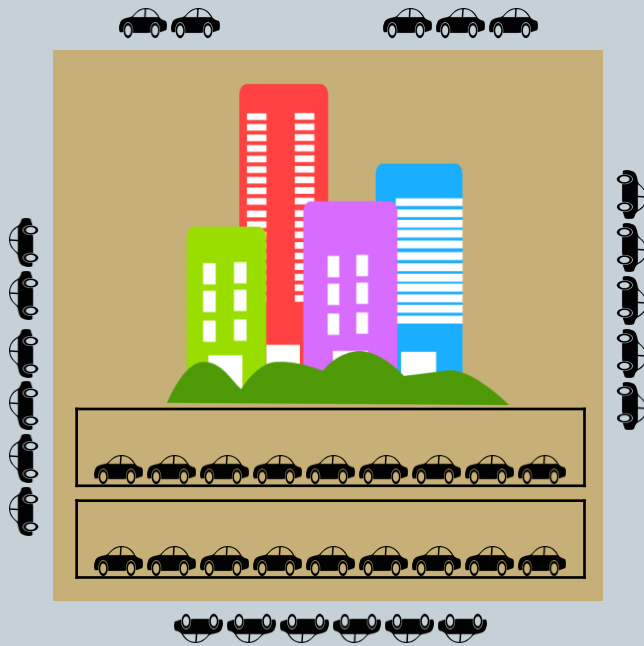
Parking Approach: Area Management



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Contentious issues in Parking Policy

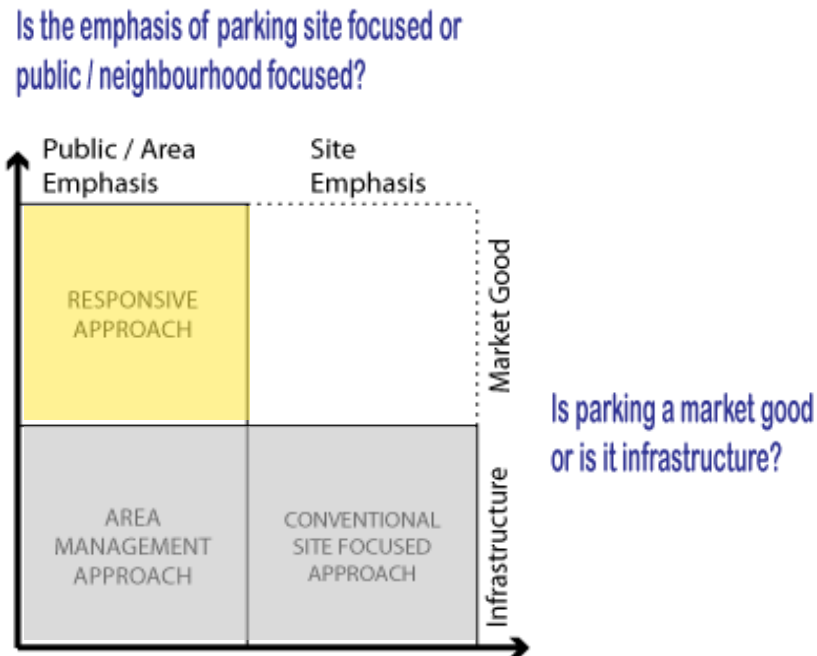
Parking Approach: Area Management



- Area Management Approach: *Travel demand management the problem*
1. Charged Parking as disincentives
 2. Parking Caps and Low minimums
 3. Neighbourhood level parking facilities

Contentious issues in Parking Policy

Parking Approach

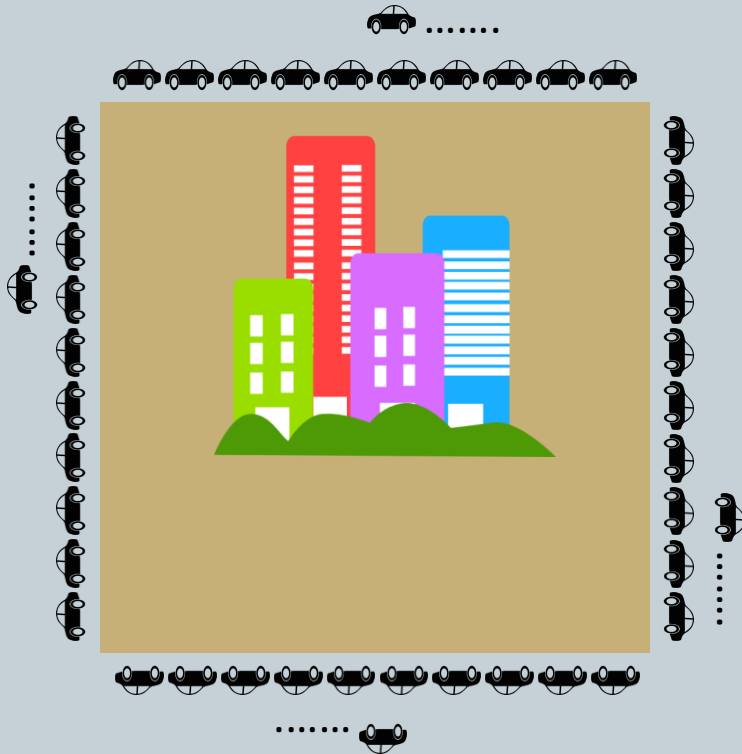


Parking Policy Approaches | 2D Framework

Source and Diagrams adapted from: Barter, P. A. (2014). A parking policy typology for clearer thinking on parking reform.

Contentious issues in Parking Policy

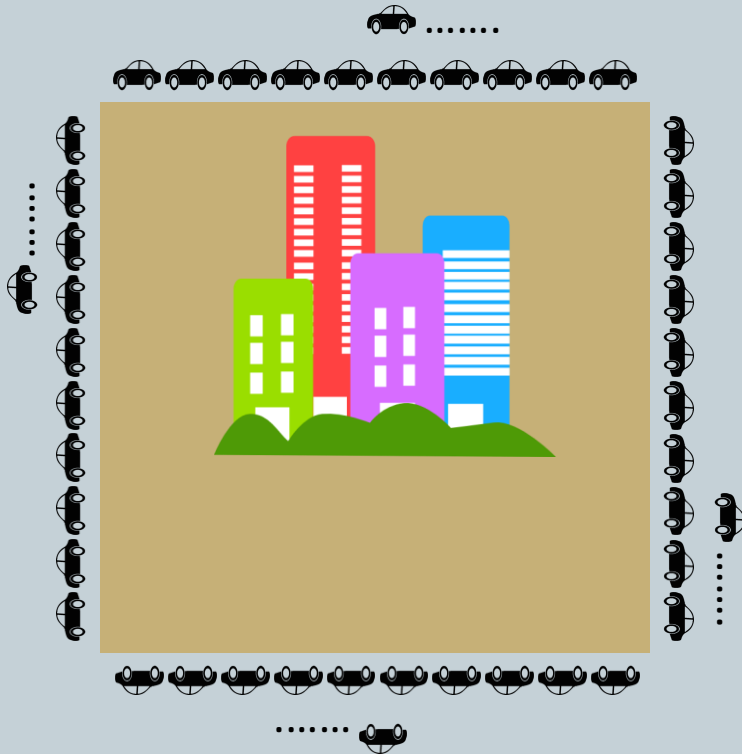
Parking Approach: Responsive



Responsive Approach: *Economic inefficiencies*
(Cruising and Queueing)
Market will do the planning

Contentious issues in Parking Policy

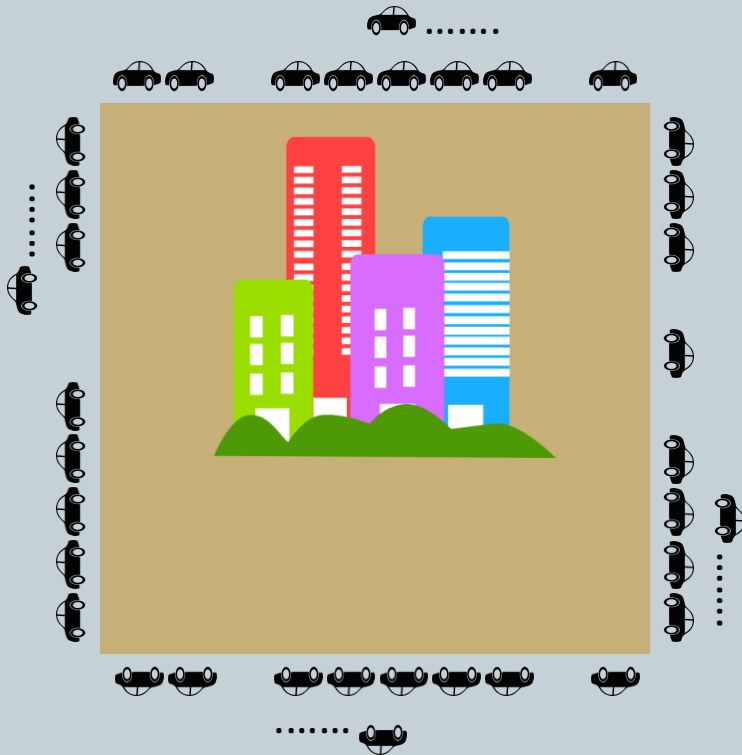
Parking Approach: Responsive



Responsive Approach: *Economic inefficiencies*
(*Cruising and Queueing*)
Market will do the planning
1. Demand responsive charges

Contentious issues in Parking Policy

Parking Approach: Responsive

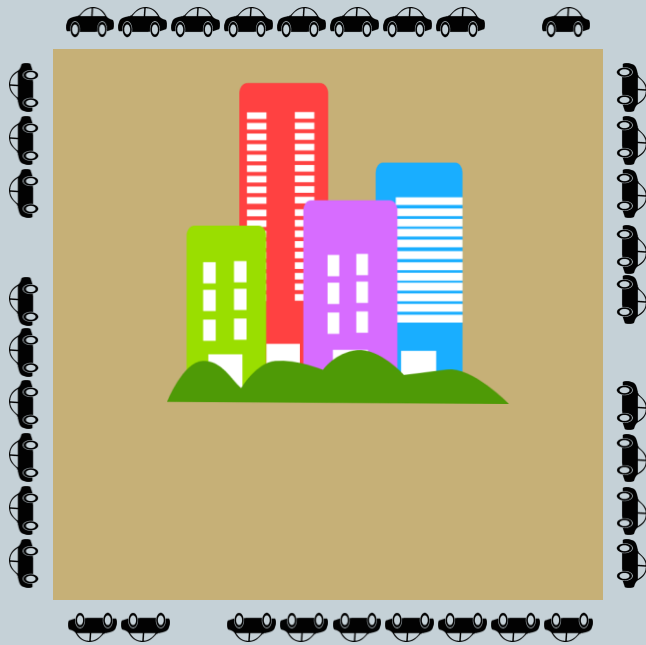


Responsive Approach: *Economic inefficiencies*
(Cruising and Queueing)
Market will do the planning
1. Demand responsive charges

On-street parking charges high enough
to create a few free parking slots per
block.

Contentious issues in Parking Policy

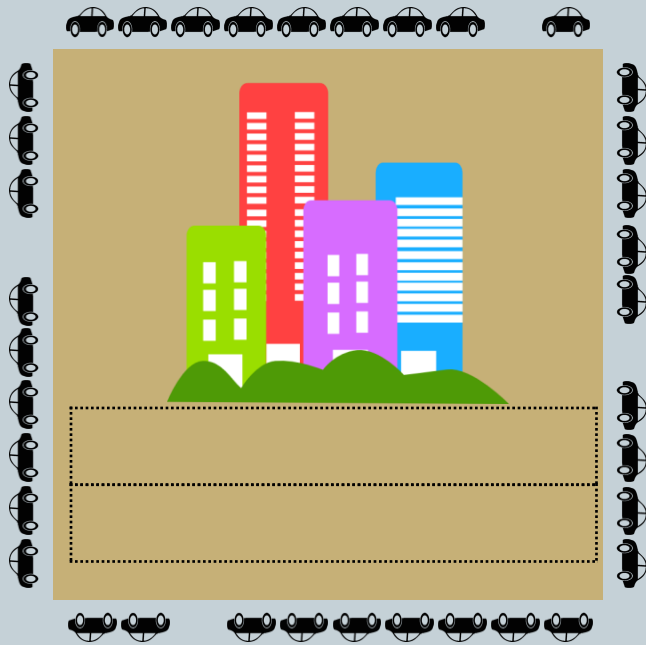
Parking Approach: Responsive



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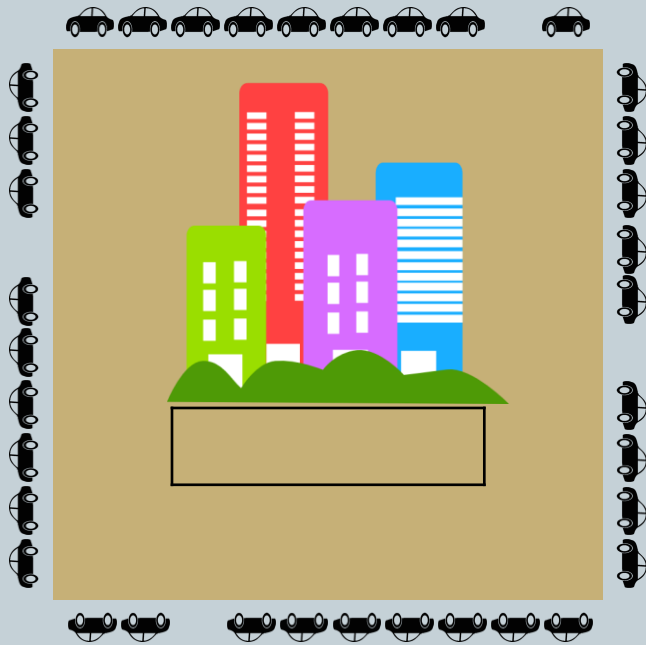
Parking Approach: Responsive



- Responsive Approach: *Economic inefficiencies (Cruising and Queueing)*
- Market will do the planning
1. Demand responsive charges
 2. Deregulate parking requirements

Contentious issues in Parking Policy

Parking Approach: Responsive



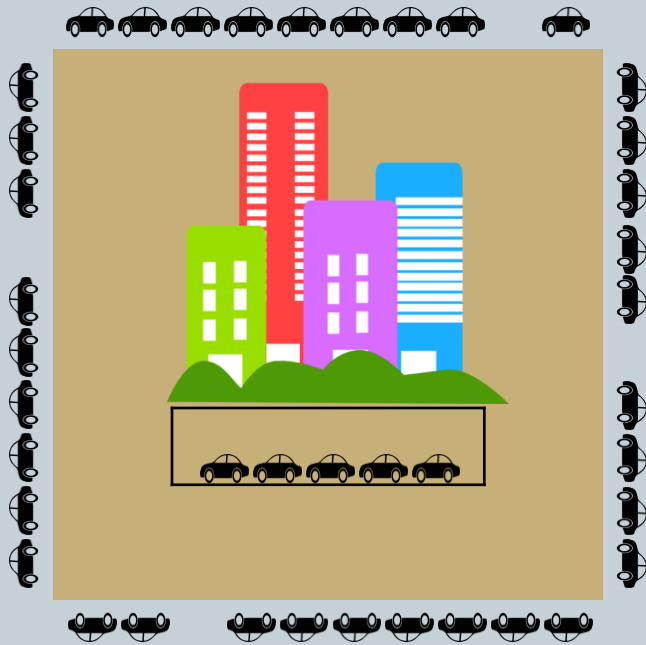
Responsive Approach: *Economic inefficiencies*
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1. Demand responsive charges
2. Deregulate parking requirements

Contentious issues in Parking Policy

Parking Approach: Responsive

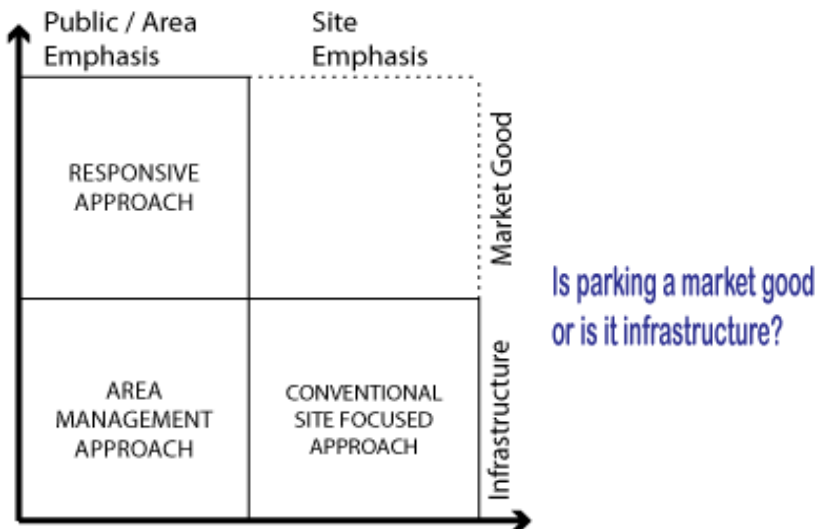


- Responsive Approach: *Economic inefficiencies (Cruising and Queueing)*
- Market will do the planning
1. Demand responsive charges
 2. Deregulate parking requirements

Contentious issues in Parking Policy

Parking Approach

Is the emphasis of parking site focused or public / neighbourhood focused?



Conventional Approach: *Spill-over the problem*

1. Free / Subsidised Parking
2. Minimum parking requirements

Area Management Approach: *Travel demand management the problem*

1. Charged Parking as disincentives
2. Parking Caps and Low minimums
3. Neighbourhood level parking facilities

Responsive Approach: *Economic inefficiencies (Cruising and Queueing)*

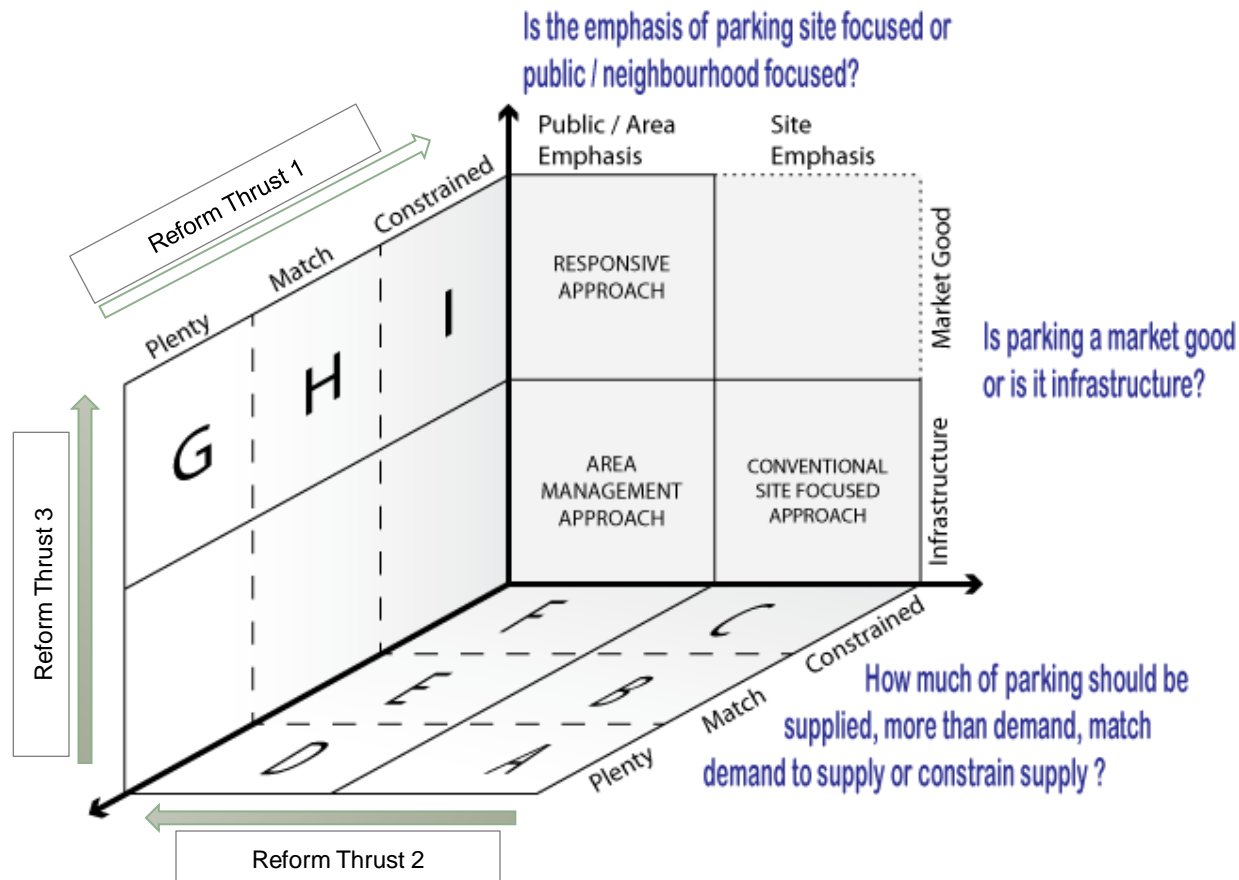
Market will do the planning

1. Demand responsive charges
2. Deregulate parking requirements

Source and Diagrams adapted from: Barter, P. A. (2014). A parking policy typology for clearer thinking on parking reform.

Contentious issues in Parking Policy

Parking Approach



Source and Diagrams adapted from: Barter, P. A. (2014). A parking policy typology for clearer thinking on parking reform.

Contentious issues in Parking Policy

Parking Approach

1. Parking (especially off-street) should be viewed as a market good and not as infrastructure
2. Large off-street parking spaces (such as those in apartments and commercial buildings) should be made accessible to the neighbourhood and not just to site inhabitants
3. Parking supply should be in excess of parking demand, never undersupplied

Contentious issues in Parking Policy

Parking Problem

4. Spill-over of parking from within plots onto streets is the parking problem
5. Queuing and cruising in search of unoccupied parking spaces is the parking problem
6. Increasing Travel Demand, especially that of private motor vehicles is the parking problem

Contentious issues in Parking Policy

Responsibility to Provide Parking



Contentious issues in Parking Policy

Responsibility to Provide Parking

7. It should be the government's responsibility to construct off-street parking facilities
8. It should be mandatory to produce 'proof of parking space' before registering a vehicle.

Contentious issues in Parking Policy

Unbundling the cost of parking

9. Off-street parking should be included in FSI
10. The cost of supplying off-street parking should be unbundled (charged separately) from rents and real-estate costs.

Contentious issues in Parking Policy

On-Street Parking

11. On-street parking should be reduced and eventually completely removed.
12. On-street parking charges for residents should be lower than visitors and commuters.

Contentious issues in Parking Policy

Park and Ride

13. Park and Ride facilities should be provided (as far as possible) with mass transit stations (eg. Metro, BRTS).
14. Park and Ride facilities reduce overall vehicle kilometres travelled.

Contentious issues in Parking Policy

Parking and Retail

15. In commercial (retail) establishments, increasing the number of parking spaces would ensure better turnover.

Contentious issues in Parking Policy

Disincentives vs. Revenue

16. Parking fees collected (by the government) are to be considered disincentives, not earnings.

Contentious issues in Parking Policy

Parking Mechanism, Pricing and Revenue use

17. What is your preferred off-street parking policy mechanism?
18. The price of on-street parking should (be):
19. Revenue generated from parking fees should be utilised within
20. Revenue generated from parking fees should be used to

Survey Results

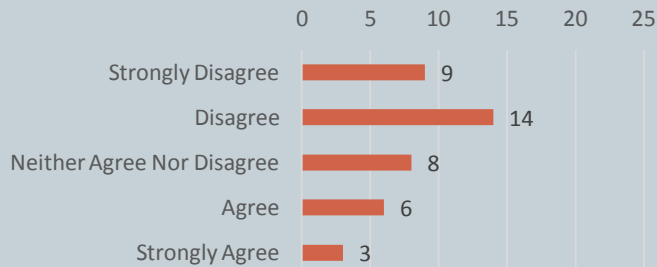
Online Questionnaire – 20 Questions

16. Parking fees collected (by the government) are to be considered disincentives, not earnings. *



Results

7. It should be the government's responsibility to construct off-street parking facilities



SD		Disagree		NAND		Agree		SA		Mean	Cns	sCns	No Opinion	
9	23%	14	35%	8	20%	6	15%	3	8%	2.5	0.53	0.67	0	0%

Analysis

Tastle and Wierman's Consensus Measure

Consensus Measure (Cns)

$$Cns(X) = 1 + \sum_{i=1}^n \rho_i \log_2 \left(1 - \frac{|X_i - \mu_X|}{d_x} \right)$$

Strength of Consensus (sCns)

$$sCns(X) = 1 + \sum_{i=1}^n \rho_i \log_2 \left(1 - \frac{|X_i - X_{1 \text{ or } n}|}{2d_x} \right)$$

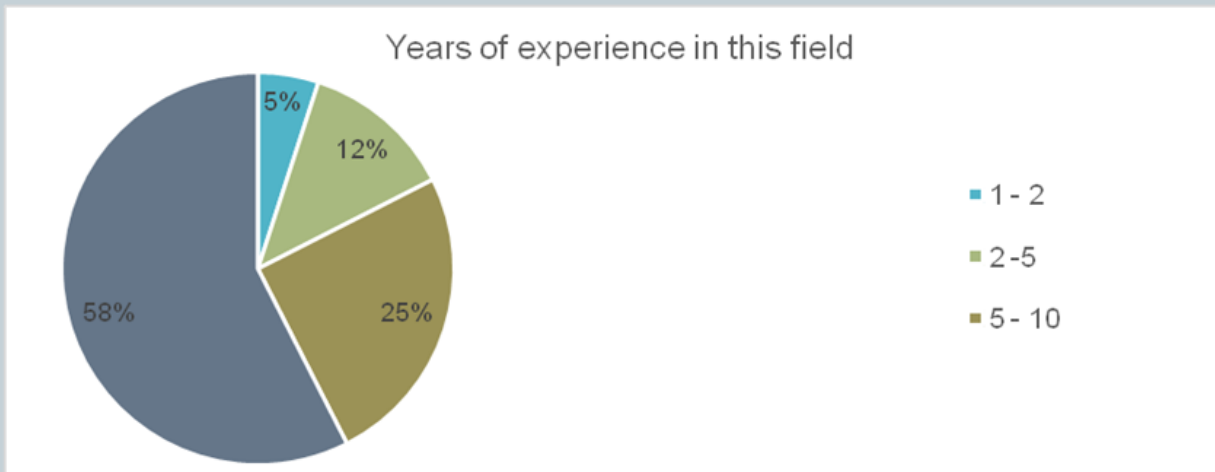
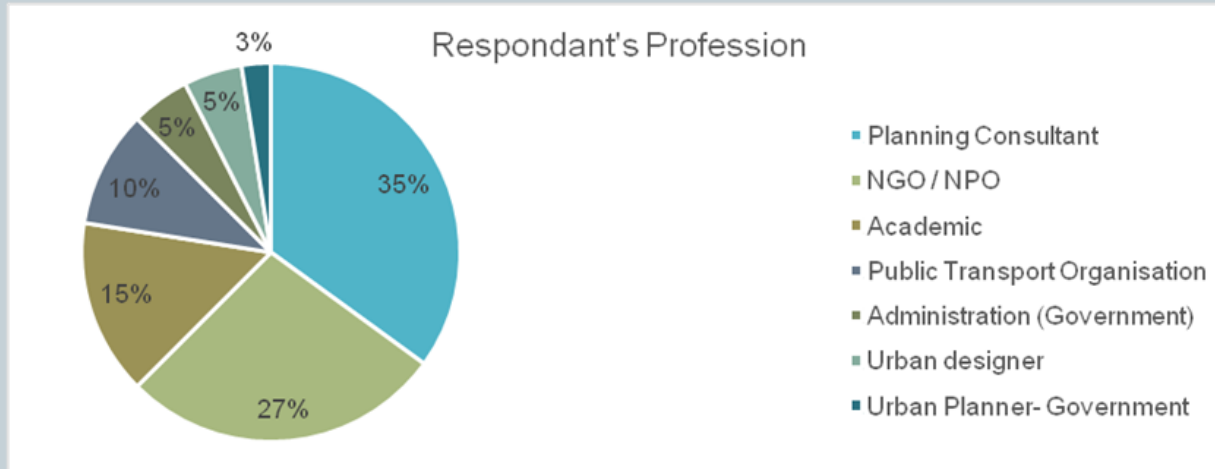
X = the range in question; i = 1 to n; Xi = Likert items; pi = probability of Likert item i; μx = the mean of the responses; dx = width of the range (n-1).

Consensus Measure Range 0 – 1 (> 0.5)

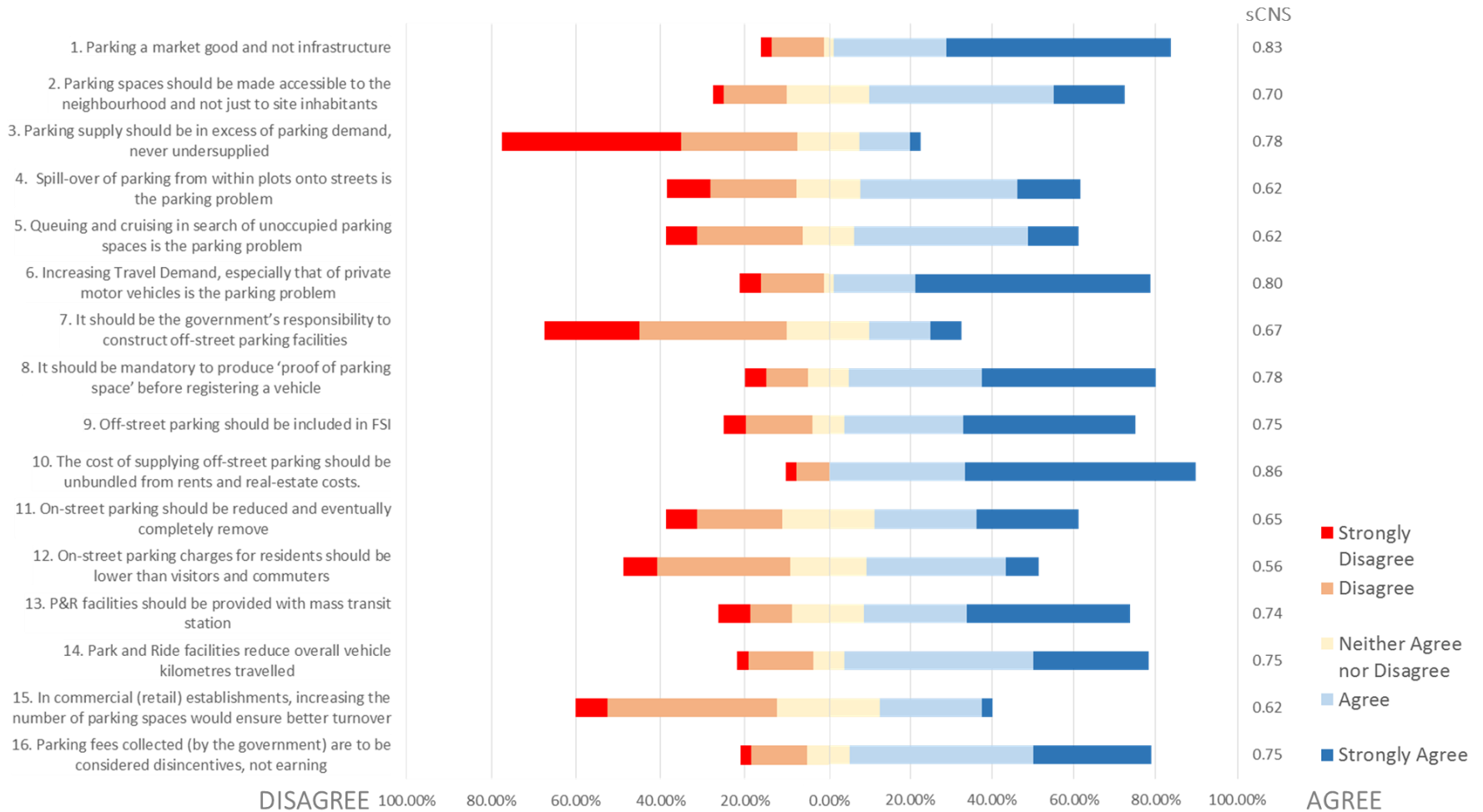
Strength of Consensus 0.5 – 1 (> 0.7)

Survey Results

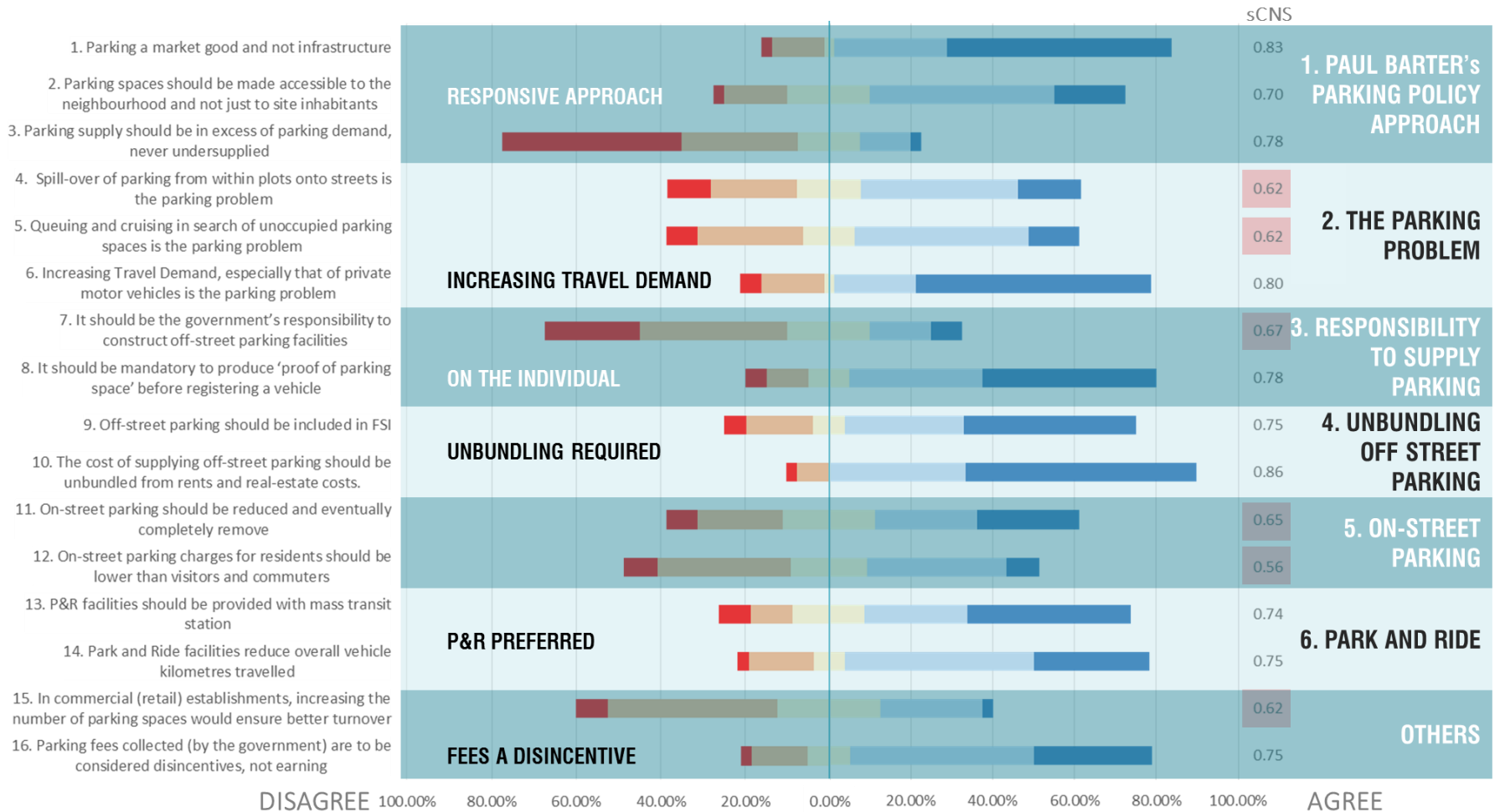
20 Questions | 44 Responses to the Survey | 40 Valid Responses



Survey Results

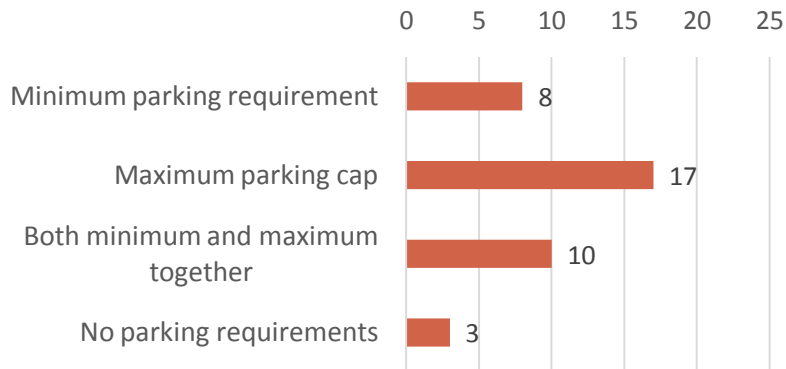


Survey Results

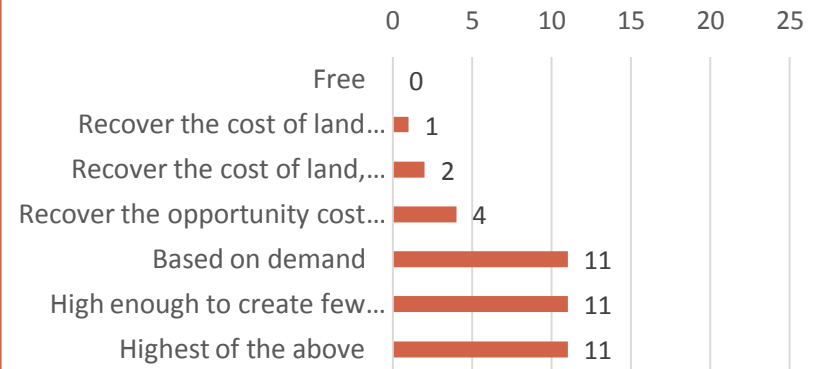


Survey Results

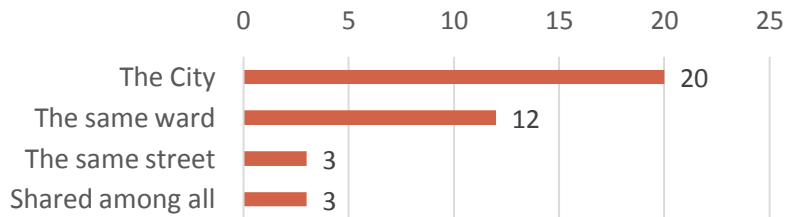
17. What is your preferred off-street parking policy mechanism?



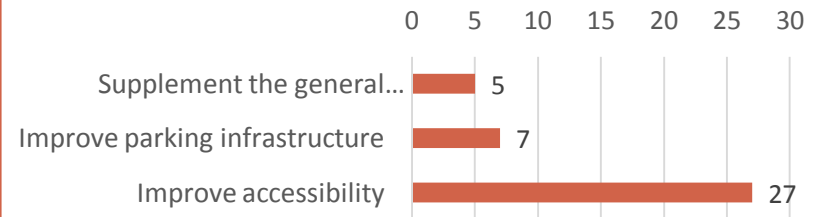
18. The price of on-street parking should (be):



19. Revenue generated from parking fees should be utilised within



20. Revenue generated from parking fees should be used to:



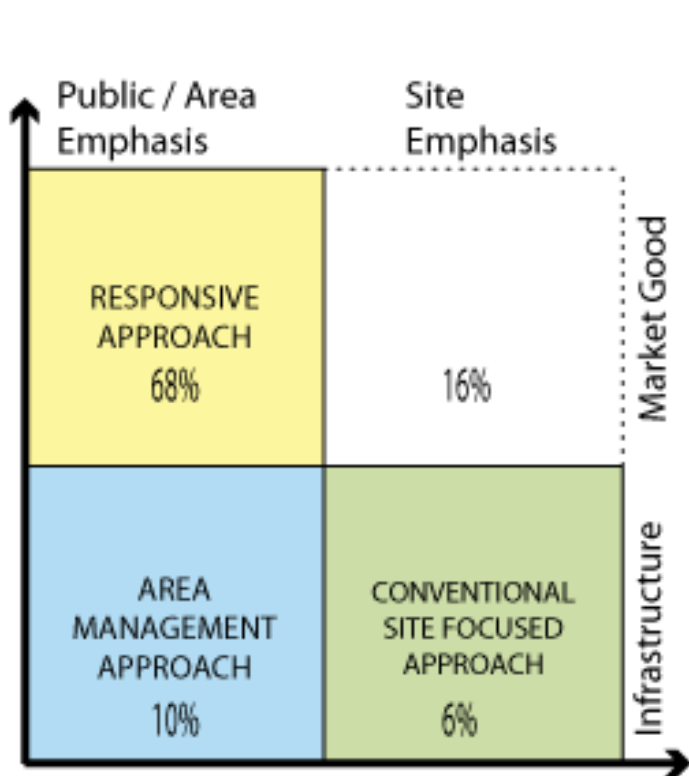
Survey Results

Questions	Strongly Disagree		Disagree		Neither Agree nor Disagree		Agree		Strongly Agree		Cns	sCns	No Opinion	
12. On-street parking charges for residents should be lower than visitors and commuters	3	8%	12	33%	7	19%	13	36%	3	8%	0.57	0.56	2	6%
4. Spill-over of parking from within plots onto streets is the parking problem	4	11%	8	21%	6	16%	15	39%	6	16%	0.51	0.62	1	3%
5. Queuing and cruising in search of unoccupied parking spaces is the parking problem	3	8%	10	25%	5	13%	17	43%	5	13%	0.53	0.62	0	0%
15. In commercial (retail) establishments, increasing the number of parking spaces would ensure better turnover	3	8%	16	40%	10	25%	10	25%	1	3%	0.63	0.62	0	0%
11. On-street parking should be reduced and eventually completely remove	3	8%	8	20%	9	23%	10	25%	10	25%	0.50	0.65	0	0%
7. It should be the government's responsibility to construct off-street parking facilities	9	23%	14	35%	8	20%	6	15%	3	8%	0.53	0.67	0	0%

Agreement on:

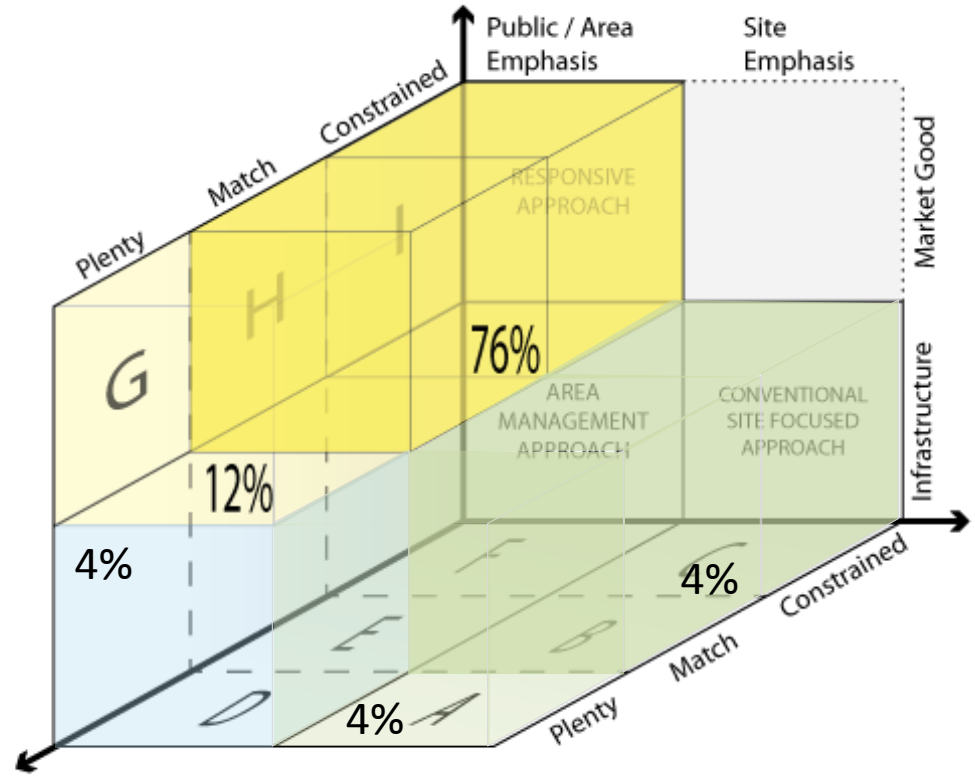
1. Responsive Approach
2. Increasing travel demand the problem
3. Responsibility on the individual
4. Parking Costs should be unbundled
5. Park and Ride preferred
6. Parking charge is a disincentive
7. Regulated through Maximum parking cap
8. Priced as per demand or create free parking spaces
9. Revenue used for accessibility improvements at the city / ward level.

Synthesis



Parking Approaches | 2D

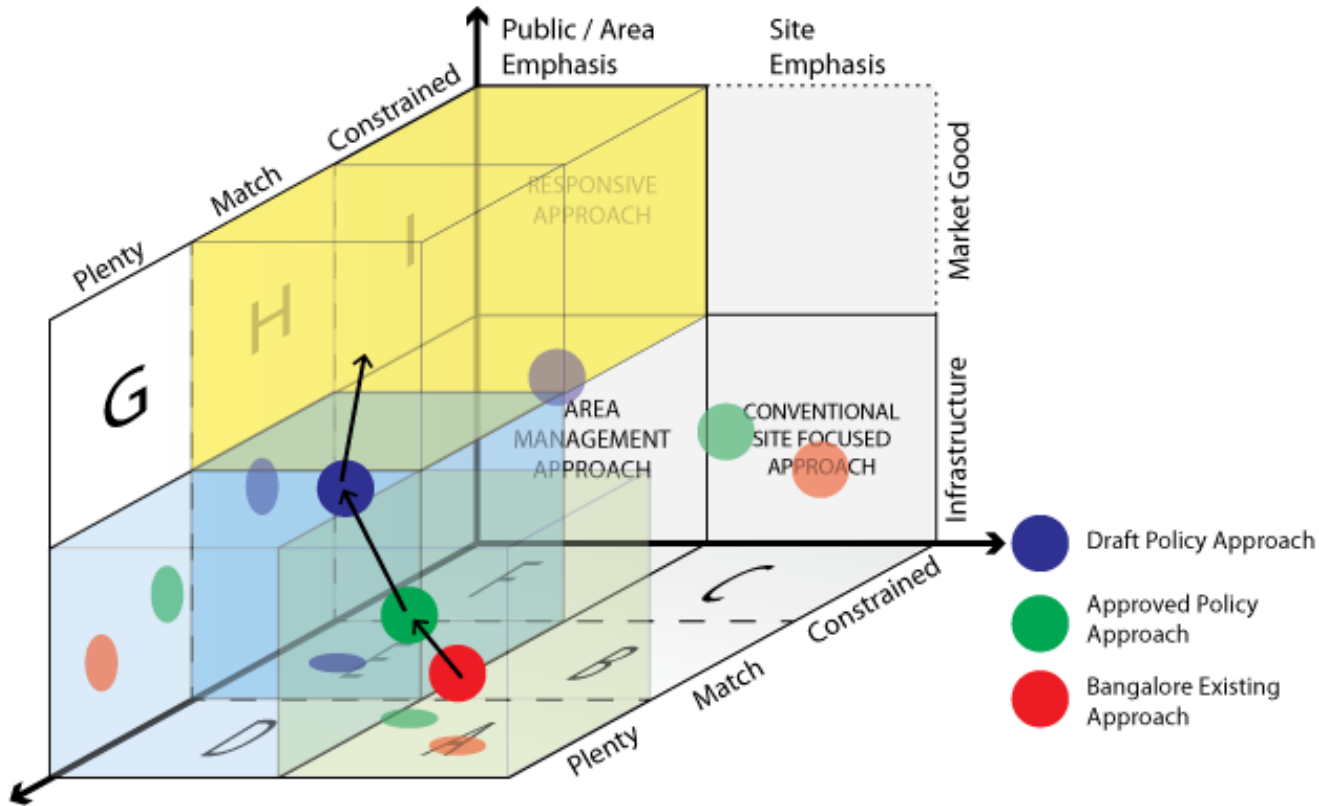
Graph
 Overall 12.5%, 12.5%, 7.5% and 5%.
 NA=22.5%



Parking Approaches | 3D

Graph
 Overall 48%, 8%, 3% NA=38%

Synthesis



Combined Parking Policy Approaches | National, Draft and Approved Parking Policy, Existing Bangalore

Synthesis

	Issue	Literature	Planners	Draft Parking Policy	Approved Policy	BDA	Collective
Darking Drnklam	Spill over	Disagree	Contention (Agree)	Agree	Agree	Agree	Contention
	Queuing and Cruising	Agree	Contention (Agree)	-	-	-	Contention
	Increasing Travel Demand	Agree	Consensus (Agree)	Agree	Agree	-	Consensus
Racnnncihilitv	Government Responsible	Disagree (Responsive Approach)	Contention (Disagree)	Agree	Agree	-	Contention
	Proof of Parking	Agree	Consensus (Agree)	Agree	Disagree	-	Contention
I Inhundla	Unbundling parking cost in building	Agree	Consensus (Agree)	Agree	Disagree	-	Contention
	Parking included in FSI (FAR)	Agree	Consensus (Agree)	-	-	-	Contention
On-Street	Reduce and remove on-street parking	Disagree	Contention (Agree)	Agree	Agree	-	Contention
	Residents charged lower than visitors	Agree	Contention (-)	-	-	-	Contention

	Issue	Literature	Planners	Draft Parking Policy	Approved Policy	BDA	Collective
Park & Ride	P&R with city mass transit station	Disagree	Consensus (Agree)	Agree	Agree	-	Consensus (Literature)
	P&R reduces VKT	Disagree	Consensus (Agree)	-	-	-	Consensus (Literature)
Fee	Parking charge a disincentive, not revenue	Agree	Consensus (Agree)	Agree	Agree	-	Consensus
	How much to charge parking	Responsive	Responsive	Cost Recovery	Affordability	-	Contention
Com.	Parking increase turnover	Disagree	Contention (Disagree)	-	-	-	Contention
Rep.	Preferred off-street parking mechanism	-	Cap, Both, minimum	-	-	Higher Minimum	Contention
Revenue	Where should revenue from parking be utilised	Street	City / Ward	-	-	-	Contention
	Revenue generated from parking fees should be used to:	Accessibility	Accessibility	-	-	-	Consensus

Conclusion

Issues	Significance	Recommendations
Lack of political will	Delays Policy Adoption	Planner as a consensus builder , allay the fears of the policy maker. Bring clarity into the debates.
Fear of public backlash Inconvenience	Greatest concern of policy makers	<p>Public need to be part of the process. Public respond to reasoning. Nobody likes paying for parking unless they see the utility in it.</p> <ol style="list-style-type: none"> 1. Unbundle parking prices. Only users pay. Increases affordability in general. 2. Parking prices just high enough to create few unoccupied parking slots is a utility, reduces waiting / cruising time 3. Incentivise residents and businesses to participate by returning revenue back to local level (better streets, public transport etc.)
Affordability	Reasoning behind low parking charges	<p>Accessibility not Affordability Link parking reforms to PT accessibility. Greater the accessibility, greater can be the extent of parking reform.</p>
Dependence on public infrastructure and public money	Burden on limited city finances	<ol style="list-style-type: none"> 1. The markets have to be part of the solution, as the government can't construct all the parking required. E.g.. In CBD, where demand is high enough to create high prices. 2. Proof of parking generates demand for commercial parking, while charges In lieu of parking generates revenue for government to build parking for those who can not / did not. 3. Parking Permits reduce cost for residents while increasing acceptability of parking charges, also increases revenue.
Lack of planning powers with the city	Incomplete reforms	Cities should have control over their Land Use plans and byelaws for Co-ordination between Policy and Development Plan . Success of the On-street parking policy will depend greatly on the off-street policy.
Reforms process slowed	Inability to respond quickly to changing ground conditions	<p>Land Use plans and byelaws are reviewed in 10yrs. Parking Policy implementation required 7yrs.</p> <ol style="list-style-type: none"> 1. Parking reform is an incremental process. Build in the incrementality into the policy. Phase the strategies. Such as an increase in parking charges with the opening of new stretch of the metro.

Thank you