THE HOT LANE IN ISRAEL: SMALL STEP TO THE SYSTEM, GIANT LEAP TOWARDS ROAD PRICING?

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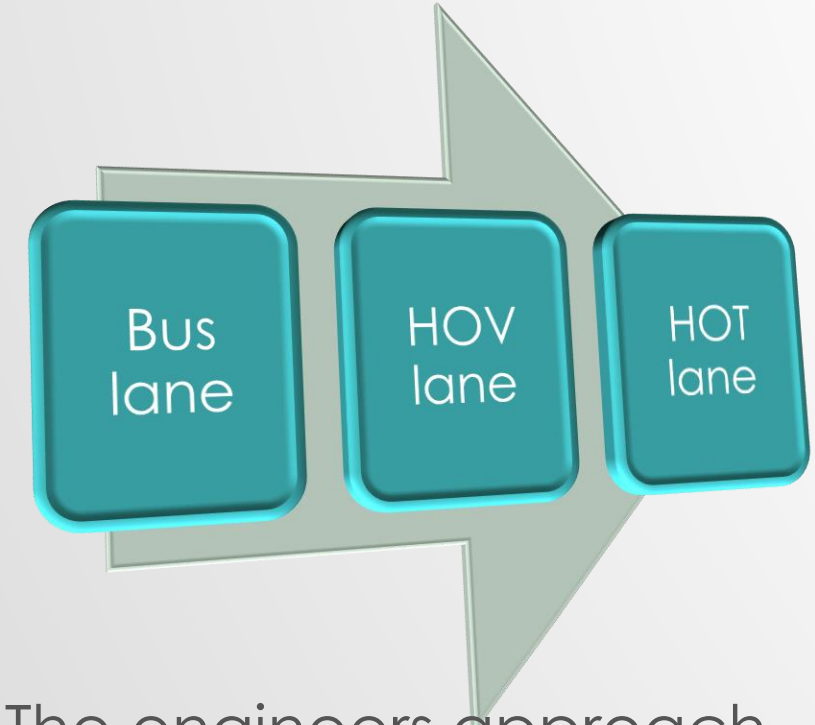
- The logic(s) behind HOT lanes: a policy perspective (Galit)
- The “fast lane” to Tel-Aviv: zoom in (Hillel)
- HOT lane as part of transport policy tool box: zoom out (Yoram)

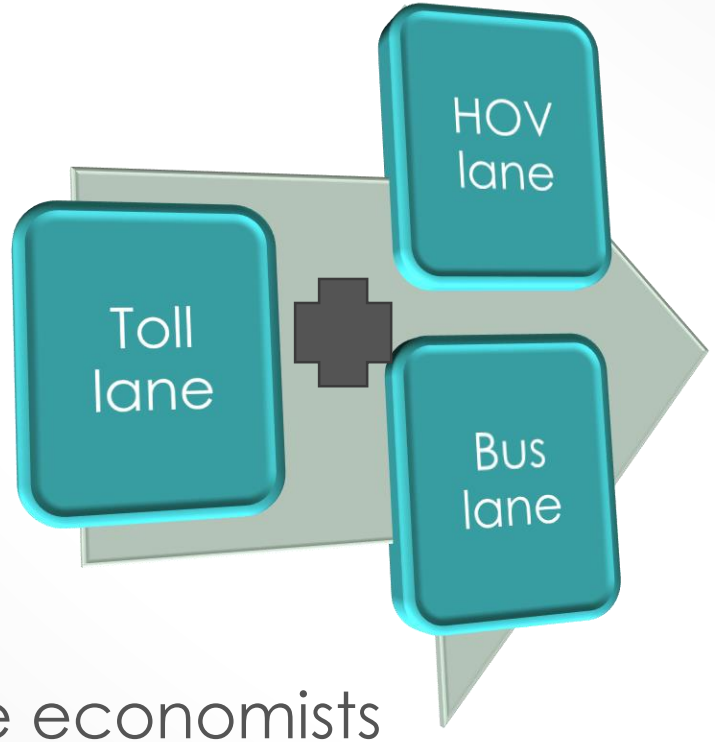
THE LOGIC(S) BEHIND HOT LANES

Utilizing underused bus lanes



The engineers approach

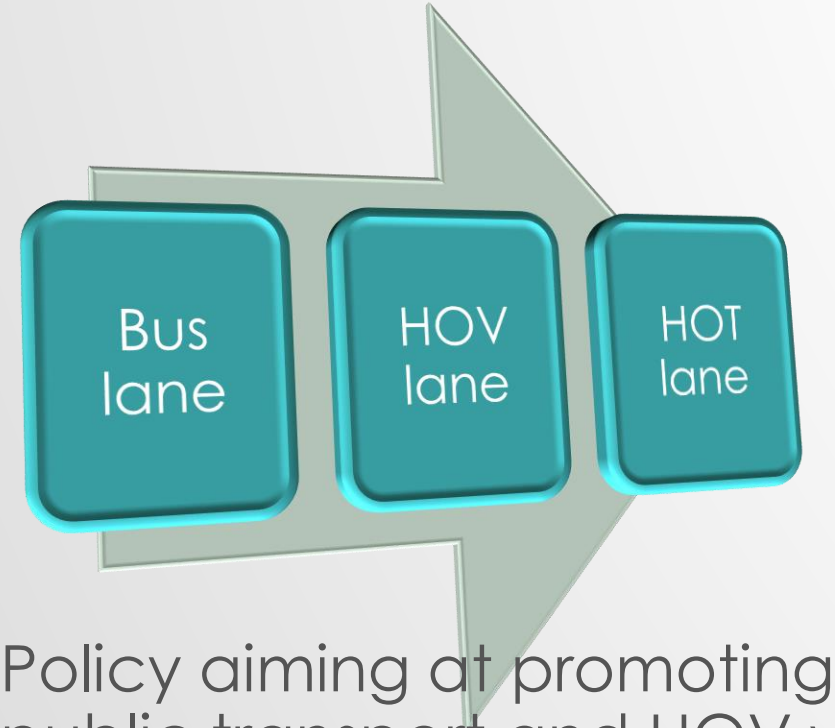
Introducing pricing mechanism and adding "carrots" to soften opposition



The economists approach

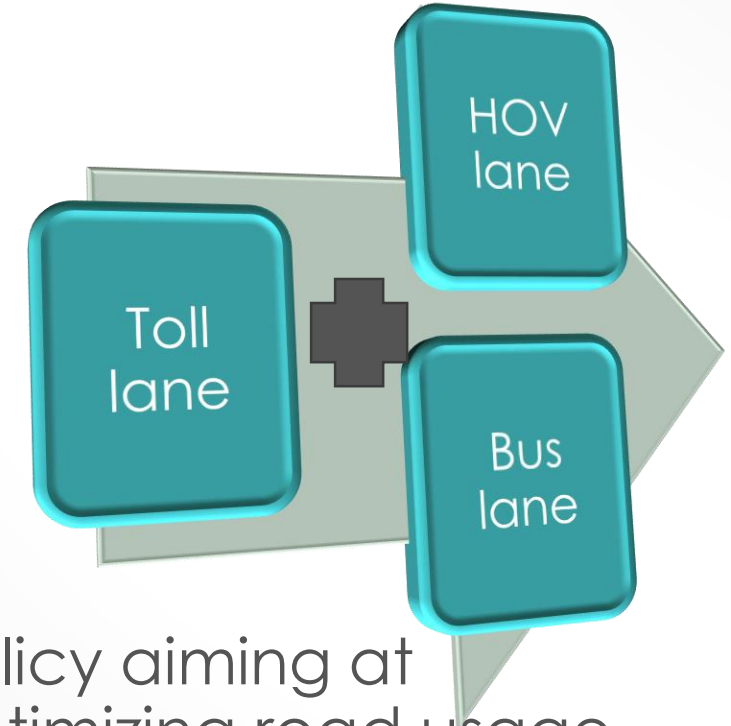
THE LOGIC(S) BEHIND HOT LANES: POLICY TARGETS

Utilizing underused bus lanes



Policy aiming at promoting public transport and HOV while utilizing capacity

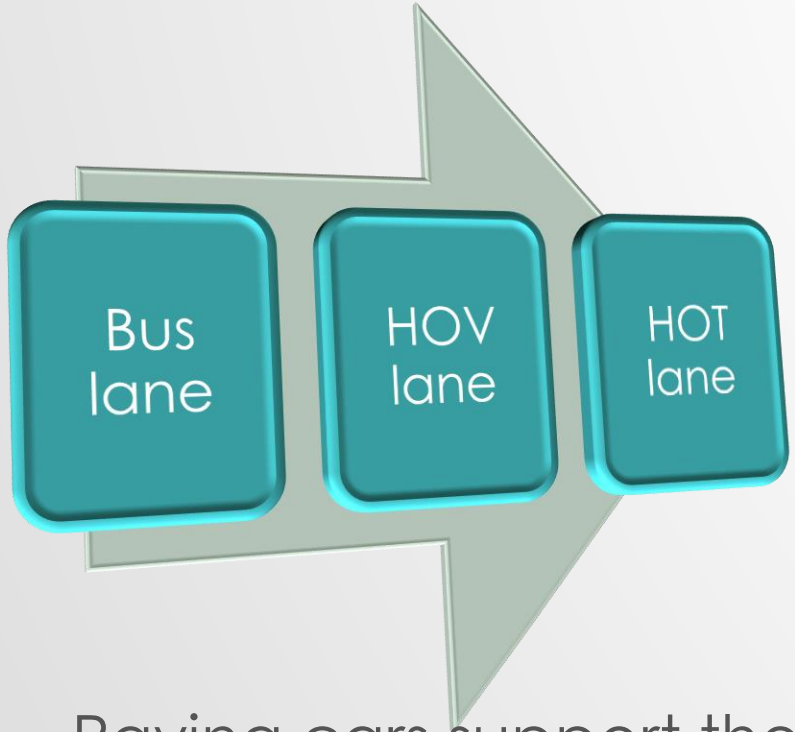
Introducing pricing mechanism and adding "carrots" to soften opposition



Policy aiming at optimizing road usage and reducing congestion

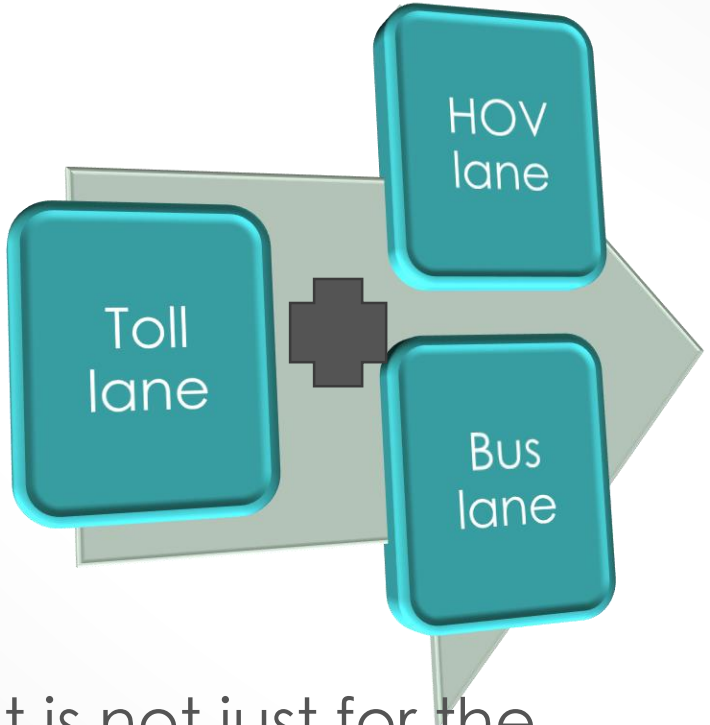
THE LOGIC(S) BEHIND HOT LANES: EQUITY ASPECTS

Utilizing underused bus lanes



Paying cars support the non-paying cars

Introducing pricing mechanism and adding "carrots" to soften opposition



It is not just for the affluents, others can also enjoy the lane

DOES IT MATTER?

- **NO!**
  - HOT is HOT, it works, does not matter how we got there
  - Both are **Pareto** solutions
  - The two do not contradict each other
  - Each actors may frame it according to its internets

- **YES!**
  - Framing may affect public support
  - In existing infrastructure, the previous usage matters.
  - Pricing structure may differ when maximizing capacity or optimizing road use
  - Evaluation of HOT performances: increased capacity or travel time savings?

IMPLICATIONS

- Policy naming and policy framing
  - Although warmly adopted by road pricing scholarship, the engineers framing enjoys more public acceptability
  - Road pricing may be introduced as a **supportive** policy, not only as the main one
  - Status quo effect: pricing mechanism are used and users get used to the idea

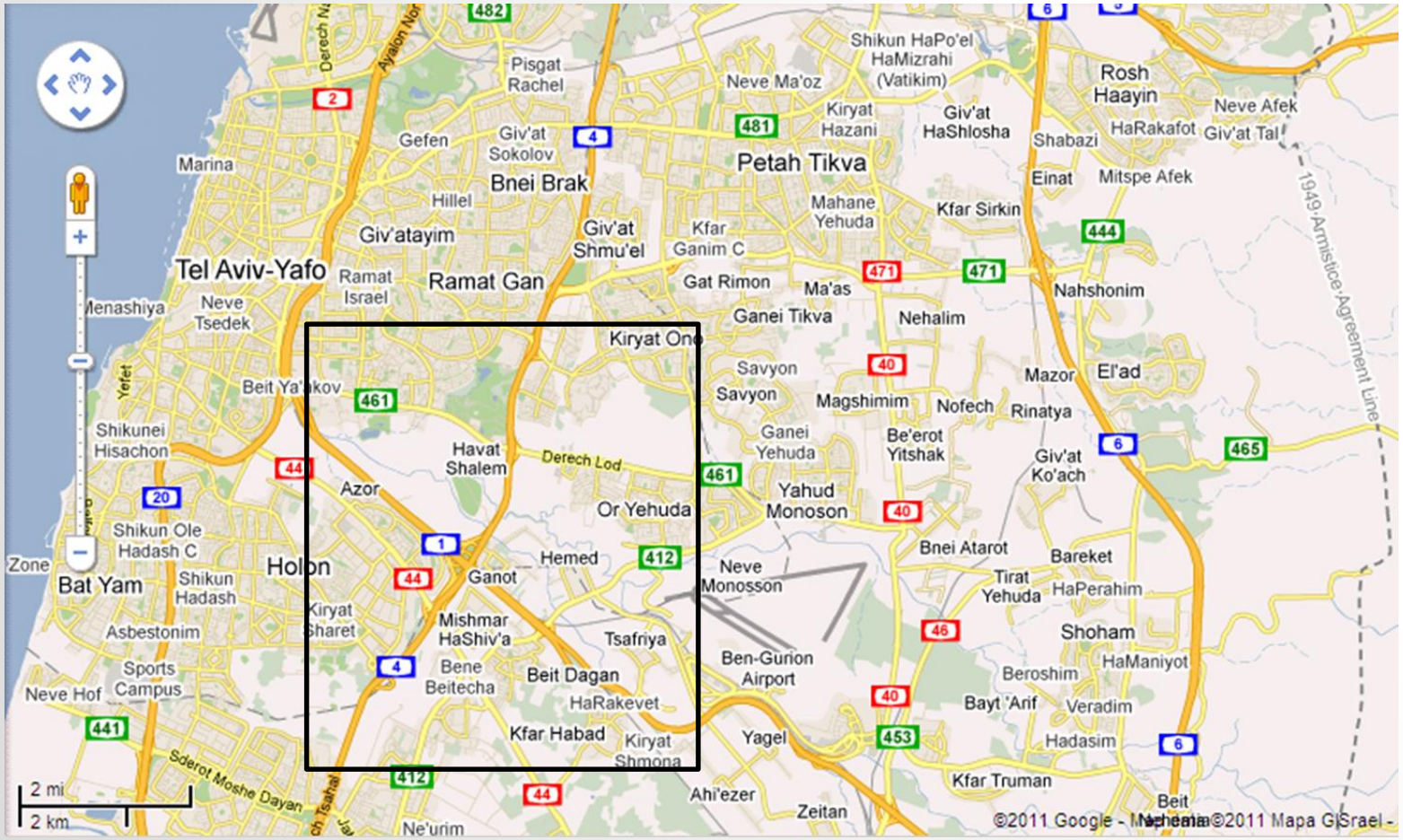
THE ISRAELI CASE: UNIQUE ASPECTS

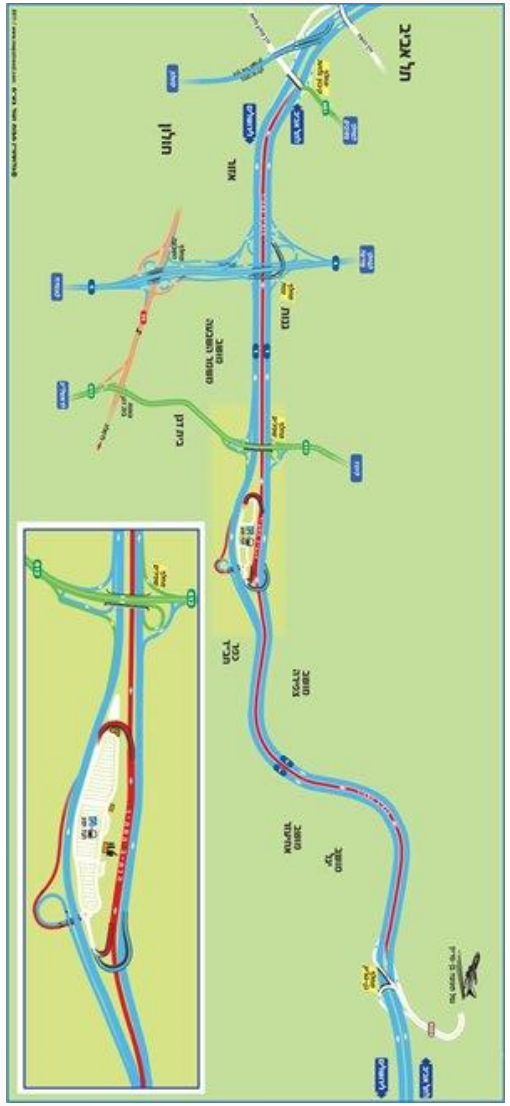
	Policy aspects	Public aspects
New construction	The plan for HOT to Jerusalem cancelled **partly** because it was not additional new lane	Decreased public opposition
Reduced capacity at the bottleneck	Urged complementary policy tools to attract various types of users	court filling when operated, but was dismissed
Legislative process was needed to approve the tolls	Naming: "the fast lane"	Framed the lane as a toll lane
B.O.T initiative	Exposes the true costs of HOT	Increased **suspicions** about the logic behind the tolls

DETAILED EXAMINATION OF THE ISRAELI HOT

- Operating since January 2011
- 13 KM long
- One direction- towards Tel-Aviv
- Dynamic tolls
- B.O.T initiative

THE FAST LANE





ALTERNATIVE USAGE OPTIONS FOR THE HOT LANE FACILITIES AND SERVICES

Usage option	Pay	Park	Relevant dynamic Information	Average workday Count (2019)
Drive alone	Yes	No	Price (travel time information[3])	5,117 (S.D. 783)
Park and use free shuttle	No	Yes	Parking space availability	1,761 (S.D. 329)[4]
Park and carpool	No	Yes	Occupancy threshold; Parking space availability	Included above and below
Carpool from origin to destination	No	Yes	Occupancy threshold	724 (S.D. 123)[5]
Bus from origin to destination	No	No	No	1,340 (S.D. 128) busses and shuttles
Bus and shuttle	No	Yes	No	Included above
Authorized vehicle (security, disabled)	No	No	No	146 (S.D. 21)

HOT AND SHUTTLE USERS CHARACTERISTICS

- Most HOT paying users are occasional: 56% once, 30% two to five times
- Most shuttle users are commuters: 84% workers, 73% arrival is 6:30-9:30; 59% activities of >8 hours.
- 72% do not have reserved parking at their destination
- Most (56%) used private car before the shuttle service was in operation

- Sources: Matat, 2016, based on data for July 1st, 2014 to June 30th, 2015; Katoshevski-Cavari et al. (2018), based on a survey of 530 shuttle users.

PARKING LOT (2000) AND SHUTTLES

B.O.T: COSTS AND REVENUES STRUCTURE

Costs

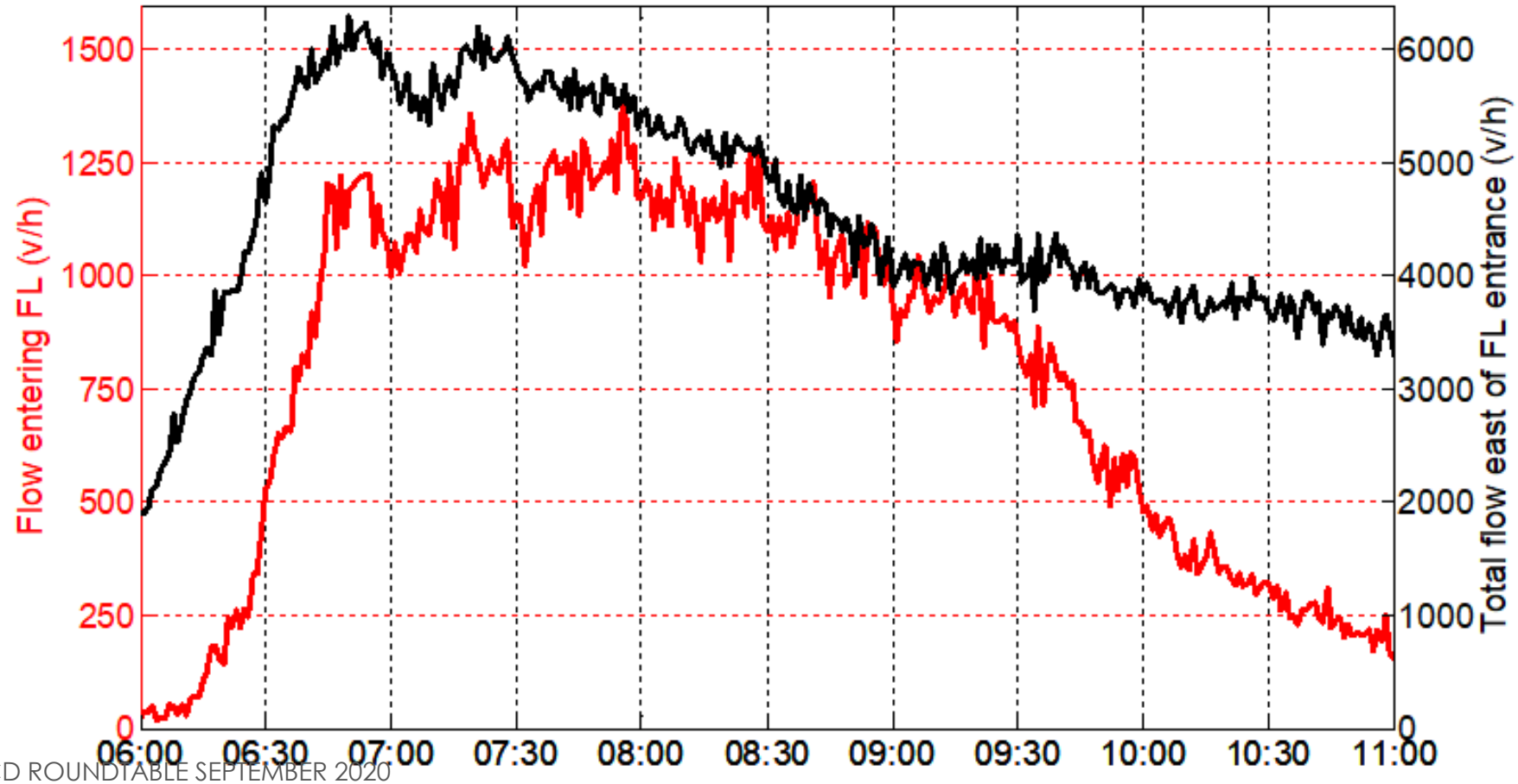
- Payment for the concession (182 million NIS)
- Construction
- Maintenance
- Operating free shuttles
- Percentage from revenues above agreed threshold

Revenues

- 10 NIS for every parked car during the morning peak
- tolls that are collected from low occupancy cars
- compensation for vehicles that were exempted from tolls (HOV and authorized vehicles), except for the first 120 vehicles
- Compensation if revenues below agreed threshold

TRAFFIC VOLUME AT THE EAST ENTRANCE TO THE HOT LANE, AND ON ROAD NUMBER 1

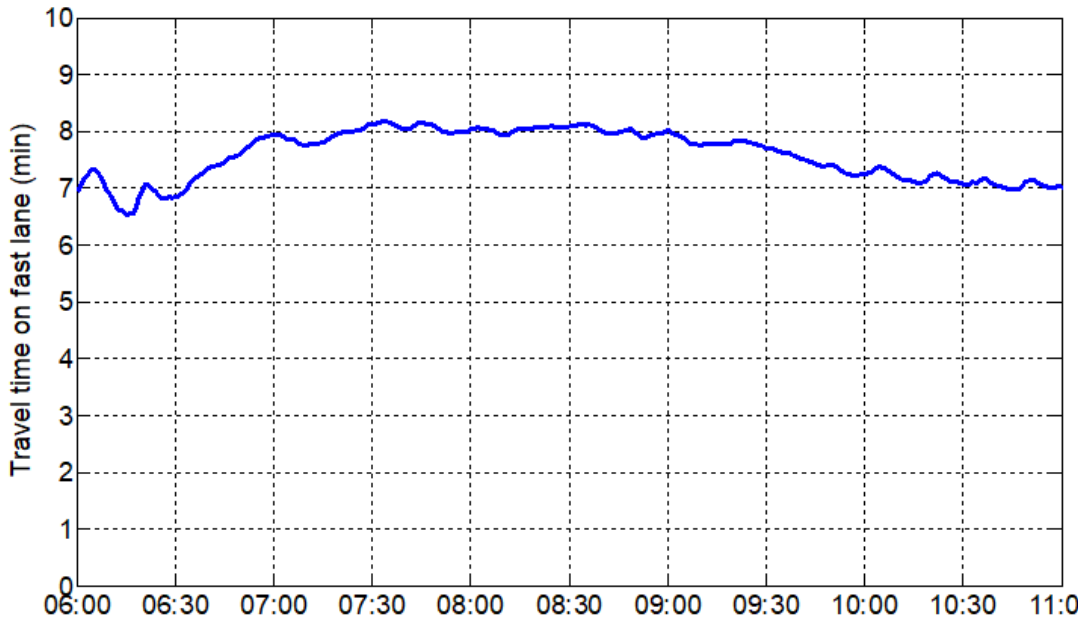
(average of values within the inter-quartile range for workdays during June and July 2011)



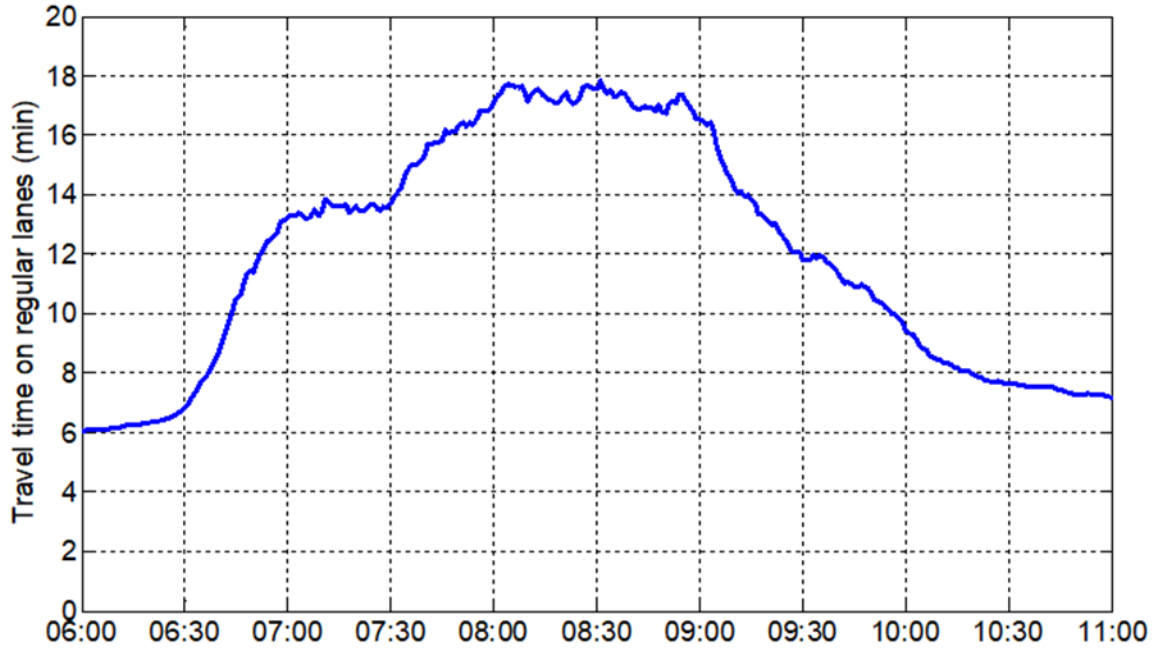
TRAVEL TIME IN THE HOT AND GP LANES BY TIME OF DAY

(average of values within the inter-quartile range for workdays during June and July 2011)

HOT

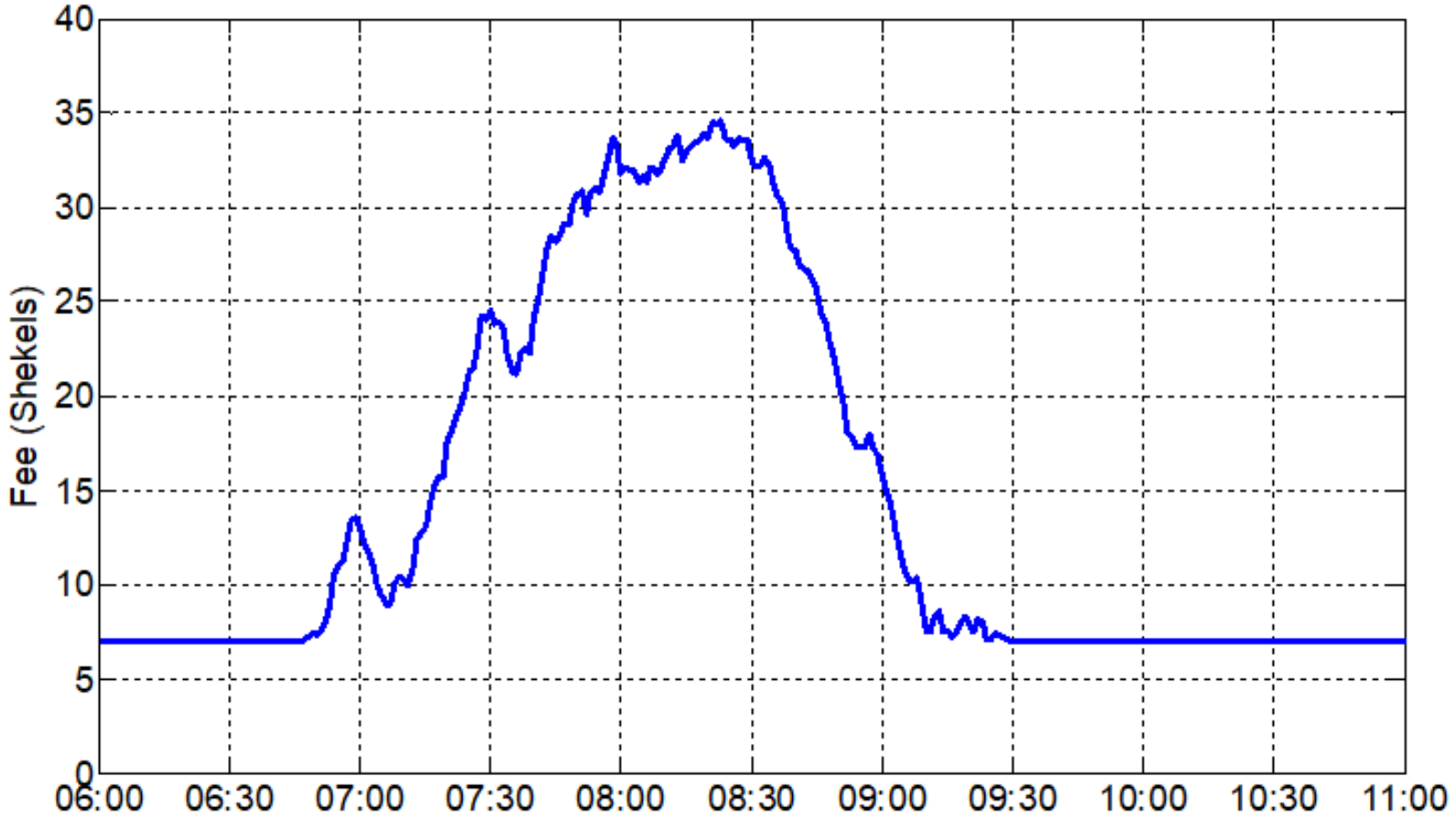


GP



TOLLS IN THE HOT LANE BY TIME OF DAY

(average of values within the inter-quartile range for workdays during June and July 2011)



FAST LANES: THE NEXT STEP

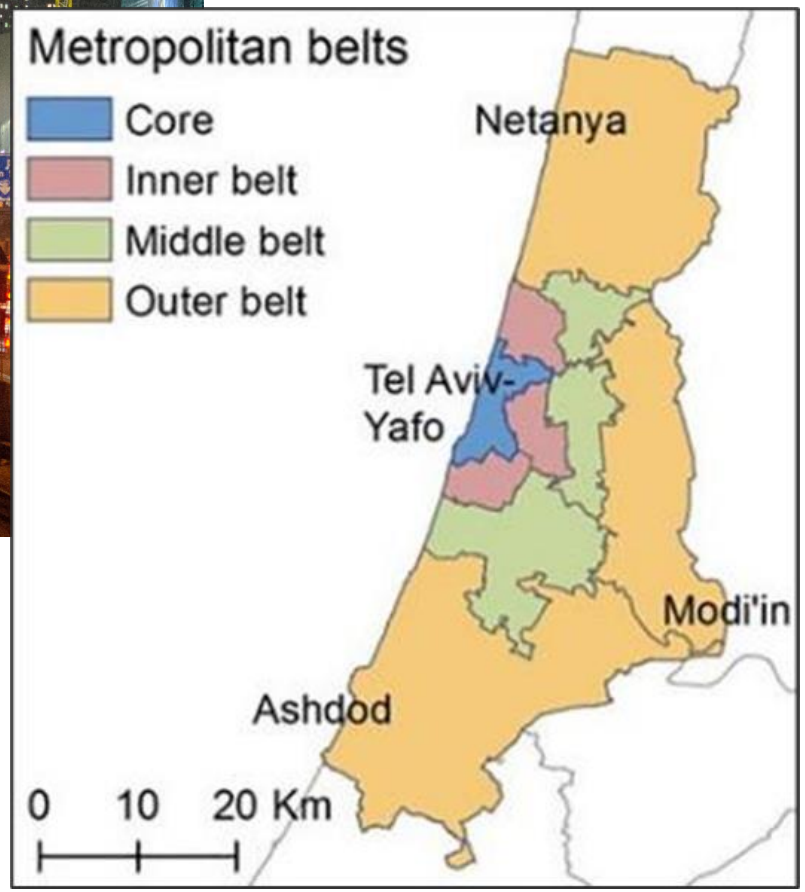
- Through the CBD (along Ayalon highway)
- Two-directions
- 11 gates per direction
- 2-4 toll sections per direction
- Two parking lots (7K+3K parking spots)

- Additional capacity
- Predetermined toll profile, by time of day
- Operator incentive based on utilization

Zooming out

Tel-Aviv Metropolitan Area

- Population: : 4 Million
- 44% of the population in Israel
- 50% of the employment in Israel
- Population growth rate 2% in the last decade
- Estimated population in 2040: 5.4 Million



CONGESTION IN TEL-AVIV

- According to TomTom, Tel-Aviv is the 21st most congested cities in the word, out of 416 cities that were evaluated in 57 countries
- Travel time during peak time is 90% longer than off peak
- Developed cities with metro systems are at lower ranking

Extra trave time during peak hour for a 30-minute trip

City and congestion rank	Morning extra time	Evening extra time	Number of metro lines	Share of public transport out of motorized trips
Tel Aviv 21	**28 min**	**27 min**	**0**	**105**
Lisbon 81	20 min	23 min	4	41%
Berlin 94	15 min	18 min	10	46%
Madrid 243	17 min	14 min	13	41%

What time was rush hour in Tel Aviv?

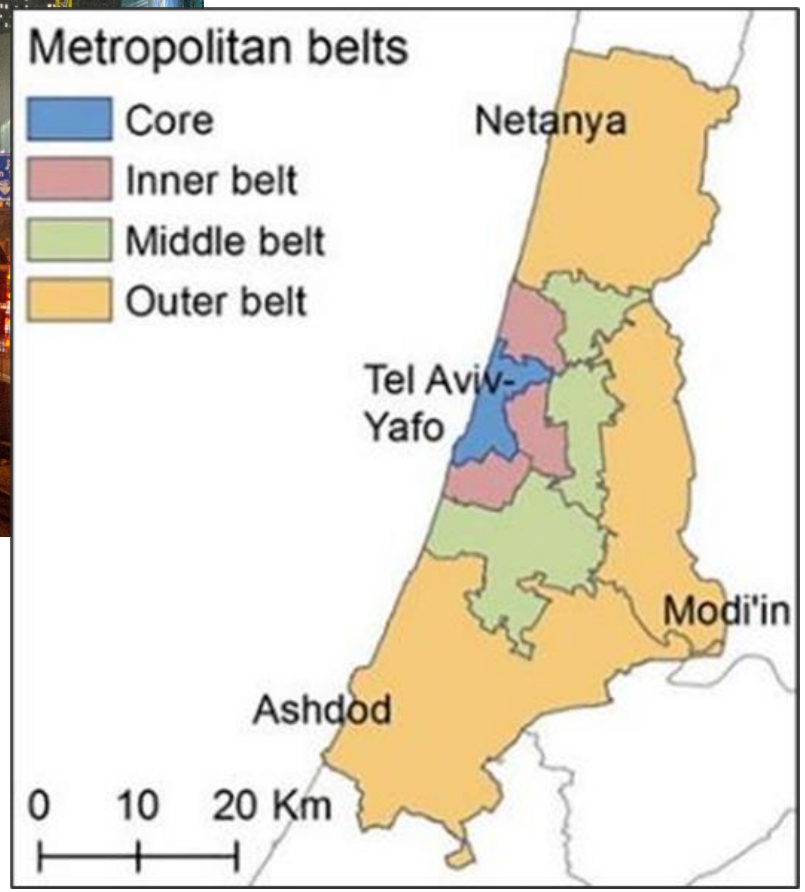
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
12:00 AM	4%	5%	6%	5%	6%	12%	9%
	0%	1%	2%	1%	2%	6%	4%
02:00 AM	0%	0%	0%	0%	1%	3%	2%
	0%	0%	0%	0%	0%	2%	1%
04:00 AM	0%	0%	0%	0%	0%	1%	0%
	1%	1%	1%	1%	1%	1%	0%
06:00 AM	23%	24%	22%	22%	21%	4%	0%
	70%	72%	67%	67%	62%	12%	0%
08:00 AM	95%	101%	93%	93%	85%	21%	2%
	69%	79%	73%	72%	65%	25%	5%
10:00 AM	43%	53%	50%	49%	45%	29%	9%
	33%	40%	40%	39%	39%	37%	11%
12:00 PM	33%	38%	40%	40%	41%	50%	14%
	36%	41%	43%	45%	45%	46%	14%
02:00 PM	39%	46%	47%	50%	52%	33%	12%
	62%	72%	73%	77%	81%	25%	12%
04:00 PM	76%	88%	91%	94%	99%	18%	14%
	68%	77%	81%	83%	88%	15%	16%
06:00 PM	60%	68%	72%	73%	71%	16%	17%
	45%	55%	56%	57%	56%	15%	22%
08:00 PM	25%	34%	36%	37%	41%	9%	25%
	15%	18%	19%	19%	25%	11%	17%
10:00 PM	13%	14%	14%	14%	18%	13%	12%
	12%	11%	11%	12%	17%	13%	10%

1	1	**Bengaluru**	India	**71%**	
2	2	**Manila**	Philippines	**71%**	
3	3	**Bogota**	Colombia	**68%**	↑ 5%
4	4	**Mumbai**	India	**65%**	0%
5	5	**Pune**	India	**59%**	
6	6	**Moscow region (oblast)**	Russia	**59%**	↑ 3%
7	7	**Lima**	Peru	**57%**	↓ 1%
8	8	**New Delhi**	India	**56%**	↓ 2%
9	9	**Istanbul**	Turkey	**55%**	↑ 2%
10	10	**Jakarta**	Indonesia	**53%**	0%
11	11	**Bangkok**	Thailand	**53%**	0%
12	12	**Kyiv**	Ukraine	**53%**	↑ 7%
13	13	**Mexico City**	Mexico	**52%**	0%
14	14	**Bucharest**	Romania	**52%**	↑ 4%
15	15	**Recife**	Brazil	**50%**	↑ 1%
16	16	**Saint Petersburg**	Russia	**49%**	↑ 2%
17	17	**Dublin**	Ireland	**48%**	↑ 3%
18	18	**Odessa**	Ukraine	**47%**	
19	19	**Lodz**	Poland	**47%**	↑ 3%
20	20	**Rio de Janeiro**	Brazil	**46%**	↑ 4%
21	21	**Tel Aviv**	Israel	**46%**	↑ 4%

Tel-Aviv Metropolitan Area

- Population: : 4 Million
- 44% of the population in Israel
- 50% of the employment in Israel
- **Population growth rate 2% in the last decade**
- **Estimated population in 2040: 5.4 Million**

- **The population growth rate in Israel is the largest in the developed world – 10 times more than OECD average**
- **4 million population today to 5.4 M in 2040**



Congestion Pricing and Mass Transit

Congestion pricing is an important demand management tool however it does not increase the capacity of the transportation system and can not replace mass transit in the long-term

The more efficient the public transportation system, the more effective the implementation of the congestion pricing will be

Mass transit will reduce congestion; however its main purpose is to provide mobility, accessibility and high-quality service to the residents in a balanced transportation system

Few large cities have congestion pricing, and they all have highly developed metro systems

Singapore, the first city to implement congestion pricing, has built 90 Km of metro lines in the past decade

TLV Metro Added capacity to commercial centers

150 thousand

Travelers per hour

=

75

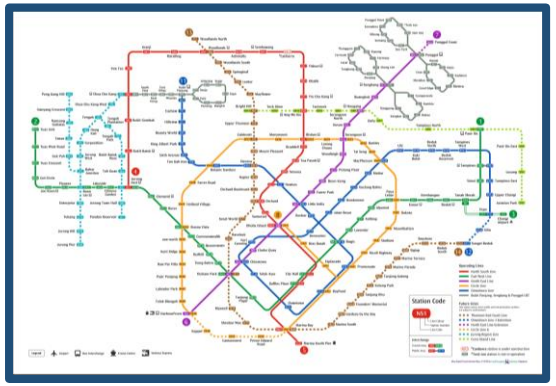
Fast lanes on the Ayalon highway

City	Starting year Congestion pricing	Total metro track length in Km	Additional metro lines being planned
Singapore	1975	200	6
London	2003	402	5
Stockholm	2007	106	4
Milan	2008	97	5

Congestion Pricing and Metro

Singapore

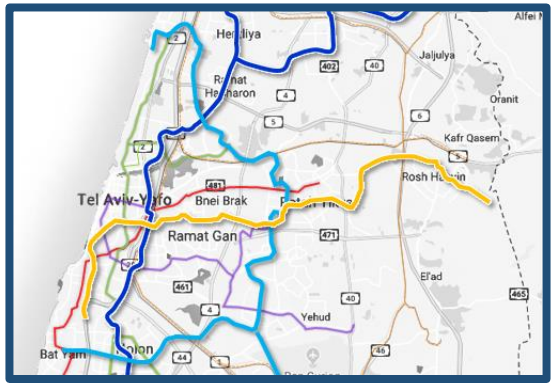
Population-5.8 million



- Doubled its metro system in the past decade from 100 Km to 190 Km with an investment of 25 billion dollars
- Currently Planning 6 additional metro lines

Tel Aviv

Population- 5.4 million (Est. 2040)

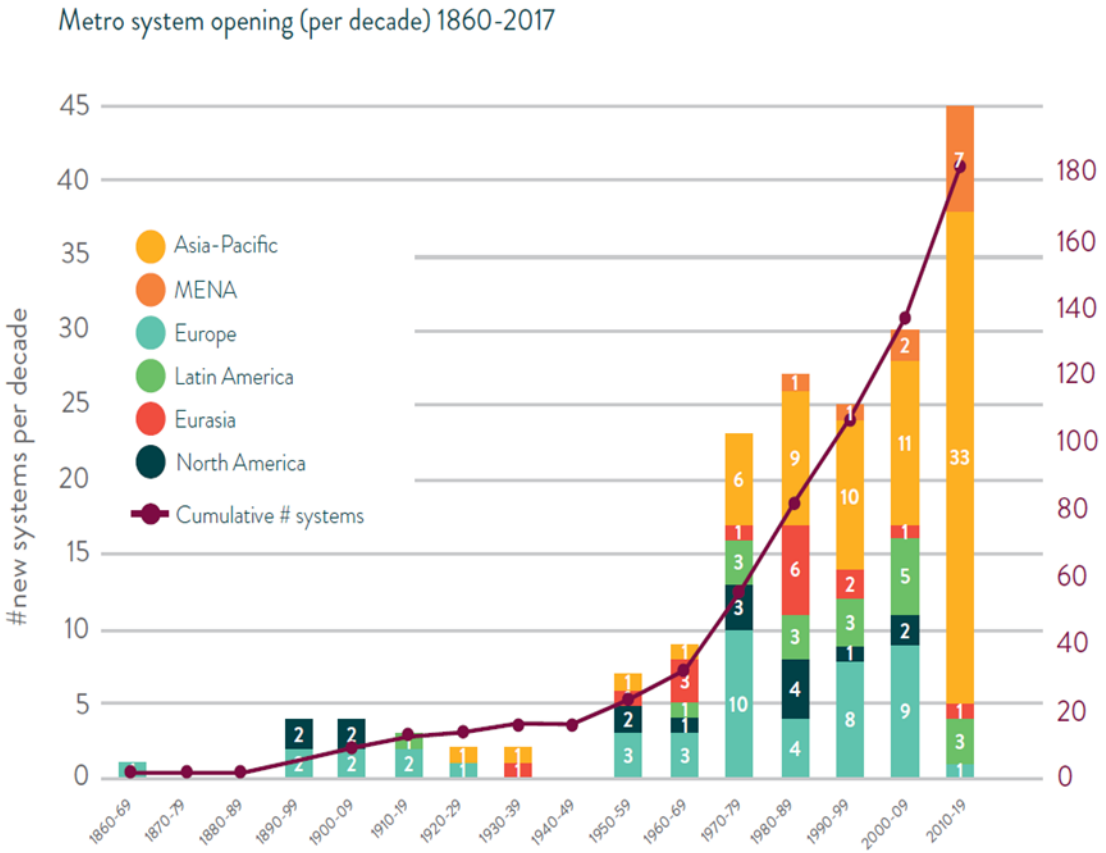


Metro investment: 40 billion dollars for 140 Km of metro lines

Table 1: Tel Aviv in comparison to selected cities in Europe

City	Population (mil.)	No. of metro lines	% travel by PT (of motorized journeys)
London	8.3	11	47%
Madrid	6.5	13	41%
Berlin	3.4	10	46%
Barcelona	3.2	11	50%
Rome	2.9	3	30%
Lisbon	2.8	4	41%
Tel Aviv 2018	4	0	10%
Tel Aviv 2040	5.4	3	40%

Continue development of metro systems



- In Europe, 100 % of European urban areas between 3 and 6 million inhabitants encompass a MRT system ;
- In America, 70 % of American metropolitan areas between 3 and 6 million inhabitants encompass a MRT system
- Only large car designed areas from the United States of America do not have an MRT system.

A suite of tools

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DISCUSSION POINTS

BOT

appropriate path? (expose real costs, encourages innovations, raises public suspensions with regards to tolls policy)

Capacity utilization

when it is good enough?

Profitable?

How much it cost (the info is out there, we don't have it)? How much it should cost?