


SMART MOBILITY PRACTICES IN GREATER JAKARTA

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Taiwan, September 2017

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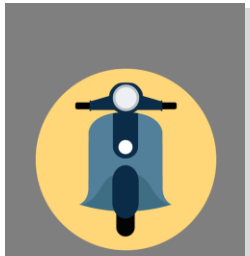
1

Current Transport Status of Greater Jakarta



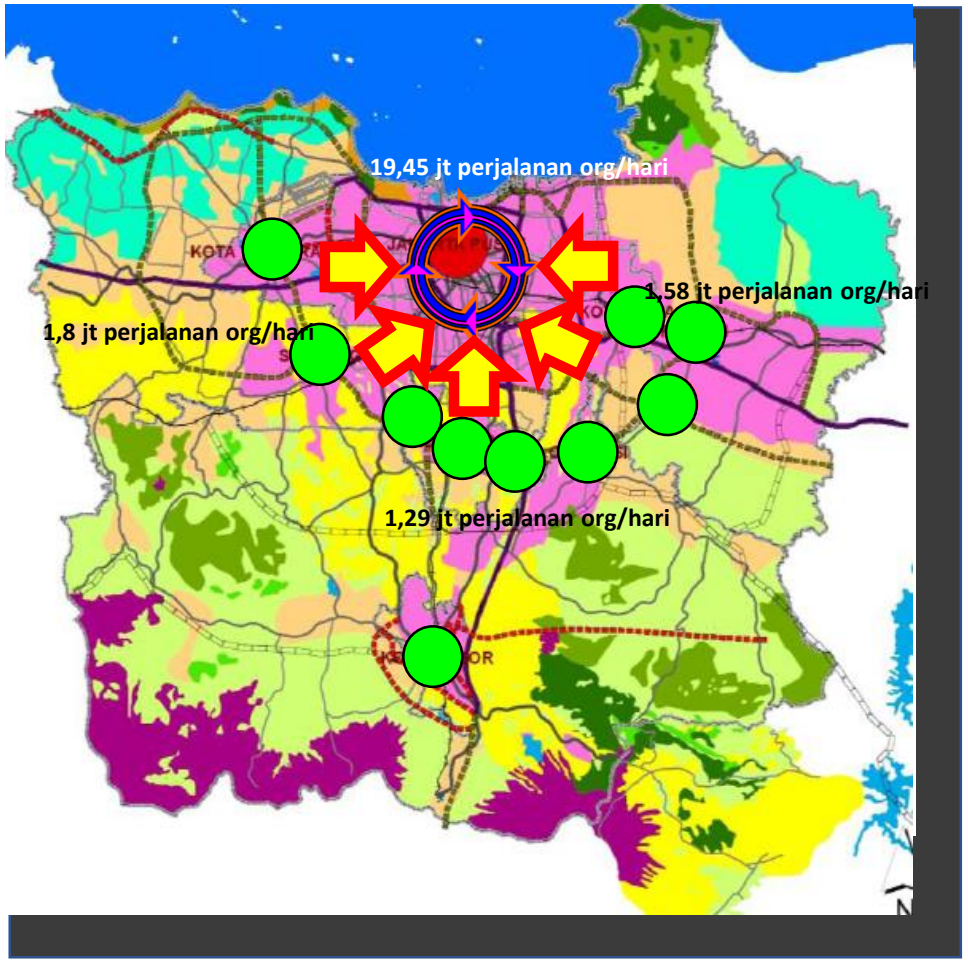
Motorcycle:
18.5 million units (74%)

Private car:
5.9 million units (24%)

Buses :
512 thousand units (2%)

Number of Vehicle : 24.9 million
Number of Population : 31 million

Jakarta has been "crowned" as the city with the worst traffic in the world based on Castrol's Stop - Start Index.

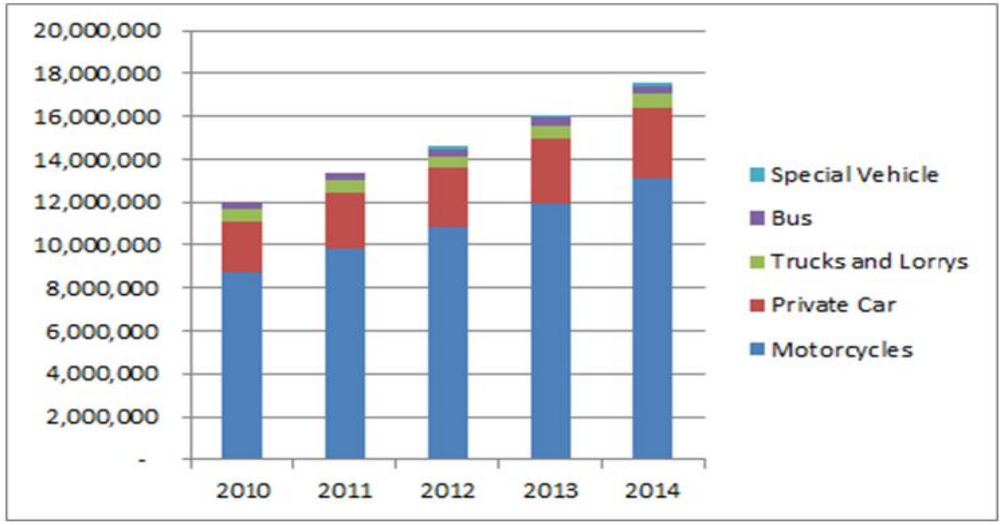


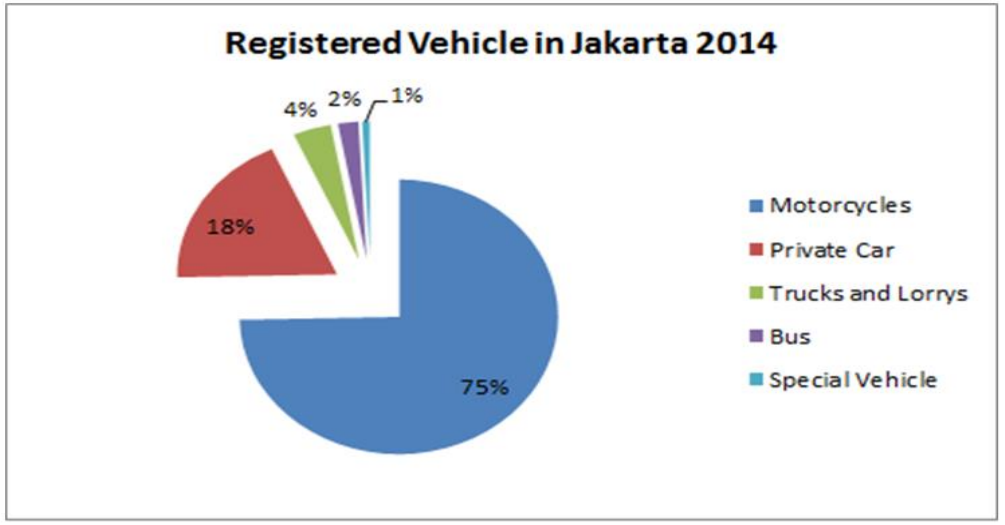
Commuting Trip in Greater Jakarta/ Jabodetabek: 47.5 million/day

Traffic Statistics in Jakarta

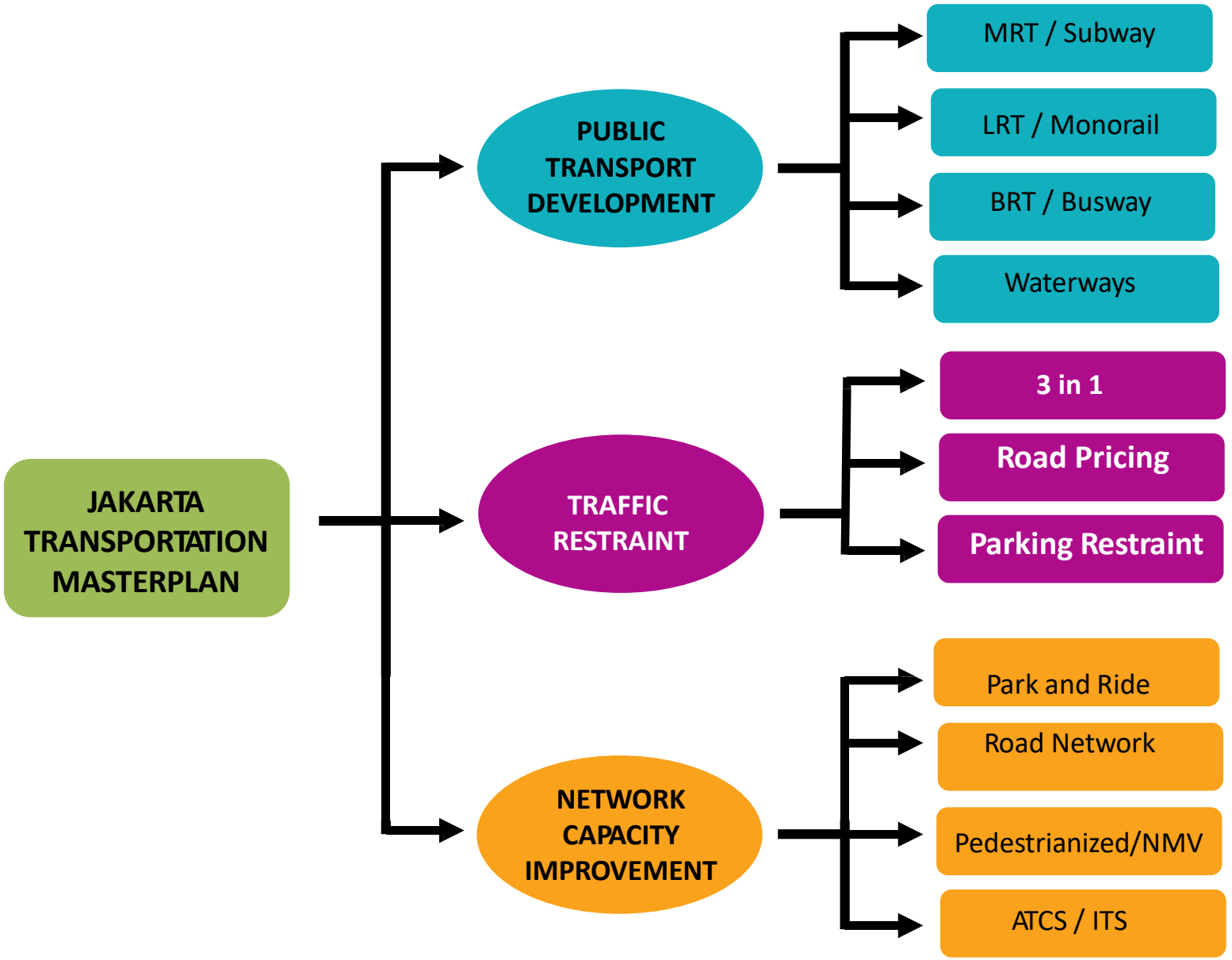
700 cars per day
3100 motorcycles per day
Extremely high growth rate

Vehicle Types	2010	2011	2012	2013	2014	Y-o-Y (%)
Motorcycles	8,764,130	9,861,451	10,825,973	11,949,280	13,084,372	10.54%
Private Car	2,334,883	2,541,351	2,742,414	3,010,403	3,266,009	8.75%
Trucks and Lorrys	565,727	581,290	561,918	619,027	673,661	4.46%
Bus	332,779	363,710	358,895	360,223	362,066	2.13%
Special Vehicle	-	-	129,113	133,936	137,859	-
Total	11,997,519	13,347,802	14,618,313	16,072,869	17,523,967	9.93%

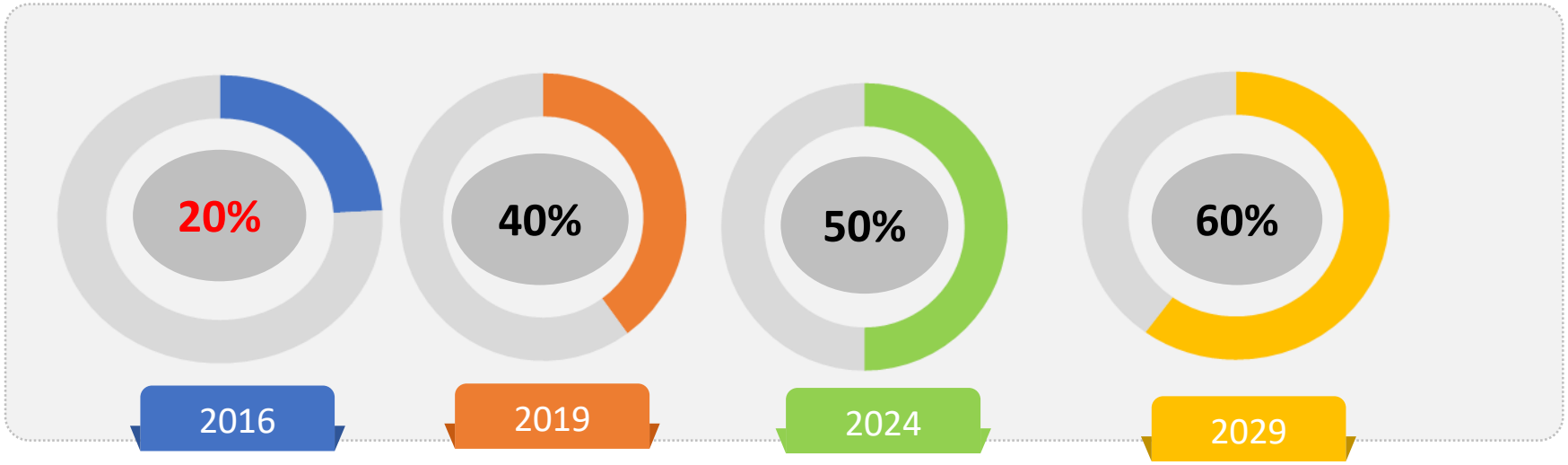


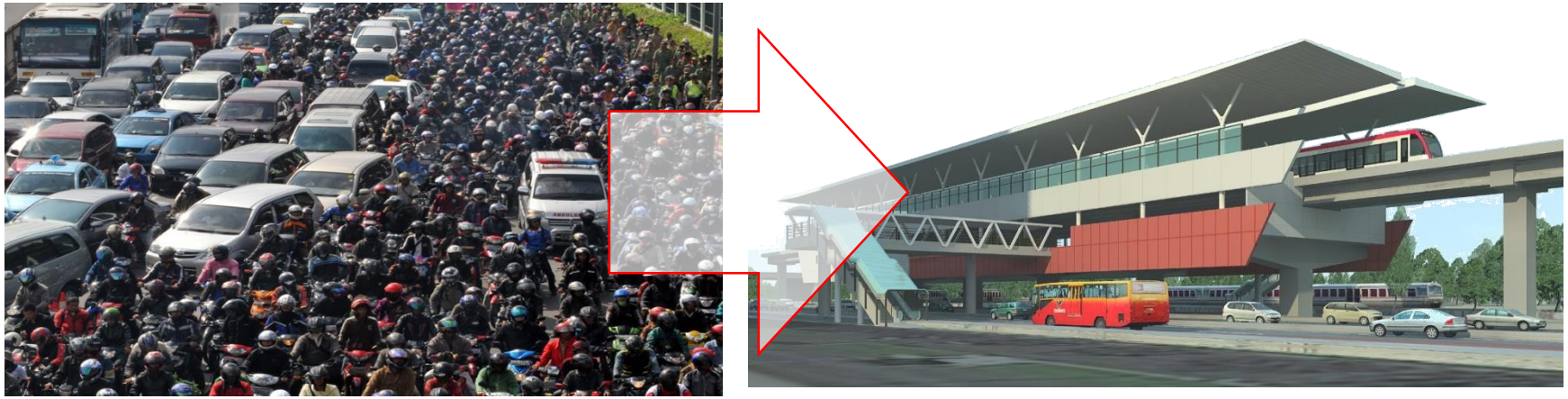


THREE STRATEGIES IN JAKARTA TRANSPORTATION MASTERPLAN (Governor Decree 103/2007)



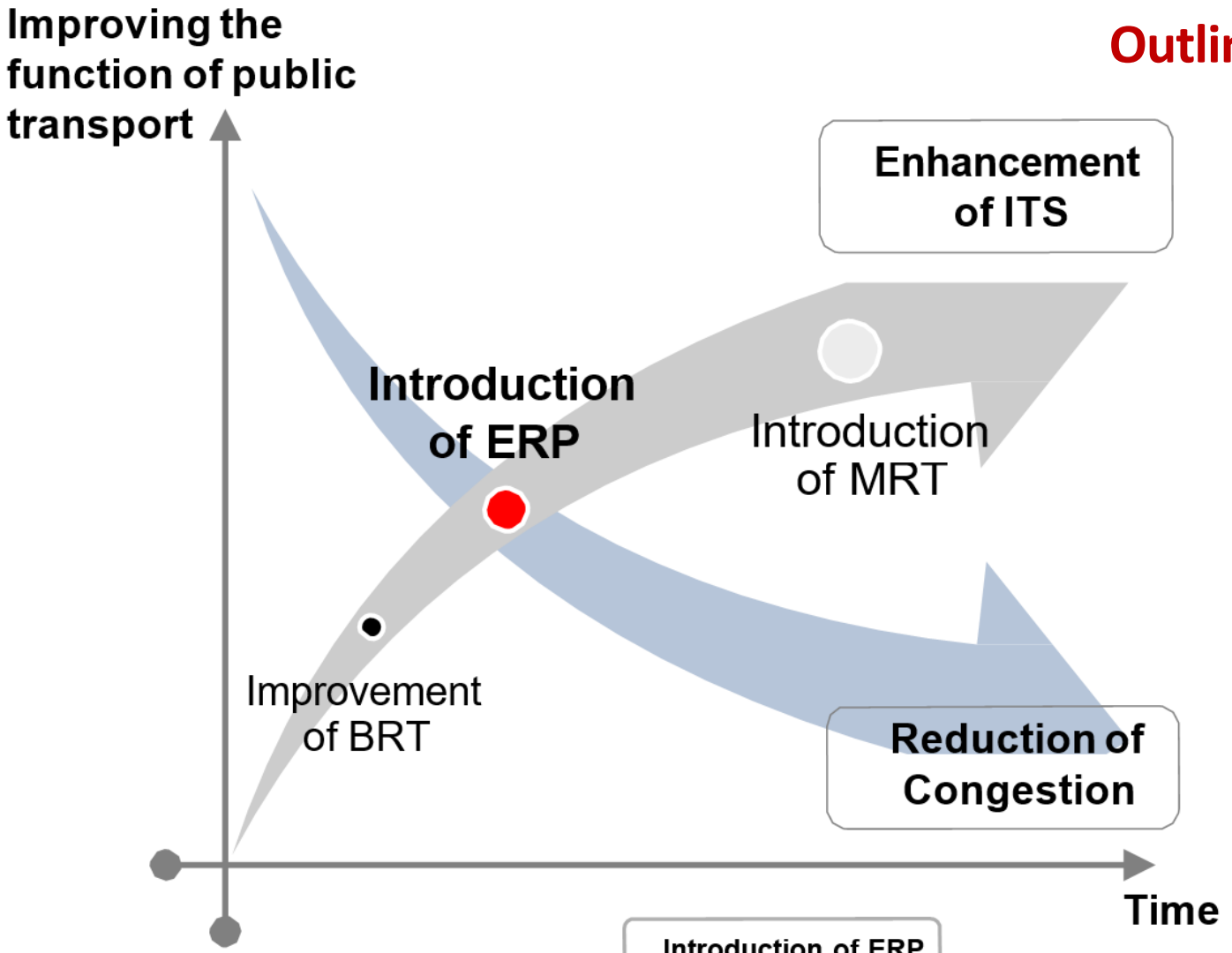
PUBLIC TRANSPORT SHARE





Outline of ITS approach and introduction of ERP

(drawn up by JICA Study Team)



User Service

- Easing traffic congestion in center area
- Reduction of CO2
- Revitalization of local economy
- Improvement in quality of life
- Improvement of convenience of public transport

MRT development is expected to give high impact to traffic improvement, but needs much cost and time.

Introduction of ERP is the most effective measure which realizes the Jakarta's goal of easing traffic congestion

Introduction of ERP

- Integration of road traffic information
- Promotion of traffic demand management
- Improvement of BRT
- Introduction of Transport IC card
- Promotion of traffic education
- Improvement of geometric structure in intersections
- Improvement of signals and controllers

2

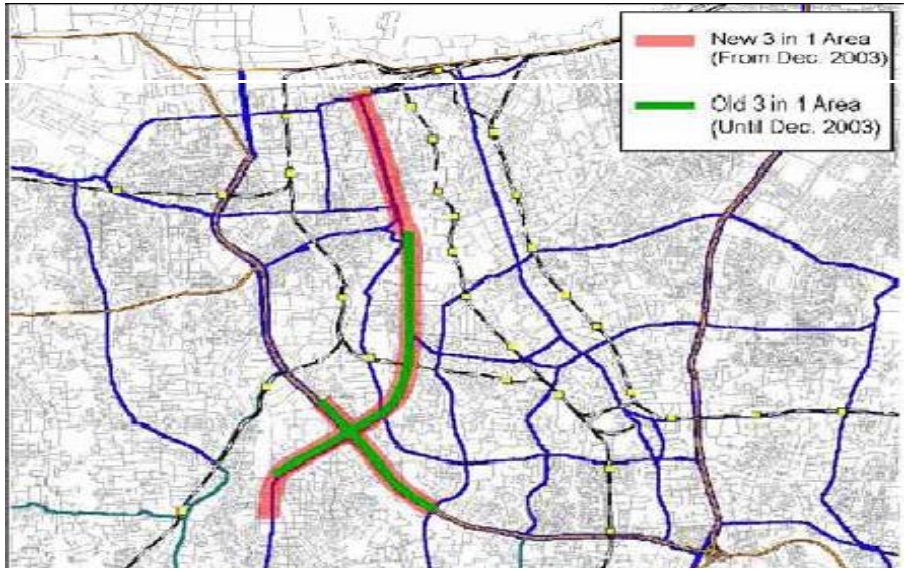
Demand Management
3 in 1, odd and even, ERP

3 in 1 Policy (2003_2016)

Limiting access to a part of the central business district (during peak hours) to car containing more than 3 people (the 3-in-1 policy)

With regards to the implementation of the 3-in-1 policy, young children(Jockey) observed earning cash by accompanying drivers within the zone-who would otherwise be subject to a fine. This anecdotally sugests that enforcement of the 3-in-1 policy has been met with challenges

Existing 3-in-1 Area



Odd and Even license plate Policy (July 2016)

- **Jakarta implemented a 3 -in- 1 Policy (HOV Lane) for 13 years.**
- **Since August 2016, the policy was changed into Odd- Even Plate, as a transition phase before the ERP will be applied.**

This system is valid from Monday to Friday, at 07:00 WIB to 10:00 WIB, and at 16:00 WIB to 20:00 WIB in certain roads.
On odd dates, only vehicles with the last number of odd plates may pass, and vice versa. The last digit 0 (zero) is considered an even number.

THIS POLICY IS NOT APPLICABLE FOR:

- **President RI + escort**
- **Vice President RI + escort**
- **State High Officials (RI plat) + escort**
- **Vehicle Service (Dinas plate)**
- **Firefighters**
- **Ambulance Car**
- **Public Transport Car (yellow plate)**
- **Goods Transportation (with dispensation) Pergub 5148/1999 Determination of prohibition time for freight cars**
- **Bicycle /motorcycle (except for the ban area motorcycle)**

Indicators	During Odd-Even
Travel Time	- 19%
Average Speed	20%
Traffic Volume	-15%
BRT Pax Corr1	32.57%
BRT Pax Corr2	27.17%

THE IMPLEMENTATION OF ‘ERP’

- It is one of the traffic restrictions strategies, which are supposed to replace the 3 in 1 or Odd_Even policy.
- ERP is a 'congestion charging' that is imposed on private vehicles on certain roads and at certain times.
- ERP systems are organized in order to manage traffic needs to improve the efficiency and effectiveness of the use of road spaces and control road traffic.
- The results of acceptance of the implementation of ERP System will be used only for the cost of improving mass-based public transport services and improving the performance of road traffic (earmarking policy).

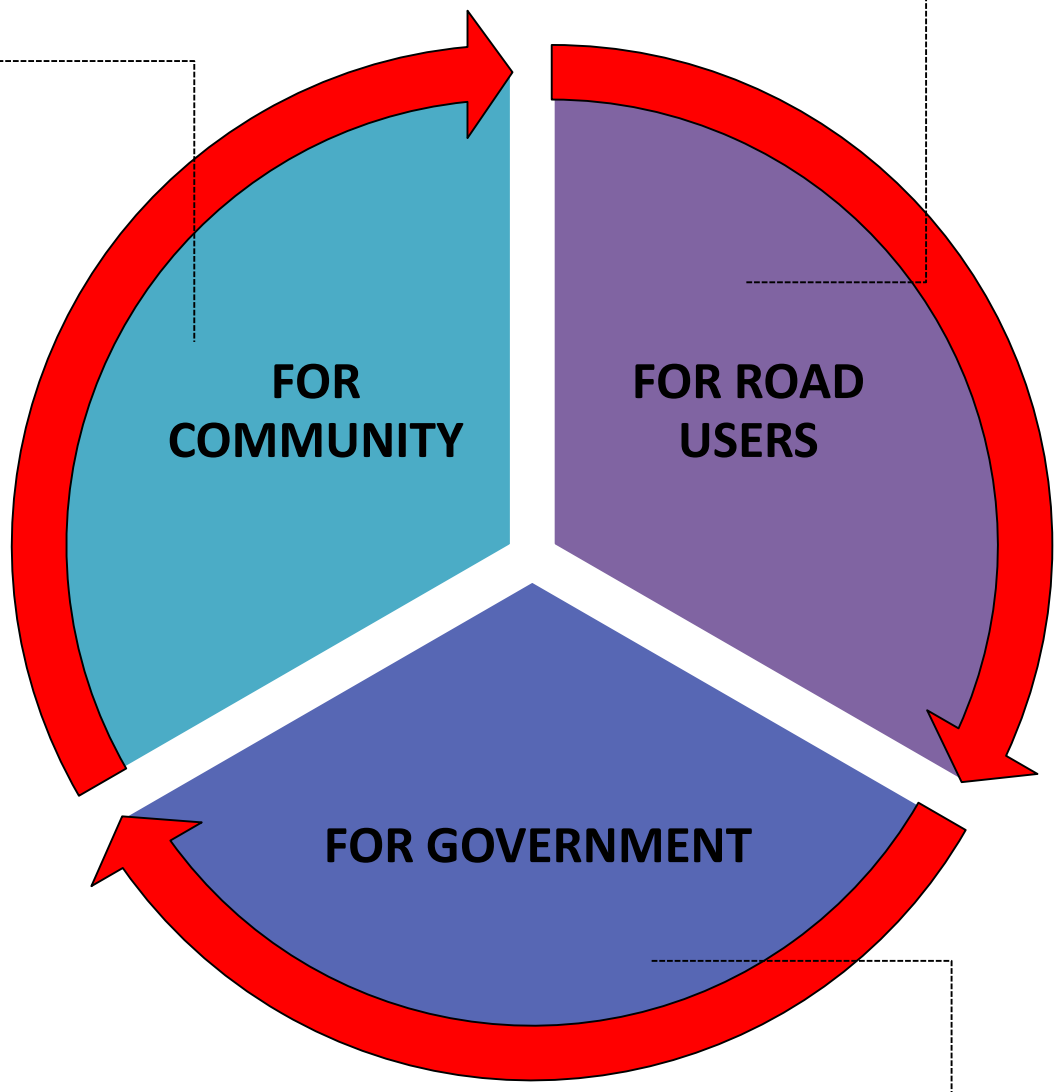
ERP _ BENEFITS

FOR COMMUNITY

a. Reduce Noise generated by vehicles

b. Lowering Air Pollution Derived from Vehicle Smoke

c. Minimization of Economic Losses Due to Traffic Congestion



FOR ROAD USERS

a. Drive Comfort

b. Travel Becomes More Timely

c. Reduce Congestion

FOR GOVERNMENT

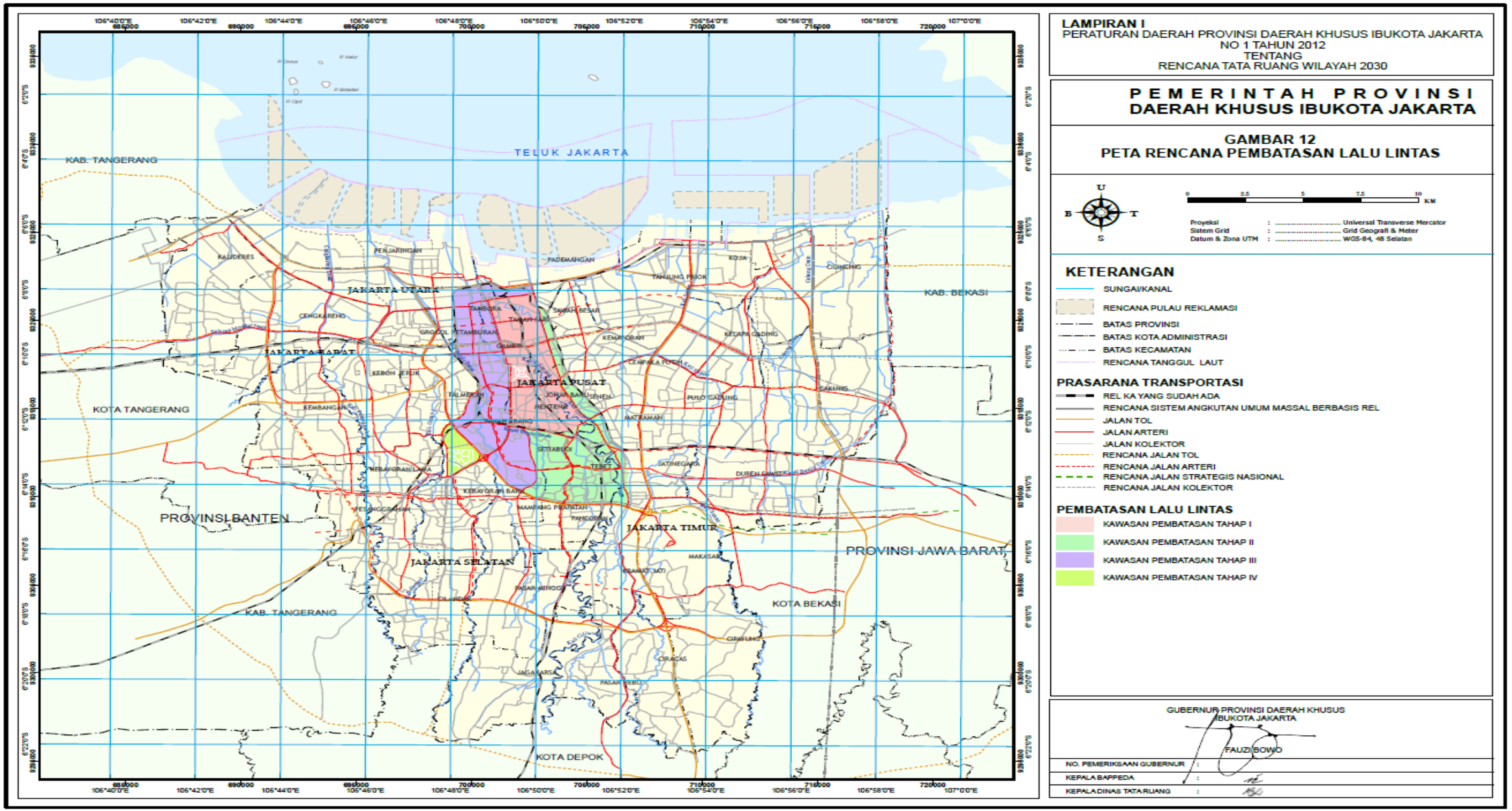
a. Ease of Shifting Mode to Public Transportation

b. Easing Traffic Restraint Implementation

c. Transition of Personal Vehicle Mode to Public Transport

d. Improving Effectiveness and Efficiency of Demand Management

Map of the Traffic Restriction Plan (Perda 1 thn 2012)



IMPLEMENTATION PART 1

1. **Koridor Blok M – Kota (Panjang ± 12,7 km) jalan yang dilalui : Jalan Sisingamangaraja – Jalan Sudirman – Jalan MH. Thamrin – Jalan Medan Merdeka Barat – Jalan Majapahit – Jalan Gajah Mada/Jalan Hayam Wuruk.**

1. **Koridor Kuningan – Cokroaminoto (Panjang ± 4,3 km) jalan yang dilalui : Jalan Rasuna Said.**

IMPLEMENTATION PART 2

1. **Mampang – Ragunan** (Panjang ± 9 km)**.**
2. **Pinang Ranti – Pluit** (Panjang ± 28,8 km)**.**
3. **Ciledug – Tendean** (Panjang ± 9,3 km).

Technology Selection Concepts For ERP

The concept of Technology Selection is based on traffic characteristics in Jakarta, where:

1. The level of public compliance with traffic regulations is still low.
2. Existing vehicle number plate system is not uniform.
3. The condition of roads in Jakarta that many access (open space / urban environment).
4. Development of ERP System should be done in stages, will be implemented on roads that have mass public transport.

Condition Requirement of ERP Implementation :

1. At least, the road consist of two sides and each side consist of two lanes.
2. Having mass public transportation system network which has complied Minimum Service Standard (Ministry Regulation).
3. Minimum VCR = 0.9 at peak hour.
4. Average speed ± 10 km/hour (at peak hour).

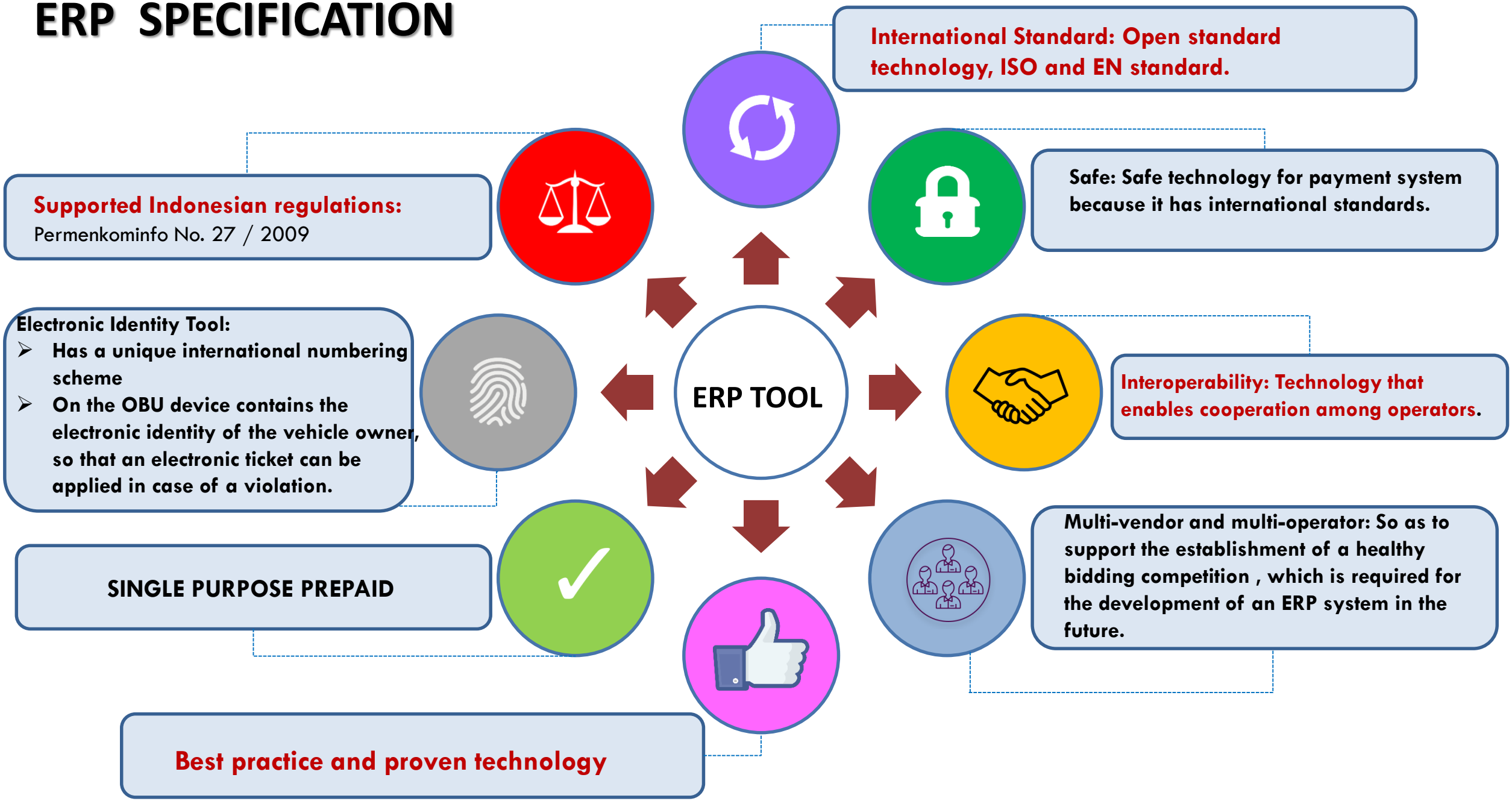
Provincial Government of DKI Jakarta as the user, must choose technology that has been proven and is the best practice implementation of ERP in the world.

Technology Specification of ERP System Implementation in Jakarta

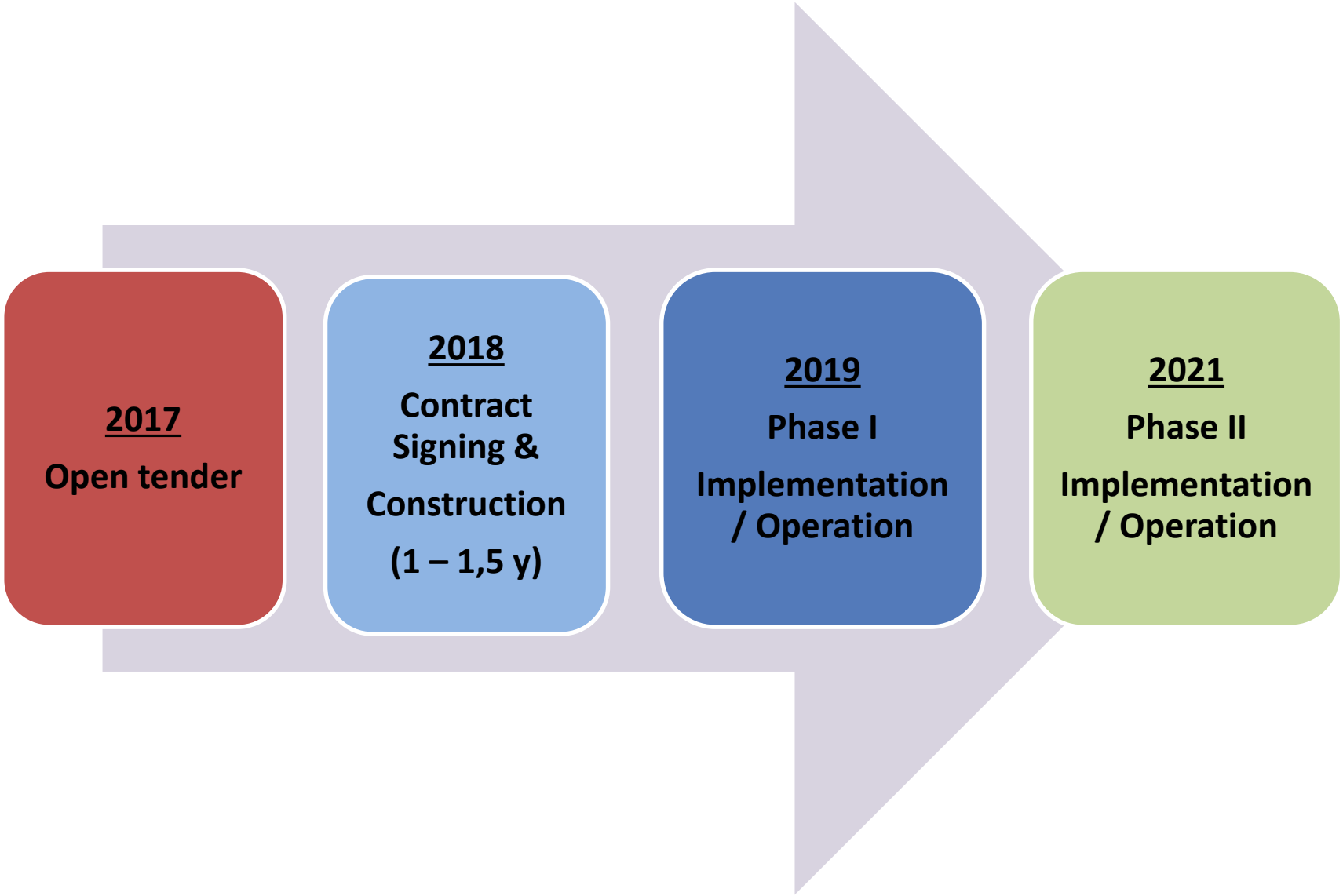
SPECIFICATION

- ✓ **Multi lane free flow (MLFF), which the technology that can detect multi lane vehicle doesn't need to stop for payment.**
- ✓ **Using a camera that can detect / recognize vehicle license plates and auto classify vehicle types.**
- ✓ **Using single piece OBU system which is OBU as the electronic identity for payment media connected to account at central system.**
- ✓ **Using technology of tariff collection based on time / corridor / segment in Electronic Paid Traffic Control Area.**
- ✓ **The Electronic Money Instrument to be used in the application of the ERP System is Server Base.**
- ✓ **The method of using electronic money in the application of ERP System for the initial stage is 'Single Purpose Prepaid'.**

ERP SPECIFICATION



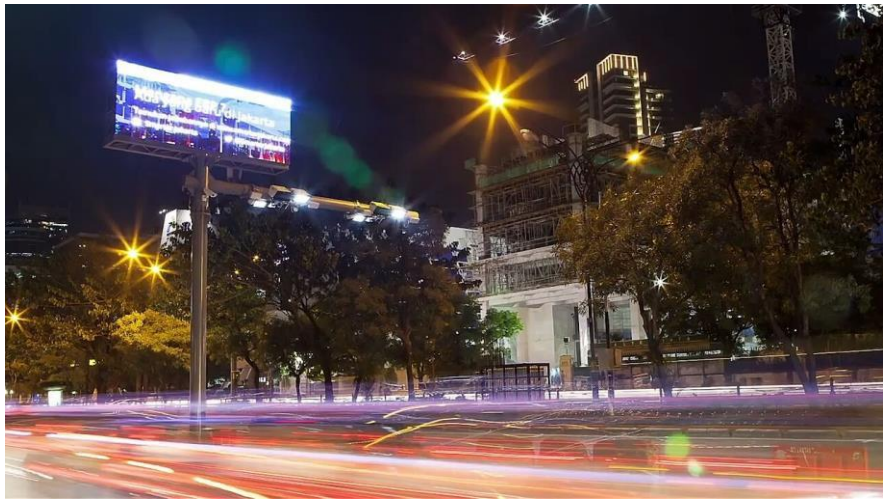
TIME LINE


2017
Open tender
2018
Contract Signing &
Construction
(1 – 1,5 y)
2019
Phase I
Implementation / Operation
2021
Phase II
Implementation / Operation

JAKARTA ERP TRIAL

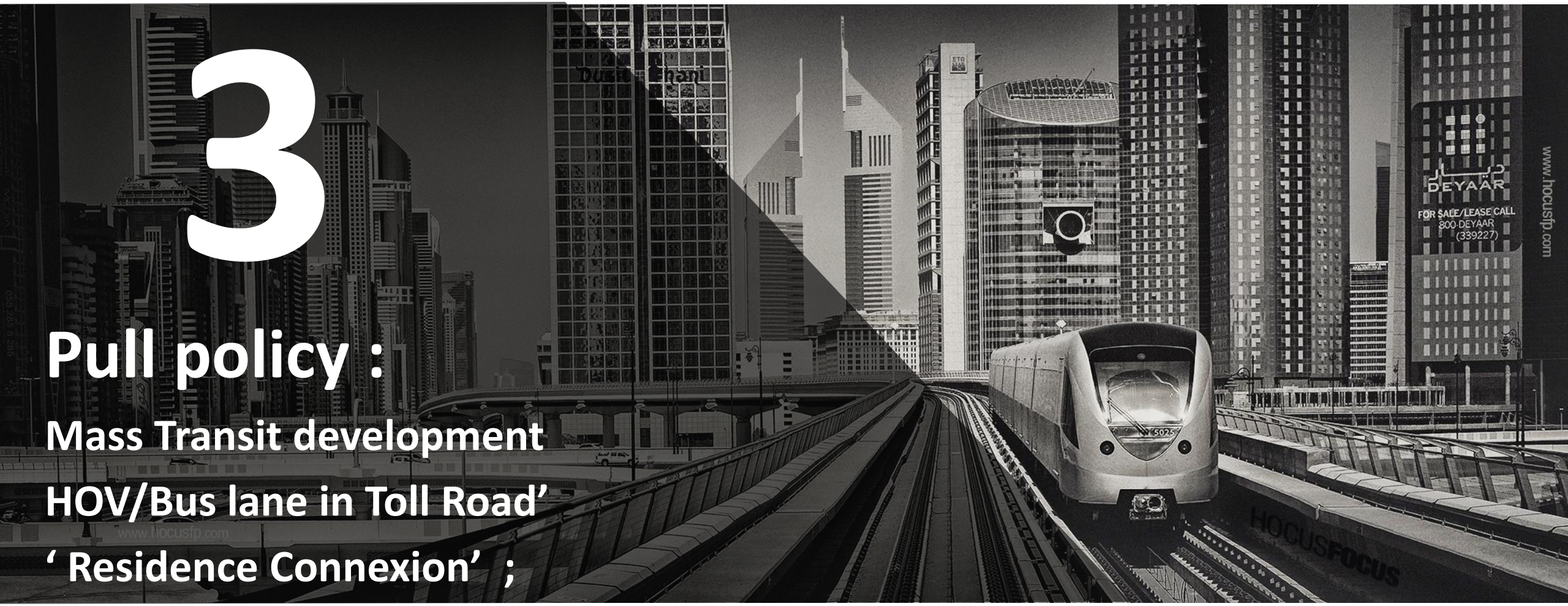
Corridor Blok M – Kota

Corridor Kuningan – Cokroaminoto



Prediction of modal shift from car to public transport by ERP

Item	BRT Corridor1	BRT Corridor6	Source
Shifting factor (Shifting from motor vehicles)	20%	20%	**Impact Survey (JICA ERP Study Team)**
Current traffic volume	1,799 vehicle/hour	1,249 vehicle/hour	**Traffic volume Survey (JICA ERP Study Team)**
Shifted traffic volume (Additional BRT passengers)	**741 person/hour**	**602 person/hour**	***2.06,**2.41person/vehicle (JICA ERP Study Team)**



3

Pull policy :

Mass Transit development

HOV/Bus lane in Toll Road’

‘ Residence Connexion’ ;

MASS PUBLIC TRANSPORT DEVELOPMENT

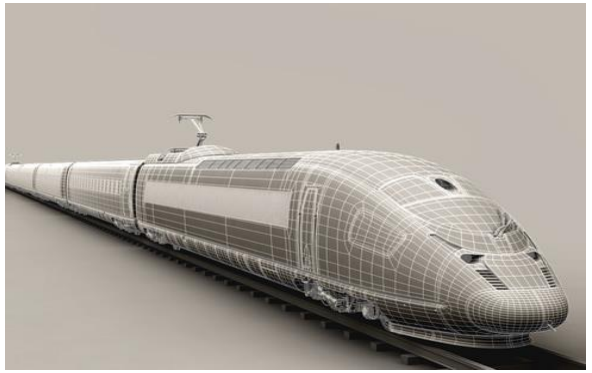
BRT/BUSWAY

- 13 CORRIDOR OPERATED
- CORRIDOR 13 (ELEVATED)
- JR /RESIDENCE CONNEXION
- JA/AIRPORT CONNEXION
- HOV/BUS LANE IN TOLL ROAD (BOS and Contra Flow)

MRT/SUBWAY/ COMMUTER LINE

- NORTH_SOUTH CORRIDOR
- EAST_WEST CORRIDOR
- AIRPORT RAIL
- HIGH SPEED TRAIN
- DDT (DOUBLE-DOUBLE TRACK)

LRT / MONORAIL



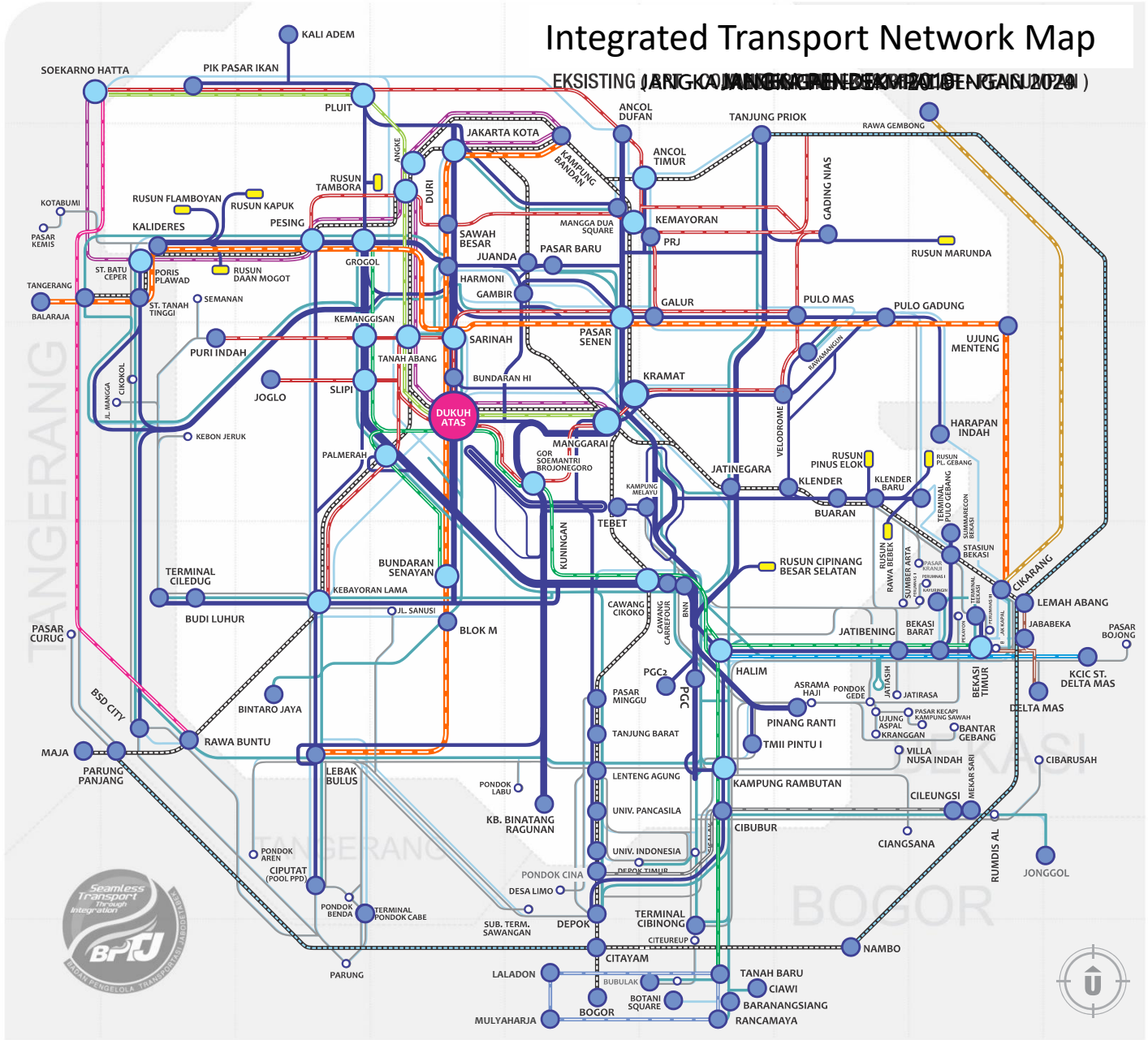
- 7 LINES LRT DKI JAKARTA, PRIORITY CORRIDOR DEVELOPMENT
- DEVELOPMENT OF LRT JABODEBEK CENTRAL GOVERNMENT

ELEVATED BRT TRANSJAKARTA

Corridor 13 has just been unveiled:

- **Corridor Length: ± 9.3 Km**
- **Route: Ciledug - Tendean**
- **Number of Stops: 12 Bus Stops**
- **Operated: 2017**

MASS TRANSIT INTEGRATION IN GREATER JAKARTA UP TO 2029



BADAN PENGELOLA TRANSPORTASI JABODETABEK

LEGENDA

RUTE

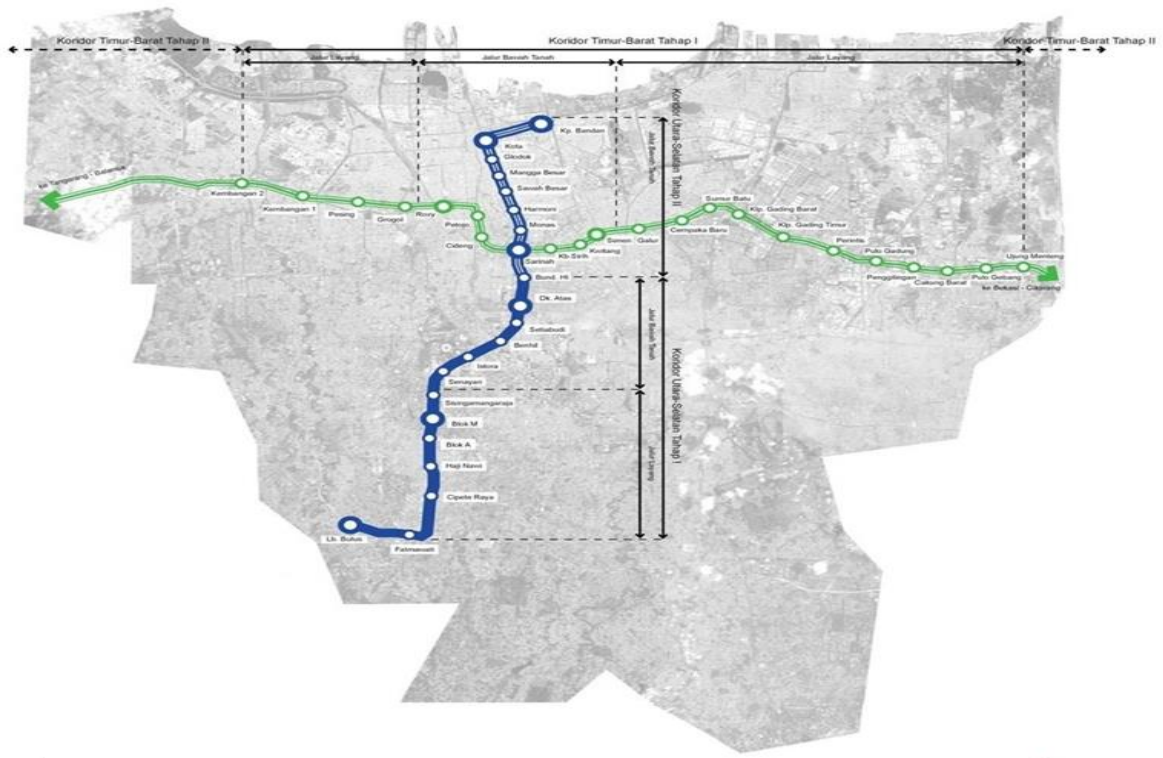
- TRANSJAKARTA
- KOMUTER JABODETABEK
- ANGKUTAN SUNGAI JABODETABEK
- PENGUMPAN PERBATASAN
- LRT - DKI JAKARTA
- LRT - KEMENHUB
- MRT
- KA BANDARA EKSPRES
- KCIC
- LRT - JABABEKA
- TREM POCIN - MEKAR SARI
- LRT INNER LOOPLINE BOGOR
- LRT - RAWA BUNTU - SOETTA
- KOMUTER LINGKAR LUAR
- ANGKUTAN SUNGAI CBL
- BATAS WILAYAH DKI JAKARTA

- SIMPUL KECIL (83)
- SIMPUL SEDANG (25)
- SIMPUL BESAR (1)
- PENGUMPAN RUSUN (9)
- PENGUMPAN PERBATASAN (40)

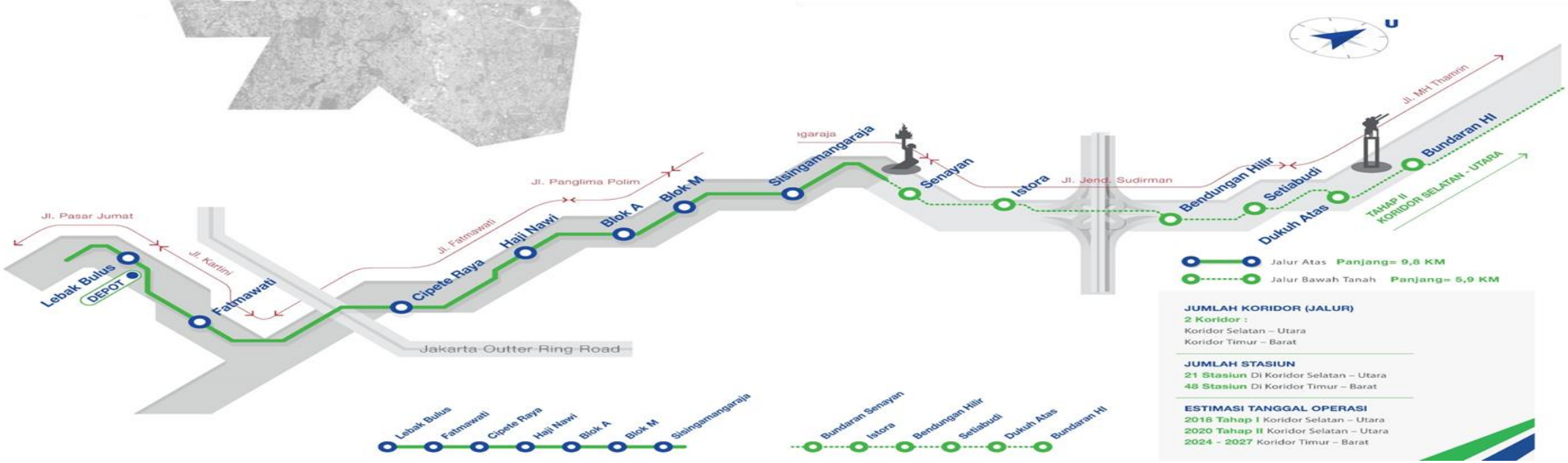
SUPPORTED BY :

JICA

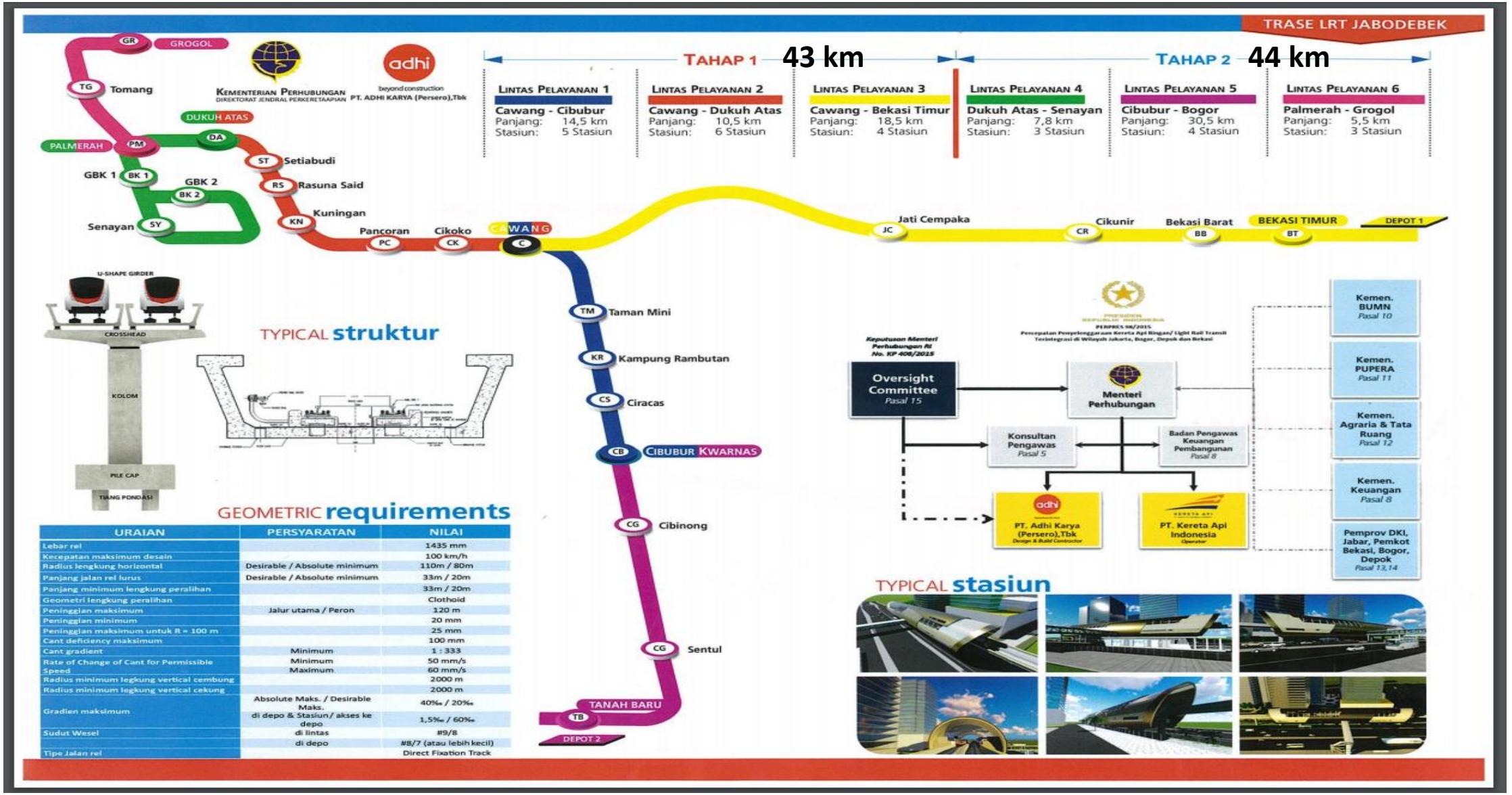
MRT / SUBWAY



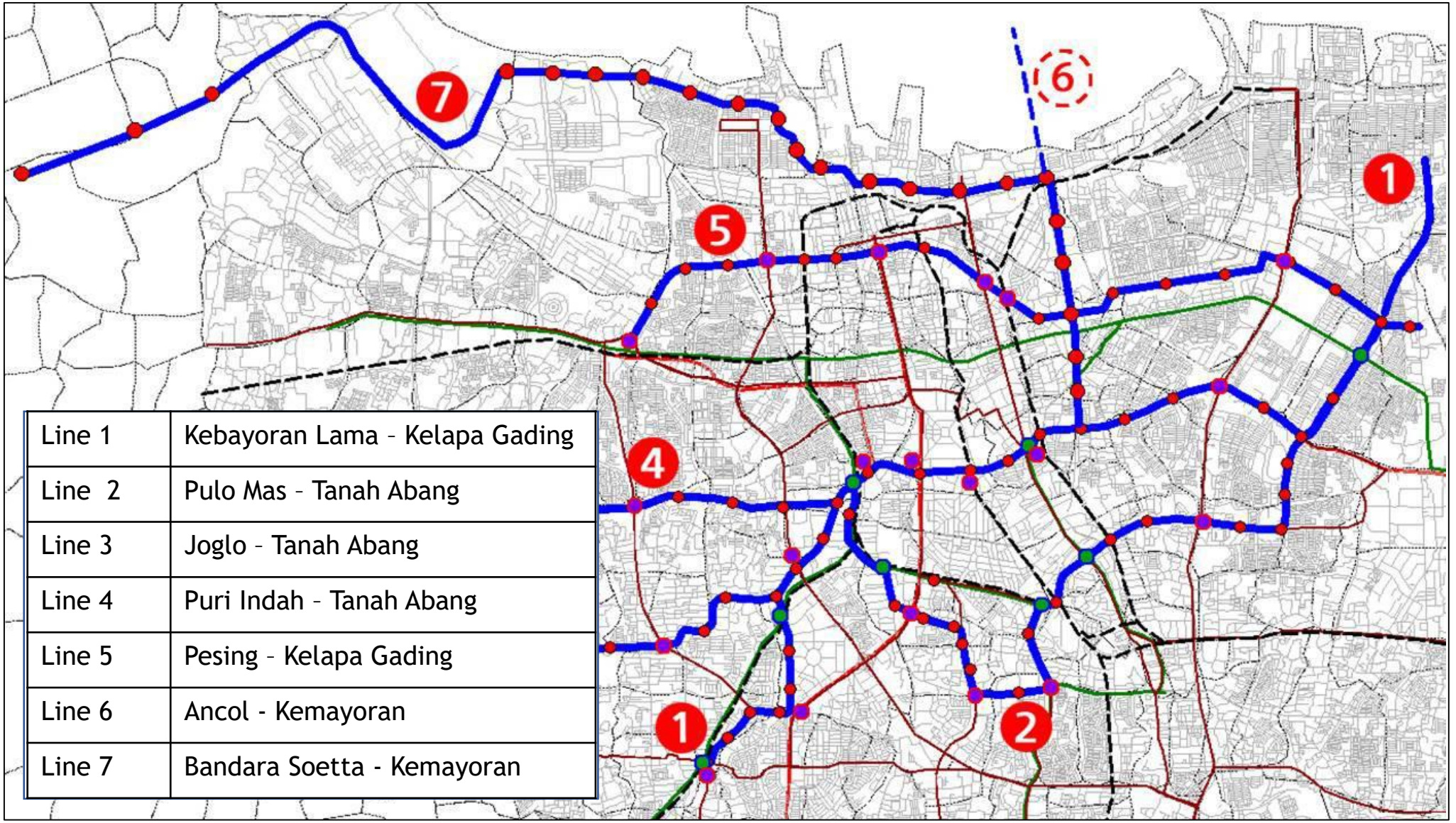
Number of Corridors (Lane)	2 Corridors South – North Corridor East – West Corridor
Number of Stations	21 Stations South – North Corridor 48 Stations East – West Corridor
Length of Lane	25 Km South – North Corridor 87 Km East – West Corridor
Estimated time of Operation	2018 Phase I South – North Corridor 2020 Phase II South – North Corridor 2024-2027 East – West Corridor



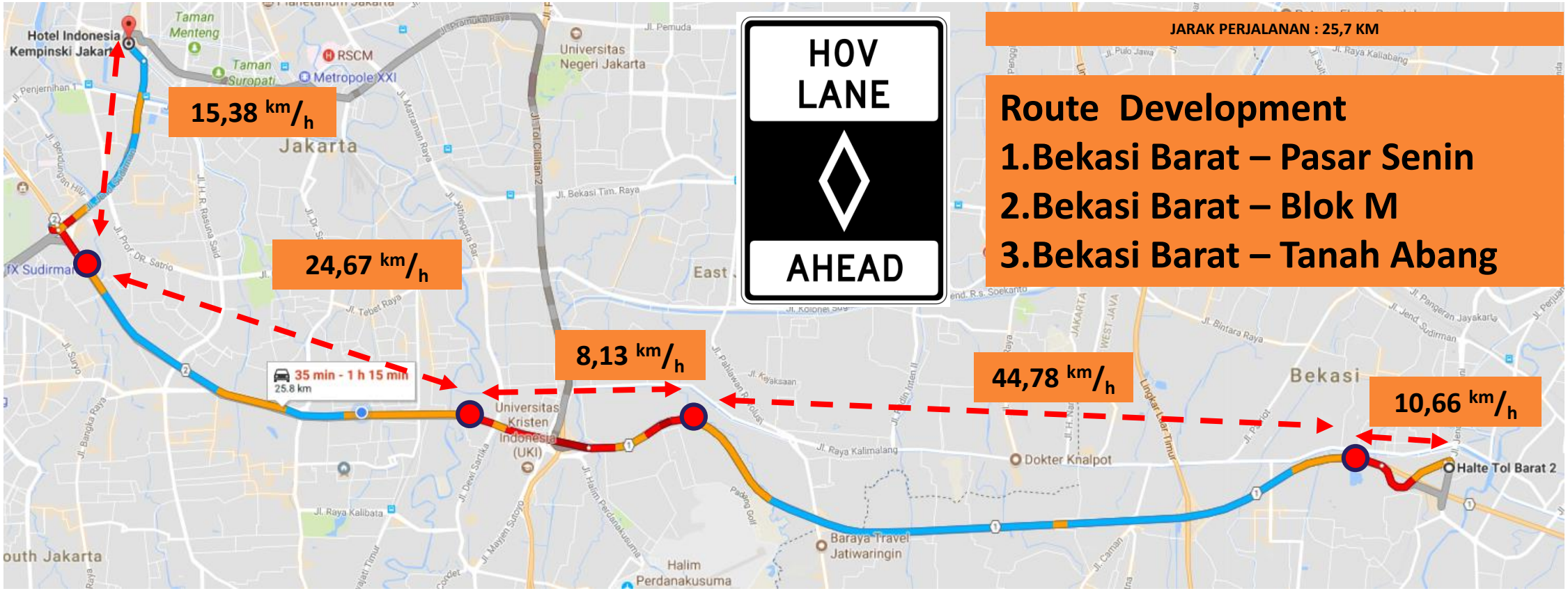
JABODEBEK/GREATER JAKARTA LRT LINE



7 LINES LRT NETWORK IN JAKARTA



Line 1	Kebayoran Lama – Kelapa Gading
Line 2	Pulo Mas – Tanah Abang
Line 3	Joglo – Tanah Abang
Line 4	Puri Indah – Tanah Abang
Line 5	Pesing – Kelapa Gading
Line 6	Ancol - Kemayoran
Line 7	Bandara Soetta - Kemayoran



JARAK PERJALANAN : 25,7 KM

Route Development

1. Bekasi Barat – Pasar Senin
2. Bekasi Barat – Blok M
3. Bekasi Barat – Tanah Abang

TRY OUT

Travel Time 4 August 2017
Departure 0600 Arrival 07.15 (1 hour 15 minutes)
Speed 20,6 Km/h

Time saved : 30 minutes

HOV alternatives Line

1. Bus On Shoulder (2 weeks Trial; 27 July _ 11 August 2017)
2. The very Right lane
3. Contraflow

4

Concluding Remarks

ERP and Mass Transit Evaluation (MARS model)

Mode use in absolute number of trips (in millions per day)

	do-nothing		do-infra	
Daily trips	2030	%	2030	%
Pedestrian	25.6	20%	23.1	19%
Bus	13.4	10%	11.8	9%
Rail	1.5	1%	**8.0**	6%
MRT	0.0	0%	**0.8**	1%
Car	21.8	17%	19.1	15%
Motorcycle	66.1	52%	61.2	49%
total	128.3	100%	124.0	100%

Delhi metro carried 2.59M passengers per day in 2015/6. Their network length is 212km

Concluding remarks

1. Towards Smart Mobility in Greater Jakarta, Transport Demand Management Policies conducted by restraint the private Car Vehicles movement by Electronic Road Pricing/ERP.

2. Private Car Restraint Policy, such as ‘3 in 1 ‘ and ‘ Odd_Even’ policies has been trying; however without Technology Deployment it cannot reach an effective results.

3. Combination of policies ; Car Restraint and Mass Public Transport Development are essential to move towards sustainable urban transportation system