

# ELEVATED Solving the Traffic Problem in Jakarta STRUCTURE City

The 5<sup>th</sup> REAAA Business Forum  
Manila, 21<sup>st</sup> July 2017

## Speaker Profile



Mr. Destiawan

Chairman of International Market IRDA

Soewardjono

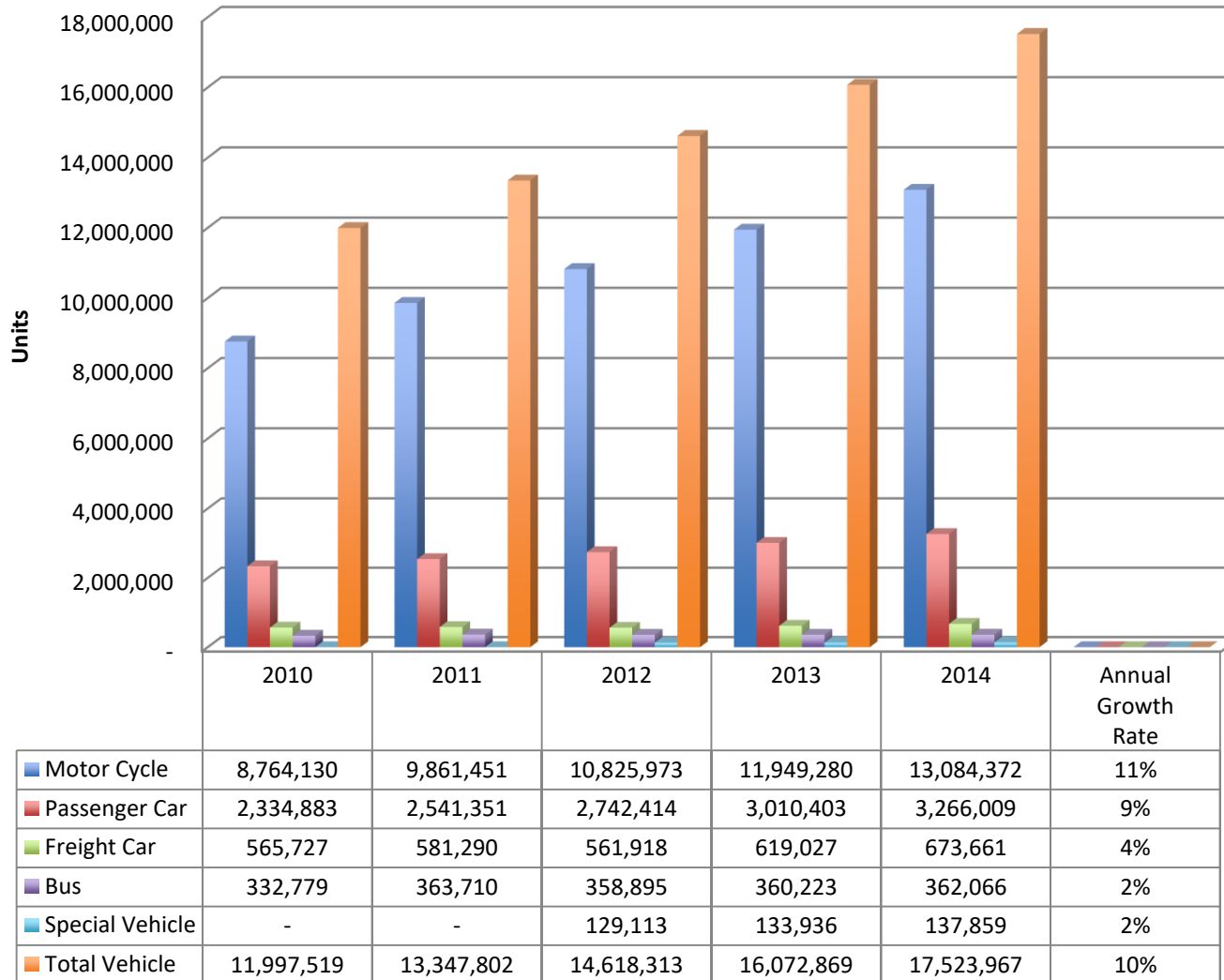
- ✔ Joined REAAA as an ordinary member on January 2011
- ✔ Elected as Head of OC on April 2014 in the REAAA and PIARC event on Bali
- ✔ Elected as Chairman of 4<sup>th</sup> REAAA Business Forum on March 2017
- ✔ Elected as Co Opted Council Member, in the 106<sup>th</sup> REAAA Council Meeting 23<sup>rd</sup> March 2017 in Bali, Indonesia

The population of Jakarta doubled from 4.5 million in 1970 to more than 10 million in 2016 and it is expected to grow around 34% (almost 14 million) in 2030

*Source: World Population Review, 2017*

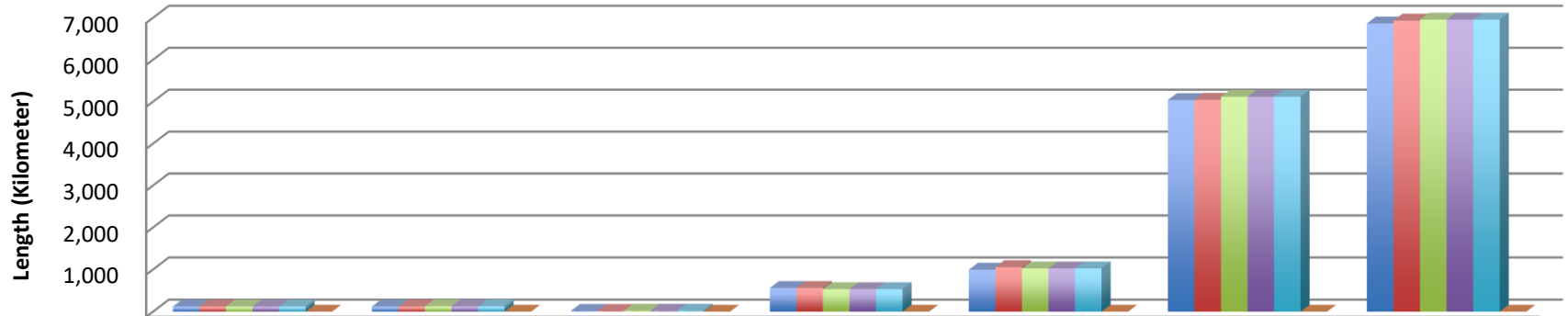


# Total Number of Vehicles in Jakarta



Source : The DKI Jakarta Central Bureau of Statistics, 2015

# Total Length of Road in Jakarta



	Toll Road	Primary Arterial Road (km)	Collector Arterial Road (km)	Secondary Arterial Road (km)	Secondary Collector Road (km)	City Administration Road (km)	Total Length (km)
2010	123	124	19	563	997	5,039	6,866
2011	123	124	19	563	1,058	5,045	6,932
2012	124	129	24	535	1,027	5,117	6,956
2013	124	129	24	535	1,027	5,117	6,956
2014	124	129	24	535	1,027	5,117	6,956
Annual Growth Rate	0.05%	1%	6%	-1%	1%	0.4%	0.3%

Source : The DKI Jakarta Central Bureau of Statistics, 2015





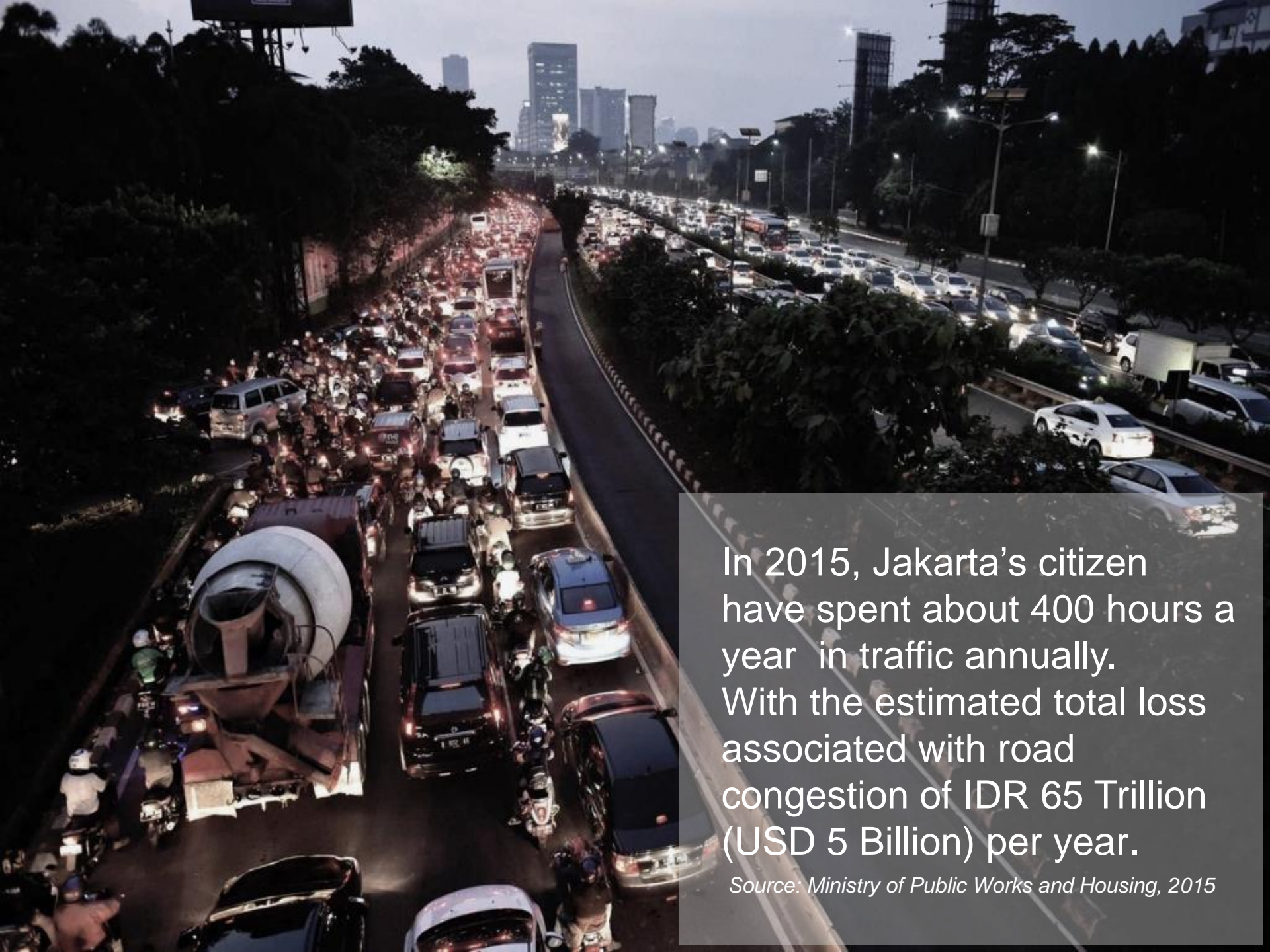
In 2014, The total vehicle in Jakarta approximately reached 2.077 vehicle per Km.  
*Source: Ministry of Public Works and Housing, 2014*

Thus, Jakarta ideally needed more than 8.437 km of roads to place the entire vehicles on the roads, which the existing road was only 6.995 km.



In 2017, Jakarta's traffic has been ranked as the third-worst in the world after Bangkok and Mexico City

Source: *Business Insider*, 2017



In 2015, Jakarta's citizen have spent about 400 hours a year in traffic annually. With the estimated total loss associated with road congestion of IDR 65 Trillion (USD 5 Billion) per year.

*Source: Ministry of Public Works and Housing, 2015*



# CHALLENGES

The Main problems found in construction projects in big cities are:

- ✓ Limited space
- ✓ Land Acquisition
- ✓ Existing road with heavy traffic activities

Yet the project required to be delivered in **LIMITED TIME** and meet **HIGH QUALITY** standard



# OPPORTUNI

There are some ways to solve the congestion in Jakarta :

✓ MRT/LRT Development

✓ Elevated Road/Toll Road Development

✓ The arrangement of vehicle ownership Policy

✓ Navigation System Development (waze, google map, etc)

✓ Intelligent Transport System Development (ERP, Traffic Management Center, etc )

The development has been commencing and still need more potential investors in order to expedite the evolution as planned by government.





Therefore elevated structure method is highly suitable to be implemented in large cities with a confined environment.

# Why Elevated Structure?

## Advantage

- ✓ **S** Reduction in construction time
- ✓ Minimum construction impact on the existing ground level traffic
- ✓ Superior quality control due to using concrete precast
- ✓ Increased safety

## Challenges

- Time management
- Traffic management to minimize disturbance
- Advanced technology used



**Nowadays, most of construction projects in Indonesia's big cities are using elevated structure to accommodate citizen's transportation needs**



# Semanggi Interchange

Built in the center of Jakarta with total length of 1,6 Km. Construction was started in April 2016 and expected to begin operation by August 2017.



# Facts about Semanggi Interchange



- Shaped like a circle, Semanggi Interchange actually consists of two disconnected road

- There are two ramps,
  - ✓ Ramp 1 (796 meters) – connecting Grogol – Blok M
  - ✓ Ramp 2 (826 m) - connecting Cawang to MH Thamrin.

- The project apply segmental box girder precast.

- Two overpasses forming the circle arranged of 333 segmental box girder

- Due to the geometric path that has vertical and horizontal curvature, it requires a very high level of precision on construction



# Tendean – Ciledug Non Toll Road Overpass

Built to create access for Bus Rapid Transit (BRT) or Trans Jakarta for Ciledug – Blok M – Tendean route. With total length of 9.3 Km, this road expected to begin operation by August 2017





## MRT Bundaran HI – Lebak Bulus

The First MRT in Indonesia with total length of 16 Km. Part of the line is constructed with elevated structure which extends  $\pm$  10 Km. Construction started in 2013 and expected to begin operation by 2019





Jakarta Mass Rapid Transit (MRT), which extend from Lebak Bulus to Sisingamangaraja, will be equipped with 7 elevated structure train station. Whereas, the train depot will be built on the ground.

Flyover structure:

- Bottom : Single Pier
- Top : Box Girder



Girder elevation from road surface is 5 meters, which comply with the minimum requirements of vertical clearance according to public roads regulation



## Light Rapid Transit Cibubur - Cawang

The first construction in Indonesia which using the U-Shape Girder Structure.

Benefits:

- ✓ Acceleration of construction work
- ✓ More suitable with architecture in an urban setting such as in Jakarta due to its straight and thin form.

Indonesia's infrastructure development is the biggest in South East Asia which spent around **USD 3.3 Trillion or 50% of total its infrastructure market**

*Source: Indonesian Chambers of Commerce and Industry, 2016*



# Upcoming Projects : Cikampek Elevated II

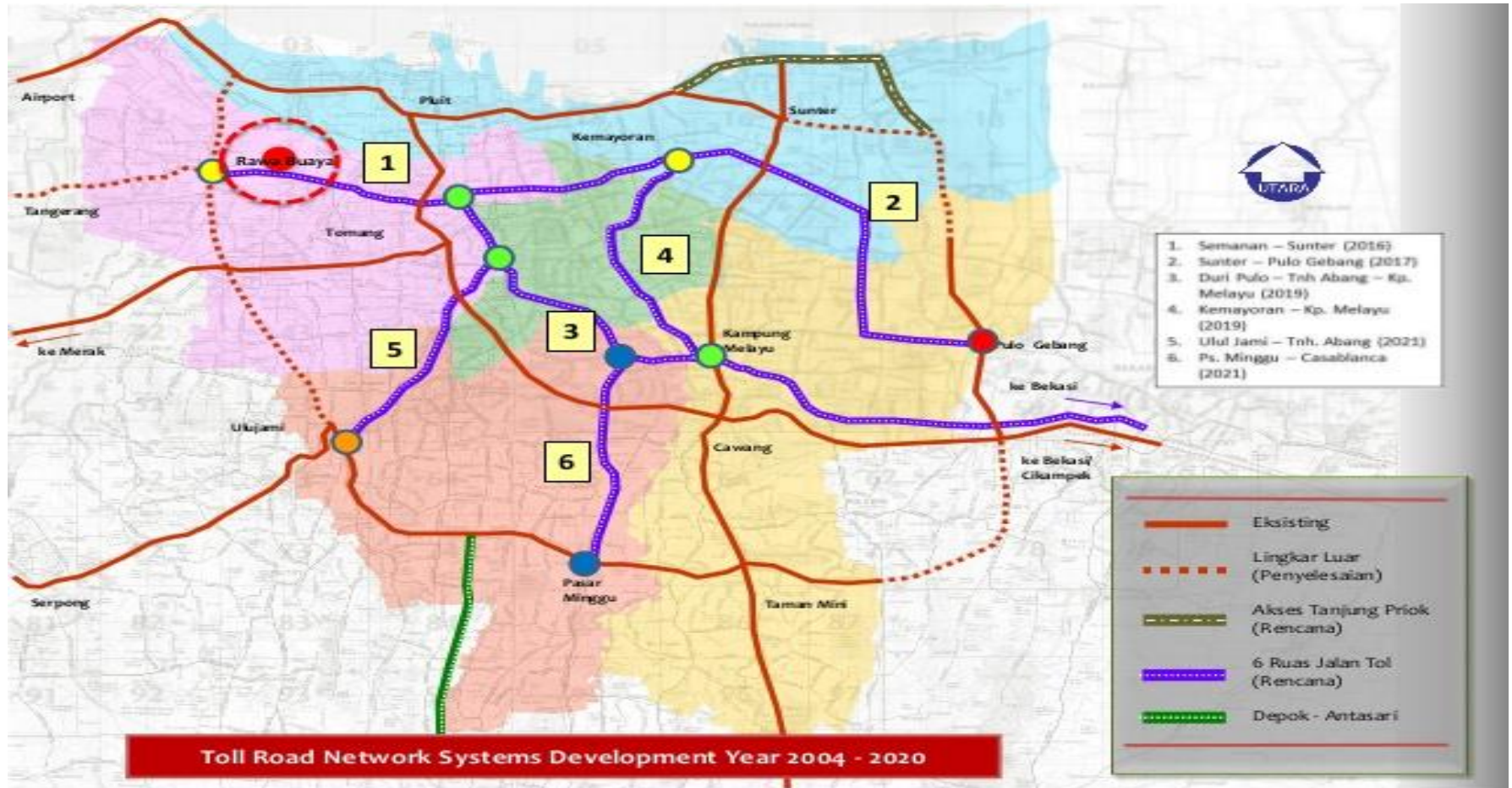
The Jakarta – Cikampek II Toll Road is expected to accommodate the high volume of vehicle on the existing toll road. With the length of 38.6 Km, from Cikunir to Karawang Barat, the construction is expected to finish within 24 months.

The project is built along LRT and Jakarta – Bandung HST on both side of the main toll road, therefore high commitment & concern is needed to achieve zero

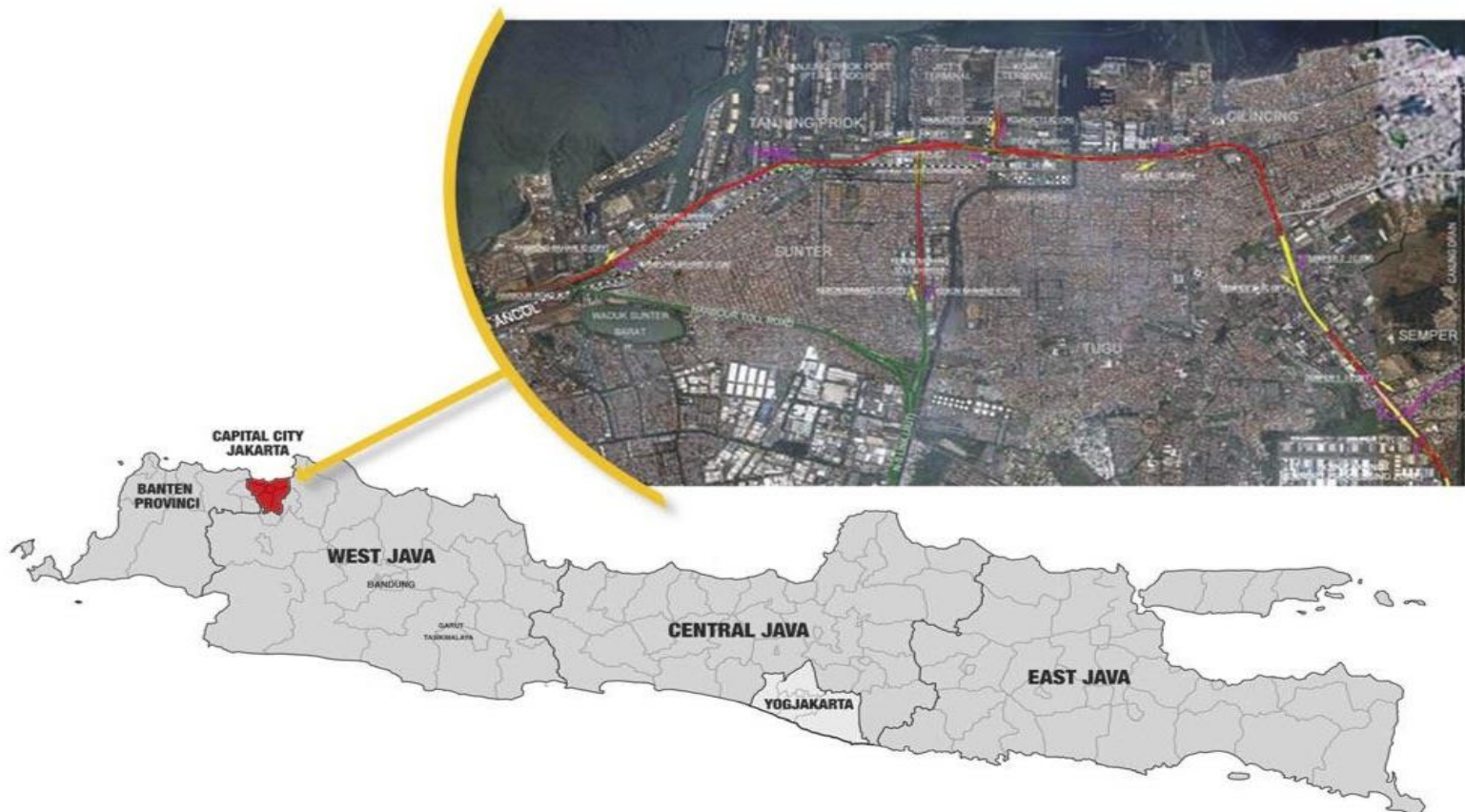


# Upcoming Projects : Jakarta Elevated Toll Road

JETR is 6 all elevated toll roads in Jakarta with an exclusive (dedicated) public transportation lane and connect to Jakarta Inner Ring Road with total length 69,77 kilometers. All the roads predicted will be finished in 2022.



# Upcoming Projects : Tanjung Priok Access Toll Road



<b>Government Contracting Agency</b>	: Indonesia Toll Road Authority (BPJT)
<b>Implementing Unit</b>	: Indonesia Toll Road Authority (BPJT)
<b>Preparation Agency</b>	: Indonesia Toll Road Authority (BPJT)
<b>Estimated Project Cost</b>	: USD 281.00 million
<b>Estimated Concession Period</b>	: 30 years
<b>Location</b>	: DKI Jakarta



Big cities in Indonesia is predicted to keep expanding in terms of population & vehicles. Now and forward, elevated structure is found as an effective and suitable ways to build transportation infrastructure such as roads, railway and monorail considering sufficient land & space.



# CONCLUSION

- Jakarta is a big city (Big population, huge number of cars, limitation road and limitation land) with the huge opportunities in construction or investment business especially with complete solution Engineering, DED and Financing like ie
  - Elevated and others
  - Other Mass Rapid Transportation

---

THANK

---

YOU