TRANSPORTATION AGENCY
NORTH SUMATERA PROVINCE

SUSTAINABLE URBAN MOBILITY PLAN OF MEBIDANGRO

Presented By:
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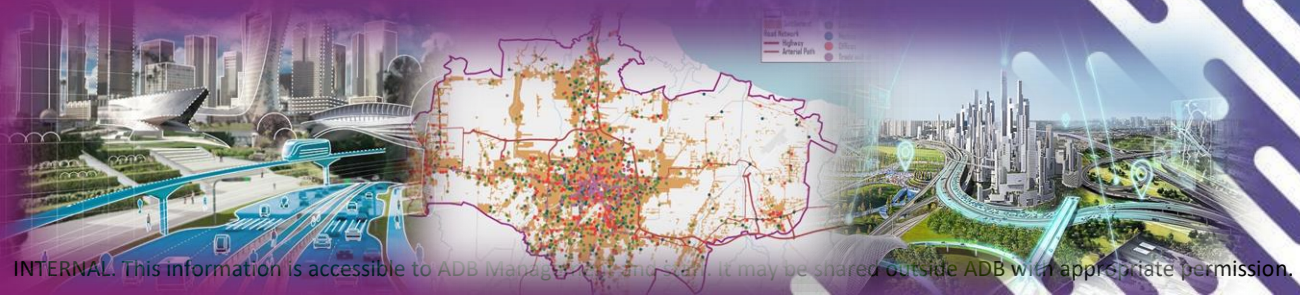
Head of Transport Agency of North Sumatra Province



AFD ADB Mobilise Your City

The SUMP process ends with the action plan

Nov 2020 | Dec 2020 | Jan 2021 | Feb 2021 | Mar 2021 | Apr 2021 | May 2021 | Jun 2021 | Jul 2021 | Aug 2021 | Sep 2021 | Oct 2021 | Nov 2021 | Dec 2021

COMPONENT 1 Inception

COMPONENT 2 Diagnosis of Urban Mobility

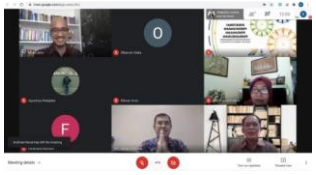
COMPONENT 3 Definition of vision and objectives into scenarios

COMPONENT 4 Action Plan

SUMP **Action plan**

Oct 2020
Governor kick-off

Steering committee



Dec-Feb 2021
Data collection
- 13.000+ household interviews
- Onboard and roadside interviews
- Traffic counting on roads and junctions
- Secondary data collection

Technical committee

Dec-Feb 2021
Stakeholders engagement
- 4 focus group discussions: operators, citizens, vulnerable groups, authorities
- Gender issues workshops

Technical committee

May 2021
Urban mobility diagnosis

Steering committee

Sep 2021
Capacity building Trainings on Modelling, Urban transport innovation, MRV x2

Jun 2021
Goal setting workshop

Jul 2021
Scenario identification & measures

Technical committee

Sep-Nov 2021
Scenario and measures construction
Important modelling works

Technical committee

Oct 2021
Selection of scenario and detailing of measures to translate into a feasible SUMP action plan

Technical committee

Dec 2021
Review 2

Technical committees

Dec 2021
Review 1

Feb 2022
Final presentation

Steering committee

Continuous participatory process and capacity building adapted to Mebidangro (4 trainings)

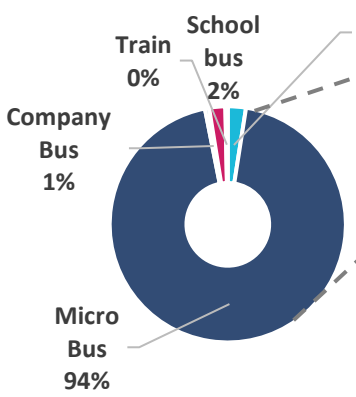
Preparation of the observatory of urban mobility adapted to Mebidangro (MRV, with 2 guidance sessions)

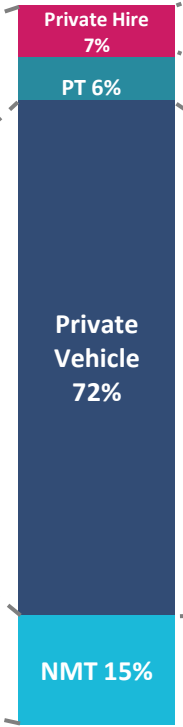
USAGE OF PUBLIC TRANPORT

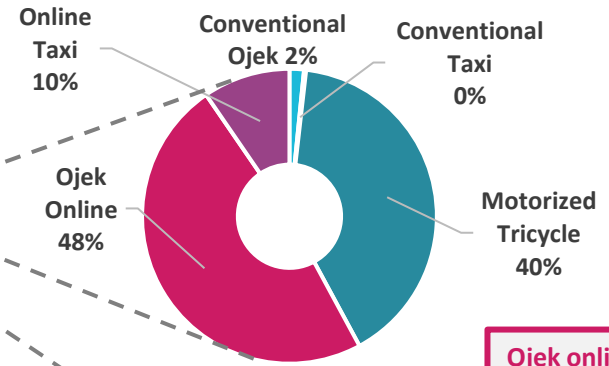
Choice of mode according to inhabitants (% of total trips) **over more than ± 5 million trips per day.**

Minibus currently dominates public transport choices while having **low capacities and low comfort**, but great **accessibility**.

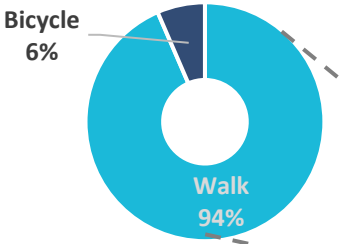
The low percentage of bicycle reflecting the **lack of NMT infrastructure and sidewalks.**

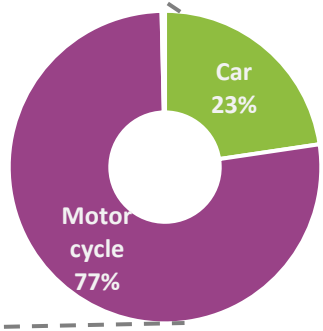






Ojek online is the **preferred private hire for households.**

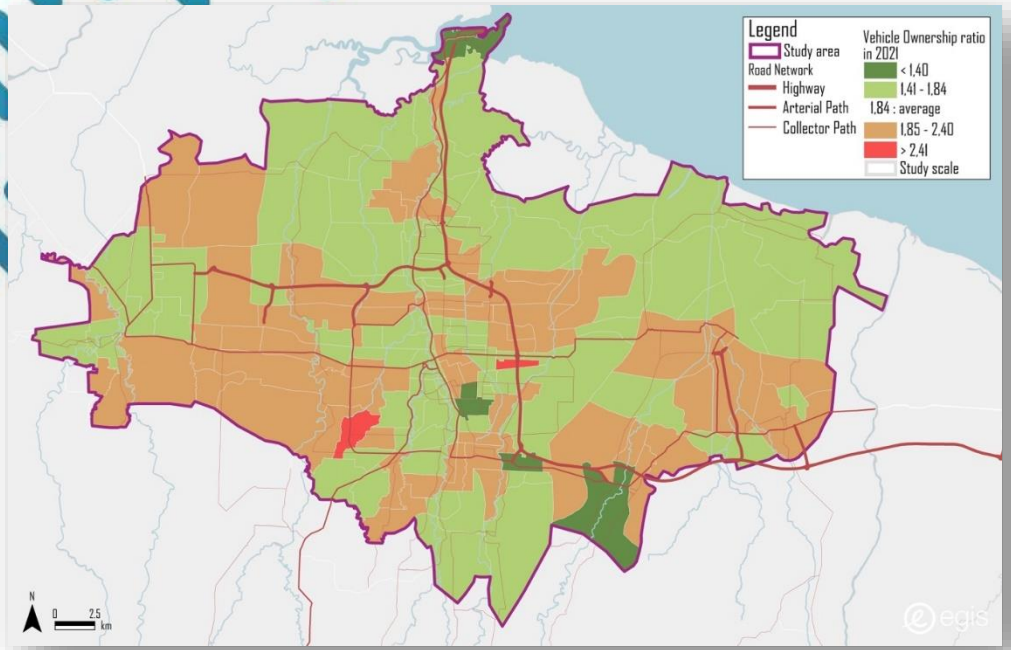




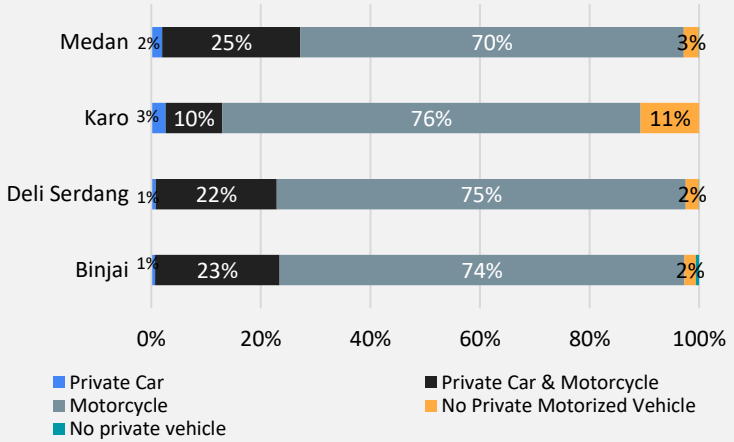
Motorcycle is dominating the mode choice of private vehicle transportation.

PRIVATE VEHICLES OWNERSHIP

Vehicle ownership shows a high motorization rate throughout the area



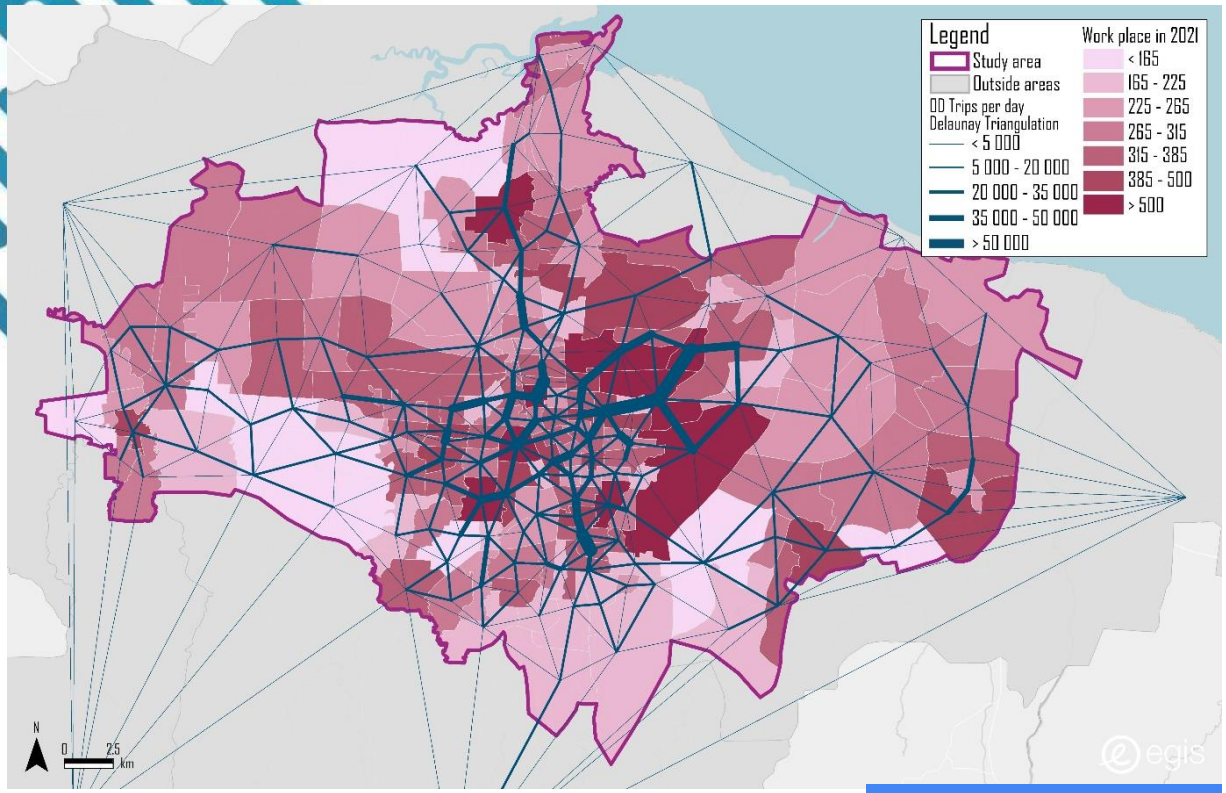
And the dominance of motorcycles in vehicles owned (90+ %)



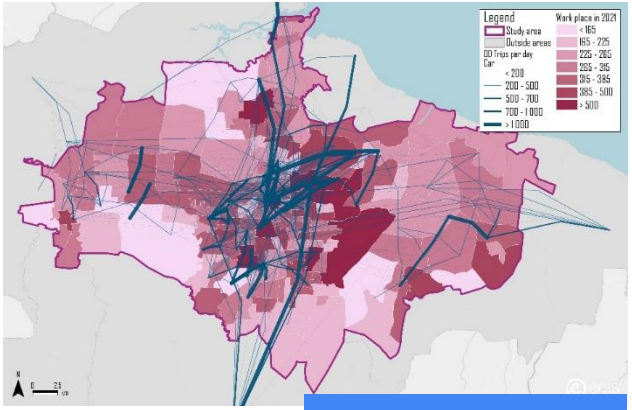
→ **Motorcycles users as a focal point** for modal shift targets in future years

→ **As the source of increased adverse effects of road traffic, vehicle ownership can be better to reduce future growths : progressive taxes on vehicles, stricter process for driving licenses…**

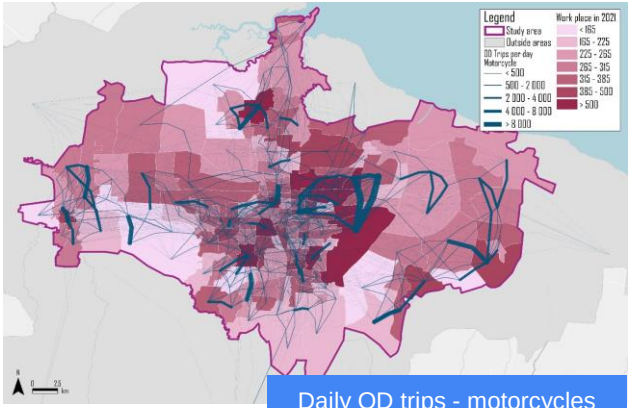
MAIN TRIPS AND CHARACTERISTICS OF TRAVEL



Daily OD trips – All modes



Daily OD trips - cars



Daily OD trips - motorcycles

MOBILITY RATES IN THE MEBIDANGRO AREA

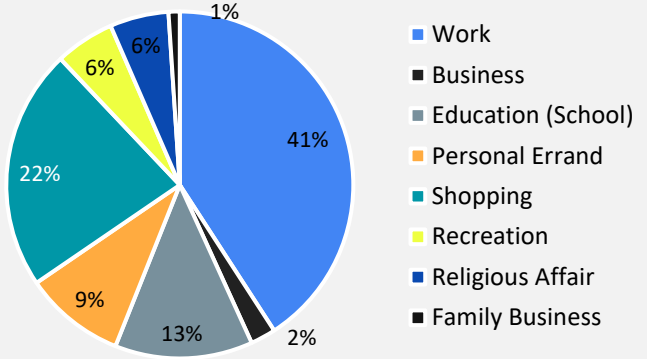
- **4,8 million** trips per day
  Comparable with Medan City previous studies. (pre-COVID)
  DKI Jakarta = ±20 million trips per day

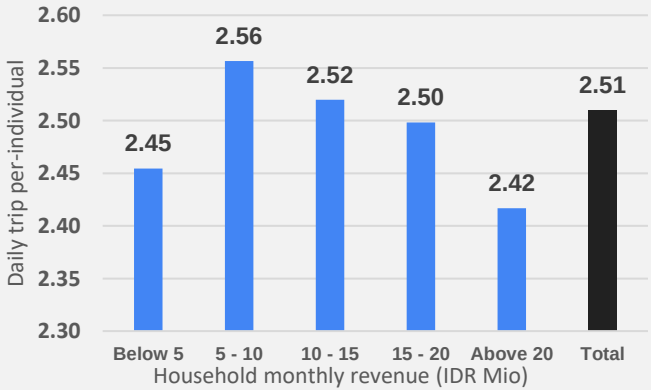
- **One average person spends ± IDR 12.005 everyday for transport**
  Way lower and more fragile than Jakarta City (IDR 25.500/day)

- **One average person spends ± 35 min each day for transport**
  Jakarta = 136 min/day
  Low value due to over-usage of motorbikes, challenge for public transportation to rival:
  Must promote safety and comfort of public transportation, not travel speed

- **2,5 trips per day per person**
  Higher mobility for work and education, shopping

People travel more for work, education places & shopping (source: SUMP surveys)





Mobility of inhabitants is framed by revenues: higher individual mobility for households with low revenues (source: SUMP surveys)

ACTION PLAN FOR SMART MOBILITY

The action plan is composed of 41 measures following different themes.

PUBLIC TRANSPORT
improved and new systems
9 actions

- **BRT lines**
- **Rapid rail lines**
- Increase service levels of existing rail
- Bus lines for school
- Angkot optimization
- Rejuvenation of angkot fleets
- Waterbus services
- Public transport campaign
- Increase quality of existing buses

URBAN PLANNING
& non motorized transport
7 actions

- Periodical closure of roads
- **Mixed-use zones in secondary urban centers**
- Comfortable and safe sidewalks
- **Development of safe bicycle lanes**
- **Law to restrict urban sprawl**
- Transit Oriented Development & Land Value Capture framework

ROAD NETWORK
for private vehicles
9 actions

- **Enhance road link Medan – Berastagi**
- Circular roads as planned in RTRW
- **Standardized road signage**
- Traffic calming measures at blackspots
- **Dedicated Park and Ride at transit hubs**
- Limit freight vehicles operating hours
- **Key multimodal hubs**
- Quality road network throughout Mebidangro

DIGITALIZATION
4 actions

- Mobility as a Service
- Fare intermodality
- Passenger information
- Traffic monitoring system

GOVERNANCE
5 actions

- **Transit authority**
- Corporate tax on mobility
- Technical assistance
- Separate track and train operators
- **Minibus reform**

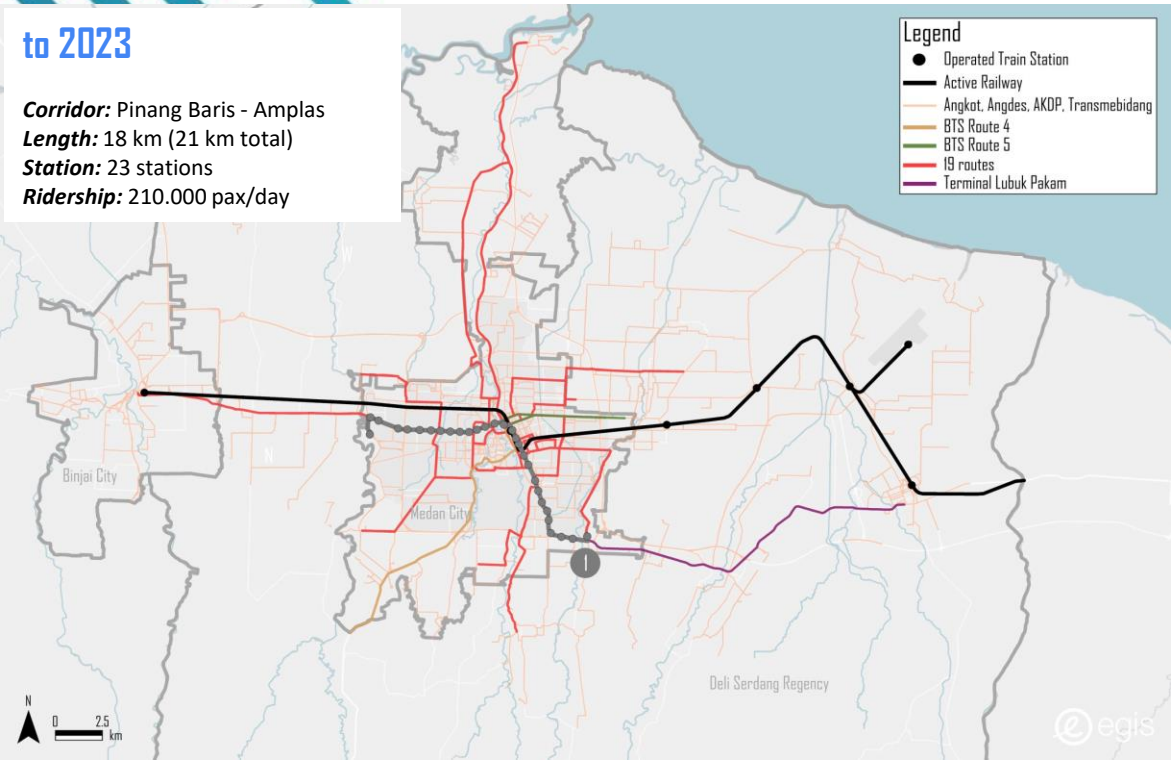
ENVIRONMENT
7 actions

- **Incentives to reduce fuel consumption**
- Tax on motorized vehicles using urban roads
- **Cleaner and renewable energies for road public transportation & private vehicles**
- Renewable energy for rail
- Air quality stations
- **Environmental issues campaigns**

2023, the first mass transit line : BRT Mebidang

to 2023

Corridor: Pinang Baris - Amplas
Length: 18 km (21 km total)
Station: 23 stations
Ridership: 210.000 pax/day



Future corridors are identified to answer current and future demand of mobility

1. Identification of desire lines
2. Analysis of road and urban context
3. Identification of level of service (1, 2, 3)
4. Modelling of PT line and whole network
5. Estimation of demand
6. Reiteration until technical standards are reached

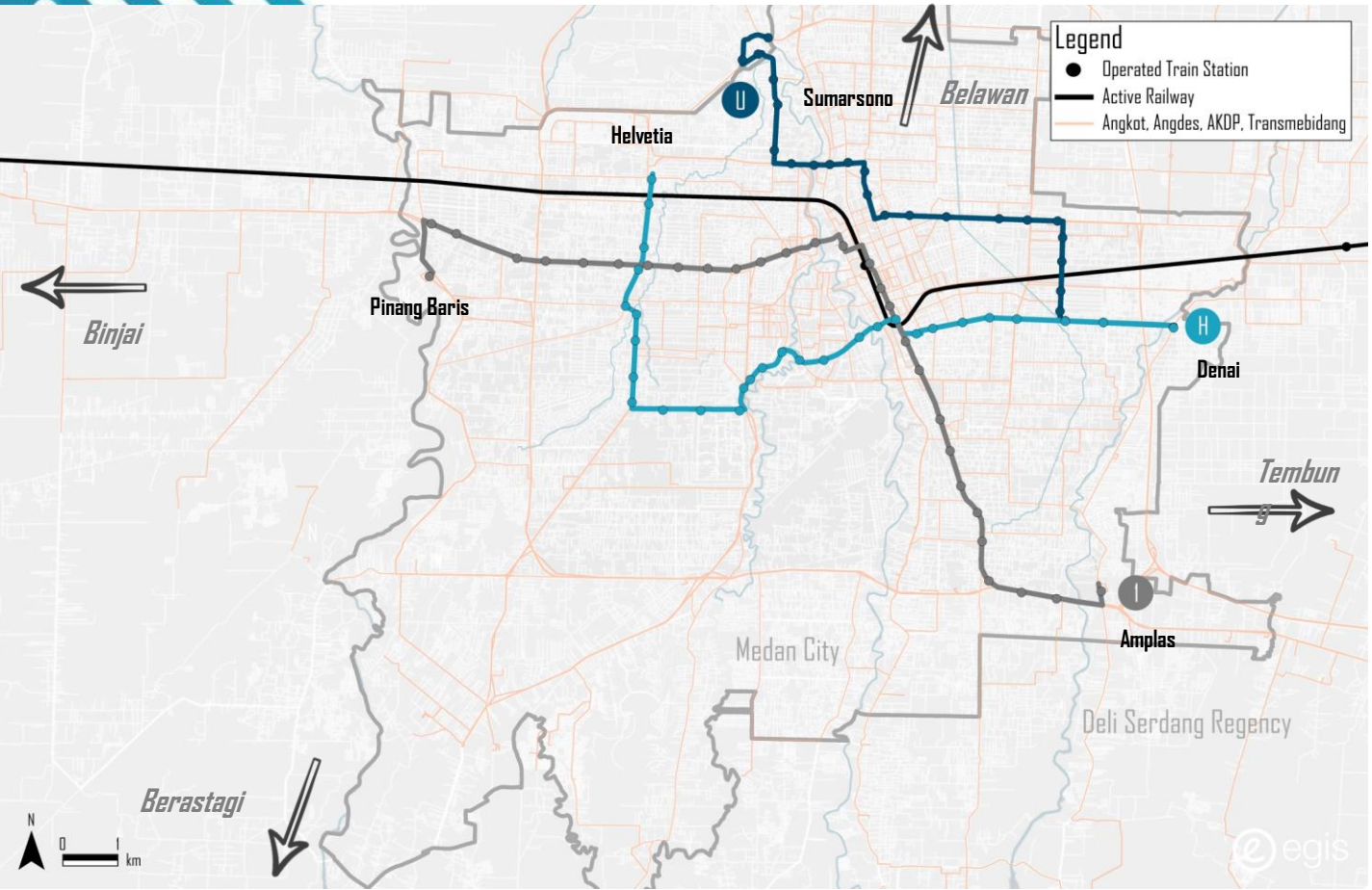
Service levels give hints on technologies required

→ **Level 1: medium demand**
Adequate for BRT, trolleybus, automated shuttles or people movers, aeromoval, cable-pulled modes

→ **Level 2: mid-high demand**
Adequate for BRT, tramway, light LRT

→ **Level 3: high demand**
Adequate for high-capacity tramway, heavy LRT, MRT

2028 horizon: highly impactful PT lines to pursue mobility goals



to 2023

BRT Mebidang Line I

I

Corridor: Pinang Baris - Amplas
Length: 18 km
Station: 23 stations
Ridership: 210.000 pax/day

to 2028

Corridor H

H

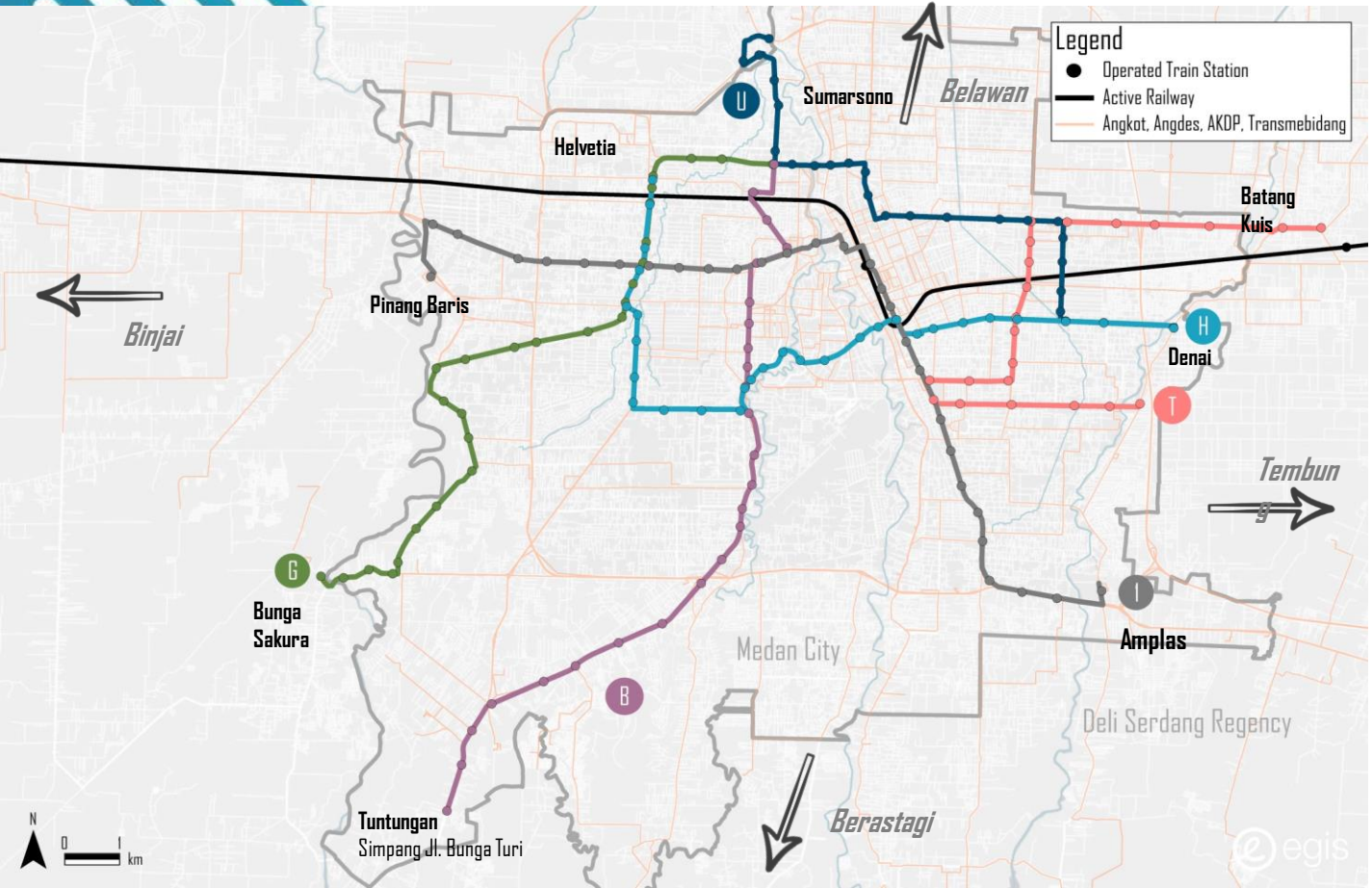
Corridor : Helvetia – Denai
Service: Level 1 (for example BRT)
Line: 15 km – 29 stations
Ridership: 202.000 pax/day
CAPEX: IDR 1,5-1,9 T (USD 105-130 million)
Year: 2026

Corridor U

U

Corridor : Sumarsono – Denai
Service: Level 2 (for example Tramway)
Line: 13 km – 25 stations
Ridership: 187.000 pax/day
CAPEX: IDR 3,3 – 4,1 T (USD 230-280 million)
Year: 2026

2035 horizon: a large investment plan facilitated by reforms



to 2035

Corridor B

Corridor : Simalingkar - Jl. T. Amir Hamzah
Service: Level 3 (for example LRT)
Length: 16 km
Station: 25 stations
Ridership: 260.000 pax/day
CAPEX: IDR 9,9-12,1 T (USD 680-830 million)
Year: 2030

Corridor G

Corridor : Bunga Sakura - Jl. T. Amir Hamzah
Service: Level 2 (for example Tramway)
Length: 15 km
Station: 27 stations
Ridership: 222.000 pax/day
CAPEX: IDR 3,5-4,3 T (USD 240-295 million)
Year: 2030

Corridor T

Corridor : Denai - Batang Kuis
Service: Level 1 (for example BRT)
Length: 14 km
Station: 23 stations
Ridership: 197.000 pax/day
CAPEX: IDR 1,4-1,8 T (USD 98-120 million)
Year: 2030

Preliminary figures.

THE PACKAGES OF PRIORITY MASS TRANSIT LINES

MID-TERM PACKAGE 2028

Corridor H
For example, BRT
15 km - 29 stations
293.000 pax/day
CAPEX: IDR 1,5-1,9 triliun
(USD 105-130 million)

Corridor U
For example, tramway
13 km - 25 stations
272.000 pax/day
CAPEX: IDR 3,3-4,1 triliun
(USD 230-280 million)

± IDR 5,4 T (USD 367 million)
Implement highly impactful lines to start change of paradigm and demonstrate efficacity of public transportation, while reforms and regulations are rolled-out.

LONG-TERM PACKAGE 2035

Corridor B
For example, LRT
16 km - 25 stations
305.000 pax/day
CAPEX: IDR 9,9-12,1 T (USD 680-830 million)

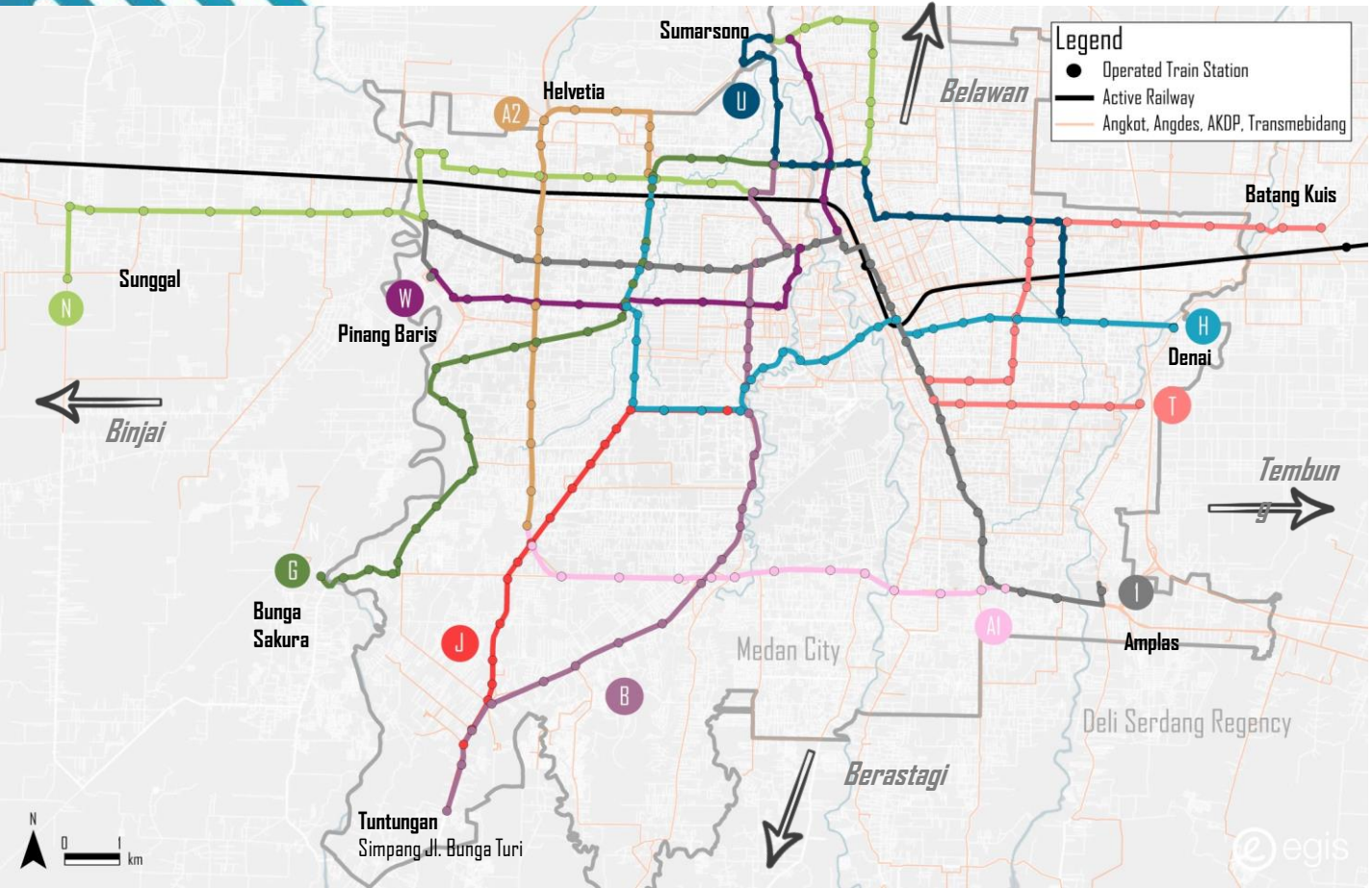
Corridor G
For example, tramway
15 km - 27 stations
254.000 pax/day
CAPEX: IDR 3,5-4,3 T (USD 240-295 million)

Corridor T
For example, BRT
14 km - 23 stations
209.000 pax/day
CAPEX: IDR 1,4-1,8 T (USD 98-120 million)

± IDR 16,3 T
(USD 1,2 billion)
A large investment plan to take advantage of reformed organizations and funding towards an adoption of mass transit in daily lives.

Preliminary high-level planning of the lines used for modelling and costing – to be refined with detailed studies.

2040 and later: a larger PT network for Mebidangro



to 2040

Corridor N
Corridor : Sunggal – Sumarsono
Service: Level 1 (for example BRT)
Line: 22 km - 31 stations
Ridership: 324.00 pax/day
CAPEX: IDR 2,1-2,6 T (USD 145-175 million)
Year: 2036

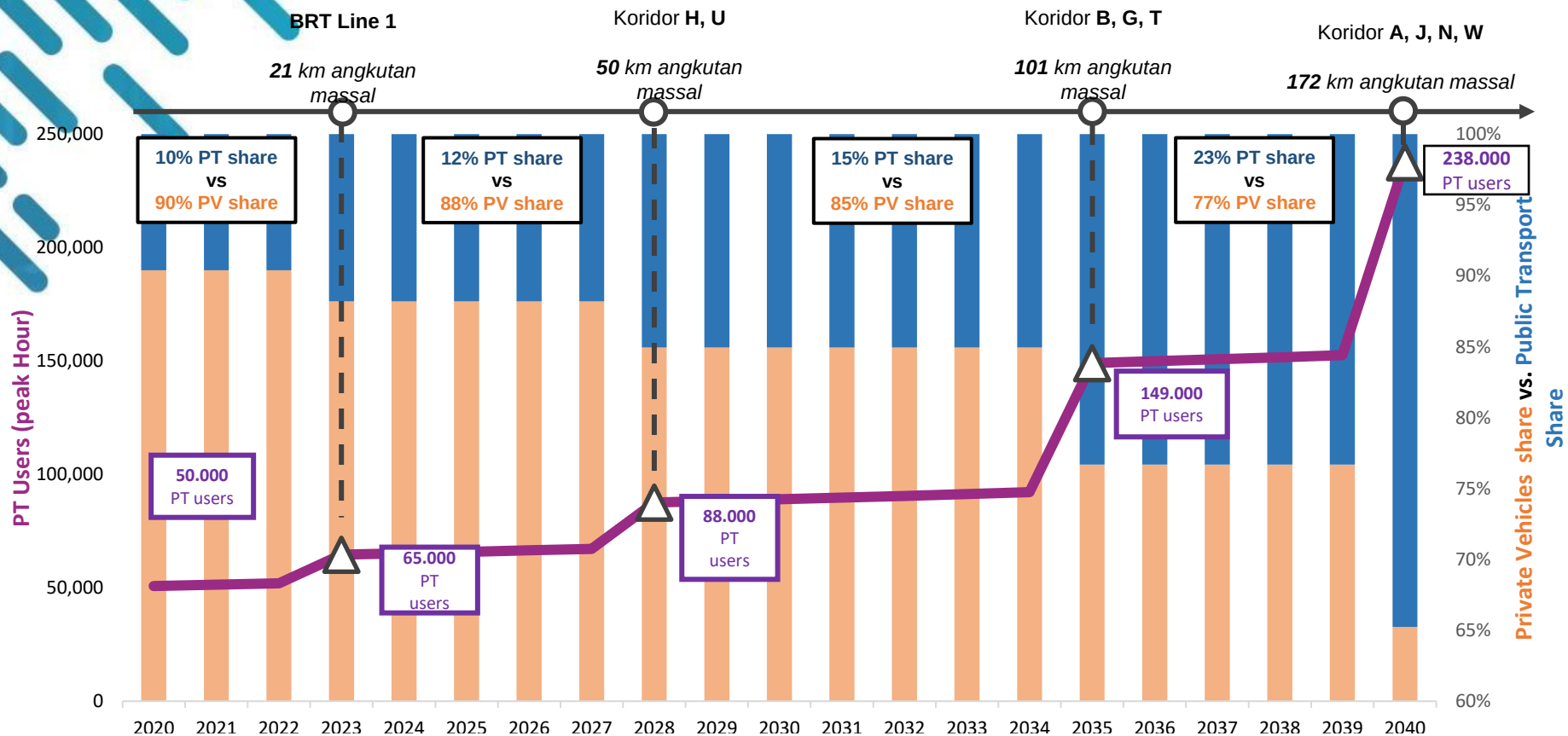
Corridor A1
Corridor : Amplas - West Setiabudi
Service: Level 3 (for example LRT)
Line: 9 km – 13 stations
Ridership: 255.000 pax/day
CAPEX: IDR 5,9-7,2 T (USD 405-495 million)
Year: 2036

Corridor A2
Corridor : West Setiabudi – Helvetia
Service: Level 3 (for example LRT)
Line: 10 km – 16 stations
Ridership: 192.00 pax/day
CAPEX: IDR 6,4-7,8 T (USD 440-535 million)
Year: 2036

Corridor W
Corridor : Pinang Baris – Sumarsono
Service: Level 3 (for example LRT)
Line: 13 km – 21 stations
Ridership: 226.000 pax/day
CAPEX: IDR 8,3-10,2 T (USD 170-210 million)
Year: 2036

Corridor J
Corridor : Simalingkar - Dr. Mansyur
Service: Level 2 (for example Tramway)
Line: 10 km – 19 stations
Ridership: 128.000 pax/day
CAPEX: IDR 2,5-3 T (USD 170-210 million)
Year: 2038

PUBLIC TRANSPORT EVOLUTION AND DEVELOPMENT OF PUBLIC TRANSPORT NETWORK



Key figures of the action plan for Mebidang Urban Area

41 actions proposed for mobility

to support mobility development in short, medium and long term on 6 main directions (urban, roads, public transport, digital, environment and governance).

80 km of integrated mass transit by 2035

with modern technologies to support mobility along main axes and provide affordable transport to people of Mebidangro. This figure reaches 152 km in 2040.

x5 people to access formal transit

By 2035, 15% of the area inhabitants will live within 750 meters of formal transit stops and the accessibility will be increased from 3,8% in 2020 (excl. angkots).

-23% congestion on the roads

A drop of the congestion of almost a quarter (vehicle hours) by 2035, thanks to a modal shift to public transport of more than 20%.

-20% GHG emissions from mobility

The action plan allows cutting mobility-related emissions of GHG from the area by a fifth by allowing new mobility to its inhabitants.

± IDR 24 T 15-year plan for mobility

The staged investment plan of priority measures spreads on the long term for mass transit, NMT but also traffic calming and safety of the roads. The entire mass transit network needs IDR 56 T.

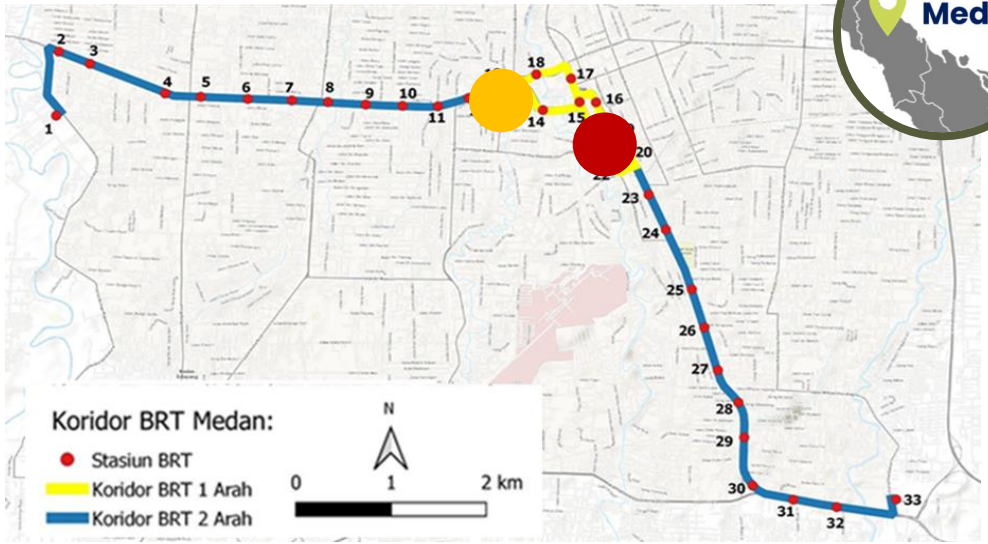
Figures to be slightly updated upon refinement of calculations.

Technical and Steering Committee Meeting

Discussion With Bappenas Team and AFD

SHORT TERM IMPLEMENTATION 2024

MEBIDANG BRT (DEDICATED CORRIDOR)

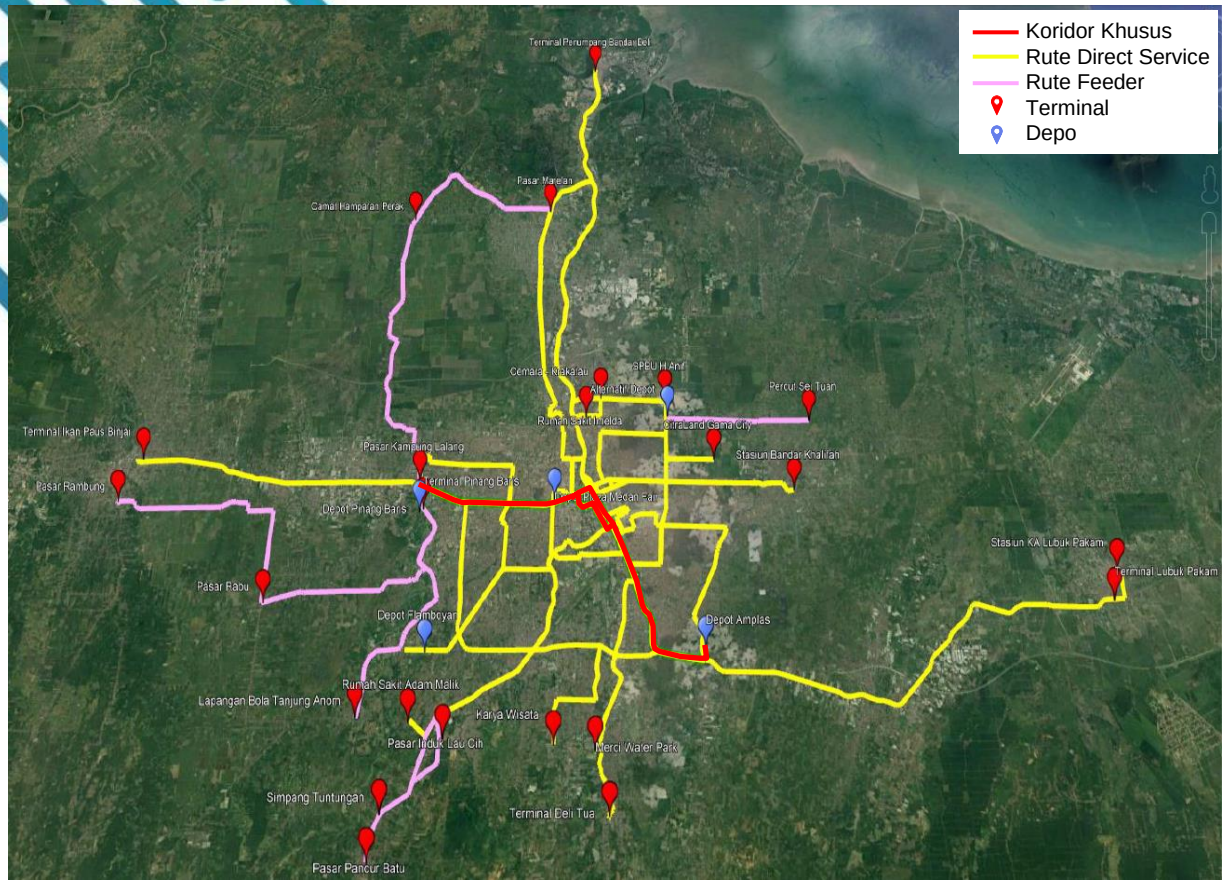


Koridor : 21 km Jalur Khusus
Halte : 33 Halte (On Corridor/Dedicated Lane)
Rute : 17 rute layanan langsung (direct service)
Jumlah : 515 unit bus
Jangkauan : Kota Medan, Kota Binjai, Kabupaten Deli Serdang

Rencana Pengembangan Kawasan Low Emission Zone (LEZ)

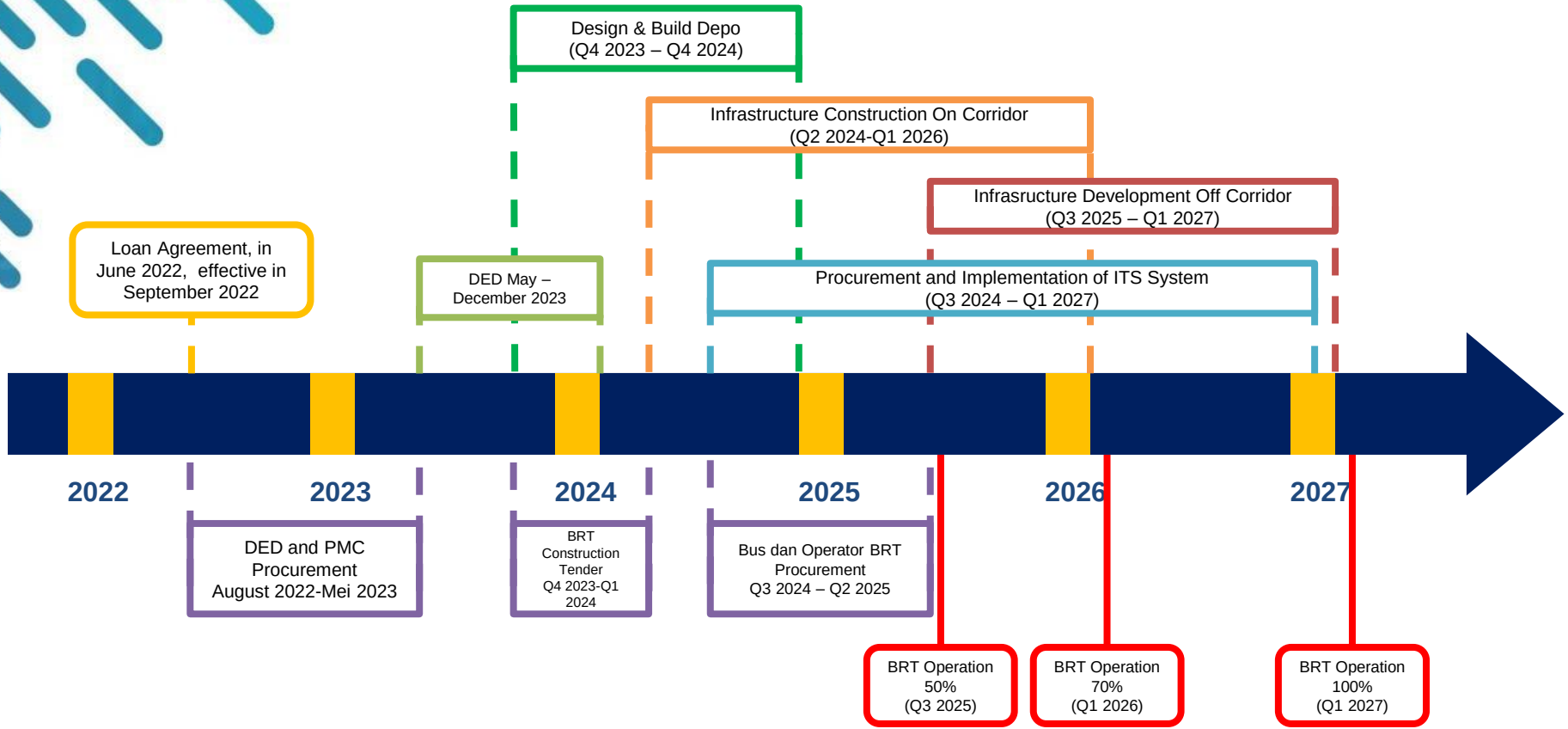
Rencana Pengembangan TOD

DIRECT SERVICE ROUTE IN METROPOLITAN MEDAN



Asal	Tujuan	Panjang Rute	Jlh Bus (Unit)
1. Medan Helvetia	Pusat Pasar	11 Km	16
2. Medan Helvetia	Terminal Amplas	20,7 Km	30
3. Percut Sei Tuan	Amplas	21,2 Km	30
4. Unimed	Amplas	16 Km	23
5. Setia Budi	Amplas	15,3 Km	22
6. Medan Tembung	Amplas	12,3 Km	18
7. Kp. Lalang	Deli Tua	21,9 Km	31
8. Kp. Lalang	Amplas	21,8 Km	31
9. Belawan	Villa Malina Indah	30,9 Km	44
10. Kp. Lalang	Mandala	18 Km	26
11. Pinang Baris	Amplas	21 Km	30
12. Pinang Baris	Unimed	17,5 Km	25
13. Pinang Baris	Mandala	20,9 Km	30
14. Pinang Baris	Belawan	31 Km	44
15. Belawan	Amplas	30,1 Km	43
16. Binjai	Pusat Pasar	22,7 Km	32
17. Mabar	Amplas	25,4 Km	36
Total		**357.7 Km**	**515**

TIMELINE OF MASTRAN PROJECT IN METROPOLITAN MEDAN (MEBIDANG)



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THANK YOU