# LOW CARBON & DIGITAL CITY
# MELAKA HISTORIC CITY COUNCIL

**17th May 2022**

**Ballroom A, Double Tree by Hilton Hotel, Melaka**

# CITY CONTEXT

**270.39 km²**
Total land area

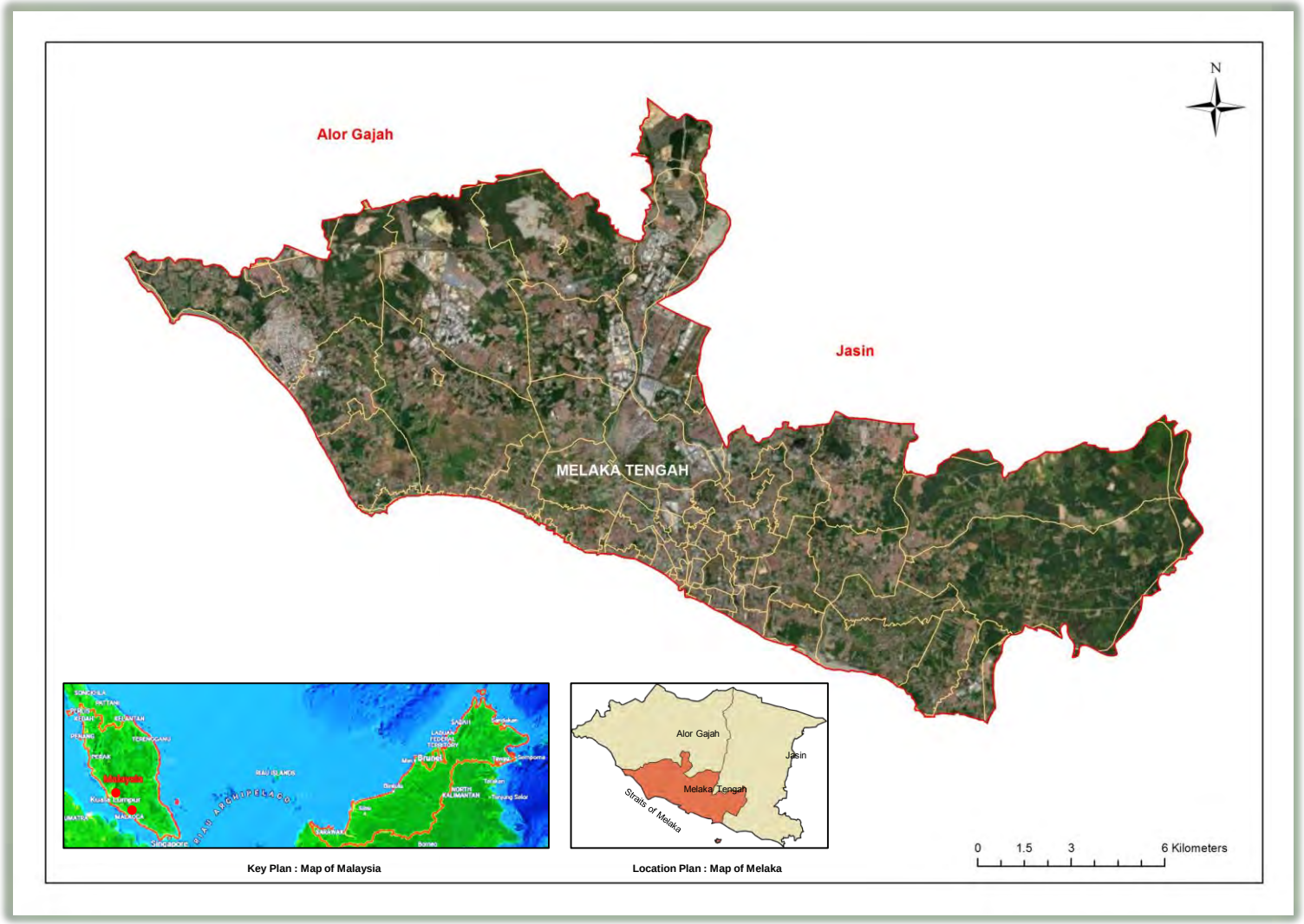
UNESCO recognition in 2008

**566,322**
Population (2021)

**>10,000**
Vehicle entering City Centre (2016)

**+2.7%**
Growth rate

**18.73 mil**
Melaka tourist arrival (2019)



# LOW CARBON CITY COMMITMENT

## Commitment Statement

**“We are committed in driving Melaka city towards a Sustainable, Resilient and Low Carbon city”**

## Low Carbon Vision 2030

**“MLCC as a low carbon, sustainable, resilient and livable”**

## Low Carbon Mission 2030

**“Activate a dynamic and efficient initiatives towards low carbon city”**

# MELAKA LOW CARBON CITY (MLCC)

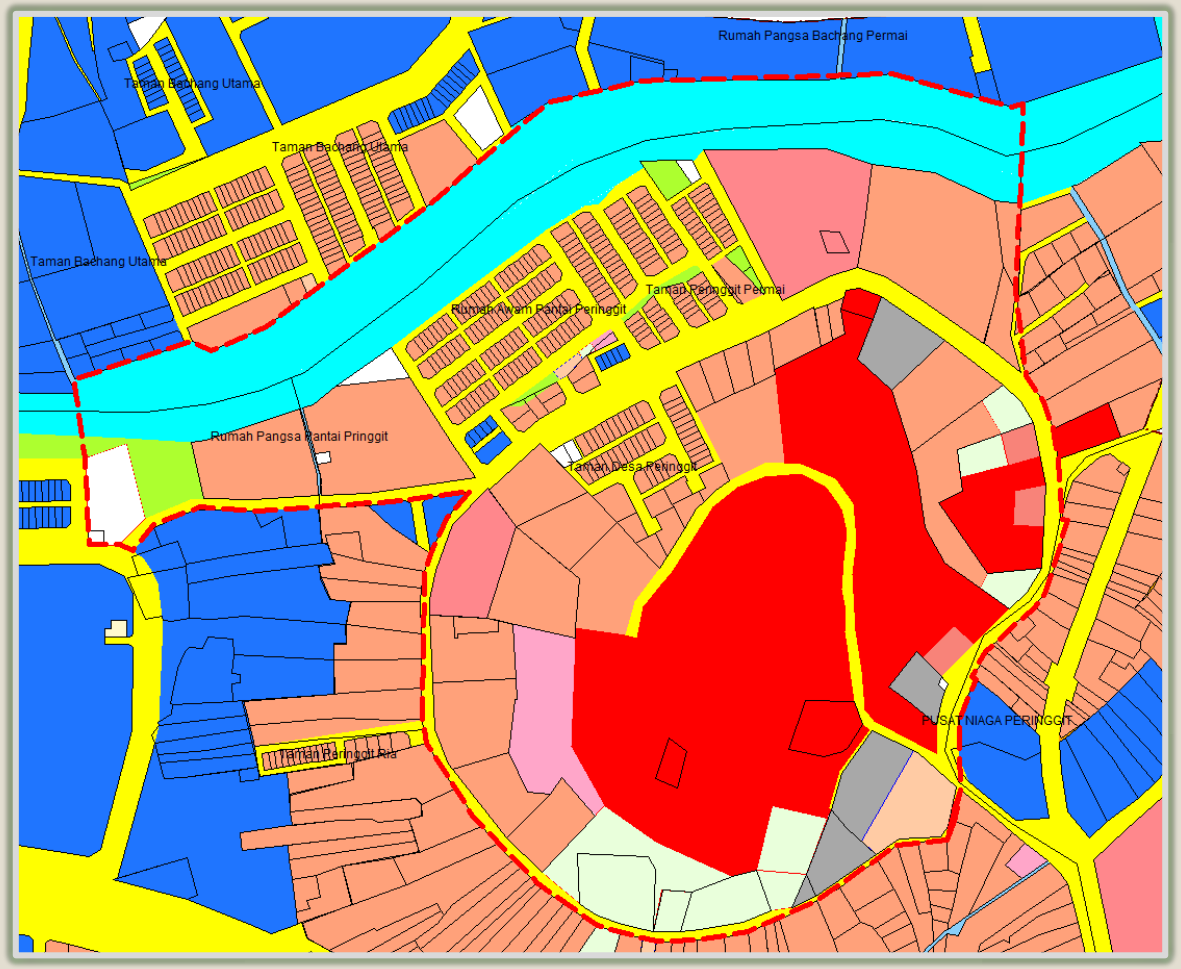
# MELAKA LOW CARBON CITY 2030

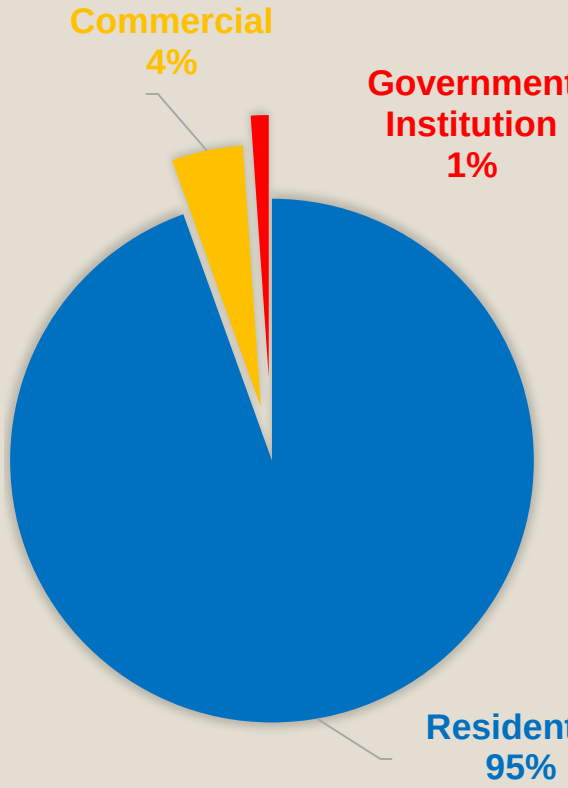

Melaka Historic City Council located in the **district of Melaka Tengah**. The **land area is 270.39km²** consist of **566,322 population** in 2021.

Melaka is one of the symbols of the glorious Malaysian history and was recognized as a **UNESCO World Heritage** Site in 2008. The city make a great transformation towards a **sustainable green city** and receive numbers of **recognition at national and international level.**

The city face a **big challenge** in developing a smart and sustainable city, nature-based solution, efficient public transportation, traffic management in reducing congestion especially in heritage zone, development pressure, water management, encourage smart and renewable energy, zero waste and tourism and cultural preservation.

# LOCATION PLAN




566,322
MBMB Population (2021)

6,500
MLCC Population (2020)

Government Institution
9 unit [ 1.15% ]

Commercial
34 unit [ 4.35% ]

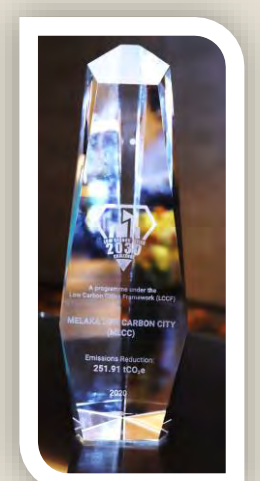
Local Authority Melaka
Historic City Council

Residential
739 unit [ 94.5% ]

City of Melaka

Land Area
137acre

Zone MLCC



# ACHIEVEMENT !

**Successfully reduce GHG emissions by 14.21% since 2017 (251.91tCO²/year)**

**Increased its carbon sequestration Potential by 15.46% to 312.59tCO²/year**

# SMART CITY INITIATIVES

1. SPIKTRA-M (SMART TRAFFIC LIGHT)
2. SMART CITY PILOT PROJECT – SCPP
   (SMART CITY COMPONENTS & DASHBOARD)
3. SMART GRID (ENERGY MANAGEMENT SYSTEM &
   30 kW CARPARK ROOFTOP SOLAR PV SYSTEM)
4. CCTV CONTROL ROOM
5. SMART LED STREETLIGHTING
6. PUMP OPERATIONAL MONITORING SYSTEM
   (SPOP)
7. AUTOMATED PEDESTRIAN SYSTEM (SIPKA)
8. CERITERA MELAKA
9. MYSHARE MBMB
10. SMARTMAP MBMB

# SPIKTRA-M

# SPIKTRA - M

Increasing number of vehicles resulting in traffic congestion has caused concern to the residents of Melaka City. Through data received from PLUS in 2015, it is estimated that more than 40,000 vehicles entered the city center during public holidays and school holidays. Local authorities and responsible parties have taken several initiatives to address the problem.

MBMB has become the driving force in the technology and technical agenda to meet the industrial demand in line with the **National Fourth Industrial Revolution Policy (IR 4.0)** with AI Traffic Management Software, AI Traffic Camera and vehicle detectors using Wireless Vehicle Detection (WVD) through the **SPiKTRA-M** project.

SPiKTRA-M provides a platform to collect data from each traffic light intersection to the traffic control center. The data absorbed and manipulated using Artificial Intelligence (AI) algorithms that produce an integrated green light system (Integrated Greenwave Linking). Traffic Officer would be able to know the current status of traffic lights directly related to SPiKTRA-M. SPiKTRA-M was built to record and analyze any traffic changes, and give recommendations to improve the Green lights time phase at every intersection.

- Reduce traffic congestion especially in critical areas in MBMB area.
- Reduce vehicle waiting times.
- Increase the number of vehicles passing traffic light intersection.
- Make settings adjustments and automatically setting time that fits traffic patterns.
- Use wireless infrared sensors (WVD) based on radar & infrared.

# SPIKTRA - M


Sector:
**Smart Social**
Sub Sector:
**Smart Governance**

**Phantom Zone (Panglima Awang Zone):**

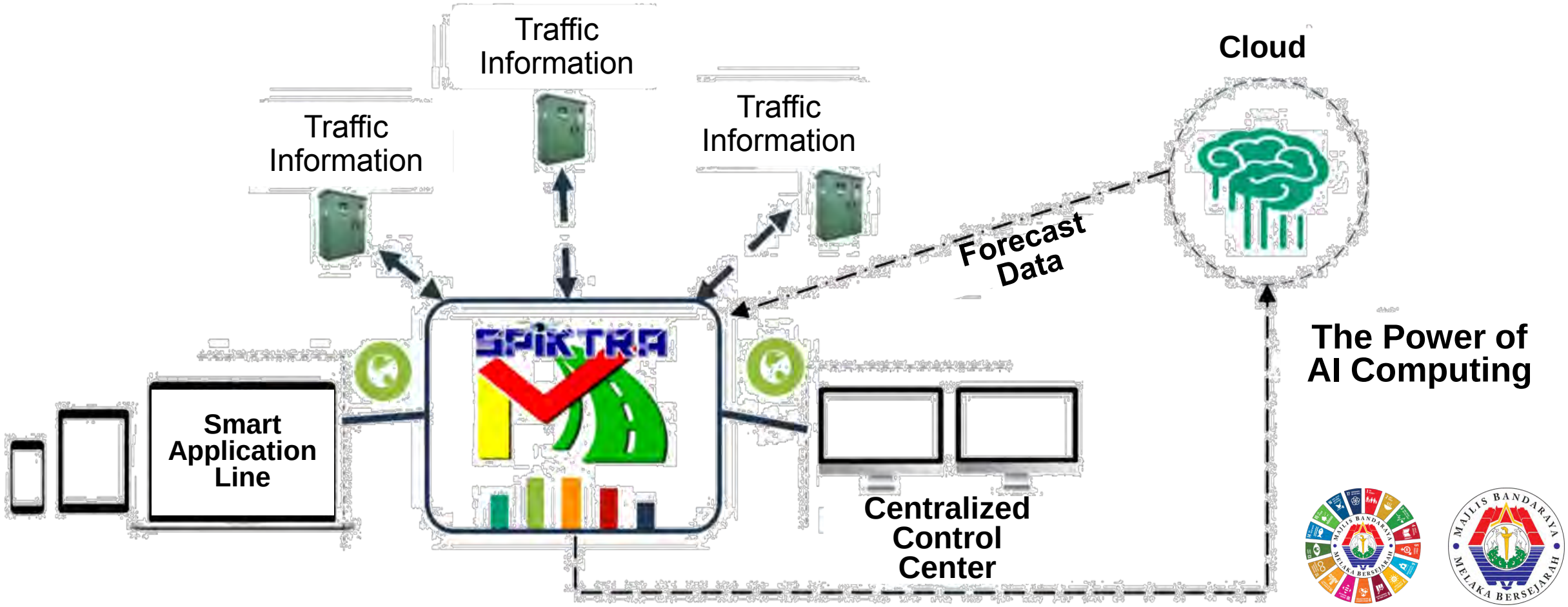
i. Melaka Sentral Junction to Panglima Awang Junction : Average journey time (before IGWL) = 3minute 31sec Average journey time (after IGWL) = 1minute 5sec

*** Reduction journey time - 70%- efficency - 224%**

ii. Panglima Awang Junction to Melaka Sentral Junction : Average journey time (before IGWL) = 6minute 11sec Average journey time (after IGWL) = 1minute 29sec

*** Reduction journey time - 78%- efficency - 316%**

# SPIKTRA - M


Traffic Information
Traffic Information
Traffic Information
Cloud
Forecast Data
The Power of AI Computing
SPIKTRA
Smart Application Line
Centralized Control Center

# SMART CITY PILOT PROJECT

Integrated
Surveillance Solution
(15 IP Cameras, VMS)

Smart City Portal

LoraWAN Environmental
Monitoring
(5 units Sensor Hub)


Intel OpenVINO
Video Analytics at
Command Center

Industrial PC
Water Pump Monitoring
(2 unit IPC)

LoraWAN LED
StreetLight
(34 units LED)

# MBMB SMART CITY PILOT PROJECT

## Project component:

Smart City MBMB portal
15 unit IP camera
5 unit environmental sensor monitoring
2 unit water pump monitoring
34 unit Smart LED
Intel Open-VINO video analytics

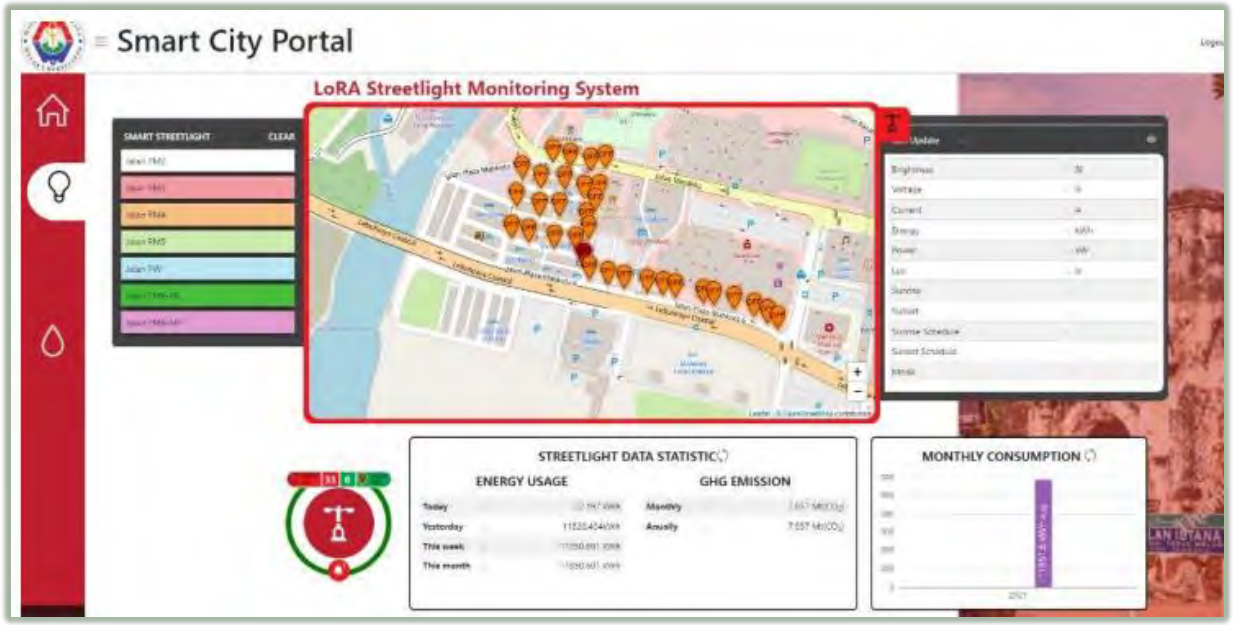
Sector:

**Smart Social**

Sub Sector:

**Smart Governance**

# MBMB SMART CITY PILOT PROJECT




# SMART GRID

# SMART GRID

## SMART GRID

- Malaysian Industry-Government Group for High Technology (MIGHT) has been appointed by United Nation Industrial Development Organization (UNIDO) as a National Executing Agency for the implementation of Global Environmental Facility 6 (GEF6) Sustainable City Development, Smart Grid Project in Melaka. Proceeding from the series engagement, site visit and technical assessment, TNB Research Sdn. Bhd. (TNBR) as a Project Delivery Partner (PDP) for the Smart Grid Demonstration Project together with MIGHT had identified Melaka city (MBMB) as one of the deployment of Smart Grid Demonstration Project in Melaka.

## Project benefits :

- To position MBMB as a strategic partner by participating in the global project via partnership with UNIDO, MIGHT and TNBR.
- To provide opportunity to MBMB as a strategic partner to participate in the other project components under Smart Grid such as Policy Framework, Capacity Building and Awareness Events.
- To integrate with smart grid demonstration project in collaboration with other stakeholders in Melaka to achieve the Green House Gas (GHG) reduction.
- To provide access to MBMB in monitoring the energy consumption based on the real time basis and thus provide opportunity to have energy savings via improvisation of energy management at the buildings.
- Achieve energy savings which will reduce the operational expenditure and will have access to monitor the GHG contribution.
- Zero cost to the building owner for the installation of the system.
- Aligning with the direction of Melaka state on the usage of sustainable technology for sustainable city development.
- Adopting digitalization at the energy facility and infrastructure.


# SMART GRID

## PHASE I : ENERGY MANAGEMENT SYSTEM

- It is s to supply and install a complimentary module for Energy Monitoring System (EMS) to assist building owner for improving building Energy Efficiency and reducing electricity use.

- The EMS scheme is capable of :
  - Collecting measured data from TNB meter
  - Performing data analytics
  - Predict building energy usage and peak demand patterns
  - Real-time cloud-based IoT monitoring technology and software platform.
  - Generate energy saving tips based on analysis
  - Calculate the contribution of greenhouse gas (GHG) emission reduction.

## PHASE II : 30KW CARPARK ROOFTOP SOLAR PV SYSTEM

- It is to supply and install a 30kW Carpark Rooftop Solar PV system and with monitoring system for reaping the benefits of Electric Vehicles under green mobility and sustainable city development in Melaka.

- The system is capable of :
  - Collecting measured data from solar inverter and monitor frequency of EV charging events
  - Performing data analytics
  - Predict solar energy output based on weather data pattern
  - Real-time cloud-based IoT monitoring technology and software platform.
  - Calculate the contribution of greenhouse gas (GHG) emission reduction.

# CCTV
# CONTROL ROOM

# CCTV CONTROL ROOM

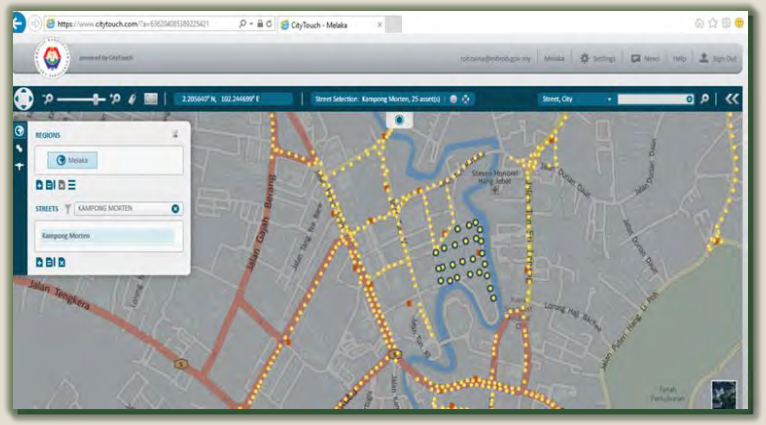
Sector:
**Smart Social**
Sub Sector:
**Smart Governance**

1. To **monitor** the community safety
2. To monitor **traffic condition** in Melaka City
3. Total of **58 CCTV unit** and **78 Ai camera**

# SMART LED STREET LIGHTING

# SMART LED STREET LIGHTING

1. Lowering **CO2 emissions**
2. **60% reduction** electricity consumption and billing
3. 90% saving in maintenance cost **(RM270,000/year).**
4. **Positive sense of security.**
5. Improve road and street safety by illuminating “dark corners”, individual roads and streets, and increase light levels at junctions and pedestrian crossings.
6. Smarter system, easier operation and simply **controllable and flexible.**
7. **Effective monitoring method.**



Heritage city of Melaka being the first Malaysian city with advanced Philips CityTouch connected street lighting management system

By Reon / 5 years ago / Lifestyle / No Comments

*Bandaraya Melaka (27 November 2016)* – Philips Lighting, a global leader in lighting, has completed installation of the Philips CityTouch connected street lighting management system in the historic state of Melaka, Malaysia. Involving over 1,000 light points, the project marks Melaka (a.k.a. Malacca) as the first city in the country to successfully deploy a cloud-based, intelligent street lighting management system. Officiating the handover ceremony, Melaka State Chief Minister, YAB Datuk Seri Utama Ir. Hj. Idris bin Hj. Haron stands behind the project that is part of Melaka's Green City Action Plan (GCAP) to make Melaka a Green Technology State by the year 2020.

Sector:

**Smart Social**

Sub Sector:

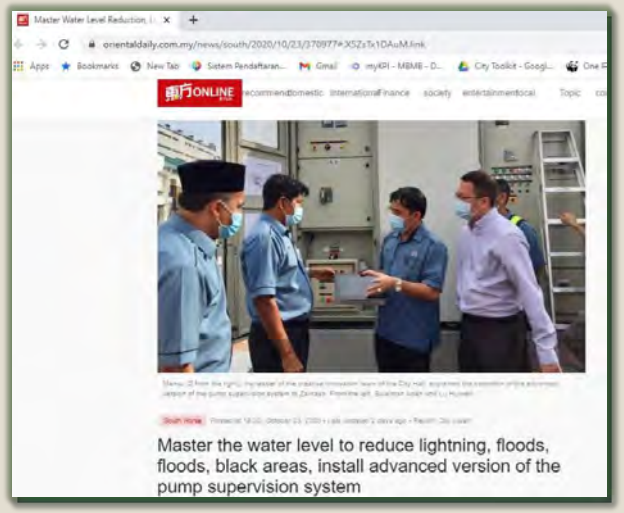
**Smart Governance**

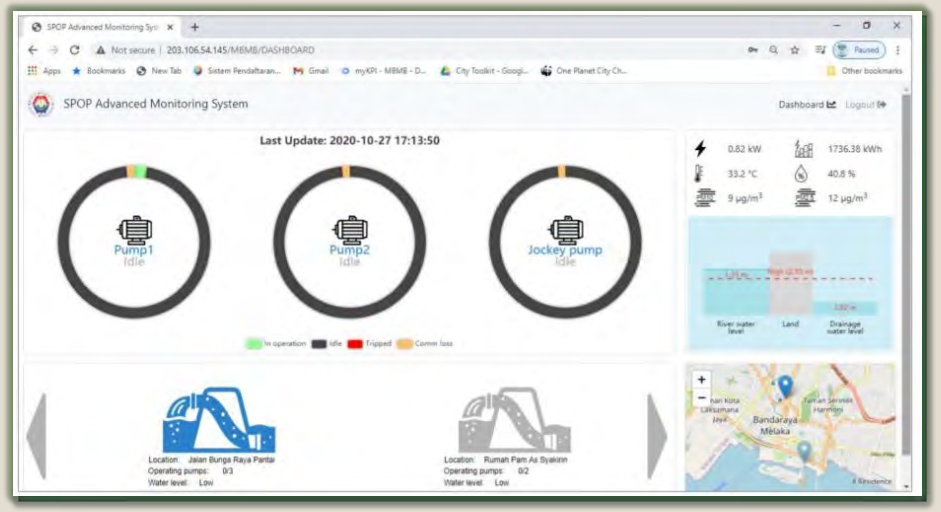
# PUMP OPERATIONAL MONITORING SYSTEM

# PUMP OPERATIONAL MONITORING SYSTEM

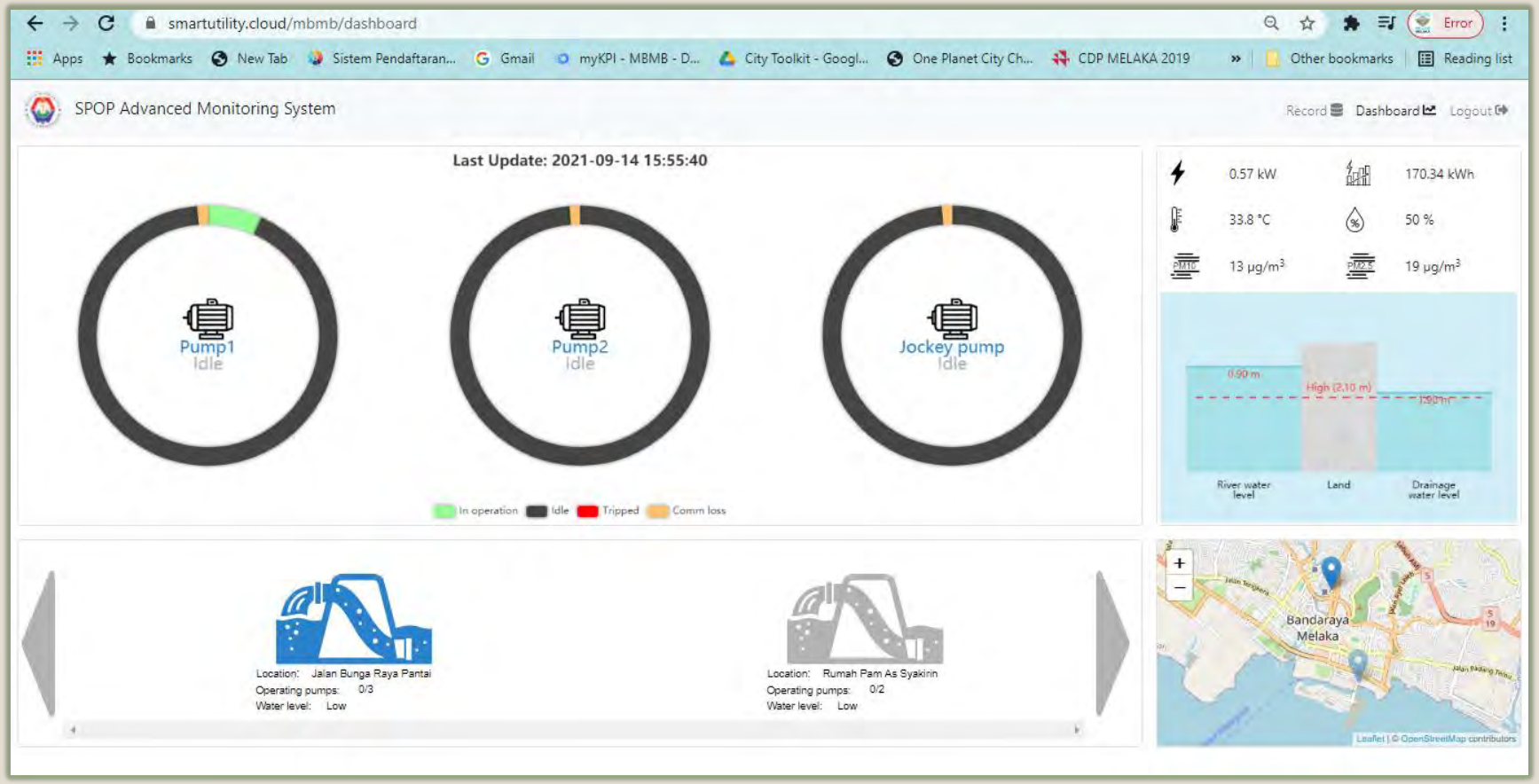
Sector:
**Smart Social**
Sub Sector:
**Smart Governance**

- **Dropped call and short message system received** upon damage on pump system, highest river level and electricality cut-off.
- Air quality and pump operational are **monitored via web monitoring**
- Reduce **carbon emission**
- Shorten **troubleshooting** work



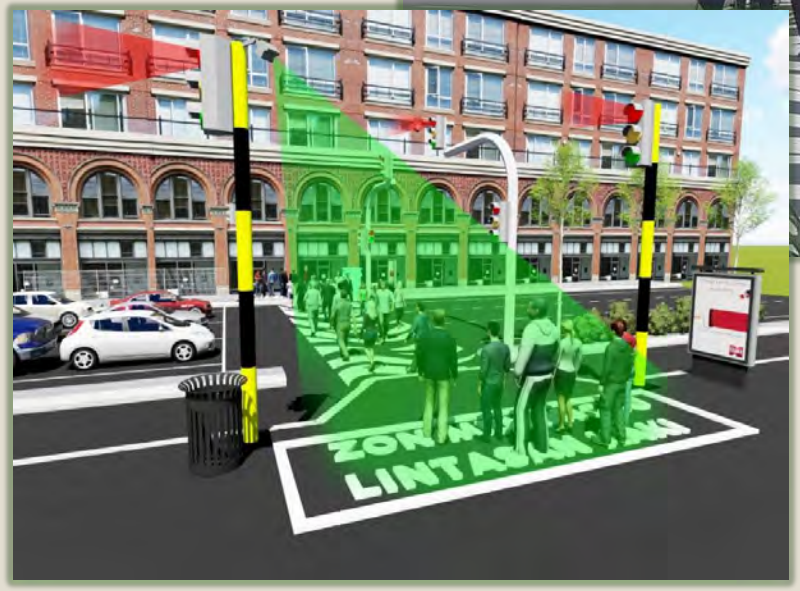
# PUMP OPERATIONAL MONITORING SYSTEM



# AUTOMATED PEDESTRIAN SYSTEM (SiPKA)

# AUTOMATED PEDESTRIAN SYSTEM

Sector:
**Smart Social**
Sub Sector:
**Smart Safety**



A creative and innovative project integrate with **wireless pedestrian detection (WPD),** infrared and traffic light to replace push button.

The existence of pedestrian will be automatically detected without require a push button.

# CERITERA MELAKA

# CERITERA MELAKA

Interview


Location


Street View

Publication

bit.ly/ceriteramelaka

Ceritera Melaka

Ceritera Melaka

Ceritera Melaka


Integrate with 2 goals outlined in Melaka Resilient Strategy :

1. Sustain our local heritage values
2. Empower community to take action

Ceritera Melaka is a supporting project for cultural heritage mapping as an initiative to **record and documentation on tradition, costume, craft, event, festival, community stories and traditional food.**

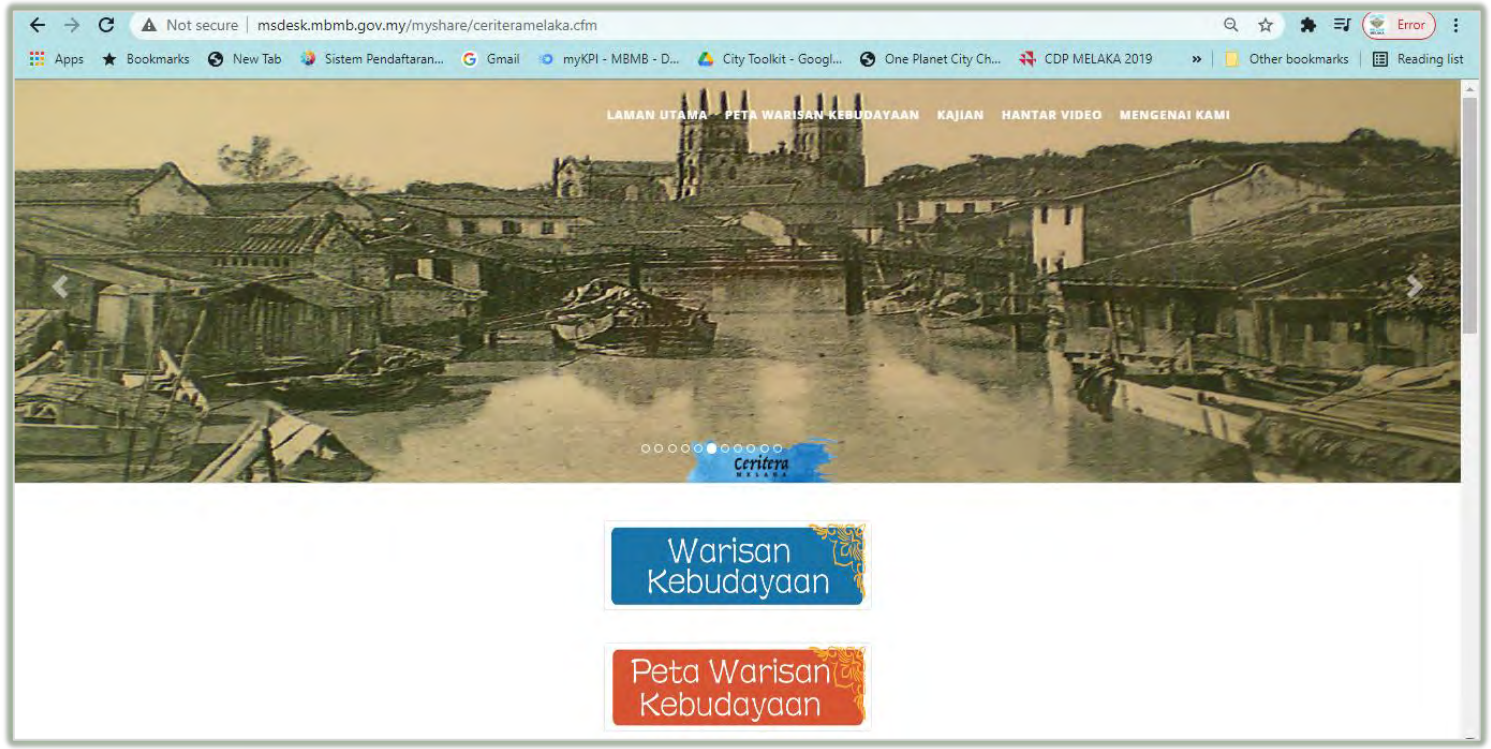
Sector:

**Smart Social**

Sub Sector:

**Smart Governance**

# CERITERA MELAKA

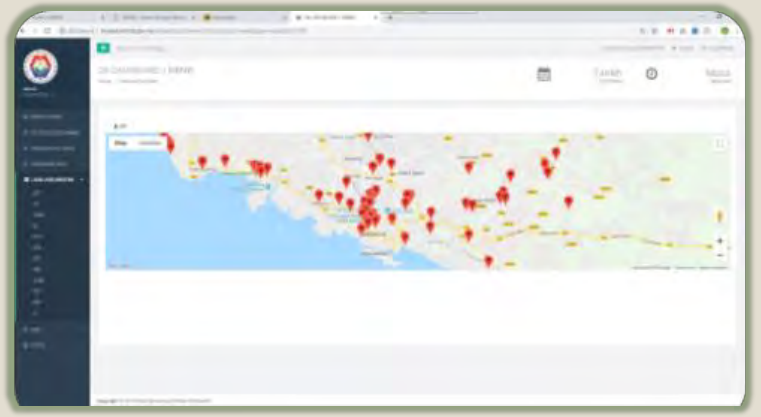



# MYSHARE MBMB

# MYSHARE MBMB

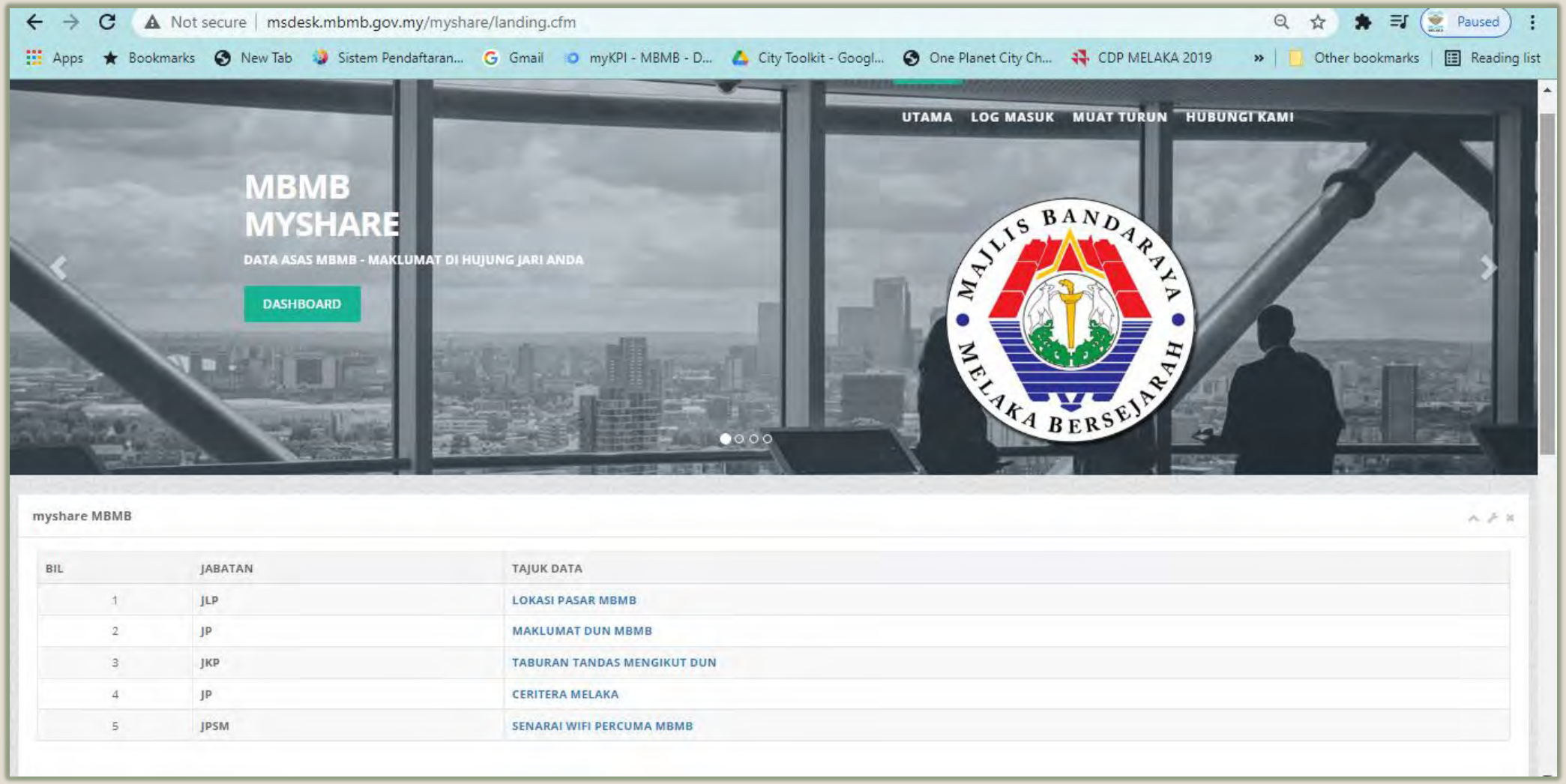
Sector:
**Smart Social**
Sub Sector:
**Smart Governance**



- An application that **integrate basic data** within MBMB organization.
- A **comprehensive** and **manageable** data base system
- An **efficient** and **systematic** data storage

# MYSHARE MBMB




| BIL | JABATAN | TAJUK DATA |
|---|---|---|
| 1 | JLP | LOKASI PASAR MBMB |
| 2 | JP | MAKLUMAT DUN MBMB |
| 3 | JKP | TABURAN TANDAS MENGIKUT DUN |
| 4 | JP | CERITERA MELAKA |
| 5 | JPSM | SENARAI WIFI PERCUMA MBMB |

# MYFPX

# MBMB

# MYFPX MBMB


MyFPXMBMB
SILA JELASKAN CUKAI TAKSIRAN ANDA
ELAKKAN DIKENAKAN DENDA, HARTA DISITA,
TINDAKAN MAHKAMAH DAN TINDAKAN KAVEAT.
INISIATIF MBMB

# MYFPX MBMB


myfpx.mbmb.gov.my/myfpx/index.cfm
MyFPXMBMB
Home
Guide
Registration
Contact Us
Language
LANGKAH PENCEGAHAN COVID-19
BAYAR SECARA DALAM TALIAN
Tidak perlu ke kaunter untuk menjelaskan
CUKAI TAKSIRAN, KOMPAUN, SEWA & LAIN-LAIN
HTTPS://MYFPX.MBMB.GOV.MY/
Bersama tangani wabak COVID-19 | Jangan terlambat untuk mendapatkan rawatan!
JABATAN KESIHATAN NEGERI MELAKA

# SMART MAP MBMB

# SMART MAP MBMB

- Tackling current work process that require an **improvement by using a modern technology, efficient planning and systematic governance**.
- SMARTMAP MBMB integrate an **accessible geospatial and analysis at any time and anywhere.**
- SMARTMAP MBMB consist of ability in technology for **data collection, manipulating data, access to information** in more accurate, fast and effective.


Sector:

**Smart Social**

Sub Sector:

**Smart Governance**

# THANK YOU