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Philippines: Good Practices in Smart Urban Transportation

Submitted by: Philippines

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Conference on Promoting Smart Cities Through Quality Infrastructure Investment in Rapidly Urbanizing APEC Region
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Philippines: Good Practices in Smart Urban Transportation

Promoting Smart Cities through Quality Infrastructure Investment in Rapidly Urbanizing APEC Region

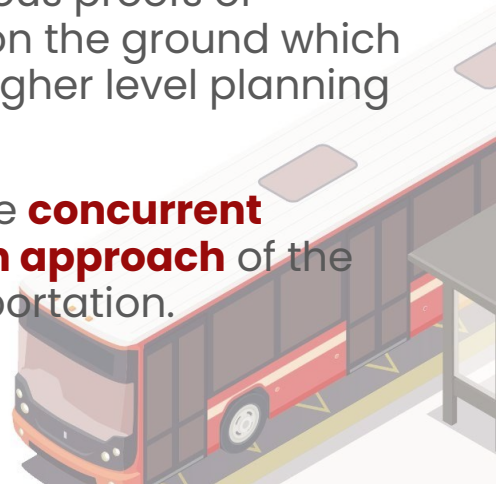
DEPARTMENT OF TRANSPORTATION

INTRODUCTION

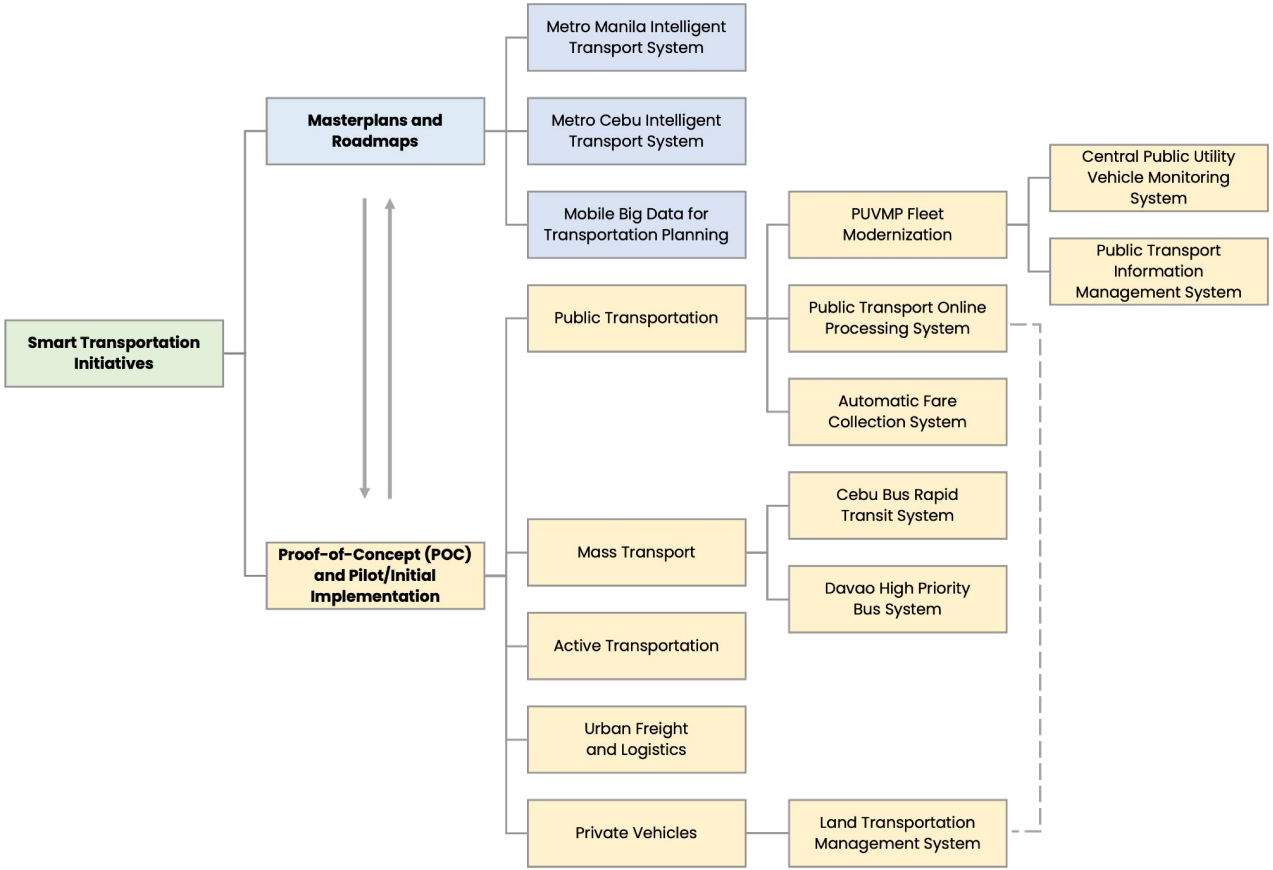
The Philippines is yet to achieve seamless smart transportation, however, presently has **multiple and varied contributing programs, projects and activities**.

Pending the capacity (e.g., infrastructure, technical, human resources) to build an omnichannel system, various proofs of concepts (POCs) are run on the ground which further contribute to the higher level planning (studies).

This effectively signifies the **concurrent bottom-up and top-down approach** of the Philippines in smart transportation.



EXECUTIVE SUMMARY



PUBLIC UTILITY VEHICLE MODERNIZATION PROGRAM (PUVMP)

PUV MODERNIZATION PROGRAM

Fleet Modernization Component

FEATURE	REQUIREMENT
Environment-friendly	Clean Air Act complaint engine. Euro 4 emission or better. Electric, Solar, Alternative Fuel
Safety	Side door, Speed limiter, Automatic Braking System, Compliant with safety standards.
Security	CCTV, GPS, Dashboard Camera
Comfort/ Convenience	PWD/elderly-friendly, Free Wi-fi, AFCS

CENTRAL PUBLIC UTILITY VEHICLE MONITORING SYSTEM (CPUVMS)

CENTRAL PUBLIC UTILITY VEHICLE MONITORING SYSTEM

- The **CPUVMS is a pilot project** of the Land Transportation Franchising and Regulatory Board (LTFRB) which aims to **monitor the movement of public utility vehicles (PUV) in real time** through the use of onboard global positioning system (GPS)
- Through the system, it is able to **monitor compliance of PUV operators to the prescribed service plan** (required deployment of units, headway, dwell time, etc.)

PUBLIC TRANSPORT INFORMATION MANAGEMENT SYSTEM (PTIMC)

PUBLIC TRANSPORT INFORMATION MANAGEMENT SYSTEM

PTIMC aims to **properly regulate road-based public transport** and develop a **more responsive planning of transport services** through accurate and timely information on vehicle location and level of service.

- With complementary mobile app for easier tracking of PUVs
- Can be linked with other existing apps

Status: On-going procurement

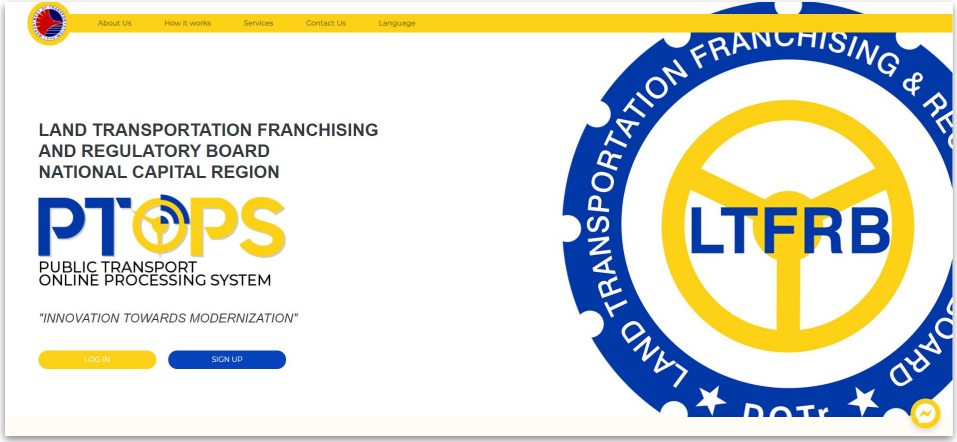
Pilot Implementation: Early 2022

PUBLIC TRANSPORT ONLINE PROCESSING SYSTEM (PTOPS)

PUBLIC TRANSPORTATION FRANCHISE AND REGULATORY BOARD (PTOPS)

Public Transport Online Processing System.

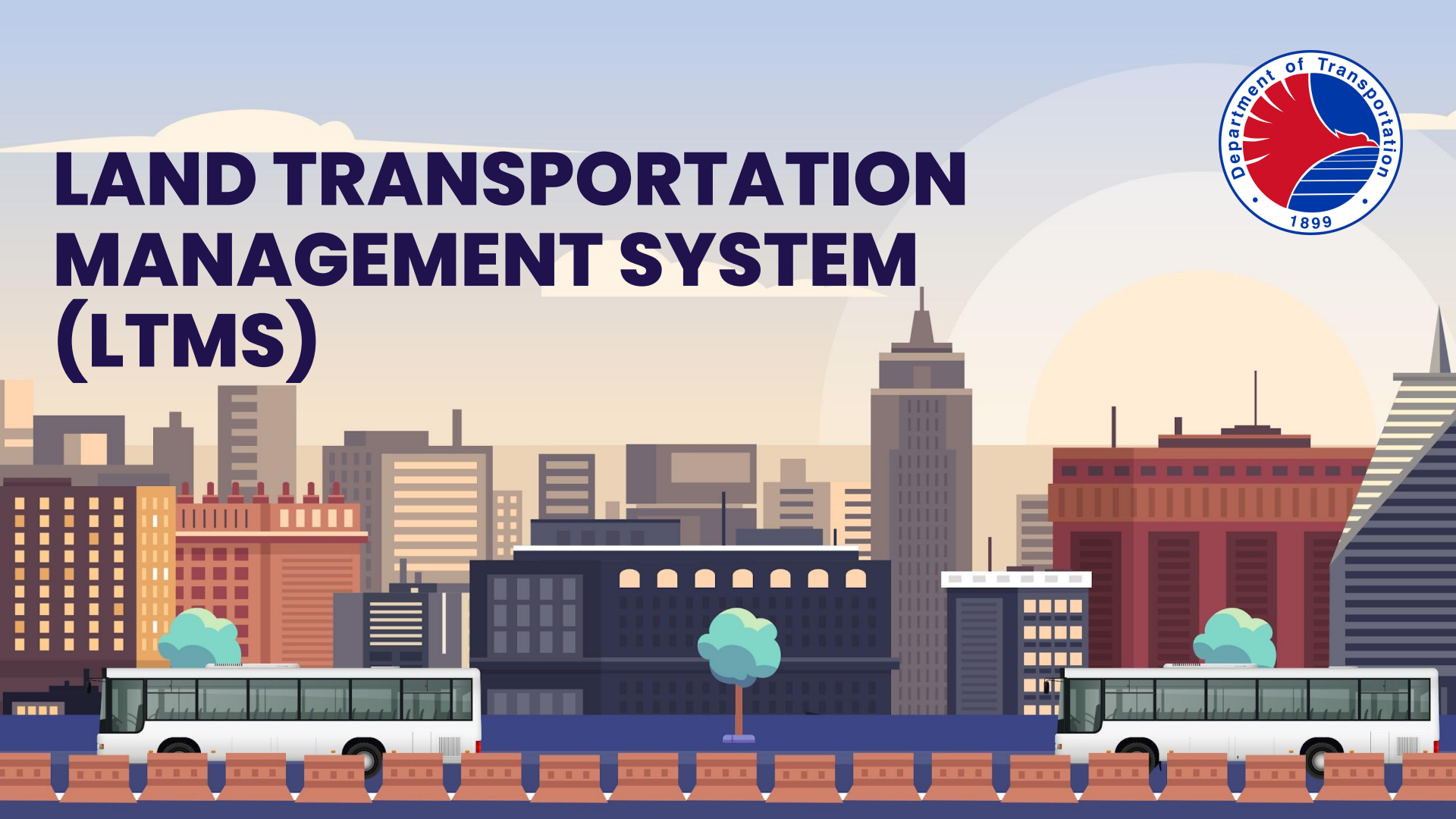
The PTOPS is an online platform launched in June 2020 at the height of the pandemic to **reduce in person activities** **in processing franchise-related requests** by transport stakeholders with the Land Transportation Franchising and Regulatory Board. The platform is in its **pilot stage** **and currently used by the Capital Region office of LTFRB.**



Since its launch, the platform showcased a promising performance and acceptance from LTFRB NCR's primary stakeholders:

- **38,516 verified users**
- **600 users visit per day**
- **400-500 average applications per day**
- **5000 completed applications per month**

LAND TRANSPORTATION MANAGEMENT SYSTEM (LTMS)



LAND TRANSPORTATION MANAGEMENT SYSTEM

LAND TRANSPORTATION MANAGEMENT SYSTEM (LTMS)

Online driver's license transaction platform. A part of the efforts in containing the spread of COVID-19, and in transition towards the New Normal. Currently on gradual implementation through selected Land Transportation Offices nationwide.

- Renewal of licenses;
- Revision of records;
- Request of Certificate of No Apprehension; and
- Other miscellaneous transactions

AUTOMATED FARE COLLECTION SYSTEM

AUTOMATED FARE COLLECTION SYSTEM

Total Project Cost: USD 74,209,481

Financing Scheme:

- ODA-EDCF-Korea: USD 64,475,836 (86.88%)
- GOP: USD 9,733,645 (13.12%)

- **Philippine AFCS (PAFCS)**

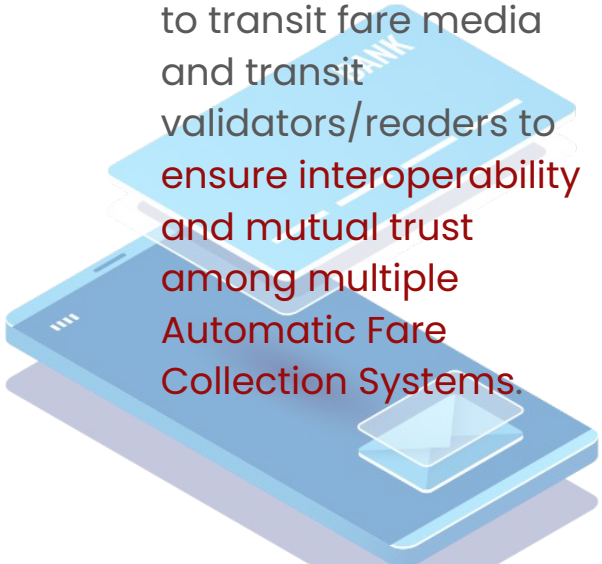
  Aims to establish the relevant standards with the standard regulatory system and the central clearing center for clearing the transit card transaction cards.

  - Development of the Central Transit Acquirer System and Data Center
  - Enhancement of GOP Urban Planning Capacity
  - Demonstration of Citywide PUV AFCS Program
  - Public Transport Service Upgrade

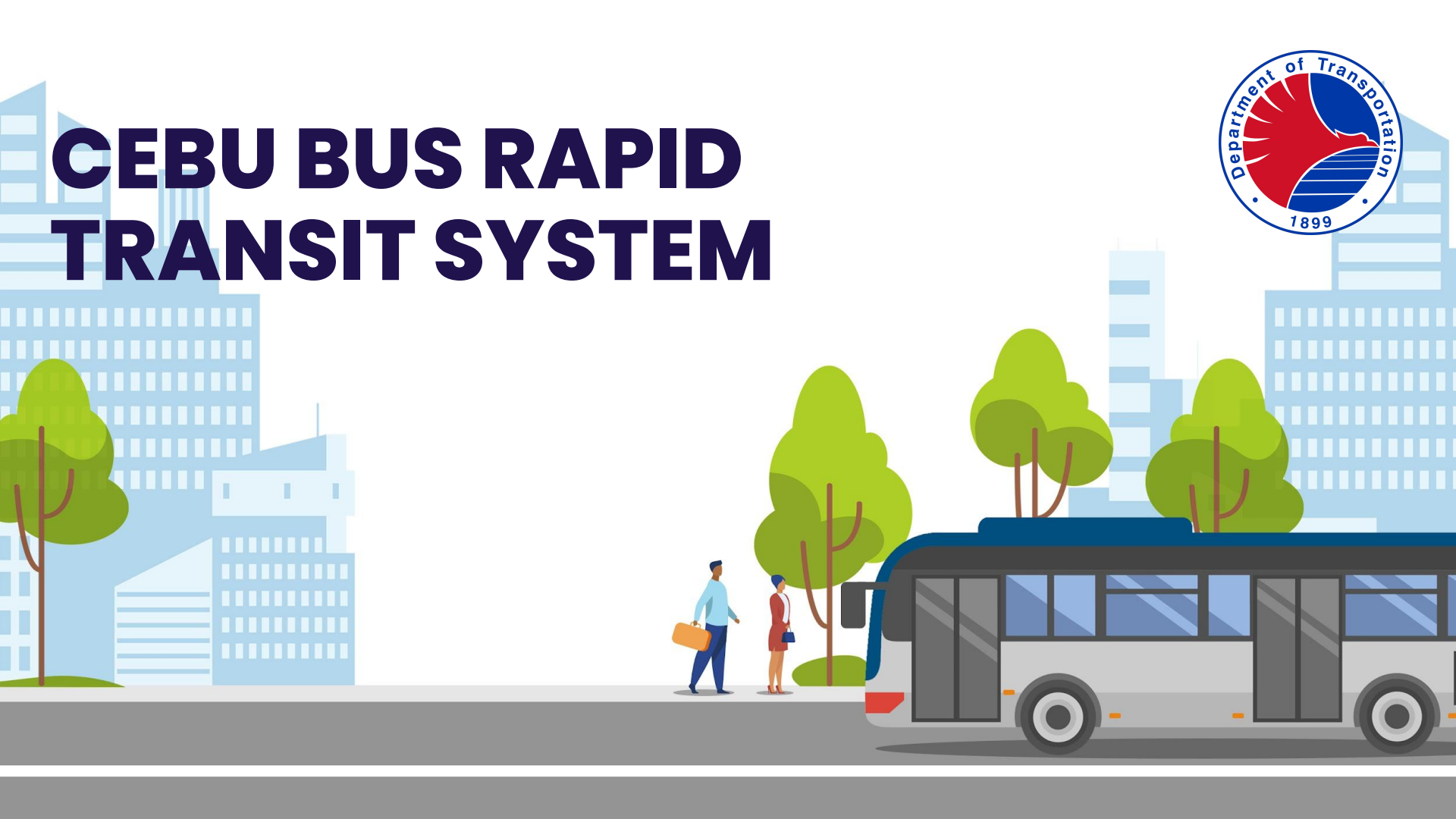
AUTOMATED FARE COLLECTION SYSTEM

- **AFCS Standards Project.**

  This project aims to apply a nationwide standard specification to transit fare media and transit validators/readers to ensure interoperability and mutual trust among multiple Automatic Fare Collection Systems.



CEBU BUS RAPID TRANSIT SYSTEM



CEBU BUS RAPID TRANSIT SYSTEM

Cebu BRT is envisioned to provide a safe, reliable, and efficient transport system that delivers enhanced public mobility to improve everyday living for all Cebuanos and move the city forward towards a sustainable future.

The project involves 13.18 km of segregated lane.

LAUNCH AND PARTIALLY OPERATE IN 2Q 2022
FULL OPERATION: 3Q 2023

CEBU BUS RAPID TRANSIT SYSTEM

It also encompasses the development of **17 stations, 1 depot, and 1 trunk terminal** from South Road properties (SRP) in Cebu City's south district to IT park in the north district. It also includes a **22.1 km Feeder Line System.**

DAVAO HIGH PRIORITY BUS SYSTEM

DAVAO HIGH PRIORITY BUS SYSTEM

Davao High Priority Bus System aims to provide the Davaoeñeos a modern and reliable high priority bus system, as well as deliver a much-improved public transport infrastructure and services.

With the HPBS, interconnected bus services will be prioritized along the **626 km road network.**

Estimated Capacity:
800,000 passengers daily

FOR GROUNDBREAKING IN 1Q 2022
FULL OPERATION: 3Q 2023

DAVAO HIGH PRIORITY BUS SYSTEM

It also encompasses the development of

5 depots, 3 terminals, a driving school,

along with the installation of

1,074 bus stops

and other pedestrian improvements.

As well as, integration of bike lane and **traffic signal priority for buses**

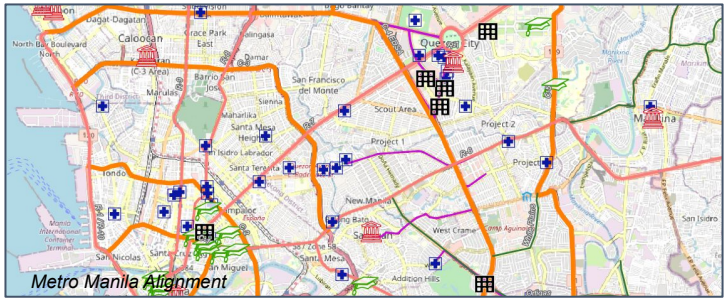
ACTIVE TRANSPORTATION

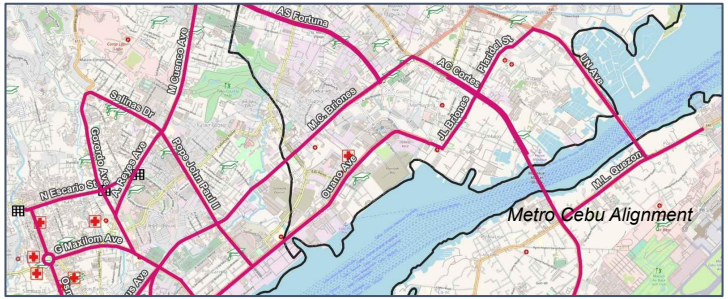
Activation of Cycling Route Map in Google Maps, Openstreetmap, and other platforms

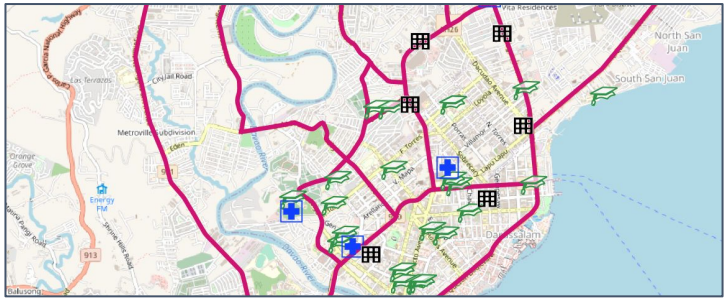
a. Help cyclists find the **best path to their destination using a protected bike lane**

b. **Legitimize cycling as a mode of transportation** by putting it alongside the other modes of transportation Google Maps has

c. **Encourage commuters and car owners to shift to cycling** as their primary or alternative mode of transportation

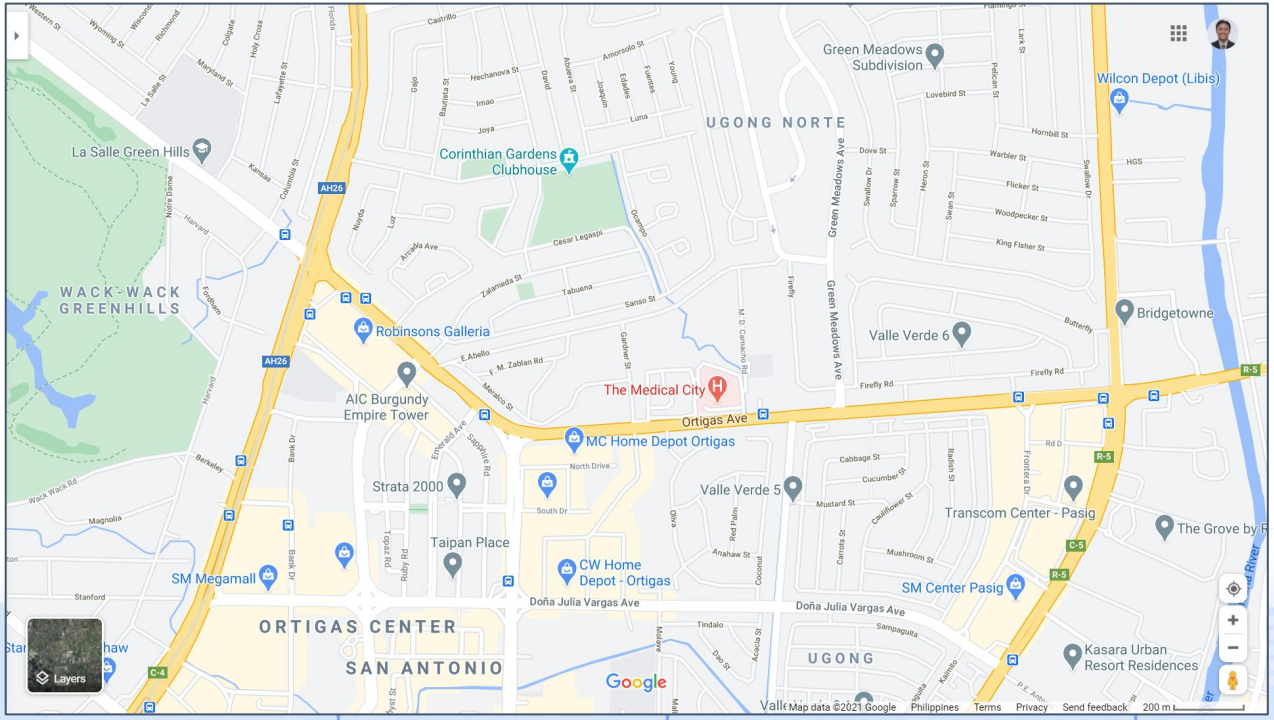






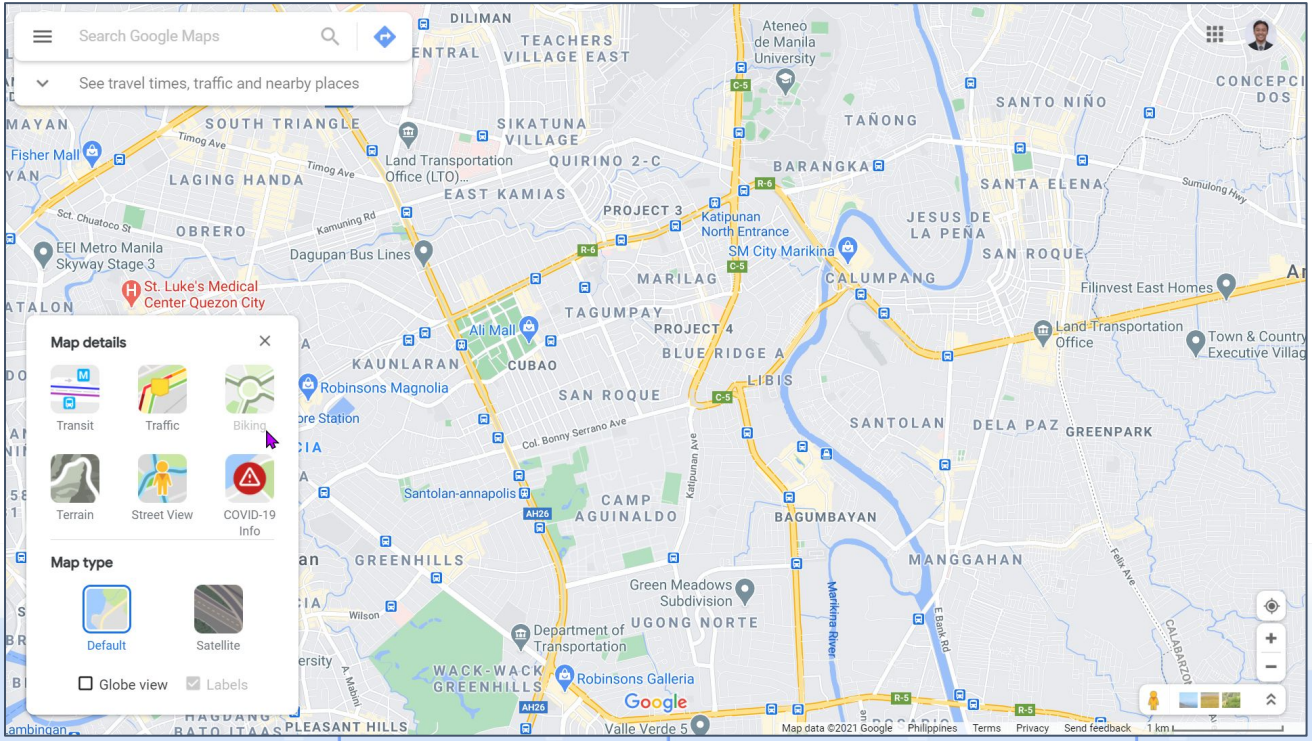
PROPOSED FEATURES

1. The **addition of bike lanes as a map element** (ex: main roads and expressways are orange and major roads are white) in Google Map's web map.



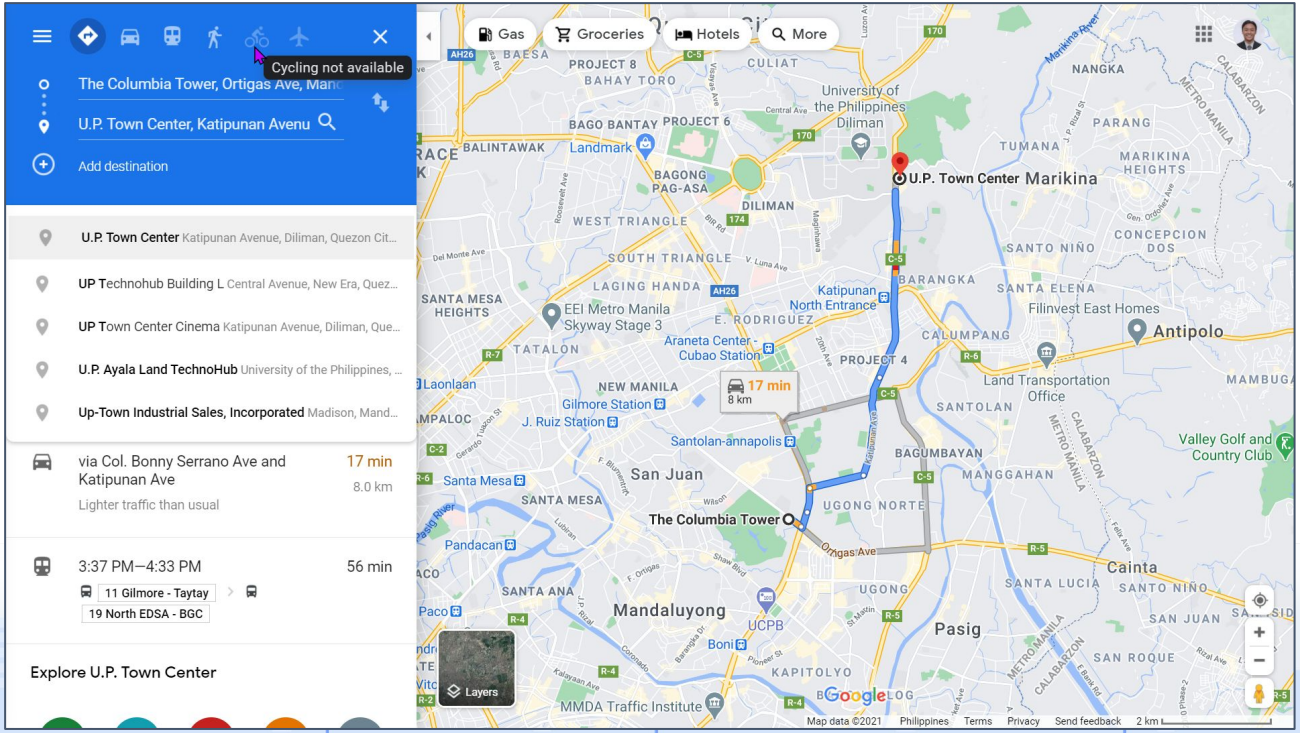
PROPOSED FEATURES

2. The **activation of the “Biking” map**



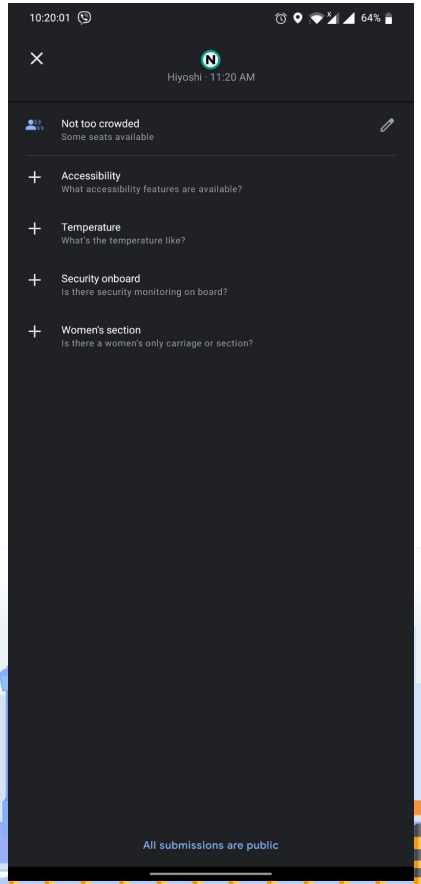
PROPOSED FEATURES

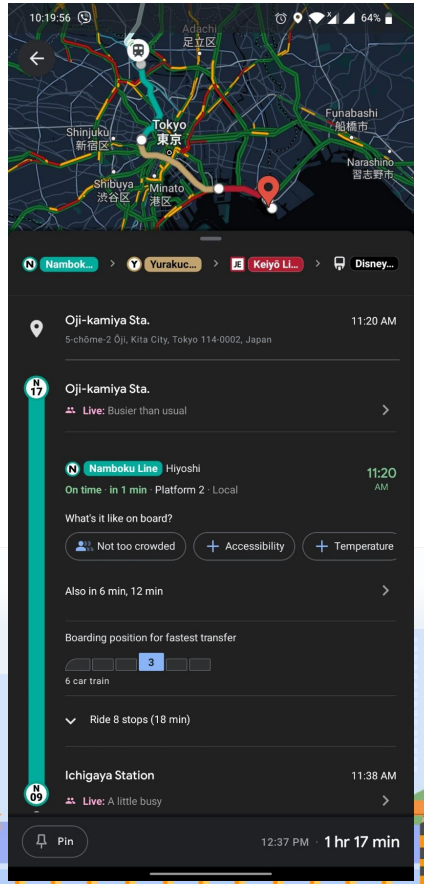
3. When a user queries the **directions from point A to B, a "cycling" mode should also be present** along with the public transportation and private vehicle modes



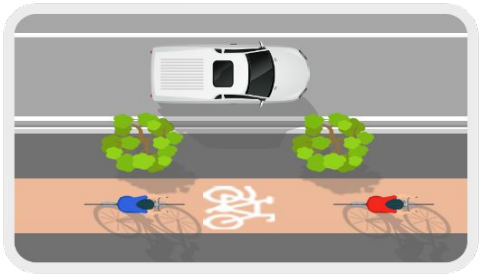
PROPOSED FEATURES

4. Along with the “cycling” mode, a **feedback mechanism shows up detailing the different factors** of a certain route such as directness, road smoothness, number of intersection, overpass, difficulty, elevation, etc.

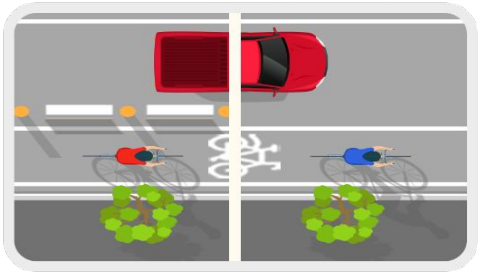




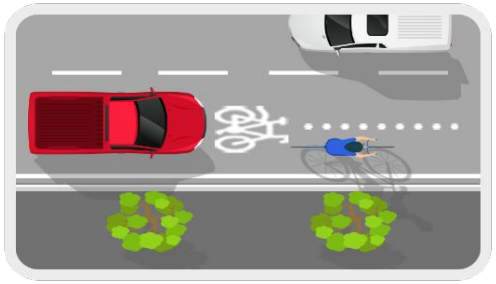
PROPOSED FEATURES



CLASS 1



CLASS 2



CLASS 3

5. As a toggle-able layer or by default styling, the **bike lanes on the map should be distinguished by class or by their level of protection** against vehicles

   Class 1 - bike lane separated from the road
   Class 2 - **protected bike lane** on the road
   Class 3 - pavement marking on the road

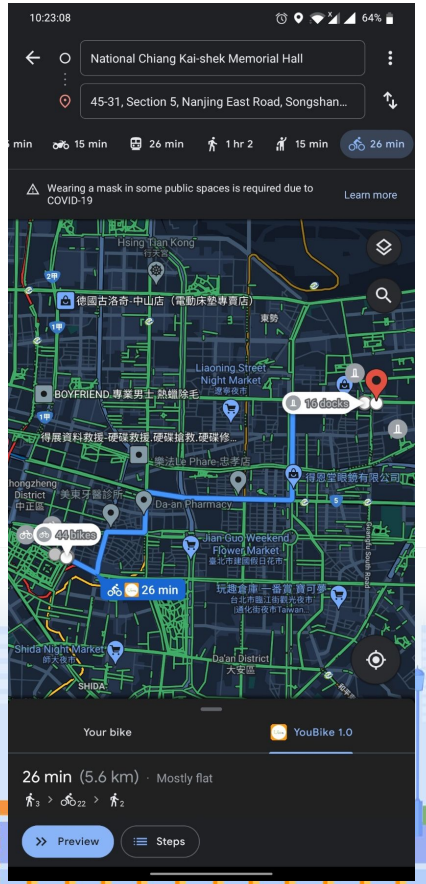
   It is preferable the cyclists use a more protected bike lane the longer their trip is.

PROPOSED FEATURES

6. The addition of the **Bike Share Stations for the Bike Sharing Program** as a map element.

   The Bike Share Stations hold **rentable bikes which can be used to bike from one Station to another**. The addition of a pop-up on each station showing the number of bikes (start station) and vacant docks (end station) would be helpful.

   The Bike Sharing Program is a project of DOTr with the Metro Manila Development Authority.

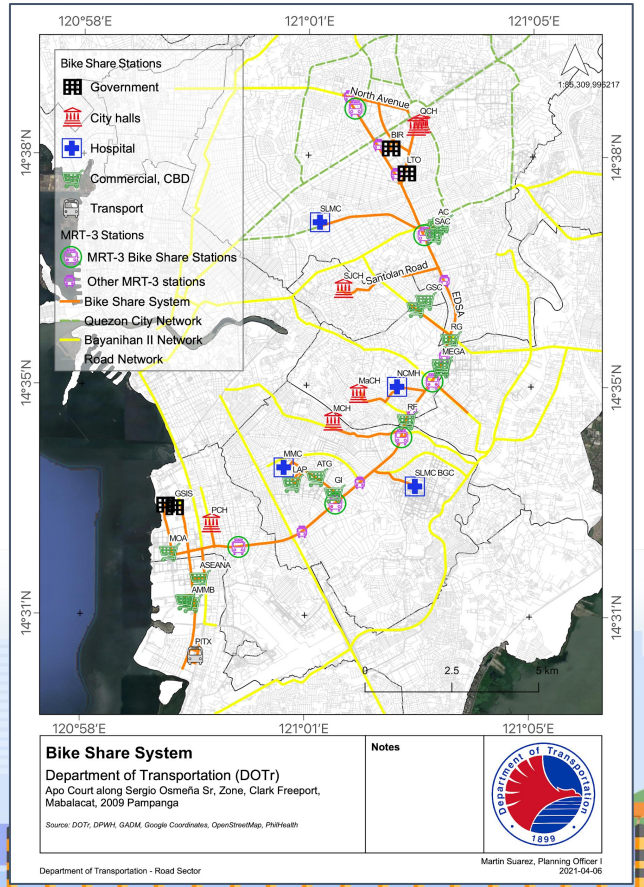


PROPOSED FEATURES

7. The addition of the **Bike Share Routes for the Bike Sharing Program** as a map element.

   The Bike Share Routes are part of the Metro Manila Bayanihan II bike lanes and will be i**nitially be the exclusive bike lane for Bike Share users**.

   It is important that it is **visually distinct in Google Map**.



PROPOSED FEATURES

8. A feedback/communication process between the Philippines government and Google.

   This is for **DOTr and DPWH to communicate to the Google Maps team which bike lane sections are closed** for maintenance, what roads new bike lanes are being built on, and etc.

Photo from Bike Lane Spotting PH Facebook page

PROPOSED FEATURES

9. A feedback system from users that DOTr and DPWH has access to in order for the said **agencies to locate and address problems at any point along the bike lanes**.

10. A regular report from Google showing the **ranking of usage of the bike lane** and bike lane-less sections. This could come as a table or heatmap.

    This will guide the Philippines and local government to identify which bike lanes have low usage and **which road sections cyclists use even without a bike lane**.

Photo from Lester Babiera via Bike Lane Spotting PH Facebook page

URBAN FREIGHT AND LOGISTICS

URBAN FREIGHT AND LOGISTICS

Unified Logistics Pass (ULP).

An inter-agency initiative that aims to **facilitate easier movement and ease port-entry** restrictions by **institutionalizing a common "pass"** which trucking companies may avail.

The project is **currently in the design stage** and **all concerned agencies are scoping all data requirements** for streamlining.

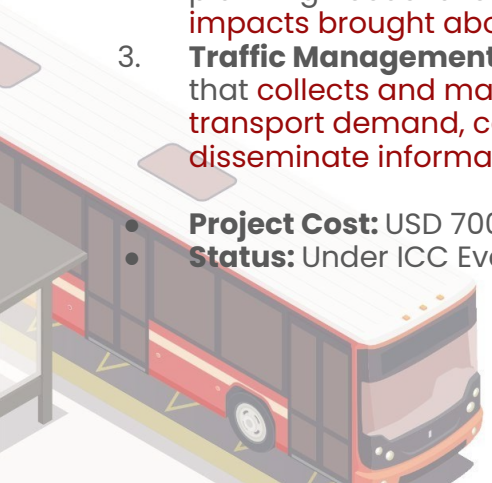
METRO MANILA INTELLIGENT TRANSPORT SYSTEM (MASTERPLAN)

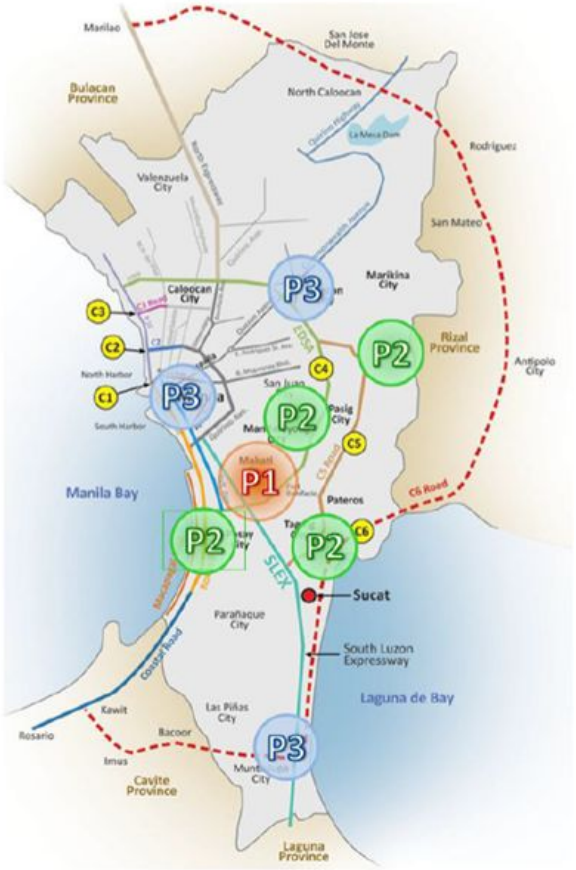
METRO MANILA INTELLIGENT TRANSPORT SYSTEM

A unified management system which aims to ease congestion in Metro Manila by utilizing different strategies, including **travel demand management**, **integrated land use and transport planning** and **traffic management.**

1. **Travel Demand Management** - Using Congestion Charging System which utilizes Automatic Number Plate Recognition (ANPR) cameras mounted at roadside gateway access points to identify and then charge road users (depending on vehicle class and congestion level).
2. **Integrated Land Use and Transport Planning** - Through Traffic Modelling which includes policies and regulations where all land-use planning needs take into account the transport requirements and impacts brought about by the land use plan.
3. **Traffic Management** - Through the employment of various technology that collects and manages traffic information to efficiently address transport demand, conduct surveillance and apprehensions, and disseminate information to various stakeholders.

- **Project Cost:** USD 700 million
- **Status:** Under ICC Evaluation





METRO MANILA INTELLIGENT TRANSPORT SYSTEM

Travel Demand Management

Congestion Charging System - Utilizes Automatic Number Plate Recognition (ANPR) cameras mounted at roadside gateway access points to identify and then charge road users (depending on vehicle class and congestion level)

Integrated Land Use and Transport Planning

Traffic Modelling - Includes policies and regulations where all land-use planning needs take into account the transport requirements and impacts brought about by the land use plan

Traffic Management

Traffic Control Center (TCC) - The central entity for traffic management of the whole road network.

Traffic Violation Apprehension System - Red light and speed cameras in combination with sensors will also be installed to monitor and detect traffic violators remotely and simultaneously.

CCTV Traffic Surveillance - IP-based CCTV systems will be installed in strategic junctions and road sectors for general surveillance, traffic monitoring, and incident verification purposes in conjunction with other ITS subsystems.

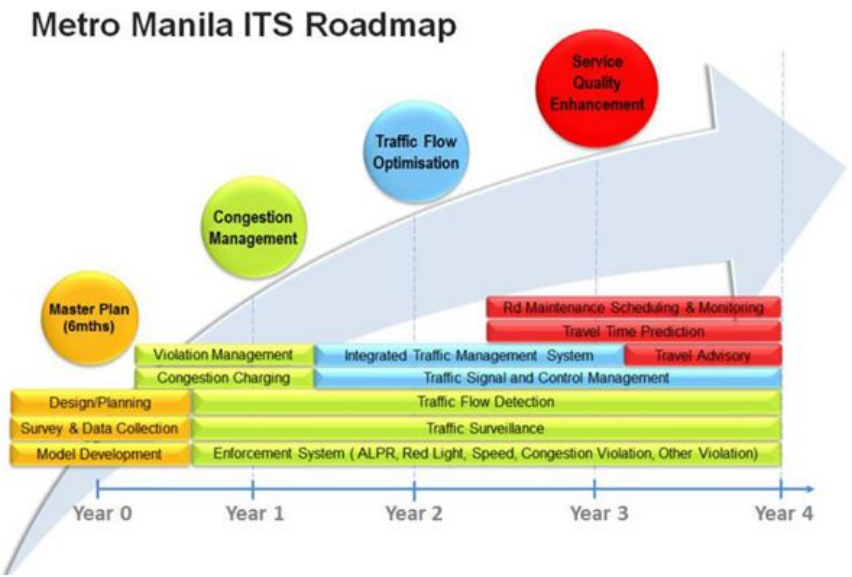
Travel Advisory and Information Dissemination - Data collected in servers from the various systems installed will be aggregated to provide accurate and real-time traffic information for all road users and commuters.

Traffic Data Collection System - Video detection systems will be installed in strategic locations to feed processed statistical data to servers for traffic demand and flow projection over time.

Traffic Signal Control (TSC) System - Installation of Video-based Vehicle Detectors (VBVD) to feed data from intersections to the TSC Central Control Server

Automatic Vehicle and Location Dispatch - All key resources of the mobile unit of the proposed Transport Authority, such as inspection vehicles, tow trucks, motor bikes, etc., will be connected through a system to the TCC for the purpose of monitoring their locations to automatically determine the best available mobile resource to be deployed in response to an incident.

METRO MANILA INTELLIGENT TRANSPORT SYSTEM



- **Master Plan.** The design and planning of the subsystems, including data collection and site survey for the basic traffic model.
- **Congestion Management.** Detailed design of the congestion charge scheme and system implementation, in addition to the deployment of enforcement system in strategic locations.
- **Traffic Flow Optimization.** The ITS subsystems will be applied and optimized to the traffic flow within Metro Manila.
- **Service Quality Enhancement.** Regular system maintenance scheme and training program shall be established, as well as a work improvement process, for the continuous improvement of the quality of the applied road services. The traveler advisory application will also be implemented at this stage.

METRO CEBU INTELLIGENT TRANSPORT SYSTEM (MASTERPLAN)

METRO CEBU INTELLIGENT TRANSPORT SYSTEM

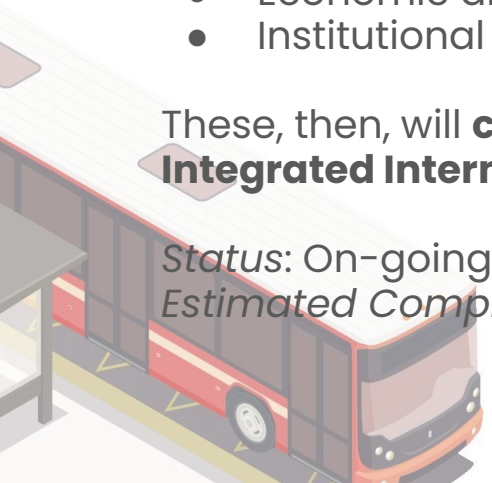
Technical Assistance on Metro Cebu Intelligent Transport System (MCITS)

A project funded by United States Trade and Development Agency (USTDA) which aims to **determine the appropriate ITS solutions** to address traffic management issues in the cities and six (6) municipalities of Metro Cebu in Visayas through:

- Technology review
- Economic and financial evaluation
- Institutional and regulatory review

These, then, will **complement** the ongoing projects in Cebu, one of which is the **Integrated Intermodal Transport System (IITS)**.

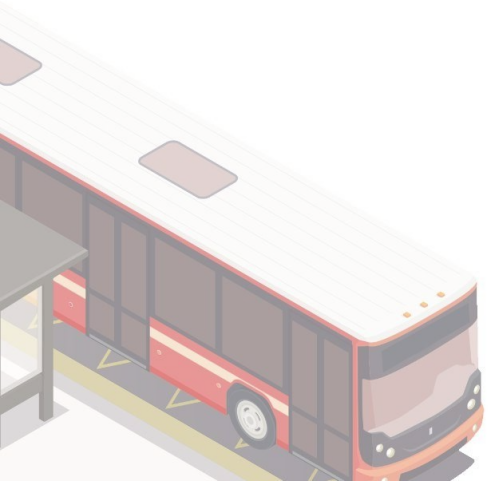
Status: On-going consultant procurement
Estimated Completion: 2022



MOBILE BIG DATA FOR TRANSPORT PLANNING (MBD PROJECT)

MOBILE BIG DATA FOR TRANSPORT PLANNING

- Part of the objective to **foster smart governance practices** in ASEAN
- Currently in **Exploratory Phase** (including data gathering and vision planning)
- Model MBD initiatives include those of Vietnam's and Thailand's



SUMMARY

The Philippines implements a **combined bottom-up and top-down approach** in realizing an interoperable transportation.

We see a **continuous test and learn process** from various fronts as a solution to the limited capacity of conducting a system overhaul.

Smart transportation in the Philippines, while focusing on seamless mobility for Filipinos, is a **multilateral effort** between different sectors, institutions, and countries.

Thank you!