TRANSPORT SECTOR: MARITIME TRANSPORT S&T ROADMAP

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Thematic Areas

- Integrated Maritime Safety, Security and Surveillance
- Green Alternative Systems for Coastal, Inland Waterways and Inter-island Transport System
- Green Supply Chain Management and Energy Efficiency for Maritime Transport
- Green Modernized Maritime Transport Maritime Transport System through a Maritime R&D Hub

Overall Strategies

Human Resources
- Capacitate the maritime SUCs in crafting R&D proposals and implementing projects
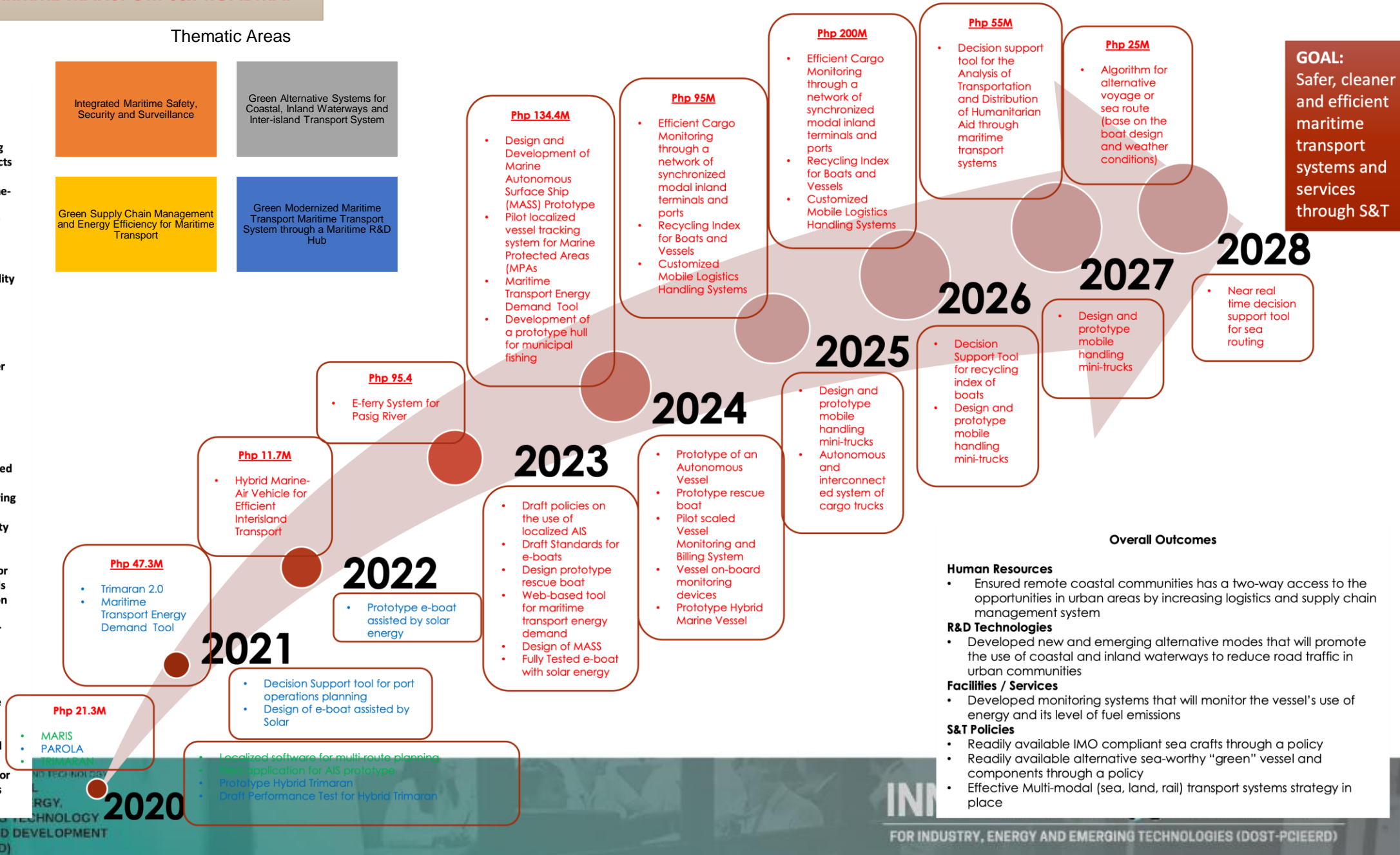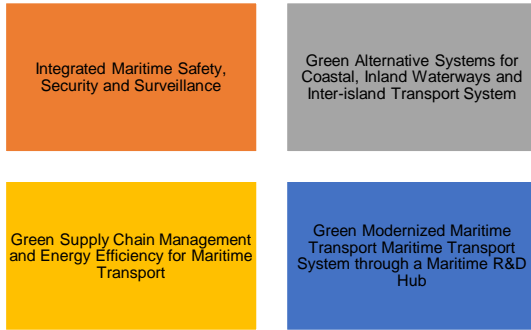
R&D Technologies
- Development of Prototype hybrid marine-aircraft/vessel
- Development of Intermodal systems for people and goods
- Design and Development of Safer sea-worthy vessels
- Simulate a Ship Recycling and Recyclability Index
- Development of Cost Effective Hull materials for displaced wooden hull motorboats
- Design & Development of Eco-friendly inland water transport for shallow water
- Deployment of AIS for small ship/boat monitoring
- Development of IOV for Remote ship building monitoring
- Develop integrated data recording and archiving system
- Development of Electric Powered Assisted by Solar Boats
- Development of Port and route Monitoring software
- Development of Assess inter-connectivity of freight and passenger multi-modal transport system
- Development of appraisal system tool for sea worthy compliant per IMO standards
- Design a Boat Assessment and Utilization System
- Development of water taxi for bay/river and coastal waters

Facilities / Services
- Establishment of a Maritime Transport Research Center
- Establishment of a Maritime Knowledge Management Hub

S&T Policies
- Draft Conversion Standard on Marinized Engine
- Draft Design Guidelines and Standards for commercial and municipal fishing boats

GOAL:
Safer, cleaner and efficient maritime transport systems and services through S&T

2020 — Php 21.3M
- MARIS
- PAROLA
- TRIMARAN
- Localized software for multi-route planning
- Tiled application for AIS prototype
- Prototype Hybrid Trimaran
- Draft Performance Test for Hybrid Trimaran

2021 — Php 47.3M
- Trimaran 2.0
- Maritime Transport Energy Demand Tool
- Decision Support tool for port operations planning
- Design of e-boat assisted by Solar

2022 — Php 11.7M
- Hybrid Marine-Air Vehicle for Efficient Interisland Transport
- Prototype e-boat assisted by solar energy

2023 — Php 95.4
- E-ferry System for Pasig River
- Draft policies on the use of localized AIS
- Draft Standards for e-boats
- Design prototype rescue boat
- Web-based tool for maritime transport energy demand
- Design of MASS
- Fully Tested e-boat with solar energy

2024 — Php 134.4M
- Design and Development of Marine Autonomous Surface Ship (MASS) Prototype
- Pilot localized vessel tracking system for Marine Protected Areas (MPAs
- Maritime Transport Energy Demand Tool
- Development of a prototype hull for municipal fishing
- Prototype of an Autonomous Vessel
- Prototype rescue boat
- Pilot scaled Vessel Monitoring and Billing System
- Vessel on-board monitoring devices
- Prototype Hybrid Marine Vessel

2025 — Php 95M
- Efficient Cargo Monitoring through a network of synchronized modal inland terminals and ports
- Recycling Index for Boats and Vessels
- Customized Mobile Logistics Handling Systems
- Design and prototype mobile handling mini-trucks
- Autonomous and interconnected system of cargo trucks

2026 — Php 200M
- Efficient Cargo Monitoring through a network of synchronized modal inland terminals and ports
- Recycling Index for Boats and Vessels
- Customized Mobile Logistics Handling Systems
- Decision Support Tool for recycling index of boats
- Design and prototype mobile handling mini-trucks

2027 — Php 55M
- Decision support tool for the Analysis of Transportation and Distribution of Humanitarian Aid through maritime transport systems
- Design and prototype mobile handling mini-trucks

2028 — Php 25M
- Algorithm for alternative voyage or sea route (base on the boat design and weather conditions)
- Near real time decision support tool for sea routing

Overall Outcomes

Human Resources
- Ensured remote coastal communities has a two-way access to the opportunities in urban areas by increasing logistics and supply chain management system

R&D Technologies
- Developed new and emerging alternative modes that will promote the use of coastal and inland waterways to reduce road traffic in urban communities
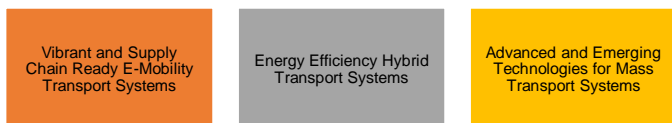
Facilities / Services
- Developed monitoring systems that will monitor the vessel's use of energy and its level of fuel emissions

S&T Policies
- Readily available IMO compliant sea crafts through a policy
- Readily available alternative sea-worthy "green" vessel and components through a policy
- Effective Multi-modal (sea, land, rail) transport systems strategy in place
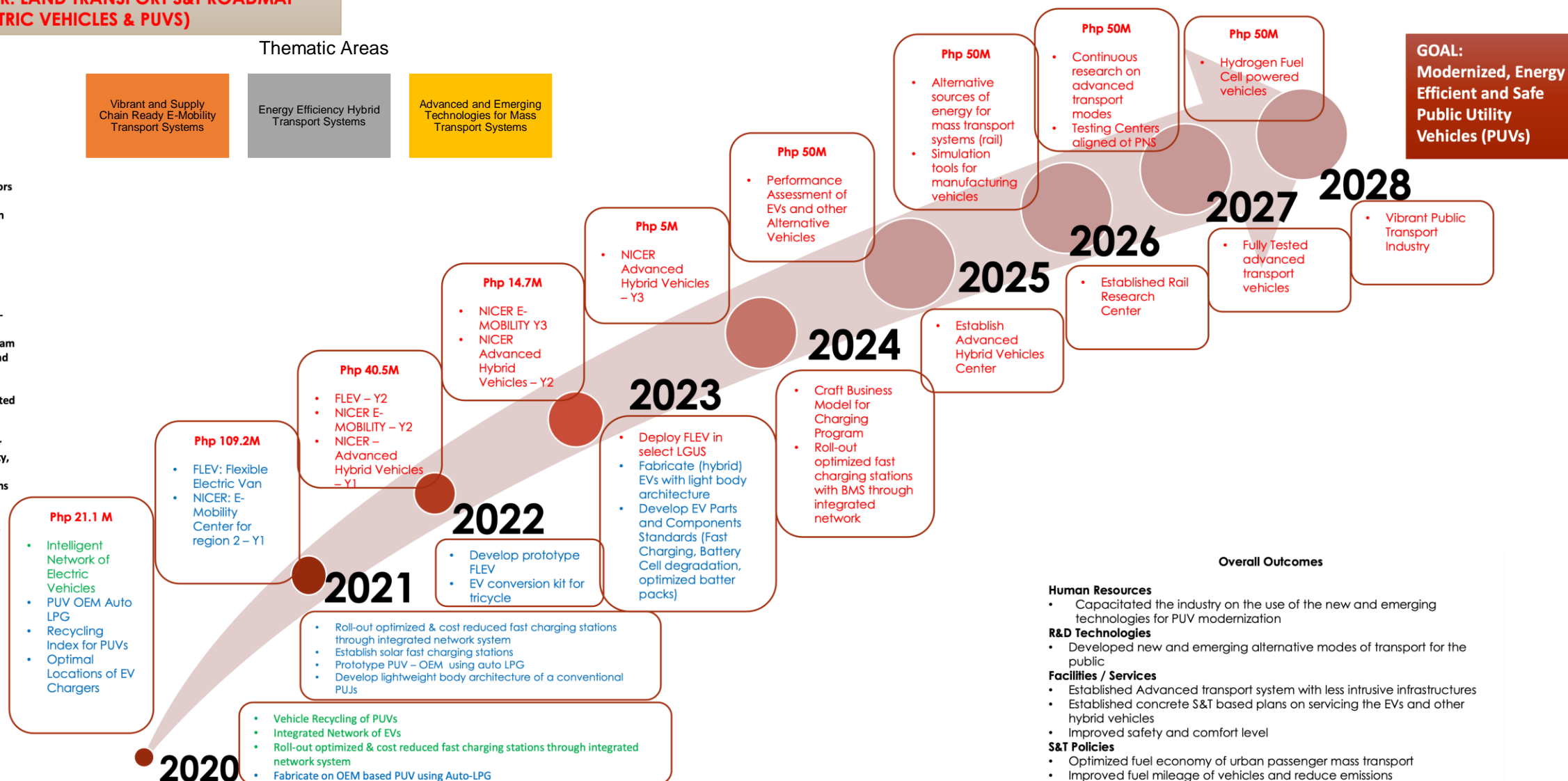
TRANSPORT SECTOR: LAND TRANSPORT S&T ROADMAP (ELECTRIC VEHICLES & PUVS)

Thematic Areas

- Vibrant and Supply Chain Ready E-Mobility Transport Systems
- Energy Efficiency Hybrid Transport Systems
- Advanced and Emerging Technologies for Mass Transport Systems

Overall Strategies

Human Resources
- Partnership with transport operators on the use of EVS
- Capacitate the industry and LGU on the use of EVs

R&D Technologies
- Optimize system efficiency with existing components
- Design Electrical Architectural and Interconnects
- Explore Lightweight materials, eco-design and recycling (conversion)
- Business Model for Charging Program (Battery Swapping, Deployment and e-Payment Systems)
- Roll-out optimized fast charging stations with BMS through integrated network

Facilities / Services
- Establishment of a Regional Center for S&T based Transport (e-mobility, advanced hybrid vehicles)
- Establish solar fast charging stations
- Establishment of Infra and EVs

S&T Policies
- Draft standards for EV conversions
- Draft policy on Vehicle Recycling
- Develop standards for design improvement of buses

GOAL: Modernized, Energy Efficient and Safe Public Utility Vehicles (PUVs)

Timeline

2020
- Vehicle Recycling of PUVs
- Integrated Network of EVs
- Roll-out optimized & cost reduced fast charging stations through integrated network system
- Fabricate on OEM based PUV using Auto-LPG

2021 — Php 21.1 M
- Intelligent Network of Electric Vehicles
- PUV OEM Auto LPG
- Recycling Index for PUVs
- Optimal Locations of EV Chargers

Roll-out optimized & cost reduced fast charging stations through integrated network system
- Establish solar fast charging stations
- Prototype PUV – OEM using auto LPG
- Develop lightweight body architecture of a conventional PUJs

2022 — Php 109.2M
- FLEV: Flexible Electric Van
- NICER: E-Mobility Center for region 2 – Y1

- Develop prototype FLEV
- EV conversion kit for tricycle

2023 — Php 40.5M
- FLEV – Y2
- NICER E-MOBILITY – Y2
- NICER – Advanced Hybrid Vehicles – Y1

- Deploy FLEV in select LGUS
- Fabricate (hybrid) EVs with light body architecture
- Develop EV Parts and Components Standards (Fast Charging, Battery Cell degradation, optimized batter packs)

2024 — Php 14.7M
- NICER E-MOBILITY Y3
- NICER Advanced Hybrid Vehicles – Y2

- Craft Business Model for Charging Program
- Roll-out optimized fast charging stations with BMS through integrated network

2025 — Php 5M
- NICER Advanced Hybrid Vehicles – Y3

- Establish Advanced Hybrid Vehicles Center

2026 — Php 50M
- Performance Assessment of EVs and other Alternative Vehicles

- Established Rail Research Center

2027 — Php 50M
- Alternative sources of energy for mass transport systems (rail)
- Simulation tools for manufacturing vehicles

- Fully Tested advanced transport vehicles

Php 50M
- Continuous research on advanced transport modes
- Testing Centers aligned ot PNS

Php 50M
- Hydrogen Fuel Cell powered vehicles

2028
- Vibrant Public Transport Industry

Overall Outcomes

Human Resources
- Capacitated the industry on the use of the new and emerging technologies for PUV modernization

R&D Technologies
- Developed new and emerging alternative modes of transport for the public

Facilities / Services
- Established Advanced transport system with less intrusive infrastructures
- Established concrete S&T based plans on servicing the EVs and other hybrid vehicles
- Improved safety and comfort level

S&T Policies
- Optimized fuel economy of urban passenger mass transport
- Improved fuel mileage of vehicles and reduce emissions

TRANSPORT SECTOR: INTELLIGENT TRANSPORT SYSTEMS (ITS) S&T SECTOR

Legend (Text Font): Done | Ongoing | Not yet Available

Thematic Areas

- IOV path to road safety
- Secured, integrated, connected and intelligent transport systems

Overall Strategies

Human Resources
- Big data analytics on transport modelling and simulation
- Capacitate the LGUs on the use of the transport modelling tools
- Partnership with transport operators on the use of ITS

R&D Technologies
- Localized Online driver testing software
- Road safety monitoring and modelling software
- Prototype Development of on-road MVIS with IoT
- Transport mobile apps for LGU data collection
- Development of Transport Intermodal tools
- Development of Vehicle to Infrastructure connectivity prototypes and models

Facilities / Services
- Establishment of a Regional Center for S&T based Transport
- Establishment of an Integrated DOTr, HPG and other LGU database
- Development of an IoT based V2V and V2I platforms for transport
- Establish on-board bus performance standards, i.e. "black box, speed limiters, GPS and video detectors

S&T Policies
- Draft policies on data sharing and use of S&T based data
- Draft policies on transport based on scientific approaches
- Draft Regional LPTRP
- Draft policy on the issuance of test certificates/results on driving assessments

Timeline

2020
Php 29.5M
- Sustainable Transport for the [...]
- [...] of [...]
- Develop traffic modelling and forecasting tools
- Cyber Physical Transportation System and advanced signalized networks
- Establish on-board bus performance standards, i.e. "black box, speed limiters, GPS and video detectors
- Roll-out of local traffic modeling and forecasting tools

2021
Php 40.5M
- ARANGKADATA: Advancement of Transport networks through an integrated vehicular onboard system

- Decision Support tool for port operations planning
- Framework for the Integrated network of vehicles
- Prototype on-board devices
- Deployed traffic software

2022
Php 38.9M
- DRIVER.PH – Drivers Roadworthiness
- SORT: System Optimization and Routing Tool for LGUs – Y1
- Portable Motor Vehicle Inspection system
- TESTDRIVE: Driver simulator

- Develop Mobile app for transport planning (LGU)
- Develop prototype MVIS
- Develop a prototype driving simulator for drivers

2023
Php 40M
- Driver.PH – 2.0 for PUVs and Transport Operators
- RIDER: Road Incident Detection and Analysis
- ACCRADS: Integrated platform of road accidents for MMDA and DOTr – Y1
- SORT – Y2

- Deployment of the on-board IOT devices for PUV drivers
- Design road incident detection software
- Design integrated framework for transport database connectivity
- Launch the pilot city with SORT app

2024
Php 15.7M
- Development of an IoT based V2V and V2I platforms for transport
- ACCRADS - Y2
- RIDER – Y2
- NICER – Active Transport – Y1

- Deploy RIDER software to the national agencies
- Deploy ACCRADS to the concerned agencies, with DOH

2025
Php 70M
- Smart inter-modal transport for better connectivity
- Critical Transport Infrastructure (CTI) Analysis Tool
- NICER – Active Transport – Y2

- Decision Support Tool for setting up smart intermodal networks
- Decision software tool for assessing CTI

2026
Php 35M
- Online Logistics platform integration for Road planning
- NICER – Active Transport – Y3

- Decision Support Tool for setting up smart intermodal networks
- Decision software tool for assessing CTI

2027
Php 35M
- Road planning
- NICER - Road safety – Y1

- Established Road Safety R&D Center

2028
Php 35M
- NICER - Road safety – Y2

Php 35M
- Software development for commuter simulation
- NICER - Road safety – Y3

- Established ITS Center

GOAL:
Integrated and responsive transport systems

Overall Outcomes

Human Resources
- Capacitated SUCs and LGUs on the use of the transport software tools

R&D Technologies
- Deployed localized ITS solutions

Facilities / Services
- Integrated platform for all concerned agencies using big data analytics

S&T Policies
- Improved road safety and reduced road accidents
- Improved urban mobility and accessibility and reliability of transport schedules