Intelligent Transport Systems: Leveraging to Address Transport and Traffic Challenges in the Philippines

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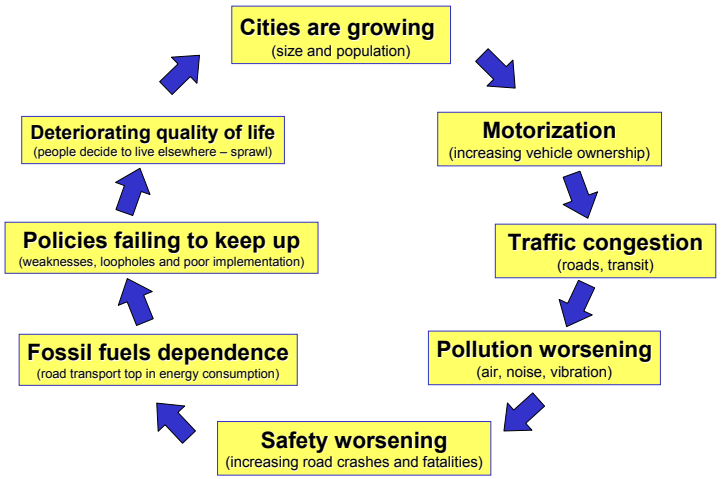
Jose Regin F. REGIDOR
Director, National Center for Transportation Studies
Professor, Institute of Civil Engineering
University of the Philippines
Diliman, Quezon City

Outline of presentation

- Sustainable Transport
  - Challenges
  - EST
  - ITS
  - Commitments
- ITS for Traffic Management
  - Public transport applications
- ITS for Road Traffic Safety
  - Integrated database/information systems
- ITS for Tomorrow's Cities
  - Initiatives in the Philippines

Urban Transport Challenges



Urban Transport Challenges

1) Traffic congestion and parking difficulties

- **Most prevalent** transport problems in urban areas
- Linked with the diffusion of the automobile, which **increases parking demand in places often incapable of handling** such requirements
- Transport infrastructure **developments have often not been able to keep up** with the growth of circulation

2) Public transport inadequacy

- Many public transit systems, or parts of them, are either **over or under used**
- During peak hours, **crowdedness is creating discomfort** for users while **low ridership makes many services financially unsustainable**, particularly in suburban areas.

Urban Transport Challenges

3) Difficulties for pedestrians

- These difficulties are either the outcome of **intense circulation where pedestrians and vehicles are impairing their respective movements**, but also because of a blatant **lack of considering pedestrian movements in the physical design of facilities**

4) Environmental impacts and energy consumption

- **Pollution**, including noise, generated by circulation has become a **serious impediment to the quality of life and even the health** of urban populations
- **Energy consumption** by urban transportation **has dramatically increased** and so has the dependency on petroleum

Urban Transport Challenges

5) Loss of public space

- The majority of roads are publicly owned and free of access. With the **increase in traffic volumes, there will be adverse impacts on public activities**
- In many cases, **street activities** (e.g. markets, agoras, parades and processions, games, and community interactions) **have shifted to shopping malls** while in other cases, such activities have been abandoned altogether
- Traffic volumes **influence the life and interactions of residents and their usage of street space**
- **More traffic encourages less social interactions** and less street activities
- Heavy **traffic also has adverse impact on human health.** In fact, people tend to walk and cycle less when traffic is high.

Urban Transport Challenges

6) Accidents and safety

- **Growing circulation in urban areas has been linked with a growing number of accidents and fatalities,** especially in developing countries

7) Land consumption

- As between 30 and 60% of a metropolitan area can be devoted to transportation, **a large amount of land can be considered as wasted by an over-reliance on some forms of urban transportation**

Environmentally Sustainable Transport
Thematic Areas

1. Public Health
2. Strengthening Roadside Air Quality Monitoring and Assessment
3. Traffic Noise Management
4. Vehicle Emission Control, Standards, and Inspection and Maintenance
5. Cleaner Fuels
6. Public Transport Planning and Travel Demand Management (TDM)
7. Non-Motorized Transport (NMT)
8. Environment and People Friendly Infrastructure Development
9. Social Equity and Gender Perspectives
10. Road Safety and Maintenance
11. Knowledge Base, Awareness and Public Participation
12. Land-Use Planning

ICT for Sustainable Transport
ASEAN Commitments

- "ASEAN Transport shall focus on cooperative activities towards facilitating seamless movement of people and goods…"

- Pursue sustainable transport
- Promoting road safety
- Intensify the application of Intelligent Transport Systems (ITS)

(Source: ASEAN Strategic Transport Plan, DFR, 2010)

Intelligent Transport Systems

Application of existing and emerging technologies to improve the efficiency of existing transportation facilities

Functional components

- **Advanced Traffic Management Systems (ATMS)**
- **Advanced Public Transport Systems (APTS)**
- **Advanced Vehicle Control Systems (AVCS)**
- **Commercial Vehicle Operations Systems (CVO)**

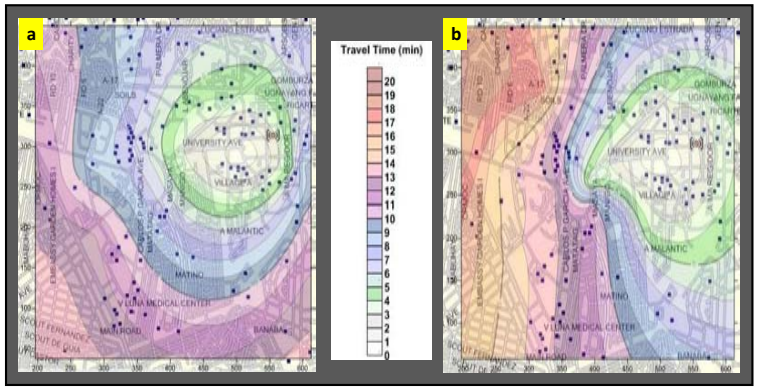
Advanced
Traveler
Information
Systems

ITS and ICT for Tomorrow's Cities
Initiatives in the Philippines

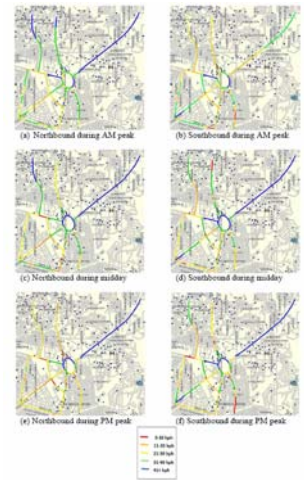
- **ICT applications**
  - for **traffic management**
    (ex. congestion management, incident management)
  - for **vehicle tracking**
    (ex. public transport, logistics)
  - for **land management**
    (ex. tax mapping)
  - for **disaster mitigation**
    (ex. flood risk, earthquakes)
  - Etc.

Address climate change:
Mitigation and Adaptation

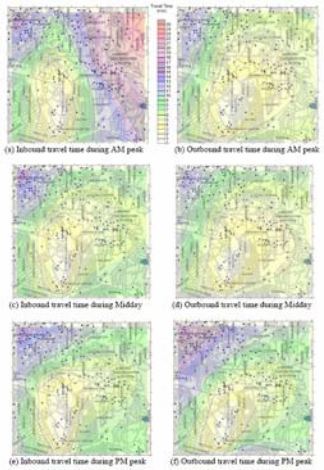
ITS for Traffic Engineering & Management
Travel time estimation through probe cars



Road travel time for (a) inbound and (b) outbound directions of UP Diliman during morning peak. (Macabbabad & Regidor, 2010)



Corridor speed maps
(Source: Macabbabad & Regidor, 2010)

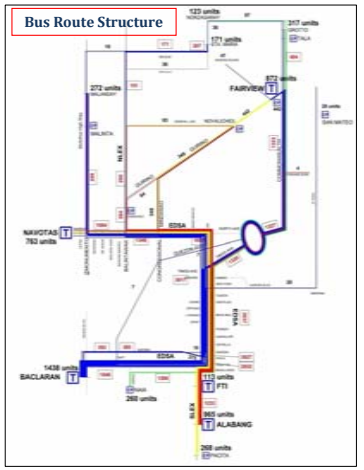


Inbound and outbound travel time maps for Philippine Heart Center

ITS for Traffic Management
Public Transport

System Components

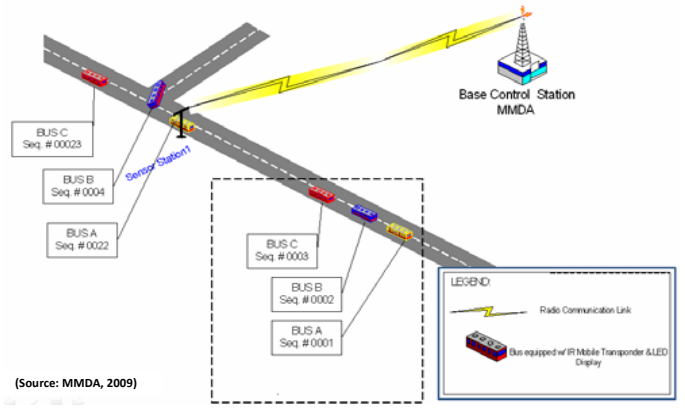
Bus Route Structure



(Source: MMDA, 2009)

ITS for Traffic Management
Public Transport

RFID System Concept (MMDA, 2009)



(Source: MMDA, 2009)

ITS for Traffic Management
Public Transport

Bus Rapid Transit

- Smart cards
- Arrival and departure info
- Route info

(Photos courtesy of: Villarete, Cebu City, 2010)

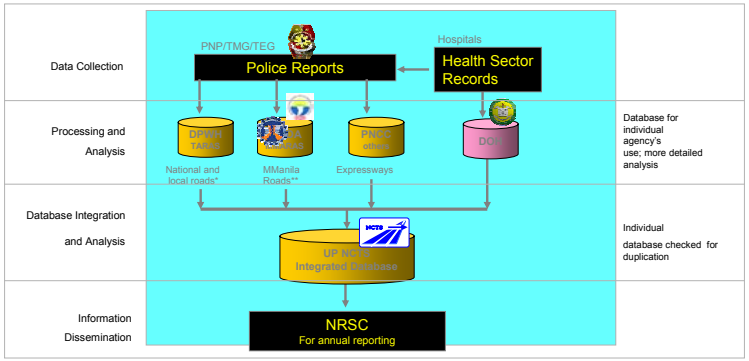
ICT for Road Traffic Safety:
Road Accident Database System (RADSys)

Required:
- Clear picture of road safety in the Philippines
- Accurate and current data

Critical:
- Cooperation among agencies
- Data sharing
  - Agreements among agencies?

ICT for Road Traffic Safety:
Road Accident Database System (RADSys)

Proposed Integrated Traffic Accident Data Management System



*Local roads in database only; **presently covers fatal and serious accidents only

ICT for Road Traffic Safety:
Road Accident Database System (RADSys)

- A system that integrates existing and proposed databases

Requirements:
- Establish computerized accident database system for tertiary hospitals – health sector data
- Enhance national system **(TARAS)** to include accident data on local roads
- Upgrade Metro Manila system **(MMARAS)**
- Connectivity and cross referencing with DOH's **NEISS**

What is a good city?

- A city where people want to be outside.
- A city that is good for children, the elderly, the handicapped, the poor, is good for everybody else.

A city friendly to cars **or**
a city friendly to people?

(Source: Enrique Peñalosa, BRT and EST Champion)

Paradigm shift in transport?

- Advanced city: How to reduce car use?
- Developing country city: "How to facilitate car use"

"Widening roads to address congestion is like buying larger clothes to address obesity."

(Source: Enrique Peñalosa, BRT and EST Champion)

ITS for EST

ITS as an essential tool : using information and communications technology (ICT) for leverage

Wanted: Innovative solutions to common problems!
Big question: Is the government ready and willing?

End of Presentation
Thank you for your attention

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