



# Transport and Traffic Management Plan Study for Olongapo City

**Paliwanagan sa UP Diliman**

OVCRD Colloquium 2013

National Institute of Physics, UP Diliman

21 January 2013

**Jose Regin F. Regidor**

Professor, Institute of Civil Engineering

College of Engineering



**National Center for Transportation Studies (NCTS)**

University of the Philippines Diliman

# Outline

- Objectives
- Data collection and analysis
- Consultations
- Plan formulation
- Recommendations
- Communications plan

# Objectives of the study

- ① **Assess the existing traffic conditions** through compilation of primary and secondary data;
- ② **Design an efficient traffic circulation plan** to ensure smooth, safe, and environment-friendly vehicular and pedestrian flow;
- ③ **Identify traffic management measures and alternatives** to alleviate congestion;
- ④ **Identify options for intra-city and inter-city water-based public transport** for the city's residents as well as for workers of the nearby Subic Free Port Zone.

# Objectives of the study

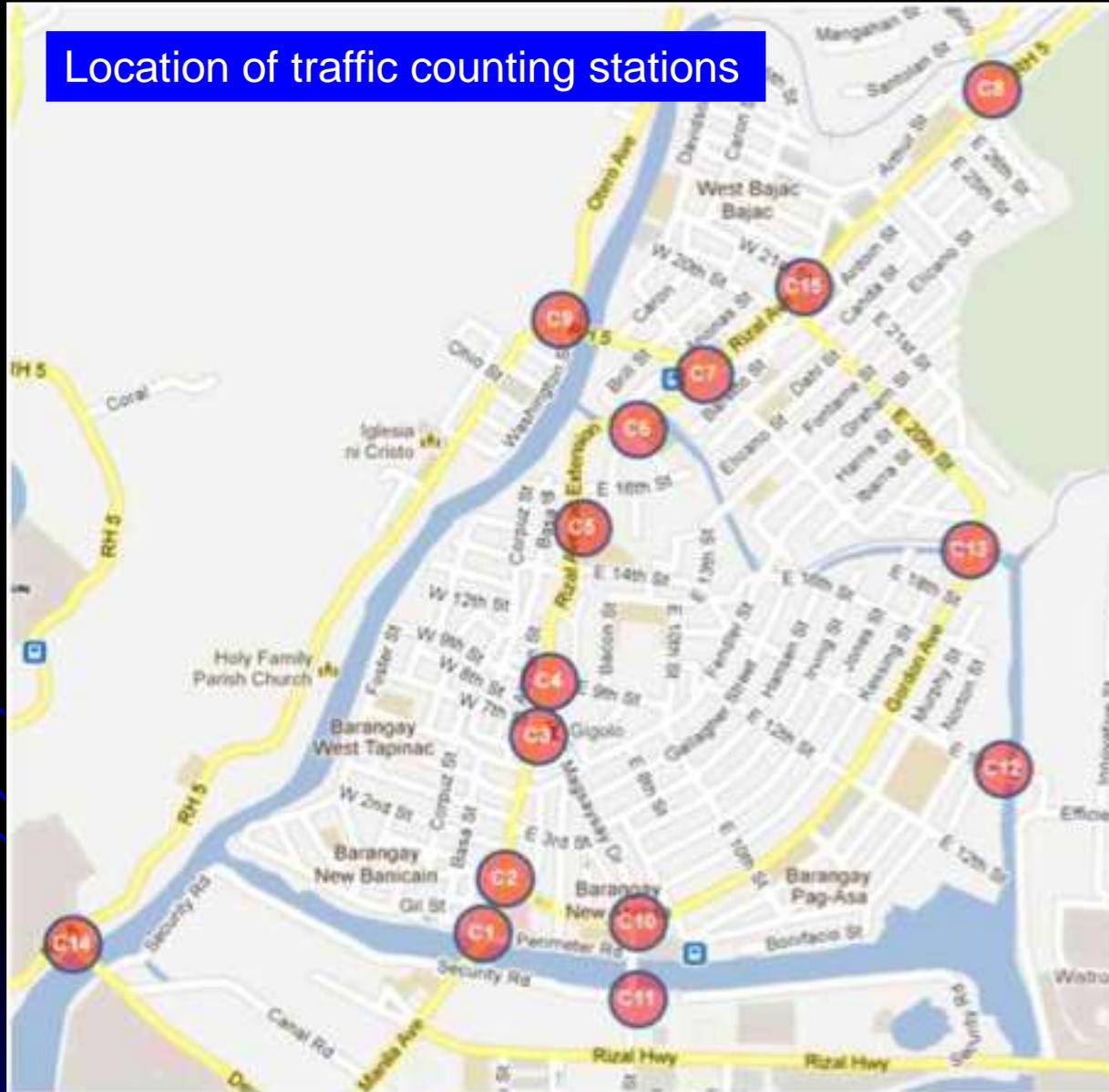
- ⑤ **Recommend policy directions** to sustain programs for the short, medium, and long-term plans considering the relevant plans of the region;
- ⑥ **Identify the needed institutional structures and mechanisms** that will ensure effective traffic management and enforcement through a review of national best practices and customizing these to suit local needs
- ⑦ **Draft a traffic code** that will incorporate the policies and measures identified in the study.

# Objectives of the study

- ⑧ **Provide Olongapo City with the capability to implement the recommendations** of the study.
  - i. Involvement of the local government in the **data collection and analysis**
  - ii. Imparting expertise to enhance the capabilities of concerned offices including the City Planning and Development Office, the City Engineer's Office, and the Traffic Management Office, among others through training workshops.
  - iii. Attainable through a **partnership between the study team and the counterpart team**

# Traffic Data Collection and Analysis

Location of traffic counting stations



# Traffic Data Collection and Analysis

Reference stations for the travel speed surveys

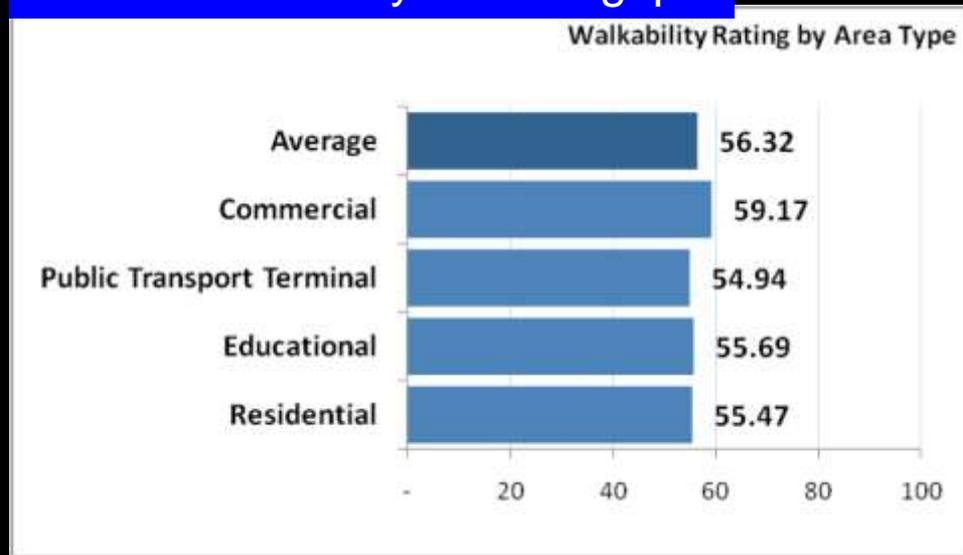
- T1:** 27th Street/Caltex
- T2:** 24th Street
- T3:** Elicano St.
- T4:** 20th Street
- T5:** Gordon Bridge
- T6:** 14th Street
- T7:** Pag-asa Public Market
- T8:** RM/SM
- T9:** Perimeter St./Rizal Ave.
- T10:** 1st Street
- T11:** Volunteers Rotunda
- T12:** 9th Street
- T13:** Olongapo City NH
- T14:** Hospital Road
- T15:** Ulo ng APO
- T16:** Olongapo Public Market
- T17:** 24th Street
- T18:** 27th Street/Caltex

Average Speeds:  
AM – 10 kph  
Noon – 10 kph  
PM – 8 kph



# Traffic Data Collection and Analysis

## Overall walkability for Olongapo



## Comparison with other Philippine cities

City	Commercial	PT Terminal	Educational	Residential	WALKABILTY SCORE (Average)
<b>Olongapo City</b>	59.17	54.94	55.69	55.47	56.32
Metro Manila	78.52	49.44	53.89	- no data -	60.62
Davao City	69.07	59.63	58.89	51.11	59.68
Cebu City	68.18	57.04	64.44	46.53	59.05

# Traffic Data Collection and Analysis

## Comparison with 13 Asian cities

Parameter	Other Asian Cities	Olongapo City
Walking path modal conflict	64.39	60
Availability of walking paths	57.83	57
Availability of crossings	68.11	69
Grade crossing safety	59.49	62
Motorist behaviour	58.10	66
Amenities	48.58	47
Disability infrastructure	39.17	32
Obstructions	55.98	53
Security from crime	62.63	61
<b>WALKABILITY SCORE</b>	<b>57.14</b>	<b>56.32</b>

Asian cities: Cebu (Philippines), Colombo (Sri Lanka), Davao (Philippines), Ha Noi (Viet Nam), Ho Chi Minh City (Viet Nam), Hong Kong, China (People's Republic of China [PRC]), Jakarta (Indonesia), Karachi (Pakistan), Kathmandu (Nepal), Kota (India), Lanzhou (PRC), Manila (Philippines), and Ulaanbaatar (Mongolia)

Source: "Walkability and Pedestrian Facilities in Asian Cities: State and Issues," by James Leather, Herbert Fabian, Sudhir Gota, and Alvin Mejia, ADB Sustainable Development Working Paper Series No. 17, February 2011, ADB.

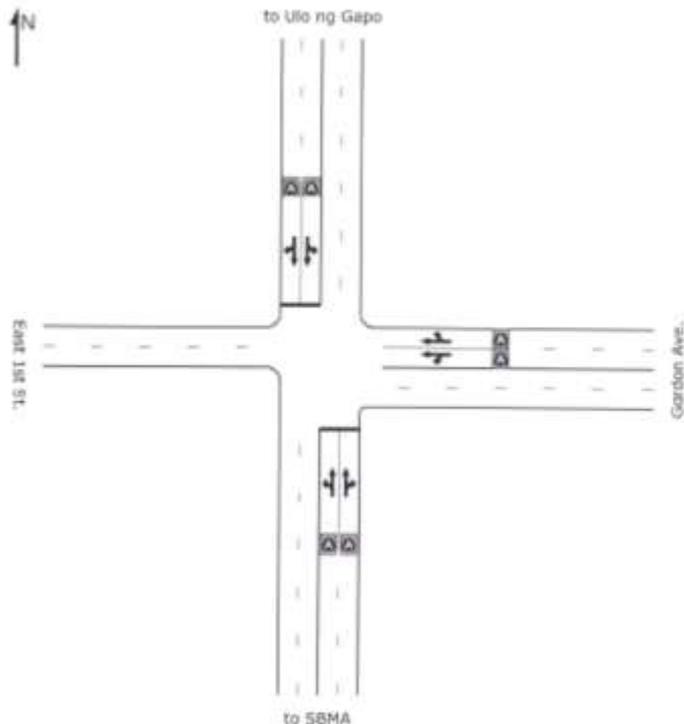
# Traffic Data Collection and Analysis

Intersection analysis:  
signalized & unsignalized

## LEVEL OF SERVICE SUMMARY

Site: Station 10: Magsaysay-Gordon Ave. - East 1st St.

New Site  
Stop (Two-Way)



	South	East	North	West	Intersection
LOS	A	NA	A	NA	NA

Level of Service (LOS) Method: Delay (HCM 2000).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model used.

## LANE SUMMARY

Site: Station 10: Magsaysay-Gordon Ave. - East 1st St.

New Site  
Stop (Two-Way)

### Lane Use and Performance

	Demand Flows					Deg. Sat	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Lane Length m	SL Type	Cap. Adj. %	# of Blocks	
	L	T	R	Total	HV %											
South: to SBMA																
Lane 1	9	30	0	40	0.0	736	0.054	100	9.7	LOS A	0.2	1.5	500	-	0.0	0.0
Lane 2	0	7	85	92	0.0	1704	0.054	100	9.0	LOS A	0.5	3.2	500	-	0.0	0.0
Approach	9	37	85	132	0.0		0.054		9.2	LOS A	0.5	3.2				
East: Gordon Ave.																
Lane 1	18	54	0	72	0.0	1062	0.068	100	3.1	LOS A	0.3	2.1	500	-	0.0	0.0
Lane 2	0	44	39	83	0.0	1216	0.068	100	4.1	LOS A	0.4	2.5	500	-	0.0	0.0
Approach	18	98	39	155	0.0		0.068		3.7	NA	0.4	2.5				
North: to Ulo ng Gapo																
Lane 1	65	130	0	196	0.0	811	0.241	100	9.3	LOS A	1.1	8.0	500	-	0.0	0.0
Lane 2	0	205	1	206	0.0	855	0.241	100	9.2	LOS A	1.2	8.3	500	-	0.0	0.0
Approach	65	336	1	402	0.0		0.241		9.2	LOS A	1.2	8.3				
Intersection				688	0.0		0.241		8.0	NA	1.2	8.3				

Level of Service (LOS) Method: Delay (HCM 2000).

Lane LOS values are based on average delay per lane.

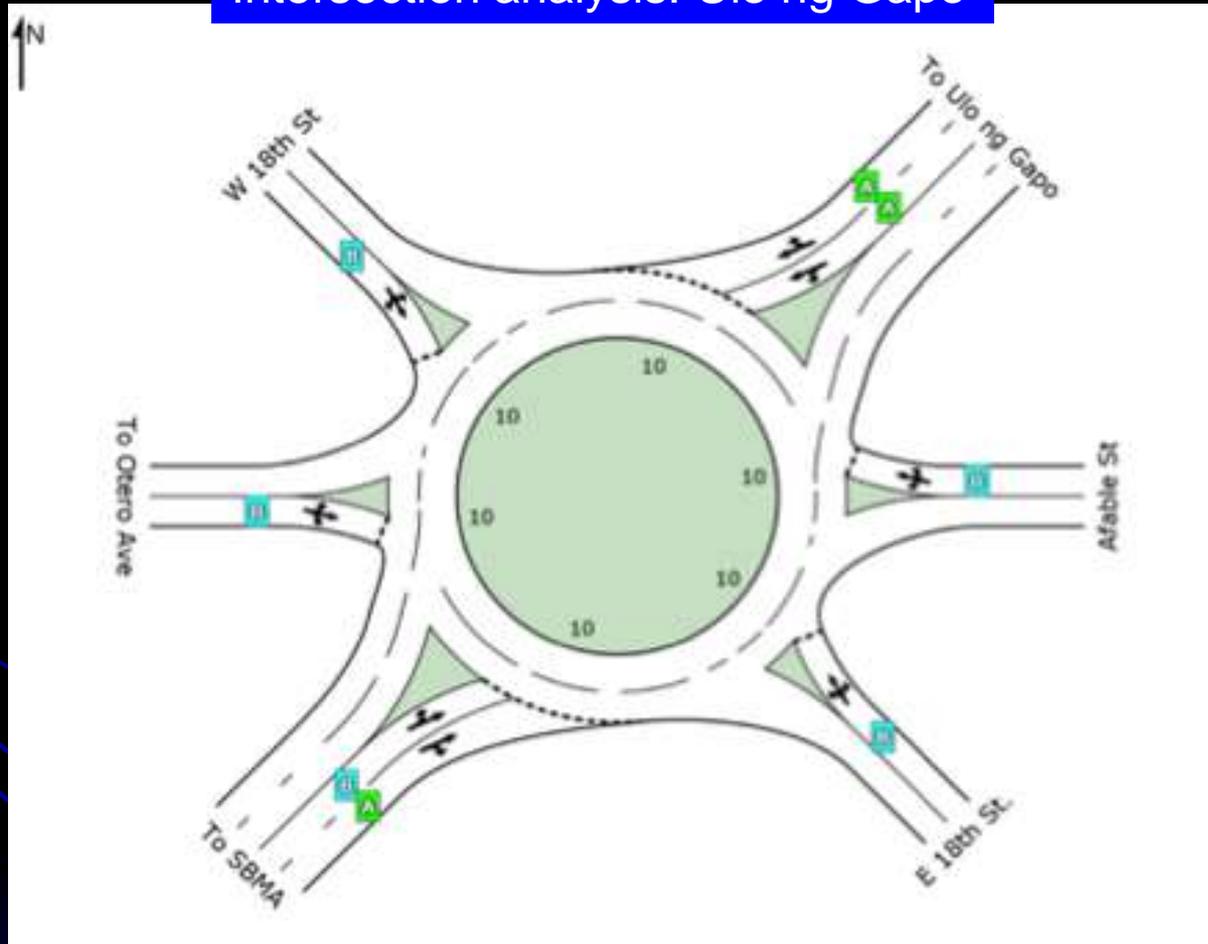
Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

SIDRA Standard Delay Model used.

# Traffic Data Collection and Analysis

## Intersection analysis: Ulo ng Gapo

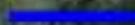
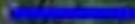


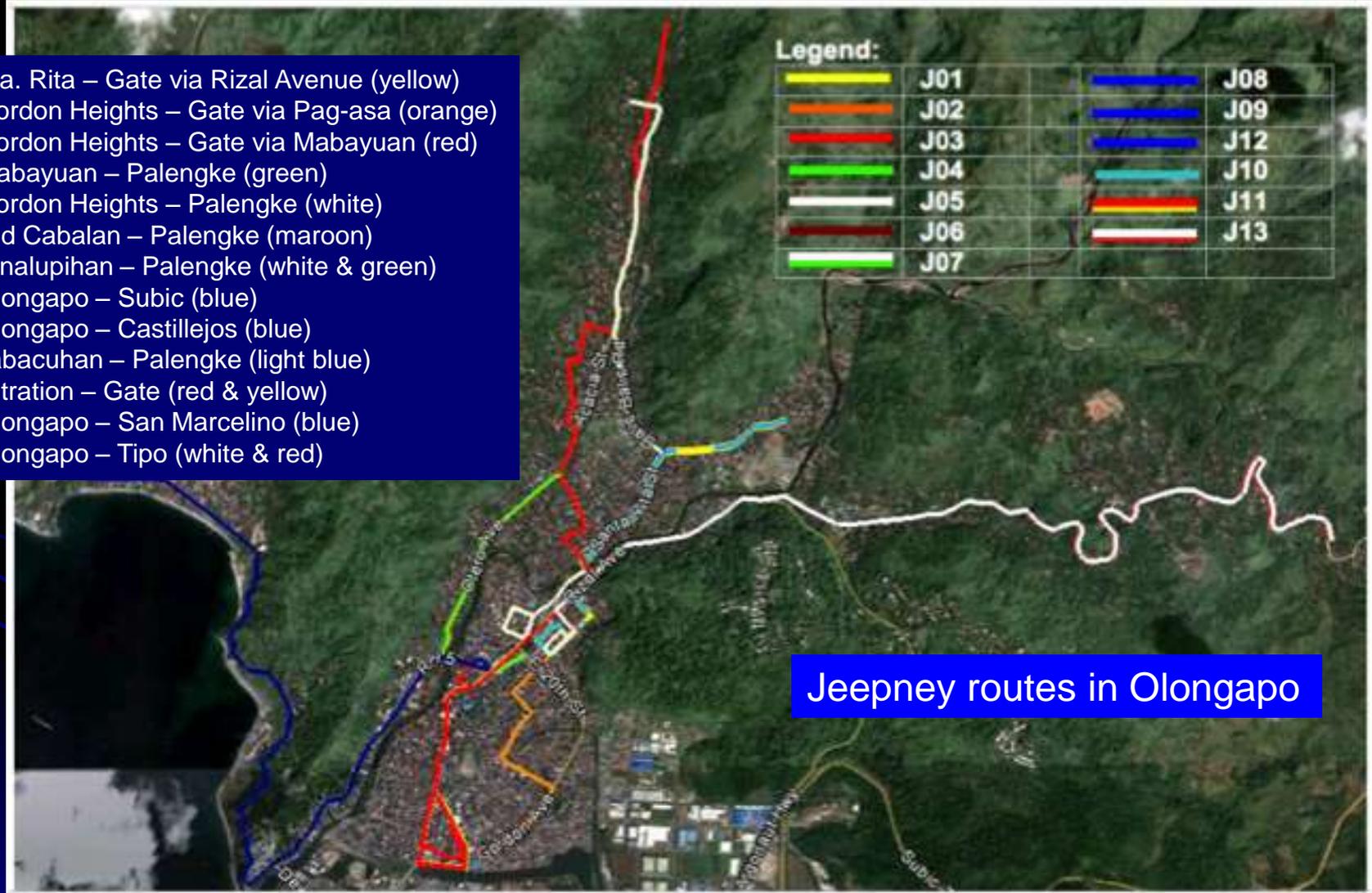
	Southeast	East	Northeast	Northwest	West	Southwest	Intersection
LOS	B	B	A	B	B	A	A

# Traffic Data Collection and Analysis

- **J01** – Sta. Rita – Gate via Rizal Avenue (yellow)
- **J02** – Gordon Heights – Gate via Pag-asa (orange)
- **J03** – Gordon Heights – Gate via Mabayan (red)
- **J04** – Mabayan – Palengke (green)
- **J05** – Gordon Heights – Palengke (white)
- **J06** – Old Cabalan – Palengke (maroon)
- **J07** – Dinalupihan – Palengke (white & green)
- **J08** – Olongapo – Subic (blue)
- **J09** – Olongapo – Castillejos (blue)
- **J10** – Tabacuhan – Palengke (light blue)
- **J11** – Filtration – Gate (red & yellow)
- **J12** – Olongapo – San Marcelino (blue)
- **J13** – Olongapo – Tipo (white & red)

Legend:

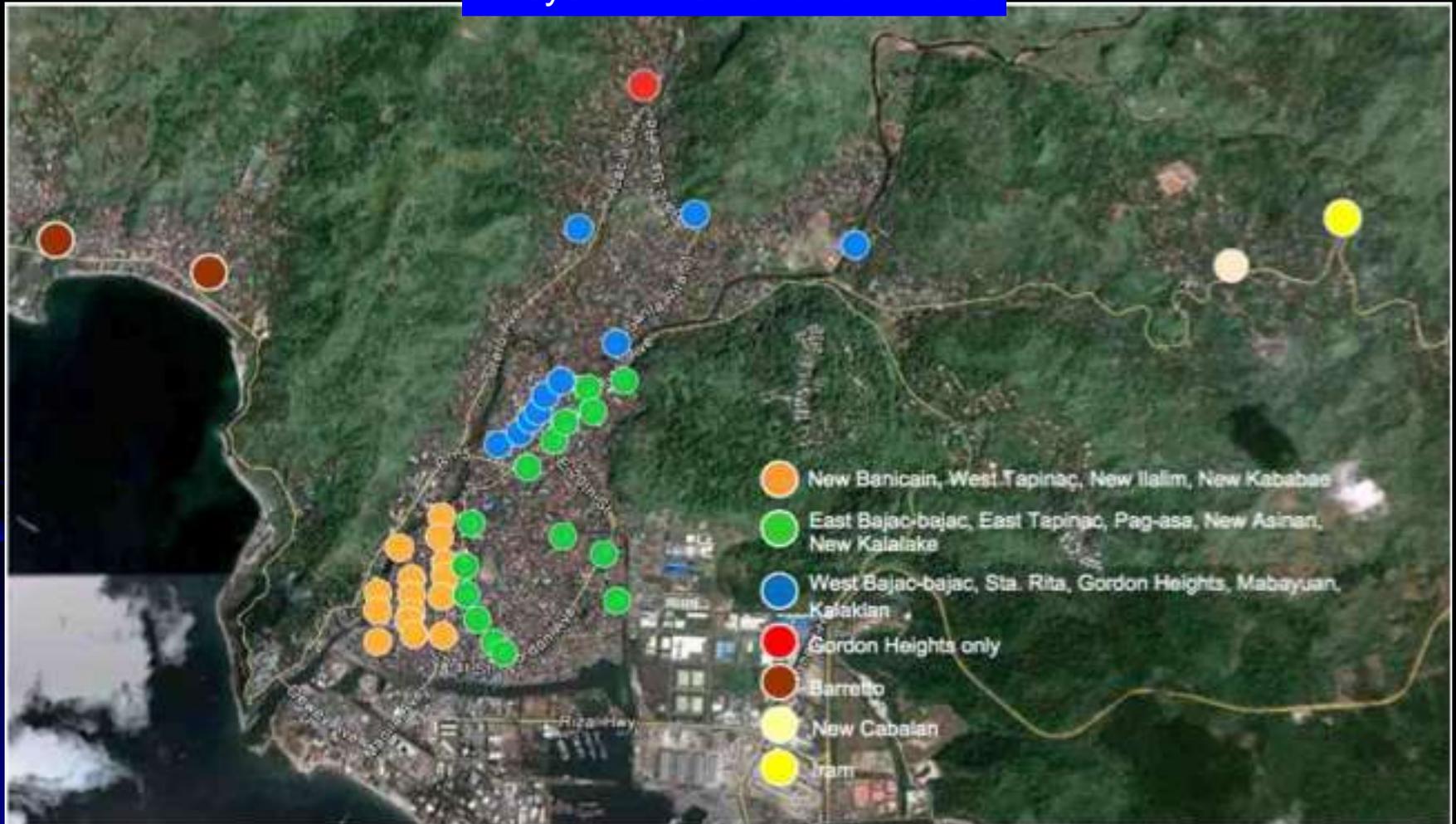
	J01		J08
	J02		J09
	J03		J12
	J04		J10
	J05		J11
	J06		J13
	J07		



Jeepney routes in Olongapo

# Traffic Data Collection and Analysis

## Tricycle zones and terminals



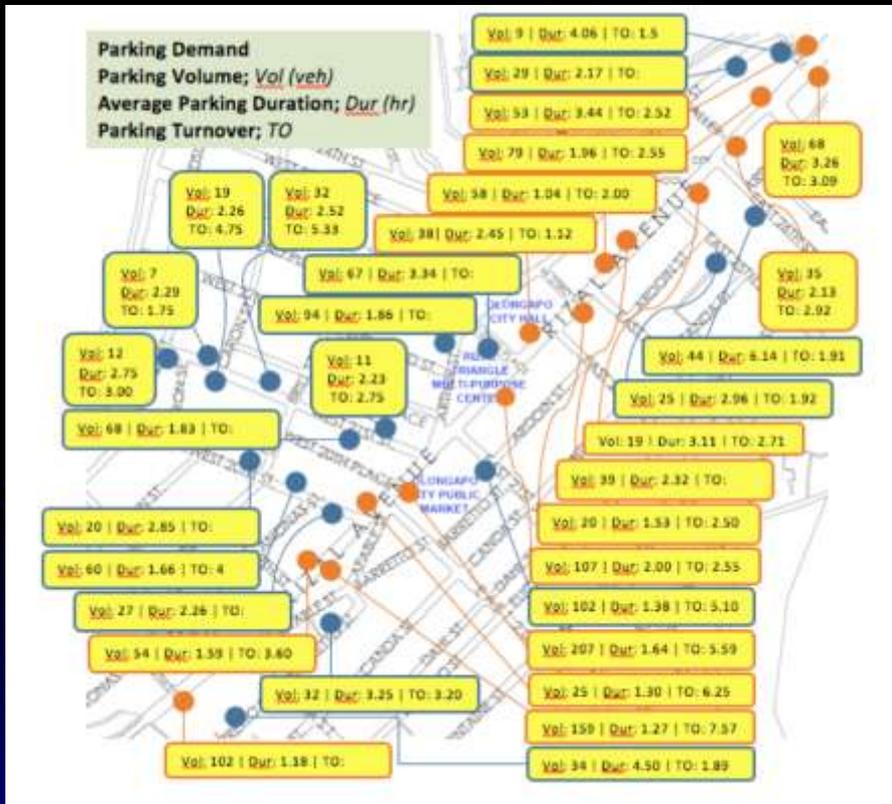
# Traffic Data Collection and Analysis

## Issues pertaining to public transport

- Mismatch between public transport supply and demand
- Request for additional tricycle franchises
- Loading and unloading
- Emerging public transport modes needing regulation
- Low quality intermodal public transport services for workers of Hanjin Shipyard

# Traffic Data Collection and Analysis

## Parking characteristics



Parking Volume, Parking Duration, and Parking Turnover along Rizal Avenue South Side



Parking Volume, Parking Duration, and Parking Turnover along Rizal Avenue North Side

# Focus Group Discussions

Date	Time	Group	Sub-group	No. of Participants
January 25, 2012	9:00–11:00 AM	Drivers	Public Transport	13
	2:00–4:00 PM	Drivers	Private Vehicle	7
January 26, 2012	9:00–11:00 AM	Commuters	Female	9
	2:00–4:00 PM	Commuters	Male	9
April 27, 2012	9:00-11:00 AM	Olongapo Chamber of Commerce	Business	

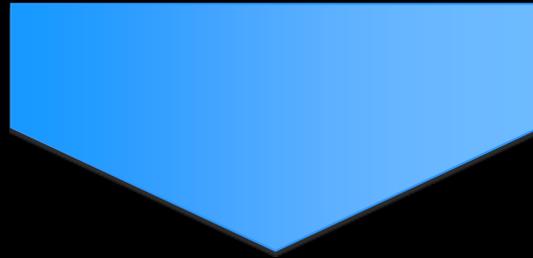
# Tricycle Sector Consultations

DATE	PARTICIPANT ZONES
August 16, 2012	AM: Zone 4: Barreto
September 20, 2012	AM: Zone 5: New Kalaklan PM: Zone 6: Iram
October 11, 2012	AM: Zones 1, 2, and 3

# Principles for plan formulation

## Principles for the study

- Environment and people-friendly infrastructure development
- Social Equity
- Effective consultation



*“The City of Olongapo envisions its transportation system to support its role as the **economic gateway** to the North and the **development of its people**, with orderly, people-friendly, and well-maintained infrastructure in a tourist and business-friendly, healthy, and safe environment”*

# Recommendations: Transport & Traffic Mgmt Plan

## IMMEDIATE TERM (within 1 year)

### a. Traffic circulation and management

- i) Capacity and capability building for traffic enforcement.

### b. Traffic control devices

#### i) Traffic signals for the following intersections

- Rizal Ave. – East 1st St./West 1<sup>st</sup> St.
- Rizal Ave. – Anonas Bridge – Hospital Road
- Rizal Ave. – West 27<sup>th</sup> St.
- National Highway – Otero Ave.

- Magsaysay Ave. – East 1<sup>st</sup> St. – Gordon Ave.

#### ii) Geometric improvements to support signalization and roundabouts

#### iii) Adopt standard road signs and markings

### c. Pedestrian facilities

- i) Sidewalk clearing – removing obstructions including merchandise, construction materials, etc. to clear space for pedestrians

- ii) Road markings for pedestrian crosswalks – zebra markings for unsignalized intersections or mid-blocks, parallel lanes for signalized intersections

# Recommendations: Transport & Traffic Mgmt Plan

## IMMEDIATE TERM (within 1 year)

### d. Parking

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>i) Enforce no parking on the sidewalk and on pedestrian crosswalk</li><br/><li>ii) Prohibit on-street parking<ul style="list-style-type: none"><li>• In the intersection</li><li>• Within 20 meters from the intersection curbs.</li><li>• On and near the loading and unloading bays</li><li>• Along the national roads.</li></ul></li></ul> | <ul style="list-style-type: none"><li>iii) Paint the curbs yellow along roads where on-street parking is prohibited.</li><br/><li>iv) Install “No Parking” signs to complement the yellow curbs</li><br/><li>v) Introduce on-street parking fees<ul style="list-style-type: none"><li>• Roads in CBD such as Afafe Street, East and West roads (1<sup>st</sup> to 24<sup>th</sup> streets)</li></ul></li></ul> |
|---|--|

### e. Public transport

- i) Grant initial additional franchises for tricycles based on this order of prioritization
  - Old applications (e.g., those who applied 10 years ago and older) still on active file or first-come-first-serve basis
  - Prioritize those who have not previously owned or operated tricycles or have not been granted a franchise before
  
- ii) Establish PUJ route dispatching system pilot scheme

# Recommendations: Transport & Traffic Mgmt Plan

## SHORT TERM (within 3 years)

### a. Traffic circulation and management

- i) Capacity and capability building for public transport planning.

### b. Traffic control devices

- i) Geometric improvements to support signalization and roundabouts

### c. Pedestrian facilities

- i) Identification of locations where pedestrian overpasses are required based on analysis of conflicts between pedestrians and motor vehicles.

- ii) Identification of streets that require pedestrian sidewalks
  - Construction of sidewalks when funds are available

- iii) Identification of streets that can be designated for pedestrianization

# Recommendations: Transport & Traffic Mgmt Plan

## SHORT TERM (within 3 years)

### d. Parking

- |   |   |
|---|---|
| <p>i) Enforce no parking on the sidewalk and on pedestrian crosswalk</p> <p>ii) Prohibit on-street parking</p> <ul style="list-style-type: none"><li>• In the intersection</li><li>• Within 20 meters from the intersection curbs.</li><li>• On and near the loading and unloading bays</li><li>• Along the national roads.</li></ul> | <p>iii) Paint the curbs yellow along roads where on-street parking is prohibited.</p> <p>iv) Install “No Parking” signs to complement the yellow curbs</p> <p>v) Introduce on-street parking fees</p> <ul style="list-style-type: none"><li>• Roads in CBD such as Afable Street, East and West roads (1<sup>st</sup> to 24<sup>th</sup> streets)</li></ul> |
|---|---|

### e. Public transport

- |  |  |
|--|--|
| <p>i) Grant additional franchises for tricycles:</p> <ul style="list-style-type: none"><li>•Prioritize next tier applications (e.g., those who applied 5 years ago and older)</li><li>•Prioritize those who have not previously owned or operated tricycles or held any tricycle franchises</li></ul> <p>ii) Establish PUJ route dispatching system for all routes</p> | <p>iii) Grant limited number first-tier of taxi franchises (e.g. for 20 units) and assess granting of additional franchises after 6-12 months observation.</p> |
|--|--|

# Recommendations: Transport & Traffic Mgmt Plan

## MEDIUM TERM (within 3 to 6 years)

### a. Traffic circulation and management

- i) Capacity and capability building for travel demand forecasting.
- ii) Require new developments to submit a Traffic Impact Assessment (TIA).
  - Address potential traffic problems including congestion and parking

### b. Traffic control devices

- i) Identification of additional intersections for signalization including those currently downstream from a signalized intersection to enable coordination (synchronization) of signal settings.

### c. Pedestrian facilities

- i) Identification and construction of pedestrian overpasses.

# Recommendations: Transport & Traffic Mgmt Plan

## MEDIUM TERM (within 3 to 6 years)

### d. Parking

- i) Pursue multi-level parking complex within the central business district (CBD).

### e. Public transport

- i) Assess the granting of tricycle franchises and fine-tune the number of new franchises to be granted based on the assessment findings
- ii) Assess performance of first-tier taxi franchisees and grant additional franchises based on assessment findings
- iii) Assess performance of PUJ route dispatching system and fine-tune needed improvements

# Recommendations: Transport & Traffic Mgmt Plan

## INSTITUTIONAL

### General

- Undertake improvements in the institutional set-up for transport and traffic planning, implementation, and regulation in order to support and sustain the plans proposed for transport and traffic conditions in Olongapo City
- Secure and establish explicitly the city government's authority and responsibility for transport planning and traffic management, particularly for implementing infrastructure and service development projects

### Specific

- Give the leadership of the CPDO to a qualified professional planning officer distinct from the Chief of Staff and Budget Officer, who now combines the three offices in the same occupant
- Create in the CPDO a unit for transport planning to work closely with the units for urban development and traffic management
- Professionalize the staff of the Office of Traffic Management and Public Safety (OTMPS) by gradually replacing its "job-order" personnel with qualified professionals
- Organize an advisory board on traffic regulation to provide policy and technical assistance on traffic rules and regulations, with representation from various stakeholders

# Recommendations: Transport & Traffic Mgmt Plan

## INSTITUTIONAL

### On traffic codes

- Consider and feedback comments on the draft codes that we prepared on tricycles, jeepneys and passengers and pedestrians
- Outline the key regulations that you feel should be the priority for codal provisions for buses, taxis, and rivercraft (not covered in our draft codes)

## OVERALL

As an integral part of the change management strategy, organize a systematic and continuing program to monitor and evaluate the design and implementation of the transport/traffic plan proposed by the U.P. NCTS.

# Communications Plan

The communication plan must take into consideration the four levels of public involvement as defined in the literature.

- **Level 1** involves information gathering on the stakeholders that will be directly affected by the proposed project;
- **Level 2** is information dissemination to the identified key stakeholders to create an environment of openness and dialogue. It is important that at this level, stakeholders are made aware of the objectives of the proposed project;
- **Level 3** entails consultation or 2-way communication or discussion with the key stakeholders by the decision-makers to solicit their views, issues and challenges.
- **Level 4**, key stakeholders are involved as joint partners in the design and implementation of project.

# Salamat sa inyong pakikinig!

Study team consisted of faculty and REPS from:

- College of Engineering
- School of Urban and Regional Planning
- National Center for Transportation Studies