

---

**CHAPTER SIX:**

**INFRASTRUCTURE**

---

## 6. INFRASTRUCTURE / UTILITIES / FACILITIES

### 6.1 TRANSPORTATION SYSTEM

The City's Transportation System is a combination of roads, transport facilities and transportation service providers. These are briefly discussed below while a map showing the City's Road and Transport Facilities is presented as **Figure 5.1**.

#### 6.1.1 NATIONAL ROADS

There are six National Roads that traverse the City. The lengthiest of these is the San Carlos – Bacolod (North) Road which extend to about 160.95 kms. Majority of National Roads in the City are of all-weather surface, being paved with either concrete or asphalt. The following table presents an inventory of these National Roads.

**TABLE 6.1: INVENTORY OF NATIONAL ROADS**

Road Description	Length (Km)	Concrete (Km)	Asphalt (Km)	Gravel (Km)
San Carlos – Bacolod (North Road)	160.950	70.756	90.374	0
San Carlos – DS Benedicto – Murcia – Bacolod	71.798	69.746	2.052	0
Prosperidad – Quezon – Cabaron Road	16.638	4.565	0	12.073
San Carlos City Port Road	1.124	0.882	0.242	0
San Carlos – Dumaguete	No data	No data	No data	No data
Quezon to High Grains	No data	No data	No data	No data

#### 6.1.2 LOCAL ROADS

The City Engineer's Office (CEO) classifies local roads into City, Island and Secondary Roads. These have a total length of about 238.6kms. Serving the rural areas of the City, the most extensive of these are the Secondary Roads which represent 75% of the total length of local roads. About 69.6% of the length of these secondary roads is paved with either concrete or asphalt. The Poblacion and vicinity are served by City Roads and about 78% of their total length is concrete-paved. Refugio Island is, in turn, served by fully concreted Island Roads. The following tables present the summary inventory of local roads and respective breakdowns according to classification.

**TABLE 6.2: SUMMARY INVENTORY OF LOCAL ROADS (2012)**

	Road Classification	Length (kms)	Surface Type (in Km)		
			Concrete	Gravel	Asphalt
1	City Roads	47.05200	36.78400	10.28800	0.00000
2	Island Roads	13.83000	13.83000	0.00000	0.00000
3	Secondary Roads	177.7159	26.3653	97.3599	53.9889
<b>Total</b>		<b>238.5979</b>	<b>76.9793</b>	<b>107.6479</b>	<b>53.9889</b>

Source: City Engineer's Office

123°07' E 123°12' E 123°16' E 123°21' E 123°25' E 123°30' E 123°35' E

10°36' N

10°31' N

10°27' N

10°23' N

10°36' N

10°31' N

10°27' N

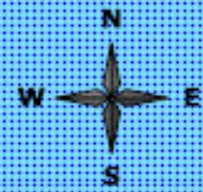
10°23' N



# FIG. 6.1 ROADS AND TRANSPORTATION FACILITIES MAP City of San Carlos Province of Negros Occidental

MUNICIPALITY OF  
DON SALVADOR BENEDICTO

MUNICIPALITY OF  
CALATRAWA



1:30000

0 2.5 5.0 7.5 km

Projection:  
UNIVERSAL TRANSVERSE MERCATOR, ZONE 51  
Units - Philippines Excluding Mindanao

MUNICIPALITY  
OF MURCIA

PROSPERIDAD

MATABAN

PALAMPAS

RIZAL

CITY PROPER

SAN JUAN

ERMITA

CITY OF  
BAGO

CODCOC

QUEZON

GUADALUPE

BULUANGAN

CITY OF KANLON

MUNICIPALITY OF  
VALLEHERMOSO

## LEGEND:

- BARANGAY CENTER
- CITY/ MUNICIPAL BOUNDARY
- BARANGAY BOUNDARY
- NATIONAL HIGHWAY
- CITY ROADS
- BARANGAY ROADS
- RIVERS AND CREEKS
- MUNICIPAL WATERS
- SHORELINE
- BUS TERMINAL
- SMALL BUS AND JEEPNEY TERMINAL
- MOTORCYCLE TERMINAL
- SEAPORT
- FISHPORT
- AIRPORT

SOURCE:  
OFFICE OF THE CITY PLANNING  
AND DEVELOPMENT COORDINATOR

123°07' E 123°12' E 123°16' E 123°21' E 123°25' E 123°30' E 123°35' E

**TABLE 6.3: INVENTORY OF URBAN (CITY) ROADS (2012)**

Area		Length	Surface Type (in Km)		
			Concrete	Gravel	Asphalt
1	San Julio Subd.	6.326	6.326	0	0
2	Don Juan Subd.	1.724	1.724	0	0
3	Teachers Village	3.055	2.498	0.557	0
4	Margarita Village	2.206	1.845	0.361	0
5	City Proper	13.054	11.532	1.522	0
6	Urban Relocation Site	4.541	1.737	2.804	0
7	St. Vincent Subd.	4.233	1.859	2.394	0
8	St. Charles Village	0.510	0.51	0	0
9	Villarante Village	3.099	2.094	1.005	0
10	Algers	0.803	0.803	0	0
11	Circumferential Road	1.305	0	1.305	0
12	Business Park	6.196	5.856	0.34	0
<b>Total</b>		<b>47.052</b>	<b>36.784</b>	<b>10.288</b>	<b>0</b>

Source: City Engineer's Office

**TABLE 6.4: INVENTORY OF ISLAND ROADS (2012)**

Name of Barangay		Length	Surface Type (in Km)		
			Concrete	Gravel	Asphalt
1	San Juan	8.62	8.62	0	0
2	Ermita	5.21	5.21	0	0
<b>TOTAL</b>		<b>13.83</b>	<b>13.83</b>	<b>0</b>	<b>0</b>

Source: City Engineer's Office

**TABLE 6.5: INVENTORY OF RURAL (SECONDARY) ROADS (2012)**

Name of Barangay		Length (kms.)	Surface Type (in Km)		
			Concrete	Gravel	Sub Grade
1	Punao	16.1454	2.2935	9.2463	4.6057
2	Palampas	21.9910	4.3412	17.6498	0.0000
3	Nataban	17.4834	3.6000	4.1100	9.7734
4	Quezon	23.2082	5.1796	12.8286	5.2000
5	Codcod	55.1672	6.3609	29.6932	19.1131
6	Bagonbon	15.2401	4.5901	7.6500	3.0000
7	Prosperidad	19.2307	0.0000	6.9340	12.2967
8	Rizal	9.2500	0.0000	9.2500	
<b>Total</b>		<b>177.7159</b>	<b>26.3653</b>	<b>97.3599</b>	<b>53.9889</b>

Source: City Engineer's Office

### 6.1.3 BRIDGES

There are also nine bridges in the City. Only Talave Bridge, built in 1933 and with a span of 100m, is of steel construction while the rest are of concrete construction. The following table presents an inventory of the bridges in San Carlos.

**TABLE 6.6: INVENTORY OF BRIDGES**

Bridge Name	Km. Station	No. of Span	Length (LnM)	Width (m)	Description		Load Limit (Tons)	Condition	Year Constructed
					Concrete (LnM)	Steel (LnM)			
Talave Bridge	K139+753	4	100.00	6.46		100.00	15	Passable	1933
Vascoña Bridge	K139+753	1	12.00	7.32	12.00		18	Passable	1983
Palampas Bridge	K139+753	3	45.00	6.70	45.00		18	Passable	1976
Andoon Bridge	K139+753	2	30.00	8.87	30.00		18	Passable	1969
Higalaman Bridge	K139+753	1	19.00	9.56	19.00		18	Passable	1969
Mainit Bridge	K139+753	3	27.00	11.18	27.00		18	Passable	1989
Sta. Cruz Bridge	K139+753	1	12.00	9.48	12.00		18	Passable	1993
Magbaboy Bridge	K139+753	3	34.00	6.32	34.00		15	Passable	1936
Buluangan Bridge	K139+753	3	45.00	8.89	45.00		18	Passable	1984

Source: City Engineer's Office

## 6.2 TRANSPORT FACILITIES

### 6.2.1 LAND TRANSPORT

Land-based modes of transport in the City provide access throughout Negros Island and to all its barangays. These include buses, jeepneys, for-hire-vans and tricycles. The following table presents an estimate on the average number of daily trips of key transport modes.

**TABLE 6.7: ESTIMATED AVERAGE DAILY TRIPS**

Route	Year			
	2008	2009	2010	2011
North Bound (Jeepneys)	80	83	68	86
North Bound (Ceres)	24	26	26	25
South Bound (Jeepneys)	41	41	36	41
South Bound (Ceres)	33	35	32	43
Ceres via Don Salvador (DSB)	14	14	15	17
V-Hire	10	8	7	8
QCP Jeepneys	8	8	9	9

Source: Public Transport Terminal Division, Public Market & Slaughterhouse Dept., 2012

As to the number of vehicle operators, the City has 16 operators for the south bound route while there are 17 operators for the Quezon-Codcod-Prosperidad route. Likewise, there are 28 V-Hire Operators traversing the San Carlos-Bacolod destination. Another route which passengers to and from the City can access is the highway or the north-bound with 44 vehicle operators.

The City also has a multi-modal San Carlos Transport Terminal located along the National Road in Barangay Palampas.

---

### *6.2.2 WATER TRANSPORT*

---

There are two (2) ports in the City: one is national government-owned and the other is privately-owned (San Carlos Bio-Energy Corporation). The government-owned port, San Carlos City Port, is maintained by the Philippine Ports Authority (PPA). It is made of concrete with a dimension of 240 meters long, 186 meters wide and has an apron of 36.5 meters. A new wharf is currently being developed. The target for this port is to accommodate international merchant vessels most especially oil tankers.

The port hosts ferries that transport people and goods to and from Toledo City in Cebu Province as well as commercial pump boats going to barangays Ermita and San Juan on Refugio Island. These pump boats usually transport passengers during daytime unless hired through a “pakyaw” or “lump sum fee” arrangement.

In terms of cargo, the San Carlos City Port has a cargo handling capacity of 110 metric tons. Incoming cargoes include consumer goods, bottled cargo, fertilizers, etc. Outgoing cargoes, on the other hand, include sugar, live animals, molasses, etc.

The San Carlos Bio-Energy Corporation’s port is the oldest industrial port in the whole of Negros. It was built in 1946 at a time when foreign and domestic vessels docked for molasses and brown sugar and, lately ethyl alcohol. The port has a gantry that served as a docking port for international cargo ships for sugar.

The City’s main fishport is located in Barangay Buluangan while there are also barangay fishports in Ermita and San Juan on Refugio Island.

---

### *6.2.3 AIR TRANSPORT*

---

The San Carlos City Community Airport has been earmarked for development on a 40 hectare site at the City’s Eco-Zone in Barangay Punao. Nearly 10 hectares of land has already been donated by Negros Fisheries Corporation. The airport is mainly oriented towards enhancing the City’s national and regional linkages as well as to support the development of the San Carlos Eco-Zone. Plans for the initial stage include the construction of a 30 meter wide by 1,000 meter long concrete runway on a 75 meter airstrip. This was designed to accommodate small to medium passenger aircraft having 12 to 30 persons seating capacities. It was also designed to handle freight aircraft up to an all-up-weight of 12,500 pounds. The second stage of the development calls for the extension of the runway by another 450 meters.

## **6.3 IRRIGATION SYSTEM**

---

The irrigation system of the City is handled by the Local Government through a cooperative established and operating in the irrigation area. It covers the area of Brgy Quezon, Codcod, Prosperidad, Nataban and Bagonbon which are all within the local watershed.

## **6.4 FLOOD CONTROL AND DRAINAGE FACILITIES**

---

The City’s flood control system comprises a network of water channels that drain into Tañon Strait. The City Government, in coordination with the Regional Office of the Department of Public Works



and Highways (DPWH), undertakeriverbank stabilization projects at key segments to prevent the overflow of river channels onto settlement and agricultural areas.

The drainage system within built-up areas, particularly the City Proper, is a combination of concrete box culverts and open canals. These also drain into Tañon Strait.

## 6.5 DOMESTIC WATER SUPPLY

### 6.5.1 WATER SUPPLY

#### Sources of Water Supply

Sources of water supply in the City include Level I (point source such as springs, creeks, rain, etc.), II (communal faucet), and III (individual household taps). The type of source enjoyed by urban households is level III which is characterized by piped water directly supplied inside the household. Rural barangays, on the other hand are supplied by level II systems wherein water is piped from the source to a common stand pipe serving a cluster of households without individual connections. To date, the most far-flung barangays in the north in the south depend on level I. Level I involves direct collection from the source, such as springs, creeks and rivers.

Residents of the island barangays have a combination of Level I (rain) and Level II water supply sources. The latter is a recent development through the Sipaway Water Supply Project, Phase 1 of which involved laying-out about 2,382 meters of a submarine water transmission pipeline from the mainland and across Tañon Strait. This was completed in November 2012. Phase 2 of the project will involve the installation of about 12 kms of pipeline around and within the island and improve the water source of residents to Level III.

The following table presents the sources of water supply by barangay.

**TABLE 6.8: SOURCE OF WATER SUPPLY**

Barangay	Source of Water Supply					
	Level I			Level II	Level III	
	Surface (Spring)	Under Ground Water (Shallow Well)	Rain	Surface (Spring)	Surface (Spring)	Underground Water (Deep Well)
Brgy. I		X			X	X
Brgy. II		X			X	X
Brgy. III		X			X	X
Brgy. IV		X			X	X
Brgy. V		X			X	X
Brgy. VI		X			X	X
Brgy. Bagonbon	X	X		X	X	
Brgy. Buluangan	X	X		X		X
Brgy. Codcod	X			X	X	
Brgy. Ermita			X	X		

Brgy. Guadalupe	X	X		X		
Brgy. Nataban	X	X		X		
Brgy. Palampas	X	X		X	X	X
Brgy. Prosperidad	X	X		X		
Brgy. Punao	X	X		X	X	
Brgy. Quezon	X	X		X	X	
Brgy. Rizal	X	X		X		X
Brgy. San Juan			X	X		

Source: City Engineering Office

#### Number of households served by type of water supply

About 27.75% of HH have access to Level III water supply. Most of these are located in the Poblacion barangays and adjacent Barangay Rizal. On the overall, about 38.96% of total households still obtain their domestic water requirements from Level I sources such as springs, creeks and rivers. The following table presents information on the number of HH served by type of water supply by barangay.

**TABLE 6.9: NUMBER OF HOUSEHOLDS SERVED BY TYPE OF WATER SUPPLY BY BARANGAY**

Barangay	Household Served (HH)		
	Level I (point source)	Level II (communal source)	Level III (individual source)
Brgy. I	2,028	-	4,641
Brgy. II			
Brgy. III			
Brgy. IV			
Brgy. V			
Brgy. VI			
Brgy. Bagonbon	422	566	107
Brgy. Buluangan	1,664	582	104
Brgy. Codcod	464	1,853	252
Brgy. Ermita	430	To be determined	-
Brgy. Guadalupe	1,370	783	-
Brgy. Nataban	394	499	-
Brgy. Palampas	566	1,183	100
Brgy. Prosperidad	557	476	-
Brgy. Punao	558	372	259
Brgy. Quezon	680	1,164	462
Brgy. Rizal	415	1,175	1,289
Brgy. San Juan	580	To be determined	-
<b>TOTALS</b>	<b>10,128</b>	<b>8,653</b>	<b>7,214</b>



## 6.5.2 WATER SYSTEM

### Service Area

Domestic water supply is provided by the San Carlos Waterworks Department (SCWD) operated by the City Government. The water system of San Carlos City provides Level I, II and III services to its consumers although the service vary from one place to another depending on the availability of the water source.

Level III water service is widely provided in what is called the Service Area, which is composed of eight (8) barangays, through a network length of 91,086 meters. These are the six (6) City Proper barangays along with the adjoining barangays Rizal and Palampas. These barangays are being provided with water taken from six (6) sources, namely: Pump Station 2, Pump Station 4, Baticulan Well, Florentino Well, So. Aglolood Spring and So. Bodiawe Spring.

The water system has four (4) sub-systems located in rural barangays. These sub-systems are found in Brgys. Buluangan, Bagonbon, Codcod and Quezon.

### Kind, size and length, condition of pipes

The total length of pipe in the service area reaches 91 km which is mostly made up of uPVC pipes in varying sizes. Sizes vary from 300mmØ to 50mmØ.

A total length of 31 km. pipe stretches along the water sub-systems in varying sizes, made up of 200mmØ to 50mmØ of mostly uPVC pipes.

Maintenance of pipes is being done by personnel of the Maintenance Section of the SCWD. This is the section in-charge in repairing leakages and other problems encountered along the waterlines.

### Number of connections served by the water system by type of consumer

The classification of consumers served by the present water system is not by the type of usage of water by consumers (e.g. residential, commercial, and industrial) but by meter size (e.g. ½", ¾" & 1"). The following table presents information on the service areas and number of connections by meter size.

**TABLE 6.10: NUMBER OF CONNECTIONS BY METER SIZE AND SERVICE AREA/ WATER SUBSYSTEM AREA**

Meter Size	Number of connections				
	Service Area	Subsystem Areas			
		Bagonbon	Bluangan	Codcod	Quezon
½"	5,961	107	104	252	455
¾"	259				7
1	61				
1 ½"	3				
2	3				

## Water rates

The following tables present the water rates in the Service Area and Subsystem Area:

**TABLE 6.11: WATER RATES IN SERVICE AREA**

Classification	Service Charge	Commodity Charges (in pesos)				
		11-20 cu.m.	21-30 cu.m.	31-40 cu.m.	41-50 cu.m.	51 up cu.m.
Meter Size	Minimum Charge (10 cu.m)					
1/2"	120.00	13.30	14.00	14.70	15.40	17.85
3/4"	192.00	13.30	14.00	14.70	15.40	17.85
1"	384.00	13.30	14.00	14.70	15.40	17.85
1 1/2"	960.00	13.30	14.00	14.70	15.40	17.85
2"	2,400.00	13.30	14.00	14.70	15.40	17.85
Bulk Sales	53.55 per cu. Meter					

**TABLE 6.12: WATER RATES IN SUB-SYSTEM AREA**

Classification	Service Charge	Commodity Charges (in pesos)				
		11-20 cu.m	21-30 cu. m.	31-40 cu. m.	41-50 cu. m.	Over 50
Meter Size	Minimum 10 cu.m					
½"	50.00	6.00	7.00	9.00	10.00	15.00
¾"	80.00	6.00	7.00	9.00	10.00	15.00
1"	160.00	6.00	7.00	9.00	10.00	15.00
1 ½"	400.00	6.00	7.00	9.00	10.00	15.00
2"	1,000.00	6.00	7.00	9.00	10.00	15.00

## Water consumption and sales

Water consumption is greatest in the Service Area. By type of connection, ½" diameter consumers, the bulk of which is presumably residential, has the lion's share in consumption. Data for the first half of 2012 showed that the consumption of ½" diameter connections was about 980,046 cubic meters or 84.85% of total Service Area consumption. The following table presents information on total consumption by type of connection in the Service Area and Water Subsystems Area in the first half of 2012.

**TABLE 6.13: TOTAL CONSUMPTION BY TYPE OF CONNECTION (JAN – JULY 2012)**

Meter Size	Service Area (cu.m.)	Water Subsystems Area (cu.m.)			
		Bagonbon	Buluangan	Codcod	Quezon
½"	980,046	16,109	10,434	29,861	67,767
¾"	95,517				6,282
1"	52,282				
1 ½"	3,671				
2"	23,531				
<b>Totals</b>	<b>1,155,047</b>	<b>16,109</b>	<b>10,434</b>	<b>29,861</b>	<b>74,049</b>

The total number of consumers increased by 14.56% from 2008 to 2011. This was due to significant increases in Poblacion and the entry of additional consumers in Bagonbon and Buluangan in 2009. Total water consumption increased modestly by 3.94% while water sales exhibited a 45.10% increase during the same period. Water sales from the City Proper represented more than 95% of

total sales. Yearly information on consumers, consumption and sales by location are presented in the table below:

**TABLE 6.14: YEARLY NUMBER OF CONSUMERS, WATER CONSUMPTION AND SALES BY LOCATION**

Location	Item	Year				
		2008	2009	2010	2011	2012 (As of August)
City Proper	No. of Consumers	5,622	5,836	5,987	6,164	6,319
	Consumption (cu.m.)	1,833,267	1,803,304	1,647,411	1,866,700	1,326,095
	Projected Water Sales	19,067,843.00	26,162,937.05	23,818,349.60	27,256,049.50	19,377,454.90
Quezon	No. of Consumers	376	420	433	450	465
	Consumption (cu.m.)	98,450	95,928	88,296	106,192	73,612
	Projected Water Sales	518,267.00	737,357.00	712,619.00	817,265.00	574,312.00
Codcod	No. of Consumers	147	148	221	242	254
	Consumption (cu.m.)	34,086	32,733	39,713	44,061	29,443
	Projected Water Sales	162,063.00	226,913.00	276,292.00	293,970.00	194,812.00
Bagonbon	No. of Consumers		68	73	101	107
	Consumption (cu.m.)		7,806	16,188	20,171	16,685
	Projected Water Sales		47,648.00	102,791.00	134,205.00	110,185.00
Buluangan	No. of Consumers				83	106
	Consumption (cu.m.)				6,090	10,800
	Projected Water Sales				152,250.00	270,000.00

Source: City Waterworks Department, 2012

### Other potential sources

The SCWD sees the possibility of using surface water (e.g. rivers, lakes, etc) to augment the need for water in the future. With the continuous increase of the City's population, the present sources will not be enough to provide for the need for water in the future.

## **6.6 ENERGY**

### *6.6.1 ELECTRIC COOPERATIVE*

The City's need for electricity is served by the Victorias-Rural Electric Service Cooperative (VRESCO) for 24-hours daily with its geothermal power source at Palinpinon in Negros Oriental. The cooperative has two substations: one located in Naga, Kabankalan City which supplies the Candoni to Pontevedra grid and the other one is located at San Enrique substation which has a generating capacity of 2.5 MVA. Aside from San Carlos, VRESCO presently serves the cities of Victorias, Cadiz, Sagay and Escalante as well as the municipalities of EB Magalona, Manapla, Toboso and Calatrava.

The following tables present the number, type of connections and energy consumption of VRESCO's consumers in San Carlos.

**TABLE 6.15: NUMBER OF CONSUMERS BY BARANGAY (June 2013)**

Barangay	Number of Consumers
I	2,134
II	2,455
III	718
IV	187

V	993
VI	1,139
Bagonbon	229
Buluangan	1,310
Codcod	513
Ermita	139
Guadalupe	959
Nataban	102
Palampas	828
Prosperidad	309
Punao	802
Quezon	1,093
Rizal	1,976
San Juan	345
Others	598
<b>TOTAL</b>	<b>16,829</b>

Source: VRESCO

**TABLE 6.16: NUMBER OF CONNECTIONS PER TYPE OF CONSUMER (2012)**

Type of User		Number
1	Residential (Domestic)	12,360
2	Industrial	15
3	Commercial	376
4	Public Buildings	60
5	Public Streetlights	187
6	Irrigation	3
7	Communal Water System	3
<b>TOTAL</b>		<b>13,004</b>

Source: VRESCO, 2012

**TABLE 6.17: ENERGY CONSUMPTION PER TYPE OF CONSUMER (kWh)**

Type of User		Average
1	Residential (Domestic)	939,278.17
2	Industrial	501,356.17
3	Commercial	549,349.67
4	Public Buildings	94,905.33
5	Public Streetlights	66,068.25
6	Irrigation	35,623.92
7	Communal Water System	16,224.33
<b>TOTAL</b>		<b>2,202,805.84</b>

Source: VRESCO, 2012

---

## 6.6.2 RENEWABLE ENERGY

---

San Carlos City has the first Bio-Ethanol Plant in the country located in the 400 hectare PEZA-approved Economic Zone. It is managed by a private company called the San Carlos Bio-Energy, Inc. (SCBI). The SCBI is positioned to deliver on the twin objectives of energy security and environmental sustainability.

The project is targeted to supply approximately 10% of petroleum requirements in the Philippines through the production of 30 million liters of ethanol each year which started its full blown operation in the ethanol production in 2009, and co-generating an 8 megawatt -MW of renewable energy from the sugarcane by-product, bagasse and other renewable fuels, which is relatively more than enough to satisfy the process energy needs of the project. Therefore, surplus renewable electricity will be exported to the local grid.

Developments are also underway for a PHP3.5 billion,18-megawatt, bagasse-fired power plant adjacent to the Bio-Ethanol Plant. The project's groundbreaking was held in April 2012 and its completion date is targeted in December 2014. Owned by San Carlos BioPower, Inc., the power plant is programmed to supply energy to the Visayas Region and is expected to provide additional income opportunities for farmers in the City. The Biomass facility is designed to produce clean renewable energy using feedstock principally from sugarcane residues (bagasse) and energy crops from dedicated plantations, among others.

## 6.7 TELECOMMUNICATIONS

---

---

### 6.7.1 TELEPHONE AND INTERNET SERVICES

---

Telecommunication firms such as PLDT, SACATEL Company, Smart, Globe and SUN have been operating in the City such that subscribers enjoy easy and quick communication services. Cellular phones are so popular among the communication gadgets available and these are used by almost all members of the middle and upper class groups of individuals in the City. Smart, Globe and SUN cell sites can be found in the City that provides better services to its subscribers. The telephone density in the City is estimated at 20 lines per 380 people. Further, Smart and Globe brings Broadband Services (SmartBro and GlobeBroadband) for faster and easier internet connection.

**TABLE 6.18: AVAILABLE TELECOMMUNICATION SERVICES AND SERVICE PROVIDERS**

SERVICE	TELECOM COMPANIES
1. Local Telephone	SACATEL/PLDT
2. Domestic Direct Dial	SACATEL, Globe, PT & T/PLDT
3. International Direct Dial	SACATEL, Globe, PLDT
4. Data/ Fax	SACATEL, Skyland Hotel
5. Cellular	Smart, Globe, SUN
6. Internet	San Carlos On-line, Game Gurus, Flamingo Starshine, Galaxy, Game Zone.9E,JP, Matrix, Luvs Chat,P.S. Com, Game Planet, Pango.com.net café, Webpage, Talon, oyoxcybernet

The following table shows the location of cellular telephone sites, telephone relay stations and communications centers of telecom providers.

**TABLE 6.19: LOCATION OF CELL SITES, RELAY STATIONS AND COMMUNICATIONS CENTERS**

COMPANY	LOCATION	REMARKS
Globe	Brgy. Prosperidad	Cel Site
	Brgy. Quezon	Cel Site
	Brgy. Buluangan	Cel Site
	CL Ledesma Avenue	Cel Site
	Don Juan Subdivision	Cel Site
Smart	Balabag, Brgy. Quezon	Cel Site
	Locsin Street	Cel Site
	Brgy. Palampas	Cel Site
	Brgy. Prosperidad	Cel Site
Digitel Mobile	Brgy. Palampas	Relay
	Balabag, Brgy. Quezon	Cel Tower
	National Highway (San Carlos Doctor's Hospital)	Relay
	Cor. V. Gustilo/Atienza (Sta. Rita)	Relay
PLDT/SACATEL	City Proper	Communication Center
Globe	City Proper	Communication Center

---

### 6.7.2 RADIO PHONE

---

The City is also tied up with the polcom transceiver in the Province of Negros Occidental. The transceiver relays messages to the town/cities and the center of its communication network is in Bacolod City. Through this gadget, official messages from different government agencies can be sent and received quickly. Other users in the City of this type of communications gadget are commercial and industrial establishments, civic groups and some private individuals.

---

### 6.7.3 MAIL SERVICES

---

The Bureau of Post, with its office located at the public market, has two personnel components: letter carriers and the collectors. The mail service covers the entire City even to the remotest barangays and sitios.

## 6.8 WASTEWATER MANAGEMENT

---

The existing wastewater management system consists mainly of individually installed septic vaults whose outfall is the storm drainage system. Only the Poblacion has a piped collection system. A monitoring canal may be found at the Old Public Market area which cleanses wastewater from the market area before draining to the San Carlos Bay. In many other parts of the urban area, open canals and creeks serve as drainage/sewage outfall. No treatment process is introduced before the sewage is finally thrown out to the sea.

Initiatives have, however, been undertaken towards the development of an appropriate wastewater management system. Immediately following the passage of the Republic Act 9275, also known as the Philippine Clean Water Act of 2004, the City started its implementation by seeking assistance from the German Development Service (DED) during the period 2004-2005. The significance of the German contribution lies in its approach to promote and support in the planning of wastewater management project.



And in 2009, the City Government, together with the DENR and ECOGOV2, signed a Memorandum of Agreement to jointly develop and implement Waste Water Management (WWM) interventions for the City. The ECOGOV2 or the Philippine Environmental Governance Project Phase 2 provides technical assistance package that includes training modules, capacity building, cross visits, and practicum on wastewater management. This partnership strengthens the capacity of the LGU to improve wastewater management program.

The program aims to improve the basic conditions for the development of the water sector, to introduce sustainable wastewater management and to develop and distribute customized and low cost technological solutions in order to protect the City’s ground water and marine resources along Tañon Strait and to fulfill the legal requirements of the RA 9275.

To date, the City is already in a strategic position towards full blown implementation of wastewater management related projects in various pilot areas such as; city hospital, public market, abattoir and major resettlement sites. This would include rainwater catchment and sewage collection for a centralized treatment and disposal. The various program of works related to wastewater has been already approved and already for implementation. The table below shows some of the approved projects.

**TABLE 6.20: WASTEWATER MANAGEMENT PROJECTS**

<b>Wastewater Management Projects</b>	<b>Appropriation</b>
1. Improvement of City Abattoir Wastewater Treatment	Php 483,350.00
2. New City Health Office Wastewater Treatment Facility	PhP 280,000.00
3. Rainwater Harvester at the Public Transport Terminal	PhP 150,000.00
<b>Total</b>	<b>Php 915,350.00</b>

## 6.9 SOLID WASTE MANAGEMENT

### *6.9.1 ECOLOGICAL SOLID WASTE MANAGEMENT LIFESTYLE CHANGE PROJECT*

The City’s Solid Waste Management (SWM) Board was created on February 14, 2002 in compliance with the Philippine Ecological Solid Waste Management Act of 2000 or Republic Act 9003. Thereafter, the Chairperson of the SWM Board designated a Solid Waste Management Officer to take charge in the facilitation of all solid waste management related concerns such as, among others:

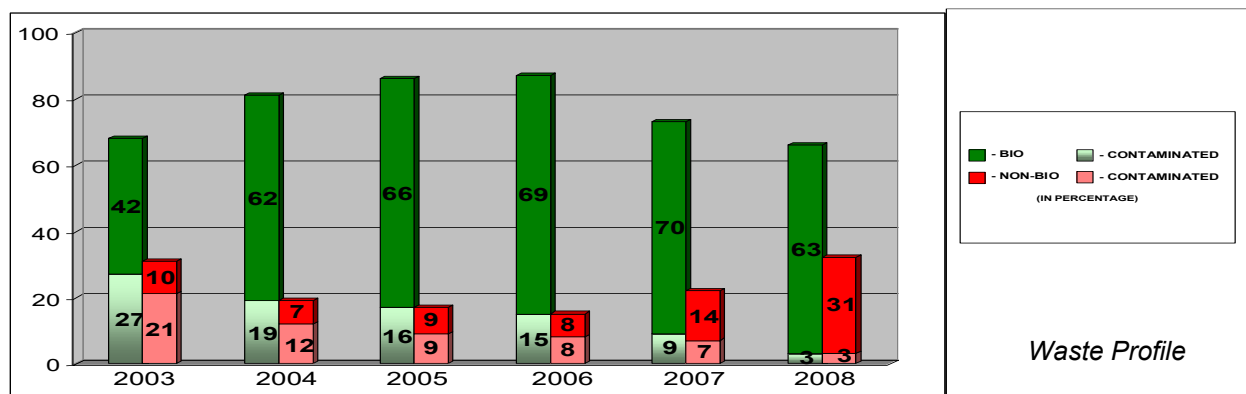
1. Drafting of the Ten (10) Year SWM Plan
2. Establishment of Final Disposal Facility, the Eco-Center
3. Plan for the rehabilitation and closure of the existing Villarante Dumpsite
4. Solid Waste Environmental Education Monitoring & Follow Through
5. Implementation of other Environmental Laws
6. Local and International networking and other SWM related activities

The LGU established citizen responsibility as the primary mechanism of its Solid Waste Management Program through a project entitled, “Ecological Solid Waste Management Lifestyle Change Project.” Emphasis was placed on the promotion of waste diversion of source where segregation of waste is already evidently practiced in households, industries, schools, barangays and different community institutions. The implementation of the said project has already produced tangible results and is the

basis of the implementation and success of the technical aspect of the program, particularly the establishment of the Eco-Center.

Regular waste characterization revealed the decreasing trend in waste contamination reaching to only 3% in non-biodegradables currently. Waste contamination in bio-degradables is also down to 3%. This makes it easier for the garbage collection team and the Eco-Center to further segregate and divert waste. Currently, waste diversion at the Eco-Center reached an impressive 63% which is more than the 25% required by R.A. 9003. Of this 63%, 46% is bio-degradable and is thus directed for composting, and the other 17% is for recycling. Thus, only 37% of the total garbage is considered residuals and goes to the landfill, thus increasing the lifespan of such landfill to 20 years.

**FIGURE 6.2: WASTE PROFILE OF SAN CARLOS CITY**



### 6.9.2 FACILITIES

All barangays have already established their own Materials Recovery Facilities (MRF). The City has also established an Eco-Center where an integrated waste management system is installed. The Eco-Center is a one stop shop disposal and recycling option for San Carlos City residents and businesses. The facility includes state-of-the-art 6,600 sq.m. Sanitary Landfill for municipal solid waste, centralized MRF, office and motorpool, perimeter fence, composting area and waste water treatment facility. This integrated waste management system had a total budget of only P7.5 million.

The approached or technology used in the project is entirely a pioneering application since the system is an integration of a waste processing area for biodegradable and non-biodegradable waste, a sanitary landfill utilizing indigenous local materials such as; clay for lining system and gravel drain instead of High Density Polyethylene (HDPE) liner and leachate piping collection and other innovative approach on the project.

### 6.9.3 FINAL CLOSURE OF OLD DUMPSITE

In year 2002, the City rehabilitated the existing open dump site with an area of 2.5 hectares which had been operating since the early 1990s. The old dumpsite was converted into a controlled dumpsite in August 2006 and ceased its waste delivery acceptance on September 13, 2007 which is right after the opening of the Eco-Center.

The physical closure was then finally initiated in May 2008, conforming to the National Solid Waste Management Commission's (NSWMC) guidelines on safe closure plan. The entire dumpsite was

covered with a 45 cm. clay material cover with an addition of a 15 cm. top soil cover to allow vegetation growth to protect soil from erosion during heavy run-off. Thus stabilizing slope protection layer. In addition, five (5) gas vents were installed for possible methane migration and also to control methane gas generation which is very minimal in the case of Villarante dumpsite.

As part of the process, negotiations with the landowners of the area regarding the acquisition of 18 lots were successfully initiated.

Additionally, the LGU bought a three (3) hectares lot for resettlement of the adjacent squatter area. The closure and post closure management plan was finalized and submitted to the EMB-6, DENR on April 08, 2008 in which the dumpsite will be converted into an Eco-Park.

Finally, the dumpsite was closed by virtue of the Authority to Close (ATC) with No.20-0917 issued by DENR-EMB Region VI after complying with the requirements set by the National Solid Waste Management Commission's (NSWMC) Resolution No.5, "Adoption of the Guidelines on the Safe Closure and Rehabilitation of Disposal Facilities." The approved Authority to Close (ATC) was granted on September 17, 2008 legitimizing the City's physical closure.

## 6.10 CEMETERY

---

The Public Cemetery of San Carlos City is unique. Not for its neatly arranged piles of niches, nor for its octagon multi-purpose shed dominating the center. Not even for its well-maintained tiled comfort rooms nor the communal prayer area. Not even for its affordable rental rates of ₱1,000 for non-indigents and ₱100 for indigents. These are simply physical attributes that will fade or deteriorate in time. It is the concept and the philosophy that make this program one of its kind in the country.

Through this program San Carlos has proven that with creativity and innovativeness a single program can be an effective solution to two challenging problems. It is hitting two birds with one stone.

It is for this reason that the public cemetery program known as "Punongkahoy Sa Bawat Pumanaw" program of San Carlos City, Negros Occidental won the Galing Pook award 2000 bringing to the City its second Galing Pook Hall of Fame award.

### *Hitting two birds with one stone*

Like other cities in the country, San Carlos once faced the dilemma of how to solve the problem of a congested, unsightly and unsanitary public cemetery. A cemetery where tombs are disorderly piled one after the other, where people visiting their dead had to search for a narrow path between tombs to reach their destination.

On the other hand, despite its activity reforestation program, the city still faced the problem of illegal cutting of trees that resulted to the denudation of some of its forests.

Other cities may solve these two separate problems with two separate solutions. One to solve the cemetery problem, the other to solve the denudation of its forests. But, San Carlos City solved them both with just one program through its "Punongkahoy sa Bawat Pumanaw" program.

The program topped the 17 finalists in the 2000 Galing Pook award, the fourth program to win such award for the city. Aside from the honor, the city also received a cash prize of ₱100 thousand.

The “Punongkahoy sa Bawat Pumanaw” program features a cemetery supplemented with a memorial tree park where the remains of the dead are transferred after five years to a tree planted thereat in memory of the dead. How does it solve future congestion and sanitation problems of the cemetery and the reforestation problem of the city?

*Preserving a memory and the environment*

The new cemetery is not just a plain burial site. It is provide with well-arranged rows of ready-to-use niches rented out to surviving families at the rate of P1,000 for five years. Indigent families pay a lower rental rate of ₱ 100. It is likewise provided with clean and orderly surroundings where amenities like altar, multi-purpose shed, spacious pathways, and comfort rooms provide ease and comfort to the public.

The problem of congestion in the future is prevented by incorporating in the program a requirement that after five years the remains of the dead shall be transferred to the Memorial Tree Park to where a tree has been planted by the surviving family in honor of their dearly departed.

The 5-hectare Memorial Tree Park, located 12 kilometers at the outskirts of the city and now planted with 2,000 acacia and narra seedlings through the City Agriculture Office, while solving future congestion at the public cemetery also addresses the city’s reforestation problem. The trees thereat are assured of surviving.

Since each tree is named in honor of their dead, the surviving families will surely nurture and protect the trees as a sentimental tribute to their dearly departed. Other people will also give due respect to trees for what they symbolized. The tree planting requirement indeed serves a noble purpose of preserving the environment.

The new public cemetery cum memorial tree park has indeed hit two birds with one stone .It serve to preserve and protect both the wonderful memory of the dead and the beautiful environment for the living.

**TABLE 6.21: NUMBER OF NICHES AT THE CITY CEMETERY**

Year	Block	Number
1998 – 2004	I	117
	II	117
	III	132
	IV	132
	V	138
	VI	216 (For Child Deaths Only)
	VII	102
	VIII	102
	IX	120
	X	117
	XI	120
	XII	123

	XIII	126
	XIV	108
	XV	108
	XVI	126
	XVII	114
	XVIII	114
	XIX	114
	XX	114
	XXI	114
2009	Additional Blocks	
	XXII	114
	XXIII	126
	XXIV	120
2011	XXV	114
	XXVI	126
	XXVII	120
<b>Total Niches</b>		<b>3,294</b>

Source: City Health Office

## 6.11 ABATTOIR

---

The City Abattoir is located at the Jose Valmayor Public Market in Barangay 4. The average number of animals slaughtered per month is 64 to 65 cattle, 1,000 hogs and 25 goats.

The wastewater treatment process in the abattoir involves a three-stage treatment process geared to produce an environmentally-safe fluid waste stream (or treated effluent) and a solid waste (or treated sludge) suitable for disposal or reuse (usually as farm fertilizer). The abattoir is equipped with a grease trap and septic tank (primary treatment), Anaerobic Baffled Reactor (ABR) and Planted Gravel Filter (secondary treatment) and a Monitoring Pond (tertiary treatment).

As for solid wastes, the abattoir is serviced by the City's Solid Waste Management System. Waste collected from the abattoir is brought to the Eco-Center, the City's integrated solid waste treatment facility.

## 6.12 PUBLIC MARKET

---

### *6.12.1 JOSE VALMAYOR PUBLIC MARKET*

---

The Jose Valmayor Public Market is the City's main market. There are 62 vendors in the market and most of them sell fruits and tobacco (cigarettes) while a significant number provide services such as shoe and watch repair. The following table shows the number of regulated and non-regulated vendors by type in the City's Public Market.

**TABLE 6.22: NUMBER OF REGULATED AND NON-REGULATED VENDORS BY TYPE**

Type of Vendor	Number
Shoe Repair	10
Tobacco	11
Foods	4
Watch Repair "Relohan"	8
Fruit Stall "Prutasan"	19
RTW	7
"Chichirias"	3
<b>TOTAL</b>	<b>62</b>

Source: Market & Slaughterhouse Department, 2012

There are 341 stores/ stalls in the Public Market. The occupancy rate, or proportion of occupied stores/ stalls, is about 87%. Most are fish stores/ stalls and others sell vegetables, meat and food. The following table shows the number of occupied and vacant stores/ stalls by type.

**TABLE 6.23: NUMBER OF OCCUPIED AND VACANT STORES/ STALLS BY TYPE**

Type of Store/Stalls	Occupied	Vacant
Fish Stall ("Isdaan")	146	24
Meat Stall ("Baboyan")	46	11
Foodcourt	21	10
Vegetables	83	0
<b>TOTALS</b>	<b>296</b>	<b>45</b>

Source: Market & Slaughterhouse Department, 2012

There are about 310 occupants in the Public Market and most of them may be found in Clusters M and N. The following table presents the number of occupants in the Public Market by Cluster.

**TABLE 6.24: NUMBER OF PUBLIC MARKET OCCUPANTS BY CLUSTER**

Cluster	Number
A	10
B	19
C	16
D	10
E	12
F	4
G	11
H	24
I	13
J	9
K	68
L	27
M	22
N	44
Muslim	13
Frozen	8
<b>TOTAL</b>	<b>310</b>

Source: Market & Slaughterhouse Department, 2012



---

### *6.12.2 FARMERS' MARKET*

---

The City has a local market called “Bagsakan” or Farmers Market at the Public Transport Terminal in Barangay 1. Market days are during Thursdays and Sundays and these are the occasions when farmers from various barangays sell their produce to consumers. On the average, there are 30 farmer-vendors during Thursdays and 50 during Sundays.