



## **PART 3: SECTORAL PROFILE**

### **3.1. INFRASTRUCTURE, FACILITIES AND UTILITIES**

#### **3.1.1. Flood Control Facilities**

##### **3.1.1.1. “Bombastik” Pumping Stations**

Being a narrow strip of land with a relatively flat terrain and with an aggregate shoreline of 12.5 kilometers that is affected by tidal fluctuations, flooding is a common problem in Navotas City. This is aggravated by pollution and siltation of the waterways, encroachment of waterways and drainage right-of-ways by legitimate and informal settlers, as well as improper waste disposal.

The perennial city flooding inevitably became a part of everyday living. During a high tide with 1.2 meter elevation, some parts of Navotas experience flooding, especially the low-lying areas along the coast and riverways. As a mitigating measure, the city government - thru the Local Disaster Risk Reduction and Management Office - disseminates information about the heights of tides for a specific month. This results in an increased awareness among the residents on the time and date of occurrence of high tide. During rainy days, flooding reach higher levels. The residents have already adapted to this situation. Those who are well-off are able to install their own preventive measures, such as upgrading their floorings to a higher elevation.

During the term of the then Mayor and now Congressman, Tobias M. Tiangco, he conceptualized a project that aims to end the perennial flooding in Navotas. Since Navotas is surrounded by water, he believed that enclosing the city to prevent the entry of water during high tide would solve the floods. The local government piloted the project in Barangay Bangkulasi and sealed it from waters that enter the barangay. A study was conducted on where the water from Navotas River enters the area during high tide. After the identification of the entry ways of water, the City Government started the construction of riverwalls and mini-flood gates on strategic areas within the said barangay.

The purpose of these pumping stations is to propel out all the household waters and rain waters inside the containment structure, while the flood gates prevent the entry of water in the area during high tide. The flood gates were kept closed and the pumps were kept running during high tide which resulted to a decreased flooding in the locality. Today, Barangay Bangkulasi no longer experience flooding. The City Government also decided to replicate this project to all the barangays of the city.

As of current writing, there are 44 “Bombastik” pumping stations in Navotas strategically located throughout the city.



Map 3.1. Location of the “Bombastik” Pumping Stations





**Figure 3.1. Photographs of "Bombastik" Pumping Stations**



**Table 3.1. Location of the "Bombastik" Pumping Stations in Navotas (2014)**

Barangay	Location
<b>District I</b>	
<b>Sipac – Almacen</b>	1. Bagumbayan Elementary School 1
	2. Bagumbayan Elementary School 2
	3. M. de Vera Street
	4. P. Gabriel Street
	5. A. Santiago Street
<b>Bagumbayan North</b>	6. Cadorniga St., Bagumbayan North
<b>Navotas East</b>	7. Yangco Street 1
	8. Yangco Street 2
<b>Bangkulasi</b>	9. Galicia Street
	10. Luna Street
<b>Bagumbayan South</b>	11. along C-4 Road
	12. Taganahan Street
<b>North Bay Boulevard South</b>	13. Kanduli Street
	14. Babanse Street
	15. Mamale Street
	16. Maliputo Street
	17. Along R-10 Road
<b>San Rafael Village</b>	18. Lapu-lapu Avenue
	19. Maralla River
	20. Taliba Street
	21. Vicenta Street (1)
	22. Vicenta Street (2)
<b>District II</b>	
<b>San Jose</b>	23. Celestino Street 1
	24. Celestino Street 2
	25. Badeo 2
	26. Kahunari Street
<b>Daanghari</b>	27. Daanghari Street



	28. Paltok Creek
<b>San Roque</b>	29. Badeo 5
<b>Tanza</b>	30. Tanza Kaliwa
	31. Sapang Bulao 1
	32. Sapang Bulao 2
	33. Doña Aurora Street
	34. Milflores Street
	35. Tambak 1
	36. Tambak 2
	37. Navotaas Homes 1
	38. Navotaas Homes 2
	39. Ilang-ilang Street
<b>Tangos</b>	40. Ablola Street
	41. Badeo 6
	42. Apugan Street
	43. F. Cruz Street (1)
	44. F. Cruz Street (2)

**3.1.1.2. Navotas Coastal Dike**

Another project that aims to address the perennial flooding in Navotas City is the construction of a 3.5-km coastal dike along Manila Bay. Originally, the coastal dike is a part of the CAMANAVA Flood Control Project. However, due to financial constraints, the dike was not built. The preparation of the design and the alignment of the coastal dike were initiated by the City Government. The project has already begun and is funded by the national government through the Department of Public Works and Highways (DPWH). The construction is being implemented by phasing wherein the first phase of the coastal dike was already completed, covering the stretch from Barangay Bagumbayan North to Barangay Sipac-Almacen. The construction of the remaining parts of the coastal dike is still on going as of the writing.

With the construction of the coastal dike and the presence of the “Bombastik” pumping stations, the city will no longer experience flooding.

**Figure 3.2. Pictures of the 3.5 Km Coastal Dike**





3.1.2. DPWH Infrastructure Projects

Map 3.2. Location Map of DPWH Infrastructure Projects (2015-2017)





The locations of all the DPWH Infrastructure projects in the city for the years 2015-2017 are shown in Map 3.2. Most of the infrastructure projects focus on the construction and strengthening of structural disaster mitigating measures such as the coastal dike, riverwalls, pumping stations, and drainage canals. The list of all the DPWH Infrastructure projects for the years 2015-2017 are included in the Annex of this document.

## 3.2. TRANSPORTATION / ROAD NETWORK

Navotas is accessed by land through the major highways, roads, and bridges in Metro Manila. The road linkages provide the important flow connections of goods and services to and from the city and the means of economic and social interactions with the rest of Metro Manila. Navotas being a known fishing hub in the northwest portion of Metro Manila and a coastal city, Manila Bay plays an important role in its economic structure.

### 3.2.1 Road Network

The City of Navotas is served by a road network, all made of concrete, that provides internal access within the city to all the barangays and that serves as important linkages of the city to the rest of Metro Manila and other nearby municipalities and cities. Table 3.2 shows the list of all National Road Network by length.

All the roads have a two-way capacity and when used properly, can accommodate at least 4 vehicles at a time. In terms of pavement type, the major roads in Navotas are all concrete.

Almost all the roads in the city are well-maintained and in good condition. Upgrading and repair is regularly done by the City Government to ensure safety and accessibility. Proper coordination with the Department of Public Works and Highways is a constant practice for the maintenance of national roads.

Considering all the barangays of Navotas are classified as urban barangays, the actual roads needed, based on the August 1, 2007 census and applying the standard of 2.4 kilometers per one thousand population, is about 589 kilometers. This is way above the existing 15.38 kilometers of national roads. However, due to the limited land area of the city, actual road needs cannot be met. This means that mobility can be attained from traffic management and utilizing the waterways as means of transportation.



**Table 3.2. Inventory of Roads by System Classification and Type of Pavement (2014)**

Road	Classification	Road Surface Type						
		Total Length (km)	Concrete			Asphalt		
			Km	%	C	Km	%	C
Circumferential Road 3 (C-3)	National	0.607	0.607	100%	Good	-	-	-
Gov. Pascual Street	National	3.732	3.732	100%	Good	-	-	-
M. Naval Street	National	4.410	4.410	100%	Good	-	-	-
North Bay Boulevard	National	2.609	2.609	100%	Good	-	-	-
Radial Road 10 (R-10)	National	2.150	2.150	100%	Good	-	-	-
Circumferential Road 4 (C-4)	National	0.866	0.866	100%	Good	-	-	-
Lapu-lapu Avenue	City	1.006	1.006	100%	Good	-	-	-

Source: City Planning and Development Office, SEP 2014  
 C = Physical Condition: Good – Acceptable/Serviceable

**3.2.1.1. Entry and Exit Points**

There are six (6) identified entry and exit points in the city. This entry and exit points serve as the city’s link to the neighboring cities. It should be noted that these entry and exit points are connected by bridges considering that Navotas is surrounded by water. Barangay Tanza, which is separated by water from the rest of the barangays, is connected to Malabon City through the Tanza Bridge.

**Table 3.3. Entry Points and Exit Points in City (2015)**

Street	Leading to
Estrella Bridge	Malabon City
Circumferential Road 4 (C-4)	Malabon City
Circumferential Road 3 (C-3)	Manila City/Caloocan City
North Bay Boulevard	Manila City
Radial Road 10 (R-10)	Manila City
Tanza Bridge	Malabon City

Source: City Planning and Development Office



Map 3.3. Map of the Entry and Exit Points of the City





**3.2.1.2 Bridges**

Being surrounded by water, these bridges facilitate easy access and continuity of traffic flow into, out, and within the city. There are nine (9) main bridges in Navotas and since all bridges were built more than 10 years ago, their capacity to service the transport links gradually deteriorates and will require extensive maintenance in view of increasing traffic and continuous use.

Currently, all bridges are in good condition. Retrofitting and reinforcements were done to ensure the safety of the motorists and pedestrians in cases of earthquakes and other calamities.

**Table 3.4. Inventory of Bridges by Location, Classification and Type (2013)**

Name	Year Constructed	Length (m)	Width (m)	Type	Capacity (Tons)	Physical Condition
Bangkulasi Bridge (Cut-off channel)	1952	49.6	7.3	Concrete	15	Good
C-3 Bridge (Left Lane – Caloocan boundary)	1982	73.6	8.6	Concrete	15	Good
Spine Bridge	1986	66.76	7.28	Concrete	15	Good
C-4 Bridge 1	1992	106.5	15.1	Concrete	20	Good
Maralla Bridge	1992	48.05	13.9	Concrete	20	Good
R-10 Bridge	1993	106.3	15	Concrete	15	Good
C-4 Bridge 2	1993	73.5	15.3	Concrete	20	Good
Tanza Bridge	1996	45	6	Concrete	20	Good
Estrella Bridge	1996	79	7.3	Concrete	20	Good

Source: City Planning and Development Office, SEP 2013

Type: Concrete, Steel, Wood and Others

Physical Condition: Good – Acceptable/Serviceable

**Figure 3.3. Picture of the C-4 Bridge**





Map. 3.4. Map of Location of Bridges





### 3.2.2. Transportation and Terminals

#### 3.2.2.1. Public Utility Jeepney

There are six (6) routes of passenger jeepneys in the city as enumerated below. Next to tricycles and pedicabs, the jeepneys are the most used mode of transportation into and from the city due to the narrow width of the main thoroughfares. There are around 856 jeepneys servicing the city commuters.

**Table 3.5. Inventory of Public Utility Jeepneys and Service Routes (2016)**

<b>Public Utility Jeepneys (PUJ)</b>	<b>Route</b>	<b>Total Quantity</b>
1. Navotas – Malabon	Navotas City – Malabon City	95
2. Navotas – Monumento	Navotas City – Malabon City – Caloocan City	178
3. Navotas – Divisoria	Navotas City – Manila City	183
4. Navotas – Recto	Navotas City – Malabon City – Caloocan City – Manila City	120
5. Gasak – Divisoria	Malabon City – Navotas City – Manila City	211
6. Dagat-dagatan – Pier	Navotas City – Manila City	69
	<b>Total</b>	<b>856</b>

Source: Franchising and Permit Processing Unit (As of December 2016)

#### 3.2.2.2. Other Modes of Transportation

##### 3.2.2.2.1. Public Utility Bus

The presence of the Navotas City Transport Terminal contributed to the improvement of the accessibility of the city. This terminal houses buses bound to Alabang and Baclaran. In addition, it does not only help in the accessibility of the city, but also increases the city's income generating capacity.

##### 3.2.2.2.2. Tricycles and Pedicabs

Other means of transportation in Navotas city are the tricycles and pedicabs. These vehicles were patronized by the citizens because these vehicles have the ability to access the narrow streets and alleyways of the city that are not part of the route of the PUJs and PUBs.

##### 3.2.2.2.3. Ferries

Given the geographical location of Navotas which is surrounded by water, the city utilized and took advantage of the waterways around the city as an alternative mode of transportation. This is evidenced by the presence of the different ferry stations along the Navotas River.



Figure 3.4. Pictures of the Ferries along Navotas–Malabon River



### 3.2.3. Traffic Congested Areas

Like the rest of Metro Manila, the City of Navotas is not exempted to traffic and vehicle congestions. The traffic management officers try their very best to direct traffic flow and improve traffic management by the provision of CCTV cameras. It is common to encounter delays when going to or from Navotas. Land traffic in the city can be attributed to the existence of narrow roadways and intersections, growing volume of vehicles, and road obstructions.

Traffic congestion usually occurs along the M. Naval and F. Pascual streets due to the increase in the number of motor vehicles traversing the area and the narrow roads. The heavy traffic in the major roads specifically the R-10 and C-4 roads are caused by large volume of vehicles, especially trucks carrying container vans, that travels through these thoroughfares to get to the port area in Manila and to the neighboring cities.

Table 3.6. Traffic Congested Areas in Navotas City (2014)

<b>Traffic Congested Areas</b>
• <i>M. Naval Street corner F. Pascual Street, Barangay Tangos</i>
• <i>Radial Road 10 (R-10)</i>
• <i>Circumferential Road 4 (C-4)</i>

Source: City Planning and Development Office

### 3.2.4. Comprehensive Traffic Management Plan

With the worsening traffic congestion, transport and traffic management studies should be conducted to identify measures that will make the traffic operations of the city more efficient. Currently, the City of Navotas is in the process of formulating the Comprehensive Traffic Management Plan. The aim of the plan is to identify measures to



address the present and future problems related to traffic; improve the operation of the in-city mass transportation; and determine the feasibility of alternative modes of transportation and green transportations. The plan will be divided into two sections, the Transport Infrastructure Plan and the Transport Investment Plan. As of the writing, the city has already completed the assessment of the existing transport and traffic situation and is now in the plan formulation proper.

### 3.3. Social Services Facilities / Utilities / Amenities

#### 3.3.1. Health Facilities

##### 3.3.1.1. Navotas City Hospital

The increasing demand for an affordable health care and complete medical facilities is due to the change in the socioeconomic status of the residents, demographic shifts, and the changing lifestyle of the new generation.

The Navotas City Hospital was conceptualized during the administration of the then Mayor and now Congressman Tobias M. Tiangco. Unfortunately, the project was not pushed through due to financial constraints. Since the citizens are still in need of a more advanced health facility to cater to their health needs, the present administration of Mayor John Reynald M. Tiangco decided to start the construction of a hospital, which can be considered as the biggest project of this administration.

There are certain diseases afflicting many Navoteños that requires referral to the secondary level of health care. Navoteños are dependent on hospital services provided by neighboring cities which are already catering to a large part of their citizens.

The Navotas City Hospital aims to provide quality and compassionate secondary care services to Navoteños, especially the financially challenged, at no cost or minimal cost to the patient at the point of care and to provide a continuum of care and referral from the primary services to secondary services and back. The hospital is a Level One (I) hospital intended to cater to the medical needs of Navoteños. It is located along M. Naval St. at Barangay San Jose.



**Figure 3.5.**  
**Perspective of the Navotas**  
**City Hospital**



**3.3.1.2. Health Centers**

At present, Navotas has eleven (11) health centers located in 9 barangays and an emergency and lying-in clinic located in Barangay San Jose. There are five (5) health centers, which are Sentrong Sigla accredited. These include Tanza Health Center, Tangos Health Center, San Roque Health Center, NBBN Health Center, and Kaunlaran Village Health Center.

In line with the DOH's agenda of Kalusugang Pangkalahatan, all of the health centers are Primary Care Benefit (PCB) package accredited by PHIC. All the health centers are accredited by Directly Observed Treatment Short Course (DOTS). These public health facilities provide basic preventive health services as well as medical, minor surgical, and acute curative care. The city's public health programs are focused on Family Planning and Counseling, Maternal and Child Care, Nutrition, Care for the Elderly, Adolescent Youth Health Care and Development, Management of Infectious Diseases (particularly Tuberculosis), and Risk Management of Lifestyle Related Diseases.

**Table 3.7. List of Government Health Facilities (2015)**

<b>Facility</b>	<b>Location</b>
<i>Navotas City Hospital</i>	<i>M. Naval St., Barangay San Jose</i>
<i>Navotas Emergency and Lying In Clinic</i>	<i>M. Naval St., Barangay San Jose</i>
<i>Bagong Lipunan Health Center</i>	<i>Los Martirez St., Barangay San Jose</i>
<i>Bagumbayan Health Center</i>	<i>C-4 Road, Barangay Bagumbayan North</i>
<i>Bangkulasi Health Center</i>	<i>Alpha St., Barangay Bangkulasi</i>
<i>NBBN Health Center</i>	<i>Linchangco St., Barangay NBBN</i>
<i>Kaunlaran Village Health Center</i>	<i>Bangus St., Barangay NBBS</i>
<i>Tanza Health Center</i>	<i>Rodriguez St., Barangay Tanza</i>
<i>Tangos Health Center</i>	<i>M. Naval St. corner Bagong Kalsada St., Barangay Tangos</i>
<i>San Roque Health Center</i>	<i>Gov. A. Pascual St., Barangay San Roque</i>
<i>Sipac Health Center</i>	<i>M. Naval St., Barangay Sipac</i>
<i>North Bay Boulevard South Health Center</i>	<i>Phase II Area 2</i>
<i>North Bay Boulevard South Health Center</i>	<i>Phase II Area 1</i>

Source: Navotas City Health Office, 2014





Map 3.5. Location of the Health Facilities Map





### 3.3.2. Housing and Informal Settlements

The geographical location of Navotas and the presence of opportunities in the fishing industry of the city lure informal settler families to reside in the city. These families usually build their shanties along the coast and riverways.

In compliance with Article 51 of P.D. 1067, otherwise known as the Water Code of the Philippines which provides that:

*“The banks of the rivers and streams and the shores of the seas and lakes throughout their entire length and within a zone of three (3) meters in urban areas, twenty (20) meters in agricultural areas and forty (40) meters in forest areas, along their margins, are subject to the easement of public use in the interest of recreation, navigation, floatage, fishing and salvage. No person shall be allowed to stay in this zone longer than what is necessary for recreation, navigation, floatage, fishing or salvage or to build structures of any kind.”*

Likewise, the Supreme Court Mandamus ordered the cleanup, rehabilitation and preservation of Manila Bay and to maintain its water to SB Level (class B water per Water Classification Tables under DENR Administrative Order No. 34 (1990)) to make them fit for swimming, skin diving and other recreational activities.

As an initiative of the City Government to address the problem on housing, various housing projects were constructed for in-city relocation. A Relocation/Resettlement Action Plan was formulated by the Local Inter-Agency Committee (LIAC) which aims to clear the easement areas from all structures and convert these easements into linear parks for public use.

In accordance with the above-cited laws, the Department of the Interior and Local Government (DILG) launched “Oplan Likas” Program, which aims to relocate ISFs along the waterways who were identified to be most vulnerable to the adverse effects of natural disasters. Also, it provides financial and housing assistance to these informal settler families (ISFs).

In the year 2014, there are around 10,395 informal settler families in the city, 5,953 or 57.09% of which are located along the waterways and the rest are on land mostly along the road-right of way of Radial Road 10 (R-10) and within areas near the fish port. For a span of three years (2011-2014), the number of ISFs along the waterways decreased by 1,411.

The Navotas City Government initiated the development of 8.4 hectares fishponds in Barangay Tanza for the construction of socialized housings for in-city relocation which started in early 2007 and was finished by the year 2010. The 200 housing units were constructed through the Priority Development Assistance Fund (PDAF) of Congressman Tobias M. Tiangco, which are all currently filled up by the qualified beneficiaries. Likewise, the Habitat for Humanity Philippines was able to build 500 housing units, 300 of which were already occupied. In addition, the National Housing Authority (NHA) constructed the following: (1) 20 two-storey buildings having 680 units in Navotaas Homes - Tanza; (2) 1 five-storey building with 60 units at Tanglaw; and (3) 2 five-storey buildings with 120 units



at Gulayan, both of which are in Barangay NBBS. For the off-city relocation, the NHA allocated housing units in their available resettlement sites like Pandi, Bulacan. At this point in time, the administration is identifying available lands for expropriation for housing purposes.

**Table 3.8. Magnitude of Informal Settler Families (2011 vs. 2014)**

<i>Barangay</i>	<i>No. of ISFs along waterways (June 2011)</i>	<i>No. of ISFs along waterways (June 2014)</i>
<i>San Rafael Village</i>	181	181
<i>North Bay Boulevard South</i>	0	0
<i>North Bay Boulevard North</i>	0	0
<i>Bangkulasi</i>	0	0
<i>Bagumbayan South</i>	0	0
<i>Bagumbayan North</i>	35	35
<i>Navotas East</i>	46	28
<i>Navotas West</i>	571	534
<i>Sipac-Almacen</i>	508	424
<i>San Jose</i>	771	599
<i>Daanghari</i>	1,684	1,021
<i>San Roque</i>	395	283
<i>Tangos</i>	1,119	852
<i>Tanza</i>	2,054	1,996
<b>Total</b>	<b>7,364</b>	<b>5,953</b>

The relocation of the ISFs residing on land is currently on-going. Likewise, the ISFs along the waterways are simultaneously being identified, validated, and relocated to the aforementioned resettlement sites.

**Table 3.9. Existing Resettlement Areas (2014)**

<i>Name of Resettlement Area</i>	<i>Barangay</i>	<i>Land Ownership</i>	<i>No. of Households</i>	<i>No. of Housing Units</i>	<i>Administration</i>
Navotaas Residences	San Roque	Government	217	219	LGU
Navotaas Homes	Tanza	Government	700	1380	LGU, NHA, Habitat for Humanity, PDAF of Cong. Tobias M. Tiangco
Gulayan	NBBS	Government	0	120	LGU
Tanglaw	NBBS	Government	0	60	LGU



Map 3.6. 2014 In-City Resettlement Areas Map





**Figure 3.6. Pictures of In-City Resettlement Sites**



**Navotaas Homes Tanza**



**Navotaas Homes Tanza**



**Tanglaw Housing**



**3.3.3. Sports and Recreational Facilities**

Sports and recreational facilities encourage the citizens of the city to lead more active lives. The better the facilities, the more people will be encouraged to pursue a healthier lifestyle. That is why the LGU invested in the construction of these facilities, the list of which is shown in table 3.10. All of these facilities are in good condition.

**Table 3.10. Sports and Recreational Facilities by Barangay, Type, and Ownership (2015)**

<i>Barangay</i>	<i>Type of Facility</i>	<i>Ownership</i>
<i>Tanza</i>	<i>Basketball Court</i>	<i>Government</i>
<i>Tangos</i>	<i>S. Roldan Basketball Court</i>	<i>Government</i>
	<i>Pantay-pantay Basketball Court</i>	<i>Government</i>
	<i>Wawa Park</i>	<i>Government</i>
	<i>Kapalaran Basketball Court</i>	<i>Government</i>
<i>San Roque</i>	<i>Bacog Basketball Court</i>	<i>Government</i>
<i>Sipac-Almacen</i>	<i>Navotas City Sports Complex</i>	<i>Government</i>
	<i>Navotas Central Park</i>	<i>Government</i>
<i>Bagumbayan North</i>	<i>City Walk and Amphitheater</i>	<i>Government</i>
	<i>Centennial Park</i>	<i>Government</i>
<i>North Bay Boulevard North</i>	<i>Linchangco Basketball Court</i>	<i>Government</i>
<i>North Bay Boulevard South</i>	<i>Navotas Youth Center</i>	<i>Government</i>
	<i>Phase II Area 1</i>	<i>Government</i>
	<i>Phase II Area 2</i>	<i>Government</i>
	<i>Kapitbahayan Basketball Court</i>	<i>Government</i>
	<i>Phase 1-C</i>	<i>Government</i>
	<i>Phase 1-B</i>	<i>Government</i>
	<i>Phase 1-A</i>	<i>Government</i>
	<i>Phase II Area4</i>	<i>Government</i>
<i>San Rafael Village</i>	<i>SRV Basketball Court</i>	<i>Government</i>

**3.3.4 Educational Facilities**

**3.3.4.1. Public Schools**

There are 15 public elementary schools in Navotas, 9 are located in District 1 and 6 are located in District 2. There are 6 public schools offering secondary education. Continuous repair and maintenance are being undertaken by the City Government to ensure the safety condition of these facilities. Likewise with the Navotas Polytechnic College and Navotas Manpower Training Center.



**Table 3.11. Government Schools by Level, Type, Facilities and Condition (2013)**

School	Barangay	Area (m <sup>2</sup> )	Facilities and Condition					Play-Ground	Others
			Lab.	Shop	Library	Clinic	Comfort Room		
<b>Elementary</b>									
San Rafael Elementary School	San Rafael Village		N	N	G	P	G	N	G (ICT Room, Green House, Herbal Garden, Guidance Office and canteen)
Dagat-dagatan Elementary School	NBBS	10,899	N	N	P	P	G	P	N
Kapitbahayan Elementary School	NBBS	7,824	N	N	N	N	G	N	N
North Bay Boulevard South Elementary School	NBBS	720	N	N	G	G	G	N	N
North Bay Boulevard North Elementary School	NBBN	65	N	N	P	G	G	N	G (Computer Room)
Bangkalasi Elementary School	Bangkalasi	15	N	N	G	G*	G	G	G (E-room is a 3-in-one room used as computer room, library and guidance office)
Bagumbayan Elementary School	Sipac-Almacen	4,011.4	N	N	N	G	G	G	N
Navotas I Elementary School	San Jose	474.1	N	N	G	G	G	N	
Navotas Elementary School (Central)	San Jose	7,123	Under Const.	G	G	G	G	G	G (Social Hall) C (Museum)
Daanghari Elementary School	Daanghari	5,250	N	P	C	C	P	N	G (ICT Room)
San Roque Elementary School	San Roque	50,000	N	N	N	N	G	G	P (E-Classroom)
Tangos I Elementary School	Tangos	17,419	N	N	G	G	G	G	G (Computer Room) C (Multipurpose Hall)
Tangos Elementary School (Mother)	Tangos	2,754							
Wawa Elementary School	Tangos	853	N	N	N	N	G	N	G (Computer Room)
Tanza Elementary School	Tanza	5,000	N	N	G	G	P, G	C	G (Multi-purpose Hall)
<b>High School</b>									
San Rafael National High School	San Rafael Village	3,300	P	P	G	P	G	N	P – Computer Room
Kaunlaran National High School	NBBS	2,233	G	N	G	P	G	G	P – Computer Room
Navotas National High School	Sipac-Almacen	2,050.68	N	N	N	P	P	G	N
San Roque National High School	San Roque	2,607	G	N	P	G	G	N	G (Computer Room/Laboratory)
Tangos National High School	Tangos	3,151	C	C	C	P	G	N	P (Computer Room) C (Stage, Quadrangle, Classrooms)
Tanza National High School	Tanza	2,703							P (Computer Room)
<b>Tertiary and Technical-Vocational</b>									
Navotas Polytechnic College	NBBS		G	G	G	G	G	G	
Navotas Manpower and Training Center	Sipac-Almacen		G	G	G	N	N	G	

Division of City Schools, Navotas, 2013  
City Government of Navotas, 2015

\* Indicate condition if facility is present as follows:

G - Good - Well Maintained

P - Poor - Needs Improvement

C - Critical - Requiring Priority Action

N - None / No Such Facility

Other facilities: Computer room/laboratory, multi-purpose halls/auditorium, etc.



Map 3.7. Educational Facilities Map





### **3.3.4.2. Education Sector Analysis**

Based on the 2014 Accomplishment Report of the DepEd Navotas, there are challenges and issues that should be addressed first before the implementation of the K to 12 program. In terms of the facilities and resources, the pupil/student to classroom ratio for secondary schools is 105.11 and 72.97 for elementary schools. This is far from the standard ratio of 45 pupils/students per classroom. Also, the pupil/student to furniture ratio is at 1.58 for secondary and 1.60 for elementary schools. This is relatively different with the standard of 1:1 ratio. This situation also goes with the number of textbooks available for the use of the students. Lastly, some of the school facilities like the clinics and comfort rooms are in poor condition.

If the problems mentioned will not be addressed, it may affect the quality of learning of the students. Thus, the LGU together with DepEd Navotas are hand-in-hand in providing solutions for these problems. Currently, there is an ongoing construction of school building in NBBN Elementary School. Also, the office is currently upgrading the water sanitation and comfort room facilities of the different schools to improve its current state. To increase the participation rate, cohort survival rate, and completion rate, non-structural interventions are currently employed like the Balik-Eskwela Program, Early Registration Program, ALS Program, and the institution of an Open High School.

### **3.3.4.3. Readiness for Kinder to Grade 12 (K to 12) Program**

The K to 12 program aims to add two years of studies in the basic education curriculum. The program will include kindergarten, six years of elementary education, four years of junior high school, and the additional two years of senior high school. These additional years of studies will be devoted to specialization, depending on the career paths the students will pursue.

The preparedness of the DepEd for the implementation of the K to 12 program is a national issue. Many Filipinos believed that the country is not yet ready for the full implementation of the program because of the shortage in classrooms, school facilities, and learning modules. Furthermore, the Commission on Higher Education (CHED) stated that in the worst case scenario, 38,071 teaching staff and 14,351 non-teaching staff will be displaced because of K to 12 in the next 5 years, starting 2016.

The DepEd, however, reiterated that the country is ready for the implementation of the program. They are also currently addressing the issues by requesting for the following: additional 39, 066 teacher items, 69.5 million units of learning materials, 1.5 million seats, and 41,728 additional classrooms, 30,000 of which are for senior high school students.

The division office of the DepEd in Navotas city ensures that the city public schools are equipped with the necessary facilities and resources for the full implementation of K to 12 Program come the school year 2016-2017. The Navotas National High School and San Rafael National High School are currently instituting technical-vocational facilities to accommodate the upcoming senior high school students. Also, they recommended the sharing of school resources for schools which cannot offer all of the tracks.



As of the writing, the different public schools in the city conducted seminar workshops that will enhance the competency of the teachers in teaching the K to 12 curriculum, like the following: (1) SBTP/RTD “I Share Mo ang K Mo!” which supplements the teachers with new information regarding the Grade 9 K-12 curriculum; (2) Kinder Division Demo aimed at sharing new different techniques in teaching K-12 curriculum in Kindergarten; and (3) “Teaching with a Heart: A Follow Through” for K to 12 teachers which is intended to scaffold the capabilities of the teachers through exposure to enriching and challenging teaching- learning experiences and renew new ones commitment and dedication to the profession.

### 3.3.5. Protective Services

The protective services sector maintains public order in the locality and provides security to residents as they go about their daily lives.

#### 3.3.5.1 Police Services

Presently, the Navotas Police Station is competently manned by a total of 292 personnel broken down as follows:

**Table 3.12. Number of PNP Personnel in Navotas City (2015)**

Personnel	No.
Police Commissioned Officers	18
Police Non-Commissioned Officers	263
Non-Uniformed Personnel	11
<b>Total</b>	<b>292</b>

True to its advocacy to maintain peace and order in the city, the Navotas police office was able to solve 63.64% of the total cases recorded in the city. The table below shows the complete crime incidence per barangay for the year 2013.



**Table 3.13. Inventory of Crime Incidence by Barangay (2013)**

Barangay	Index	Non-Index	Total No. of Cases	No. of Cases Solved	Percentage
Tanza	13	17	30	20	66.67%
Tangos	84	62	146	105	71.92%
San Roque	36	33	69	47	68.12%
Daanghari	33	30	63	45	71.43%
San Jose	48	42	90	59	65.56%
Sipac-Almacen	46	44	90	52	57.78%
Navotas West	9	2	11	5	45.45%
Navotas East	15	7	22	17	77.27%
Bagumbayan North	18	18	36	23	63.89%
Bagumbayan South	15	14	29	22	75.86%
Bangkulasi	25	13	38	23	60.53%
North Bay Boulevard North	74	59	133	85	63.91%
North Bay Boulevard South	180	166	346	205	59.25%
San Rafael Village	13	9	22	8	36.36%
<b>Total</b>	<b>609</b>	<b>516</b>	<b>1125</b>	<b>716</b>	<b>63.64%</b>

Source: Socio-Economic Profile, 2013

**3.3.5.2. Fire Protection**

The risk of fire is one of the greatest threats to health and safety of the constituents, properties, and may halt the delivery of essential services in the community. The loss of life or property as a result of fire can be considered as a tragedy. The constituents, government, industries, and each and every one of the Navoteños share the responsibility of protecting each other from the negative consequences of fire.

The total number of personnel of the Navotas City Fire Station is shown below in table 3.14. There are three (3) officers and sixty (60) non-officers in the city which totals to sixty three (63) fire personnel.

**Table 3.14. Manpower Services of Navotas City Fire Station (2015)**

Station	Officer			Non-Officers							NUP	Total
	CINSP	SINSP	INSP	SFO4	SFO3	SFO2	SFO1	FO3	FO2	FO1		
Navotas City Fire Station	1	2	0	3	2	2	7	10	13	23	0	
<b>Total</b>	<b>3</b>			<b>60</b>							<b>0</b>	<b>63</b>

Source: Bureau of Fire Protection, Navotas City

The Navotas Central Fire Station is the largest in terms of area and facilities. The city has also three serviceable (3) fire sub-stations located in Barangays Tangos, Tanza, and Dagat-dagatan.



**Table 3.15. Navotas Fire Stations (2013)**

Type of Service	Location	Area sq. m	Physical Condition	Number of Personnel	Vehicles	
					No.	Type
Navotas Central Fire Station	Sipac-Almacen	312	Serviceable	63	3	Rosen Bauer R-71 FMC E-71 FMC E-73
Tangos Sub-Station	Tangos	126	Serviceable	6	1	ISUZU Fire Truck E-71A
Tanza Sub-Station	Tanza	30	Serviceable	5	1	Pumper
Dagat-dagatan Fire Station	North Bay Boulevard South	6	Serviceable	None	1	Pumper

Based on table 3.16, there were a total of 12, 9 and 14 fire incidents for the years 2011, 2012, and 2013, respectively.

**Table 3.16. Fire Incidences for the City of Navotas (2011 to 2013)**

Barangay	2011	2012	2013	Causes
Tanza	None	None	1	Elect. Short circuit
Tangos	None	3	1	Post fire, Elect. Short circuit
San Roque	2	None	2	Post fire, Elect. Short circuit
Daanghari	None	1	3	Post fire, Kerosene Store Leakage
San Jose	2	1	2	Post fire, Elect. Short circuit, Lighted Candle
Sipac-Almacen	None	None	1	Elect. Short circuit
Navotas West	None	1	None	Overheated Elect. Fan
Navotas East	None	None	None	None
Bagumbayan North	None	None	None	None
Bagumbayan South	None	None	None	None
Bangkulasi	1	None	None	Elect. Short circuit
North Bay Boulevard North	3	2	2	Post fire, Elect. Short circuit, Lighted Candle
North Bay Boulevard South	4	1	2	Post fire, Elect. Short circuit, Lighted Candle
San Rafael Village	None	None	None	None
<b>Total</b>	<b>12</b>	<b>9</b>	<b>14</b>	

The BFP-Navotas continuously conduct information and education campaign promoting various fire prevention activities to the city's residents especially the fire-prone areas. The fire-prone areas are shown on the map on the next page.



Map 3.8. Fire-Prone Areas Map





Since the city has considerable number of fire prone areas, measures in preventing fire occurrence is a must. Public education and awareness on preventing fires is a key factor in fire prevention as many cases of fires are considered preventable. Everyone must take steps to protect themselves by learning how to prevent home fires.

Fire preventive measures of the BFP include but are not limited to: Evaluation of Building Plans, Fire Safety Inspection, Implementation of the “Bumberong Bulilit “ a kiddie and junior Fire Marshal Program, Fire Safety Seminar and Drills, Information Campaign through distribution of flyers, information drive using Fire Trucks, Barangay Ugnayan, and training of Barangay and Company Volunteer Fire Brigade.

### 3.4. POWER, WATER, AND COMMUNICATION NETWORK

#### 3.4.1. Power Supply

Power is being supplied by the Manila Electric Company (MERALCO), which holds the entire Metro Manila as its franchise area. The power connections profile as shown in Table 3.17 revealed that the majority of the connections are from the residential sector followed by the commercial and industrial sectors. This indicates that the majority of the power connections in Navotas City are in the residential area and that people in these areas are the most vulnerable by power interruptions and problems.

**Table 3.17. Power Connections by Type of Consumers (2012)**

Type of Customers	Number
Residential	28,570
Commercial	2,596
Industrial	140
Streetlights	16
<b>TOTAL</b>	<b>31,322</b>

Source: MERALCO Malabon Branch

#### 3.4.2. Water System

The water supply of Navotas City is provided by Maynilad Water Services, Inc. (MWSI), which is the distribution concessionaire of the Metropolitan Water and Sewerage System handling the north side of Metro Manila. The water source is the La Mesa Dam, where water is filtered and treated before it is distributed to the entire franchise area. Almost all barangays in Navotas are covered by distribution lines of MWSI with barangay North Bay Boulevard South as the largest consumer of water at 10,154 cubic meters per day.

Through the cooperation of the City Government of Navotas and Maynilad, the piping project around Navotas was already completed.

**Table 3.18. Estimated Water Needs per Barangay in Navotas City (2010)**

<b>Barangay</b>	<b>2010 Population</b>	<b>Water Needs (m<sup>3</sup>/day)</b>
San Rafael Village	3,530	559
North Bay Blvd. South	68,375	10,154
North Bay Blvd. North	16,201	32,436
Bangkulasi	8,263	1,134
Bagumbayan South	4,524	718
Bagumbayan North	2,652	517
Navotas East	2,241	351
Navotas West	8,698	1,333
Sipac-Almacen	11,541	1,724
San Jose	28,153	4,171
Daanghari	19,179	2,888
San Roque	17,916	2,755
Tangos	32,941	5,066
Tanza	24,917	3,619
<b>TOTAL</b>	<b>249,131</b>	<b>37,425</b>

*Source: MWSI, Navotas City Socio-Economic Profile (2013)*

### **3.4.3. Communication Network**

#### **3.4.3.1. Telephone System**

Major telecommunication companies like the Philippine Long Distance Telephone Company, Globe Telecom, Smart Communications, and Sun Cellular render telephone services in Navotas. These networks are easily accessible and have good network coverage through mobile system and landlines. Access to National and International Distance Dialing as well as National and International Operator Assisted Long Distance services are also available via any of the major networks. Payphones and loading stations can be found in many sari-sari stores within the city.

#### **3.4.3.2. Express Communication**

There is a number of courier providers in Navotas, namely Navotas Postal Services and LBC Express which are both located in Barangay Sipac-Almacen. Major newspapers – both broadsheets and tabloids – are also available in the City of Navotas on a daily basis. In addition, televisions and radios are common such that everyone gets to know the news worldwide. Internet communication is also available for those who can afford to have computers. Presence of internet shops increases internet access of many residents.



## 3.5. TOURISM

The City of Navotas, a highly urbanized city in Metro Manila, is considered to be a very important fishing community not only in the region but also in the whole country. Approximately 70% of the city's population derive their income from fishing and other related industries, such as fish trading, fish net mending, and fish paste and sauce making. In line with the city's vision, that is to be a world class Fishing and Industrial Eco Port, development of the key areas of the city as tourism sites are prioritized within the next 10 years.

The Navotas Fish Port Complex (NFPC), one of the largest fish ports in Asia, serves as the main marketing hub of the fishes and other marine products caught by all types of fishing vessels from the different fishing grounds in the country. With its thriving fishing industry, further development of this complex into a world class fish port by increasing its capacity and renovating the current facilities, can attract more potential buyers and tourists from all over the world.

**Figure 3.7. Pictures of the Different Festivals and Events during the Navotas City Week**





Map 3.9. Tourism Sites Map





Furthermore, the San Jose Church which was inaugurated on July 1859, which was first headed by Father Matias Navoa is considered as one of the historically valuable site in the city. The architectural design and the historical value of the church made it a prime tourist site in the city. In addition, the proposed projects under the proposed coastal development plan are considered to be tourist-generating projects. This includes linear parks, commercial center, and utility centers such as the central bus terminal.

### **3.6. WASTE MANAGEMENT**

#### **3.6.1. Solid Waste Management**

Navotas has already passed a solid waste management ordinance with full implementation. The City Environmental and Natural Resources Office (CENRO) in cooperation with the Barangay officials are in charge in the implementation of the said ordinance. In line with this, a systematic waste collection is being implemented in the city.

In 2002, a Controlled Disposal Facility, operated by a private entity, was established in Barangay Tanza to address the problems on solid waste disposal of Navotas and its neighboring cities. However, as required by the law, the Controlled Disposal Facility closed down in 2006. On the same year, a Sanitary Land Fill, operated also by a private entity, was established in the same barangay to ensure the continuous service on solid waste disposal. With this facility, the city did not only solve its problem on waste disposal but also acts as a source of income for the city.

#### **3.6.2. Septage Management**

The typical wastewater or sewage treatment facility used by the residents is the septic tank. However, the informal settlers do not have the capacity to construct and use septic tanks and thus significantly contribute to the pollution of the rivers and the Manila Bay, with consequential effects on health and sanitation. Relative to this, desludging or siphoning of septic tanks is a free service being offered by the Maynilad Water Services, Inc. (MWSI) to the citizens of Navotas.

### **3.7. ECONOMIC STRUCTURE**

#### **3.7.1. Primary Sector**

Navotas, being a coastal city, given its 12.5 kilometer shoreline fronting the Manila Bay and approximately 9,300 hectares of municipal waters, the main source of livelihood of its residents is fishing.

Among the fish species found along the coastal areas of Navotas City are tunsoy, asohos, bicao, malakapas, sapsap, and salinas as well as shrimps (hipon



and alamang).

Based on its 2011 SEP, Navotas City has 7,538 marginal fisherfolks. From the 12 barangays involved in fishery production, Barangays Tangos, Tanza and San Jose topped in terms of the number of fishing boats. Barangay Tangos has more than half (60%) of the fishing boats in the city equivalent to 1,041 units. Of this number, 1,000 are classified as motorboats and the rest (41) are “de-sagwan”.

Based on the accomplishment report of the City Department of Agriculture for 2010, the strengthening of the Fisheries and Aquatic Resources Management Councils (FARMCs) is done through regular meetings and orientation of all Bantay Dagat personnel. The city government required the Barangays to designate Bantay Dagat personnel in their respective barangays to ensure safety of Manila Bay from illegal fishing.

The reactivation of FARMC at the barangay level, the BFARMC, facilitated the active participation of fisherfolks in the management and conservation of marine and aquatic resources as well as in the implementation of all fishery laws, rules and regulations, both at the local and national levels.

### 3.7.2. The Secondary Sector

Navotas City recorded a total of 4,955 enterprises in 2011. There are 57 new enterprises and 117 business establishments that shut down.

#### **Business Establishments Related to Fishing**

The establishments relevant to the fishing industry represent a meager 8.0% (153 establishments) of the total number of establishments in Navotas City. Given this proportion, the manufacturing establishments dominated (30.92%) the number of business establishments engaged in the fishing industry. Following are the establishments related to shipyard/shipbuilding maintenance and repair (6.58%), and the fishpond industry (3.29%).

Food manufacturing industries include those small-scale business establishments that venture into the processing of fish sauce, dried smoked fish, fishmeal and bagoong. The small-scale fish processing activities usually employ traditional methods of food processing that most often, lack proper waste disposal systems.

Shipyards are considered the primary economic contributors of the past. These industries cover shipbuilding, repair, maintenance, and dry docking. There are 16 shipyards operating in Navotas City. These are located in Barangays Tangos, San Roque, Daanghari, NBBS, San Jose, Sipac-Almacen, and Tanza. The table below summarizes the shipyards in the city.

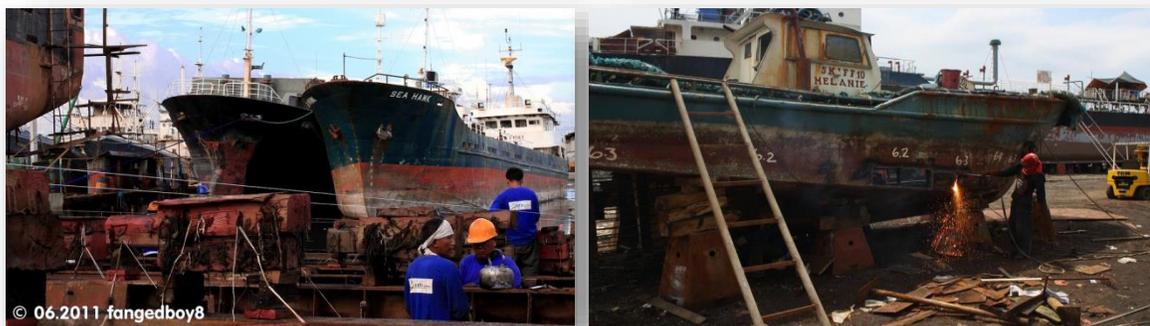


**Table 3.19. List of Shipyards in Navotas City**

<b>Name of Shipyard</b>	<b>Location</b>
Chesteel Marine Industrial Corporation	7 E. Rodriguez St., Tanza
Coastal Marine and Ship Building Corporation	Tangos
Coastal Marine and Ship Building Corporation	1366 M. Naval St., San Roque
Elfa Shipyard Corporation	905 M. Naval St., Sipac – Almacen
Frabelle Shipyard Corporation	1206 M. Naval St., Daanghari
Harpoon Marine Services, Inc.	1096 M. Naval St., San Jose
Josefa Slipways, Inc.	1326 M. Naval St., San Roque
Nautilus Shipyard and Repair, Inc.	1050 M. Naval St., San Jose
Nautilus Shipyard and Repair, Inc.	Pier 3 Lot 1, Bulungan Avenue, PFDA Compound, NFPC, North Bay Boulevard North
Pier 44 Shipyard and Development Corporation	1052 M. Naval St., San Jose
R & LT Shipyard and Development Corporation	51 E. Rodriguez St., Tanza
SAS Shipyard, Inc.	1112 M. Naval St., San Jose
Sea Rudder Corporation	42 Raja Tupaz St., Daanghari
RRT Marine Services Company	1088-A M. Naval St., San Jose
Vadeo Dos Shipyard	12 Baradero St., Sipac
VDR Marine and Industrial Corporation	7 F. Pascual St., Badeo Tres, San Jose

Source: BPLO & Metro Manila Shipyard Association, Inc.

**Figure 3.8. Pictures of the Shipyards in Navotas City**





### 3.7.3. The Tertiary Sector

#### Commerce and Trade

Being dubbed as the “Fishing Capital of the Philippines”, Navotas City serves as a host to fish traders and vendors from all over Metro Manila and surrounding regions due to the presence of the fishport.

Navotas City is a coastal city and surrounded by a riverine system that run on its eastern border. The rivers of Binuangan, DaangCawayan, Dampalit, Batasan, Navotas, and the channels of Bangkulasi, Malabon, and Estero de Maypajo have all contributed to the city’s local economic strength and its people’s livelihood. Approximately 70% of the city’s population source their livelihood from fishing or other related industries, such as fish trading, fish net mending, and fish paste (bagoong) and fish sauce (patis) making.

**Navotas Fish Port.** The Navotas Fish Port is considered as the largest fishport in Southeast Asia. Fish dealers and vendors from all over the metro usually purchase the freshest catch of seafoods from Navotas City both from small- and large-scale fishermen.

**Figure 3.9. Pictures of the Navotas Fish Port Complex**



**Markets.** Navotas City has notable markets, such as the Agora Market, which offers common commodities and retail products. The dry section of the Agora Market sells fruits, vegetables, canned products, rice, flour, spices, garments, footwear, and furniture while the wet section houses the meat, fish, and poultry stalls.

**Dining Establishments.** Dining establishments are also found in the city to include the prominent Filipino fast food chains, such as Jollibee and McDonald’s. There are also restaurants and bistros present in the city for fine dining.



**Business Establishments.** There are 948 business establishments that are engaged in commerce and trade. These represent almost half of the total number of business establishments of Navotas City as of 2011. These enterprises include sari-sari store, general merchandise, food/beverages, pharmaceutical products, import/export, storage, and hardware/construction supplies.

Sari-sari store comprises the bulk of the total number of commercial and trade establishments in Navotas City. Next are establishments engaged in selling pharmaceutical products (178) and general merchandise (123).

### 3.8. SECTORAL ANALYSIS

The sectoral analysis revealed that there are existing issues and challenges that the city should address. These issues include the following: (1) inadequate parks and open spaces; (2) high number of informal settlers; (3) limited land area; (4) traffic/circulation congestion; (5) strengthening of tourism; and (6) perennial flooding.

The city government has devised interventions and strategies to solve these issues. The integration of the green parks facility generation along the shorelines and riverbanks will suffice the inadequacy of the city's parks and open spaces. Also, the informal settlers living in the danger areas need to be continuously relocated to available housing and resettlement sites.

One of the city's weaknesses is the limited land area. The careful expansion development of the fishponds in Barangay Tanza into a mixed use area will address this issue. The traffic congestion can be resolved by the strict implementation of the traffic code, and integration of the river and sea as alternative transportation paths. In addition, the city tourism can be improved by increasing and enhancing the inherent and unique qualities, and characteristics of the city.

On the other hand, the perennial flooding experienced by the city can be addressed by the institution of additional structural and non-structural mitigating measures. Some of these includes the construction of additional "Bombastik" pumping stations, upgrading of riverwalls, and completion of the 3.5 kilometer coastal dike.

These above-mentioned interventions and strategies are attainable with the cooperation of all Navotenos and concerned national government agencies.