

## Chapter 7. Infrastructure Sector

### Infrastructure and Utilities

Infrastructure refers to the basic physical and organizational structures needed for the operation of a society or enterprise, or the services and facilities necessary for an economic function. It can be generally defined as the set of interconnected structural elements that provide a framework supporting an entire structure of development. The term typically refers to the technical structures that support a society, such as roads, bridges, water supply, sewers, electrical grids, telecommunications, and so forth, and can be defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions (Wikipedia).

### Road Transport

The province could either be reached by land or by sea transport although its transportation system is predominantly land-based of which the main transport mode is road-based. The roads are classified into national, provincial, city/municipal, and barangay roads. The national roads form part of the trunk line systems and are connected by provincial roads from one city/municipality to another while the city/municipal roads interlink barangays.

Cavite has twelve (12) major entrances and exits: the Manila-Cavite Coastal Road via Talaba, City of Bacoor; Cavite Toll Expressway (CAVITEX), Governor’s Drive-South Luzon Expressway (SLEX) Carmona Exit, Batangas-Tagaytay/Alfonso via Aguinaldo Highway, Bacoor City-Las Piñas City via Zapote, Sta. Rosa-Tagaytay Road, Alabang-Molino, Bacoor City via Daang Hari, Muntinlupa-Cavite Expressway (MCEX) Susan Height Exit, Molino, Bacoor City-SLEX via Daang Reyna-Victoria Avenue San Pedro Exit, Ternate-Nasugbu, Batangas via Kaybiang Tunnel, Tagaytay-Taal Lake Road, Tagaytay-Talisay Road (Provincial Road Network Development Plan).

### Roads and Bridges

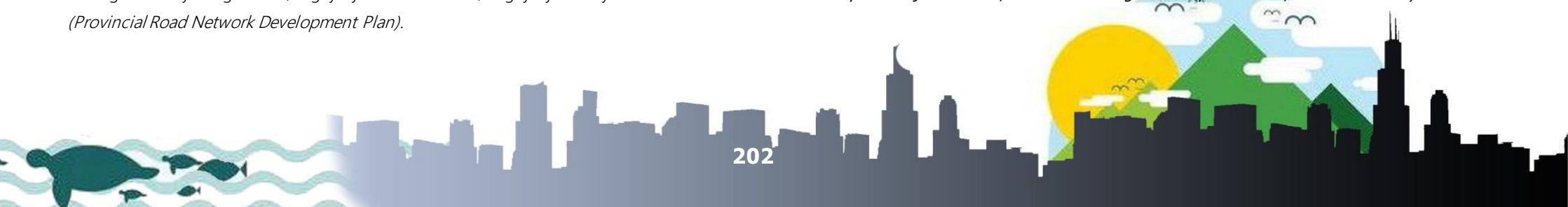
The province is accessible internally by stretch of roads classified as national, provincial, city/municipal and barangay roads. The 429.6080 kilometers national roads are mostly paved with concrete or asphalt and are relatively in good condition while provincial roads registered at 369.6810 kilometers also are paved with concrete and asphalt while there are portions that remain gravel roads. Majority of the municipal/city roads are paved with concrete, while barangay roads are paved with concrete and asphalt and some portions are still earth and gravel roads. To sum up, by type of pavement, 63.61% or 1,392.1312 kilometers of these roads are paved with concrete while 368.4765 kilometers or 16.84% are paved with asphalt while unpaved roads comprised 19.55% or 427.9118 kilometers (Table 7.1)

Bridge which connects roads in different cities and municipalities of the province are also classified as to national, provincial, city/municipal and barangay. The total length of bridge is 6,615.92 linear meters by which 3,050.57 linear meters are national bridge while provincial bridge has a total length of 1,078.05 linear meters. In addition, barangay and city/municipal bridge registered a combined total length of 2,487.30 linear meters.

**Table 7.1 Total Length of Roads and Bridges by Classification, Province of Cavite: 2015**

| Road / Bridge Classification | Road              |                 |                 |                 | Length            |                 |
|------------------------------|-------------------|-----------------|-----------------|-----------------|-------------------|-----------------|
|                              | Paved             |                 | Unpaved         |                 | Road (km)         | Bridge (lm)     |
|                              | Concrete          | Asphalt         | Gravel          | Earth fill      |                   |                 |
| National                     | 171.3601          | 258.2479        |                 |                 | 429.6080          | 3,050.57        |
| Provincial                   | 282.7480          | 44.7950         | 42.1380         |                 | 369.6810          | 1,078.05        |
| City/Municipal               | 235.0085          | 43.5762         | 0.1000          | 9.9017          | 288.5864          | 889.70          |
| Barangay                     | 703.0146          | 21.8574         | 105.9358        | 269.8363        | 1,100.6441        | 1,597.60        |
| <b>Total</b>                 | <b>1,392.1312</b> | <b>368.4765</b> | <b>148.1738</b> | <b>279.7380</b> | <b>2,188.5195</b> | <b>6,615.92</b> |

Source: Special Projects Division, Provincial Planning & Development Office, Trece Martires City



### Motor Vehicle Registration

Based on the data gathered from Land Transportation Office (LTO), Region IV-A (CALABARZON), Lipa City, Batangas, which is shown at Table 7.2, the total number of registered motor vehicles in Cavite reached 267,666 in 2016. It is noted that motorcycles/tricycles contributed the highest vehicle registration with 53.68% or 143,694 units while utility vehicles is registered at 25.41% or 68,002 units. Moreover, registered car units reached 39,900 or 14.91% while trailers have the least registration with only 216 units. Among the four (4) Land Transportation District and Extension Offices in the province, the highest registration is recorded at Kawit District Office with 33.81% or 90,485 units followed by City of Imus District Office having 83,127 units or 31.06%. In addition, Tagaytay City Extension Office recorded a total of 50,173 units or 18.74% while the City of Dasmariñas Extension Office has a total registration of 43,881 units or 16.39% share (Table 7.3).

**Table 7.2 Number of Registered Motor Vehicles by Type, Province of Cavite: 2016**

| Type of Vehicle                | Number of Vehicle Registration |                       |                                |                                     | Total          | Percentage Distribution |
|--------------------------------|--------------------------------|-----------------------|--------------------------------|-------------------------------------|----------------|-------------------------|
|                                | Imus District Office           | Kawit District Office | Tagaytay City Extension Office | City of Dasmariñas Extension Office |                |                         |
| Cars                           | 13,820                         | 11,649                | 9,157                          | 5,274                               | 39,900         | 14.91                   |
| Utility                        | 24,338                         | 18,904                | 17,047                         | 7,713                               | 68,002         | 25.41                   |
| Sports Utility                 | 4,735                          | 3,569                 | 2,621                          | 1,569                               | 12,494         | 4.67                    |
| Trucks                         | 1,013                          | 1,041                 | 869                            | 216                                 | 3,139          | 1.17                    |
| Buses                          | 20                             | 128                   | 69                             | 4                                   | 221            | 0.08                    |
| Motorcycles/ Tricycles         | 39,076                         | 55,127                | 20,390                         | 29,101                              | 143,694        | 53.68                   |
| Trailers                       | 125                            | 67                    | 20                             | 4                                   | 216            | 0.08                    |
| <b>Total</b>                   | <b>83,127</b>                  | <b>90,485</b>         | <b>50,173</b>                  | <b>43,881</b>                       | <b>267,666</b> | <b>100.00</b>           |
| <b>Percentage Distribution</b> | <b>31.06</b>                   | <b>33.81</b>          | <b>18.74</b>                   | <b>16.39</b>                        | <b>100.00</b>  |                         |

Source: Land Transportation Office (LTO), Region IV-A (CALABARZON), Lipa City, Batangas

Registered motor vehicles in 2016 posted an increase of 6.50% or 16,338 units compared to 2015 data of 251,328 units.

- Kawit District Office has an increase of 8,404 units or 10.24% while the City of Imus District Office registered 10.73% or 8,054 units increase.
- Registration at City of Dasmariñas Extension Office posted a decrease of 221 units or 0.50% while an increase of 101 units or 0.20% was recorded at Tagaytay City Extension Office.

**Table 7.3 Number of Registered Motor Vehicles by District/Extension Office, Province of Cavite: 2015 & 2016**

| District / Extension Office    | 2015           | 2016           | Increase (Decrease) | Percentage Increase (Decrease) |
|--------------------------------|----------------|----------------|---------------------|--------------------------------|
| City of Imus District Office   | 75,073         | 83,127         | 8,054               | 10.73                          |
| Kawit District Office          | 82,081         | 90,485         | 8,404               | 10.24                          |
| Tagaytay City Extension Office | 50,072         | 50,173         | 101                 | 0.20                           |
| City of Dasmariñas Extension   | 44,102         | 43,881         | (221)               | -0.50                          |
| <b>Total</b>                   | <b>251,328</b> | <b>267,666</b> | <b>16,338</b>       | <b>6.50</b>                    |

Source: Land Transportation Office (LTO), Region IV-A (CALABARZON), Lipa City, Batangas

### Licenses and Permits

Data on driver’s licenses and permits issued which was also obtained from the said agency posted a total of 237,878 issuances by which 237,193 are driver’s license while 685 are conductors permit (Table 7.4). Out of three types of driver’s license, professional license contributed the highest share of 34.53% or 81,902 issuances. Non-professional driver’s license was registered at 33.38% with 79,179 issuances while student permit registered 32.09% or 76,112 issuances.

As presented also on the table, Kawit Licensing Center contributed the highest percentage share with 29.23% of the total issuances or 69,533 followed by Tagaytay City Extension Office which has 27.19% or 64,671 issuances. Furthermore, City of Imus District Office has 58,305 issuances or 24.51% while the least number of issuances with 19.07% or 45,369 was registered at City of Dasmariñas Extension Office.

The data on license and permit issued are also classified according to the type of application, namely new and renewal. Out of 237,878 issuances, 53.91% or 128,241 applied for renewal while 46.09% or 109,637 are new applications.

**Table 7.4 Number of Driver's Licenses and Permits Issued by District/Extension Office, Province of Cavite: 2016**

| Agency                             | Driver's License |               |               |                  |               |               |                |                | Conductors Permit |            |            | Total Driver's Licenses and Permits Issued | Percentage Distribution |
|------------------------------------|------------------|---------------|---------------|------------------|---------------|---------------|----------------|----------------|-------------------|------------|------------|--|-------------------------|
|                                    | Professional     |               |               | Non-Professional |               |               | Student Permit | Total          | New               | Renewal    | Total      |  |                         |
|                                    | New              | Renewal       | Sub-Total     | New              | Renewal       | Sub-Total     | New            |                |                   |            |            |  |                         |
| Tagaytay City Extension Office     | 4,949            | 19,183        | 24,132        | 11,756           | 11,602        | 23,358        | 16,812         | 64,302         | 161               | 208        | 369        | 64,671                                     | 27.19                   |
| City of Imus District Office       |                  | 20,871        | 20,871        |                  | 13,808        | 13,808        | 23,570         | 58,249         |                   | 56         | 56         | 58,305                                     | 24.51                   |
| City of Dasmariñas District Office | 107              | 14,224        | 14,331        | 1,968            | 12,177        | 14,145        | 16,822         | 45,298         | 21                | 50         | 71         | 45,369                                     | 19.07                   |
| Kawit Licensing                    | 1,643            | 20,925        | 22,568        | 12,827           | 15,041        | 27,868        | 18,908         | 69,344         | 93                | 96         | 189        | 69,533                                     | 29.23                   |
| <b>Total</b>                       | <b>6,699</b>     | <b>75,203</b> | <b>81,902</b> | <b>26,551</b>    | <b>52,628</b> | <b>79,179</b> | <b>76,112</b>  | <b>237,193</b> | <b>275</b>        | <b>410</b> | <b>685</b> | <b>237,878</b>                             | <b>100.00</b>           |

Source: Land Transportation Office (LTO), Region IV-A (CALABARZON), Lipa City, Batangas

## Communication

People communicate with each other by writing letters, sending telegrams, radio, television, computer technology, newspapers, magazines and pamphlets; messages can be delivered using telegram, facsimile machine (FAX) and E- mail (Electronic mail) for business trade and other services.

In addition to telephone services and cellular mobile telephone system providers available in Cavite, radio has also proven to be an effective development communication channel. Over the past decades, radio is also acknowledged as the primary source of news and the most pervasive, persuasive, and credible medium ([www.ncca.gov.ph](http://www.ncca.gov.ph)). Based on record from National Telecommunications Commission (NTC), Region IV -A, Batangas City, there are two (2) radio stations operating in the province, the Delta Broadcasting System and De La Salle University while there are registered radio groups that help the community especially at times of disasters, one of that is the Public Assistance for Rescue, Disaster & Support Services (PARDSS) Foundation International, Inc. (Tables 7.5 & 7.6).

**Table 7.5 Operating Radio Stations, Province of Cavite: 2016**

| Operating Agency                                | Transmitter & Studio                                  | Call-Sign |
|---|---|-----------|
| I. AM Broadcasting<br>Delta Broadcasting System | Manila-Cavite Road, San Rafael III, Noveleta          | DWXI - AM |
| II. FM Broadcasting<br>La Salle University      | JFH Building, DLSU Campus, City of Dasmariñas, Cavite | DWSU - FM |

Source: National Telecommunications Commission (NTC), Region IV-A, Batangas City



**Table 7.6 Registered Radio Groups and Location, Province of Cavite: 2016**

| Name of Group/Club   | Location of Base Station  |
|--|---|
| <b>I. Amateur Radio Group</b>  |   |
| Cavite Amateur Communication Enthusiast, Inc. (DXI-ACE)  | Alvaran Compound, St. Charbel, South Executive VII, City of Dasmariñas, Cavite  |
| Communications World of Amateur Phils., Inc.   | B-7 L1 Villa Luisa Subdivision, San Agustin, City of Dasmariñas, Cavite<br>A & V Soriano M.D. Bldg., 178 Zapote, City of Bacoor, Cavite |
| <b>II. Civic Radio Group</b>   |   |
| 79 CBR Civic Radio Group, Inc.   | Blk 3 Lot 20 St. Martin de Porres Villa, Bayan Luma, City of Imus, Cavite   |
| Kabalikat Civicom, Inc. (Cavite Provincial Council)  | Habay I, City of Bacoor, Cavite<br>Daang Bukid, City of Bacoor, Cavite  |
| Kabalikat Civicom, Inc. (Cavite Chapter)   | 285 Capt. Villareal St., Caridad, Cavite City   |
| United Muslim & Christian Riverside Community Association, Inc. (UMCRC)  | Blk 4 Lot 36, Poblacion I, Gen. Mariano Alvarez, Cavite   |
| Sagip Ilog Volunteer Association, Inc.   | Blk 41, Lot 15 Datu Esmael, City of Dasmariñas, Cavite  |
| Public Assistance For Rescue, Disaster and Support Services (PARDSS) Foundation International, Inc. (Maragondon & Ternate Chapter) | Maragondon & Ternate  |
| Concerned Brotherhood Comm. Group, Inc.  | San Nicolas 3, City of Bacoor, Cavite   |

Source: National Telecommunications Commission (NTC), Region IV-A, Batangas City

According to the data gathered from “PHLPost, it is revealed that despite the existence of modern means of communications, there are still domestic and international mails being handled by post offices located in every city/municipality of the province. Volume of these mails is shown in Tables 7.7 and 7.8.

It is noted that the municipality of Gen. E. Aguinaldo received their mails thru the municipality of Alfonso while the mails for the municipalities of Magallanes, Maragondon and Ternate are delivered at the municipality of Naic (Post Office Alfonso).

As defined, posted mails are mails received from windows, counters, lobby drop boxes and street boxes while delivered mails are mails distributed in the locality through letter carriers through the use of post office (P.O.) boxes ([www.nscb.gov.ph](http://www.nscb.gov.ph)).

**Table 7.7 Volume of Mails Posted by Post Office, Province of Cavite: 2016**

| Post Office                                   | Posted           |               | Total            |
|---|------------------|---------------|------------------|
|   | Domestic         | International |                  |
| <b>1<sup>st</sup> District</b>                | <b>43,680</b>    | <b>464</b>    | <b>44,144</b>    |
| Cavite City Post Office                       | 11,836           | 464           | 12,300           |
| Kawit Post Office                             | 6,354            |               | 6,354            |
| Noveleta Post Office                          | 10,358           |               | 10,358           |
| Rosario Post Office                           | 15,132           |               | 15,132           |
| <b>2<sup>nd</sup> District</b>                | <b>738,841</b>   | <b>688</b>    | <b>739,529</b>   |
| City of Bacoor Post Office                    | 713,806          | 229           | 714,035          |
| Molino Post Office                            | 25,035           | 459           | 25,494           |
| <b>3<sup>rd</sup> District</b>                | <b>178,426</b>   | <b>1,152</b>  | <b>179,578</b>   |
| City of Imus Post Office                      | 172,335          | 892           | 173,227          |
| Bahayang Pag-asa Post                         | 6,091            | 260           | 6,351            |
| <b>4<sup>th</sup> District</b>                | <b>21,215</b>    | <b>90</b>     | <b>21,305</b>    |
| City of Dasmariñas Post                       | 15,906           | 90            | 15,996           |
| City of Dasmariñas Central Market Post Office | 745              |               | 745              |
| Robinson Post Office                          | 4,564            |               | 4,564            |
| <b>5<sup>th</sup> District</b>                |                  | <b>277</b>    | <b>277</b>       |
| Carmona Post Office                           | 80,788           | 217           | 81,005           |
| Gen. Mariano Alvarez Post                     | 9,061            |               | 9,061            |
| Silang Post Office                            | 42,451           | 60            | 42,511           |
| <b>6<sup>th</sup> District</b>                | <b>102,469</b>   | <b>435</b>    | <b>102,904</b>   |
| Amadeo Post Office                            | 12,321           |               | 12,321           |
| City of Gen. Trias Post Office                | 22,720           | 146           | 22,866           |
| Manggahan Post Office                         | 21,526           | 193           | 21,719           |
| Tanza Post Office                             | 12,833           |               | 12,833           |
| Trece Martires City Post Office               | 33,069           | 96            | 33,165           |
| <b>7<sup>th</sup> District</b>                | <b>170,282</b>   | <b>995</b>    | <b>171,277</b>   |
| Alfonso Post Office                           | 4,455            | 84            | 4,539            |
| Indang Post Office                            | 8,267            | 362           | 8,629            |
| Naic Post Office                              | 17,233           | 109           | 17,342           |
| Mendez Post Office                            | 5,143            | 165           | 5,308            |
| Tagaytay City Post Office                     | 135,184          | 275           | 135,459          |
| <b>Total</b>                                  | <b>1,254,913</b> | <b>4,101</b>  | <b>1,259,014</b> |

Source: Philippine Postal Corporation, Office of the Postmaster General, Manila

**Table 7.8 Volume of Mails Delivered by Post Office, Province of Cavite: 2016**

| Post Office                     | Delivered        |                | Total            |
|---------------------------------|------------------|----------------|------------------|
|                                 | Domestic         | International  |                  |
| <b>1<sup>st</sup> District</b>  | <b>440,503</b>   | <b>60,547</b>  | <b>501,050</b>   |
| Cavite City Post Office         | 62,330           | 10,093         | 72,423           |
| Kawit Post Office               | 168,921          | 8,952          | 177,873          |
| Noveleta Post Office            | 41,651           | 6,221          | 47,872           |
| Rosario Post Office             | 167,601          | 35,281         | 202,882          |
| <b>2<sup>nd</sup> District</b>  | <b>1,779,082</b> | <b>53,364</b>  | <b>1,832,446</b> |
| City of Bacoor Post Office      | 1,097,429        | 30,108         | 1,127,537        |
| Molino Post Office              | 681,653          | 23,256         | 704,909          |
| <b>3<sup>rd</sup> District</b>  | <b>1,462,851</b> | <b>25,618</b>  | <b>1,488,469</b> |
| City of Imus Post Office        | 1,312,402        | 22,425         | 1,334,827        |
| Bahayang Pag-asa Post Office    | 150,449          | 3,193          | 153,642          |
| <b>4<sup>th</sup> District</b>  | <b>628,367</b>   | <b>23,880</b>  | <b>652,247</b>   |
| City of Dasmariñas Post Office  | 628,367          | 23,880         | 652,247          |
| <b>5<sup>th</sup> District</b>  | <b>1,064,463</b> | <b>34,673</b>  | <b>1,099,136</b> |
| Carmona Post Office             | 281,603          | 23,535         | 305,138          |
| Gen. Mariano Alvarez Post       | 99,735           | 2,311          | 102,046          |
| Silang Post Office              | 683,125          | 8,827          | 691,952          |
| <b>6<sup>th</sup> District</b>  | <b>1,660,186</b> | <b>50,005</b>  | <b>1,710,191</b> |
| Amadeo Post Office              | 54,826           | 1,181          | 56,007           |
| City of Gen. Trias Post Office  | 173,430          | 3,392          | 176,822          |
| Manggahan Post Office           | 317,303          | 13,506         | 330,809          |
| Tanza Post Office               | 746,816          | 11,287         | 758,103          |
| Trece Martires City Post Office | 367,811          | 20,639         | 388,450          |
| <b>7<sup>th</sup> District</b>  | <b>1,051,091</b> | <b>39,562</b>  | <b>1,090,653</b> |
| Alfonso Post Office             | 28,706           | 2,546          | 31,252           |
| Indang Post Office              | 96,144           | 3,601          | 99,745           |
| Naic Post Office                | 398,863          | 18,224         | 417,087          |
| Mendez Post Office              | 38,286           | 1,589          | 39,875           |
| Tagaytay City Post Office       | 489,092          | 13,602         | 502,694          |
| <b>Total</b>                    | <b>8,086,543</b> | <b>287,649</b> | <b>8,374,192</b> |

Source: Philippine Postal Corporation, Office of the Postmaster General, Manila

Based on research, “PHLPost has been in the business of mail delivery for over a century and has the most extensive domestic acceptance, distribution and delivery network. It is in every town, city, and in some barangays nationwide. It has worldwide mail linkages that enable it to send mail to any part of the world, and its counterparts in the country of destination sees to it that your mails are delivered. This is made possible through our memberships in the Universal Postal Union (<http://www.upu.int>) and the Asian Pacific Postal Union (<http://www.appu-bureau.org>)” ([www.phlpost.gov.ph](http://www.phlpost.gov.ph)).

## Power

Manila Electric Company or Meralco is the Philippines' largest electric power distribution company which provides power to 5.56 million consumers in 35 cities and 76 municipalities, including Metro Manila, the provinces of Rizal, Cavite and Bulacan, and parts of the provinces of Pampanga, Batangas, Laguna and Quezon ([www.jgsummit.com.ph/meralco](http://www.jgsummit.com.ph/meralco)).

All towns down to all barangays of Cavite have access to electric power supplied by Meralco thus giving the province’s energization rate of 100%.

Consolidated number of customers by city/municipality of the province gathered from Meralco totaled to 860,665 customers, wherein residential customers accounted for 93.71% totaling to 806,524 while commercial customers registered at 6.11% or 52,612. Furthermore, industrial and streetlight customers’ totality is 704 and 825, respectively. These accounted for less than 1% of total customer count (Table 7.9).

Table 7.10 shows the existing substation in the province and its location. A substation is a part of an electrical generation, transmission, and distribution system. Substations transform voltage from high to low, or the reverse, or perform any of several other important functions. Between the generating station and consumer, electric power may flow through several substations at different voltage levels (*Wikipedia*).

Meralco’s electric capital projects (ECPs) were designed to meet growth in power demand and enhance customer experience, as well as improve the distribution system ensuring reliability, power quality, and resiliency in the face of natural calamities and other contingencies ([www.manilatimes.net](http://www.manilatimes.net)).



Table 7.9 Number of Customers by City/Municipality, Province of Cavite: 2016

| City/<br>Municipality          | Number of Customers |               |             |             |                |
|--------------------------------|---------------------|---------------|-------------|-------------|----------------|
|                                | Residential         | Commercial    | Industrial  | Streetlight | Total          |
| <b>1<sup>st</sup> District</b> | <b>65,912</b>       | <b>6,195</b>  | <b>17</b>   | <b>35</b>   | <b>72,159</b>  |
| Cavite City                    | 18,525              | 1,850         | 2           | 2           | 20,379         |
| Kawit                          | 18,652              | 1,808         | 9           | 23          | 20,492         |
| Noveleta                       | 10,082              | 948           | 1           | 5           | 11,036         |
| Rosario                        | 18,653              | 1,589         | 5           | 5           | 20,252         |
| <b>2<sup>nd</sup> District</b> | <b>118,935</b>      | <b>8,137</b>  | <b>40</b>   | <b>150</b>  | <b>127,262</b> |
| City of Bacoor                 | 118,935             | 8,137         | 40          | 150         | 127,262        |
| <b>3<sup>rd</sup> District</b> | <b>110,686</b>      | <b>6,985</b>  | <b>44</b>   | <b>93</b>   | <b>117,808</b> |
| City of Imus                   | 110,686             | 6,985         | 44          | 93          | 117,808        |
| <b>4<sup>th</sup> District</b> | <b>142,214</b>      | <b>9,100</b>  | <b>146</b>  | <b>131</b>  | <b>151,591</b> |
| City of                        | 142,214             | 9,100         | 146         | 131         | 151,591        |
| <b>5<sup>th</sup> District</b> | <b>96,975</b>       | <b>6,439</b>  | <b>315</b>  | <b>92</b>   | <b>103,821</b> |
| Carmona                        | 21,953              | 1,667         | 202         | 40          | 23,862         |
| Gen. Mariano                   | 25,795              | 1,330         | 9           | 10          | 27,144         |
| Silang                         | 49,227              | 3,442         | 104         | 42          | 52,815         |
| <b>6<sup>th</sup> District</b> | <b>181,607</b>      | <b>8,698</b>  | <b>128</b>  | <b>192</b>  | <b>190,625</b> |
| Amadeo                         | 7,121               | 399           |             | 2           | 7,522          |
| City of Gen.                   | 89,155              | 3,599         | 72          | 123         | 92,949         |
| Tanza                          | 50,720              | 3,097         | 21          | 46          | 53,884         |
| Trece Martires                 | 34,611              | 1,603         | 35          | 21          | 36,270         |
| <b>7<sup>th</sup> District</b> | <b>90,195</b>       | <b>7,058</b>  | <b>14</b>   | <b>132</b>  | <b>97,399</b>  |
| Alfonso                        | 11,298              | 985           | 2           | 15          | 12,300         |
| Gen. Aguinaldo                 | 3,553               | 217           | 1           |             | 3,771          |
| Indang                         | 13,064              | 909           | 2           | 5           | 13,980         |
| Magallanes                     | 3,579               | 215           |             | 8           | 3,802          |
| Maragondon                     | 5,894               | 528           | 1           |             | 6,423          |
| Mendez                         | 6,281               | 430           |             | 3           | 6,714          |
| Naic                           | 22,187              | 1,604         | 5           | 27          | 23,823         |
| Tagaytay City                  | 21,111              | 1,986         | 1           | 72          | 23,170         |
| Ternate                        | 3,228               | 184           | 2           | 2           | 3,416          |
| <b>Total</b>                   | <b>806,524</b>      | <b>52,612</b> | <b>704</b>  | <b>825</b>  | <b>860,665</b> |
| <b>Percentage Distribution</b> | <b>93.71</b>        | <b>6.11</b>   | <b>0.08</b> | <b>0.10</b> | <b>100.00</b>  |

Source: Meralco, Ortigas Avenue, Pasig City

Table 7.10 Existing Power Substations, Province of Cavite: 2016

| Substation               | Location  |
|--------------------------|---|
| Abubot Substation        | Aguinaldo Hi-way, Abubot, City of   |
| Amadeo Substation        | Provincial Road, Banaybanay, Amadeo   |
| Bacoor Substation        | Aguinaldo Highway, Habay, City of Bacoor  |
| FCIE Substation          | Langkaan, City of Dasmariñas  |
| Gateway Substation       | Gateway Business Park, Javalera, City of Lakeview Industrial Corp., Kabilang Baybay, Gen. Mariano Alvarez |
| GMA Substation           | Aguinaldo Highway, Anabu, City of Imus  |
| Imus Substation          | Puerto Azul, Ternate  |
| Puerto Azul Substation   | Aguinaldo Highway, San Vicente, Silang  |
| Silang Substation        | Aguinaldo Highway, Buho, Silang   |
| Tagaytay Substation      | National Road, Maharlika West, Tagaytay   |
| Tagaytay West Substation | National Road, Amaya, Tanza   |
| Tanza Substation         | National Road, Tanauan (Quintana), Tanza  |
| TMC II Substation        | Aguinaldo Highway, San Agustin I, City of Dasmariñas  |
| Dasmariñas Substation    | Along Gen. Trias Drive, Rosario   |
| Rosario Substation*      | Along Governor's Drive, Ternate   |
| Ternate Substation*      |   |

\*NGCP-owned substation

Source: Meralco, Ortigas Avenue, Pasig City

Table 7.11 Electric Capital Projects, Province of Cavite: 2016

| Project Name  | Objective   |
|---|---|
| <b>Distribution Line Reinforcement Plans</b>          |   |
| Flexibility improvement of GMA 43XF and 45 XF         | To improve the switching flexibility of GMA circuits during emergency and scheduled interruptions.  |
| Construction of Rosario 42RS - Bacoor 424 WX tie line | To improve the switching flexibility of Rosario and Bacoor circuits during emergency and scheduled interruptions.   |
| Flexibility improvement of Imus 424WK                 | To improve the switching flexibility and at the same time address the expected critical loading of Imus 424WK.  |
| Partial conversion of Imus 36WK to 20kV/34.5 kV       | To convert portion of Imus 36WK feeder to the standard voltage of 34.5 kV distribution voltages to address its limited tying capability that causes unserved demand during contingency. |

| Project Name                                      | Objective   |
|---|---|
| Partial conversion of Abubot 38XZ to 20kV/34.5 kV | To convert a section of Abubot 38XZ circuit to 34.5 kV as part of the gradual phasing out of the Abubot 13.8 kV voltage system. |

Source: Electric Capital Projects 2015-2019, Meralco, Ortigas Avenue, Pasig City

## Water Supply

Access to safe drinking water is not only essential for the promotion and protection of public health but is a basic human right. Provision of safe water supply prevents the transmission of waterborne pathogens and reduces the exposure of individuals to chemical and physical hazards that could be ingested through contaminated drinking water ([www.doh.gov.ph](http://www.doh.gov.ph)). Generally, the entire province of Cavite has access to clean and safe water thru Maynilad Water Services, Inc. as a provider which is also known as Maynilad, a water and waste water services provider of cities and municipalities of the National Capital Region that forms the West Zone and some parts of Cavite which include City of Imus, City of Bacoor, Cavite City and the municipalities of Noveleta, Kawit and Rosario (*Wikipedia*), while the municipalities of Mendez, Indang, Silang, Gen. Mariano Alvarez, Maragondon, Tanza, Carmona, Amadeo, Gen. E. Aguinaldo, City of Dasmariñas, Tagaytay City and Trece Martires City are being supplied by water districts. Likewise, there are private corporations operating as water service providers in the province like General Trias Water Corporation in City of Gen. Trias, Naic Water System Corporation in Naic and Western Cavite Water Supply and Service Corporation in Ternate while the municipal governments of Alfonso and Magallanes manage their respective water supply systems. Table 7.12 shows the number of customers served and the residential water rate schedule of each water service providers.

## Irrigation

Based on National Irrigation Administration’s website ([www.nia.gov.ph](http://www.nia.gov.ph)), irrigation systems can be classified into three categories: national, communal, and private. National irrigation systems (NIS) are large and medium schemes. These are basically operated and maintained by NIA where beneficiaries were charged in their irrigation

service fee for the services rendered in the delivery of water. In the 1980s, joint management of portions of national systems with irrigators associations (IA) was affected.

Communal irrigation systems (CIS) are small-scale schemes and constructed with the participation of farmer-beneficiaries thru their IAs. The operation and maintenance (O&M) of CIS is turned over to IAs upon project completion subject to a cost recovery arrangement. Farmers amortize the chargeable cost for a period not exceeding 50 years at 0% interest. The repayment scheme is pre-arranged and acceptable to both NIA and the IA. Another scheme is the payment of 30% equity equivalent to 30% of the total direct cost which is to be paid annually.

Private irrigation systems are those constructed, operated and maintained by private individuals or groups with or without technical assistance by NIA or other government agencies.

## NIA Cavite Report

In 2016, firm ed - up service area (FUSA) for National Irrigation System (NIS) was maintained at 8,542.00 hectares wherein 5,150.00 hectares are operational or planted with crops while 3,392.00 hectares are non-operational. NIS covers the municipalities of Maragondon, Ternate, Naic, Tanza, Cities of Gen. Trias, Imus, Bacoor, and Dasmariñas (Table 7.13).

Meanwhile, Communal Irrigation System (CIS) has a total firm ed-up service area of 1,008.00 hectares serving the municipalities of Kawit, Gen. E. Aguinaldo, Ternate, Maragondon, Carmona, Silang, Gen. Mariano Alvarez, Naic, Magallanes and the City of Bacoor. Out of the total, 504 hectares are operational while another 504 hectares are non-operational. Farmer beneficiaries were registered at 561 (Table 7.14).



Table 7.12 Number of Customers Served and Residential Water Rates by Water Service Providers, Province of Cavite: 2016

| Water Agency                                 | Number of Customers Served |               |                 |            |               |              |                         |                | Residential Water Rates<br>(Minimum Charge<br>1st 10 cu.m.) |
|--|----------------------------|---------------|-----------------|------------|---------------|--------------|-------------------------|----------------|---|
|  | Residential                | Commercial    | Semi-Commercial | Industrial | Institutional | Government   | Block Faucet/<br>Others | Total          |   |
| Alfonso Waterworks Office                    | 1,337                      | 78            |                 |            | 22            |              | 6                       | 1,443          | 100.00  |
| Magallanes Waterworks Office                 | 3,335                      | 86            |                 |            |               | 46           |                         | 3,467          | 150.00  |
| Maynilad Water Services, Inc.                | 129,645                    | 2,891         | 3,364           | 121        |               |              |                         | 136,021        | 147.11  |
| Naic Water Supply Corp.                      | 7,433                      |               |                 |            |               |              |                         | 7,433          | 120.00  |
| Western Cavite Water Supply & Services Corp. |                            |               |                 |            |               |              |                         |                |   |
| Amadeo Water District                        | 6,599                      | 76            | 25              |            |               | 45           |                         | 6,745          | 211.00  |
| Carmona Water District                       | 12,544                     | 159           | 268             |            |               | 70           | 69                      | 13,110         | 238.60  |
| Dasmariñas Water District                    | 101,045                    | 1,012         | 16,898          |            |               | 274          | 378                     | 119,607        | 173.00  |
| Gen. Aguinaldo Water District                | 2,663                      | 37            | 111             |            | 4             | 10           |                         | 2,825          | 163.00  |
| GMA Water District                           | 15,918                     | 216           | 530             |            |               | 45           |                         | 16,709         | 280.00  |
| Indang Water District                        | 6,880                      | 247           | 210             |            |               | 60           |                         | 7,397          | 188.00  |
| Maragondon Water District                    | 3,115                      | 44            | 211             |            |               | 39           |                         | 3,409          | 168.00  |
| Mendez Water District                        | 4,883                      | 175           |                 |            |               |              |                         | 5,058          | 195.00  |
| Silang Water District                        | 34,280                     | 1,405         |                 |            |               | 116          |                         | 35,801         | 229.00  |
| Tagaytay City Water District                 | 162,679                    | 12,079        |                 |            | 877           | 1,301        |                         | 176,936        | 254.00  |
| Tanza Water District                         | 12,038                     | 359           |                 |            |               | 44           |                         | 12,441         | 180.00  |
| Trece Martires City Water District           | 26,110                     | 631           |                 |            |               | 153          |                         | 26,894         | 170.00  |
| <b>Total</b>                                 | <b>530,504</b>             | <b>19,495</b> | <b>21,617</b>   | <b>121</b> | <b>903</b>    | <b>2,203</b> | <b>453</b>              | <b>575,296</b> |   |

Source: Special Projects Division, Provincial Planning & Development, Office, Trece Martires City



Table 7.13 National Irrigation System's Firmed-up Service Area, Province of Cavite: 2016

| System                               | City/<br>Municipality | Firmed – Up Service Area (FUSA) (Has.) |                 |                 |                      |
|--------------------------------------|-----------------------|--|-----------------|-----------------|----------------------|
|                                      |                       | Total                                  | Operational     | Non-Operational | Farmer Beneficiaries |
| Molino River Irrigation System (RIS) | City of Bacoor        | 84.00                                  | 40.00           | 44.00           | 75                   |
| Embarcadero RIS                      | City of Dasmariñas    | 61.00                                  | 40.00           | 21.00           | 47                   |
| Luksuhin RIS                         | City of Dasmariñas    | 109.00                                 | 52.00           | 57.00           | 77                   |
| Makuling RIS                         | City of Dasmariñas    | 149.00                                 | 25.00           | 124.00          | 86                   |
| Baluctot RIS                         | City of Dasmariñas    | 150.00                                 | 96.00           | 54.00           | 130                  |
| Butas RIS                            | City of Gen. Trias    | 269.00                                 | 145.00          | 124.00          | 182                  |
| Butas-Lawang Bato RIS                | City of Gen. Trias    | 529.00                                 | 307.00          | 222.00          | 278                  |
| Butas-Marcelo RIS                    | City of Gen. Trias    | 335.00                                 | 77.00           | 258.00          | 165                  |
| Butas-Palanas RIS                    | City of Gen. Trias    | 480.00                                 | 147.00          | 333.00          | 189                  |
| Plucena-Bayan RIS                    | City of Gen. Trias    | 290.00                                 | 157.00          | 133.00          | 162                  |
| Vargas (Bankud) RIS                  | City of Gen. Trias    | 544.00                                 | 210.00          | 334.00          | 340                  |
| Julian RIS                           | City of Imus          | 208.00                                 | 64.00           | 144.00          | 106                  |
| San Agustin RIS                      | City of Imus          | 414.00                                 | 224.00          | 190.00          | 278                  |
| Pasong Kastila RIS                   | City of Imus          | 511.00                                 | 227.00          | 284.00          | 288                  |
| Balayungan RIS                       | Maragondon            | 207.00                                 | 207.00          |                 | 128                  |
| Kay-Akle RIS                         | Maragondon            | 385.00                                 | 299.00          | 86.00           | 257                  |
| Balayungan RIS                       | Naic                  | 1,317.00                               | 1,128.00        | 189.00          | 831                  |
| Culong-Culong RIS                    | Naic                  | 475.00                                 | 347.00          | 128.00          | 397                  |
| Sahing RIS                           | Naic                  | 202.00                                 | 130.00          | 72.00           | 176                  |
| Matanda RIS                          | Tanza                 | 1,175.00                               | 676.00          | 499.00          | 483                  |
| Tres Cruzes RIS                      | Tanza                 | 573.00                                 | 512.00          | 61.00           | 172                  |
| Balayungan RIS                       | Ternate               | 22.00                                  | 22.00           |                 | 13                   |
| Kay-Akle RIS                         | Ternate               | 18.00                                  | 18.00           |                 | 14                   |
| Mabacao Pump                         | Maragondon            | 35.00                                  |                 | 35.00           | 35                   |
| <b>Total</b>                         |                       | <b>8,542.00</b>                        | <b>5,150.00</b> | <b>3,392.00</b> | <b>4,909</b>         |

Source: National Irrigation Administration, Naic, Cavite



**Table 7.14 Communal Irrigation System's Firmed-up Service Area, Province of Cavite: 2016**

| System                                       | City/<br>Municipality      | Firmed – Up Service Area (FUSA) (Has.) |               |                 |                      |
|--|----------------------------|--|---------------|-----------------|----------------------|
|  |                            | Total                                  | Operational   | Non-Operational | Farmer Beneficiaries |
| Lantic I Communal Irrigation System (CIS)    | Carmona                    | 99.00                                  | 99.00         |                 | 82                   |
| Lantic II CIS                                | Carmona                    | 55.00                                  | 55.00         |                 | 88                   |
| Malinta CIS                                  | City of Dasmaringas        |  |               |                 |                      |
| Narvaez CIS                                  | Gen. Aguinaldo             | 100.00                                 | 100.00        |                 |                      |
| Gen. Aguinaldo CIS                           | Gen. Aguinaldo             | 55.00                                  |               | 55.00           | 50                   |
| Magay CIS                                    | Maragondon                 | 300.00                                 | 56.00         | 244.00          | 73                   |
| Golova CIS                                   | Ternate                    | 60.00                                  | 60.00         |                 | 28                   |
| San Nicolas II PIS                           | Bacoor                     | 52.00                                  | 43.00         | 9.00            | 4                    |
| Bacoor II Pump Irrigation Project (PIP)      | Molino III, City of Bacoor | 10.00                                  | 10.00         |                 | 4                    |
| Maduya PCIS                                  | Carmona                    | 34.00                                  | 34.00         |                 | 7                    |
| Pasong Saguing PCIS                          | Gen. Mariano Alvarez       | 34.00                                  |               | 34.00           | 99                   |
| F. De Castro PCIS                            | Gen. Mariano Alvarez       | 32.00                                  |               | 32.00           | 80                   |
| Kawit Pump Communal Irrigation System (PCIS) | Kawit                      | 60.00                                  |               | 60.00           | 20                   |
| Pacheco PCIS                                 | Magallanes                 | 42.00                                  | 12.00         | 30.00           | 10                   |
| Palangue PCIS                                | Naic                       | 35.00                                  | 35.00         |                 |                      |
| Lumil & Tartaria PCIS                        | Silang                     | 40.00                                  |               | 40.00           | 16                   |
| <b>Total</b>                                 |                            | <b>1,008.00</b>                        | <b>504.00</b> | <b>504.00</b>   | <b>561</b>           |

Source: National Irrigation Administration, Naic, Cavite

To sum up, the reported firmed-up service area (FUSA) totaled to 9,550.00 hectares by which 8,542.00 hectares comprised national irrigation system while 1,008 hectares are communal irrigation system. Out of the total, 5,654.00 hectares are operational while non-operational totaled to 3,896.00 hectares. Farmer beneficiaries were recorded at 5,470 (Table 7.15).

**Table 7.15 Firmed-up Service Area by Irrigation System, Province of Cavite: 2016**

| Irrigation System          | Firmed-up Service Area (FUSA) (Has.) |                 |                 | Farmer Beneficiaries |
|----------------------------|--------------------------------------|-----------------|-----------------|----------------------|
|                            | Total                                | Operational     | Non-Operational |                      |
| National Irrigation System | 8,542.00                             | 5,150.00        | 3,392.00        | 4,909                |
| Communal Irrigation System | 1,008.00                             | 504.00          | 504.00          | 561                  |
| <b>Total</b>               | <b>9,550.00</b>                      | <b>5,654.00</b> | <b>3,896.00</b> | <b>5,470</b>         |

Source: National Irrigation Administration, Naic, Cavite