Chapter 4

infrastructure

**INFRASTRUCTURE**

**TRANSPORTATION**

Efficient transport is a critical component of economic development; it affected economic development from the beginning of human civilization. Economic development focused on the confluence of transport systems.

Development is related at improving the welfare of a society through appropriate social, political and economic conditions. The expected outcomes are quantitative and qualitative improvements in human capital, eg. Income and education levels as well as physical capital such as infrastructure (utilities, transport, telecommunications).

Because of its intensive use of infrastructure, the transport sector is an important component of the economy and a common tool used for development. This is even more felt in the community or in the Municipality of Mangaldan where the economic opportunities are increasingly related to the mobility of people, goods and information.

**Situational Analysis**

* **Inventory of Roads by System Classification and type of Pavement**

The Inventory of Roads in the Municipality of Mangaldan show a total road length of 180.174 kilometers of which 18 kilometers is classified as National Road; Provincial Road has a total length of 12.100 kilometers; Municipal Road has a total length 10.724 kilometers and Barangay Road has a total of 139.35 kilometers. Out of these total road length 6.266 kilometers are pave with asphalt; 133.209 kilometers are paved with concrete; 24.174 kilometers are gravel and the remaining 16.525 kilometers still earthfill.

**Table 101: Inventory of Roads by System Classification and Type of Pavement**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Roads by System**  **Classification** | **Road Right of Way (RROW)** | **Total Length**  **(Kms)** | **Road Surface Type** | | | | | | | | |  | |
| **Concrete** | | | **Asphalt** | | | **Gravel** | | | **Earthfill** | **%** |
| **Km** | **%** | **C** | **Km** | **%** | **C** | **Km** | **%** | **C** | - | - |
| National | 20m | 18.000 | 18 | 100 | Good | - | - | - | - |  | - | - | - |
| Provincial | 15m | 12.100 | 10.57 | 87.355 | Good | 1.530 | 12.645 | Good | - |  |  | - | - |
| Municipal | 10m | 10.724 | 9.15 | 85.323 | Good | 1.400 | 13.055 | Good | 0.174 | 1.623 | Good | - | - |
| Barangay Road | 8m | 139.35 | 95.489 | 68.525 | Good | 3.336 | 2.394 | Good | 24.000 | 17.223 | Good | 16.525 | 11.859 |
| **Total** | **53m** | **180.174** | **133.209** | 73.934 |  | **6.266** | 3.478 |  | **24.174** | 13.417 |  | **16.525** | **9.172** |

*Source: Engineering Office, 2012*

*C – Physical Condition: Good – Acceptable/Serviceable*

*Critical – For Priority Action Poor – Needs Improvement*

**Table 102: Inventory of Provincial Roads**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Name of Roadline** | **Road Right of Way (RROW)** | **Station** | **Length (Kms.)** | **Type** | | |
| **Concrete** | **Asphalt** | **Gravel** |
| 1. Anolid – Maasin Road | 15m | Km. 215.900 – 217.900 | 2.000 | 0.470 | 1.530 | - |
| 1. Guiguilonen-Nibaliw Road | -do- | Km. 230.700 – 231.800 | 1.100 | 1.100 | - | - |
| 1. Dagupan – Mangaldan Div. Road | -do- | Km. 215.100 – 216.300 | 1.200 | 1.200 | - | - |
| 1. Bantayan-Talogtog – Bateng Road | -do- | Km. 221.900 – 224.500 | 2.600 | 2.600 | - | - |
| 1. Mangaldan-Mapandan Road via David | -do- | Km. 219.700 – 224.900 | 5.200 | 5.200 | - | - |
| **TOTAL** |  |  | **12.100** | **10.570** | **1.530** | **-** |

* **Inventory of Bridges by Location By Type, Capacity and Condition**

A total of 18 bridges is existing in the municipality with a total length of 528 linear meters. Four bridges are classified as national and fourteen as barangay.

All of the national bridges are of good condition. Six of the barangay bridges are in good condition, two are bad and need replacements, three are bad and need reconstruction/expansion, two need reconstruction/ expansion, one is good but needs reconstruction/expansion and one is for implementation.

**Table 103: Existing Bridges, Location and Types of Construction Materials**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Bridge Name** | **Location** | **L (m)** | **W (m)** | **Type of Construction Materials** | **Remarks** |
| **National** |  |  |  |  |  |
| Pogo Bridge | Pogo Road | 17 | 10 | Concrete | Good Condition |
| Mangaldan-Dagupan Bridge | Anolid-Dagupan Boundary | 35 | 8 | Concrete | Good Condition |
| Embarcadero Bridge | Embarcadero | 152 | 10 | Concrete | Good Condition |
| Guiguilonen RCBC | Guiguilonen | 3 | 10 | Concrete | Good Condition |
| **Barangay** |  |  |  |  |  |
| Bantayan Bridge | Bantayan Road | 17 | 4 | Concrete | Bad and Needs Replacement |
| Bateng Bridge | BatengBrgy. road | 11 | 4 | Concrete | Good Condition |
| Bateng West Bridge | Bateng West | 26 | 5 | Concrete | Good Condition |
| Salay Bridge | Salay-Salaan Road | 7 | 4 | Concrete | Bad and Needs Reconstruction/ Expansion |
| Tebag Bridge | Abalos-Tebag Road | 15 | 5 | Concrete | Bad and Needs Reconstruction/ Expansion |
| Nibaliw Bridge | Presto Street | 9 | 6 | Concrete | Needs Reconstruction/ Expansion |
| Macayug Bridge | MacayugBrgy. Road | 100 | 10 | Concrete | Good Condition |
| Guesang Bridge | Guesang Road | 12 | 6 | Concrete | Needs Reconstruction/ Expansion |
| Maasin Bridge | Maasin-Matabang Road | 6 | 4.5 | Concrete | Good/Needs Reconstruction/ Expansion |
| Maasin-Mamalingling Bridge | Maasin-Mamalingling Road | 36 | 4 | Steel | Good Condition |

*Continuation of Table 103…..*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Bridge Name** | **Location** | **L (m)** | **W (m)** | **Type of Construction Materials** | **Remarks** |
| **Barangay** |  |  |  |  |  |
| Lanas Bridge | Lanas-Maasin Road | 6 | 3.5 | Concrete | Bad and Needs Reconstruction/ Expansion |
| Inlambo Bridge | InlamboBrgy. Road | 10 | 3.5 | Concrete | For Implementation |
| Mangueragday Bridge | Talogtog | 50 | 8 | Concrete | Good Condition |
| Anolid-Salisay Bridge | Anolid-Salisay Boundary | 16 | 5 | Bailey | Bad and Needs Replacement |
| **TOTAL** | **18** | **528** | **110.5** |  |  |

*Source: Municipal Engineering Office*

**Table 104: Inventory of Bridges by Type of Administration**

|  |  |  |  |
| --- | --- | --- | --- |
| **By Type of Administration** | **Number** | **Length (m)** | **Percent to Total** |
| National | 4 | 207 | 39.205 |
| Barangay | 14 | 321 | 60.795 |
| **TOTAL** | **18** | **528** | **100.00** |

*Source: Municipal Engineering Office*

* **Other Transportation Facilities**

In the Municipality of Mangaldan, tricycle is the common transport facility being used. There is a tricycle station located at the public market area which is intended to traverse from Poblacion to other barangays. There is no jeepney terminal in the municipality. For residents who wish to travel to other municipalities, there are jeepneys and buses which pass by the area coming from Dagupan, San Fabian, Manaoag and Mapandan.

Fare structure varies from regular to special rates. For tricycle, regular fare is Php 9.00 for the first kilometers and additional of Php 1.00 for every succeeding kilometer. Students and senior citizens have a discount of 1.50 for every kilometer. Jeepneys have different fare rate for as set forth by the Land Transportation Franchising Regulatory Board.

**Data Analysis**

* ***Accessibility within the locality and with neighboring localities/ node/ transit network system***

The general characteristic of the road network of the municipality is radial circumferential, whereby all the barangays are linked to the Poblacion and with other barangays. This type of development pattern provides better linkages among different barangays thereby promoting social interaction.

Transportation problems on impassability due to mud and road cuts are encountered by interior and remote barangays specifically during rainy and stormy weather.

Traffic is not so much of a problem in the locality. The national road which is the main artery of Dagupan-La Union-Baguio linkages, is the only relatively busy road. Jeepneys, mini-buses, big buses, heavily loaded trucks and cars are plying the route. Traffic signs are installed even if traffic congestion is not a problem in order to avoid any accident or mishap.

Public Land Transportation Vehicles by Type and Service Routes, the public utility Vehicles available within barangays are tricycles. There are some jeepneys plying within Mangaldan as means of transportation from Dagupan, San Fabian and other adjoining municipalities and provinces.

* **Traffic Easement**

To ease traffic congestion in the commercial business district, removal of illegal structures and obstruction within the road right of way (RRW) of all national road should be done.

1. Buildings, houses, shanties, stores, shops, stalls, sheds canopies billboards, signages, advertisements, fences, walls, railings, basketball courts, barangay halls, garbage receptacles.
2. Posts and towers of Electrical Cooperation and Major Electric Power Distributors, distribution lines, post for cables of phone and mobile service providers.
3. Driveways and ramps occupying or protruding to the sidewalk/ shoulder
4. Trees, shrubs and plant boxes
5. Humps, whether permanent or temporary
6. Dumping and storage of construction materials, such as sand, gravel cement, lumber and steel bars, earth spoils, waste materials, debris, embankment, heaps.
7. Vehicles and equipments, including junk items that are parked, occupying or protruding to the sidewalk or shoulder.
8. Vending, repair of vehicles and other business within the sidewalks.

Disposal of household/ commercial/ industrial wastewater and sewage into the sidewalk, curb and gutter and carriageway.

**Current and Projected Needs**

**Adequacy of Roads/Bridges**

At present, there is still a need to improve existing roads and establish additional roads because the existing road length is not that sufficient to reach some populated areas in different barangays. By 2026, urban roads will not be adequate basing from the projected population, additional roads are needed to adequately support the hard to reach areas at the end of the planning period.

**Table 105: Transportation Matrix Analysis**

|  |  |  |  |
| --- | --- | --- | --- |
| **Problems/Issues/Concerns** | | **Recommendations** | **Policies/Strategies** |
| Narrow Roads and Plenty Vehicles | | * Provide trainings, seminars about traffic rules. Communication WASAR to traffic personnel. | Strict implementation. |
| Encroachment of Roads Right of Way (RROW) | | * Demolition of structures and road widening | Strict implementation of legal remedies. |
| Parking Area for Pedicabs/ Tricycles (Motorized) | | * Creation of central terminals * Limit number of pedicabs/ motorized tricycle to park along business area * Creation of barangay terminals | Coordinate with TODA to manage rotation of pedicabs/ motorized tricycles to park along business area. |
| Obsolete Drainage System Along Rizal Avenue | | * Upgrading of drainage system | Inform DPWH and ask for assistance. |
| Congested Traffic Situation | - To convince residence to donate land to use for loading / unloading zone mini terminal.  - Provide training / seminar about traffic rules and regulations.  - Provide incentives to outstanding traffic enforcers.  - Install CCTV to our main road. | - Strict implementation  - Have seminar or training twice a year regarding traffic rules and regulations to update our traffic enforcers.  - Give incentives to our traffic personnel in order to boost their morale.  - this will enable us to monitor traffic conditions and road accidents. |
| Narrow Roads in Barangay and Poblacion | * Rip-rapping of sidewalks especially in barangay Lanas. * Widening/construction of shoulders * Construction of alternative roads * Upgrade main road of barangay Lanas and barangay Salay boundary near barangay Lanas welcome. | * Fix drainage before upgrading the cement or asphalting. |
| Congested Traffic Situation | * Strict observance for issuance of permit for motorized and pedicabs. * Observe strict rules and regulation of traffic. * Seminars/educate pedicab and motorized driver. * No plate no travel policy. * Penalized violators. | * Apprehension of tricycles while travelling along the road going to downtown. |
| Identification of Accident Prone Area | * Coordination of DPWH on putting up early warning and safety devices on identified accident prone areas. * Procurement of warning/safety devices as a result of coordination with DPWH and concerned agencies. | Provision of signages and procurement of warning/ safety devices |
| Anticipation of Traffic Congestion | * Accounting of motorized vehicle (two and four wheels) private and public through LGU and LTFRB. * Coordination with LTFRB to identify an account PUJs and PUBs plying all utilizing the route of Mangaldan AOR. * Formulate a route land to include loading and unloading areas for Public Utility Vehicles (PUVs). * Identification of PUVs designated terminals. * Strict implementation of traffic rules and regulations to generate funds. * Implementation of coding system to ease the traffic congestion on main road. | * Strict implementation of traffic rules and regulations to generate funds. * Implementation of coding system to ease the traffic congestion on main road. * Widening of existing alternate roads |