VEHARI

PUNJAB MUNICIPAL SERVICES IMPROVEMENT PROJECT

PUNJAB MUNICIPAL DEVELOPMENT FUND COMPANY

2011

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ABBREVIATIONS

ADP	:	Annual Development Plan
ATO	:	Assistant Tehsil Officer
BI	:	Building Inspector
CCB	:	Citizen Community Board
CTS	:	Complaint Tracking System
CO	:	Chief Officer
DCR	:	District Census Report
FMS	:	Financial Management System
GIS	:	Geographic Information Systems
ID	:	Institutional Development
NGO	:	Non-Governmental Organization
O&M	:	Operation & Maintenance
OHR	:	Overhead Reservoir
PHED	:	Public Health Engineering Department
PLGO	:	Punjab Local Government Ordinance
PMDFC	:	Punjab Municipal Development Fund Company
PMS	:	Planning Management System
PMSIP	:	Punjab Municipal Services Improvement Project
ROW	:	Right of Way
TMA	:	Tehsil Municipal Administration
TMO	:	Tehsil Municipal Officer
TOs	:	Tehsil Officers
TO (F)	:	Tehsil Officer Finance
TO (P&C)	:	Tehsil Officer Planning & Co-ordination
TO (I&S)	:	Tehsil Officer Infrastructure and Services
TO (R)	:	Tehsil Officer Regulation
UC	:	Union Council
WB	:	World Bank

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CHAPTER 1 INTRODUCTION

1.1 Background

Planning is a part of Punjab's local government system with the planning responsibilities of TMAs, set out in PLGO. Under the devolved system, the newly created office of TO (P) has the following functions; (i) develop plans; (ii) develop and apply building controls; (iii) manage CCBs; (iv) implement commercialization rules; (v) operate Punjab Housing Development Schemes; (vi) develop site development schemes. In addition, the PLGO identifies the preparation of spatial plans (Article 54 (a)), development plans (Article 54 (c)) and budget plans, long term and Annual Development Programs (Article 54(j)) as key functions of the TMAs. Unfortunately, in majority of TMAs TO (P)) office has not been able to perform as envisioned in the PLGO. Some of the reasons are inadequate staff and lack of up-to-date maps, equipment, management/ regulation/ and enforcement mechanisms. As a result, development works are taking place in a piecemeal manner and lack integrated and coordinated approach.

1.2 Punjab Municipal Service Improvement Project (PMSIP)

Under these circumstances the Government of Punjab launched Punjab Municipal Service Improvement Project (PMSIP) through Punjab Municipal Development Fund Company (PMDFC) .The project aims at the institutional development of TMAs through improving systems directly related to their functions and through investments in service delivery.

1.2.1 Key Features of PMSIP

The project has two distinct components; Infrastructure Development and Institutional Development (ID):

Infrastructure development: The project funds the infrastructure schemes after the identification of most pressing development issues of the respective town.

Institutional Development: To improve the municipal service delivery, a number of interventions, have been introduced such as establishment of systems like (PMS, CTS, CFMS) provision of trainings to TMA staff and development of GIS based municipal and Urban Planning Maps

1.3 PMSIP Planning

Under PMSIP planning, rapid appraisal of municipal services is undertaken to identify service delivery gaps on the basis of technical analysis. The main function of PMSIP Planning is the involvement of stakeholders to make the planning exercise meaningful and demand driven.

Outcome of this exercise is a municipal service data base, improved GIS based maps and a list of development projects, ensured by stakeholders that may be funded by PMSIP and other funding sources.

1.3.1 Limitations of PMSIP Planning

As every project addresses specific issues, PMSIP has been launched with some limitations as follows:

- The PMSIP development grants fund for municipal services only.
- PMSIP planning exercise is undertaken for CO Units starting from CO Unit HQ, i.e. urban area.
- The prioritized list that is developed is restricted to the UCs falling in CO Units.

It is assumed that experience gained in the urban areas would be replicated in the entire Tehsil by the TMA staffs who have gained experience and training during the planning process, whose details are as follows.

1.4 The Planning Process

The adopted Planning process incorporates an overall strategy for highlighting the development options and the community's agreed outputs. These outputs form the basis of spatial plan. It is a more inclusive approach aiming to ensure best use of land by weighing up competing demands.

The plan devised is an ongoing process for the sustainable development. To achieve such development a spatial plan has been developed. It addresses municipal development issues and infrastructure needs in a systematic way. The plan therefore emphasizes on engagement with the stakeholders and other organizations, the management and ongoing funding programs. This leads to identify community's preferences for development process.

Following steps were adopted for the planning process:

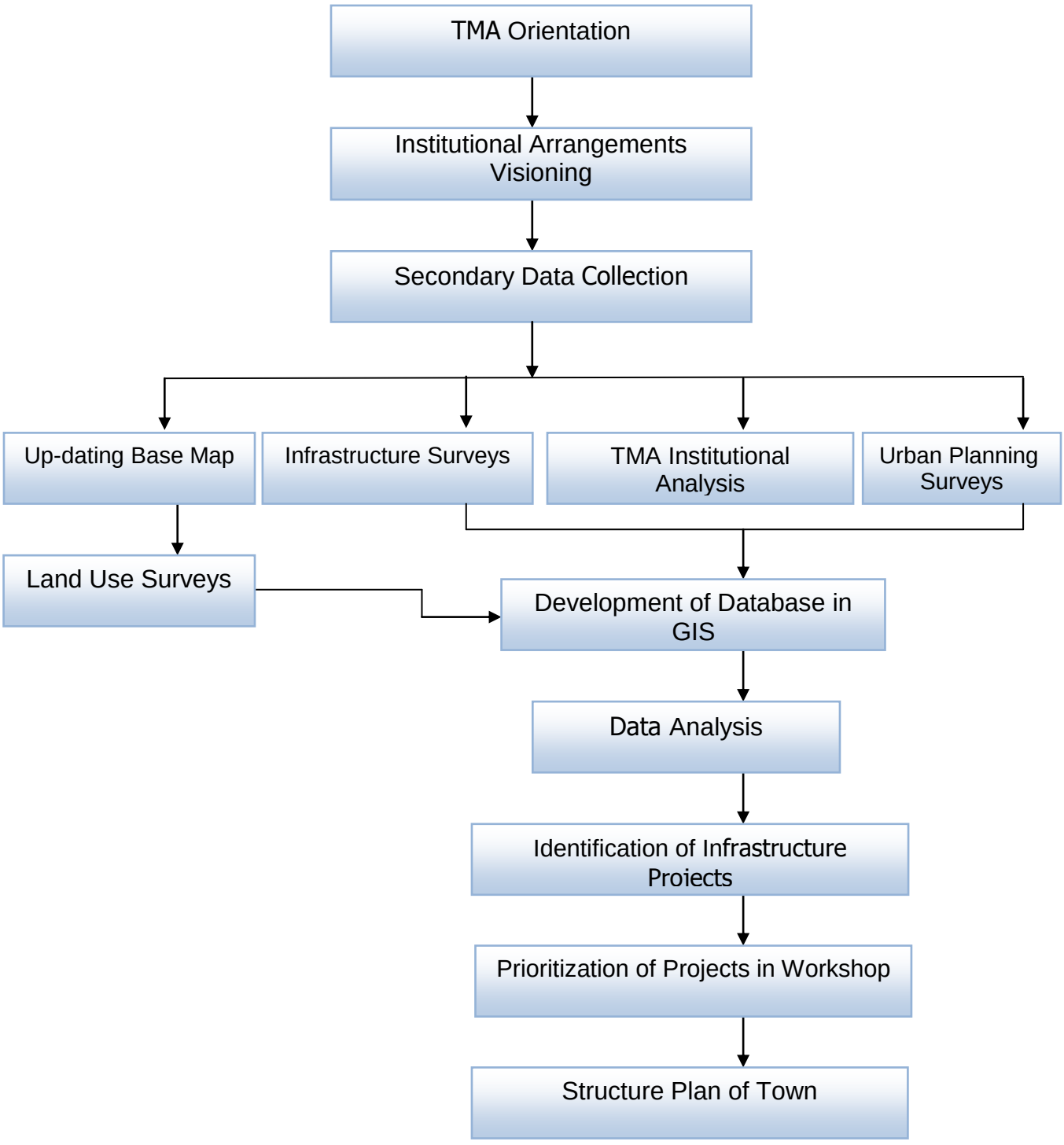


Figure 1.1: Flow Chart for Planning Process

1.4.1 Secondary Data Collection

First, the sources were identified for the previous attempts that were made in Vehari for planning. It includes, DCR, online data and PHED services maps.

The study of such documents helped to gather background information about the town, infrastructure coverage and growth. It helped to have an understanding about the development patterns evolved over the years.

The maps from Public Health reflected the water supply and sewerage schemes. Information was also gathered whether the projects had completed their designed life. These plans were again used at the analysis stage and compared with the data collected during the current planning exercise.

1.4.2 Mapping

The first requirement before going to the field was to prepare a base map for the town. For this purpose, the mapping exercise was started in parallel to the secondary data collection. The image was procured for the TMA. It was then processed and a vectorized layer was made. The land marks were put on the base map using the secondary sources i.e. maps obtained from PHED. The land marks included the important roads, water features, big buildings, factories, graveyards etc.

1.4.3 Field Data Collection

Preliminary Meetings

Once the data collection forms were finalized the planning team initiated the data collection process in the field. First, a meeting was held with the TMA leader ship (Nazim) to discuss the field data collection work plan. At this stage a planning steering committee comprising of TOs, and a working group constituting ATOs and other lower order officials was notified. The duties were assigned and a briefing was given to these officials about their role in data collection.

The planning team discussed the general development issues of the town with the Nazim and notes were recorded.

Infrastructure Data Collection

For infrastructure data collection, the planning team worked very closely with the working group. First the existing service maps available with the TMA were used as a starting point. To update the map the secondary source like information from Public health maps was added. This information was verified by the working group to prepare an updated map for the services.

This missing or additional information was provided by second line officials. For instance, for water supply, plumbers and sub engineers provided first hand information about the system. Where necessary, field visits were made to validate the information.

Urban Planning

A land use survey was conducted to update the TMA map. The residential areas, commercial, institutional and open spaces and industrial areas were marked on the base map. The team comprised for the survey was TO (P), urban planner from PMDFC and draftsman from TMA.

The Planning office guided about the growth directions of the town and a rudimentary survey was made in this regard. It was observed where the new residences were built and institutions were being developed. These factors determine the future expansion of the town.

In addition to it, the land ownership and land values information was recorded.

1.4.4 Data Analysis

Once the planning team collected the data, all of the forms were arranged in the office. The data was cleaned and integrated. The PMDFC officials contacted the TMA office again if any gaps were found in the collected data. Such additional information was gathered for each sector.

Based on the information collected in the field, descriptive maps for all the municipal sectors like water supply, sewerage, solid waste and land use were developed. The analysis report was produced by the planning team by using these maps. This report was again sent to the engineers for further updation and review and hence a final draft was made.

1.4.5 The Visioning Workshop

The planning process stems from the Nazim and other stakeholders vision of the town which is further translated into the tangible and concrete targets. The salient feature of this step is the visioning and prioritization workshop. Participants of the workshop were the Nazim and Naib Nazim, senior TMA officials, including the TMO, all the TOs and staff members , councilors, local representatives of provincial departments, representatives of NGOs operating in the town, representatives of civic groups such as the trade bodies. A comprehensive presentation was given to all of the stakeholders about the fabric of the municipal infrastructure in the town. They all shared their views about the future development options and investment decisions of their town. Once the vision was agreed upon and the objectives were established, a rigorous session was organized for the selection of the priority sectors.

At the end of the workshop the statement of agreed vision, objectives and priorities was summarized in written draft and circulated among all the stakeholders.

The planning exercise was to be reviewed in order to assess the implications of the whole process in year-1 TMAs. Therefore, it was important to get back to these TMAs. For this purpose an interim appraisal was made by WB in November 2009. The details are as follows:

1.4.6 Interim Appraisal by the World Bank

Two day Consultative Workshop was held as a schedule arrangement during *World Bank Implementation Support Mission* in November 2009. The World Bank mission was to make interim appraisal of the PMSIP activities undertaken inYear-1 TMAs.

In addition, it provided a forum for Tehsil Officers Planning TO (P) s, the World Bank and PMDFC to share common approach to improve capacity building efforts for the planning office of the partner TMAs.

1.4.7 One day Planning Refresher Workshop for Year - I TMAs

A refresher workshop was conducted on April 9, 2009 to develop a close liaison between PMDFC and TMAs. TO(P)s from partner TMAs attended the workshop. Presentations were designed to give a snapshot of the planning exercise. The main objectives of the workshop were;

- To review the existing planning process
- To initiate the process of up-dating of the planning reports and maps
- To share the maps and reports prepared by PMDFC with partner TMAs

In addition to it, information was also collected regarding the interventions, their viability and suggested improvements.

CHAPTER 2 TMA VEHARI

2.1 District Vehari Profile

2.1.1 History

Vehari is a relatively new district. It was created in June 1976. Previously it used to be a Tehsil of Multan district. Since Multan was a large district in terms of area, it was difficult to administer it. Therefore, Vehari was separated from Multan district and raised to the status of a separate district.

Literally Vehari means low lying riverine settlement. It is situated on the right bank of river Sutlej, in the heart of Nili Bar, the bluish tinge of the water of the Sutluj. The construction of Pakpattan Canal from Sulemanki Head Works on the Sutluj and the launching of Nili Bar colony project in 1925; considerably added to the population of the district. The ancient history of the area is not well recorded except for the fact that this riverine tract formed the state of Fatehpur during the time of the Mughal King, Akbar, the Great. It was ruled by Fateh Khan of Joya family who founded and gave his name to the town of Fatehpur. Fatehpur still exists at a distance of 15 Kilometres to the south of Mailsi. Some remains of archaeological value are found in this town.

2.1.2 Location

The district, at present borders with Bahawalnagar and Bahawalpur on the Southern side, with Pakpattan on the eastern, with Khanewal and Lodhran on western and with Sahiwal and Khanewal on northern side.

2.1.3 Area/Demography

The district covers a total area of 4,364 square kilometres. Its population is 2,090,416 as per DCR 1998. It has three Tehsils/TMAs:

1. Vehari
2. Burewala
3. Mailsi

The demographic details of the district are given in the table as:

Table 2.1: Demographic Details of District Vehari[1]

Tehsil	Area (sq.km.)	Population 1998							Population 1981	1981-98 Avg. annual growth rate (%)
		Both sexes	Male	Female	Sex ratio	Population density/sq. km.	Urban proportion	Avg. HH size		
Vehari	1,430	654,955	339,996	314,959	107.9	458.0	14.4	6.8	413,446	2.74
Burewala	1,295	730,583	378,128	352,456	107.3	564.2	20.8	7.0	473,006	2.59
Mailsi	1,639	704,878	365,689	339,189	107.8	430.1	12.6	7.0	442,356	2.78

2.2 TMA Profile

2.2.1 General

Tehsil Vehari is headquarter of Vehari District. Vehari means a low lying settlement by a flood water channel. It is along the right bank of river Sutluj. According to one hypothesis, Vehari was a small village consisted of few katcha houses nearly half century before. This area was restricted to the banks of river Sutlej. The rest of the area was sandy. This riverine tract was inhabited by Vehri tribe who founded and gave this name to the town of Vehari. Vehari in 1942 was elevated from being a sub-tehsil of Mailsi to a full fledged Tehsil with Burewala as a sub-tehsil.

2.2.2 Location

Vehari is located in the southern Punjab. It lies on Multan-Lahore GT road. The towns in the immediate vicinity of Vehari are, Khanewal in North, Bahawalpur district in the south, Bahawalnagar in east and Multan in the west. It is connected with Multan through Multan-Burewala highway and is about 100 kilometers from Multan. The Kasur-Lodhran railway line passes through town. The town is situated at distance of 282 kilometers from Lahore. It is about 122-125 meters above see level.

[1] Source: District Census Report 1998, Population Census Organization, Statistics Division, Government of Pakistan, Islamabad.

Table 2.2: Population Forecasts

Sr. No.	Year	Population
1	2010	130,492
2	2015	149, 376
3	2020	170,994
4	2025	195,739
5	2030	224,066

2.2.3 Area/Demography

Vehari Tehsil spreads over an area of 1,430 square kilometers with a 654, 955[2]. Urban population of Vehari was 94, 343 persons with a growth rate of 2.74 percent per annum. Male/female ratio is 51.68/48.32[3] with average household size of 7.1. The urban population projected for the year 2008 is 127, 023 persons, which is expected to grow up to 245, 998 persons up to year 2028. population projected upto the year 2028 is presented in Table 2.2.

Population has been projected over the next 20 years using following formula:

$$P_n = P_o (1+r/100)^{n-1}$$

Where P_n = Population of the desired year, P_o = Population of the base year, r = Population Growth Rate, n = Number of years

Incremental Population of Vehari from the year 1998 to year 2028 is given in the following table.

Table 2.3: Incremental Population (2010-2030)

Population 1998	Incremental Population			
	2010-2015	2015-2020	2020-2025	2025-2030
94, 343	18,884	21,618	24,745	28,327

[2] Source: 1998 Census
[3] Source: 1998 Census

CHAPTER 3 URBAN PLANNING

Urban planning under TMA has a crucial role in guiding the present and future growth of the town. The Planning office is responsible to produce spatial plans and exercise development control for change of land uses in the town. Further it maintains a comprehensive data base and information system on TMA and is responsible to execute and manage development plans for infrastructure projects. For the entire development of the Tehsil it is mandatory to produce different maps like base map, land use map, zoning map, etc. The planning office is responsible to prepare Annual development plans and long term plans. These plans are made under the direction of Tehsil Nazim.

3.1 Situation before Planning Exercise

At the start of planning exercise, the available information with the TMAs was very limited, out dated and rudimentary. The maps were either quite old, or were not present at all. Most of the mapping was done by hand drawings. The TO(P) office main function of development control was severely hampered due to lack of information such as updated maps.

The one of the basic objective of PMSIP exercise was to build the capacity of TO(P) Office. For this purpose availability of updated maps was kept on top priority. Satellite images were obtained and developed with the help of GIS technologies. All important information regarding urban planning and infrastructure situation was put on the maps.

3.2 Mapping by PMDFC

At present, with the completion of planning exercise in Vehari, a number of maps have been prepared and handed over to the TO (P) office. It included land use, density, growth direction, water supply, sewerage, solid waste management, roads and street light maps. Moreover, for analysis purposes various maps are prepared further e.g. density maps, service coverage maps etc. These maps are helpful in making recommendations for improved services in the town.

In further as capacity of TMA would be enhanced the soft copies will be handed over so that they could develop/improve their own maps. These maps would also be prepared in Auto Cad.

3.3 TO (P) Office

As the Planning office is newly created in the devolved set up, the planning practices are not common with the TMA. The most important function of the planning office is the development control and sanctioning of the building plans.

Table 3.1: Detail of Posts in Planning Office (June, 2011)

S/No	Post	Available Posts	Filled posts
1	TO(P)	1	1
2	Sub-Engineer	1	1
3	Architect	1	1
4	Building Inspector	2	2
5	Building clerk	1	-
6	Draftsman	1	-
7	Senior clerk	1	1
8	Junior clerk/billing Clerk	2	1
9	Driver	1	-
10	Naib Qasid	1	-

Source: Agency Record

3.4 Existing Land Use Characteristics

Vehari is located along the Multan – burewala road. This road divides the city diagonally in two parts as it runs through the town from west southern direction to north eastern direction. Along this road there is a railway track also which runs parallel to this road. There are two intersection points on this road one is with Khanewal road which leads to west northern side of the town other one is ludden road which leads in east southern side of the town.

In this town there is mixed type of land use i.e. residential and commercial area are mixed up with each other. The older part of the city is along the both sides of railway station but the most initial part of the town is southern side of the railway track. In this area there are residential units like peoples colony, residential blocks from A-H on the eastern side of the residential blocks there is Danewala which is a middle income people residential colony, on western side of the city along the railway track there is a residential colony named as Pirmurad colony it is also middle income between the residential blocks and peoples colony there are Faisal colony, Liaqat pura this is a katchi abadi, Rahmania colony Madina colony on the northern side of railway track there are two kachi abadies named as 9/WB and 11/Wb.

There are two main graveyards in the city one is on the western side of kachi abadi 9/WB other one is on the southern side of the city and on the east of the sherqi colony.

Commercial activity is mainly concentrated in CBD but some other roads in different areas are semi commercial. The name of the roads which are commercial in CBD are Jinah road, Club road, Multan road till Muslim town and near college road Rail Bazar, Karkhana Bazar, Chori Bazar, Trust Plaza. These are the commercial roads and also they have encroachment but this is not of permanent type but moveable.

In Vehari there are lot of parks and play grounds in different parts of the city. There are two parks in people's colony one is Faisal park and other have no name. On the northern side of the F residential block there is Municipal Park along it there is zoo.

Other one is on the southern side of H residential block named as Chadni Park. There is a park in three Marla housing scheme named as Quad e Azam Park. Across the railway line near the government boys school there is a stadium and one is near to Grid station named as Allama Iqbal Park.

On the southern side of the city center near Bhata Ikram there are Government elementary college and Government College for women. Across the railway track there is Government College for boys near stadium and on its northern side there is government Girls high school.

In the outline development plan an area was reserved for industries which was on the north eastern side of the city. Initially there were some industries but now this area is converting to residential due to failure of industries now there are only one or two industries which are flour mills and one or two brick kilns on the western side of the city there four brick kilns near to each other. There are also two cotton factories on the western side named as Chaudhry cotton factory and Shan cotton factory.

3.5 Katchi Abadis

There are total ten kachi abadies in Vehari, out of which seven katchi abadis are approved/transferred whereas three katchi abadis are unapproved. Out of seven approved katchi abadis three are located in the north of Verhari town namely, Chak Number 9/WB and Chak Number 11/WB along Multan Road, Anwar Abad along Burewala Road. Katchi abadis located in the south of town are Liaquat Pura along Peoples Colony Road, Bhata Ikramulhaq near Sherqi Colony in the south-west of Hasilpur road, Bhata Shadi Khan along ludden Road and Misali Bagh along Seed Farm Road near Girls secondary school.

There are 4,276 dwelling units in the seven transferred Katchi Abadis, and proprietary rights have been give to 4, 081 dwelling units. About 70% of the population of these abadis is provided with water supply, sewerage system, street light and other municipal facilities.

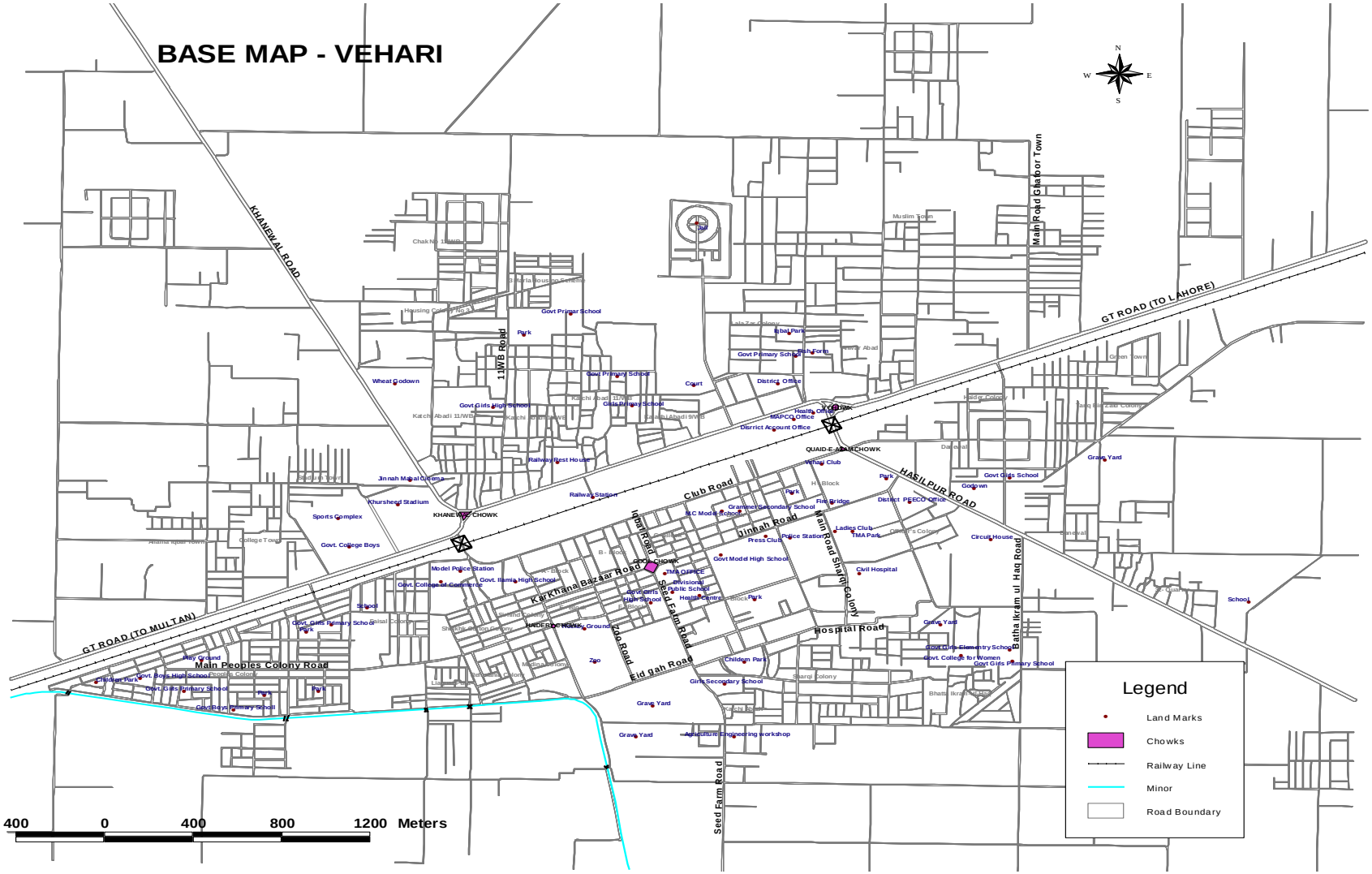


Figure 3.1: Base Map

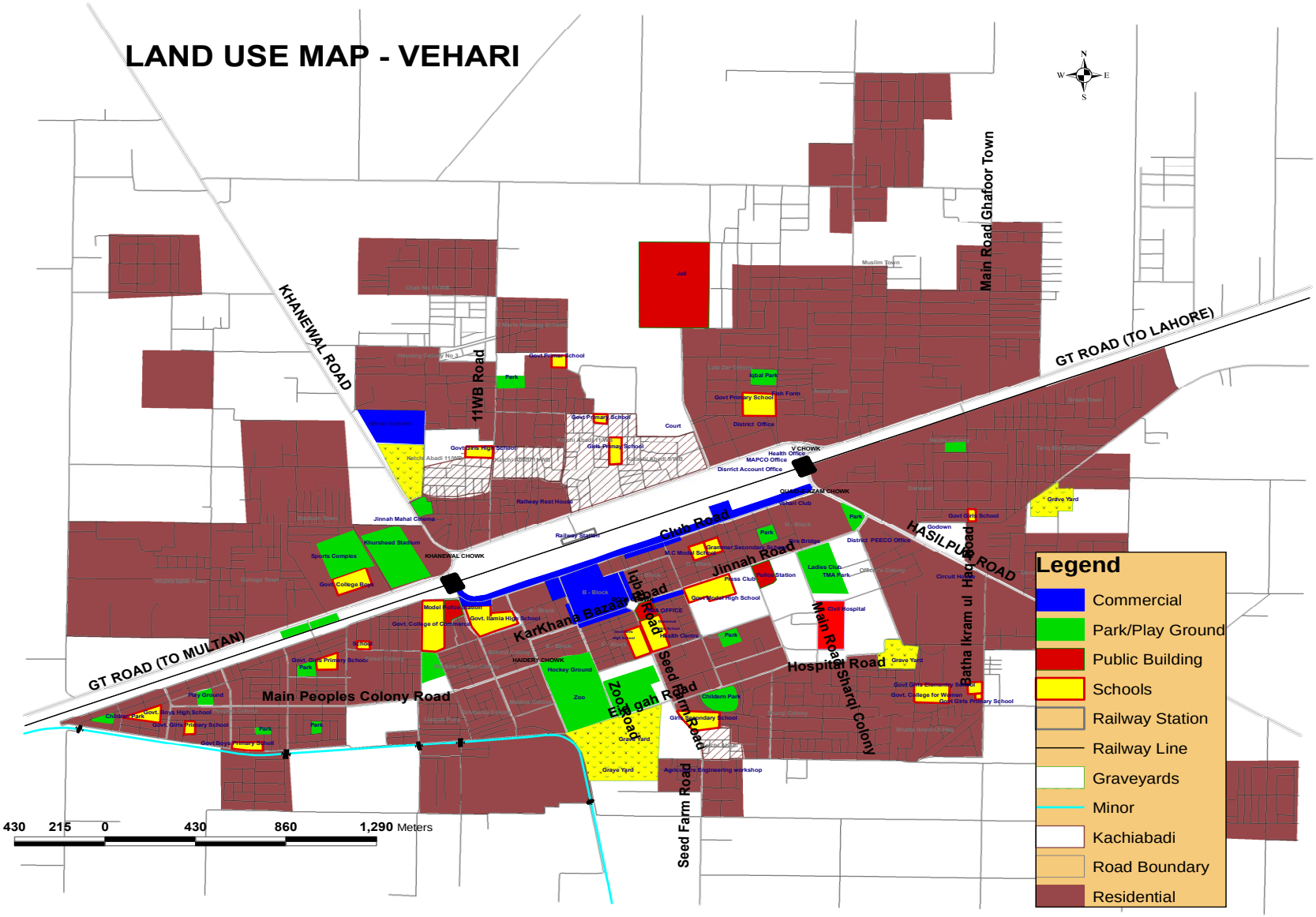


Figure 3.2: Land Use Map

3.6 Growth Direction

Vehari town is growing in two directions i.e. north-east and south. In north-east it is growing along Burewala road. A scheme of 100 acres has been developed along this road and some other schemes are also being developed. In southern direction the development is taking place opposite of Peoples colony and Liaquat Pura. This development is taking place due to existing road infrastructure and surrounding villages. The plot sizes in these housing schemes vary from 5-3 marlas and it accommodating low income people e.g. Aljannat Canal view and Sahiwal city.

CHAPTER 4 STATUS of MUNICIPAL INFRASTRUCTURE

4.1 Road Network

Vehari was developed as a planned town with wide roads and streets in a grid iron pattern. Due to urbanization the town is expanding resulting in congestion and increased traffic on roads. The urbanization has resulted in increased commercial activity which in turn gives rise to heavy traffic on roads.

Vehari lies on the main Multan Lahore GT Road. It bisects the town in two parts and is running parallel to the railway track. It is connected with major towns by provincial highways such as Multan, Khanewal, Hasilpur, Luddon and Burewala. Provincial and district roads are marked on the road hierarchy map. Khanewal road enters the town from north-west and ends at Khanewal Chowk..From Khanewal Chowk Multan Road goes west of town along railway track and Lahore Road goes east along with railway track. Luddon Road goes south-east from Quaid-e-Azam chowk and passes through the town.

Main roads of the town includes: Club Road, Jinnah Road , Liaquat Road, Amam Bargha Road, Saeed Farm Road, Zoo Road, Hospital Road, Eid Gah Road, Iqbal Road, Loha Bazaar Road, College Town Road , People Colony Road, Bhutta Ikram Ul Haq Road, New Disposal Work Road, Sharki Colony Road, Daniwal Road, Burewala Road, Main Three Marla Scheme Road, Main Road Ghafoor Town, Main People Colony Road. These are the roads which converge traffic flow and diverge to streets in different parts of the town. The capacity of some of these roads has been reduced by slow moving vehicles and vendors although the overall road condition is satisfactory.

4.1.1 Condition of TMA Roads

Since Vehari is a planned town therefore, roads are laid by taking care of planning requirements. Most of the roads and older parts of the town have wide roads and streets. Subsequently, temporary and permanent encroachments have narrowed down several roads. There are five crossings chowks in the town that regulate the flow of traffic. These chowks don't have traffic signals. These chowks are: Khanewal Chowk, Vehari Chowk, Quaid –e-Azam Chowk and Gol Chowk. *Detail of road data and crossings of Vehari are appended as Annex – A.* Following table presents major roads which are under the control of Provincial highway department. These are including Khanewal road, Multan-Lahore road and Hasilpur/Luddon Road.

Vehari has a good network of wide streets and are well kept. But, road cuts due to suigas, telephone and water supply has presently destroyed the surface of most roads.

These road cuts are up to 8 feet wide at many locations. Repairing of these cuts would make these roads ride able again.

Table 4.1: Provincial Highways

	Name of Road	Controlling Department
1	`Khanewal Road	Provincial high way
2	Multan- Lahore Road	Provincial high way
3	Hasilpur/Luddon Road	Provincial high way

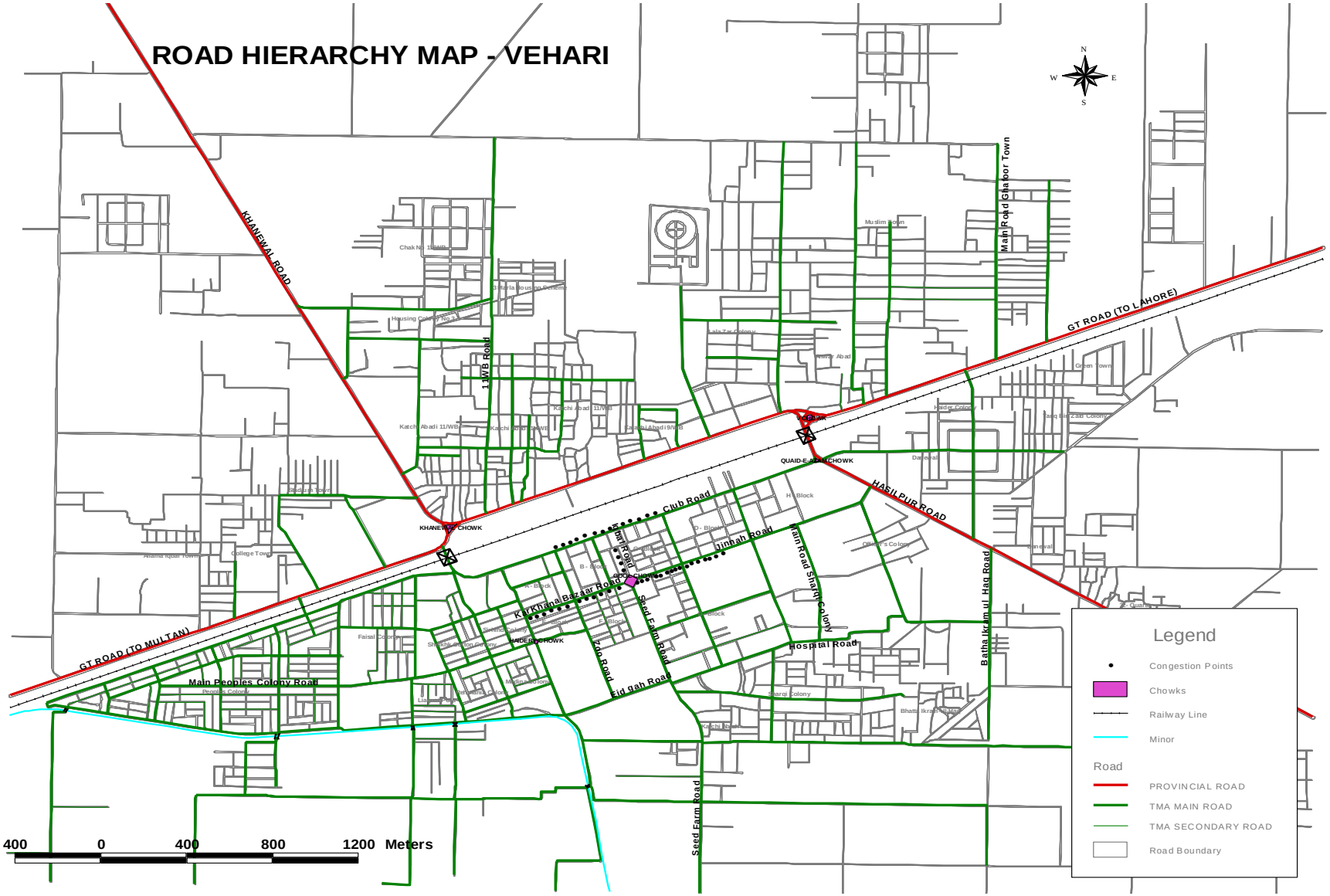


Figure 4.1: Road Hierarchy Map

4.1.2 Traffic Congestion

Due to a planned town and construction of the BY-Pass road traffic congestion is not a severe problem in Vehari. Still, Rail Bazar, Chori Bazar road, Karkhana road, Club Road and Trust Plaza do have temporary and permanent encroachment problem. In addition, haphazard parking and street hawkers result in traffic obstruction and underutilizing of right-of-way.

4.1.3 Parking

There are no proper off-street parking lots in the town. This forces vehicle owners to park on the roads, streets and bazaars. As a result, disorganized and chaotic pattern of parking occurs and reduces road capacity.

4.2 Street Lights

Most of the town is covered by an extensive street light network. Almost all colonies and main roads are lit with tubelights and many have mercury and sodium bulbs. The only unserved areas are 3-Marla Scheme and Pir Murad Colony. Street light staff comprises of Light Superintendent, two electricians, two linemen and one assistant electrician and a helper. Details of street lights on roads in and in streets and mohallas in Vehari are given in Annex-B

Table 4.2: Expenditure in Street Lights

	Actual 2005-06	Actual 2006-07	Actual 2007-08	Budgeted 2008-09
Establishment	432,579	486,339	571,029	910,100
Other Cost	5,932,281	7,989,090	8,677,578	10,160,000
Total	6,364,860	8,475,429	9,248,607	11,070,100

The above table indicates that management cost is approximately 6-7 % of the total expenditure in street light.

4.3 Water Supply

4.3.1 Service Area

Approximately 75 % of the entire town is served with water supply system whereas rest of the area is without it and people have their own sources of water mostly hand pumps / power pumps. Some areas are partly served with this facility. Details of Un-served areas are given at Annex-C

4.3.2 Drinking Water Sources

Vehari town is a plain with a minor slope of its

general area towards North South. It lies between Sukh Bias non perennial Nala and River Sutlaj. The shallow sub soil water of Vehari town is brackish and unfit for human consumption. However the water at deeper depth is of good quality. Present source of water supply system in the town is with deep T/wells installed at depth of 400ft. Water table is at 60-65 feet. Most of the town is dependent on TMA water supply. Water supply coverage of the town is about 75%. Although source is deep but All T/Wells are installed near Pak Pattan Canal. While two tube wells in D.H.Q and Officer's Colony respectively are installed in town at 400ft depth and quality is quite good.

4.3.3 Consumer Connections

The total number of consumer connection is 6945. Installation of house service connections is usually performed by plumbers of TMA. PHED is going to replace 5900 consumer connections. Bills of Water Supply are issued and people either pay at TMA office each year or TMA staff collects from households. As per TMA staff consumers usually pay their dues. Present domestic tariff is Rs 50 per month and was revised in year 2007. Very few commercial connections exist and the tariff is Rs.100 per month. Connections are not metered and consumers pay by norms rather than actual consumption. Consumption is generally excessive and inefficient in relation to uses of water. Piped drinking water is used for firefighting, while non potable ground water is generally available in the city. Piped water is also used extensive for horticulture.

4.3.4 Water Demand

As per 1998 census population of the town is 92, 334 persons and projected population for the year 1998 is 128, 495 persons. The average daily water demand is 6,424,750 gallons calculated based on the PHED standard of per capita per day demand (50 gallons/capita/day). Total water production per day is 2,430,000. So the total water demand is 7, 207, 125 gallons per day. Following table presents the detailed calculations of water demand.

Water Demand of 2008

Description	Quantity	Unit
Population as 1998 Census	92,334	Persons
Project Population in 2008 with a growth rate of 3.36	128,495	Persons
As per PHED Criteria Per Capita water Consumption	50	GPCD
Average Daily Demand	6,424,750	Gallons
Maximum Daily Demand	9,637,125	Gallons
Present water production	2,430,000	Gallons
Presently Deficiency	7,207,125	Gallons
If all existing tubewell connected and work for 16 hours then Possible Water Production	5,400,000	Gallons
If all existing tubewell connected and work for 16 hours then Deficiency	4,237,125	Gallons

4.3.5 Water Supply Schemes

- **Old Schemes**

A water supply distribution net work of C.I and G.I Pipes was laid in 1963-64 in A,B,C,D,E,G and H Blocks. A small project was also launched in year 1983-84 as Phase -1 where as phase –II was implemented in year 1985. Under the system, water is brought to city through rising mains. Mainly southern part of the city was surveyed. In the Northern section only ChakNo.11/W.B was provided with this facility. To meet the ultimate needs comprehensive water supply scheme was initiated in 1986 and approved at cost of Rs.18.37 million on 03-09-1989.

- **Ongoing Scheme**

A scheme is in progress and 90% work has been completed. It was started in year 2006 and its main features are as under:

- Laying of PVC Pipes of 3" ,4",6"and 8" i/d of 64000Rft
- Laying of AC Pipes of 6",12",14"and 16 i/d of 3300 Rft
- Replacement of House connections 5900 Nos
- Tube Well, Pump House, Pumping Machinery 2 jobs
- Hypo Chlorinator 14 Nos.
- Establishment of Laboratory

- **New Scheme**

A scheme is under consideration with PHED to provide piped water supply in un-served localities of Pir Murad Colony, College Colony and Stadium Colony.

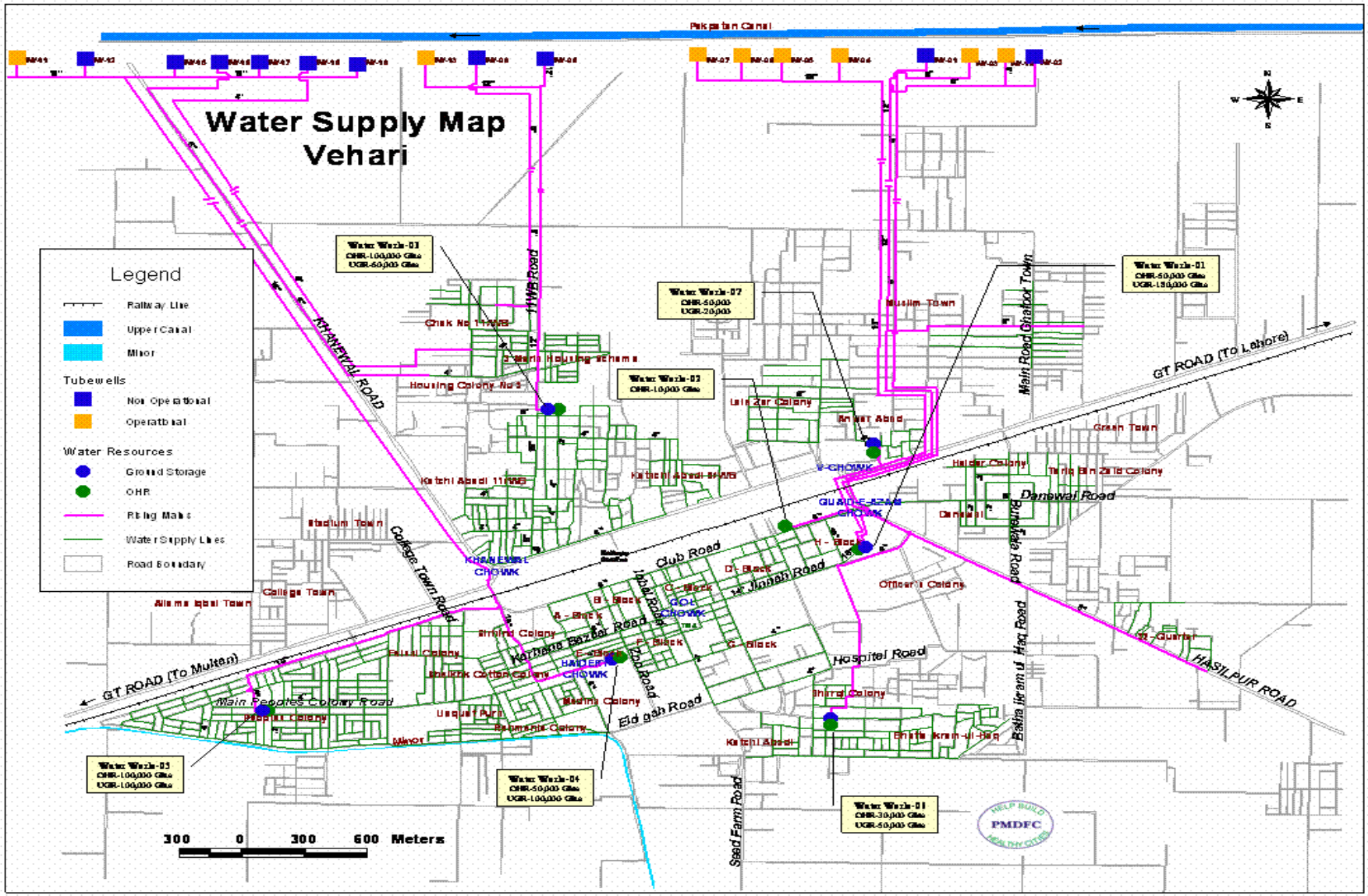


Figure 4.2: Water Supply Map

4.3.6 Water Distribution Network

Since about 75 % of the Vihari Town is covered by water supply whereas the rest of the population is constrained to drink shallow brackish water through privately installed hand pumps/power pumps. The quality of water from these shallow source is not so good and is mostly contaminated. Therefore, situation necessitates expansion of distribution network to those areas which are without piped water supply.

- **Tube Wells**

To feed the present water supply system, there are 19 tube wells out of which 8 tube wells are operational and working 12 to 16 hours/day Existing Situation of tube wells is summarized in the table given below. *Details of Tube wells and present production capacity based on design discharge are appended at Annex-D*

- **Water Storage**

Water storage is of two types i.e. under ground and overhead. There are seven under ground storage tanks and seven overhead reservoirs. Details of these are given in table below:

Table 4.3: Under Ground Water Storage

Sr. No.	Location / Water Works	Diameter (ft)	Capacity (gallons)	Status	Remarks
WW-1	Water Work Block-H	35	80,000	Operational	Needs Repairing
WW-2	Tanki General Bus Stand	50	125,000	Operational	
WW-3	9-11/WB	50	125,000	Operational	Needs Repairing
WW-4	Madina Colony	50	125,000	Operational	Needs Repairing
WW-5	Tamoor Shaeed Colony	50	125,000	Operational	
WW-6	Sharki Colony	25	50,000	Operational	Needs Repairing
WW-7	Anwar Abad	25	50,000	Operational	Needs Repairing
Total Capacity			680,000		

Table 4.4: Over Head Water Tanks

Sr. No.	Location / Water Works	Type RCC/ Brick Masonry	Capacity (gallons)	Year of construction	Status	Remarks
WW-1	Water Work Block-H	Brick masonry	50,000	1962	Operational	
WW-2	Tanki General Bus Stand	Brick masonry	50,000	1970	Operational	
WW-3	9-11/WB	RCC	100,000	1990	Operational	
WW-4	Madina Colony	R.C.C	50,000	2000	Operational	Leakage in delivery pipe
WW-5	Tamoor Shaeed Colony	R.C.C	100,000	1990	Operational	Leakage in delivery pipe
WW-6	Sharki Colony	R.C.C	30,000	1988	Operational	Leakage in delivery pipe
WW-7	Anwar Abad	R.C.C	50,000	2007	Operational	Leakage in delivery pipe
Total Capacity			430,000			

- **Chlorination**

No chlorination is done by TMA staff. Bleaching powder solution is used monthly and During the rainy days it is added after 15 days basis.

4.3.7 Establishment in Water Supply Branch

There is a total of 40 sanctioned posts water supply branch, out of these 29 posts are filled. These filled posts include superintendent, plumber and tube well operators.

S.No	Post	Sanctioned Strength	Existing Strength
1	Superintendent	1	1
2	Junior Clerk	1	-
3	Plumber	4	3
4	Tube-well Operator	32	24
5	Fitter Cooly	1	1

Table 4.5: Water Supply Expenditure

Sub-Heads	Actual 2005-06	Actual 2006-07	Actual 2007-08	Budgeted 2008-09
Establishment	4,125,398	4,537,230	5,229,283	6,438,800
Other Costs	7,645,547	7,209,210	10,208,096	16,935,000
Total	**11,770,945**	**11,746,440**	**15,437,379**	**23,373,800**

Table 4.6: Water Rate Collection

Year	Amount Recovered	% recovery
2005-06	1,598,479	43%
2006-07	1,548,077	42%
2007-08	851,361	23%

Water rate collection was decreased in Year 2007-08 due to the improvement of water supply network by PHED. It is estimated that it would improve in coming years as most of the development work has been completed and new connections are being started. Still, 40 % is also low as compared to other cities in Punjab.

4.3.8 Needs

It seems that there is acute shortage of water in the town where as others are un-served. The discharge of present T/Wells needs to be measured and the additional source capacity needs to be worked out for cater for water shortage and un-served areas. Trail bores may be done in the town for new source.

Distribution System:

I. Net work needs to be provided in the un-served areas.
II. OHRs need to be put in operation.

4.4 Sewerage

4.4.1 Existing Sewerage System

Topography of Vehari town is flat. There are five disposal stations in the town; untreated waste water is being sold to the farmers by annual tender. For sewer cleaning 20 sewer man have been deputed whose duty is to clean the sewer lines regularly. De-silting is also being done manually. The disposal stations are working maximum hours so that water should not over flow in sewer lines, but during rainy season it is difficult to control and flooding occurs in different areas. This situation shows that disposal stations capacity should be improved. There is a net work of pipes sizing 9”,12”,15”,18”,24”,27” and 30” in the town. The system comprises of five disposal works those are summarized as under:

Table 4.7: Disposal Works

Sr.	Location	Collecting Tanks		Screening Chambers		Present Condition
		Nos	Size	Nos	Size	
1	11/WB (new unit)	2	27’	1	12’	Operational
	11/WB (old unit)			1	8’	Pipes are repairing
2	32-Quarter	2	27’	1	12’	Operational
3	Tamoor Shaheed Colony (new unit)	2	27’	1	12’	Operational
	Tamoor Shaheed Colony (new unit)			1	12’	Operational
4	Peer Muraad	1	25’	1	8’	Operational
5	Sharqi Colony Mini Disposal	2	25’	1	12’	Operational

Source: TMA Record

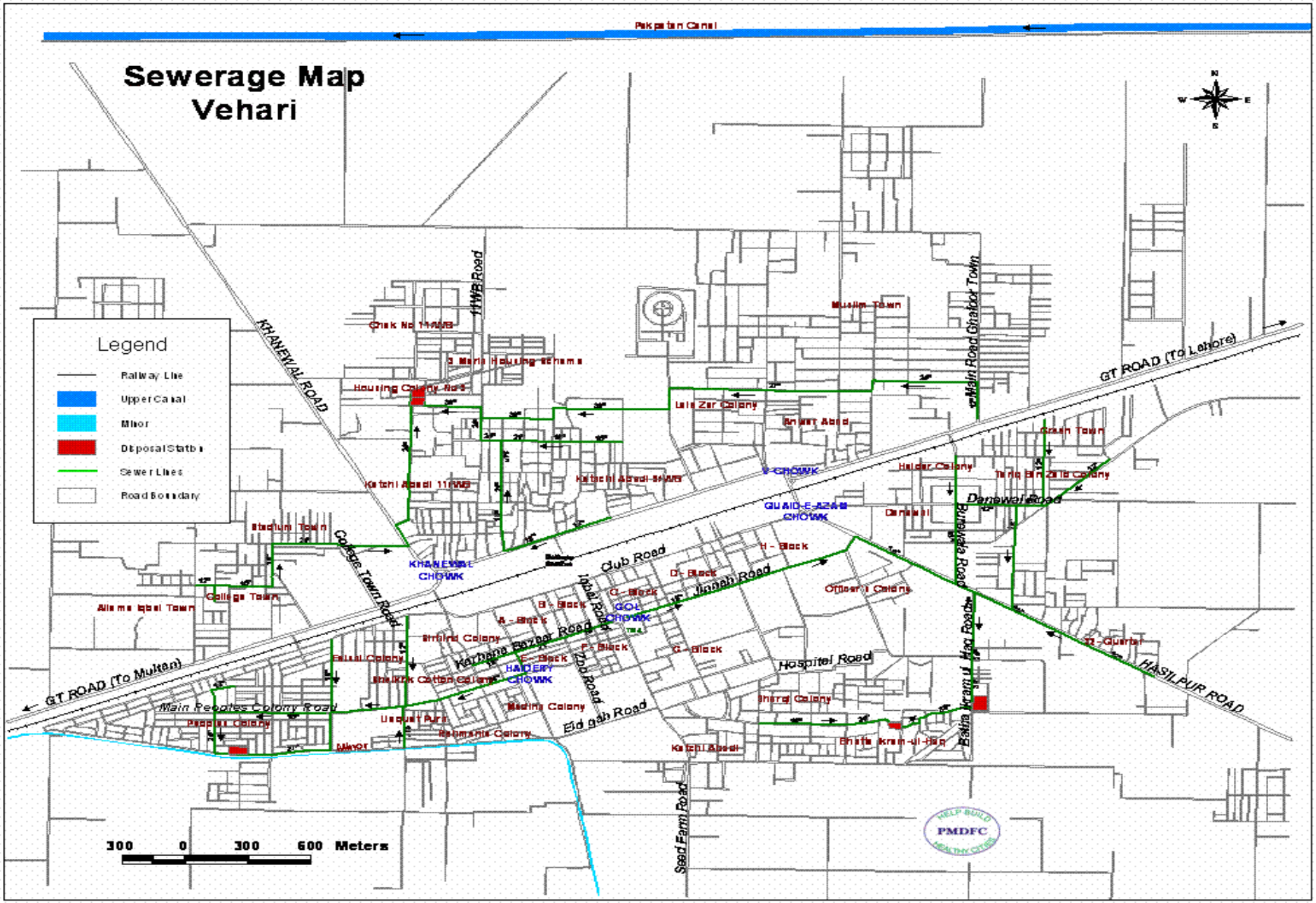


Figure 4.3: Sewerage Map

4.4.2 Sewerage Coverage

Sewerage coverage is 90 % of the town. Un-served Areas include Green Town. Areas served with open drain include Bhata Ikram-ul-Haq (Katchi Abadi). List of problematic areas is given below:

Table 4.8: Problematic Areas

Sr.	Location	Problem
1	People's Colony	Blockage
2	Lakker Mandi	Not connected with trunk Sewer flooding occurs
3	9/WB Katchi Abadi	Not properly leveled, Flooding occurs
4	11/WB Katchi Abadi	Not properly leveled, Flooding occurs
5	Muslim Town 9/WB	Not properly leveled, Flooding occurs
6	Anwar Abad	Not properly leveled, Flooding occurs

Details of Pumping Machinery, trunk sewer and ultimate disposal are given at Annex-E

Table 4.9: Contingency Expenditure – Disposal Works

Actual 2004-05	Actual 2005-06	Actual 2006-07	Revised 2007-08
2,850,479	2,404,797	3,007,036	4,079,302

4.4.3 Needs

There are five disposal stations in the town and those need improvement. Town has grown from when it was developed many years back. There is lot of stress on its trunk sewer; especially in monsoon season, flooding occurs in different locations. Machinery like suction Unit and Jetting Units can be very helpful to improve the sewerage system of the town.

Sewage is being disposed of in open fields without treatment. Improvement and extension of Sewerage system is a real need of the town, provided that TMA agreed to acquire required land for waste water treatment.

4.5 Solid Waste Management

4.5.1 Existing Collection System

After sweeping the streets and roads the sanitary workers carry the solid waste in wheel barrows driven manually and collected at certain collection points. Solid waste generation in the town is approximately 51 tons per day. Due to shortage of equipment and manpower TMA Vehari is not capable to serve the entire area of the town. As such some areas have good service delivery level whereas other having lesser attention gets poor service. Collection efficiency is approximately 60%.

There are 48 secondary collection points, details of these are listed at *Annex-F*

4.5.2 Existing Land Fill/Dumping Sites

No proper landfill site is available in or out side of the town. Solid waste is openly dumped in the following sites:

- Near PASSCO
- Near Batha Shadi Khan
- Anwar abad

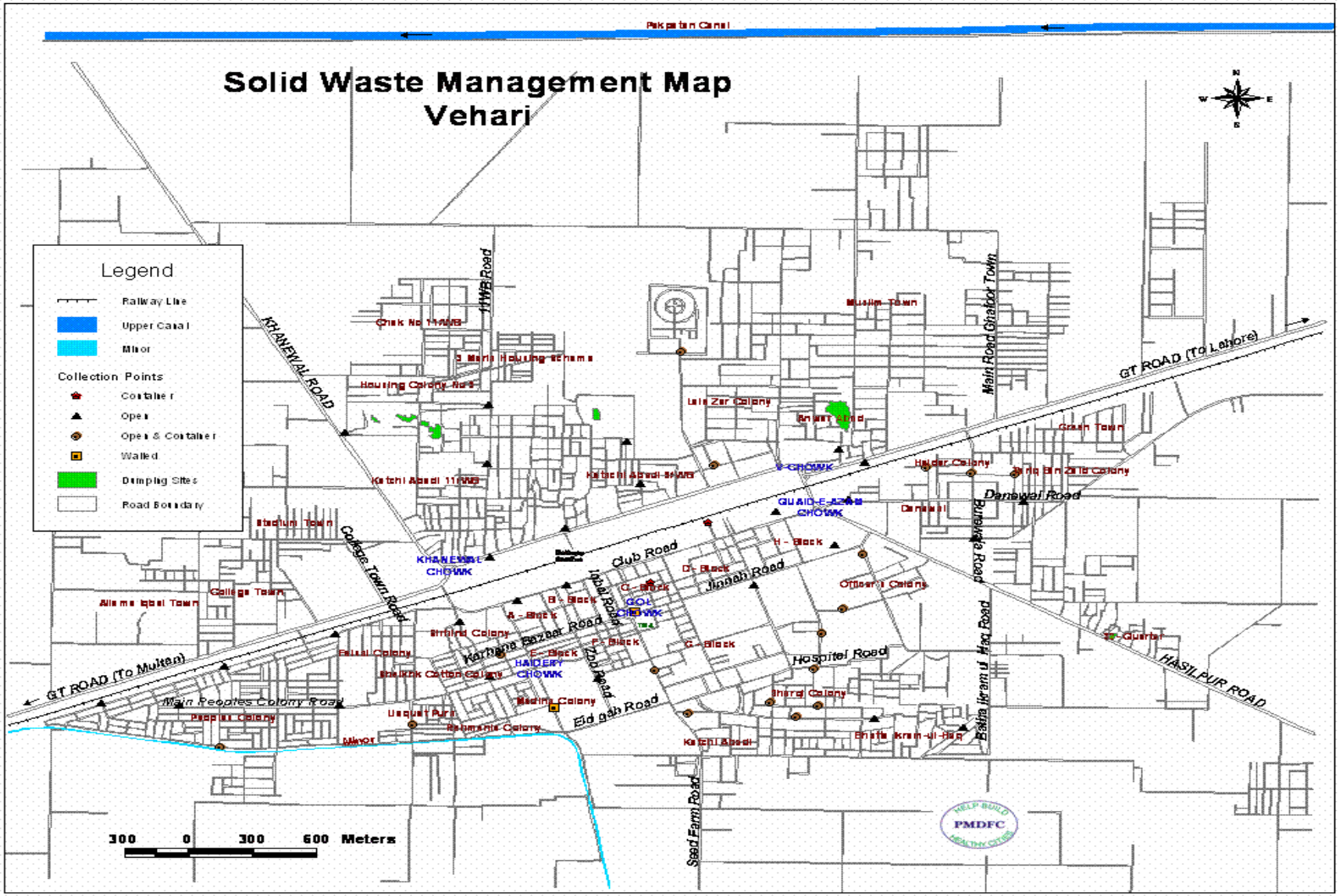


Figure 4.4: Solid Waste Management Map

4.5.3 Area Required for Landfill

TMA required 11 acres land till 2018 and 28 acres land till 2028 for landfills.

Volume of Solid Waste Generated and Land Requirement for Sanitary Landfill Vehari

Year	Population	Daily Collection					Yearly Vol.	Vol. for Landfill	Area for Landfill	Total Area Required including 10% additional area for Infrastructure
		Per Capita	Total Waste	Collection Efficiency	Total Wt.	Total Vol.				
		kg	Tons	%	Tons	m^3	m^3	m^3	Acre	Acre
2008	128,495	0.400	51.40	80.0	41.12	34	12,507	12,507	0.7	0.76
2013	151,583	0.425	64.35	81.6	52.51	44	15,973	84,557	4.6	5.11
2018	178,818	0.457	81.78	83.6	68.37	57	20,796	178,386	9.8	10.78
2023	210,947	0.493	103.93	85.6	88.97	74	27,061	300,508	16.5	18.15
2028	248,849	0.531	132.08	87.6	115.71	96	35,194	459,364	25.2	27.75

4.5.4 Labor and Equipment Maintenance

There is one chief sanitary inspector working in TMA and post of Sanitary inspector is laying vacant. A total of 46 sanitary workers are working against 77 sanction posts. The existing staff is insufficient to perform the functions of SWM. The staff work in three (3) shifts, from 5 am – 7:30 am, from 9 am - 11am and from 5 pm – 7 pm. Detail of staff is presented in Table

Table 4.10: Sanitation Staff

S.No	Post	Sanctioned Strength	Existing Strength
1	Chief Sanitary Inspector	1	1
2	Assistant Sanitation	1	-
3	Sanitation Inspector	2	-
4	Driver	4	4
5	Sanitary Supervisor	5	5
6	Sanitary Worker	77	46

Source: TMA Record

The details of available equipment and machinery are presented in the Table, it is evident from the table there are only two tractor and trolleys to lift the waste of town, and there are eighty wheel barrows but out of these sixty are in working condition whereas twenty are out of order.

Table 4.11: Equipment available with TMA Vehari

Sr. No.	Description	Numbers	Present Status
1	Wheel barrows	80	60 nos. in working order
2	Tractor trolleys (manual loading/ unloading)	2	1in Working order
3	Mechanized loader equipment	1	Working order
4	Container carrier	1	Working order
5	Dum(hydraulic)	4	3 nos. are in working order

Sub-Heads	Actual 2005-06	Actual 2006-07	Actual 2007-08	Budgeted 2008-09
Establishment	10,471839	11,477,014	12,444,560	18,599,200
POL	1,713,759	1,253,489	1,686998	2,000,000
Repair & Replacement	622,147	701,148	680921	1,650,000
Total	**12,807,745**	**13,431,651**	**14,812,479**	**22,249,200**

Source: TMA Record and Field Visits

4.6 Fire Fighting

4.6.1 Existing Fire Fighting Arrangements

Fire station is located at a central location at Jinnah Road. It is one of the best maintained fire fighting station in Punjab TMAs. Structure comprises of Three sheds (16' X 36') and two garages of sizes 16' X 24' each. Its area is 4023 sq ft. Office staff room, toilets, verandah and reception have a combined area of 416 sq ft/ Cout yard is 864 sq ft. TMA has three (3) fire engine, Heno, model 2004 having 2000 gallon capacity, and two 1984 Bedford trucks with 1500 Gallon capacities. Total number of fire fighting incidents occurred during the year 2007-08 are 54, whereas the same incidents for the year 2006-07 are 61. Most of the above incidences occurred in cotton godowns as Vehari is a major cotton growing area.

A total of 19 persons are working for fire fighting wing. There is one fire station in charge, 3 shift incharges and 9 firemen. Details of these are presented in table.

Table 4.12: Manpower for fire fighting[4]

S.No	Designation	Posts
1.	Fire Station In charge/Suptd.	1
2.	Shift Incharge	3
3.	Fireman	9
4.	Driver, Fire brigade	6
Total		***19***

TMA has Fire Trolley with a mounted pump and a potable pump. All these equipments are well maintained. Details of vehicle and equipment available with TMA are given in table.

[4] *Source: TMA Record*

Table 4.13: Fire Fighting Machinery

Sr. #	Name/ Model	Heavy/Light Vehicle	Water Capacity
1	HenoPak (2004)	Heavy	1500 Gallons
2	Bedford (1984)	Heavy	1500 Gallons
3	Mazda 3000(1985)	Light	500 Gallons
4	Fire Fighting Trolley (mounted) (1990)	-	-
5	Suzuki Pick-up (portable Pump)	-	-

4.6.2 Fire Refill Points

Existing fire refill points are located at Ghalla Mandi and In Housing scheme. These are connected with the tube wells. Both of these points are operational.

4.6.3 Overall situation of Fire Fighting Arrangements

Above information portrays a very organized and well kept fire station that serves the town as well as the adjoining areas in an efficient manner. Fire engines equipment is sufficient and is kept in nice condition. This fire station can be taken as an example of best practices in TMAs.

Table 4.14: Overall situation of Fire Fighting Arrangements

Sub-Heads	Actual 2005-06	Actual 2006-07	Actual 2007-08	Budgeted 2008-09
Establishment	2,085,692	2,235,244	2,636,680	4,876,600
POL	493,612	387,935	405,954	600,000
Repair & Replacement	122,754	147,104	190,633	300,000
Total	2,702,058	2,770,283	3,233,267	5,776,600

4.7 Parks

TMA Vehari has developed several parks in the town. Most of them were developed on ponds and depressions. From Parks Map it is clear that they are spatially placed to serve most of the population. The only exception is non-developed Rafique Park and Ayesha Park. Following is brief description of the parks in Vehari:

4.7.1 Chandani Park

It is a big park maintained by TMA along Jinnah Road. It is strategically located and is surrounded by Civil Hospital, Vehari Club, Govt. Model High School etc. It has good turfing and plantation. The Park is equipped with outdoor children games, and electric lights. It is fortified having walkways and water areas in it.

4.7.2 Quaid-e-Azam Park

This a beautiful small park along Eid Gah Road surrounded by the residential areas like Shrarki Colony. It is fortified by wall having good turfing and beautiful plantation. It is a well maintained park with fountains and walkways, which are illuminated by the night-lights.

4.7.3 Muhammadi Park

Located along Saeed Farm Road and Eid Gah Road. It is opposite to the Hockey ground. It serves F and E blocks. It is next to Quid-e-Azam park.

4.7.4 Allama Iqbal Park

It is the main park north of railway line and serves the population of Anwar Abad along with other surrounding residential colonies such as, Lalazar Colony, Muslim Town etc. This park is deficient in plantation and turfing although there are electric lights and walkways in it.

4.7.5 Faisal Park

Located in the Faisal town north of Main Peoples Colony road. It serves several colonies such as Sheikh Cotton Colony, Sirhind Colony, Liaqat Pura, Rehmania Colony etc.

4.7.6 Sir Syed Park

This is approached by Jinnah road on the southern end and by Club Road from North. It is located with in the planned residential areas of H-Block.It is well maintained park with beautiful plantation and lightening having children games and lightening in the night.

In addition to these parks there are two more parks; Rafique Park along Khanewal Road and Ayesha Park along HasilPur Road.

4.7.7 Rafique Park

It is located on the main Khanewal road near Khanewal Chowk. It has a boundary wall. It is a depression where siolid waste has been dumped. TMA wants to develop a park here that would serve the north-west part of the town as there is no park in this location.

4.7.8 Ayesha Park

It is a small park in Ayesha Colony in east part of the town. after development, it would serve the entire area between south of railway track and east of Hasilpur road.

Table 4.15: Establishment in Gardening Branch

S.No	Post	Sanctioned Strength	Existing Strength
1	Floricultural Superintendent	1	-
2	Assistant Floricultural	1	1
3	Driver	1	1
4	Baildar	23	20
5	Chowkidar	1	1

Table 4.16: Expenditure Details

Sub-Heads	Actual 2005-06	Actual 2006-07	Actual 2007-08	Budgeted 2008-09
Establishment	2,217,868	2,270,754	2,668,622	4,031,100
Other Cost	125,631	234,577	140,105	877,000
Total	2,343,499	2,505,331	2,808,727	4,908,100

CHAPTER 5 WORKSHOP ON VISIONING AND PRIORITIZATION OF DEVELOPMENT SECTORS

Once the data was analyzed for all the sectors it provided with an understanding of the existing situation. The next step was to develop a vision for the development of the town. This establishes immediate priorities in order to achieve the desired objectives. For this purpose all the stake holders were formally gathered under one umbrella to agree a shared vision about the town.

The following methodology was adopted for the prioritization process

5.1 Pre-Workshop Consultations

PMDFC held meeting with Tehsil Nazim to discuss and finalize the workshop methodology. The purpose was to develop a common understanding and build consensus about the workshop methodology and the proposed projects. The Tehsil Nazim was requested to invite the participants for workshop and make available suitable venue for it.

PMDFC briefed how the workshop would proceed, including details about formation of groups, inter-sector prioritization (i.e. roads vs water supply vs sewerage etc.).

5.2 Workshop Proceedings

5.2.1 General

The work shop was held on 20th August, 08. It commenced at 2:30 and was concluded at around 4:00 p.m.

5.2.2 Workshop Participants

The number of participants was 35. The stake holders were mainly the representatives of the Tehsil Council, members of trade bodies, Union Naib Nazims and councilors.
List of participants is appended at the end of this report.

5.2.3 The Session

A presentation was given by PMDFC on the existing situation of the town and proposed list of projects. During the presentation, the participants took a keen interest, and asked a number of questions about the working of, and already projects under taken by PMDFC. They further updated the information about the existing situation, e.g. they added projects for street lights, as it was their priority in this particular sector.

5.2.4 Group Formation

The participants were divided into 5 groups at random, but it was ensured that people form same UC may not be included in the same group. Each group comprised of 6-7 persons.

In the first round, inter-sector prioritization was done. Each group was given a list of sectors i.e. roads, water supply, sewerage etc. They were to label their priority before each sector e.g. if they thought sewerage was the most important problem of the town they were to assign 1 before sewerage, etc.

The results of the Inter sector prioritization were entered into a 'priority matrix'. In this matrix, the group-wise sector priorities were entered as assigned by the group members. Based on the frequency of responses, the inter-sector prioritization was finalized.

5.3 Outcome of the Visioning Workshop/Stakeholder Consultations

Following were few points of discussion during prioritization workshop.

Solid Waste Management

- Less man power, equipment, vehicles is a hurdle in cleaning the town.
- 9-11/WB more collection is required, People's colony, Bhatta Shadi Khan, Bhatta Ikram, Anweabad, Muslim town, Peer Murad,

Water Supply

- Rehabilitation of the distribution system, old machinery needs to be replaced.
- Pir Murad colony, College town, Ghalla mandi, 9-11 these areas have contaminated water.
- Lalazar colony, Ooncha mohallah, 11-9, Bhatta Ikram ul Haq, Bhatta Shadi Khan, People's colony, Mohallah Paco Godam, Mohallah Ooran wala, ,Disposal works mohallah water supply, Anwerabad, Muslim town,Tariq bin ziyad colony, Danewal, Rehmat colony, Peer murad, Muslim town, Makkah town.

Roads/ street lights

- The electricity poles need to be replaces with the new ones.
- Shams masjid wali gali, Ghalla mandi, 9-11/wbbakery wali, Rehmania masjid, Faisil town, ,Peer murad, Danewal,Khanewal chowk, Taimur rasheed colony road.
- Club road, Paanch wali masjid to Gharbi Phatuk one way is required. General bus stand to railway line parallel to people's colony a new road is required.
- Lalazar street, Muslim town, Shaheen market are without street lights. W block does not have good roads.
- Anwerabad,lalazar colony, Iqbal town have bad roads.

Park

- Katchi abadi 9-11/w3 needs a park. Muslim town, burewala floor mills areas are lacking park.
- Rafique park,9-11/WB, V Block tanky chowk, Shamoor Shaheedcolony park, U block , Peoples colony., Sharqui sawedren block park.
- 3 marla housing scheme require park
- U &V blocks donot have parks.

Fire Fighting

- More vehicles and equipment is required.
- Across the railway line a fire station is needed.

Sewerage

- Anwarabad Katchi abadi has a big depression and gets filled with water during rains. Muslim town, Ghafoor town, Iqbal town, Jamal town, back of Floor mills require new sewerage system. Force main is exactly in the centre of the town. It should be extended. The force main of People's colony and Bhatta Ikram ul Haq should be at least 3 miles away from the town centre.
- 9-11/WB, Anwerabad, Muslim town, Inner city, Goal chowk, Ghalla mandi, peer Murad, college town, Bhatta Ikram, Bhatta Shadi Khan, Muslim town, People's colony, are without manhole covers.

5.4 Prioritized Sectors

Thus a prioritized list of projects was developed for TMA Vehari, as shown below:

Table 5.1: Prioritized Sectors

Sector	Priority	Sub-Project
Water supply	1	Improvement/Extension of Water supply Network
Sewerage	2	Improvement/Extension of sewerage Network
SWM	3	Improvement of SWM
Roads	4	Rehabilitation of Roads
Parks	5	Improvement of Parks
Fire Fighting	6	Improvement of Fire Fighting System

The prioritization process calls for the road map for the allocation of resources for the TMA. It is important to mention here that in vehari, sewerage was one of the most important problems of the town.

The Planning process adopted rules out the selection of projects at random or biasness, rather it reflects the ground realities and is demand driven. If the projects are not need based, they are not sustainable for long period of time and become redundant without any benefit to the community or the user. Even if such projects survive, they benefit only a specific group of people. It is therefore important for Infrastructure projects to be need

based and both beneficial to and acceptable to the community. To make it mandatory, the involvement of stakeholders was ensured at all stages of planning, including the process of prioritization of the development projects.

After the identification of sectors in the visioning workshop and assessing the options, the next step was to finalize the strategy and Action plans.

CHAPTER 6 INSTITUTIONAL ANALYSIS OF TMA VEHARI

6.1 Capacity Building at TMA

Field visit of TMA Vehari reveals that there is a dearth of I.T skills in the TMA. The staff in Engineering, Finance, Planning and Regulation offices can perform better through effective I.T. training. PMDFC is of the view that I.T training for TMA staff will be an important step towards the computerization of office records and will result in efficient office automation systems. Analysis of data will become easy and errors in record keeping would decrease to a considerable extent. Moreover, I.T skills are also essential for PMSIP interventions like Financial Management System, Complaint Tracking System etc.

PMDFC aims to develop the human resource base of its partner TMAs and considers improvement in service delivery inconceivable without a strong human resource base. TMA staff with right skills set can be expected to provide timely, cost-effective and reliable services to citizens.

In view of the above and on the request of TMA Vehari for basic computer training for its staff, PMDFC will fund computer training for the following TMA staff, at a local Computer Training Institute:

Sr. No.	Name of Trainee	Designation
1	Ch. Muhammad Saleem	TO (P&C)
2	Saif-Ullah Gill	Head Clerk
3	Zahid Hussain Shah	Sub Engineer
4	Habib Ahmad	Accounts Assistant
5	Wasim Iqbal	Junior Clerk
6	Muhammad Javaid	Junior Clerk
7	Amjad Hussain Anjum	Junior Clerk

6.2 Performance Management System

PMDFC is introducing Performance Management System in Year – II TMAs. Field assessment of the TMA reveals that data exists in rudimentary form regarding performance indicators on municipal services like water supply, solid waste, street lights and sewerage. However, there is lack of data tracking, updation and reporting culture

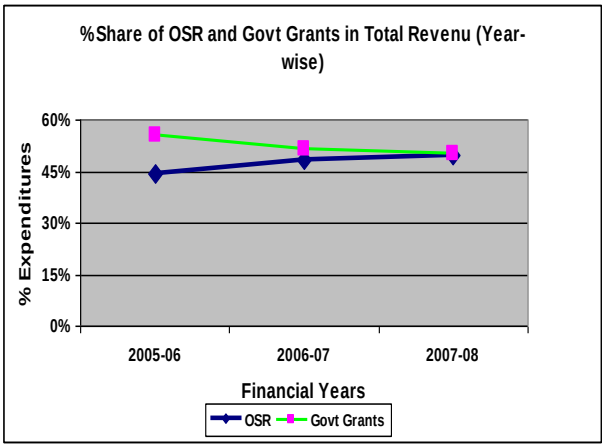
6.3 Financial Management System

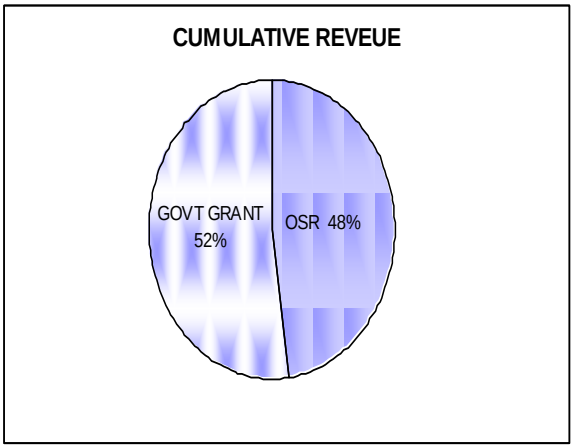
Law requires that no Local Government can pass a deficit budget. The intention is to provide built-in mechanism for fiscal efficiency. This constraint forces a Local Government to either raise revenue or to economize in expenditure or to do both. In general a local government has to maintain within its fiscal limits.

TMA staff is conversant with the budget formulation process but relies predominantly on the historical data for future projections. Monitoring committees are operative and audit is being conducted regularly.

A trend of (OSR) to total revenue is captured in the following table:

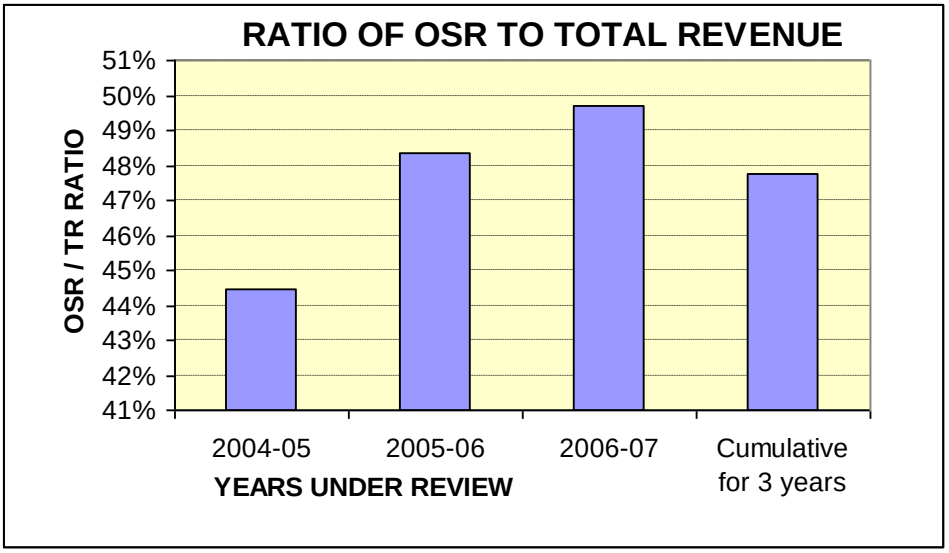
Source	2004-05	2005-06	2006-07	Cumulative	
Own Source Revenue	62,816,581	92,822,200	93,864,000	249,502,781	48%
Govt. Grants	78,413,000	99,249,700	95,064,000	272,726,700	52%
Total	141,229,581	192,071,900	188,928,000	522,229,481	100%





Following ratio of own source revenue to total revenue can be calculated from the above data.

Source	2004-05	2005-06	2006-07	Cumulative for 3 years
ratio i = osr/total rev	44%	48%	50%	48%



Ratio of Own Source Revenue (OSR) to total revenue has been increasing over the years. This ratio reflects the fiscal effort of the TMA and it is evident that, on average, the TMA is making efforts to maintain the same. The close examination of data reveals that the increase in the second and third year was due to increase in the grant from the govt. of Punjab for salary of defunct department.

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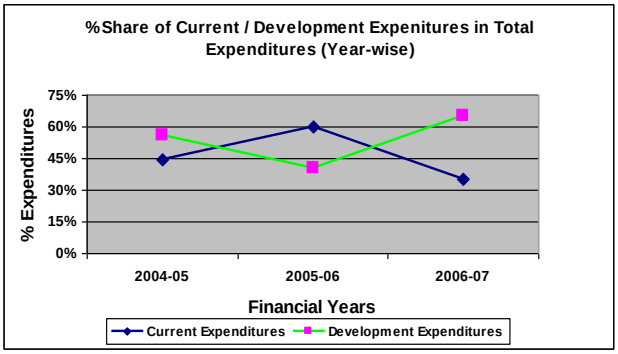
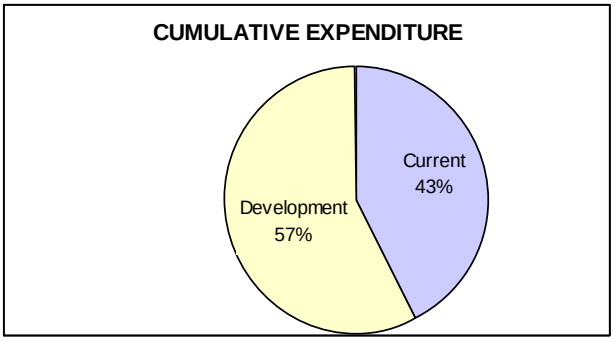
Following table shows comparitive analysis in the development and non-development expenditures over the years.

BUDGETED ESTIMATES	2005-06	2006-07	Cumulative	
Current Expenditures	71,718,103	97,961,400	169,679,503	45%
Development Expenditures	48,206,681	159,291,195	207,497,876	55%
Total Expenditures	119,924,784	257,252,595	377,177,379	100%

Actual Expenditures	2005-06	2006-07	Cumulative	
Current Expenditures	59,765,086	81,634,500	141,399,586	42%
Development Expenditures	40,172,234	151,705,900	191,878,134	58%
Total Expenditures	99,937,320	233,340,400	333,277,720	100%

Ratio II = D.EXP/D.BUDGET



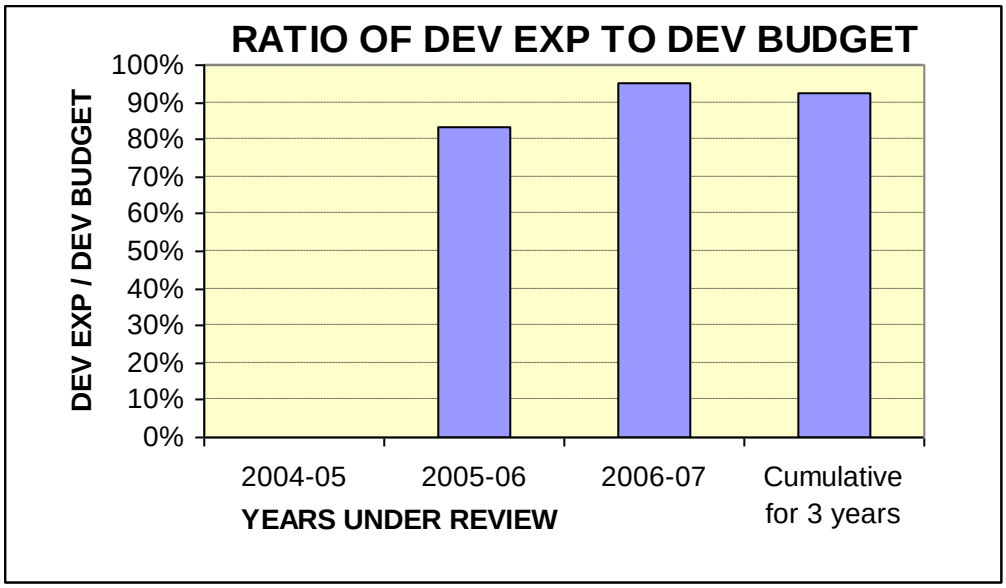


From the table above it is evident that there was an upward trend in the current expenditures of the TMA over the years. Similarly development expenditures show a bit

recession in the year 2005-06 and a strong rebound in the year 2006-07 which shows that some of the expenditures of year 2005-06 were incured in year 2006-07. However there is a positive sign on increase in development expenditures over three years.

From the above data performance of TMA regarding development expenditure can be studied against budgeted allocation for the same.

Source	2005-06	2006-07	Cumulative for 3 years
Ratio II = DEV. EXP/DEV. BUDG	83%	95%	92%



CHAPTER 7 OUTLINE STRUCTURE PLAN

Due to rapid urbanization, the cities in Punjab are growing in a haphazard manner, without any development control. The available infrastructure in these towns is deteriorating as the population pressure is not keeping pace with the available resources for the extension of the infrastructure. These towns face the problems like incompatible land uses, unhealthy environment, and loss of amenity. Hence, an Outline Structure Plan has been devised for Vehari. This plan identifies the growth potential in an economical and contiguous manner for future development of the town.

7.1 Brief Introduction

This plan has been prepared as a part of the planning report of Vehari. The report indicates that the town is expanding without proper planning and development control. The Outline structure plan, describes the **strategy and** outline **spatial plan.** In essence, the strategy identifies immediate development priorities for various service sectors. The spatial plan provides general information on planned land uses and the structure of development in the town. The Action plans are related to the priority sectors and areas identified in the strategy. Each Action plan consists of a number of proposals.

The plan provides a systematic approach to address the immediate development needs as well as long term development requirements for next 20 years. The plan highlights remedial measures to solve existing problems as well as suggests ways for future systematic growth of the town.

7.2 Visioning and Priority of Stakeholders

Focus of PMSIP planning is constant input of various stakeholders in all planning stages. Initial contact was developed with TMA leadership and the relevant staff. Field data collection was done in collaboration with line TMA staff and various segments of the society. This assisted in developing broad vision for existing fabric of the municipal services. Finally, a formal stakeholder workshop attended by elected representatives, NGOs, important citizens etc prioritized municipal services to finalize a vision for the town. This process is hence the amalgamation of technical inputs and the aspiration of the stakeholders' improved municipal services with an effective O & M framework were deemed a vision to improve life of citizens. Further, general consensus was developed on the priority sectors that needed immediate attention.

The order of importance to stakeholders for improving various municipal serves is as follows:
A.Water supply
B.Sewerage
C.Solid waste management
D.Roads
E.Parks
F.Fire fighting

Therefore, improvement in sanitation and improved sewerage is the most important need of the town followed by roads and solid waste management.

7.3 Development Plan

Having established the priorities, the next step of the Plan was to provide broad guidelines to suggest measures to control the future growth of the town. This has been determined after assessing the potentials and constraints in the existing urban set up. The plan is prepared with 20 years perspective from year 2010 to year 2030.

This section of the report deals with an outline of proposals regarding;

- Identifying the growth potentials for the town as a whole so that the provision and extension of infrastructure remains economical.
- Identifying gaps in exiting municipal services as well as identifying needs for the incremental population growth.
- Action plans to cater for needs of present and future population in municipal services. Capacity building for O&M of the municipal services is also proposed in these Action Plans.

Development Strategy

Vehari is a medium sized town of Punjab. It is strategically located in the vicinity of four important towns in either direction. For this reason, the growth of the town has taken place in a very congested manner.

The following development strategy is recommended for Vehari;

- Since the trend of growth is towards north-east and south, so development should be encouraged in this direction.
- Decentralization, by proposing more than one growth centers in either directions.
- To improve the flow of traffic within the town by improving physical condition of the existing roads. Linkages be improved within the neighborhoods so as to lessen the pressure of traffic on the town centre, Improving the circulation pattern within the town by improving the inter neighborhood linkages.
- Provision of a park in the town.
- Improving the existing infrastructure, its maintenance and operation.
- Provision of municipal infrastructure to the newly suggested growth corridors.
- Inculcate Operational & Maintenance culture with provision of capacity building for the same.

Table 7.1: Population Projections

Year	1998	2010	2030	Incremental population for next 20 years
Population	94,343	130,492	224,066	93574

Growth rate =2.74 %

The population of the Vehari according to 1998 census was 94,343 persons. The estimated population for 2030 is 224,066 persons, i.e at the end of plan period. The total area occupied by the urban uses or the built up area is 3000 acres. The incremental population is estimated to be 93,574 for next 20 years time. This has been calculated by using the growth rate 2.74 %.

7.4 Growth Direction

Vehari town is growing in two directions i.e. north-east and south. In north-east it is growing along Burewala road. A scheme of 100 acres has been developed along this road and some other schemes are also being developed. In southern direction the development is taking place opposite of Peoples colony and Liaquat Pura. This development is taking place due to existing road infrastructure and surrounding villages. The plot sizes in these housing scheme vary from 5-3 marlas and it accommodating low income people e.g. Aljannat, Canal view and Sahiwal city.

7.5 Katchi Abadies

There are total ten kachi abadies in Vehari, out of which seven katchi abadis are approved/transferred whereas three katchi abadis are unapproved. Out of seven approved katchi abadis three are located in the north of Verhari town namely, Chak Number 9/WB and Chak Number 11/WB along Multan Road, Anwar Abad along Burewala Road. Katchi abadis located in the south of town are Liaquat Pura along Peoples Colony Road, Bhata Ikramulhaq near Sherqi Colony in the south-west of Hasilpur road, Bhata Shadi Khan along ludden Road and Misali Bagh along Seed Farm Road near Girls secondary school.

There are 4,276 dwelling units in the seven transferred Katchi Abadis, and proprietary rights have been give to 4, 081 dwelling units. About 70% of the population of these abadis is provided with water supply, sewerage system, street light and other municipal facilities.

7.6 Densification of the Existing Built-Up Area

Densification criteria vary from city to city. Each city has its own growth and development potential, based on economic activity, social, cultural and geographically strategic importance. Not all of the incremental population shifts towards the newly developed areas, rather some of the percentage is absorbed in the existing one. This is mainly because of the economic reasons. Its most serious consequences are, the overburdening of the existing infrastructure, therefore upgrading may be needed with the passage of time.

The density map above shows existing density in the town. Since the dark brown area is the most densely populated and is the oldest part of the town, there fore it is expected that not much vertical expansion occurs. Also, the structures are deteriorated and in shabby condition. The road widths are narrow and irregular. These structures are unable to bear the load of vertical expansion. Therefore, in this area densification would be low, i.e. between 10-20 % is expected in the plan period. Light brown area is relatively less dense area. This part of the town grew pre partition. The approximate densification would be 20-30 % that may occur in this area during the plan period. Yellow area is sparsely populated and 50-60 % may be densification may occur in the plan period. This part of the town is recently developing area. Here new developments are taking place. This part also determines the growth direction of the town.

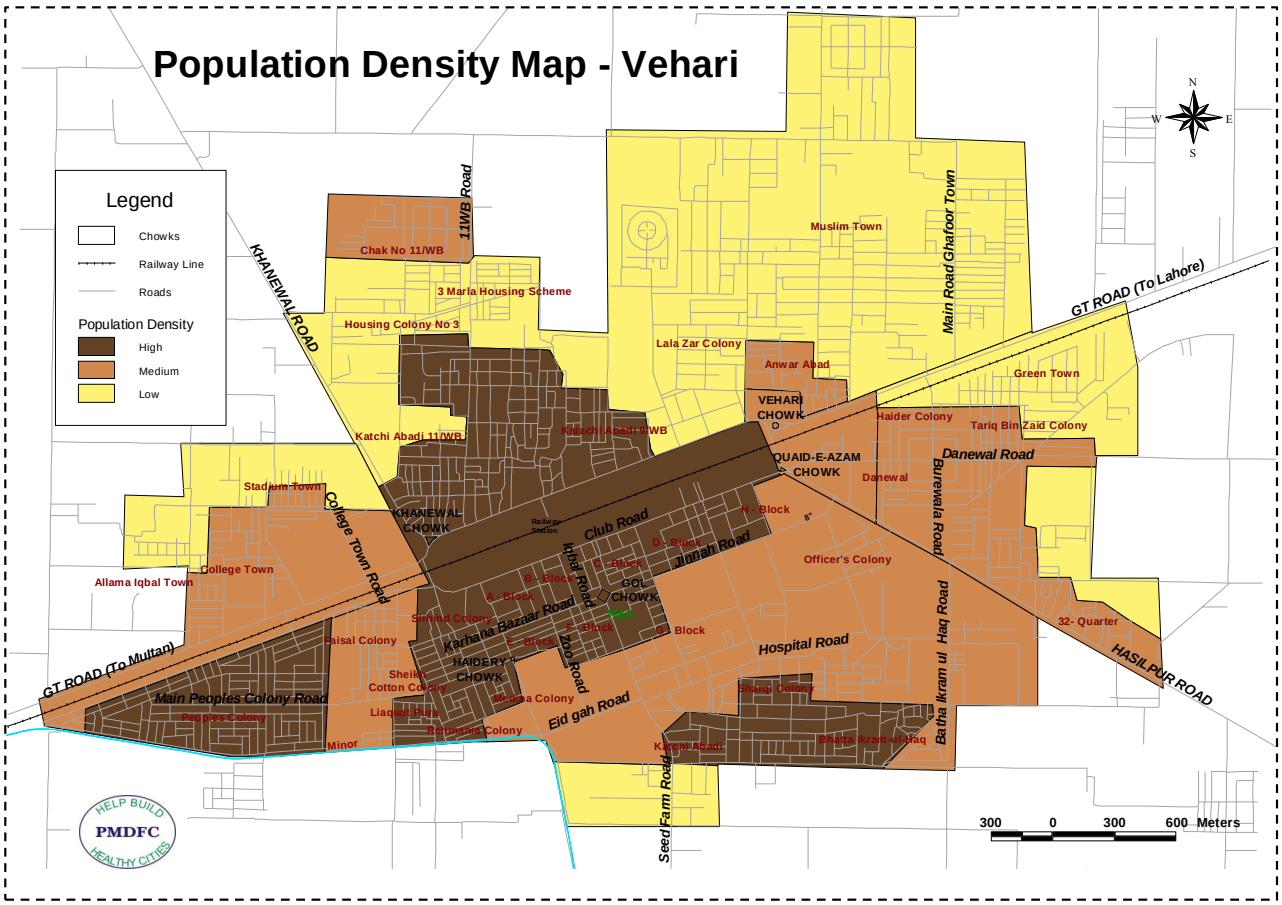


Figure 7.1: Population Density Map

7.7 Land Requirements for Future Urban Expansion

To identify the area required for future growth depends upon two important criterias. First is the location criteria and the second is the allocation criteria of land. The location criteria explain the availability of land in terms of the direction of growth, with respect to physical, socio-economic factors.

The allocation is defines the density. In turn the density determines the area requirement. The proposed growth strategy recommends filling up these vacant pockets first, then opening up new areas for development.

Present built up area of the town is 3000 acres. Taking present population of 130,492 present density is 43 persons/acre. Following table indicates land requirement for residential purposes for the plan period.

Table 7.2: Incremental Population

Year	2010-2015	2015-2020	2020-2025	2025-2030	Total
Incremental population	18,884	21,618	24,745	28,327	93,574
After taking account densification factor of 30 %	13,219	15,133	17,322	19,829	65,503
Residential Land Requirement (Acres)*	307	351	402	461	1,521

* Residential density of 43 persons/acre are assumed for proposed land use plan

As residential area is approximately 70 % of the total land requirement for a small town such as Daska, total land requirement would be 1,521*3/10=456+1,521
= 1,977 acres.

7.8 Proposals

The strategy suggests improving the connectivity among different parts of the town and filling of the vacant pockets first. In case of Vehari, it is a planned town and is expanding in two distinct directions. The proposal are as follows:

First stage

- ***Proposal I: Neighbourhood centre along Hasilpur road & GT Road:***

Since the town is growing in southern and north east direction neighborhood centres are proposed in these directions. This centre will comprise of commercial and institutional activities. These centers will serve the growing population so that the people need not to move to the town centres. This will enhance reduced travel time and short distance to traverse.This will also reduce burdon on the old commercial and institutional areas.These centers are proposed along main roads i.e GT road and Hasilpur road.

Second Stage

In the second stage, when the proposed, area as shown in the map, will be filled an outer ring road will be needed around the town. The proposal is as follows:

- ***Proposal II:Ring Road***

A ring road is proposed in the north east and south east of the town. The concept behind the proposal is that when the proposed area will be filled this road will act as a by pass to the GT road.

- . ***Proposal II: Park***

There are many green areas the west and central part of the town. For the proposed area, a park is proposed along the by pass road. It is expected that when development will reach its fullest the commercial activities will start along the main roads. There will be more traffic. In order to avoid congestion a park is proposed in the second stage.

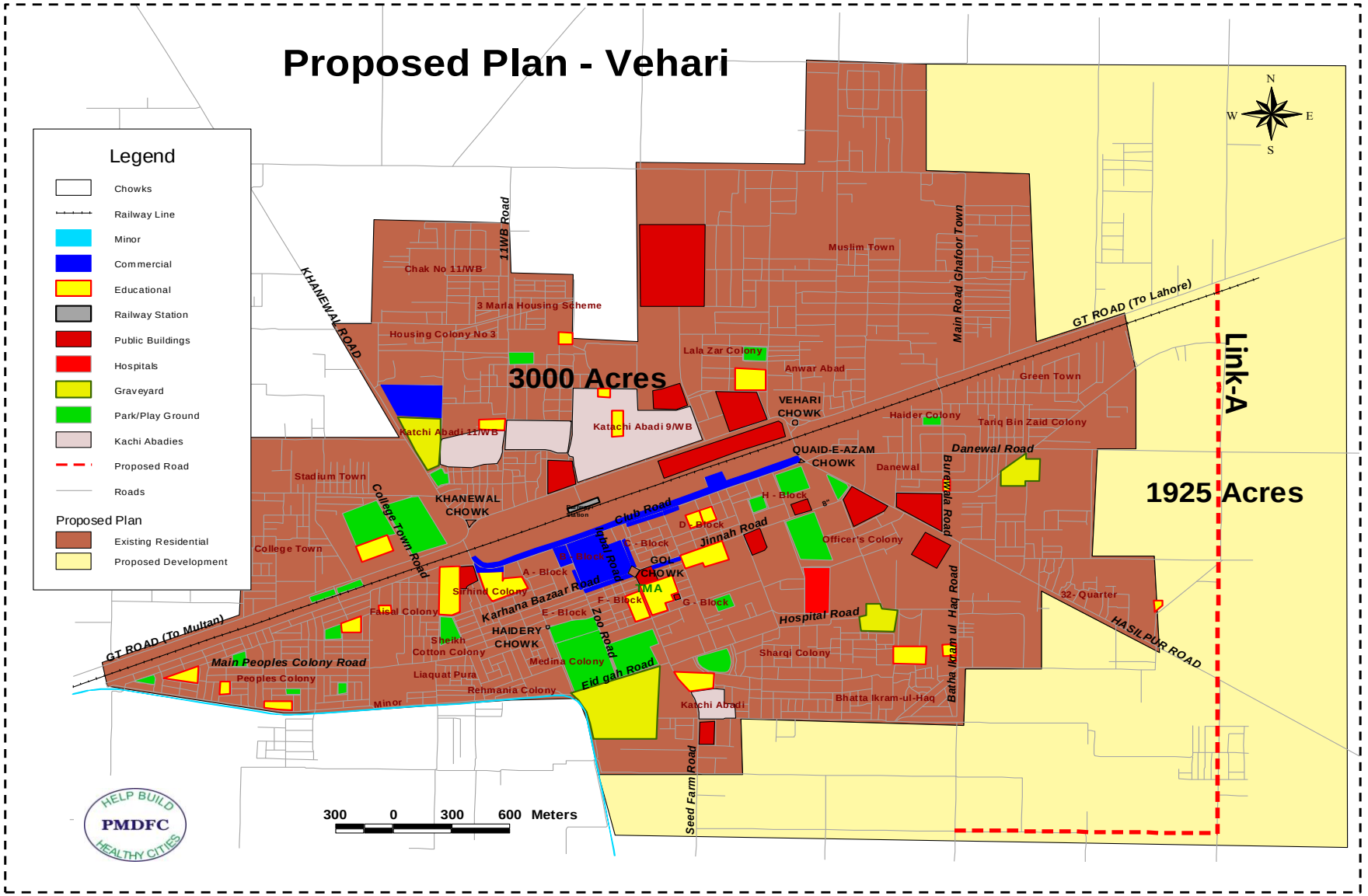


Figure 7.2: Proposed Plan

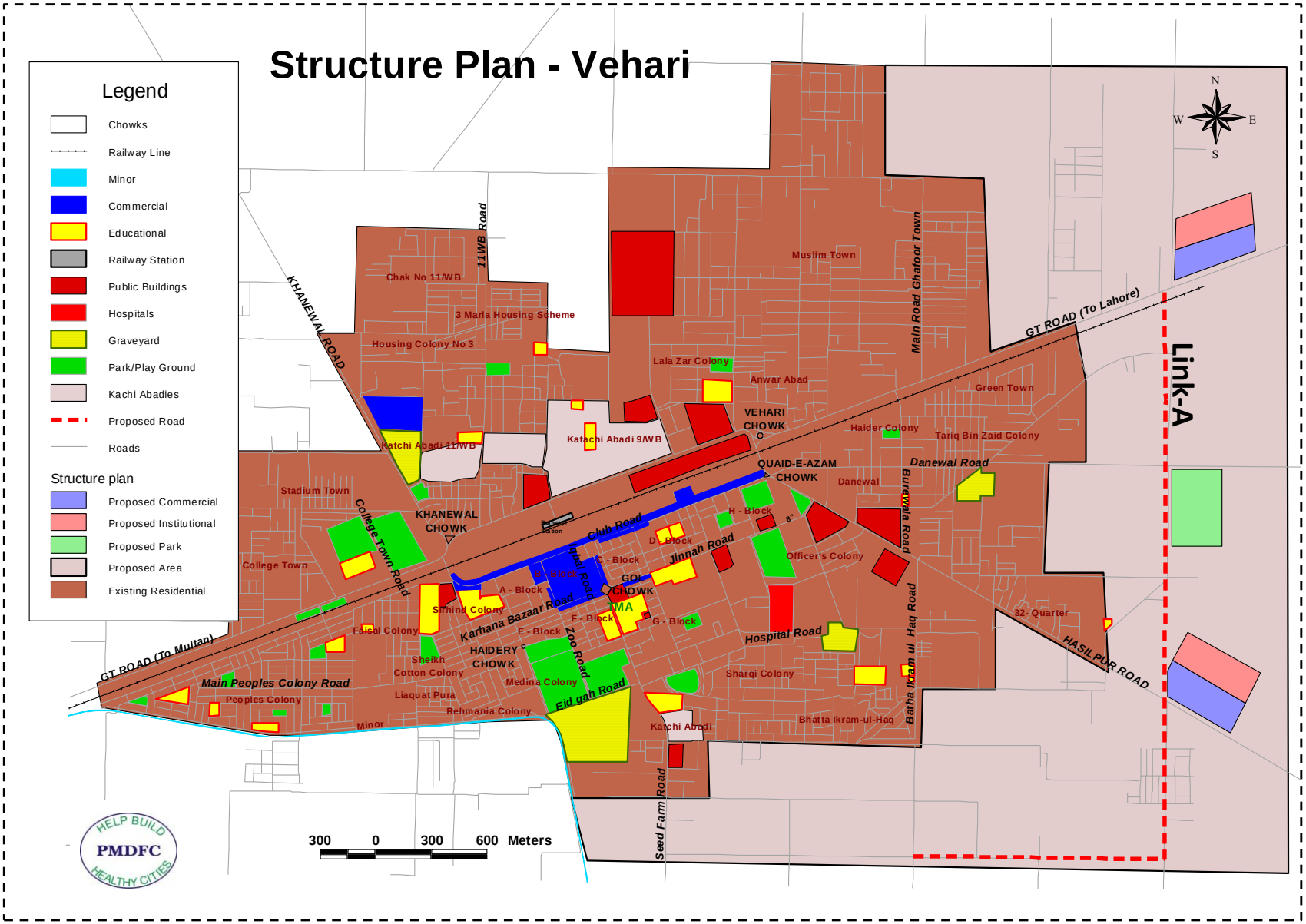


Figure 7.3: Structure Plan

CHAPTER 8 ACTION PLAN FOR TMA VEHARI

8.1 Action Plan for Water Supply

Action Plan -1

- Development of user connection database
- Measurement of the present discharge of each tubewell to find out which tubewells are running economically.
- Tube wells No. 3, 12, 14, 17 and 20 located along Pakpattan Canal would be made operational.
- Improvement of Ground Surface Tanks at Water Work Block-H, 9-11/WB, Madina Colony, Sharki Colony and Anwar Abad would be done.
- Overhead Reservoirs at Madina Colony, Tamoor Shaheed Colony, Sharqi Colony and Anwar Abad would be improved and leakage in their delivery pipes would be repaired.
- Water rate collection would be improved from the present low collection rate.
- Operation & Maintenance training to water supply staff
- Allocation of sufficient Operation & Maintenance budget in the Annual TMA budget.

Action Plan -2

- Extension of the system to unserved/partially served areas such as : Some part of Muslim Town, Shabir Abad, Some part of Bhatta Ikram ul Haq, Gujar Town, Ghaffar colony, Rehmat colony, College Town, Allama Iqbal Town and Pir Murad Colony.
- Additional water supply to areas that have less pressure such as : Faisal Town, Masani Bagh, Bhatta Ikram Ullah, Danewaal, South Muslim Town, Liaqat pura, Bhatti Shadi Khan, Tariq Bin Ziad Colony, Anwaar Abad and 9-11 WB Kachi Abadi.
- Additional source of water would be developed to meet current demand as well as to cater future demand.

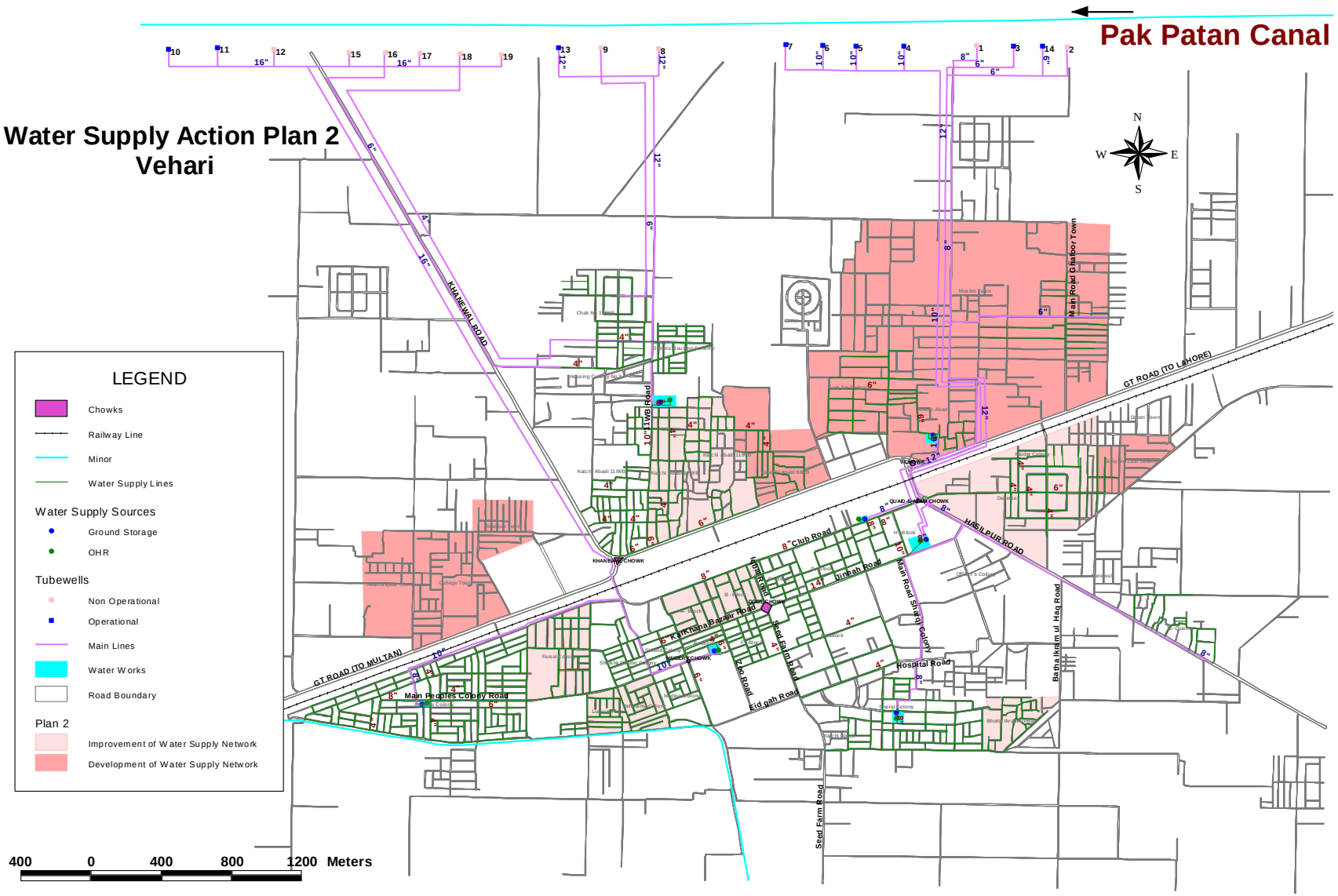


Figure 8.1: Water Supply Action Plan

8.2 Action Plan for Sewerage

Action Plan - 1

Up-grading of Existing Sewers and Drains

- All existing sewers and drains will be inspected and problematic parts of the networks will be cleaned and repaired so that they are brought back to acceptable working conditions.
- Improvement of Collection tank and screen at Disposal site.
- Procurement of a generator to cater frequent power failures.
- Operation & Maintenance training to sewerage staff.
- Allocation of sufficient Operation & Maintenance budget in the Annual TMA budget.

Action Plan - 2

Improvement of Sewerage Network

- Improvement of sewerage in People's Colony (Blockage), Lakker Mandi (Not connected with trunk Sewer flooding occurs), 9/WB Katchi Abadi (Not properly leveled, Flooding occurs), Muslim Town 9/WB (Not properly leveled, Flooding occurs) , Anwar Abad (Not properly leveled, Flooding occurs)
- Lateral sewers would be developed in the served areas as shown in Sewerage Action Plan -2.
- Extension of sewerage netwok to unserved areas shown in Sewerage Action Plan -2.
- Procurement of a sucker and jetting machine.

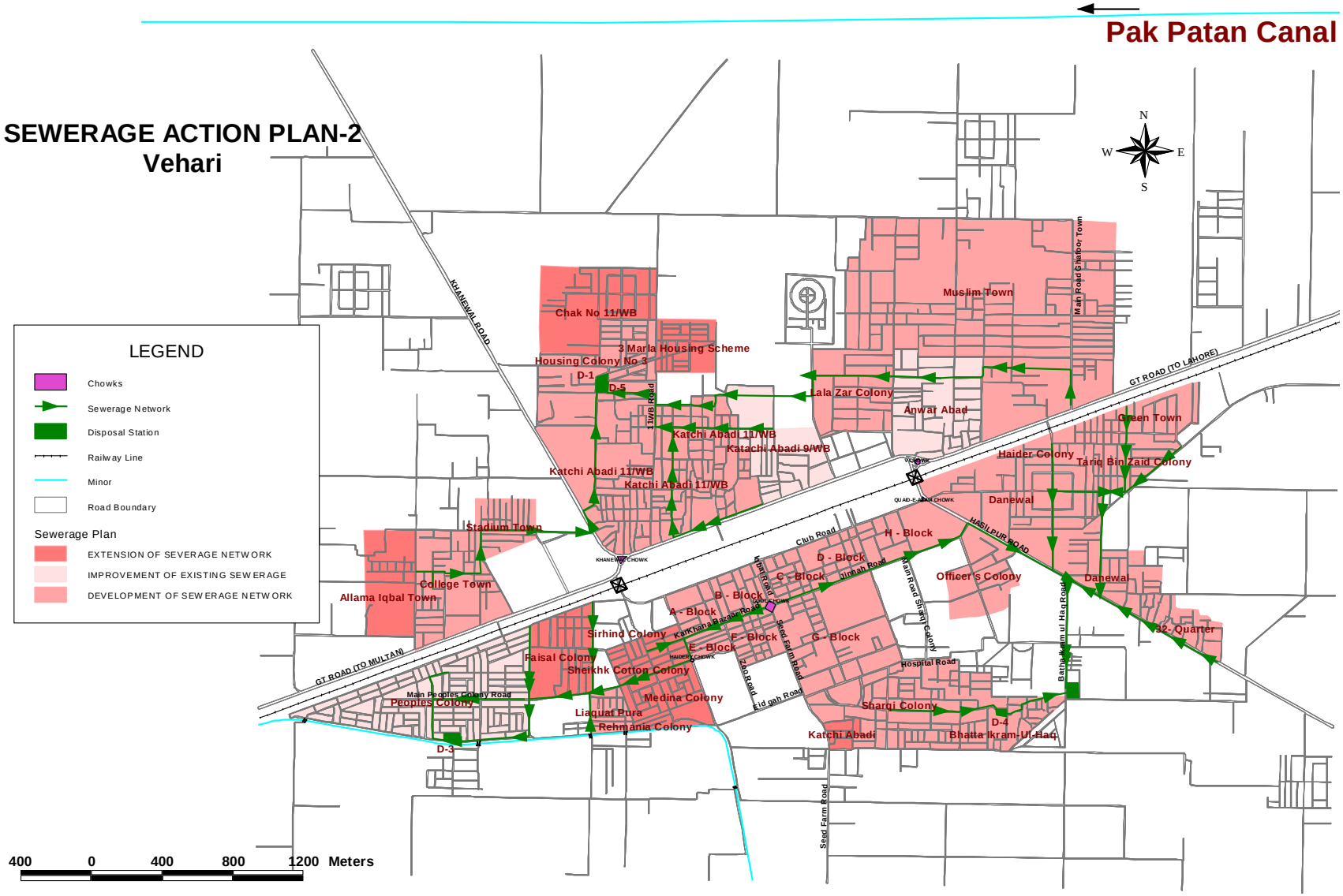


Figure 8.2: Sewerage Action Plan

Action Plan – 3

Construction of Sewage Treatment Plant

- A sewage treatment plant would be developed in the town, which will safeguard public health and will protect agricultural lands from pollution would be constructed before final disposal of sewage. Location would be decided after detail site investigations.

8.3 Action Plan for Solid Waste Management

Action Plan -1

Improvement of Solid Waste Collection System

- Repair or replacement of wheel barrows that are non-operational.
- One tractor trolley would be repaired.
- One non-operational dumper truck would be repaired.
- House-House collection started on pilot basis in few localities.
- Operation & Maintenance training to solid waste management staff.
- Allocation of sufficient Operation & Maintenance budget in the Annual TMA budget.

Action Plan -2

Development of Disposal Site

- Following solid waste disposal points in the city would be eliminated: at near PASSCO, Near Batha Shadi Khan and Anwar Abad.
- No landfill site is available in or out side of the town. For landfill site addition manpower and machinery would be required. An area of 11 acres is required for landfill site for 10 years (2018) & 28 acres for 20 years (2028). Location would be decided after detail site investigations.

8.4 Action Plan for Roads

Action Plan - 1

- Road marking and improvement of foot paths on main roads.
- Procurement of road level.
- Operation & Maintenance training to road staff.
- Allocation of sufficient Operation & Maintenance under roads head in the budget.

8.5 Action Plan for – Parks

Action Plan - 1

Following parks would be improved;

Rafique Park

It is located on the main Khanewal road near Khanewal Chowk. It has a boundary wall. It is a depression where solid waste has been dumped. TMA wants to develop a park here that would serve the north-west part of the town as there is no park in this location.

Ayesha Park

It is a small park in Ayesha Colony in east part of the town. After development, it would serve the entire area between south of railway track and east of Hasilpur road.

Annex- A

TMA Roads

Serial no.	Type of Road (M or S)	Name	Length (feet)	Right of way (feet)	Paved width (feet)	Surface type	Surface condition (Good, Fair, Bad)	Street Light (Yes/No)	Drainage (Yes/No)	Remarks
1	M	Club Road	6486’	100	30	TST	Good	Yes	yes	Major commercial hub of the town is located along this road. It is East –West aligned serving residential Blocks A,B,C,D,H on one side and public buildings on the other side of the road. The road is laid parallel to the railway track in the center of the town, finally merges in to Quaid-e-Azam Chowk.
2	M	Jinnah Road	3950’	55	30	TST	Bad	Yes	yes	It is an important commercial road, which runs parallel to the Club road. There also residences of D&H block public buildings like hotels,TMA office Bank and Park along this road. The road has cuts on the surface due to utility lines….

3	M	Liaquat Road	1610’	60	30	TST	Bad	Yes	yes	It originates from Gool Chowk and is east west aligned. There are residences, commercial and public buildings on both sides of the road. Zoo and Loha bazaar roads intersect this road. Road cuts on the surface due to utility lines….
4	M	Amam Bargha Road	1313’	60	30	TST	Good	Yes	yes	It is newly constructed road aligned in north-south touches Club road and Eidgah road on its both ends. It passes through Haidery Chowk and provides access to various residences.
5	M	Saeed Farm Road	3800’	50	30	TST	Fair	Yes	no	It originates from Goll Chowk and in the south leads towards chak 49-WB.Along this road there are residences, govt girls high schools, DPS, Muhammadi Park and agricultural engineering workshops.
6	M	Zoo Road	1734’	50	20	TST	Fair	no	no	It originates from Liaqat road and ends up at Eid

										Gah road. It is north south aligned and provides access to various residential areas like F Block located in the south of town. It provides approach to hockey ground of the town.
7	M	Hospital Road	890’	100	20	TST	Fair	No	No	This road provides exclusive access to Nursing school, district health office and DHQ hospital.
8	M	Eid Gah Road	1709’	60	20	TST	Fair	No	No	It is east west aligned road, on its one end there is Imam bargah road and on other Saeed farm road. It provides approach to the graveyard of the town, which is located in the south.
9	M	Iqbal Road	886’	50	20	TST	Fair	Yes	No	This road provides access to grain market and touches club road and Liaqat road on its ends. It is commercial road having few residences as well.
10	M	Loha Bazaar	886’	50	30	TST	Fair	Yes	No	It is aligned parallel to Iqbal Road. It touches club road and Zoo road

		Road								by providing access to various residences, commercial shops and grain market. It is under construction these days.
11	M	College Town Road	1100’	30	10	TST	Bad	Yes	No	On its southern end it stems from GT road and provides access to the Stadium and sports complex.
12	S	People Colony Road	6596’	20	10	TST	Fair	No	No	
13	S	Bhutta Ikram Ul Haq Road	3137’	20	10	TST	Good	No	No	North-South aligned road located in the southeastern side of the town. Provides access to disposal station and Govt College for women.
14	M	New Disposal Work Road	3782’	60	14	TST	Good	No	Yes	It is north east aligned road which provides access to the disposal station.
15	M	Sharki Colony Road	1961’	24	10	TST	Good	Yes	yes	It is North-south aligned street which touches Jinnah road in the north end and Hospital road in the southern end. Provides access to Veterinary hospital DHQ hospital Civil hospital

										and Ladies Park.
16	M	Daniwal Road	3721’	30	24	TST	Fair	Yes	NO	It is main Road of Danewal residential area and aligned in the East-West direction.
17	M	Burewala Road	2800’	20	10	TST	Fair	No	NO	An Important road which connects Two provincial Highways HasilPur road and GT road of the town
18	M	Main Three Marla Scheme Road	650’	20	10	TST	Bad	Yes	NO	Originates from GT road and leads towards chak11-WB in North. Serves major residential areas located in the north of town.it requires major maintenance.
19	M	Main Road Ghafoor Town	2300’	50	10	TST	Good	No	NO	Stems from GT road and serves the residences and factories in the north east of the town.
20	M	Main People Colony Road	5090’	30	16	TST	Good	Yes	NO	It is east –west aligned and leads towards Haidary chowk.This main road of People Colonyq passes through Park and residential areas located in the south.

Annex- B

Street Lights

Sr. No	Name of road / street	No. of lights			Nos. of transformers owned by TMA		Separate conductor owned by TMA	Remarks
		Sodium	Mercury	Tube	Nos.	Kva	Yes / No	
	Karhana Bazaar	4		9			Yes	
	Burewala Road	37			TMA	25		
	Khanewal Road			16			Yes	
	Club Road	56					Yes	
	Ludden Road	44			TMA	50	Yes	
	Michen Abad Road			18			Yes	Under ground
	Janaz Gha Road	2		6				
	Daniwall Road		4	10				
	Seed Farm Road		1	25			Yes	
	Hospital Road							
	Zoo Road			10			Yes	
	College Town Road							
	Main Road Sharqi Colony		2	20			Yes	
	Jinnah Road	20		5			Yes	
	Khanewal Chowk To People Colony	68				25		
	Khanewal Chowk To Vehari Chowk	46			TMA	50		
	Imama Bargha Road	9			TMA	25		
	Main Colony Road	1	1	24	WAPDA			

Name of road / street	No. of lights		
	Sodium	Mercury	Tubelight
Karkhana Bazaar	4		9
Burewala Road	37		
Khanewal Road			16
Club Road	56		
Ludden Road	44		
Michen Abad Road			18
Janaz Gha Road	2		6
Daniwall Road		4	10
Seed Farm Road		1	25
Hospital Road			
Zoo Road			10
College Town Road			
Main Road Sharqi Colony		2	20
Jinnah Road	20		5
Khanewal Chowk To People Colony	68		
Khanewal Chowk To Vehari Chowk	46		
Imama Bargha Road	9		
Main Colony Road	1	1	24

Sr No.	Mohallah/ Block Name	Mercury	Sodium	Tuble Light
1	College Town		2	28
2	People colony	20	10	320
3	Faisal Colony	1	1	30
4	Liaqat Pura	3	3	90
5	Rehmania colony			8
6	Sheikh Cotton Colony	1	0	10
7	Madina Colony	2	3	40
8	A- Block	1	5	19
9	B- Block	2	4	66
10	C- Block	2	7	25
11	D- Block	2	4	66
12	E- Block			7
13	F- Block	9	6	50
14	G- Block	1	1	27
15	H- Block	2	15	27
16	Sherqi Colony	10	10	200
17	Katchi Abadi 9/WB	7		151
18	Katchi Abadi 11/WB	9		190
19	Housing colony			14
20	Maka town			35
21	Bhatta Ikramulhaq			31
22	32-Quarters			18
23	Rehmat Colony	17		
24	Bhatta Shadi Khan	6	1	133
25	Tariq Bin Zyad Colony	8		
26	Danewal	5	2	140
27	Haider Colony		4	6
28	Green Town			
29	Muslim Town	8		40
30	Anwar Abad		2	50
31	Lala Zar Colony	6	1	28

Annex-C

Water Coverage Areas

Sr.	Location	Status
1	Pir Murad Colony	Un-served, taken over by PHED
2	Collage Town	Un-served, taken over by PHED
3	Stadium Town	Un-served, taken over by PHED
4	New Tariq bin Ziad Colony	Un-Served
5	Tamoor Shaheed Colony	50 % un-Served
6	Tairq Bin Ziad Colony	50% un-served
7	Muslim Town	40% un-served
8	Anwarabad	50% un-served
9	Lala Zar Colony	50% un-served
10	Katchi Abadi 9/WB	30% un-served
11	Faisal Town	Low Pressure
12	Liaqatpura	Low Pressure
13	Block A&B	Low Pressure
14	Kahchi Abadi 11/WB	Low Pressure
15	Bhatta Ikram-Ul-Haq	Low Pressure
16	Rehmat Colony	Low Pressure
17	Danewal	Low Pressure
18	Haider Colony	Low Pressure
19	Green Town	Low Pressure

Annex-D

Tube Wells in Vehari Town

Present (2008) Population of the town: 128,495 Persons					Remarks
sr.	T/Well Location	Designed Discharge (cusec)	Depth (ft)	Year of Installation	
TW-01	Pakpatan Canal	1	400	1974	Non-operational due to sand blowing
TW-02	Pakpatan Canal	1	400	1974	Non-operational due to sand blowing
TW-03	Pakpatan Canal	1	400	1990	Operational
TW-04	Pakpatan Canal	1	400	2000	Operational
TW-05	Pakpatan Canal	1	400	2000	Operational
TW-06	Pakpatan Canal	1	400	2000	Operational
TW-07	Pakpatan Canal	1	400	1990	Operational
TW-08	Pakpatan Canal	1	400	1999	Non-operational due to sand blowing
TW-09	Pakpatan Canal	1	400	1999	Non-operational due to Mechnical fault.
TW-10	Pakpatan Canal	1	400	1999	Operational
TW-11	Pakpatan Canal	1	400	1999	Operational
TW-12	Pakpatan Canal	1	400	1999	Non-operational due to transfarmer problem
TW-13	Pakpatan Canal	0.5	400	2007	Operational
TW-14	Pakpatan Canal	0.5	400	2007	Operational
TW-15	Pakpatan Canal	1	400	1997	Non-operational due to theft of trasformer
TW-16	Pakpatan Canal	1	400	1997	Non-operational due to theft of trasformer
TW-17	Pakpatan Canal	1	400	1997	Non-operational due to theft of trasformer
TW-18	Pakpatan Canal	1	400	2000	Non-operational due to theft of trasformer
TW-19	Pakpatan Canal	1	400	2000	Non-operational due to theft of trasformer

sr.	T/Well Location	Designed Discharge (cusec)	Possible Working hrs per day	Possible Water Production
1	Pakpatan Canal	1	16	360000
2	Pakpatan Canal	1	16	360000
3	Pakpatan Canal	1	16	360000
4	Pakpatan Canal	1	16	360000
5	Pakpatan Canal	1	16	360000
6	Pakpatan Canal	1	16	360000
7	Pakpatan Canal	1	16	360000
8	Pakpatan Canal	1	16	360000
9	Pakpatan Canal	1	16	360000
10	Pakpatan Canal	0.5	16	180000
11	Pakpatan Canal	0.5	16	180000
12	Pakpatan Canal	1	16	360000
13	Pakpatan Canal	1	16	360000
14	Pakpatan Canal	1	16	360000
15	Pakpatan Canal	1	16	360000
16	Pakpatan Canal	1	16	360000
Total Water Possible Water Production				5,400,000

Present Production Capacity Based on designed discharge

sr.	T/Well Location	Designed Discharge (cusec)	Present Working Hours	Water production/day (gallon)
1	Pakpatan Canal	1	16	360,000
2	Pakpatan Canal	1	16	360,000
3	Pakpatan Canal	1	16	360,000
4	Pakpatan Canal	1	16	360,000
5	Pakpatan Canal	1	16	360,000
6	Pakpatan Canal	1	16	360,000
7	Pakpatan Canal	0.5	12	135,000
8	Pakpatan Canal	0.5	12	135,000
Total water production per day (gallon)				2,430,000

2.43 MGD

Annex-E

Pumping Machinery

S. No.	Disposal Works	Pump			Motor		Working hrs per day	Operational status	Remarks
	Pumping station	Nos	Discharge (cusec)	Condit-ion	BHP	Condition			
1	11/WB (new unit)	3	5	good	60	good	15	Working	
	11/WB (old unit)	4	2	Repairable	40	Repairable	-	Non-operational	Pipe are going to be replaced
2	32 Quater	2	5	good	50	good	10	Working	
		2	2	good	40	good	18	Working	
3	Tamoor Shaheed Colony (new unit)	2	4	good	50	good	18	Working	
	Tamoor Shaheed Colony (old unit)	1	2	bad	60	bad	-	-	Machinery have to be repaired
4	Peer Muraad	2	2	good	20	good	6	Working	
5	Mini Disposal Bhata Ikram	1	2	Fair	20	good	6	working	

Trunk Sewer

ID	DIAMETER	LOCATION
1	30"	To 11/WB Disposal
2	27"	To 32-Quarter Disposal
3	27"	To Tamoor Shaheed Colony Disposal
4	27"	To Sharqi Colony Disposal
5	18"	To Pir Muraad Colony Disposal

Ultimate Disposal

S #	Name of Disposal works	Sullage carrier / Forced main				Treatment status	Ultimate Disposal
		Size	Length	Material	Condition		
1	11/WB	24”	5000’	R.C.C Pipe	Good	Untreated	Fields
2	32 Quater	20”	2500’	AC. Pipe	Good	Untreated	Fields
3	Tamoor Shaheed Colony	12”	150’	R.C.C Pipe	Good	Untreated	Hazara Drain
4	Peer Muraad	Irregular	25’	katcha	Bad	Untreated	Fields
5	Mini Disposal Bhata Ikram	27”	1500’	R.C.C Pipe	Good	Untreated	New disposal

Annex-F

Secondary Waste Collection Points

Sr. No.	Name / Location of secondary collection points	Type of collection point
1.	Municipal library near main gate	Open +Container
2.	Farid boy land road	Open
3.	Zoo road	Walled
4.	Madina Colony chowk Doctor Naik hospital	Open
5.	New thana city road near Islamia School	Open
6.	Peoples Colony road	Open + Container
7.	Peoples Colony Dervash Chowk	Open
8.	X Block Railway Line Side	Open
9.	W Block Railway Line side	Open
10.	U Block Railway Line side	Open
11.	V Block Baba Keram Ilahi	Open
12.	Z block near Disposal works	Open + Container
13.	Sir hind Colony empty plot street no. 1	Open + Container
14.	Vegetable market Goll Chowk	Walled
15.	C-Block Landa Bazar	Container
16.	Vegetable market on Railway track side	Container
17.	Sadar Thana Road DHQ road	Open
18.	Sani Bagh near block school	Open + Container
19.	Sharqi colony N block	Open + Container
20.	Sharqi colony n block	Open
21.	Sharqi colony N block park Saleem sports	Open + Container
22.	Sharqi colony N block near Nursing School	Open + Container
23.	Behind general bus stand	Open
24.	Sarqi colony near water works main road	Open + Container
25.	DHQ Hospital	Open + Container
26.	DHQ Hospital quarters colony	Open + Container
27.	Officers colony near DCO house	Open + Container
28.	AC colony	Open
29.	Danewal main road near nadir cinema	Open
30.	Danewal main road near aysha park	Open + Container
31.	Danewal main road near girls school	Open
32.	Danewal main road near Bhutto school	Open
33.	Danewal main road near B.H.U	Open + Container
34.	Danewal Hocky ground east side	Open + Container
35.	Bhata Akram ul Haq	Open
36.	Club road near Gahlla Mandi	Open
37.	Club road near Lakker Mandi	Open

38.	Club road near tanker stand	Open
39.	Infront of Multan road railway station	Open
40.	Near girls school	Open
41.	Check no.11/WD near Water Works	Open
42.	Check no. 9/WD near Awais Park	Open
43.	Near girls school peer Sultan Wala	Open
44.	Slaughter house	Open
45.	Lahore road near petrol pump	Open
46.	District jail Vehari	Open + Container
47.	District kacheri near police line gate	Open + Container
48.	Beside Anwar Abad water works	Open