



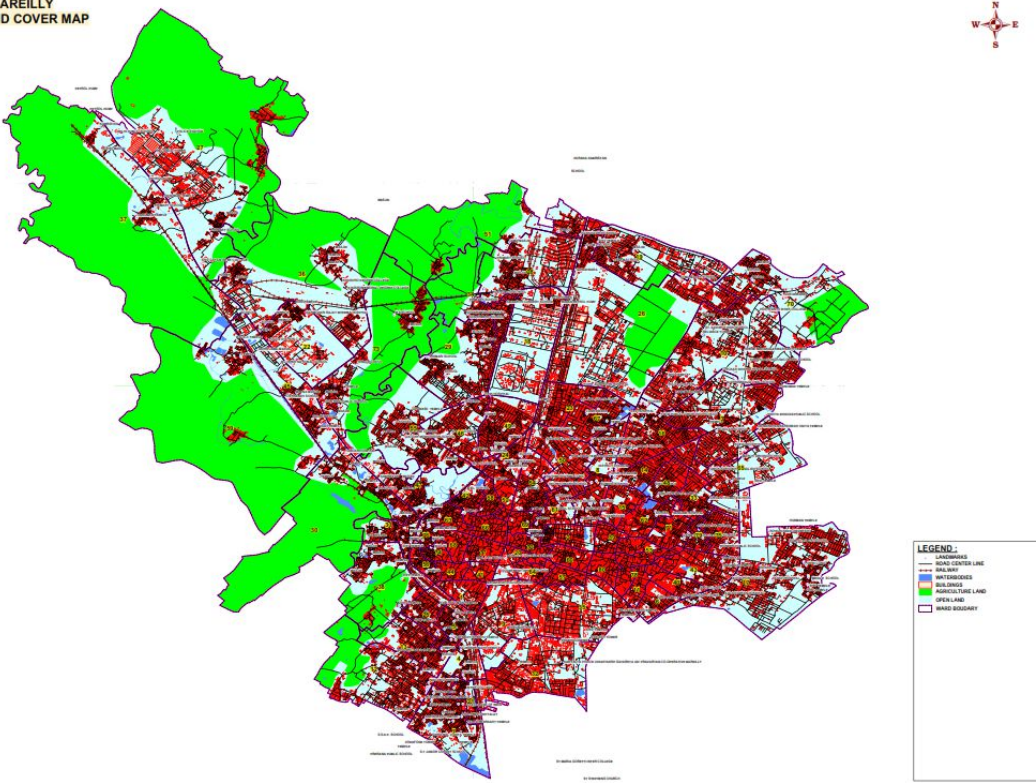
# **Solid Waste Management Action Plan 2019**



**NAGAR NIGAM BAREILLY**

Bareilly City Map

SMART CITY , BAREILLY  
LANDUSE / LAND COVER MAP



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## 1 **CITY PROFILE**

Name of the ULB : **Bareilly Municipal of Corporation**

Type of Municipal Body : **Nagar Nigam Bareilly**

Population (2011) : 985752

Present Population : **1028000**

Area : **106 sq. m.**

Number of wards : **80 number**

Number of houses : **1,64,515 number**

Total road length : **1490 kms**

Waste generated : **450 tones per day**

Data used for Action Plan updation :

311218

## **1.1 Introduction**

Bareilly is a city in Bareilly district in the northern Indian state of Uttar Pradesh. Located on the Ramganga it is the capital of Bareilly division and the geographical region of Rohilkhand.

The city is 252 Kilometers north of the state capital, Lucknow and 250 kilometers east of the national capital New Delhi. It is eight largest city in Uttar Pradesh and 50th largest city in India. Bareilly also selected as a smart city list in India. This city is also known by the name Nath Nagri (known for the seven Shiva temples located in the Bareilly region as --DhopeswarNath, MadhiNath, AlakhNath, TapeswarNath, BankhandiNath, PashupatiNath and Tivrinath)

## **1.2 Objective:-**

- a) To consolidate the information on the existing system of solid waste management.
- b) To detail the action plan for solid waste management in conformity with the Integrated State Policy on solid waste management and the MSW rules 2016.
- c) To provide a document which would be used for procurement of equipment and services for implementation of the integrated solid waste management system and provide a base line for all future plans for solid waste management for the city.

### **1.2.1 Brief description of MSW Rule 2016:-**

- Hotels and restaurants should segregate biodegradable waste and set up a system of collection to ensure that such food waste is utilized for composting / bio-methanation.
  - Resident Welfare associations and gated communities with an area >5,000 sqm should segregate waste and handover recyclable material to either the authorized waste pickers or the authorized recyclers, or to the urban local body.
  - Bio-degradable waste should be processed, treated and disposed of through composting or bio-methanation within the premises as far as possible.
  - Street vendors should keep suitable containers for storage of waste generated and deposit such waste at waste storage depot or container or vehicle as notified by the local authority.
- High calorific wastes shall be used for co-processing in cement or thermal power plants.
- Developers of Special Economic Zone, industrial estate, industrial park to earmark at least 5% of the total area of the plot or minimum 5 plots/ sheds for recovery and recycling facility.
  - Manufacturers of disposable products such as tin, glass, plastics packaging etc. shall provide necessary financial assistance to local authorities for the establishment of waste management system.
  - Companies that sell products in non-biodegradable packaging material should put in place a system to collect back the packaging waste generated due to their production.
  - All such manufacturers, brand owners or marketing companies should educate the masses for wrapping and disposal of their products.
  - Construction and demolition waste should be stored, separately disposed off.

### 1.3 **Project Methodology:-**

- a) A template for data collection from Nagar Nigam Bareilly was prepared. The data was collected from Health, Engineering, Tax and administrative section. Frequent field visits were done to check the present status of solid waste management and for data collection.
- b) Preparation of action plan involved the following steps:-
- Study of municipal solid waste (management and handling) Rules-2016
  - Referred the solid waste management state policy prepared by State of U.P.
  - Prepared a rough action plan discussion with Hon'ble Mayor, Municipal Corporator and Senior Officers.
  - Proposed a feasible solid waste management system.

Bareilly Municipal Corporation and Out Growth, with population of about 9 lakh is Bareilly sub district's only Municipal Corporation and out growth located in Bareilly sub district of Bareilly district in the state Uttar Pradesh in India. Total geographical area of Bareilly Municipal Corporation and out growth is 106 km<sup>2</sup>. Population density of the city is 8501 persons per km<sup>2</sup>. There are 80 wards in the city, among them Bareilly Ward No 46 is the most populous ward with population of about 41 thousand and Northern Railway Colony (OG) Ward No 71 (rural Mdds Code:130478) is the least populous ward with population of 1129.

Nearest railway station is Bareilly which is 26 km far from here. Bareilly is the sub district head quarter of the city. District head quarter of the city is Bareilly which is 26 km away. Lucknow is the state head quarter of the city and is 275 km far from here. Yearly average rainfall of the city is 715 mm. Maximum temperature here reaches up to 45°C and minimum temperature goes down to 8°C.

## 2 **Demographics**

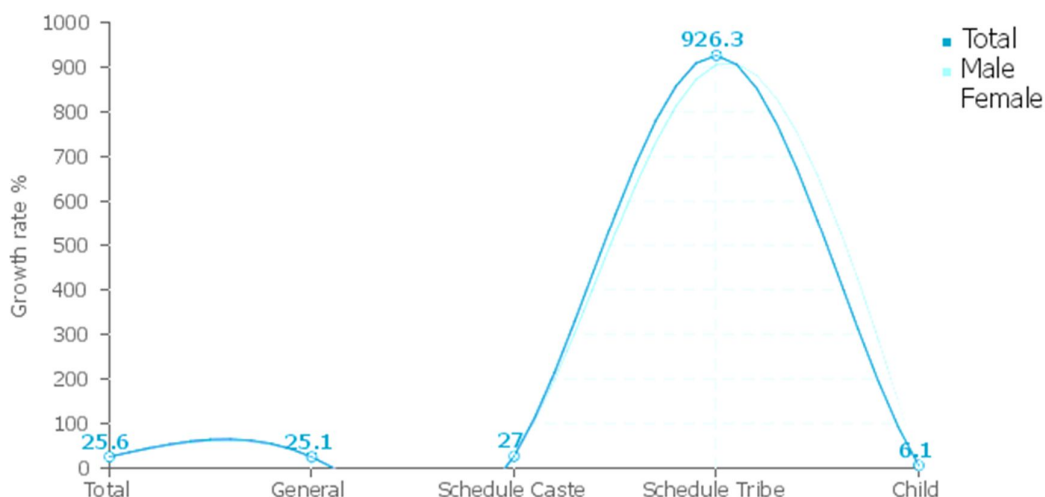
The city is home to about 9 lakh people, among them about 4.8 lakh (53%) are male and about 4.3 lakh (47%) are female. 92% of the whole population are from general caste, 8% are from schedule caste and 0% are schedule tribes. Child (aged under 6 years) population of Bareilly Municipal Corporation and out growth is 12%, among them 53% are boys and 47% are girls. There are about 1.7 lakh households in the city and an average 5 persons live in every family.

## 3 **Growth of population**

Population of the city has increased by 25.6% in last 10 years. In 2001 census total population here were about 7.2 lakh. Female population growth rate of the city is 25.5% which is -0.2%

lower than male population growth rate of 25.7%. General caste population has increased by 25.1%; Schedule caste population has increased by 27%; Schedule Tribe population has increased by 926.3% and child population has increased by 6.1% in the city since last census.

**Growth of population (percent) 2001 to 2011 - Bareilly**



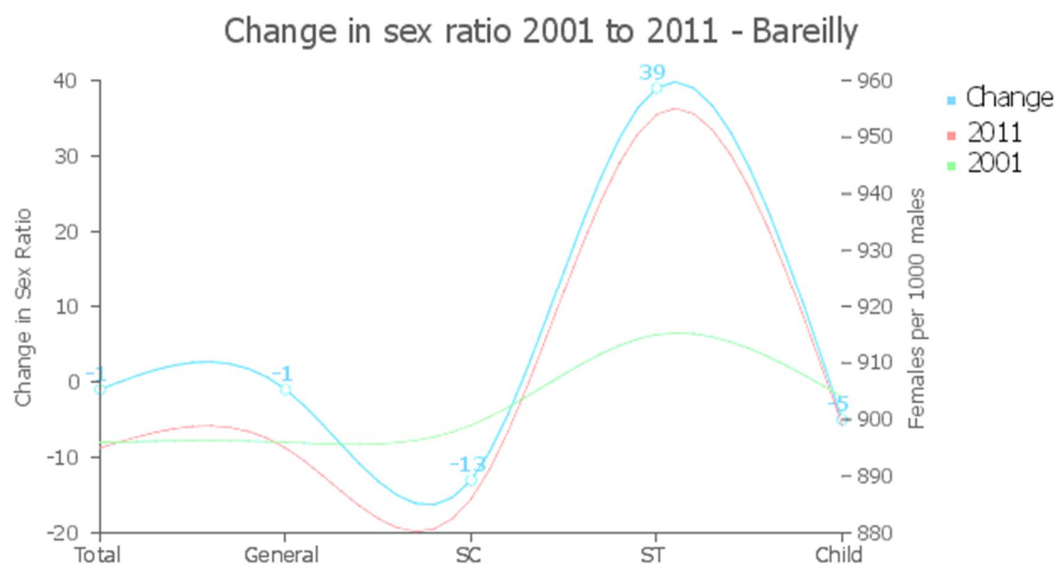
#### 4 Growth of population (percent) 2001 to 2011 - Bareilly

	Total	General	Schedule Caste	Schedule Tribe	Child
<b>Total</b>	25.6%	25.1%	27%	926.3%	6.1%
<b>Male</b>	25.7%	25.2%	27.9%	905.7%	6.4%
<b>Female</b>	25.5%	25.1%	26%	948.8%	5.8%

#### 5 Sex Ratio - Females per 1000 Male

As of 2011 census there are 895 females per 1000 male in the city. Sex ratio in general caste is 895, in schedule caste is 886 and in schedule tribe is 954. There are 899 girls under 6 years of age per 1000 boys of the same age in the city. Overall sex ratio in the city has decreased by 1 females per 1000 male during the years from 2001 to 2011. Child sex ratio here has decreased by 5 girls per 1000 boys during the same time.



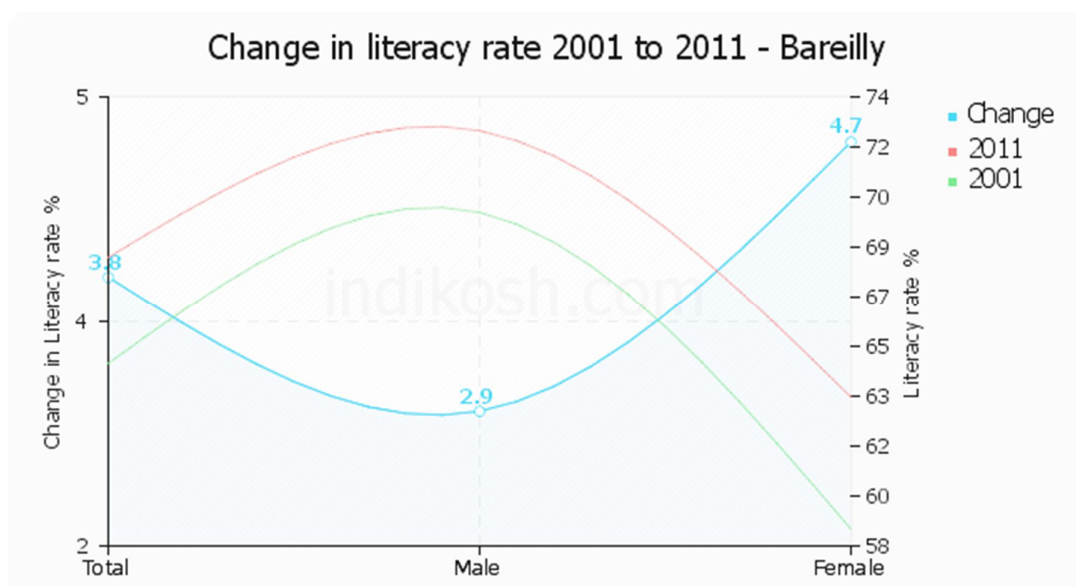


#### 6 Change in sex ratio 2001 to 2011 - Bareilly

	Total	General	SC	ST	Child
<b>Change</b>	-1	-1	-13	39	-5
<b>2011</b>	895	895	886	954	899
<b>2001</b>	896	896	899	915	904

#### 7 Literacy

Total about 5.4 lakh people in the city are literate, among them about 3.1 lakh are male and about 2.4 lakh are female. Literacy rate (children under 6 are excluded) of Bareilly is 68%. 73% of male and 63% of female population are literate here. Overall literacy rate in the city has increased by 3%. Male literacy has gone up by 3% and female literacy rate has gone up by 4%.

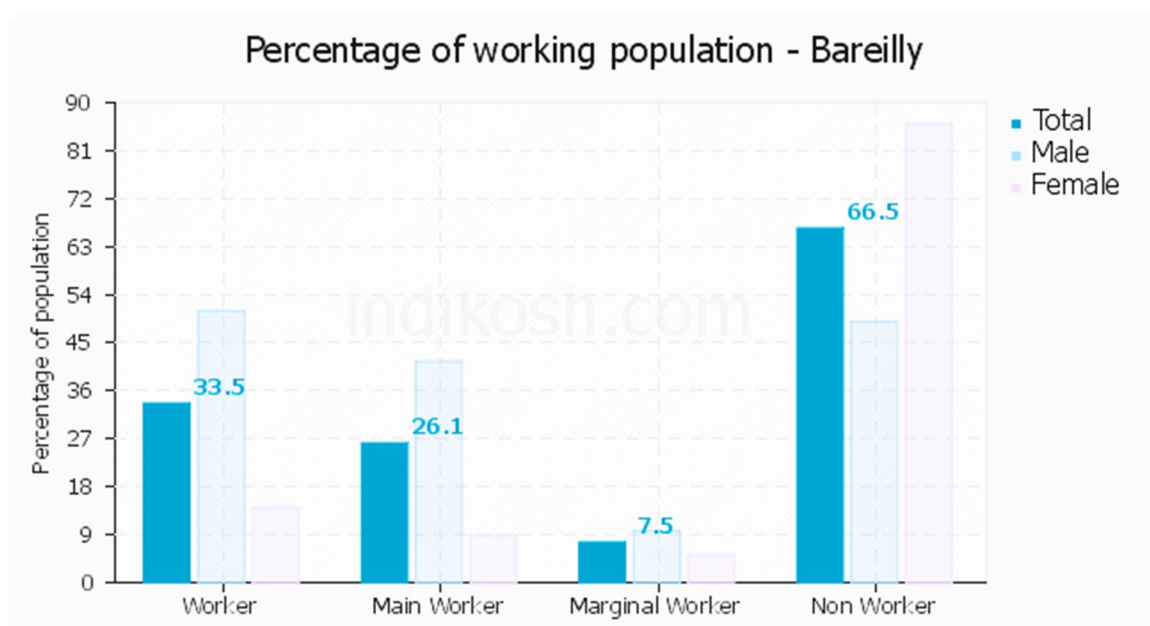


#### 8 Change in literacy rate 2001 to 2011 - Bareilly

	Total	Male	Female
<b>Change</b>	3.8%	2.9%	4.7%
<b>2011</b>	68.3%	72.8%	63.3%
<b>2001</b>	64.5%	69.9%	58.6%

#### 9 Workers profile

Bareilly has 34% (about 3 lakh) population engaged in either main or marginal works. 51% male and 14% female population are working population. 41% of total male population are main (full time) workers and 10% are marginal (part time) workers. For women 9% of total female population are main and 5% are marginal workers.



#### 10 Percentage of working population - Bareilly

	<b>Worker</b> (Among total population)	<b>Main Worker</b> (Among workers)	<b>Marginal Worker</b> (Among workers)	<b>Non Worker</b> (Among total population)
<b>Total</b>	33.5%	26.1%	7.5%	66.5%
<b>Male</b>	51%	41.4%	9.6%	49%
<b>Female</b>	14%	8.8%	5.1%	86%

### 10.1 Salient Feature of Bareilly City.

Table 1: Salient Feature of Bareilly City.

Ward No.	Population(a)	Area (sq. km) (b)	House holds		Density of population (persons persq.km) (a/b)	Shops	Shelter Home	Theater	Hotel	Apartments	Hostels and institutions	Meat Shop/slaughter houses	Markets		Temple
			Slum house holds	Non slum House-holds									vegetable vegetable	meat	
1	10853	0.296	810	2008	36665	360			4			3	2	1	3
2	10195	0.372		2039	27405	441						2	1	2	4

3	12971	2.040	605	2473	6358	308		2	10		1		1	4	1	3
4	11229	0.919	504	2145	12218	163			22				4	3	3	2
5	11931	0.383		2386	31151	375							2	2	1	1
6	11696	0.235	810	2177	49770	360							1	1	0	0
7	12738	1.300	306	2486	9798	314		1	6				2	3	1	1
8	11938	1.15	805	2226	10380	308		1	10		3	2	1	2	2	1
9	11631	1.075	718	2182	10819	282		2	12				2	4	0	2
10	12859	2.11		2571	6094	225							3	3	2	3
11	10348	0.720	703	1929	14372	602			4				2	1	3	2
12	12765	2.252	508	2451	5668	412		1	12				1		1	1
13	10390	0.972							2				2	1	1	0
			745	1446	10689	251										

14	11366	0.628							3				3	3		2
				1704	18098	311										
15	12984	0.344					2		3				4	2		4
				1947	37744	279										
16	12595	0.770							8		1		2	1		5
			1002	1738	16357	255										
17	12701	3.430							7			3	1	2		2
			903	1769	3702	385										
18	9733	1.730							2		2	4	2	3		6
			611	1368	5626	411										
19	11834	1.220											2	2	2	2
				1775	9700	441										
20	10871	0.343						1	6				18	1		3
				1630	31693	312										
21	12719	0.350							2				2	3		
			805	1787	36340	245										
22	12916	1.450							4	2			2	1		1
			506	1861	8907	538										
23	11040	0.860							8		5	6	1			2
				1656	12837	418										
24	10134	0.324											9	2		3
			604	1429	31277	302										

25	11492	0.368											1	1	1	1
			540	1642	31228	258										
26	12406	3.790								1			2	2		2
				1860	3273	152										
27	13400	6.950						1		6			11	3	1	3
			603	1919	1928	321				7						
28	9644	1.520					1						9	3		1
				1446	6344	326										
29	13190	2.40							8				9	2		
			654	1880	5495	345										
30	9710	3.47							3				12	1		
				1456	2798	418										
31	13326	0.680											14	1		
			845	1872	19597	222										
32	10739	0.950						2	58	2			2		1	1
				1610	11304	275										
33	12255	0.512							2				2	1		1
				1838	23935	182										
34	9935	1.134							3				2			3
			880	1358	8761	210										
35	1088	2.1					1	2	6				1			2
			654	65	518	135										

36	12401	6.430		1860	1928	211				4 2			2	2		3
37	11928	9.860											3	3		4
			555	1705	1209	444										
38	12403	2.550					1						3	1		2
			421	1797	4863	301										
39	12538	0.204							3				11	2		3
				1880	61460	272										
40	9969	0.307							2				7			3
				1495	32472	152										
41	9915	0.192							4				5	2	1	3
				1487	51640	118										
42	12417	0.307							2		1		2	1		4
				1862	40446	96										
43	10017	0.757							4				1			2
			690	1399	13232	502										
44	10086	0.450							3				6	2	1	4
				1512	22413	444										
45	10299	1.136											6	1		2
			1078	1383	9066	125										
46	11761	1.124							2				1			
			504	1688	10463	179										



47	10738	1.049							1				9	3		2
				1610	10236	160										
48	12816	0.0384							2				12		1	1
				1922	333750	195										
49	9582	0.665							2				1	3		
			703	1331	14409	121										
50	10207	5.136							10				1	2	1	2
			965	1386	1987	224										
51	9891	2.608							4				6	1		1
			597	1394	3792	272										
52	9935	1.250							4				11	2		2
				1490	7948	238										
53	12469	0.358							2				12	1	1	3
				1870	34829	219										
54	11718	0.613							8				5	3		2
			1078	1596	19115	108										
55	10995	2.804						1	9		2		3	4		3
			790	1530	3921	98										
56	9629	0.023							8				2	1	1	4
				1444	418652	310										
57	10978	0.200							4				7	2		2
				1646	54890	225										

58	11445	0.180											5	3		1
			690	1613	63583	205										
59	10746	7.620							3				8	3		2
				1611	1410	221										
60	12552	0.280					1		2				7	2		3
			603	1792	44828	321										
61	11096	0.320							1				3	1		2
				1664	34675	116										
62	12312	0.432							4				12			1
			816	1724	28500	419										
63	9669	0.263											3	3		2
				1450	36764	312										
64	11010	0.200						1	21				4			3
			812	1529	55050	119										
65	11322	1.020							22				2			4
			801	1578	11100	145										
66	9769	0.278							7					2		3
				1465	35140	178										
67	12936	0.480								4			2	1		2
			1103	1774	26950	219										
68	9675	0.281							2				1	2		4
				1451	34430	238										

69	10018	0.222						8				11	1		5
			711	1396	45126	318									
70	10385	1.410						2				11	2		3
				1557	7365	301									
71	12598	0.248						6				7	1		2
				1889	50798	402									
72	9843	0.230						12				5	3		1
				1476	42795	211									
73	11864	2.945										7			5
			608	1688	4028	106									
74	9985	0.310						5				9	2		3
				1497	32209	92									
75	12934	0.512						8				12	1		2
			709	1833	25261	109									
76	9599	0.242						4				4	2		4
			1203	1259	39665	191									
77	9340	0.276					1	8				2	4		2
			611	1309	33840	172									
78	12597	0.306						1				8			1
			980	1742	41166	208									
79	12583	0.483						2				12			2
			852	1759	26051	506									

80	11265	0.249							4				7	2		3
			812	1567	45240	302										

**Factsheet of each ward has been annexed with annexure no. 1**

## 10.2 Population Growth and Density

Total Area of the city	:	<b>106 Sq.km</b>
Total population residing in the city	:	<b>1028000</b>
Floating population	:	<b>20,000</b> (Approximately)
Population growth in the ULB:-		

**Table 2: Population growth in the ULB**

<b>Census year</b>	<b>Population (a)</b>	<b>Area (Sq. Km.) (b)</b>	<b>Gross Density (persons/Sq. Km.) (a/b)</b>
1991	590661	106.46	5550
2001	720315	106.46	6767
2011	903668	106.46	8488.33
2021	105664 (Projected population)	106.46	992.52

## 10.3 Socio- Economic Characteristics:

According to the 2011 census report, the total population of Bareilly City Region (Bareilly Municipal Corporation) is 8,98,167 having distribution as 53% males and 47% females nearly.

The main population consists of Jatavs and Valmiki, Hindus form 62% of population and Muslims 26% of the population, Sikhs form about 10% of population and remaining are Jains, Buddhists and Christians. Total children (0-6) in Bareilly city are 94,915 as per Census 2011 figure. There were 50,224 boys and 44,691 girls. The children form 10.57 % of total population of Bareilly City

**Table 3: Land use pattern**

<b>Sl. No.</b>	<b>Land Type</b>	<b>Proposed area in 2001 (Area in Hect.)</b>	<b>Master plan 2021 (Area in Ha.)</b>	<b>Change in Area (Ha.) (Increase/Decrease) Proposed in 2021</b>	<b>(%) out of total area</b>
1.	<b>Residential</b>	3390	6900.15	3510.15	41
2.	<b>Commercial</b>	308	911.5	603.2	5.5
3.	<b>Public &amp; semi public services</b>	1344	1257.20	-86.8	7.5
4.	<b>Industrial</b>	1919	1057.42	-861.58	6
5.	<b>Administrative Offices</b>	252	279.39	27.39	2
6.	<b>Park and play ground</b>	1769	3675.87	1906.87	22
7.	<b>Traffic and transportation</b>	1009	1782.65	773.65	11
8.	<b>Railway</b>	220	0	-220	0
9.	<b>Other</b>	0	857.95	857.95	5
<b>10</b>	<b>Total</b>	<b>10211</b>	<b>16721.83</b>	<b>6510.83</b>	<b>100</b>

## 11 Present Scenario of Solid Waste Management

The Major components of Solid Waste Management are:

1. Composition of municipal solid waste
2. Participation of stake holders
3. Source Segregation
4. Primary Collection
5. Secondary Storage
6. Secondary Transportation
7. Processing and Disposal
8. Problems faced by the ULB during implementation of present SWM system in the city.

**Table 4: Waste collection capacity of ULB**

Sl.No.	Type of Vehicle	Total No.	Each Capacity in (m <sup>3</sup> )	No. of Trip	Total Waste transport in (m <sup>3</sup> )
1.	Big Truck	06	10.5	4	252
2.	Mazda/Medium Truck	11	4	4	176
3.	Tractor Trolley	40	3	3	360
4.	Compactor	02	10	2	40
5.	D.P. Vehicle	07	4.5	4	126
6.	R.C. Vehicle	03	8	3	72
	Total	69			1026

**Total average waste collection capacity of MCB = 1026X.45 MT/m<sup>3</sup> = 461.7 MTD**

The following bar-chart figures is indicative of the typical waste fractions in municipal solid waste generated in India.

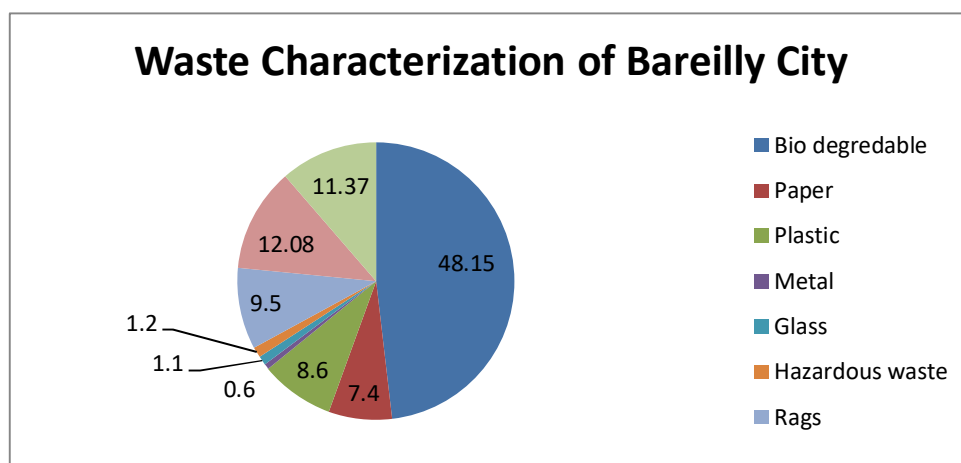


Table 5: Estimation of Source Wise Generated Per Day

Sl. No.	Type of Solid Waste Source	Total	Unit quantity of waste generated by various source in (Kg.)	Total quantity of waste generated per day in	(%) out of total waste
A - 1	Non - Slum House holds	130709	1.5	196.06	43.95
-2	Slum House holds	33813	1.25	42.27	9.48
-3	Commercial shops	21650	3	64.95	14.56
-4	Hotel bed >25 bed	14	25	0.35	0.08
-5	Small Hotels	436	11.5	4.86	1.18
-6	Markets (small)	40	350	14	3.13
-7	Weekly market	5	2500	12.5	2.57
-8	Choultries	24	50	1.2	0.26
-9	Hostels	35	21	0.74	0.16
-10	Institutions	185	2.5	0.46	0.10
-11	Boarding & lodging centers	15	35	0.53	0.11
-12	Vegetable shops	850	50	42.5	9.52
-13	Meat shops	412	4.5	1.85	0.41
-14	Slaughter House	2	245	0.49	0.10
-15	Municipal waste from Industries	35	125	4.38	0.98
-17	Theater	7	5	0.04	0.008
-18	Street sweeping waste			35	7.85
-19	Horticulture waste			12	2.69
-20	Waste from floating population				
<b>Total Solid Waste</b>				<b>448.89</b>	
				<b>100.00</b>	
B- Total C&D waste generated per day (in mT)					

Table 6: Calculation of Waste as per Capita Generation

Present Population of the City (a)	Waste generation /day/Capita (b)	Total Waste generated per day in TDP(a*b)
10,28,000	0.435	447.18

### 11.1 Characterization of Municipal Solid Waste :

- a) Total Organic Waste / Wet Waste - 215.3mTD.
- b) Total inorganic Waste /Dry Waste - 172.5mTD.
- c) Total inert Waste - 54.05mTD.
- d) Total hazardous Waste - 5.70mTD.

## 11.2 Participation of Contractor & their performance

- Total number of wards: - **80**
- Number of wards out sourced: - **Zero**
- Number of wards managed by the ULB: - **80**
- List of SWM activities that are outsourced:
  - Door to door collection (DTDC) in 59 wards.
  - Main road sweeping 60 km.(10 wards )
- Hired the workers for street sweeping and DTDC: - **320**
- Number of contractor's workers engaged for, Street sweeping:- **120**
- Primary collection of waste: - **59 wards**
- Number of Storage (community bins +PuccaDhalaw): - **230**
- Treatment Unit: - **01 of 100 MTD capacity**
- Waste Disposal Unit: - **01**

## 11.3 Segregation:-

Segregation has not started yet. All wastes (organic/inorganic) are collected & dumped together in community bins and dhalawghar from where the waste is collected & disposed off at dumping site (Bakerganj, 5 km from city)

## 11.4 Primary Collection:-

Total quantity of waste generated in each day : **450mTD(approx)**

Partial primary collection is done to collect waste from households, commercial establishment & bulk generators at the point of generation, waste are dumped into community bins.

**At present**, 17 nos. of Auto tripper and 200 nos. of rickshaw and 300 nos. of push cart are in use to collect the waste from door step.

**Table 7: Total number of community bins and pucca dhalaw ghar located in the city.**

Type 'A' PaccaDhalawGhar @ 40m <sup>3</sup> each	Type 'B' Community Bin @ 4.5 m <sup>3</sup>	Type 'C' Community Bin @ 02 m <sup>3</sup>	Type 'D' Community Bin @ 01 m <sup>3</sup>	Type 'E' Litter Bins @ 0.16 m <sup>3</sup>
20	90	40	80	500

## 11.5 Street Sweeping

About 60% of total roads and streets are swept daily, about 20% of total roads swept /cleaned on alternate days and the remaining twice a week.

## 11.6 Desolation of Road Side Drains:

- Frequency of desilting the road side drains :- twice per year. (**May & Nov.**)
- Frequency of desilting major storm water drains :- twice per years. (**April & Nov.**)



**A- Under ground drainage/Sewer System:**

Approximately 45 Km. trunk sewer/underground water drainage system exists in a city but at present no treatment facilities are available. Trunk Drain/sewers are cleaned regularly as per requirement.

**B- Major storm water drains:-**

Process adopted for desilting: Machines are use (JCB, Nala Safayi machine for desilting of main storm water drains.

**11.7 Secondary Storage**

The waste from individual household are dumped in to community bins and dhalawghar. The waste is then loaded into tractors, truck, dumper placer (D.P) Vehicle etc. and then taken to Bakarganj dump site for disposal. Vehicles deployment for collection of the waste from different locations/ dhaloghar and bins and transportation upto dumping site Bakarganj has been annexed in **annexure no. 2**.

## 11.8 Transportation

Quantity of waste transported per day 440 Tones per day. Distance between the city and dumping site is 5 km.

Table 8: Transportation

Sl. No.	Type of Vehicle	Total No.	Each Capacity in m <sup>3</sup>	No. of Trip	Total Waste transport in m <sup>3</sup>
1.	Big Truck	06	10.5	4	252
2.	Mazda/Medium Truck	11	4	4	176
3	Tractor Trolley	40	3	3	360
4.	Compactor	02	10	2	40
5.	D.P. Vehicle	07	4.5	4	126
6.	R.C. Vehicle	03	8	3	72
	Total	69			1026

The road route for transportation of waste is not fixed or defined yet. This is in process. **Vehicle deployment chart for collection of waste from different dhalawghar is annexed as annexure 2**

### 7.8 Processing and Disposal of waste

#### Disposal method for waste collected from residential area:

Waste is collected from community bins and pucca dhalaw ghar and is dispose off by processing about 100mTD remaining waste is dumped at Bakarganj disposal site.

#### Disposal Method for waste collected from street sweeping:

The Waste collected from street sweeping is disposed off open dumping method in Bakarganj.

#### Disposal Method for desilted waste:-

Waste collected from desilting drains is disposed off by open dumping method in Bakarganj Land dumping site.

#### Number of sites used for the disposal of waste in the ULB:

Only one disposal site. (Bakarganj)

**Location of the site:** Ward No. 38 Bakarganj.

#### Decentralized system.

No decentralized system of solid waste treatment is practiced .

### 11.8.1 Problems faced by the ULB during the implementation of SWM

- Lack of knowledge and awareness among the public regarding SWM.
- Problem of free riders.
- Difficulty in collection of user charges for door to door collection (DTDC)
- Non-cooperation of public & staff for DTDC.
- No previous planning & late start of SWM process in the city.

Table 9: Deficit Analysis of Preset SWM system

<b>Deficit Analysis of present SWM System</b>			
<b>Action</b>	<b>MS Rule 2016</b>	<b>Present Status of</b>	<b>Proposed SWM system</b>
Segregation	<ul style="list-style-type: none"> <li>Organizing awareness programmes.</li> <li>Extent of segregation</li> <li>Promoting recycling or reuse of segregated materials.</li> <li>Phased programme to ensure community participation in waste segregation</li> </ul>	<ul style="list-style-type: none"> <li>No effective awareness programmes are organized</li> <li>No segregation and recycling is followed.</li> <li>Recycling and reusing is not followed.</li> <li>No phased programmes are arranged to ensure community participation</li> </ul>	<ul style="list-style-type: none"> <li>Effective awareness programmes by dedicated team are proposed from May 2019.</li> <li>Segregation at source effectively formulated through third party from July 2019.</li> <li>Recycling and reusing is followed by involving local rag pickers at different material recovery facility (MRF).</li> <li>Programmes to ensure community participation in waste segregation by using enforcement of law.</li> </ul>
Primary collection	<ul style="list-style-type: none"> <li>Door to door waste collection.</li> <li>Slums, bulk generators, Commercial and agricultural waste should have separate collection system.</li> <li>MSW should not mix with hospital and industrial waste</li> <li>No burning of waste</li> <li>Recycling of non-biodegradable waste</li> </ul>	<ul style="list-style-type: none"> <li>Door-to-Door collection is followed only in 59 wards with partial coverage, in remaining of the wards the waste is dumped into community bins.</li> <li>MSW sometime mixed with other type of waste.</li> <li>Partial recycling at few houses or other institutions followed by selling of recycling material to local rag-picker.</li> </ul>	<ul style="list-style-type: none"> <li>Effective door to door collection in all 80 wards with 100% coverage of house and commercial establishment.</li> <li>Separate collection system is proposed at each door step level by out sourced agency activities enforced by using by laws.</li> <li>Enforcement of MSW rule 2016 used for maintain the separate waste stream upto the disposal point.</li> </ul>
Secondary storage	<ul style="list-style-type: none"> <li>Adequate number of covered storage bins</li> <li>Colorization of the bins: <ul style="list-style-type: none"> <li>Bio-degradable wastes -green</li> <li>Recyclable wastes - blue</li> <li>Other wastes– black.</li> </ul> </li> <li>Avoid manual handling of waste</li> </ul>	No separate secondary storage system is Followed. All the waste are collectively dumped in community bins	<ul style="list-style-type: none"> <li>Procured sufficient number of color coded covered storage bins at required place for separate type of waste.</li> <li>Color coding are strictly enforced</li> <li>Manual handling of waste is avoid using different type of available technique (liner bag with thread ) for handling the waste.</li> </ul>

Transportation	<ul style="list-style-type: none"> <li>• Covered transportation vehicles</li> <li>• Avoid multiple handling of waste</li> <li>• No open dumping</li> <li>• Regular clearance frequency</li> </ul>	Partial covered transportation is used and waste are multiple handled and dumped in disposal site.	<ul style="list-style-type: none"> <li>• Covered Vehicles are used for transportation of wastes.</li> <li>• Avoid multiple handling of waste.</li> <li>• Open dumping is followed</li> </ul>
Processing:	<ul style="list-style-type: none"> <li>• Waste recycling .</li> <li>• Bio-degradable waste has to be inertised and preferably reused after processing like compost etc.</li> <li>• Inert should be land filled in a scientific manner.</li> </ul>	Only 100m <sup>3</sup> tones waste processed scientific manner remaining waste is dump on disposal site.	<ul style="list-style-type: none"> <li>• Recyclable wastes should be recycled.</li> <li>• Bio-degradable wastes to be processed after processing in the form of manure.</li> <li>• Inert waste send to land fill site for scientific disposal.</li> </ul> <p>* Scientific disposal or Processing of waste is proposed.</p>
Disposal	• Sanitary landfill	Land has been identified.	✓ Scientific Processing of waste is proposed.
Financial arrangement	-----	It is done through revenue from Municipal fund	✓ Initially 20 Crore has been ear-marked from Nagar Nigam funds and 14th finance commission fund for implementing the solid waste management as per rule 2016. Remaining amount are arrange from VGF under SBM.
Institutional arrangement	-----	Arrangements are made	The entire chain i.e. source to disposal site 3rd party will be identified through proper procedure and part payment will be borne by Nagar nigam while the remaining by user charges collected from public as per tariff decided by the Nagar nigam

## 12 Proposed Solid Waste Management Action Plan

Table 10: Analysis for the Proposed SWM System

Activity	Proposed Action Plan	Activities that ULB can take up	Activities that has to be privatized
<b>Creating awareness among the community and training of the SHGs worker</b>	Detailed action plan of awareness with the different stakeholders are prepared with date and month wise proposed activities. Community Level-Ward sabha School Level: Awareness camp Staff Level: Meetings and workshops Institutional Level: Meetings and workshops	Awareness organize in Ward Sabha along with the help of Counselors and local peoples. Initiate training program of sanitation staff and officers for improving their capacity building.	Involving the NGO's and other organization for achieving the goal.
<b>Street Sweeping includes</b>  • clearance of dry waste  • clearance of waste from litterbins  • Street sweeping along with roadside drain cleaning	Main road of the city is outsourced for cleaning the road and road side pathway. Presently 60 km of main roads of the city is outsourced for cleaning both dry and wet wastes. Which will have to increased upto 100 km. in the near future	Municipal Corporation will procure street sweeping machines and its operation and maintenance will be outsourced.	Street sweeping and cleaning of main road of the city will be out sourced to different agencies and service level agreement will be put in place and be enforced.
<b>Debris clearance</b>	Debris will be collected separately in the last trip and will dumped separately or will be used for filling low lying area.	ULB is responsible for the clearance of debris which is collected on identified area from where it can be suctioned periodically it can improve the earning of ULB.	Debris clearance activity is not outsourced. It will be collected and disposed of in regular interval. It will be managed by ULB.
<b>Door-to-door waste collection in non slum households</b>	Total number of non-slum households: 130709 nos. Number of Auto tippers required: 80 no. Number of Pushcarts required: 325 no. Number of tricycle required: 210 no	The ULB initially supports the auto tippers, pushcarts, tricycles as a capital cost to the outsourced agency. ULB also integrate the SHGs group with door to door collection team.	The expenditure on door to door Collection is partially borne by the ULB. Maximum part of the expenditure will be funded by the user charges.

Waste Collection of Bulk Generators	<b>Bulk waste generated per day</b> = <b>4.865 TPD</b>	Bulk waste generators should dispose their waste in-situ or MCB can provide service of waste collection through third party on payment basis.	Waste collection is outsourced on payment basis.
<b>Waste Collection in Slum Area</b>	<b>Collection Plan:</b> Total number of slum households: 33813 nos. Number of auto tipper required: 09 Number of Pushcarts required: 200 nos. Number of Tricycle required: - 50 nos.	In all slums area, ULB will collect the waste From door step. A separate strategy will adopt for waste collection.	Color coded bins are Placed at identify area to dump the house hold waste. ULB and outsource agency will work with proper understanding for waste collection and clearance from slum area .
<b>Transportation of Street Sweeping Waste and Debris</b>	ULBs provide separate Vehicular fleet for street sweeping and debris as per requirements. 05 Street sweeping machines, 08 tractors and 02 compactors all use for this purpose.	The ULB is responsible for transportation of street sweeping waste	ULB transports all type of waste by own resources from transfer station to disposal site at Bakerganj. ULB proposes to procure required number of big trucks equipped with GPS and geo-fencing technology will be used to track movement and trips of the vehicles.

<b>Processing and disposal</b>	<p>A concessionaire M/s AMAZO Waste Solution Pvt. Ltd. engaged through an agreement to dispose all the incoming waste in scientific manner by converting the waste into crude oil, sin gas and inert material, at present 100 TPD plant is installed and successful trial is achieved. Agency will replicate this plant for processing of all incoming wastes as well as legacy waste.</p> <p>For segregated wet waste decentralized compost plant is proposed in future for this land identification work is in progress.</p>	<p>For segregated wet waste decentralized compost plant is proposed in outskirts of the city at available land / park.</p> <p>For segregated dry waste material recovery facilities is being proposed at different location in the city with the help of local rag picker.</p> <p>For inert material sanitary landfill site has to propose for which land identification work is under progress.</p>	<p>.</p>
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## **12.1 Conducting awareness among the community**

The ULB's course of action for conducting awareness among the following target groups are as follows:

**For General Public:** Issue of handbills, use of local cable network, ward sabhas and through local mass-media.

**In Schools:** Awareness creating programme on importance of solid waste management

**Other Institutions:** Regular meeting with business community regarding management of waste.

**Outsourced Staff:** Weekly meeting explaining them about the work they have to perform and about solid waste management and taking care of their health.

**SWM Health workers:** Educate them on the importance of segregation, collection and handling of waste and regular health check up.

**Elected representatives:** Conducting workshop at ward level for elected members of ward prothshan committee in monthly basis. IEC activities (Nukkad Natak, Awareness rally etc.) at ward level with the help of DTDC team, elected representatives, children and public.

### **Information, Education and Communication**

For Bariely, success of solid waste project depends upon the attitude and willingness of waste generator in which IEC play an important role. For effective implementation of solid waste project, the IEC needed at three strata. Which are as followings:-

- Collection, segregation & treatment at household level
- Collection, Segregation & Treatment at community level
- Collection, segregation, transportation, treatment and final disposal at ULBs level

For effective implementation of waste management at these three levels, the required communication for target group will be identified on following basis:-

- To whom we are communicating (audience)
- What we are presenting (information)
- The method of communication (Mode of communication)
- Approach to bring changes (Action Plan)

Overall, Principles of strategy for IEC and Public awareness are based on the downward dissemination theory and Convergence theory for the message dissemination, Behavior change and capacity development on integrated Solid Waste Management (ISWM).



Following strategies shall be adopted by Nagar Nigam, Bariely to enhance the efficiency of cleanliness of city along with participation of community in waste management.

- **Sensitization cum Workshop of town leaders for BCC on SWM**

This workshop shall be aimed at sensitization of community leaders and also take their feedback. These town leaders shall be requested to disseminate the information amongst their community and they will be motivated to spearhead the movement in the town. This workshop shall also be utilized to identify volunteers dedicated to the cause of MSWM.

- **Sensitization cum workshop of Ward leaders for SWM**

This workshop shall be organized 7 – 10 days after the town leaders workshop and shall be aimed at establishing partnerships with the ward level community leaders. Ward level volunteers dedicated to the cause of waste management shall be identified in the workshop.

- **Sensitization cum workshop at community level**

It shall be done by way of ward level camps and other community based activities. SHGs formed in the wards could be assigned pivotal role in it. Use of folk dance, slogan and other community based communication system shall be established.

- **Training and sensitization of support organization and Volunteers on BCC**

Finally, the person who is collecting waste and manage waste shall be trained in such way that he could understand the objective of each activity.

- **Interpersonal Communication (IPC)**

Contacting every household through town leaders and supporting organizations, Volunteers. These volunteers shall convey the message to each and every household and take their feed back as well.

- **Adaptation of Convergence theory**

For the message dissemination and BCC by involving religious leaders, SHGs, Youth Clubs, Mahila Mandals, RWA and with prerecorded religious & Cultural programme.

- **Involvement of Academic Institution**

Involvement of Institutions academicians for the Environment and atmosphere building by school/College Student as School Rallies, Slogan writing, essay Competition etc.

- **Establishment of Swachhta Committee**

Formations and Involvement of Swachchata Committee comprising of Volunteers or Natural Leaders in each ward who will act as SBM ambassadors and take oath for Waste free Bariely and each committee shall have minimum 10 members. These motivated volunteer will play an important role and enforcement of SWM Rules, 2016 in their respective ward.

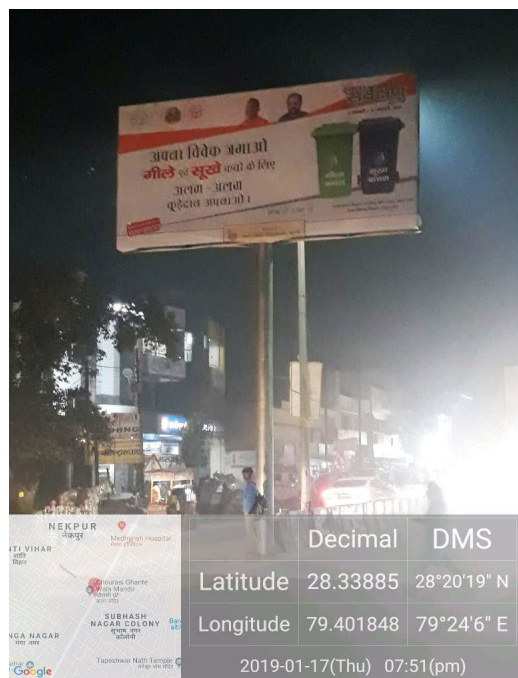
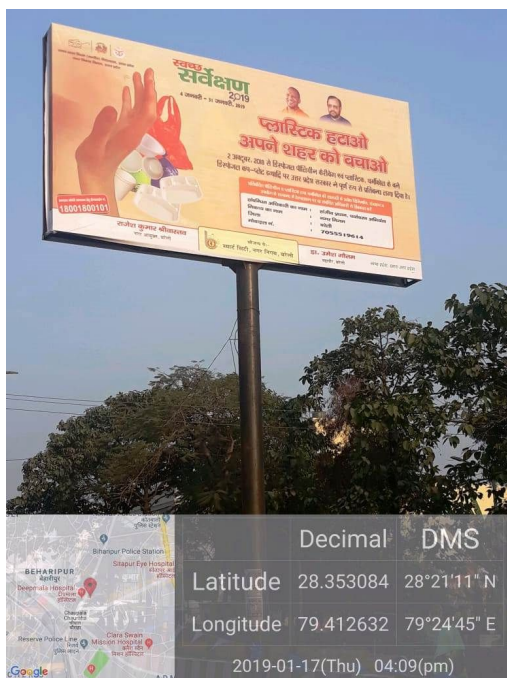
**Details of IEC program/activities with the different stakeholders is annexed in annexure no. 3**

## IEC Activity Schedule

			Year 2019								
S.No	Activities	Stakeholders	April	May	June	July	Aug	Sep	Oct	Nov	Dec
1	Awareness Program	Residence Welfare Society									
2	SWM Training	Sanitary Worker Training									
3	Nukad Natak/ Public Awareness program	Religious Place, Bus Stand, Railway Station & Public Places									
4	SWM Workshop	All NGO/Hotels Association/Banquet Hall Association/Vyapaar Mandal Association/Hospital Association Etc									
5	SWM Training Program	Waste pickers									

6	SWM Workshop	Swachh Vatavaran Protshahan Samiti										
7	Nukkad Natak/ SWM Awareness Program	NNB Employees										
8	SWM Workshop	All Ward Councilor (01-80)										
9	Painting Competition, Eassy Competition, Logo Competition, SBM Quiz	Schools										
10	All Competition	Top 05 School Prize Distribution										
11	Maha Rally	Maha Rally										
12	SWM Training	Sanitary Worker										

13	workshop	NGO/SNG									
14	Rally/Rangoli Competition/Nukad Natak	Nagar Nigam Compound (Kasturba Girls Inter College, Molana Azad Inter College, Tilak Inter College)									
15	SWM Workshop	All NGO/Hotels Association/Banquet Hall Association/Vyapaar Mandal Association/Hospital Association Etc									
16	Awareness Activities (Wall Painting, Holding, Banners, Pumplet Distribution)	All Reliques Places/Sabji Mandi/Commercial Areas/Residential Area/Slum Areas/All Parks/Bus Stand/Railway Station & Public Places									
17	Awareness Program Inter Ward Competition for sanitation Service Benchmark sensitisation	All Reliques Places/Sabji Mandi/Commercial Areas/Residential Area/Slum Areas/All Parks and Gardens/Bus Stand/Railway Station/All CT & PT/ Public Places									



***NB: Although, Rag picker mobilization and strengthening is extra part of SWM with convergence of NULM. Under the partnership, we will do the strengthening rag pickers and Kawbadis wala for the collection and segregation of SWM at HHs Level as well as at the waste sorting centre by giving them training and also their capacity development for their livelihood.***

The format of communication material will be as follows:-

S.No.	Name of Format	Design Specifications	Standard Size
1.	Hoarding	12ft×8ft	Big Size
	Hoarding	8ft×5ft	Medium Size
	Hoarding	5ft×3ft	Small Size
2.	Banners	6ft×4ft	Big Size
	Banners	5ft×3ft	Medium Size
	Banners	3ft×2ft	Small Size
3.	Poster	2ft×3ft	Big Size
4.	Poster	1.6ft×2ft	Medium Size
5.	Poster	1ft×1.6ft	Small Size
6.	Pamphlet	5”×7”	4 Page fold
7.	Audio/video clipping	30 Sec spot	For Facebook/FM and other electronic communication
8.	Brochure on SWM	320mm×460mm	Half fold
9.	Slogan	One line to 5 line in local language/Hindi	In terms of key word slogan
10.	Folk	20 min	Local and target group (audience) specific

## 8.2. Segregation

The waste has to be segregated into two types:

**Wet waste:** food waste, bio-degradable waste etc.

**Dry waste includes recyclables:** Paper, plastics, rubber, wood, inorganic wastes etc.

## 8.3 Primary collection

The primary waste collection is to be taken under two heads:

A. **Street sweeping:**-ULBs provide separate Vehicular fleet for street sweeping as per requirements. 05 Street sweeping machine and 80 auto tipper (1 for each ward) and 400 pushcart (avg. 5 in each ward) and 02 compactor are required for cleaning the street & road. Main road of the city is swept daily basis throughout-sourced agency and mechanical sweeping machine. Other road are clean regular basis by the own ULB staff. All required resources are available in MCB except street sweeping machine. Tender/bidding already done and will available for work since June 2019. Street sweeping include following activities. :-

- ✓ Cleaning of silt accumulation along kerbs, meshes and shoulders of drain.
- ✓ Sweeping of road, streets and footpath.
- ✓ Cleaning of wild vegetation (grass and plants on the sides of road).
- ✓ Cleaning of desilting of open drains.
- ✓ Emptying of litter bins.

About 1900 sanitary workers had been deployed for cleaning the city regularly. They involve in all above activities for cleaning the city. Municipal Corporation Bareilly has propose to equipped them with all protective wear gears i.e. gloves, mask, apron, boot etc. for protecting them from contact of dust and garbage. The requirements of the protective wear and gears have been shown in table no. 11 for year 2019-20.

**Table 11: Protective wear and gear for sanitary workers for year 2019-20**

S.No.	Particulars of item/ equipment	Numbers
1	Hand gloves	4000
2	Masks	4000
3	Boots	2000
4	Florescent Aprons	3000

For providing dust free city ULB have to clean (sweeping) twice in a day at all commercial areas. For this purpose required Number of sanitation workers along with equipment has to outsource. Time-line



for ensuring dust-free of city is targeted by October, 2019.

## **B. Door-to-door waste collection:**

### **B-1 Door-to-door collection for non slum house hold.**

- Number of non slum house hold in the city in 80 wards = **130709** house hold.
- Total number of command area @ 05 each wards = **400**
- Requirement of auto tipper, tricycle, push cart required as per ward locations.

On an average 01 auto tipper is required per ward which could serve at least one thousand households.

Total households serviced by the auto tipper = **80,000**

Remaining non-slum households served by tri-cycle, pushcart =  $130709 - 80000 = 50709$ .

One Tricycle can serve 200 households per day and on an average 03 tricycles are required in each ward which can serve 600 households. Hence for 80 wards, 240 tri-cycles are required which can approximately serve 48000 households in the city.

For non-slum house hold requirement of

Auto tipper = 80 nos ,SHG or workers require = **160**

Tricycles = 240 nos ,SHG or workers require = **240**

Puch chart = 50 nos ,SHG or workers require = **50**

Total SHG or workers required for waste collection in non-slum house hold= **450**

Supervisory/user charge collector = **80**

Managerial staff 10 in each wards= **08**

Total manpower required for non-slum house hold =  $450 + 80 + 8 = 538$ .

### **B-2 Door to door collection for slum house hold.**

- Number of slum house hold in the city in **48 slums** = **33813** house hold.
- Total number of command area @ 01 each slum = **48**
- Requirement of auto tipper, tricycle and pushcart required as per ward locations.

On an average @ 01 auto tipper required for 03 slum area. Which serve average one thousand house hold. Total household served by the auto tipper **16000** ( $48/3=16$ )

Remaining slum household served by tricycle, pushcart =  $33813 - 16000 = 17813$

Tricycle served @ 200 house hold per day average require 01 in each slum. Which served 9600 house hold in slum area. Rest approximate 8200 household have to served by pushcart with @ 60 household each. Which required 136 pushcart.

For slum house hold requirement of

Auto tipper = 16nos, SHG or workers require = **32**

Tricycles = 48nos, SHG or workers require = **48**

Push chart = 136nos, SHG or workers require = **136**

Total SHG or workers required for waste collection in non-slum house hold= **216**

Supervisory /user charge collector = 08

Managerial staff 10 in each wards= 02

Total manpower require for non-slum house hold = **216+8+2= 226.**

### **B-3 Door to door collection for Shop, Commercial and others.**

Total No. of shops commercial and others =23410

For this type of unit only auto tipper are used for collection of segregated waste. On an average one auto tipper use for 400 users. Total number of auto tippers required= **60.**

Total SHG or workers required for waste collection for Shop, Commercial and others. = **120**

Supervisory/user charge collector = **30**

Managerial staff 10 in each wards= **06**

Total manpower require for Shop, Commercial and others. = **120+30+6= 156.**

### **B-4 Door to door collection for Bulk waste generators (BWG)**

Total number of bulk waste generators =**127**

In city it can be assumed that @25 % of bulk waste generators.e32 nos process their waste in-situ.

**Remaining 95BWGs** need help from MCB for transportation & processing of waste on payment basis. Auto tipper required for collection & transportation of waste from bulk generators atleast 1 for 10 BWGs which translates to 10 to cover all the BWGs.

**Table 12: Resources required for door to door collection of waste in Bareilly City**

S.No.	Door- to- door collection	No. of Auto tipper	No. of Tricycle	No. of Pushcart	Man power Engaged		
					SHG/ Sanitary worker	Super -viser	Manager
1	Door to door collection for non slum area /house hold	80	240	505	450	80	8
2	Door to door collection for slum area /house hold	16	48	136	216	08	02
3	Door to door collection for Shop, commercials & others	60	--	--	120	30	6
4	Door to door collection for Bulk waste generators	10	--	--	20	10	2
	<b>Total</b>	<b>166</b>	<b>288</b>	<b>186</b>	<b>806</b>	<b>128</b>	<b>18</b>

All auto tipper will equipped with GPS, for monitoring the service a control unit will work under the guidance of the municipal commissioner.

ULBs have to arrange all capital resources through 14th Finance Commission and its own fund. Time-line to complete **100% door-to-door collection is by September 2019.**

**Table No. 12: Waste collection plan:**

Type of waste	Frequency of waste collection
---------------	-------------------------------

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday.
Wet waste collection from residential area 6:30 AM to 10:30AM	✓	✓	✓	✓	✓	✓	✓
Dry Waste collection from area including residential and commercial area. 10:00AM to 1:00 PM.	✓	✓	✓	✓	✓	✓	
Waste collection from bulb generator 2:30 PM to 4:30 PM.	✓	✓	✓	✓	✓	✓	✓

City map de marketing the command area for primary waste collection through SHG/workers in the non-slum house hold area.

#### **B-5.Collection of construction and demolition waste and dead animal/carcass.**

For collection of construction and demolition waste has to plan separately as per C&D waste rule-2016. For this request for proposal are invited for 11 points in different locations in the city as given in **annexure -4**. C&D waste collected from the different identified locations/places of the city are proposed to transfer to Swale Nagar ward no. 30 where C&D waste processing Unit is proposed. Total services have been planned to be out-sourced as per the C& D rules-2016. **Time-line for this service implementation will be August, 2019.**

In the case of dead animal/carcass disposal, both collection and disposal will be out-sourced as per rules.

#### **B-6. Contingency plan for waste collection:-**

The contingency plan for waste collection for emergency and additional work such as Mela, rally, local festivals etc. For this purpose a special gang with 20 workers with all equipment, bins and vehicles will be made available 24×7.

#### **B-7.Placement of Litterbins:-**

Dual-type Litterbins (for wet and dry wastes) having individual capacity of about 50 litres are placed at different parts of the city as per need and requirement. In commercial area bins are placed about 100 metres distance and other residential areas bins are placed as per requirement or about 500 metre distance. 1200 bins are planned tube placed, out of which about 500 bins are already placed. All the litter bins are equipped with color coded liner bags to avoid the direct contact of garbage. Approved quality PVC liner bags will be used in this process.

## 12.2 Secondary Storage

Waste collected from every door step is transported to different secondary points. Details of secondary points in the city are shown in this table.

**Table 13: Table showing the different type of secondary storage**

<b>Type 'A'</b> <b>Pacca Dhalaw</b> <b>Ghar</b> <b>@ 40m<sup>3</sup> each</b>	<b>Type 'B'</b> <b>Community Bin @</b> <b>4.5 m<sup>3</sup></b>	<b>Type 'C'</b> <b>Community Bin @ 02</b> <b>m<sup>3</sup></b>	<b>Type 'D'</b> <b>Community Bin @</b> <b>01 m<sup>3</sup></b>
20	90	40	80

MCB is planned to eliminate that type of secondary storage point in phase-wise manner and proposed transfer station to collect the entire zone-wise waste generated. Following places are identified for the construction of transfer stations in the city:

- 01- Near C.I. Park. Ward no 08
- 02- Pilibhit road near Jagran office. Ward no 03
- 03- Swalley Nagar near railway track. Ward no 30
- 04- Budaun road. Ward no 12

Plan for construction of four transfer stations is prepared and work is proposed to begin from June 2019 and will be completed by august 2019. After construction of transfer stations, Pucca Dhalaw Ghar and other types of bins will be eliminated in a phase manner.

For collection of recycle waste material recovery facilities (MRF) are planned at 08 places, two in each zone of the city. At every transfer station a place will be provided for material recovery facilities from where recyclable material will be sorted out and be disposed according to provisions of SWM rules 2016. Local rag-pickers will be engaged for recovery of recyclable material. Time-line for starting the MRF is August, 2019 and proposed to complete up to October 2019. Place identify for construction of MRF are as follows-

**Table 14: Place of Material recovery facility (MRF) and Decentralized Compost Unit**

S. no	Zone nos	Place of Material recovery facility(MRF) and Decentralized Compost Unit		
1	1	Swalley Nagar near railway track W-30	Kunwarpur W-56	
2	2	Budaun road W-12	Indra Market W-20	Sarai khan W-64
3	3	Near C.I. Park. W-08	Delapeer W-67	Shahdana W-60
4	4	Pilibhit road near Jagran office. W-03	Bukharpura W-30	Badibihar W-10

### 12.3 Transportation of waste:-

Total waste generation of the Bareilly city from different sources are about 450 MTD. The wastes are collected from different secondary storage points and transported by the vehicle of Nagar Nigam. The available vehicle for transportation of waste is shown in the table.

**Table 15: Vehicle Details**

Sl.No.	Type of Vehicle	Total No.	Each Capacity in m <sup>3</sup>	No. of Trip	Total Waste transport in m <sup>3</sup>
1.	Big Truck	06	10.5	4	252
2.	Mazda/Medium Truck	11	4	4	176
3	Tractor Trolley	40	3	3	360
4.	Compactor	02	10	2	40
5.	D.P. Vehicle	07	4.5	4	126
6.	R.C. Vehicle	03	8	3	72
	<b>Total</b>	<b>69</b>			<b>1026</b>

After construction of transfer station at identified locations following plan is proposed for transporting the waste.

**Table 16: proposed vehicles deployment from the proposed Transfer station**

Sl.No.	Transfer station Location	Vehicle deployed Big Truck HIWA	Capacity of each vehicle in mT.	No. of Trip	Total waste Transport ( inmT.)
1	Near C.I. Park.	03	10	04	120
2	Pilibhit road near Jagran office.	03	10	04	120
3	Swalley Nagar near railway track.	03	10	04	120
4	Budaun road.	03	10	04	120
	<b>Total</b>				<b>480 mT.</b>

At least 12 big trucks are required for transportation of entire waste collected from the city. Available small vehicle are used for transportation of waste upto the transfer station. Available two big trucks are used for standby arrangement. Two existing compactors are used for collecting wastes from outskirts of the city. All vehicles used for the transportation of wastes will be equipped with GPS for proper monitoring and controlling of the entire cycle. Route map of the primary and secondary waste collection and transportation is annexed in **annexure no.5**

#### **12.4 Processing and disposal of waste:-**

MCB has two land segments as detailed below:-

**01- RajauParaspur:-** Nagar Nigam has 21.2 acre of land for solid waste management plant. In this land a processing plant for converting the waste into compost and sanitary landfill has been made. Due to local hindrance and writ filed public interest of the nearby land holders, the Hon'ble NGT had temporarily closed this plant.

**02- Bakarganj:-** Nagar Nigam currently dumps entire collected waste of the city in Bakarganj processing plant. Nagar Nigam engaged a concessionaire AMAZO Waste Management Solution for processing the generated waste and legacy waste at the site for bio-remediation/conversion into a usable form. Detail of this site as given below.

- a) Name of location : Bakarganj
- b) Type of land : Nagar Nigam
- c) Area : 7.182 Hectare. approximate 17 Acre.
- d) Minimum distance from the city : 01 Km.
- e) Maximum distance from the city : 09 Km.

- f) Average distance : 5 Km.
- g) Total Legacy Waste : Approx 06 lac tons.
- h) Present status : Waste heaped upto 10-15 meter height.

At this plant concessionaire M/s AMAZO waste management solution established a processing plant of 100 mTD for converting the waste into fuel, sin gas and inert material. Concessionaires have planned to establish similar 06 parallel units for processing the entire generated waste of the city as well as legacy waste.

### 03- Decentralized Material recovery center and Compost Processing Unit

BMC had identified the 11 different locations in the municipal area as per above table no 13 for Decentralized Material recovery center and Compost Processing Unit.

BMC has also initiated the process for identifying other suitable land at the outskirts of the city with proper road access in order to establish a decentralized processing plant and sanitary landfill site for safe disposal in the near future.

**Table 17: Daily activity chart for SWM.**

Activities	6.30 to 8.30	8.30 to 9.30	9.30 to 11.30	11.30 to 12.30	12.30 to 2.30	2.30 to 4.30	4.30 to 6.30
<b>Part A – Collection and Transportation</b>						✓	✓
Street Sweeping	✓	✓	✓				
Door to Door Collection from Residents	✓	✓	✓	✓			
Waste collection from slums		✓	✓				
Collection from Bulk Generators	✓	✓				✓	
Transportation of wet waste				✓	✓		✓
Transportation of s street sweeping waste			✓	✓			✓
Collection and transportation of constructional waste						✓	✓
Cleaning of drains	✓	✓	✓			✓	
<b>Part B – Processing and Disposal</b>							
Processing and Disposal			✓	✓	✓	✓	✓

**Time line (start and completion of different SWM activity) is annexed as annexure-6**

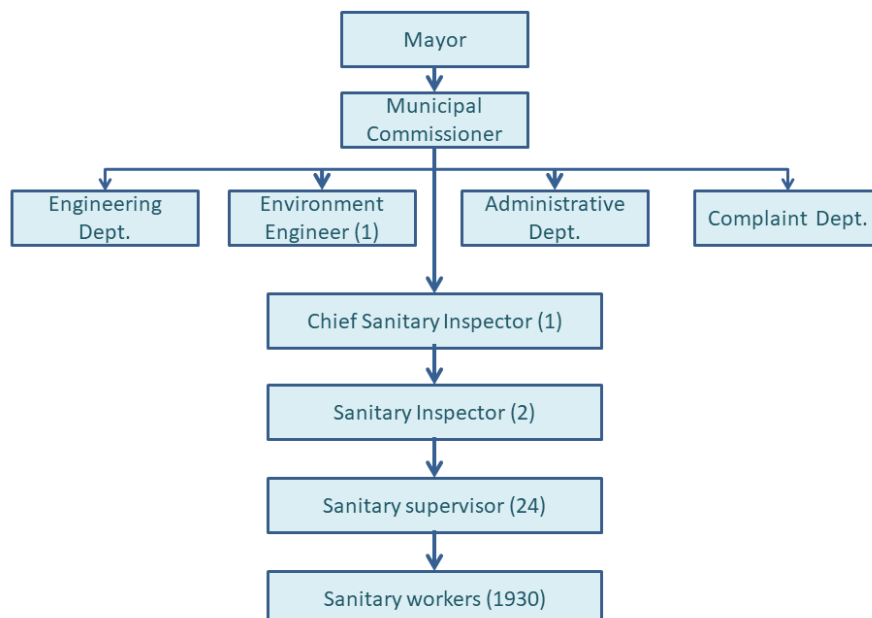
## 12.5 Institutional Arrangement:-

(A) Presently the following staff is working under SWM the table below given the details of the work that allotted presently.

**Table 18: Institutional Arrangement**

Present staff for SWM	Number	Work allotted presently
Sanitary workers (Permanent)	1318	Cleaning Activities
Workers (On contract wages)	634	Cleaning Activities
Drivers	22	Driving Activities
Cleaners	02	Assistance in transportation
Supervisor	24	Supervising Sanitary Workers
Inspector	08	Supervising SWM Activities.
Chief Sanitary Inspector	02	Supervising SWM Activities.
Environment Engineer	01	Monitoring overall SWM Activities

### 12.5.1 Organizational Structure of SWM





### 12.5.2 Financial Arrangement:-

The financial requirements are proposed to be worked under two components.

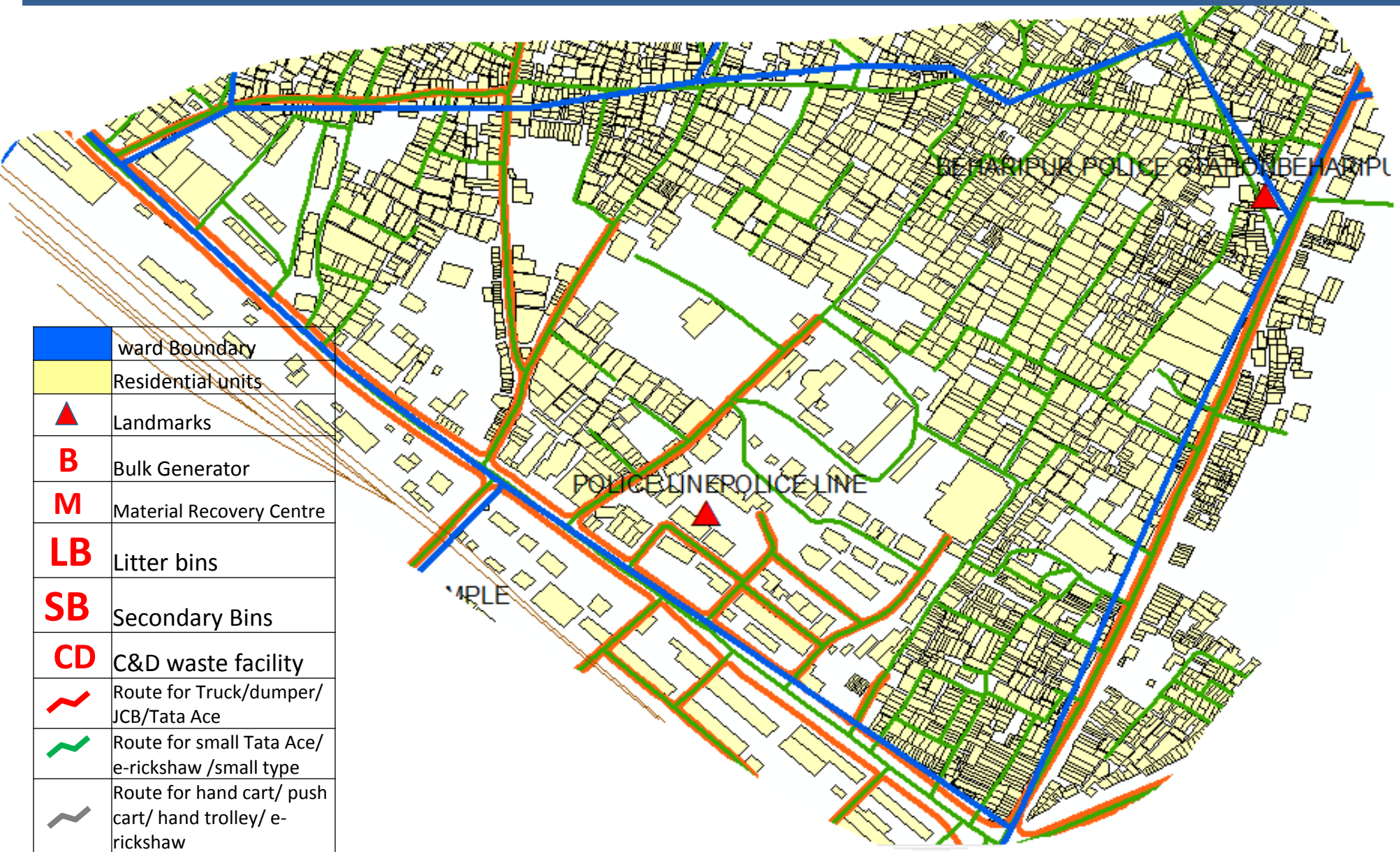
1. Capital Cost
2. Recurring Cost.

**01-Capital Cost:-** Nagar Nigam procure vehicles, equipment, tool, plants etc. All essential items for solid waste management can be made available under the 14th finance Commission grants to the ULB. Currently, Rs. 10 crore is approved under FFC for purchasing of essential vehicle for managing solid waste.

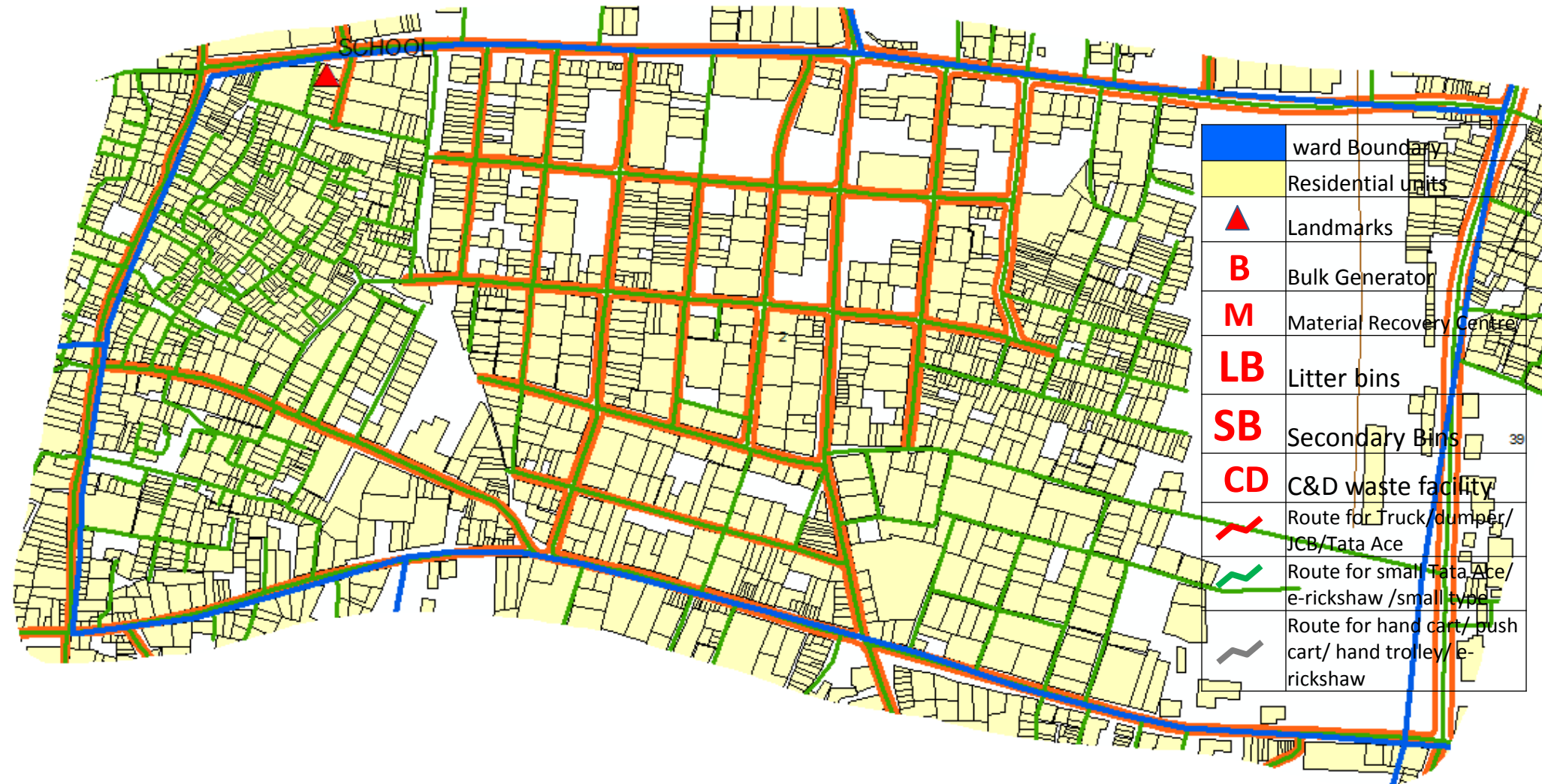
**02- Recurring Cost:-** Nagar Nigam allocated about 5% of the total yearly budget for recurring expenditure of solid waste management (SWM) in the last three years. This budget is used for door-to-door collection, transportation of waste, fuel expenditure, maintenance of vehicle and procurement of tools and equipment. As per commitment of the Nagar Nigam Board Rs. 10 crore will be further allocated in supplementary budget for improving the services of solid waste management as per MSW Rule-2016.

A Detailed DPR for Integrated solid waste management is mandatory for addressing all the issues related to solid waste management after a detailed survey and study of socio-economic and environmental conditions of the city aspiring to become Smart city. Remaining amount of the project cost (as per DPR) can be made available from VGF of Swachch Bharat Mission.

# SWM Route Map for Ward no. 1



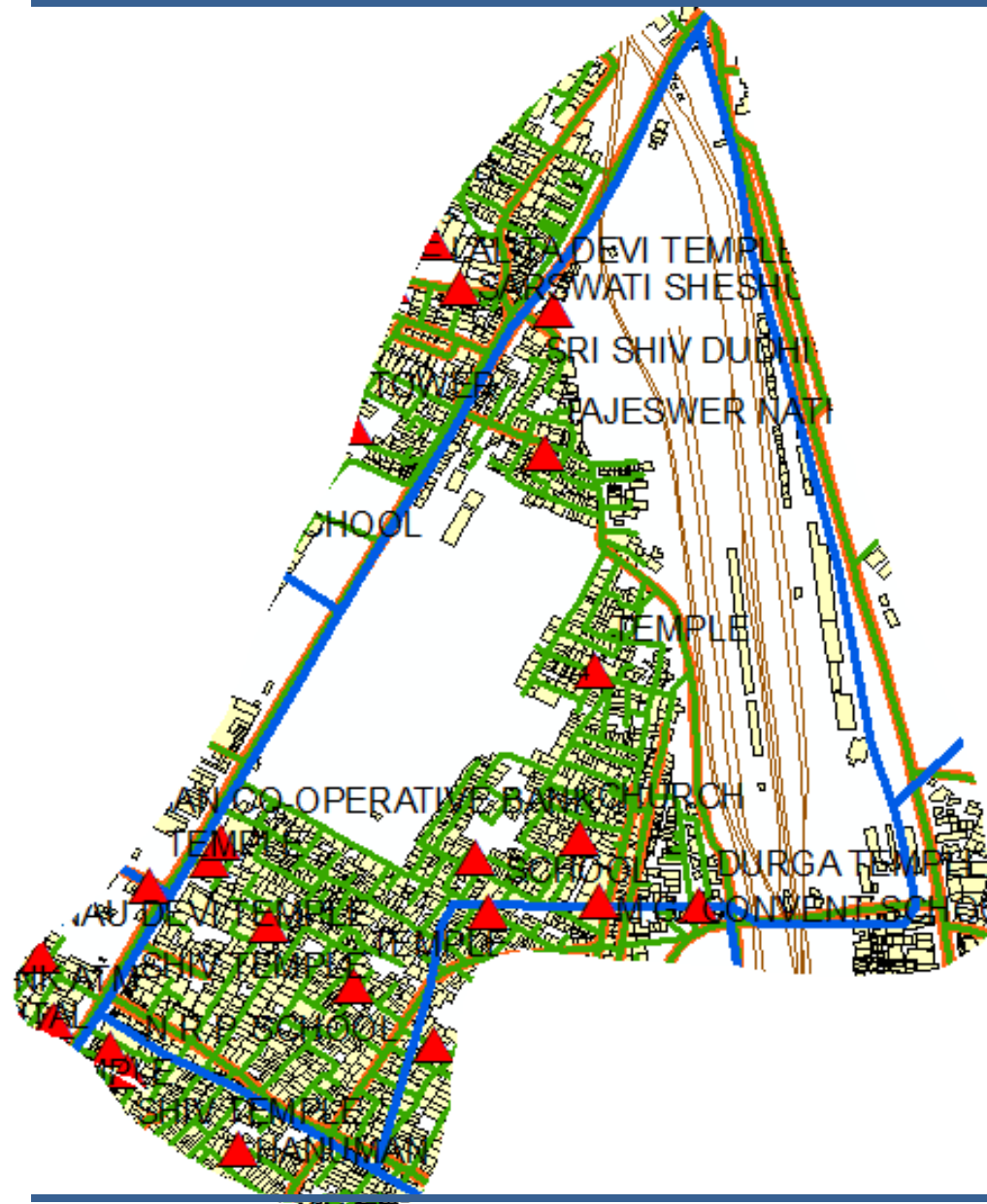
# SWM Route Map for Ward no. 2



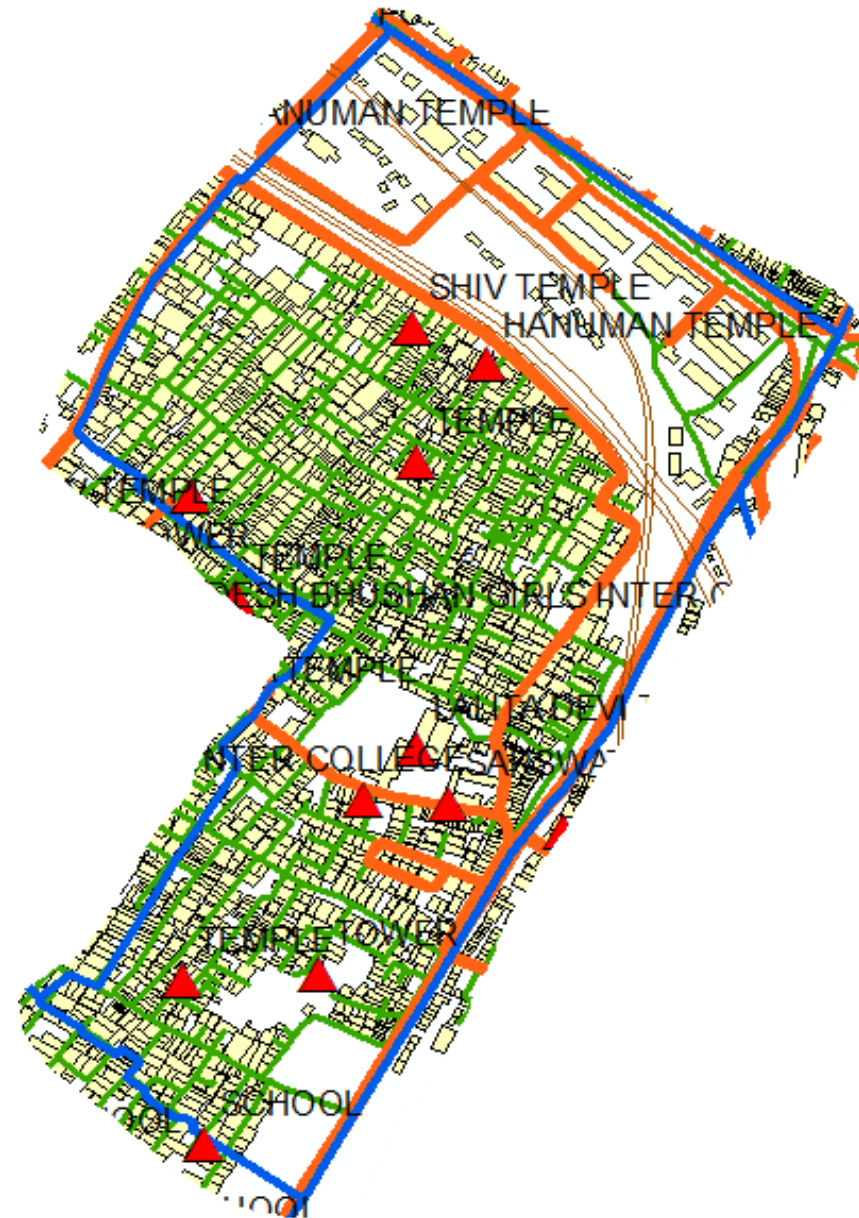




	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



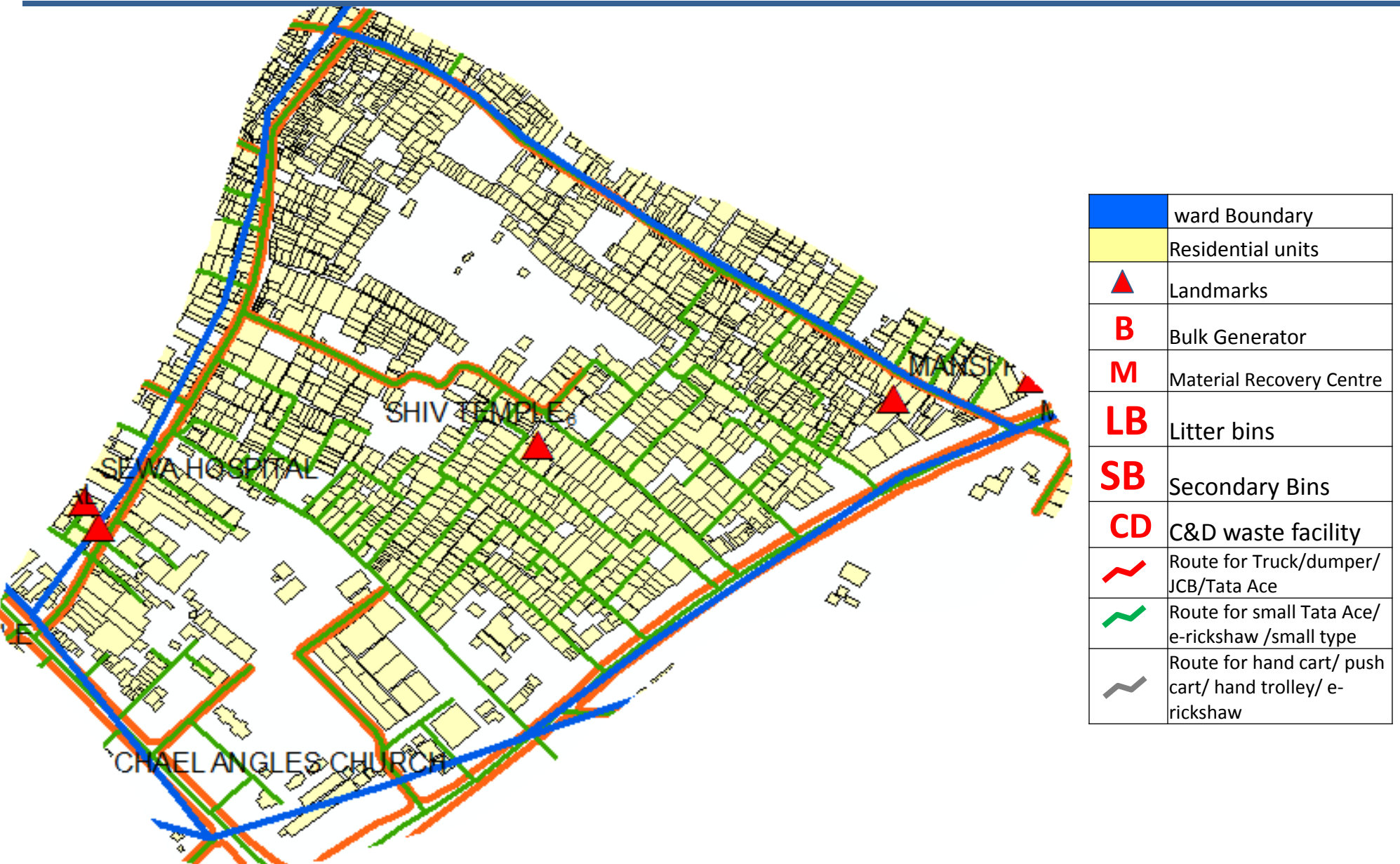
	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



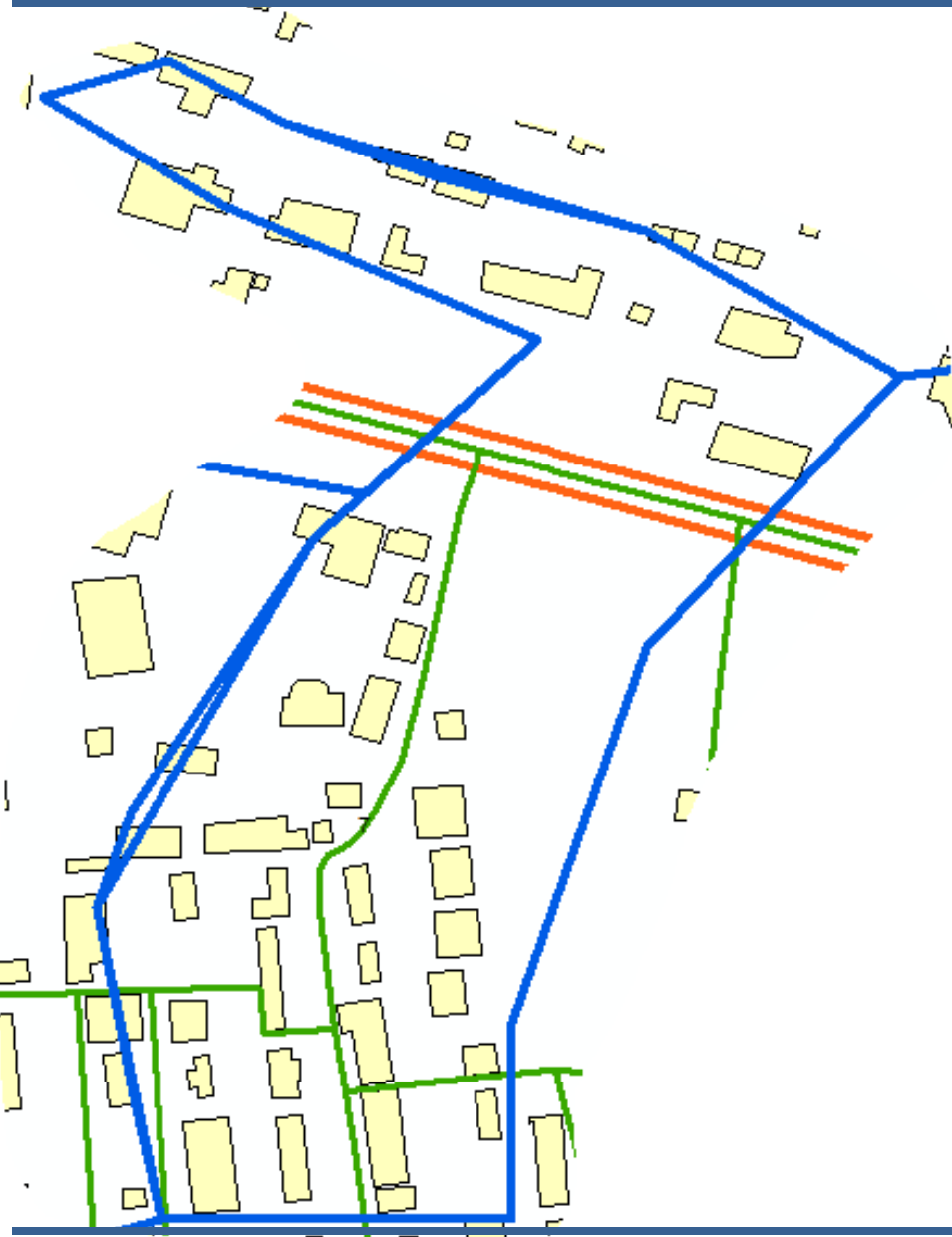
	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



# SWM Route Map for Ward no. 6



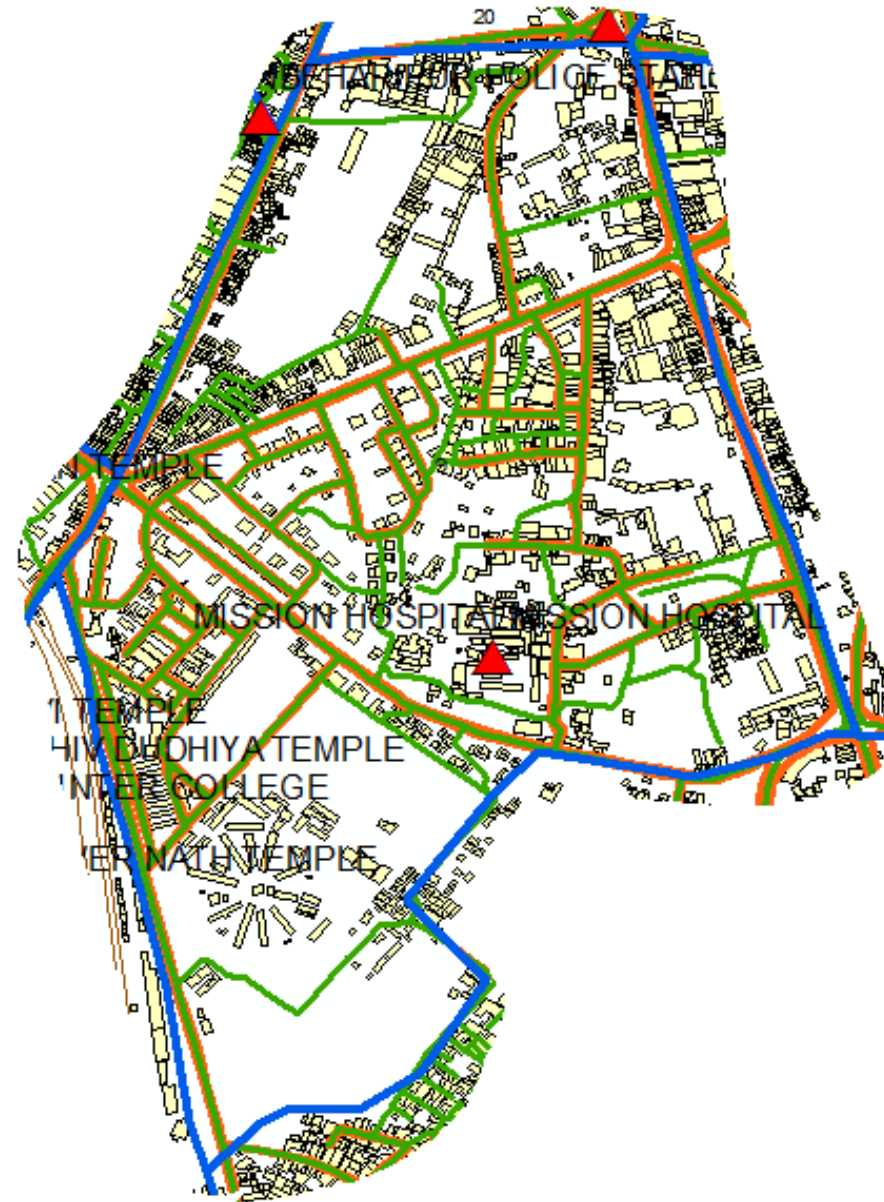
# SWM Route Map for Ward no. 7



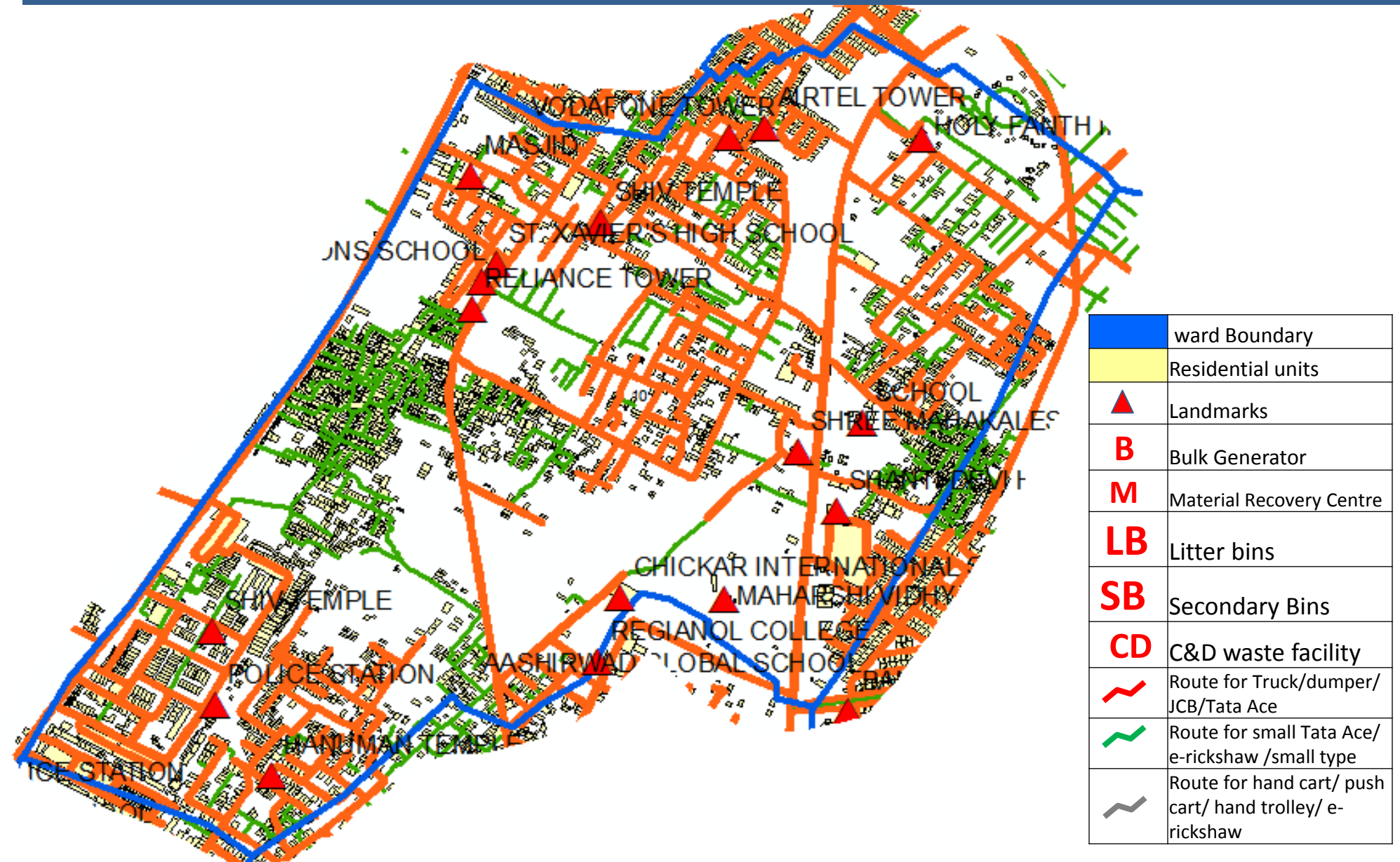
	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

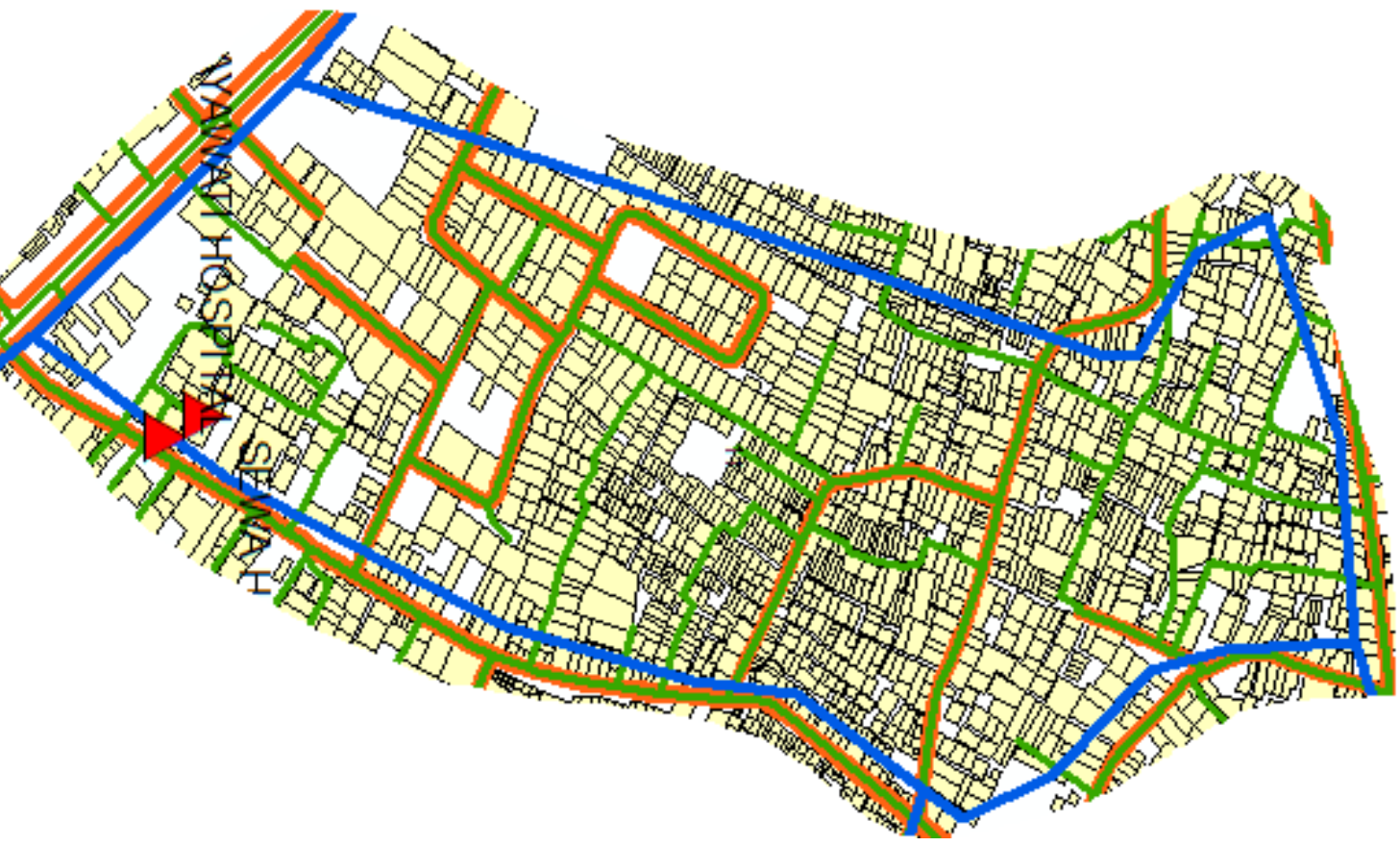












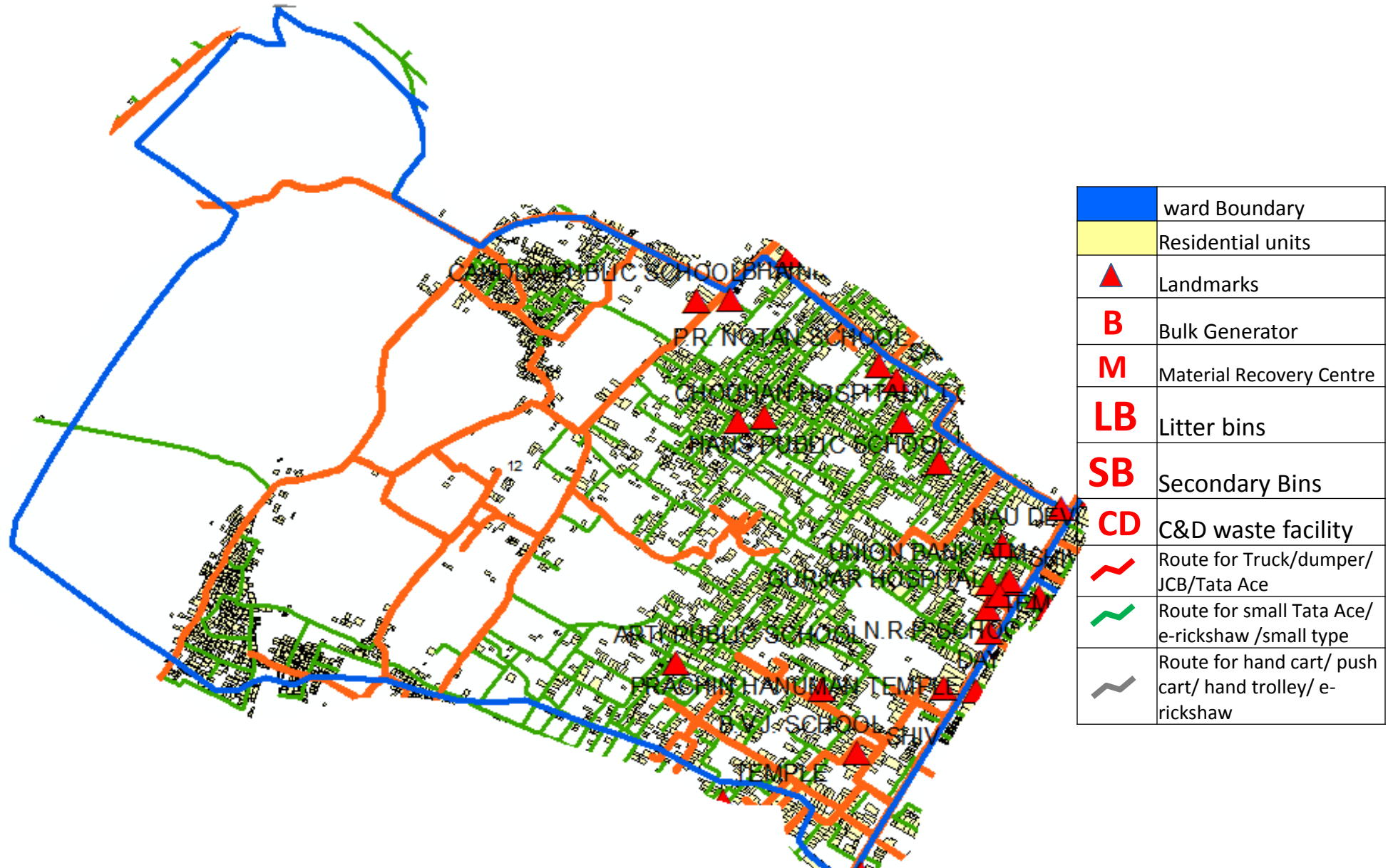
	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw









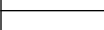






	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

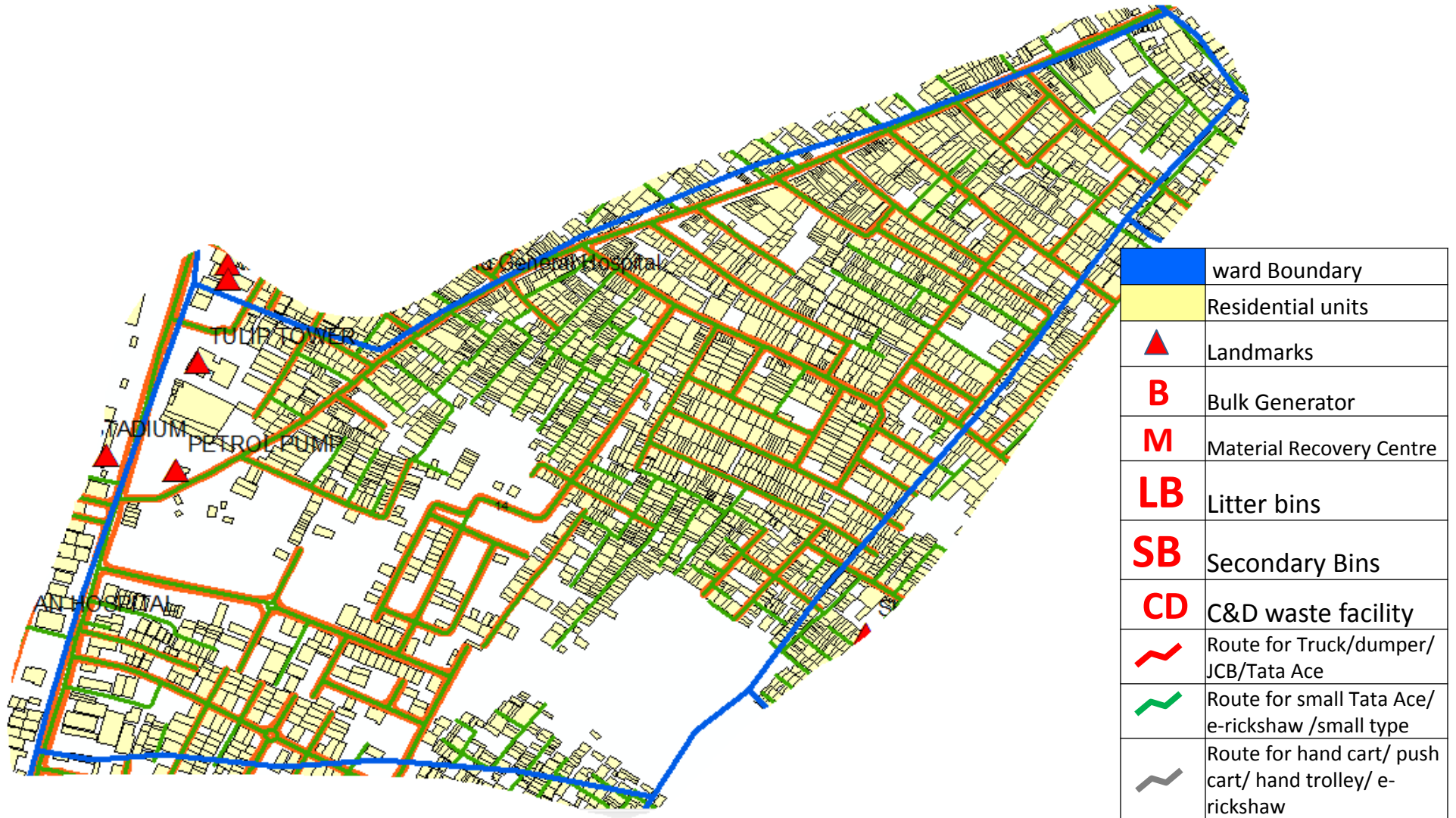





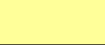









# SWM Route Map for Ward no. 13

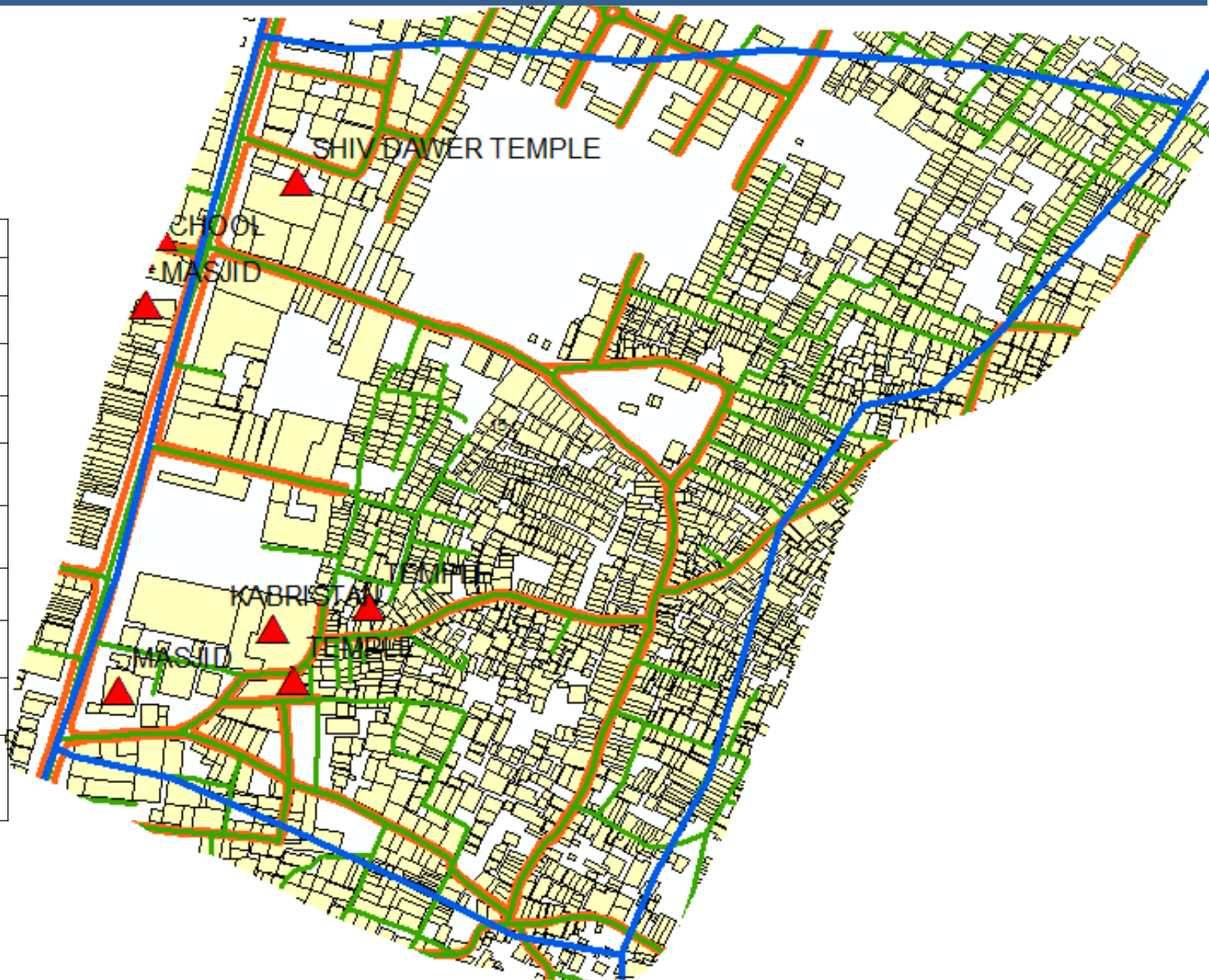
	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw







	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














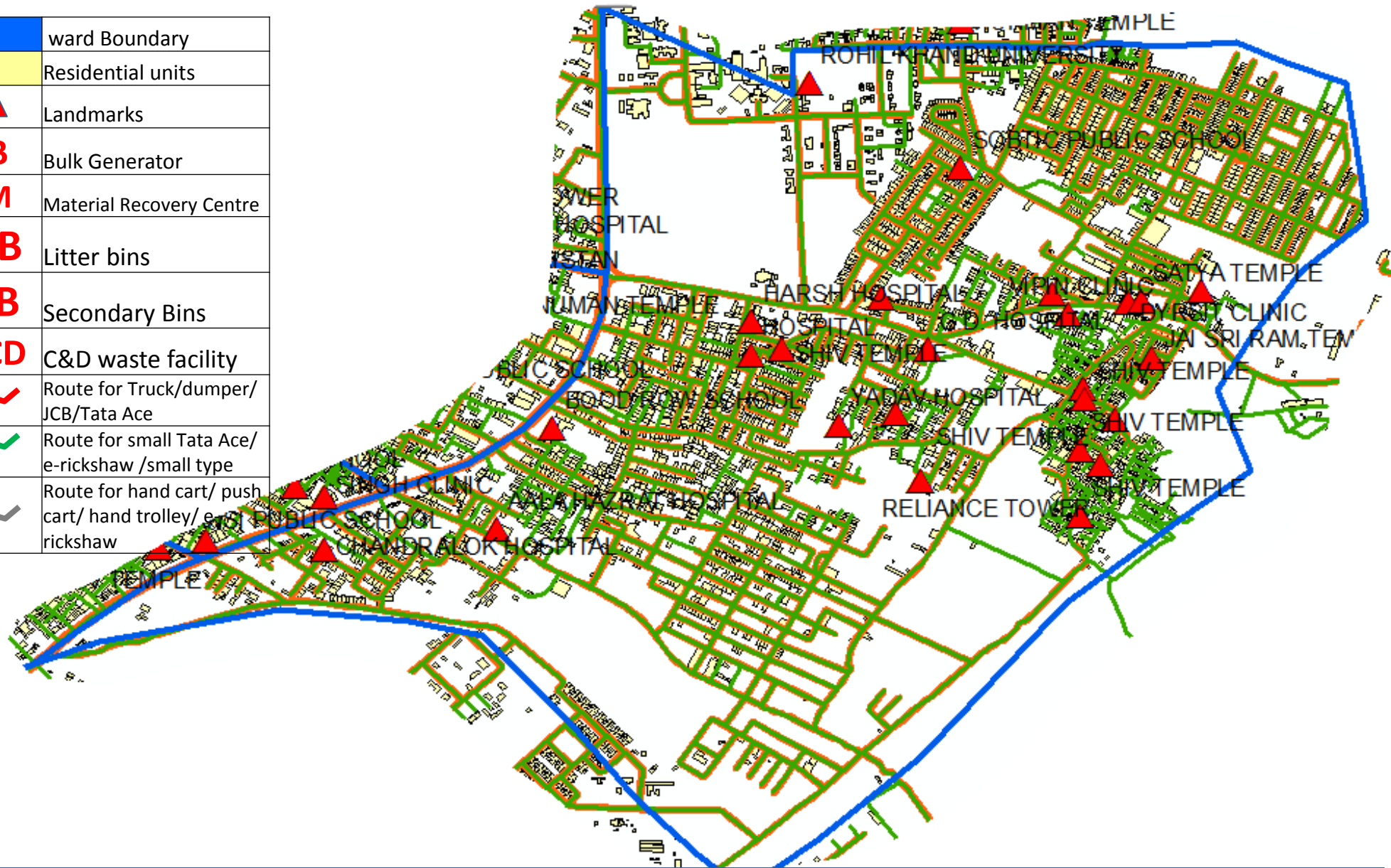



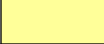


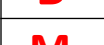








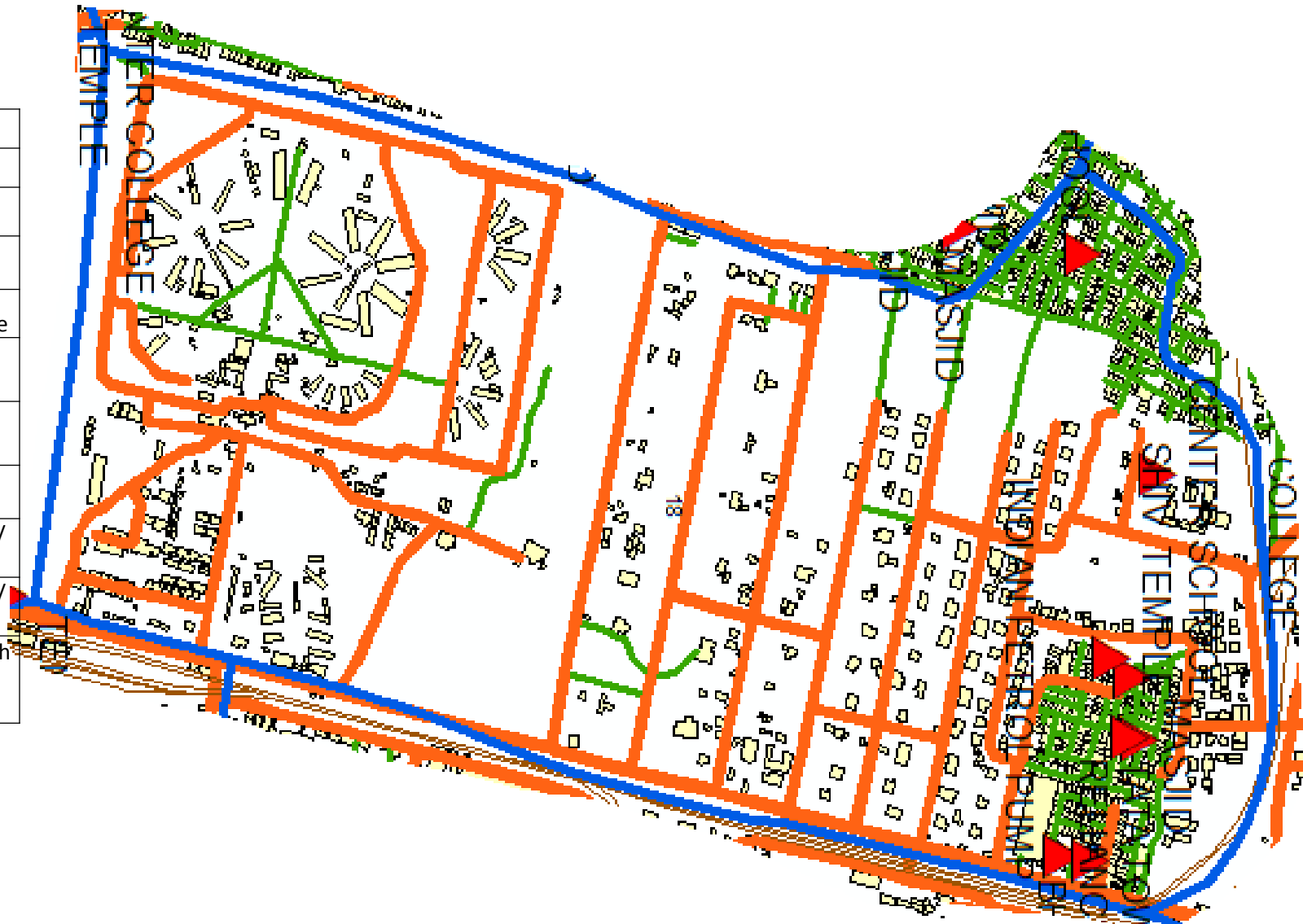
	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

# SWM Route Map for Ward no. 17

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e-rickshaw rickshaw




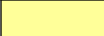









	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

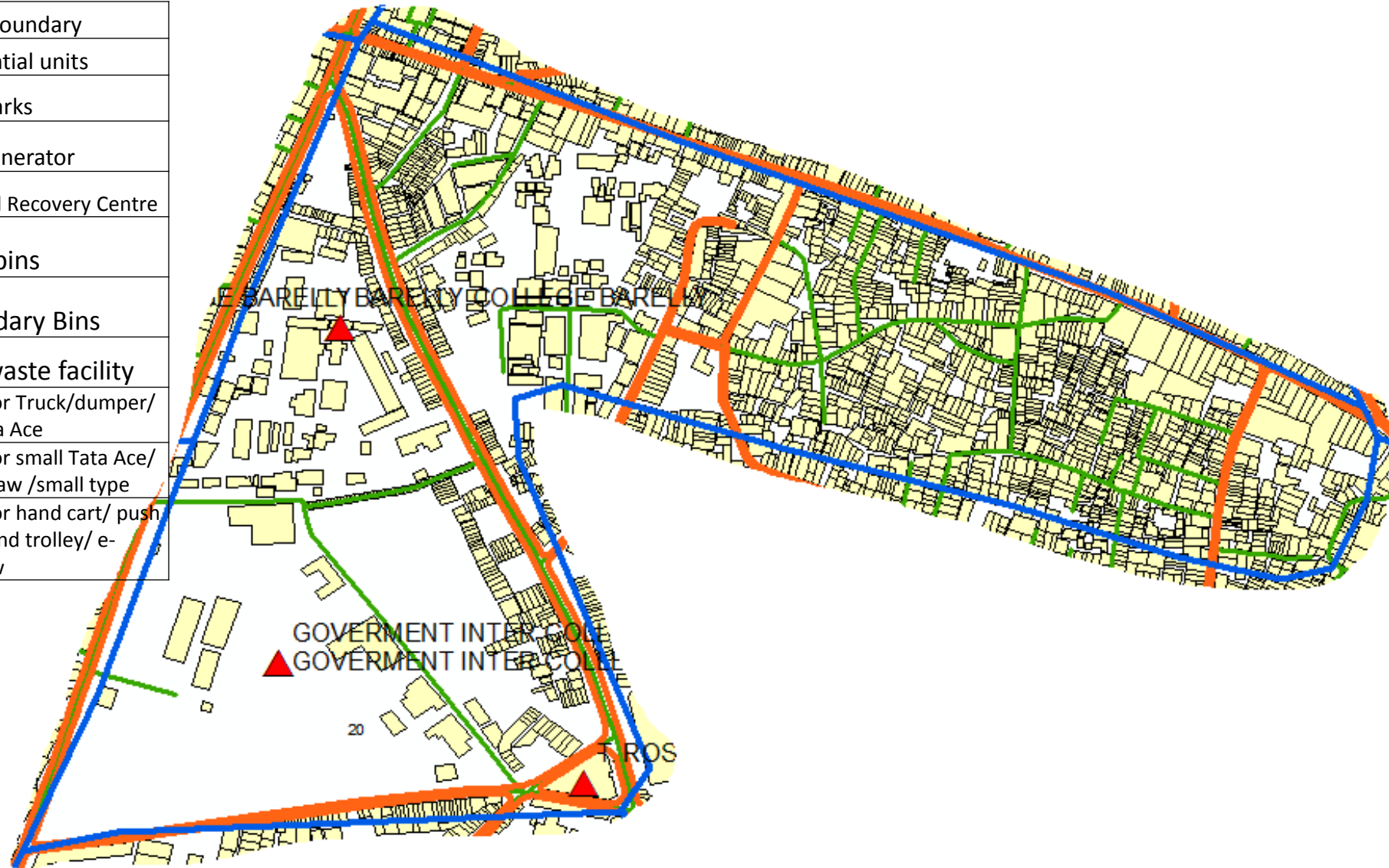


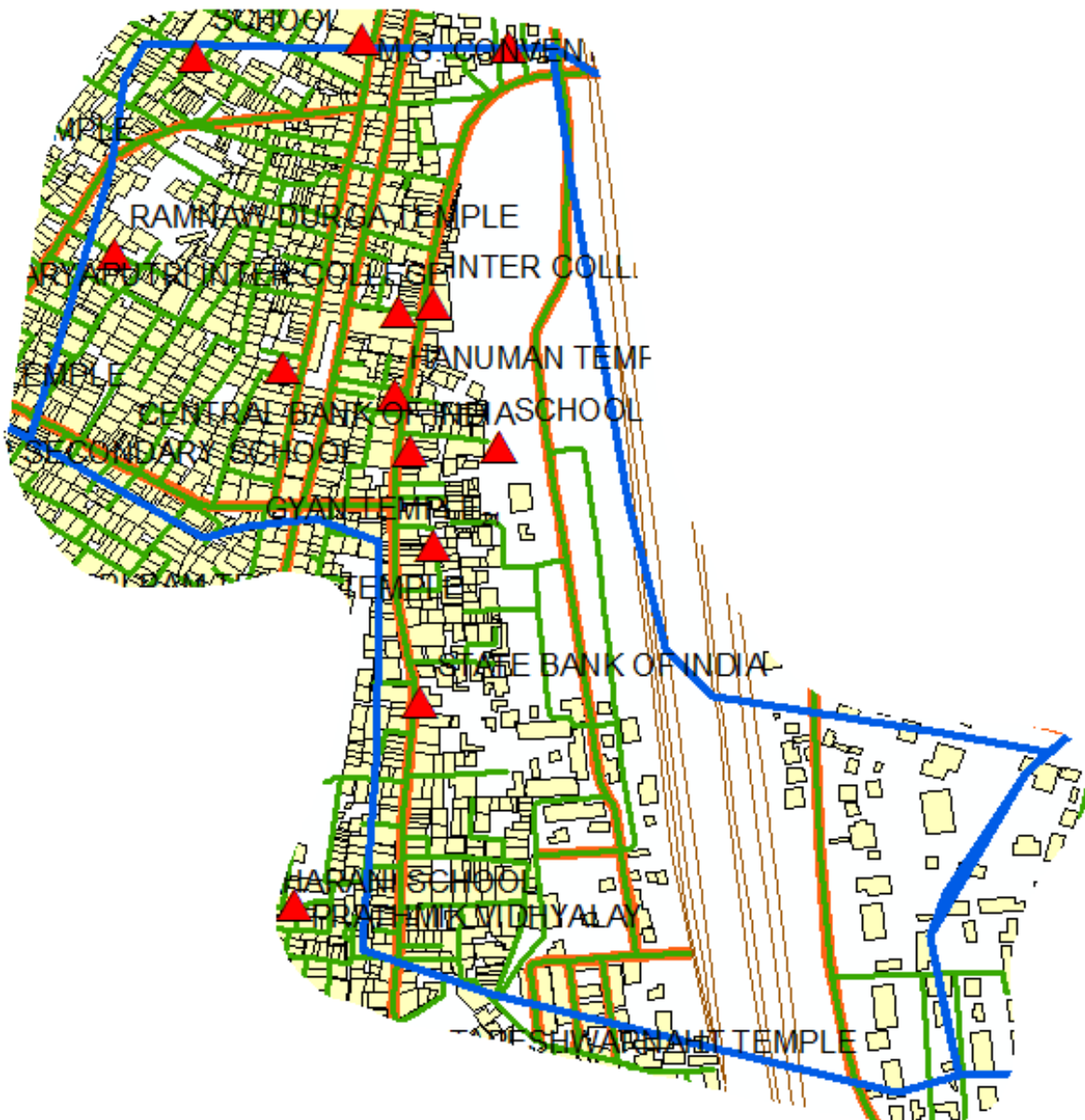


# SWM Route Map for Ward no. 19

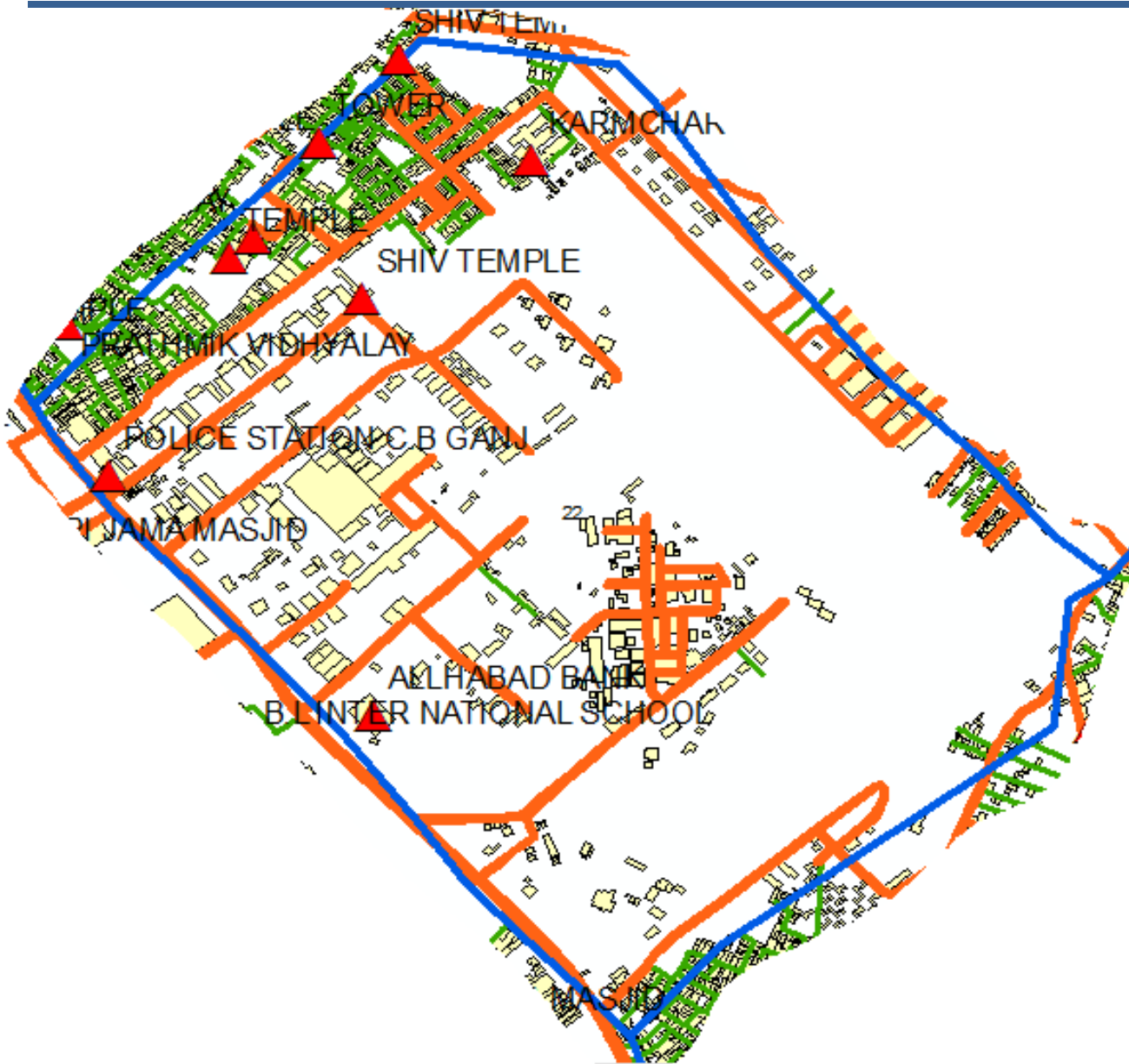


	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



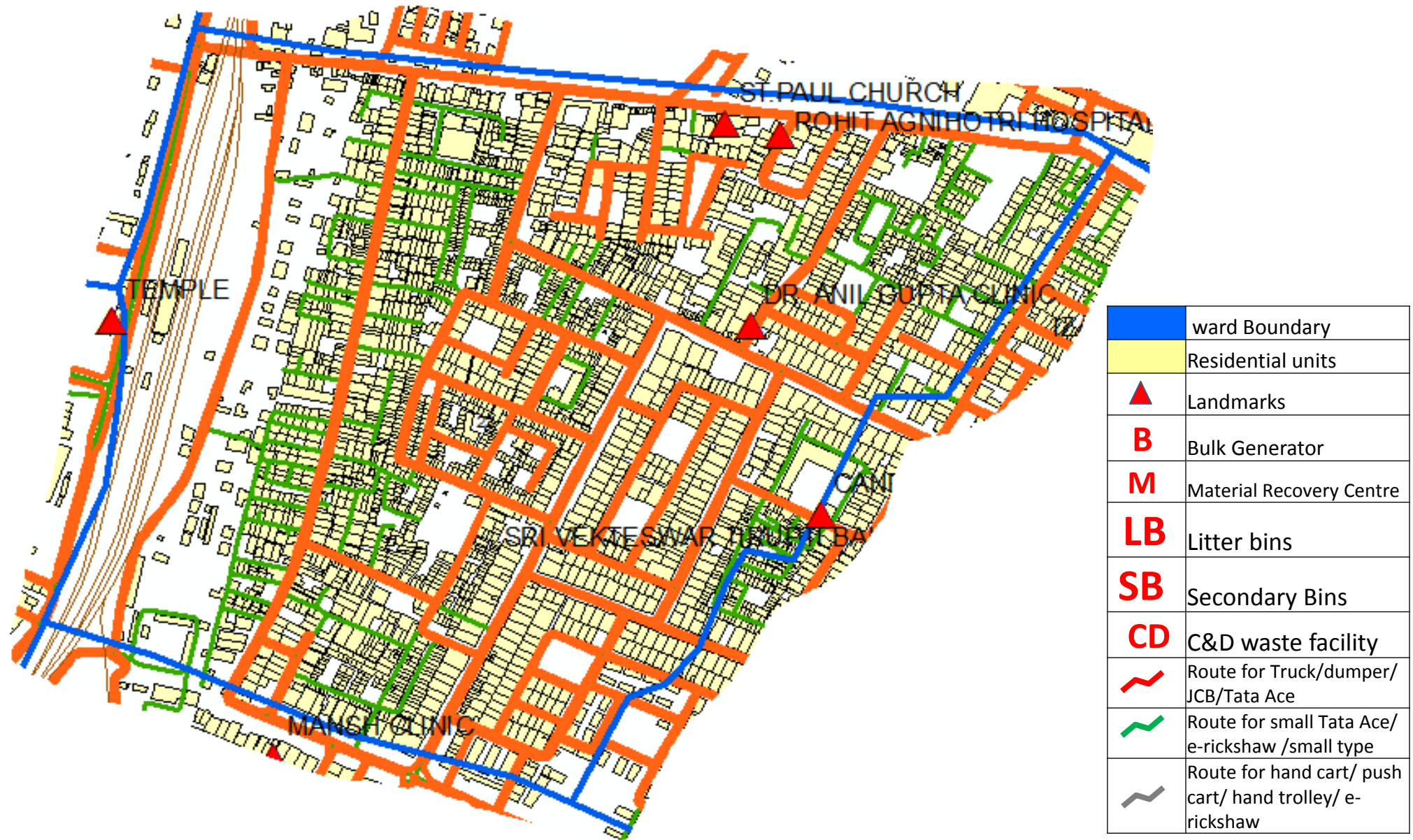


	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

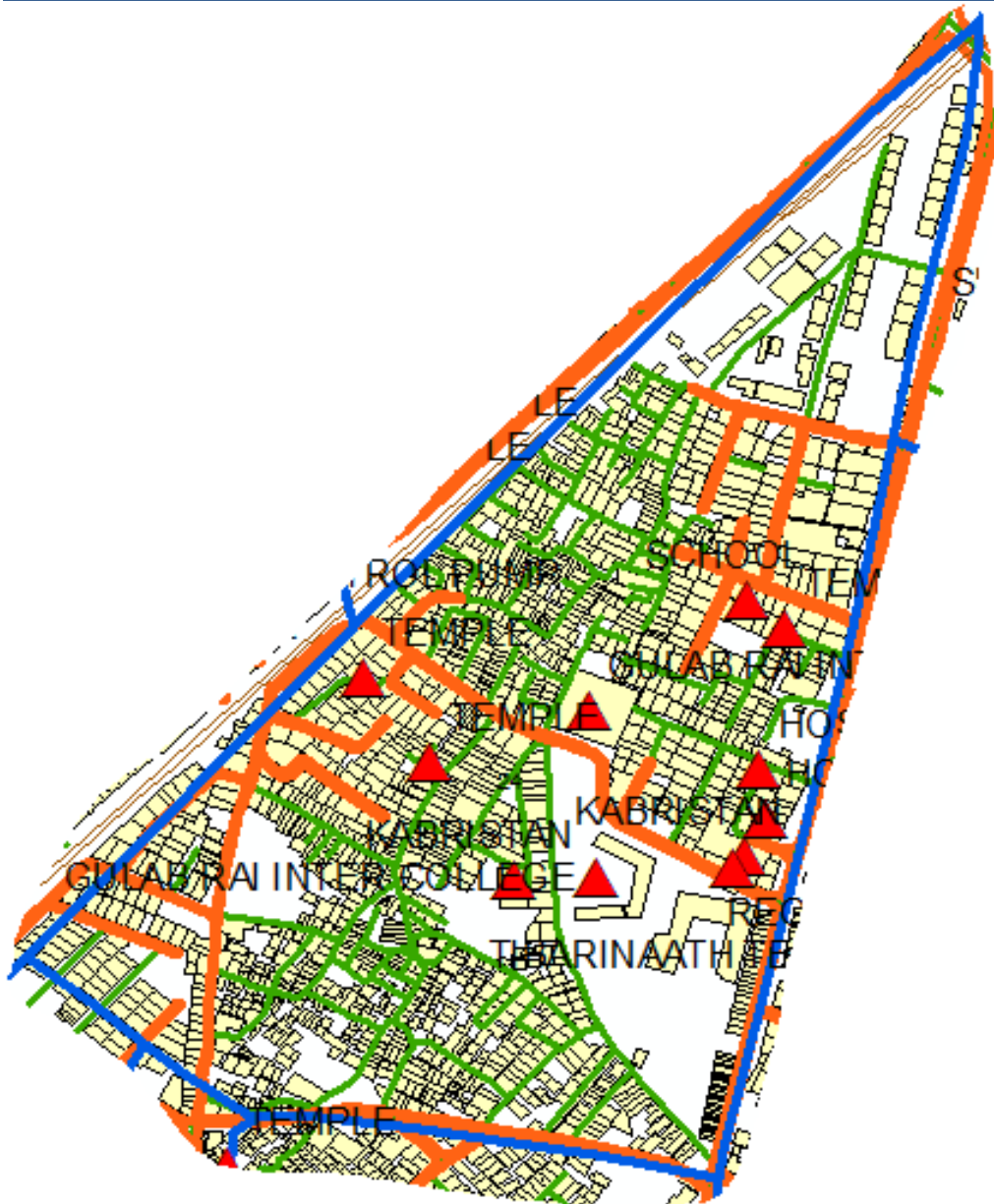


	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














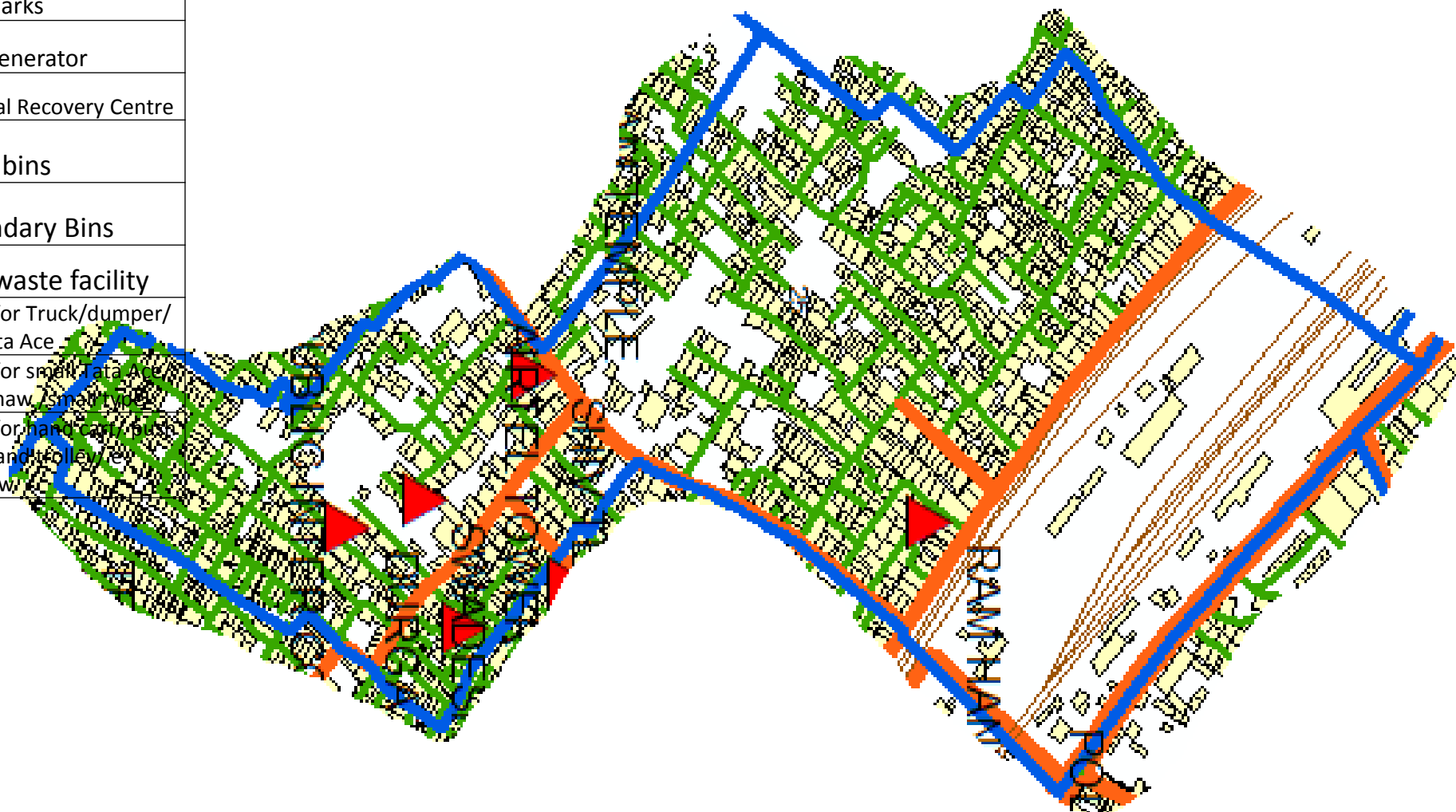






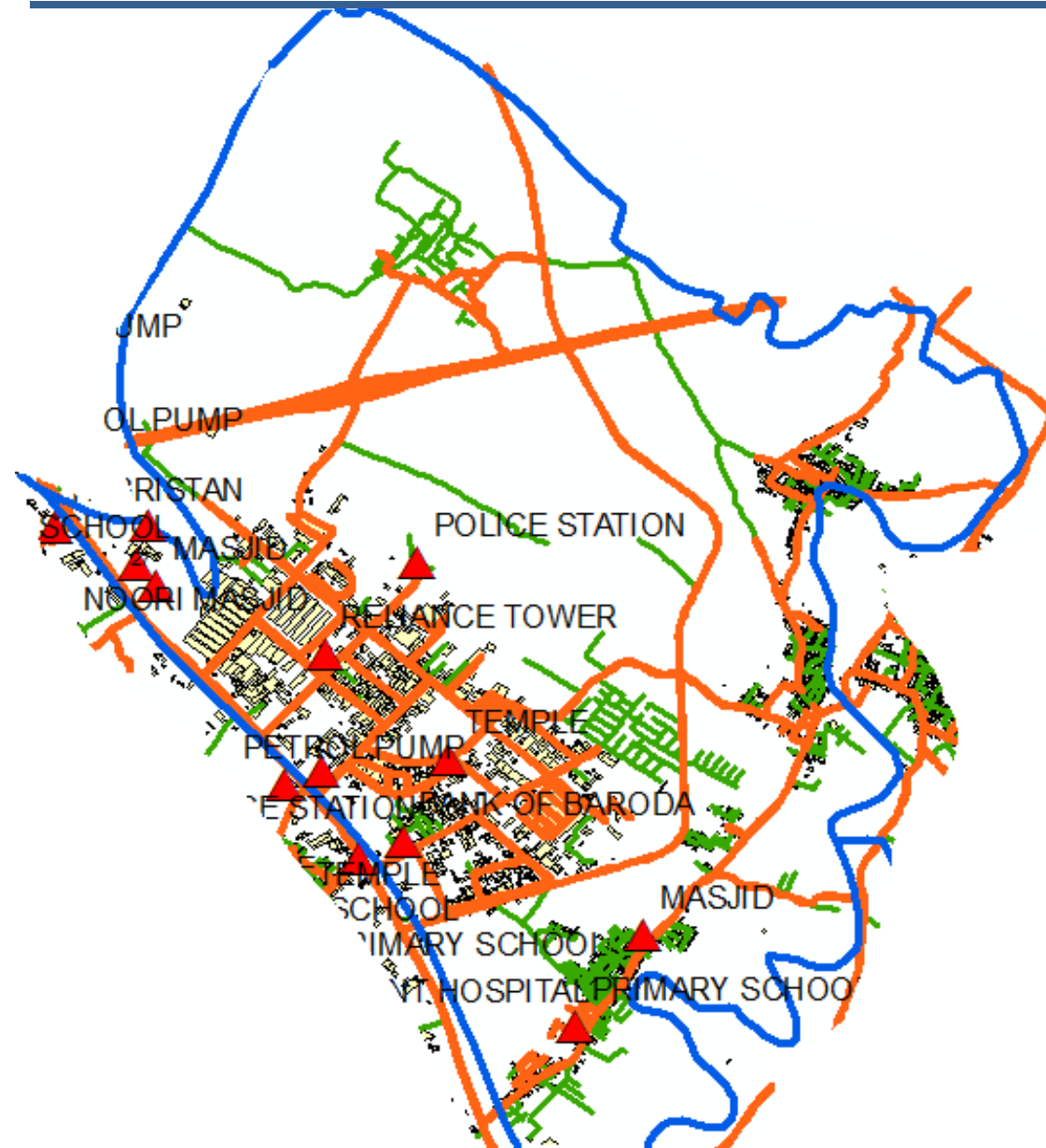
	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw, smart rickshaw
	Route for hand cart, push cart/ hand trolley, e- rickshaw
















	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

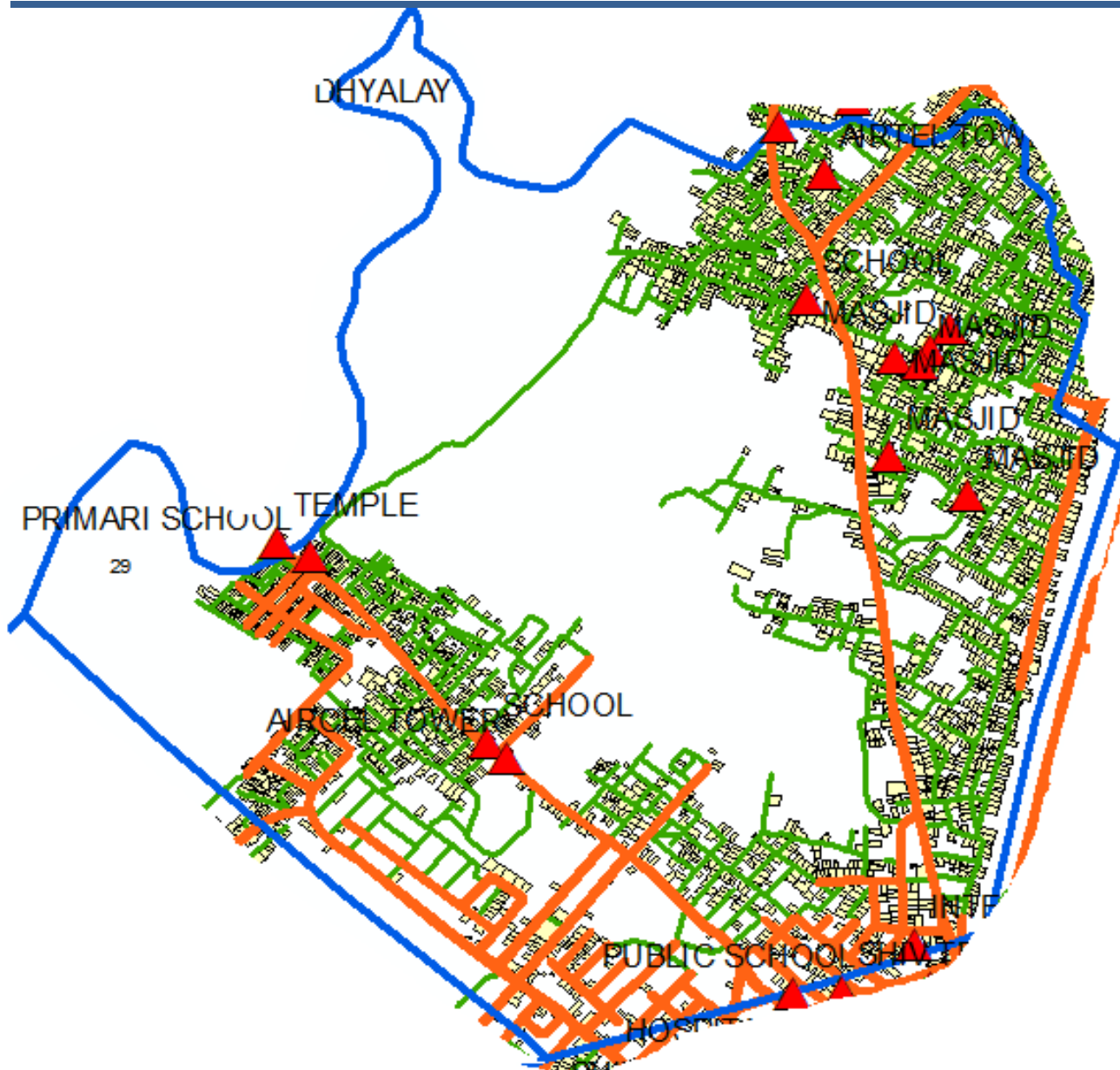


	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
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	Route for Truck/dumper/ JCB/Tata Ace
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	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



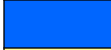
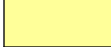









	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

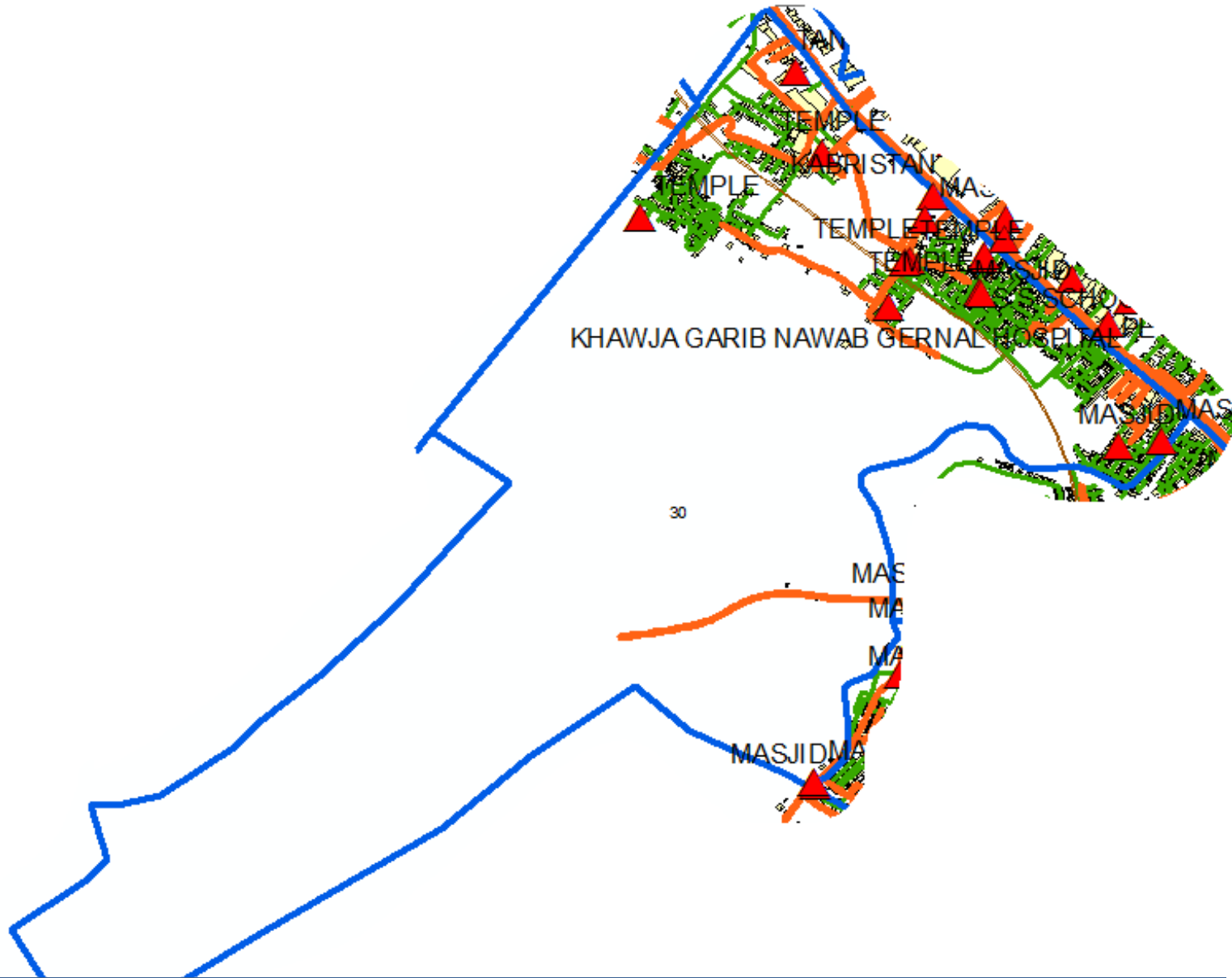















	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

# SWM Route Map for Ward no. 30












	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

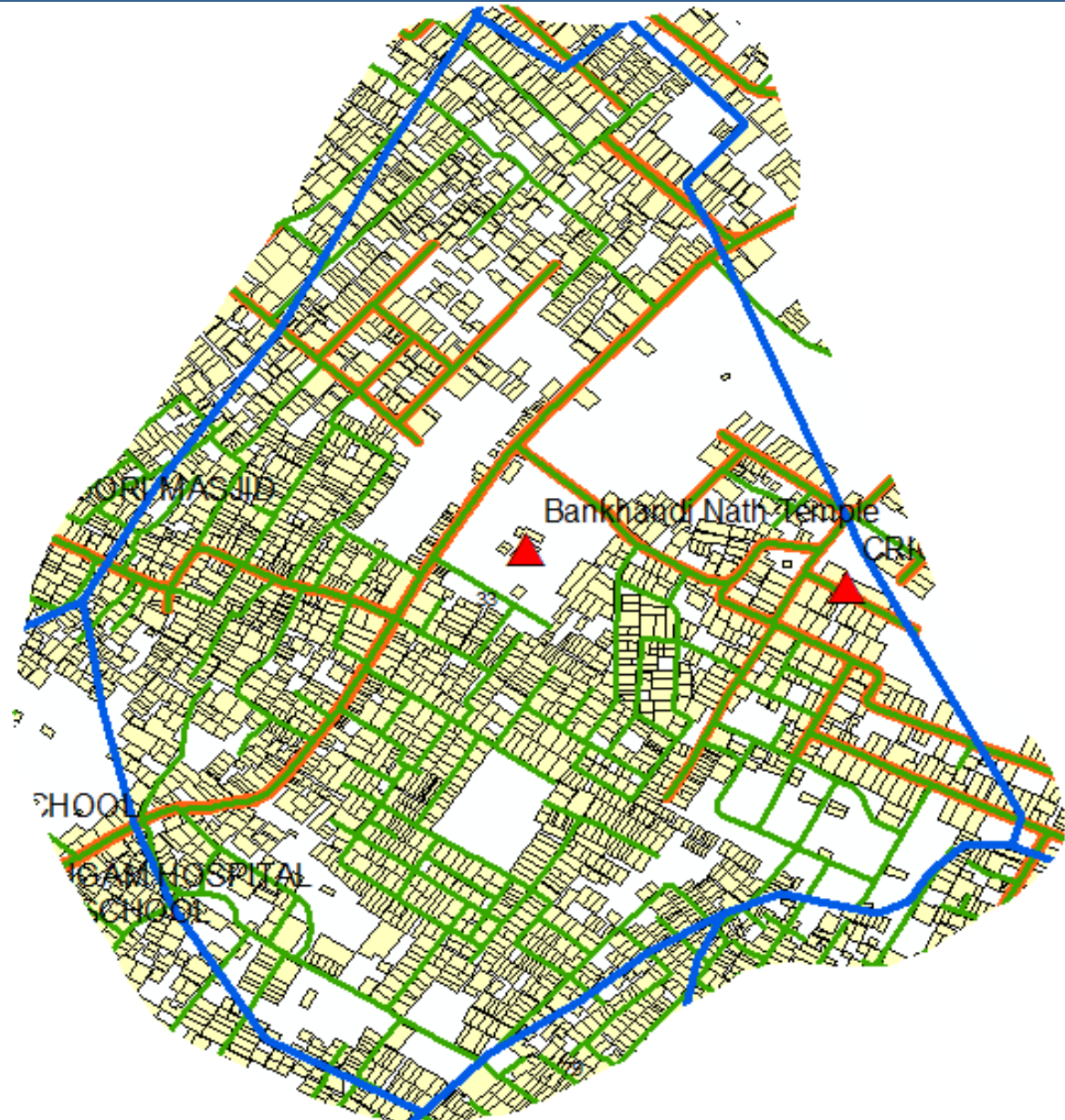


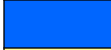
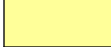






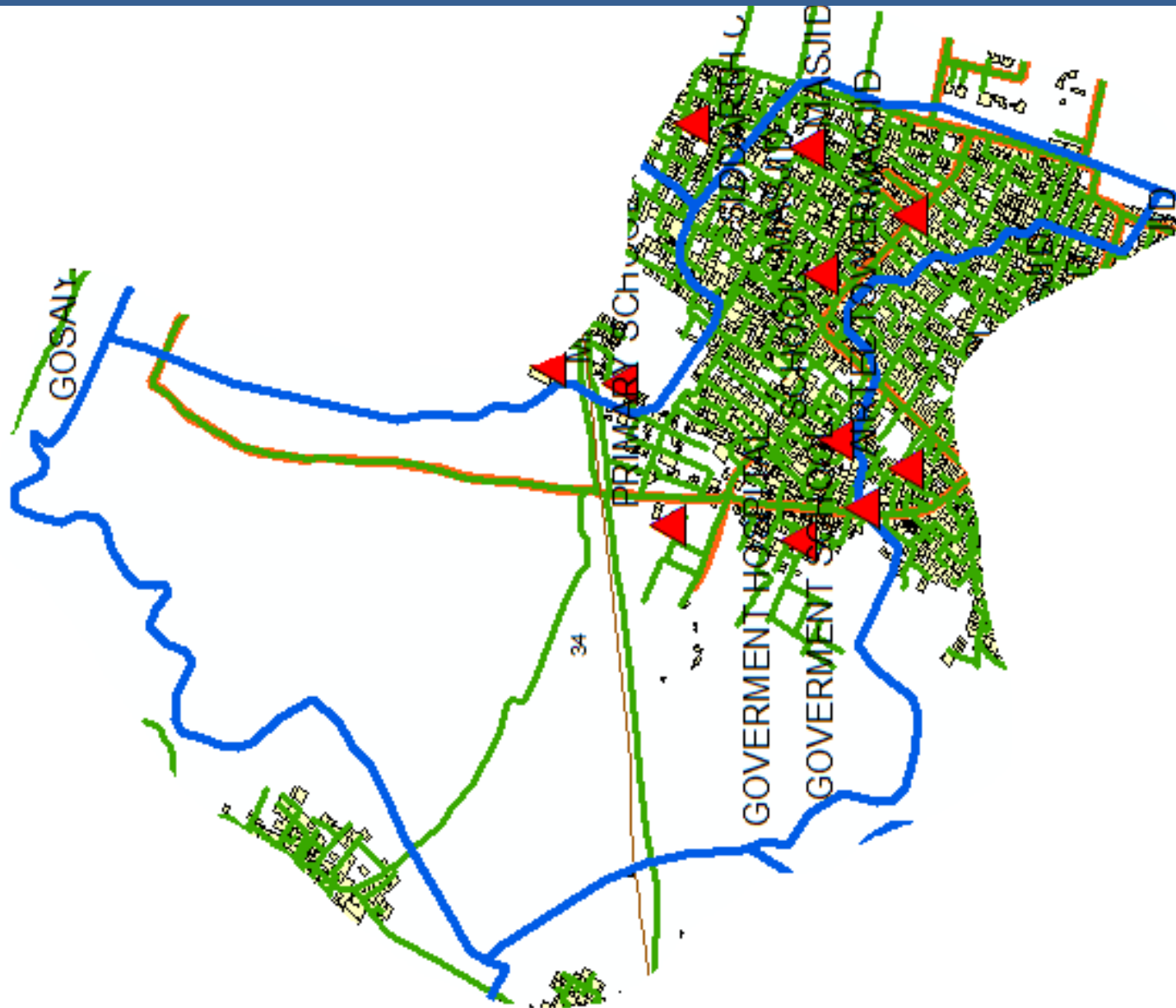
	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

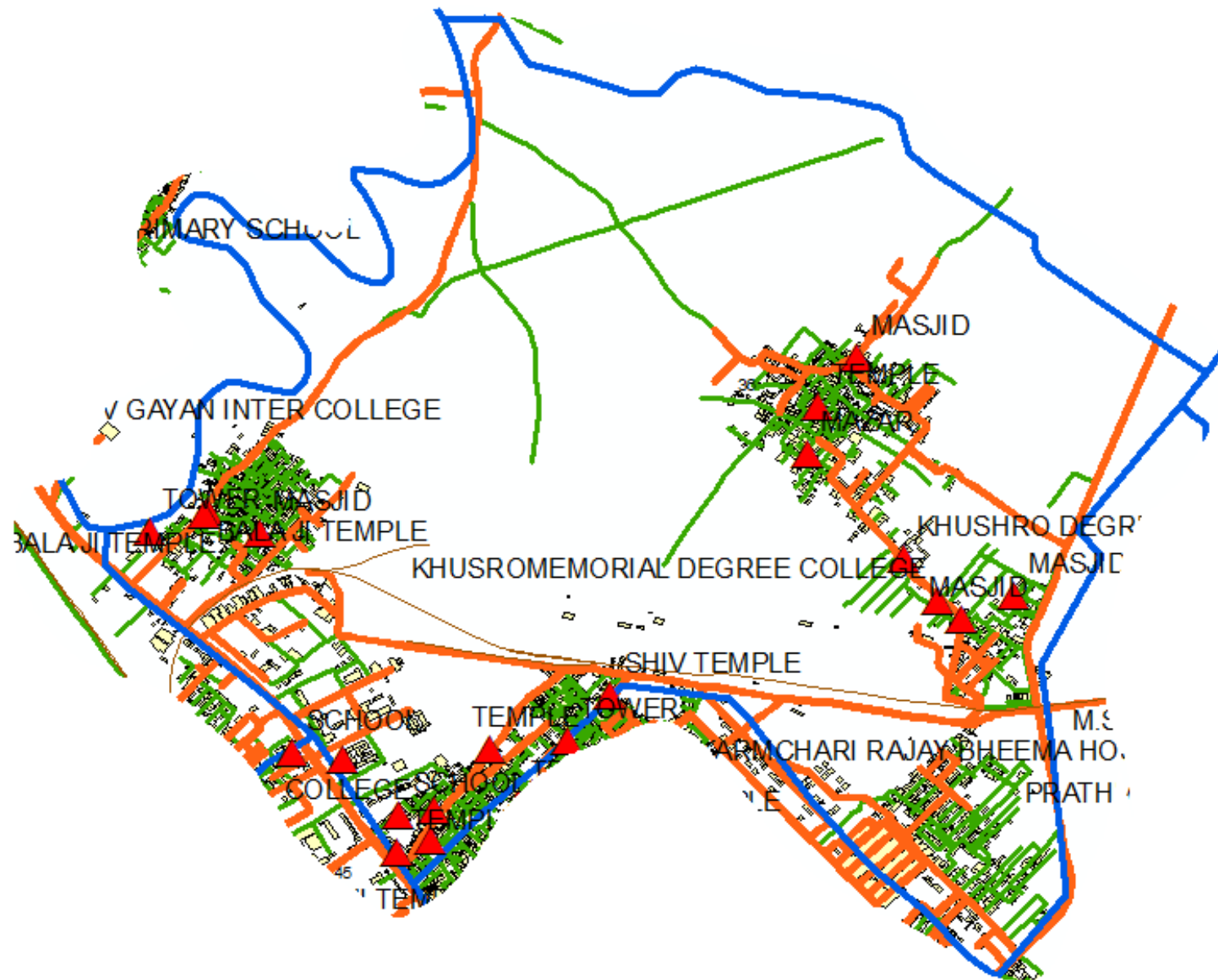















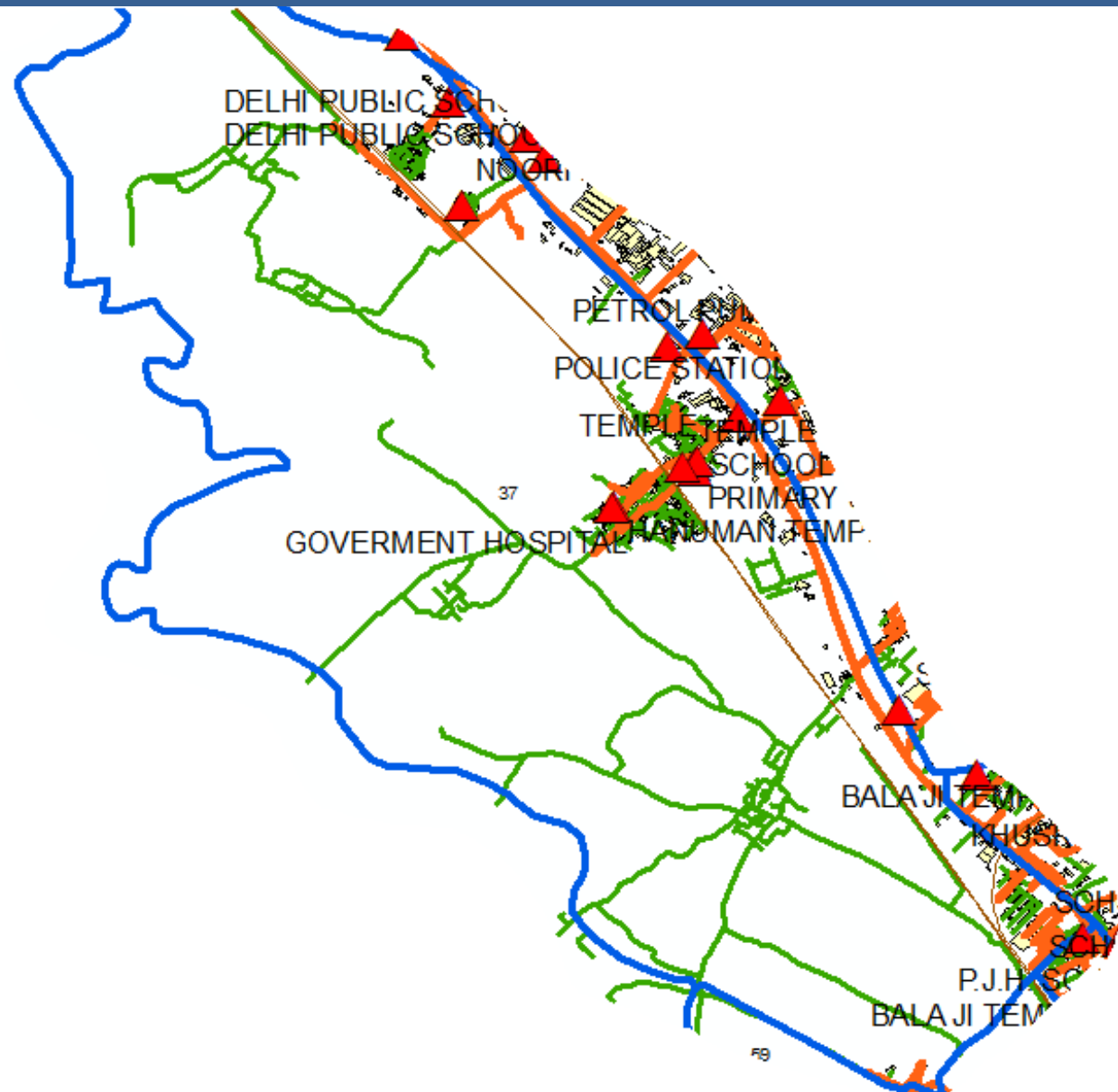
	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

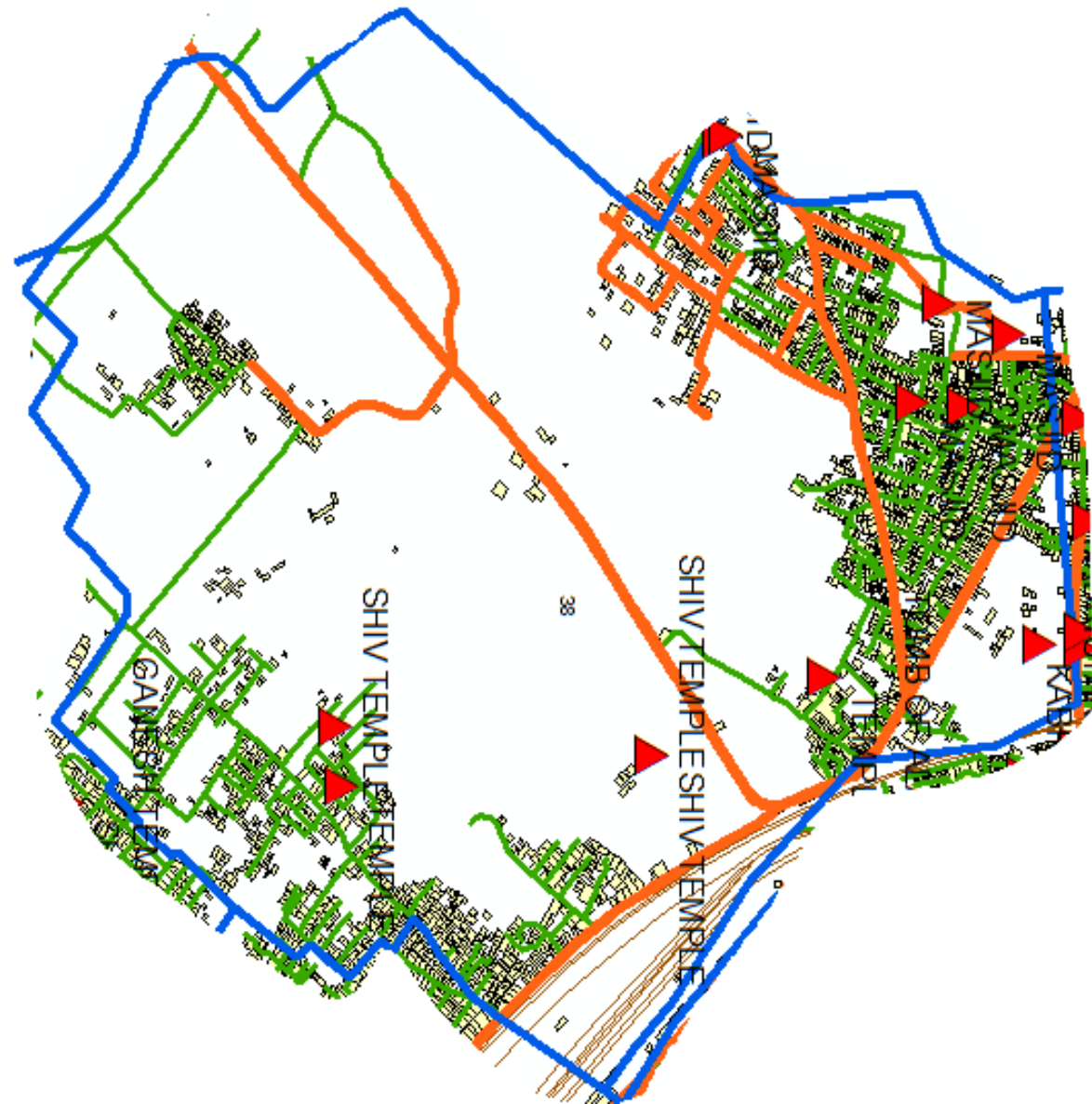


	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














# SWM Route Map for Ward no. 38

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw





	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw


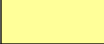


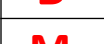








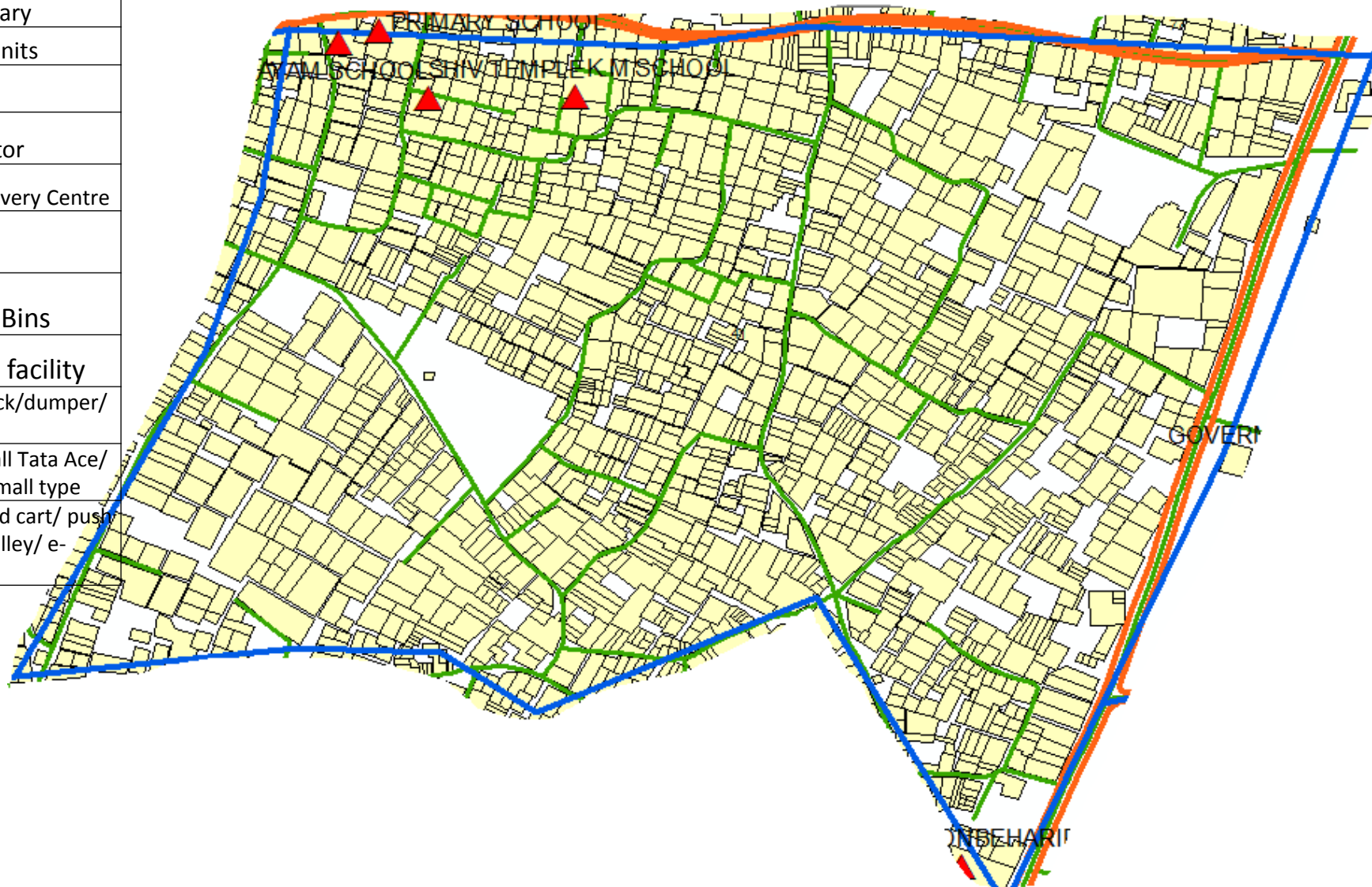


# SWM Route Map for Ward no. 40














# SWM Route Map for Ward no. 41

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



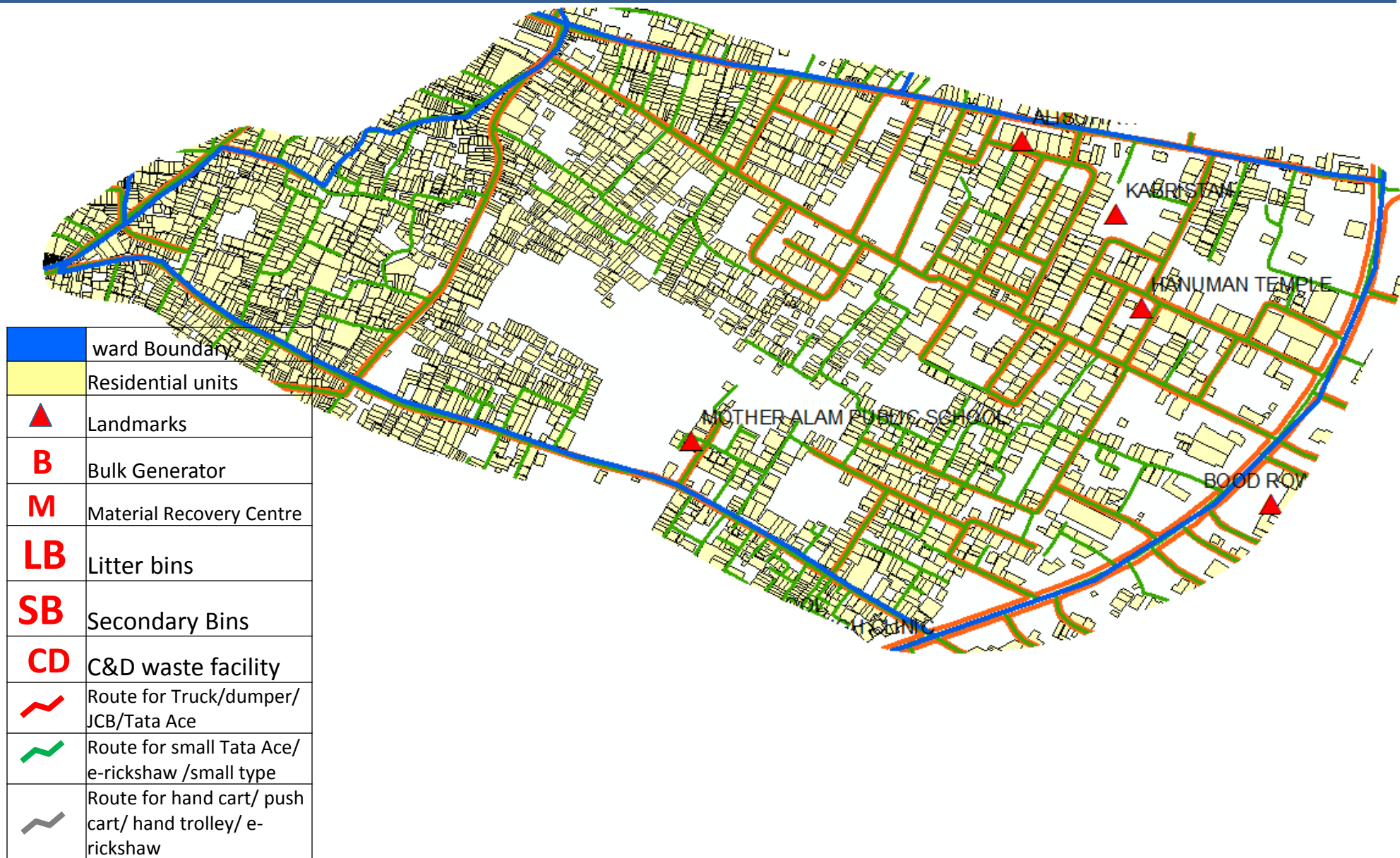
# SWM Route Map for Ward no. 42

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw


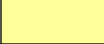






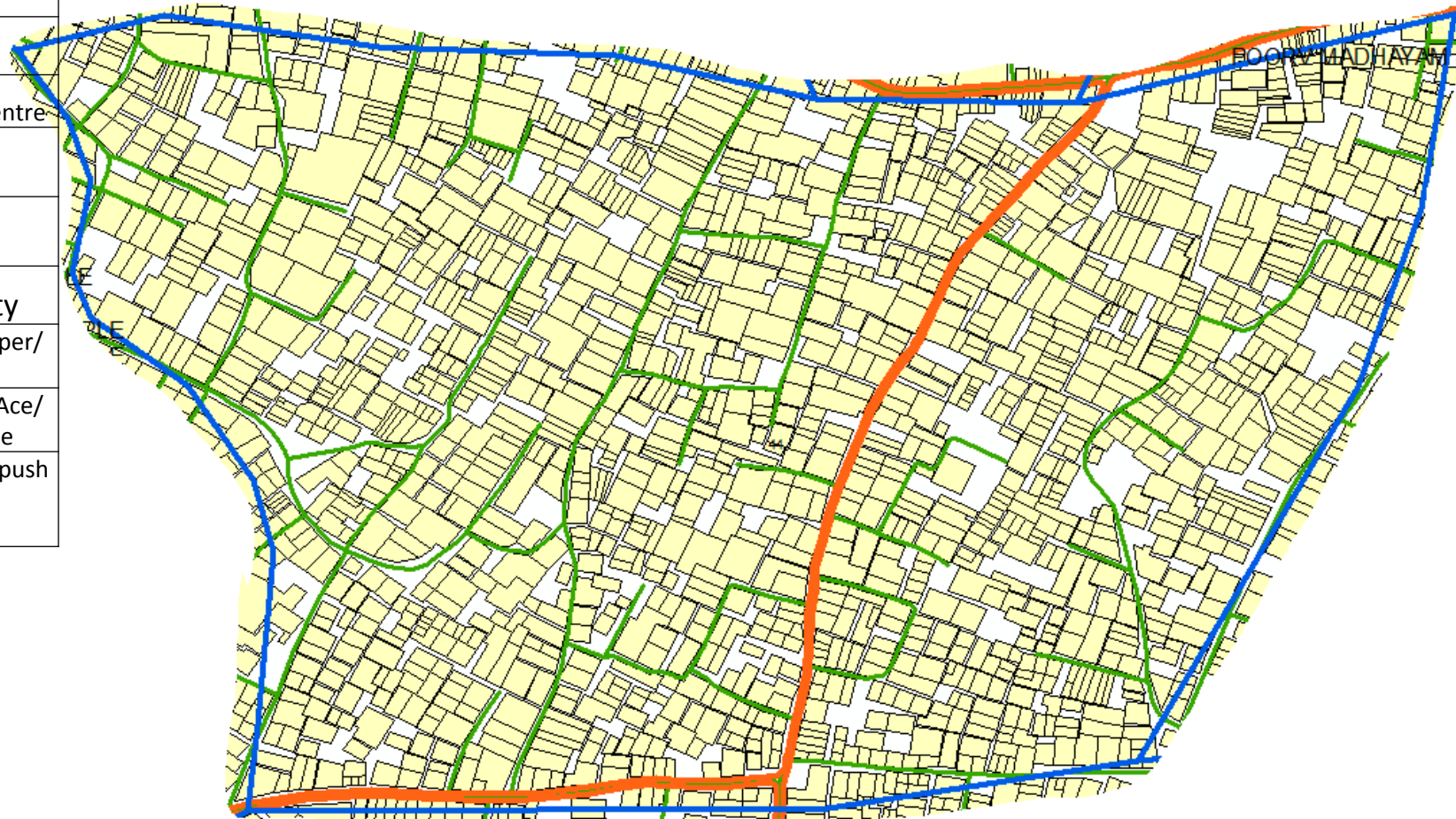


# SWM Route Map for Ward no. 43














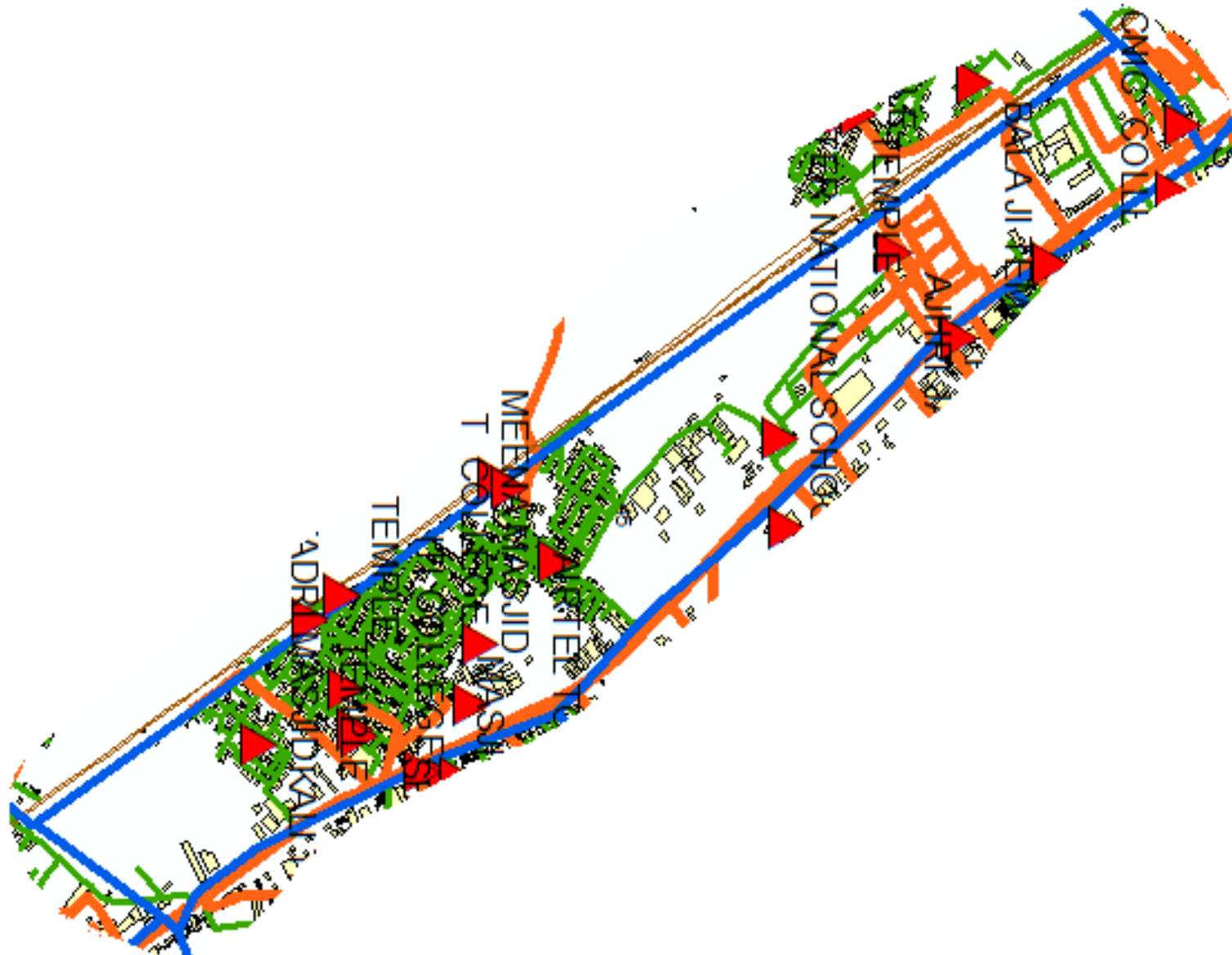
# SWM Route Map for Ward no. 44

	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














# SWM Route Map for Ward no. 45

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw
















# SWM Route Map for Ward no. 46

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw
















# SWM Route Map for Ward no. 48

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw
















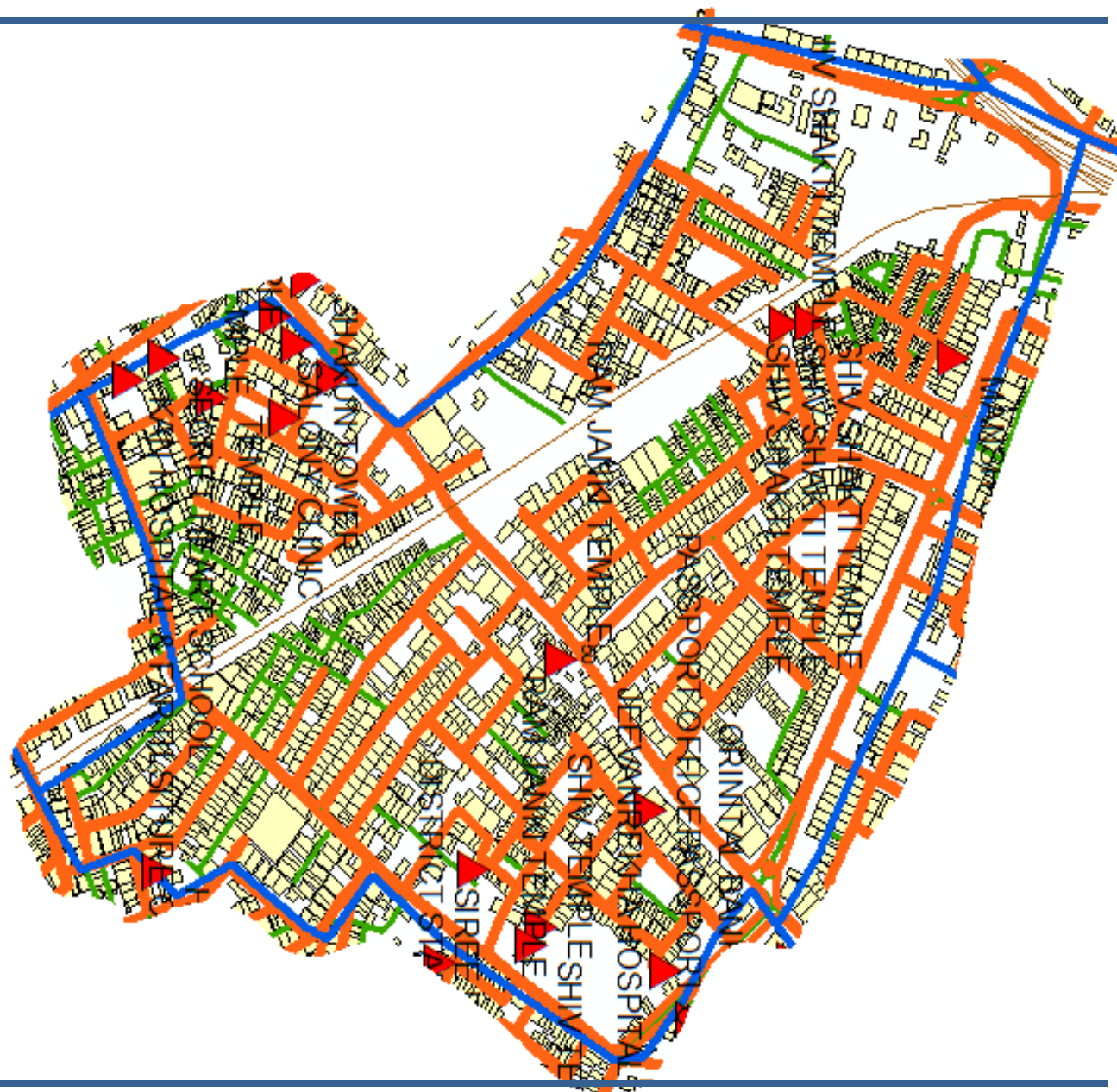
# SWM Route Map for Ward no. 49












	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



## SWM Route Map for Ward no. 50







	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

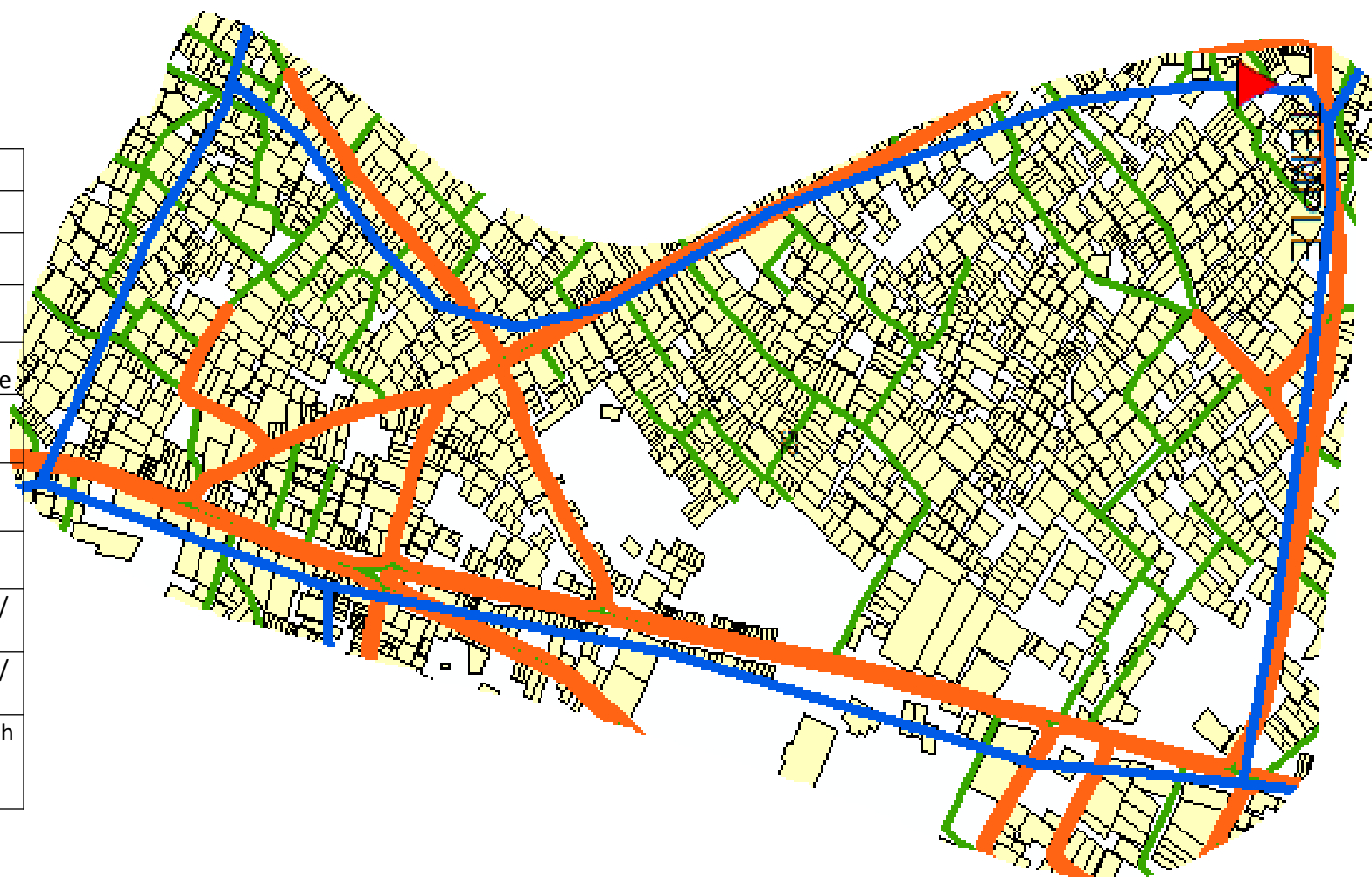


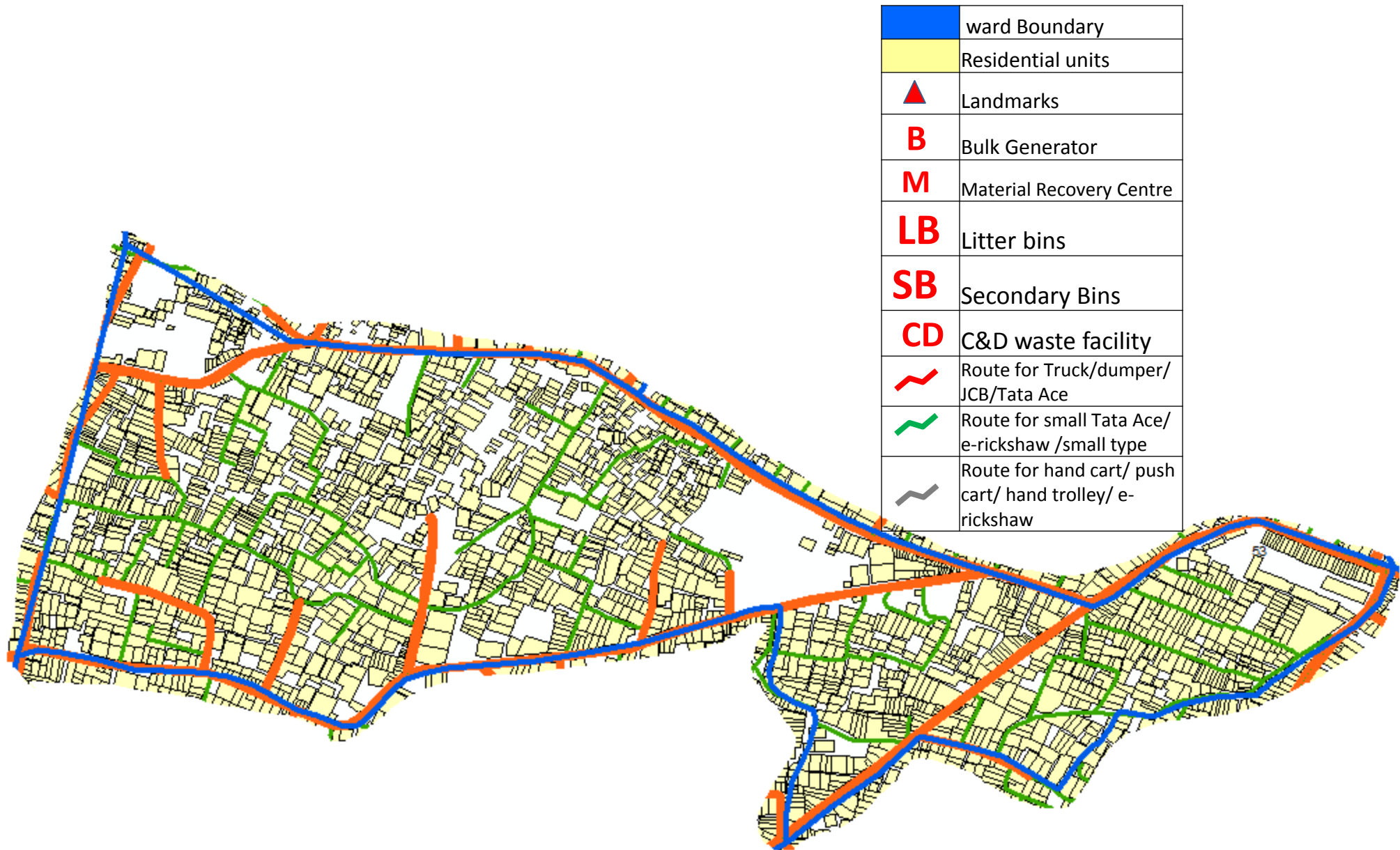
	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

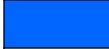












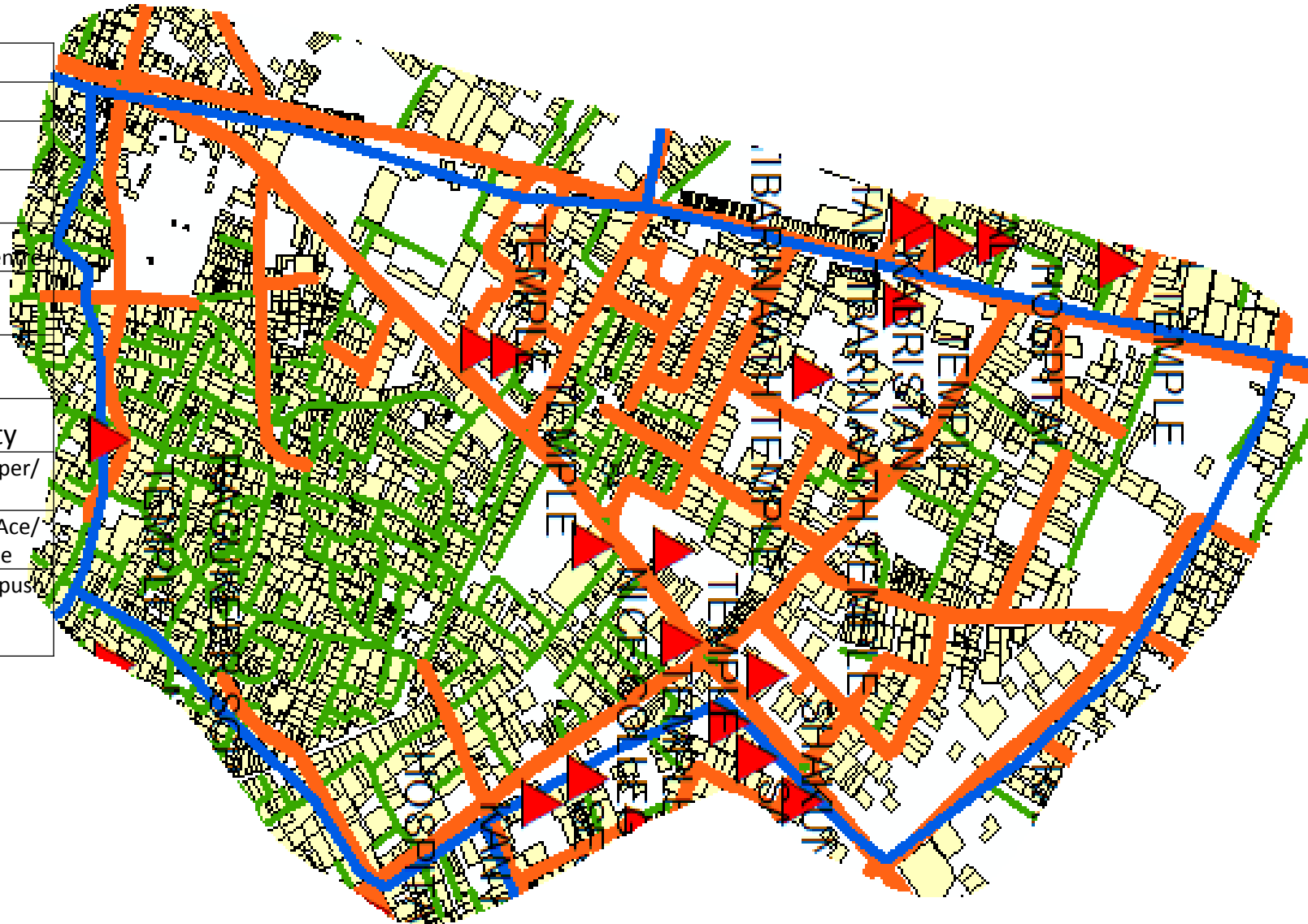


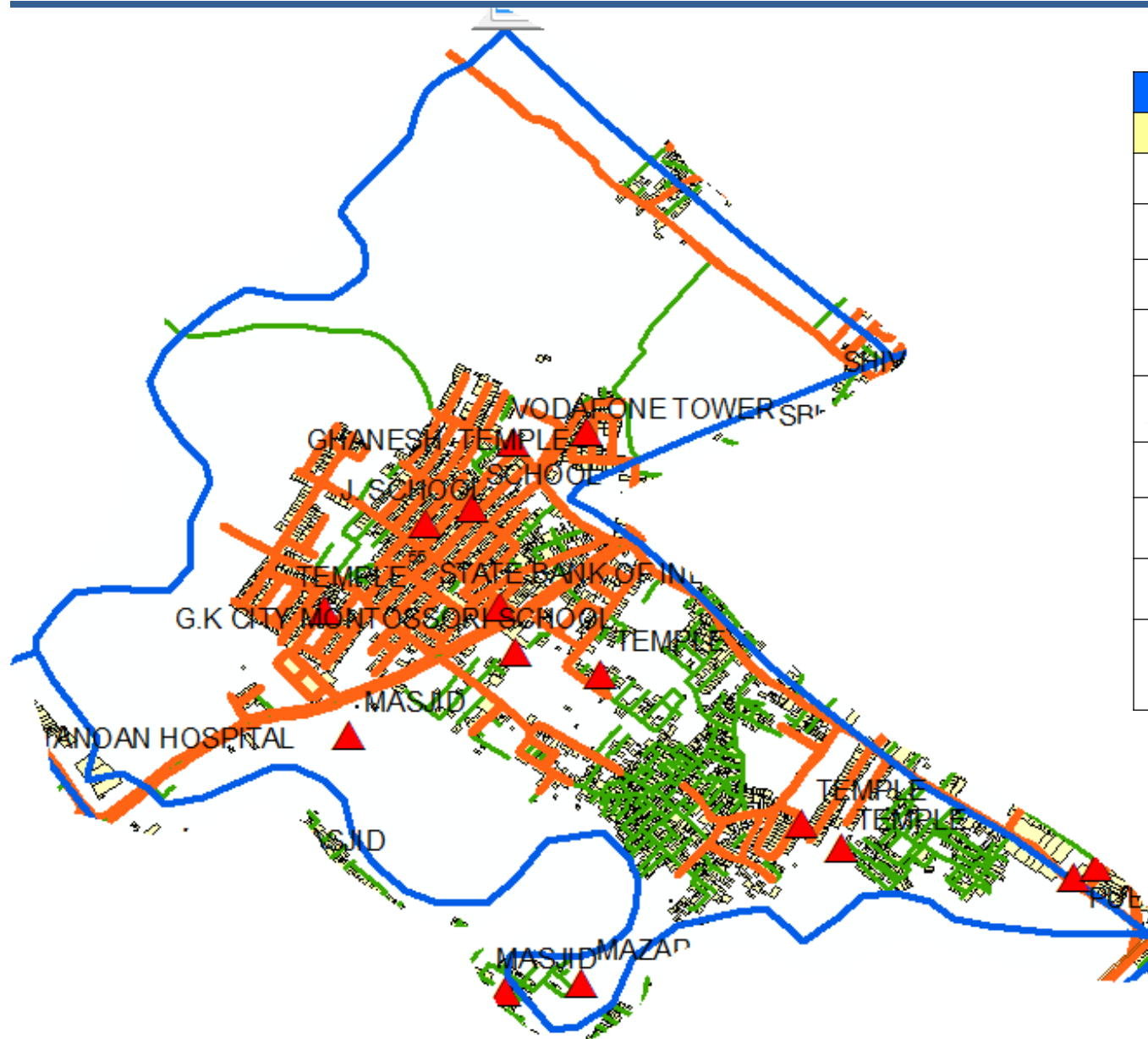
	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw











	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw
















	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

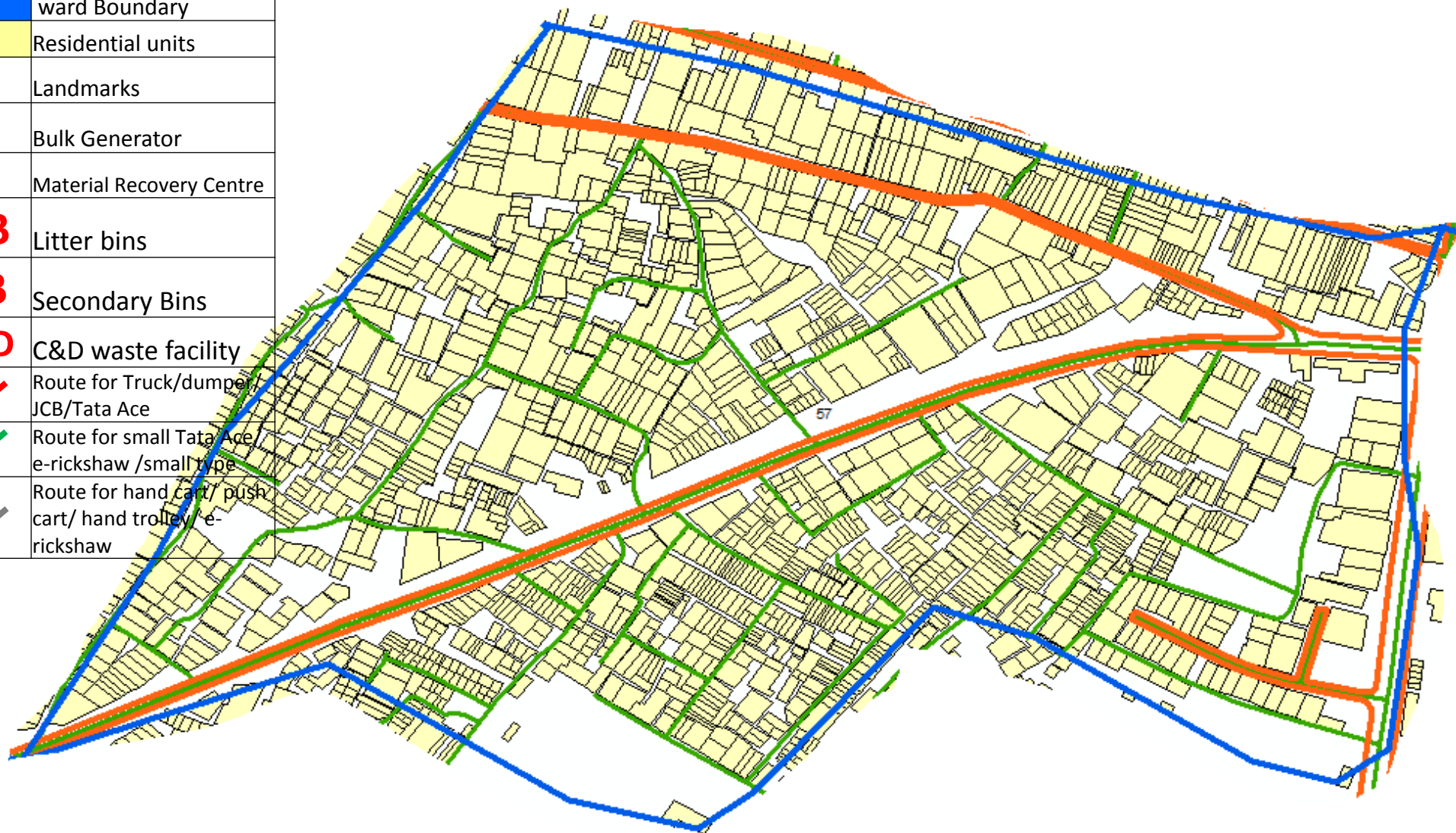
# SWM Route Map for Ward no. 56

	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



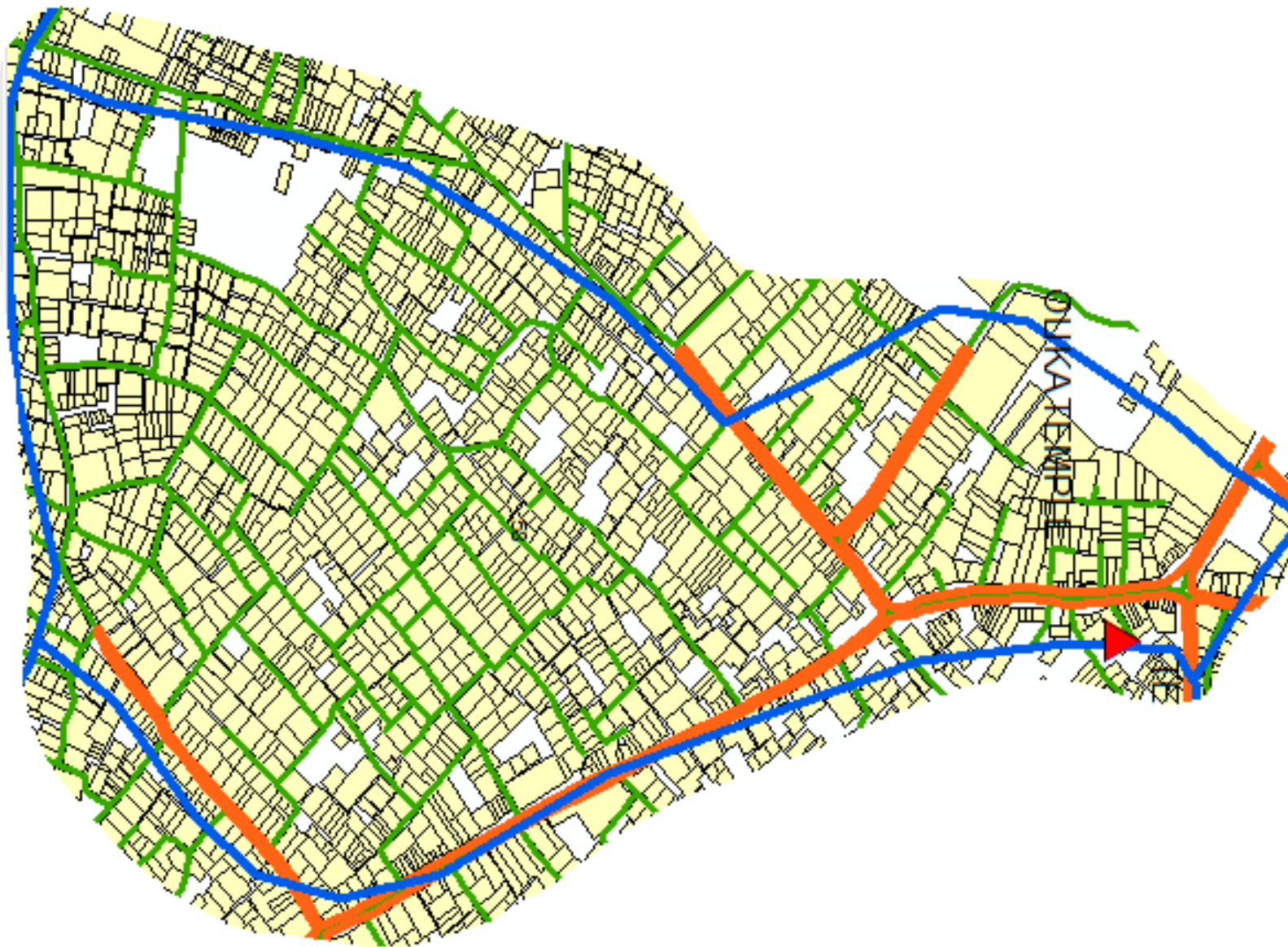


	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw
















# SWM Route Map for Ward no. 58




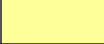




	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e-rickshaw

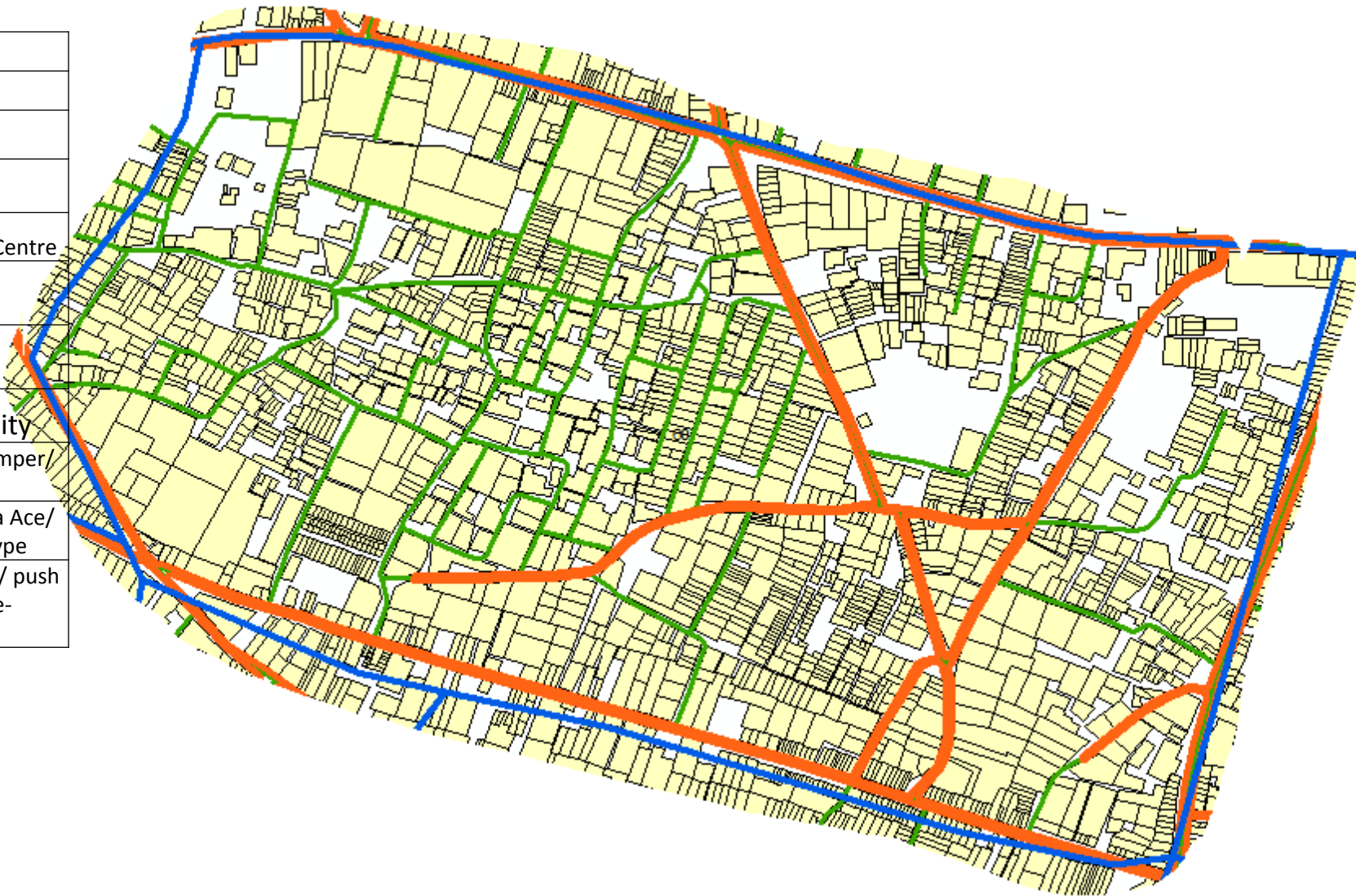
# SWM Route Map for Ward no. 59












	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



# SWM Route Map for Ward no. 60












	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw





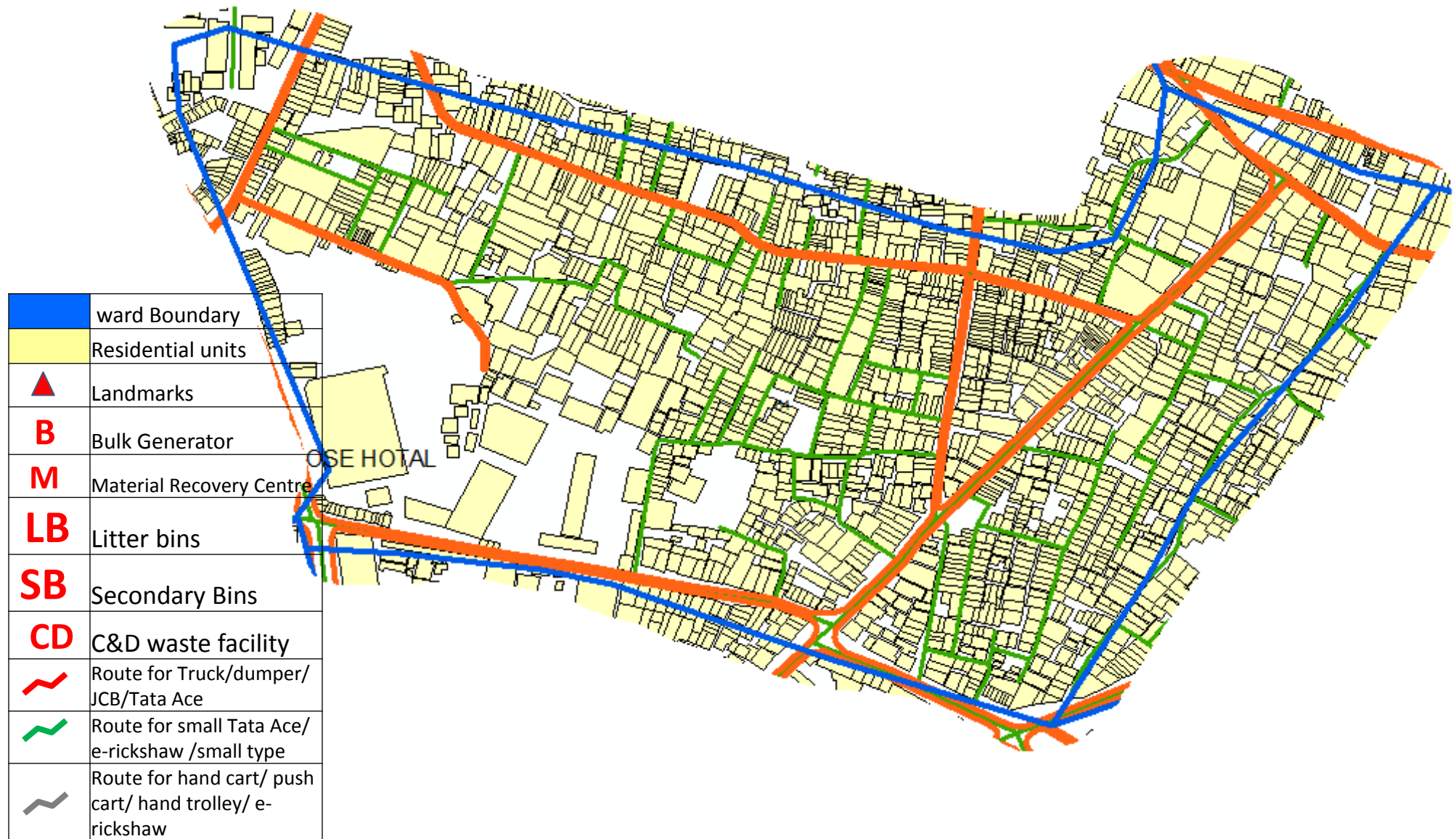
	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














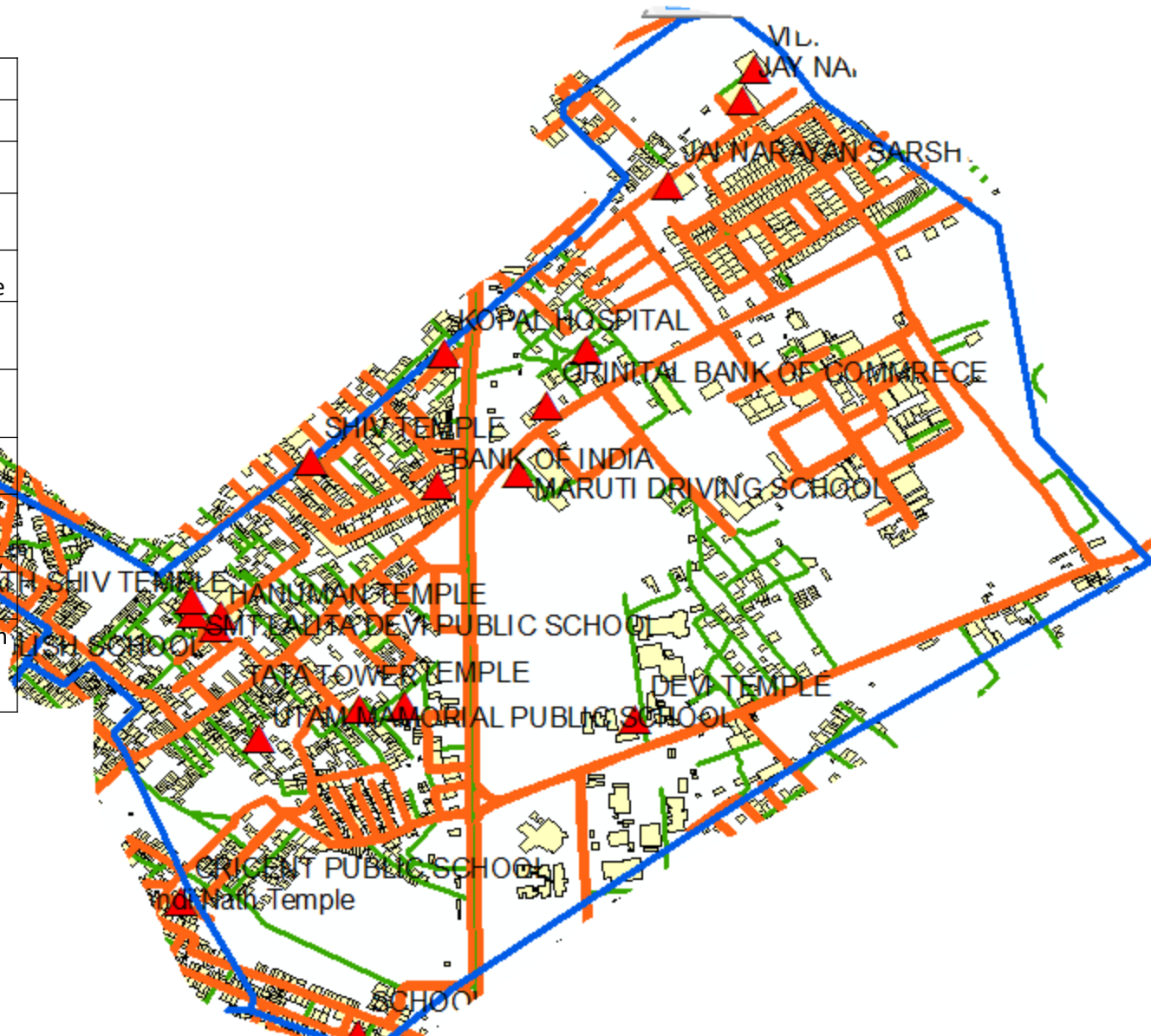


# SWM Route Map for Ward no. 63











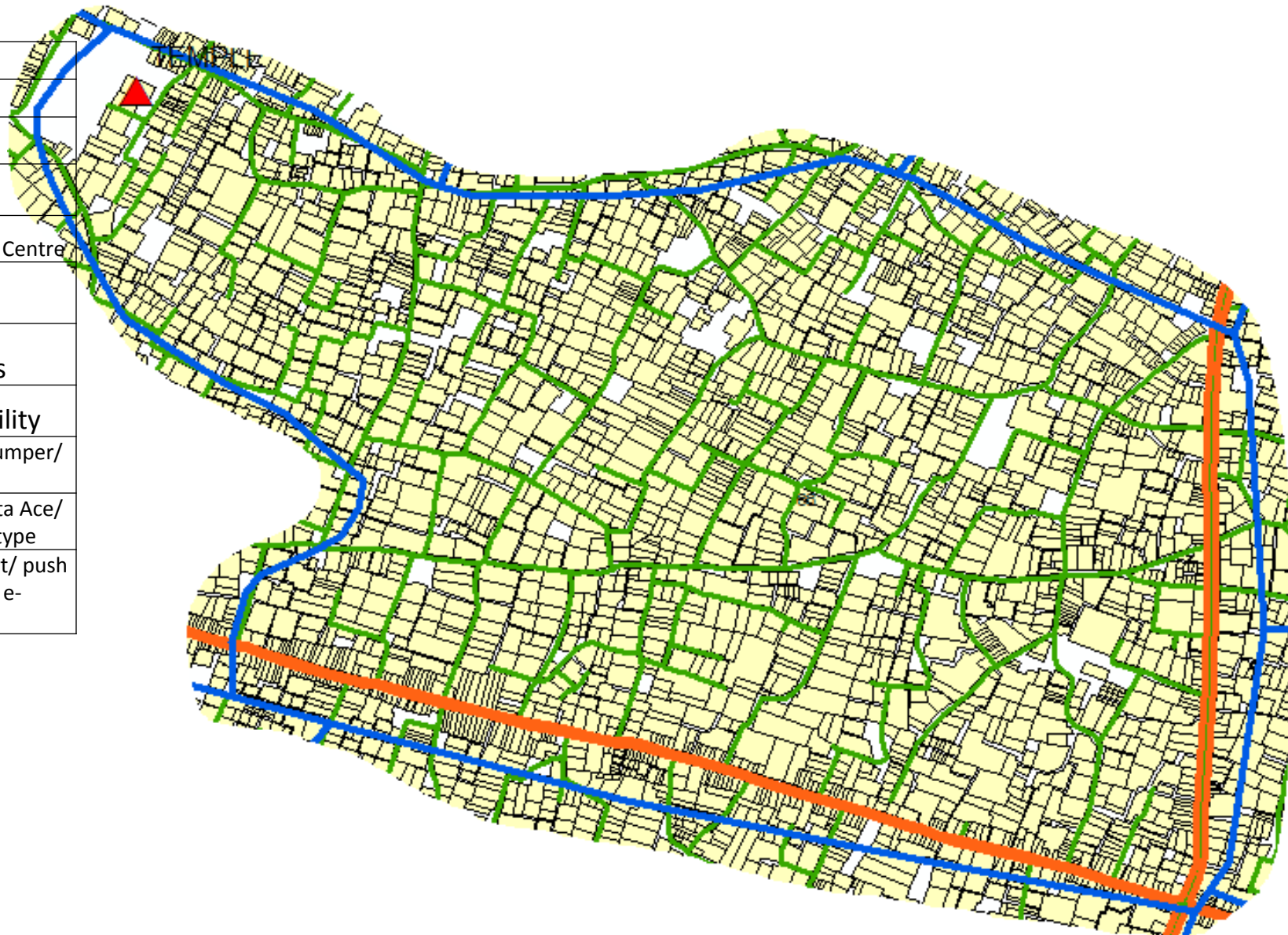
	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw
















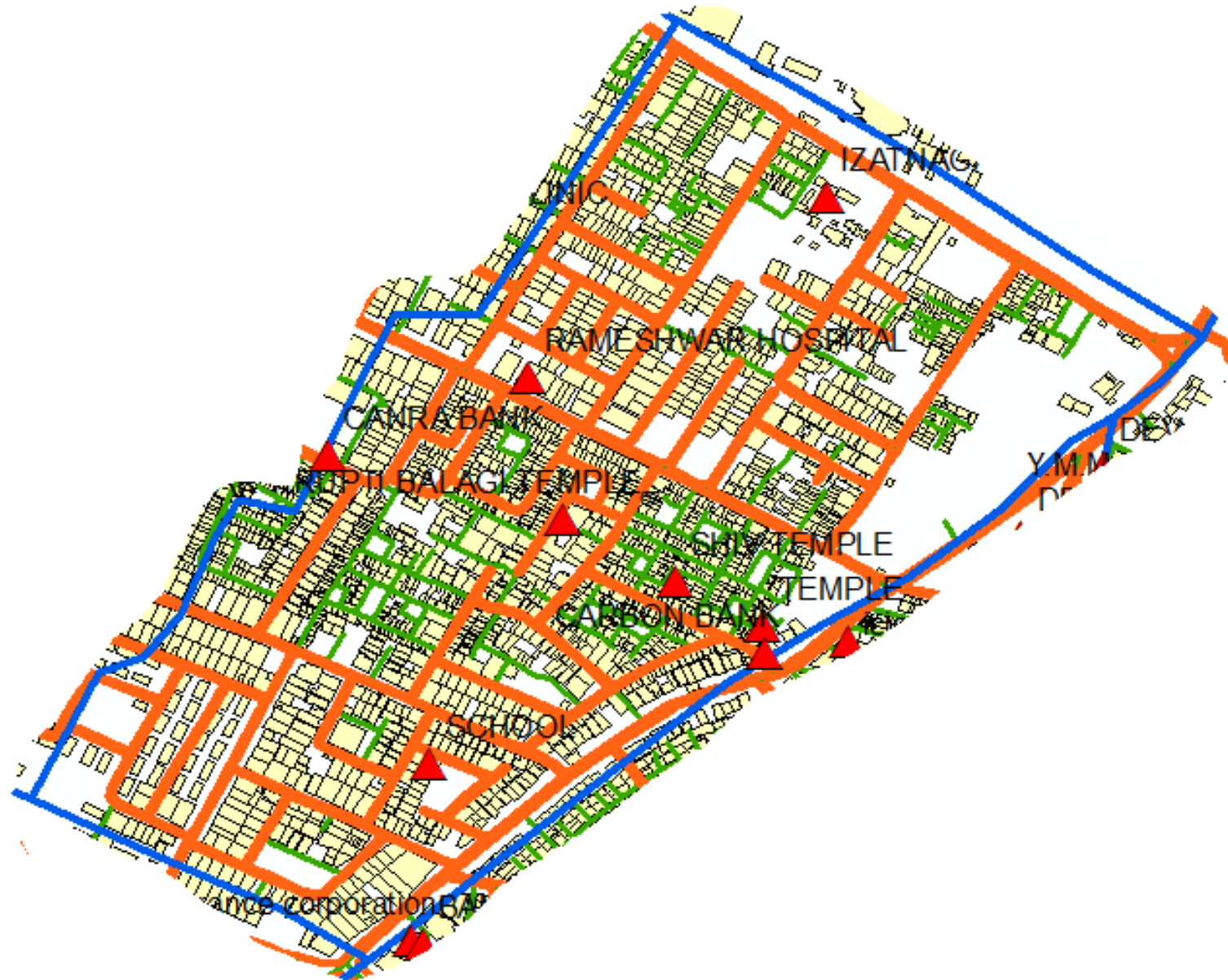
# SWM Route Map for Ward no. 66

	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














# SWM Route Map for Ward no. 67

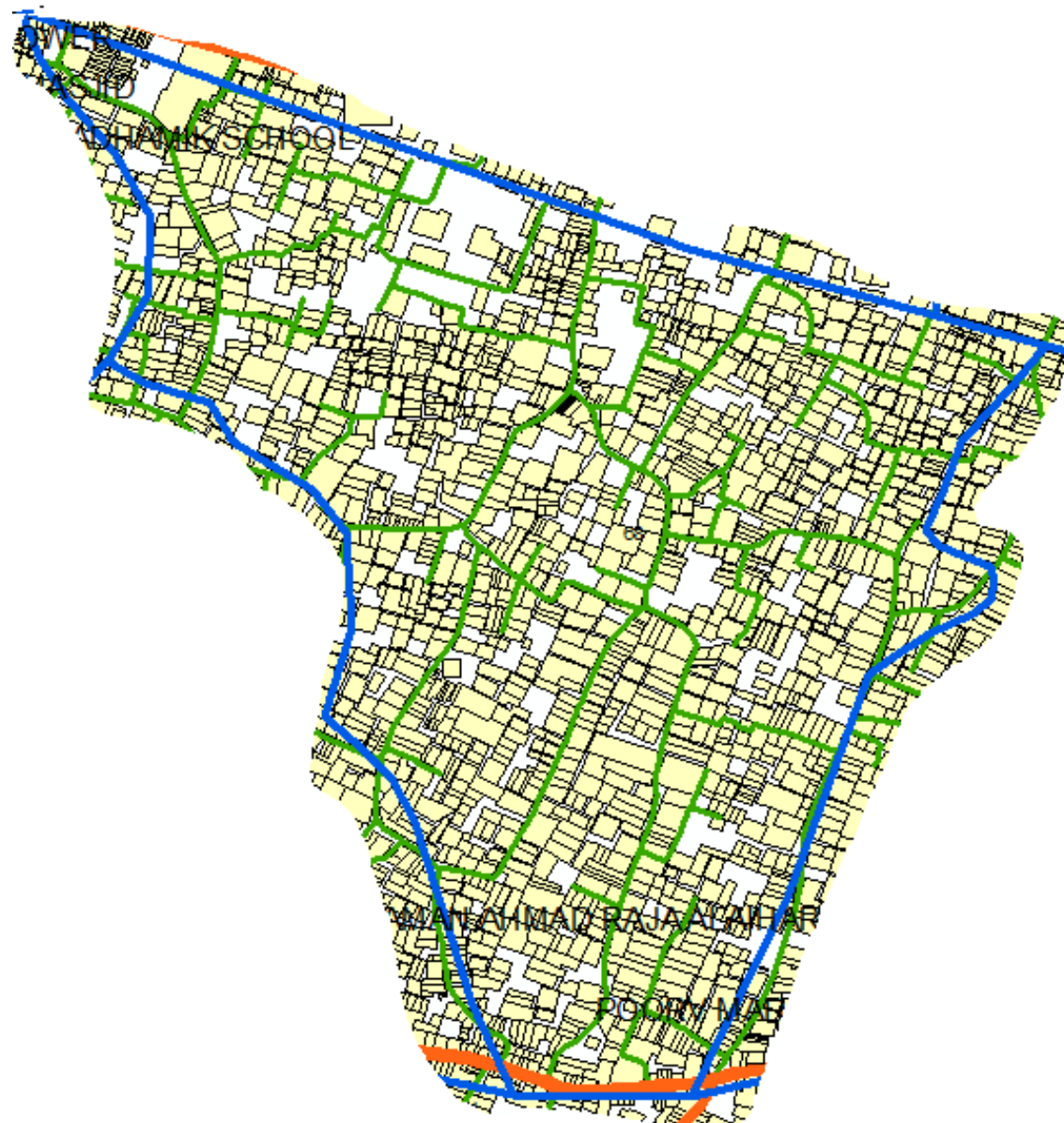
	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw
















# SWM Route Map for Ward no. 68

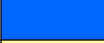










	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

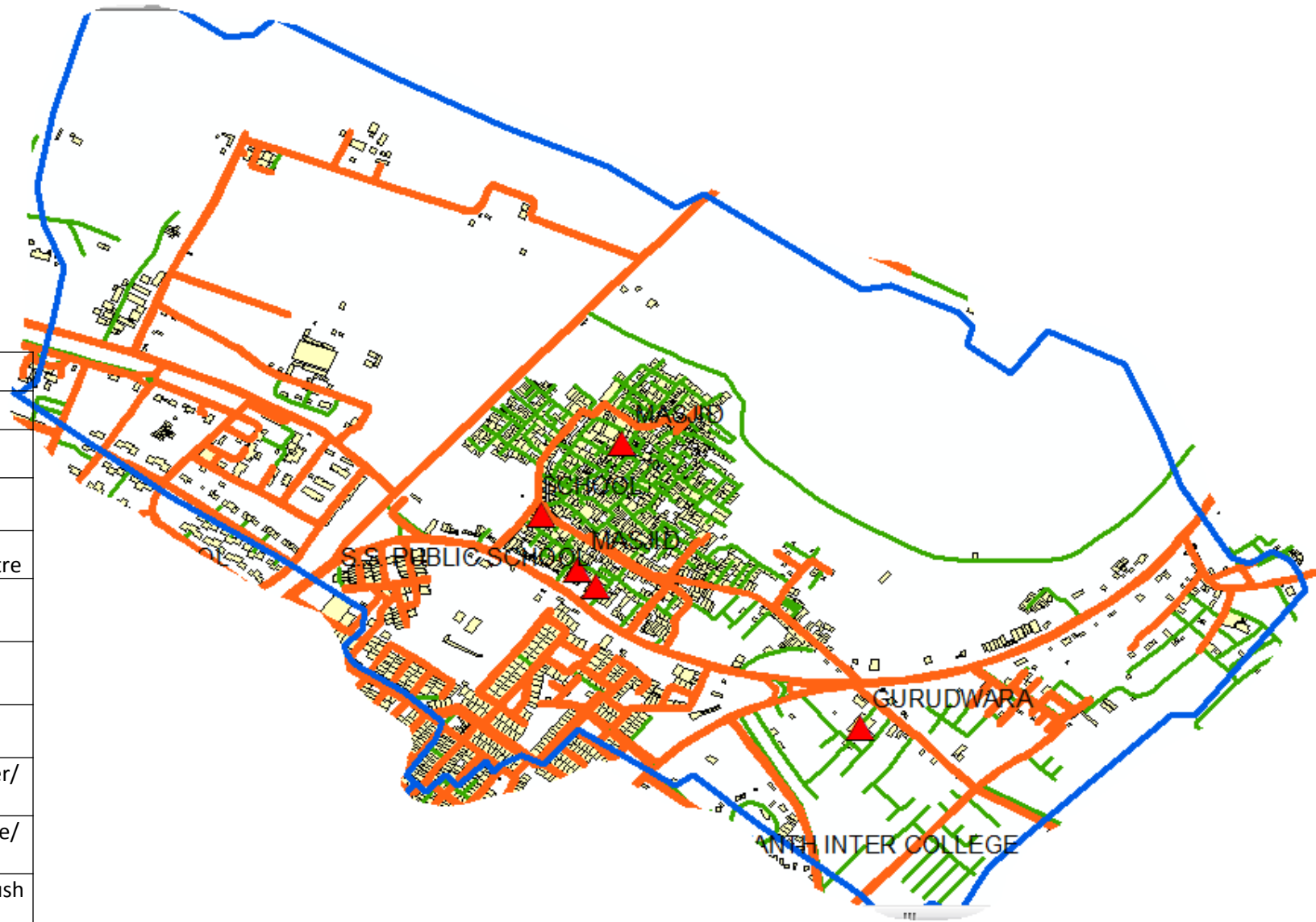


# SWM Route Map for Ward no. 69







	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

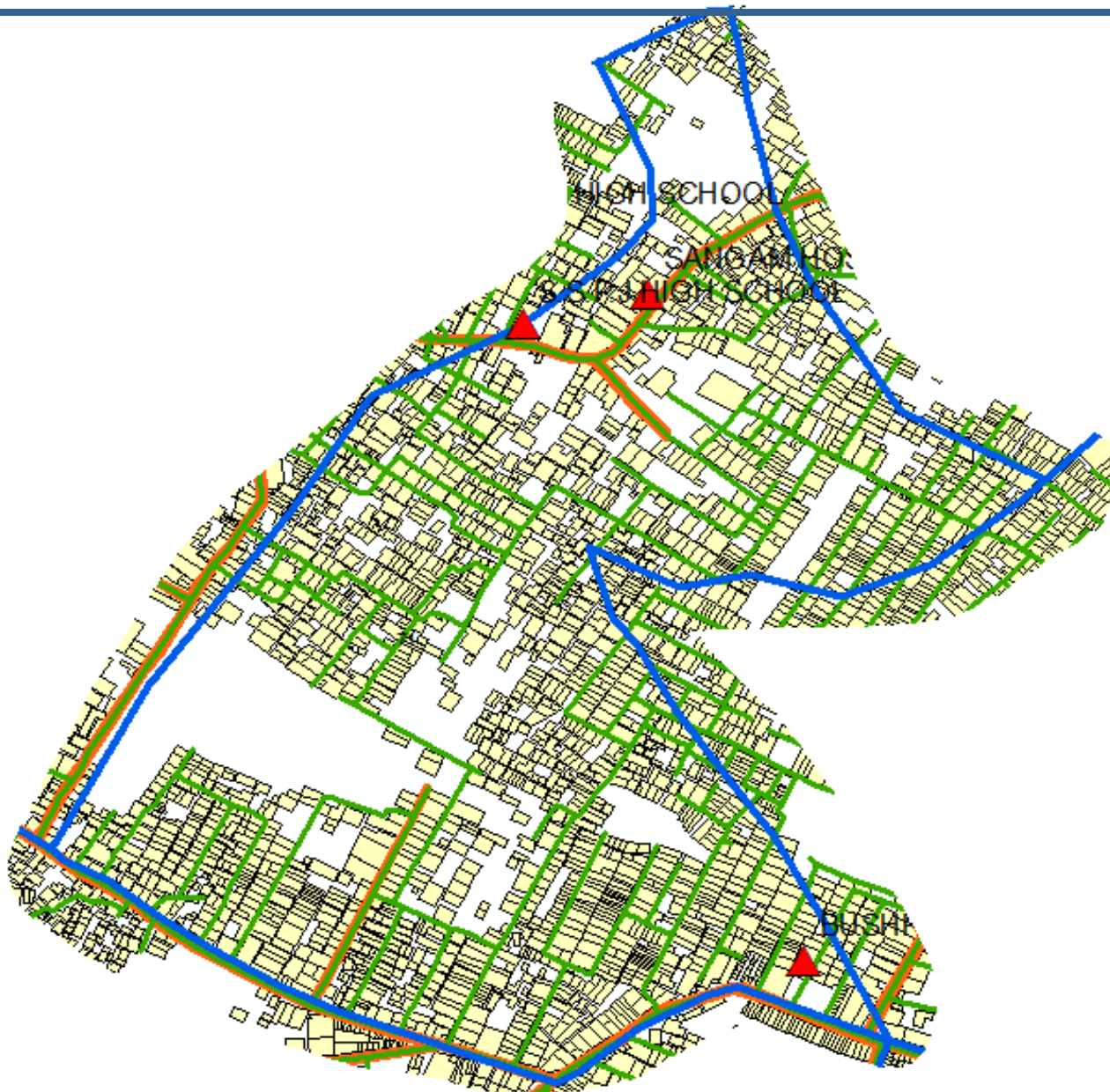


	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

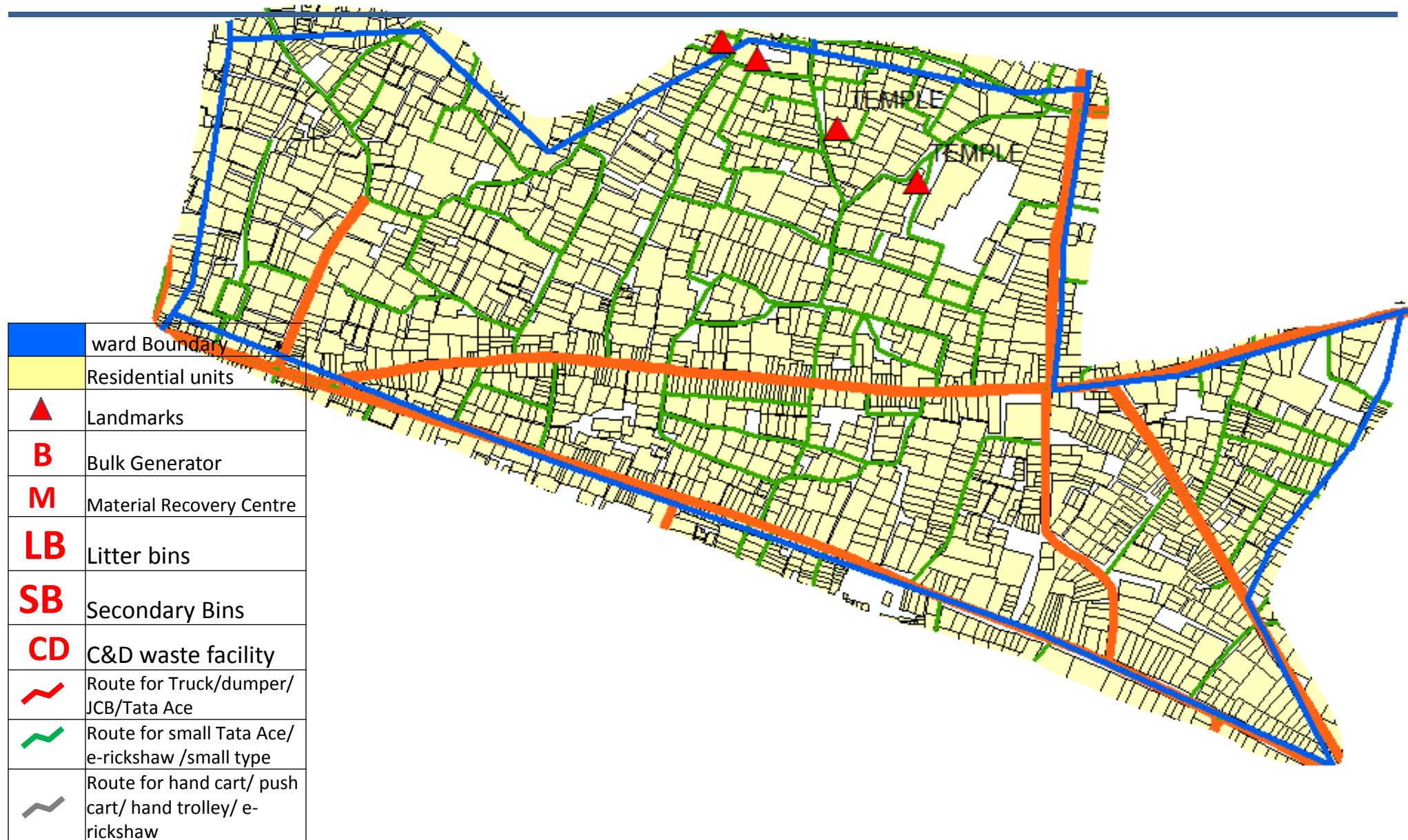




	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



# SWM Route Map for Ward no. 72














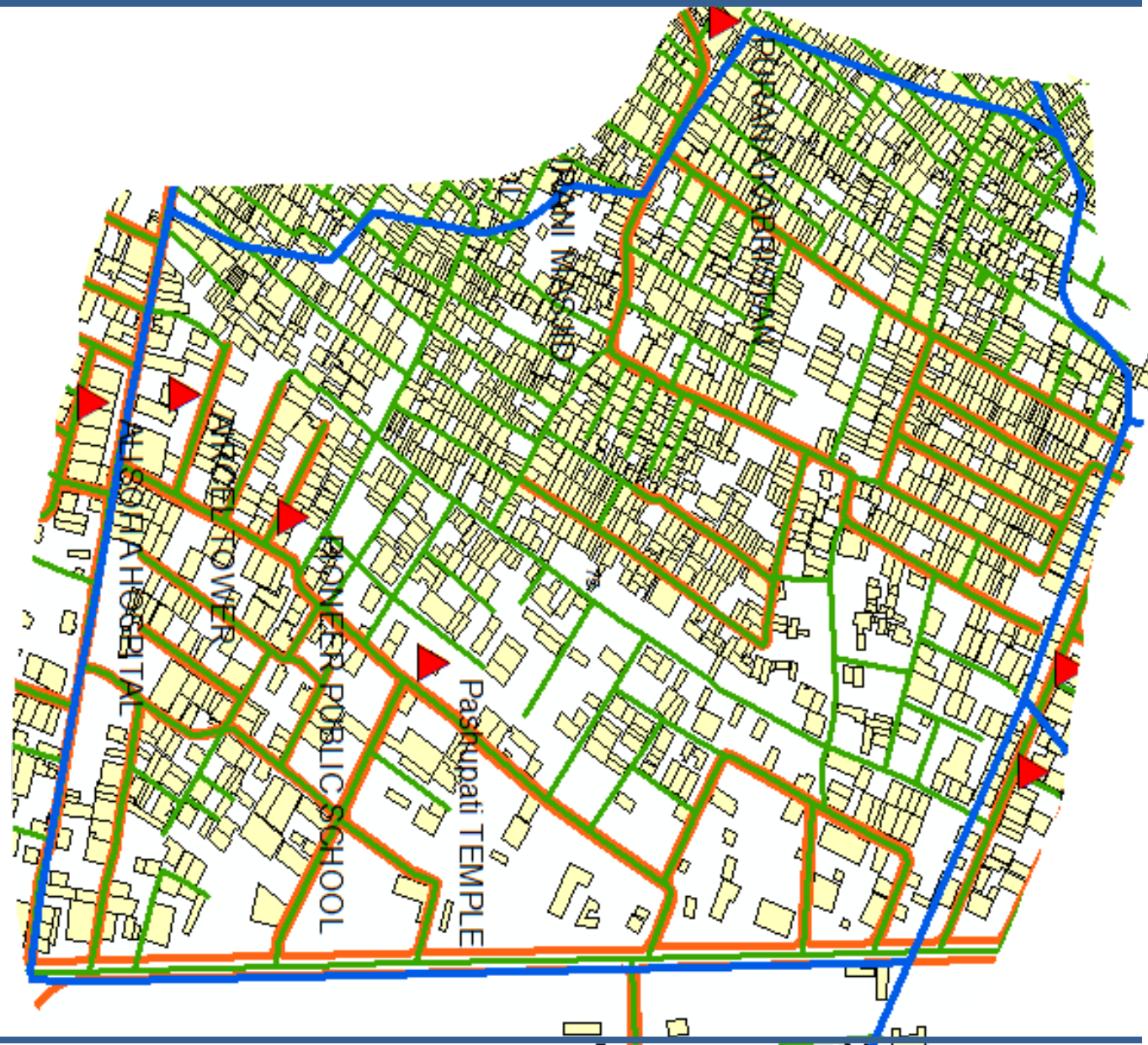




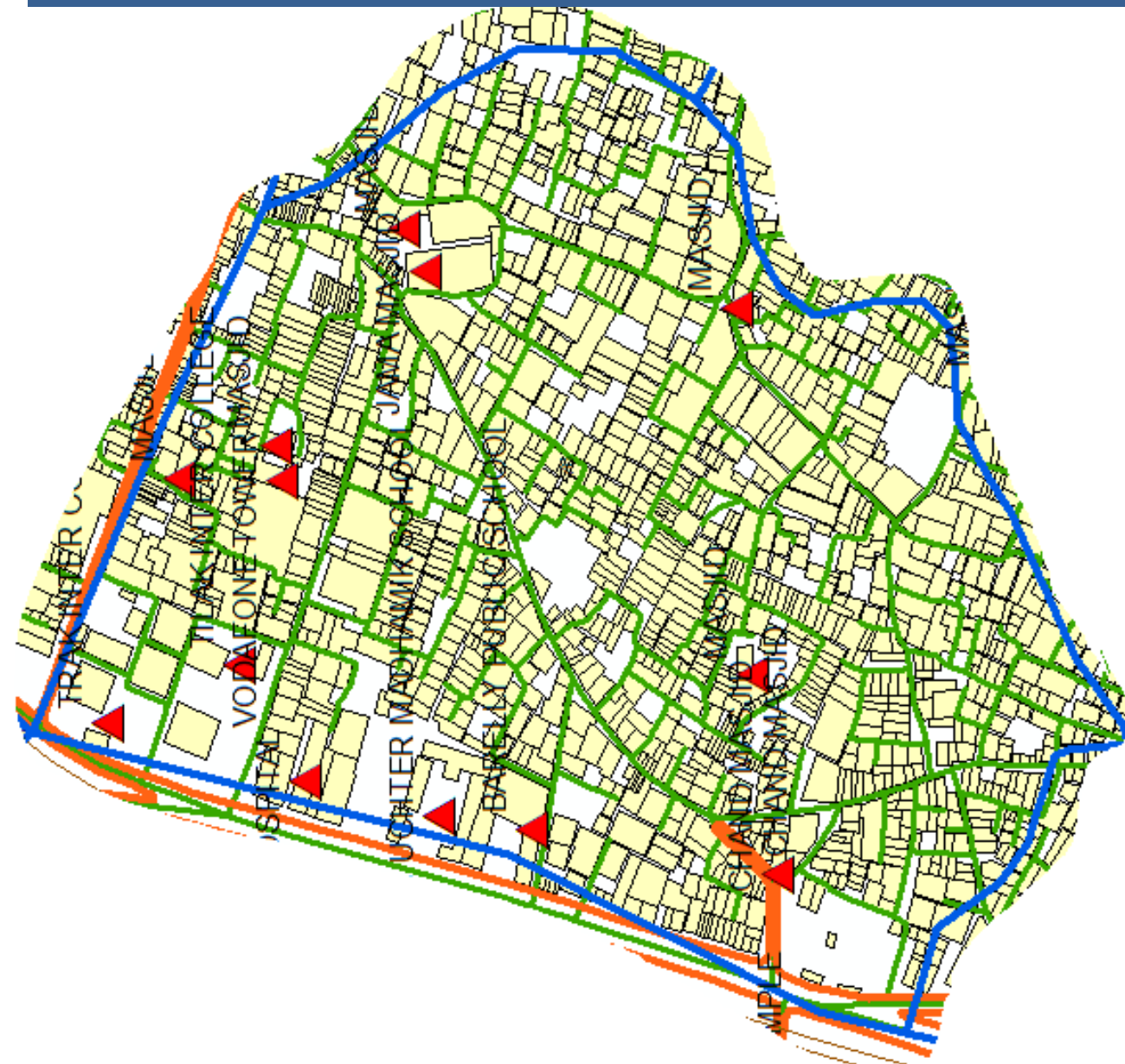


# SWM Route Map for Ward no. 75

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw














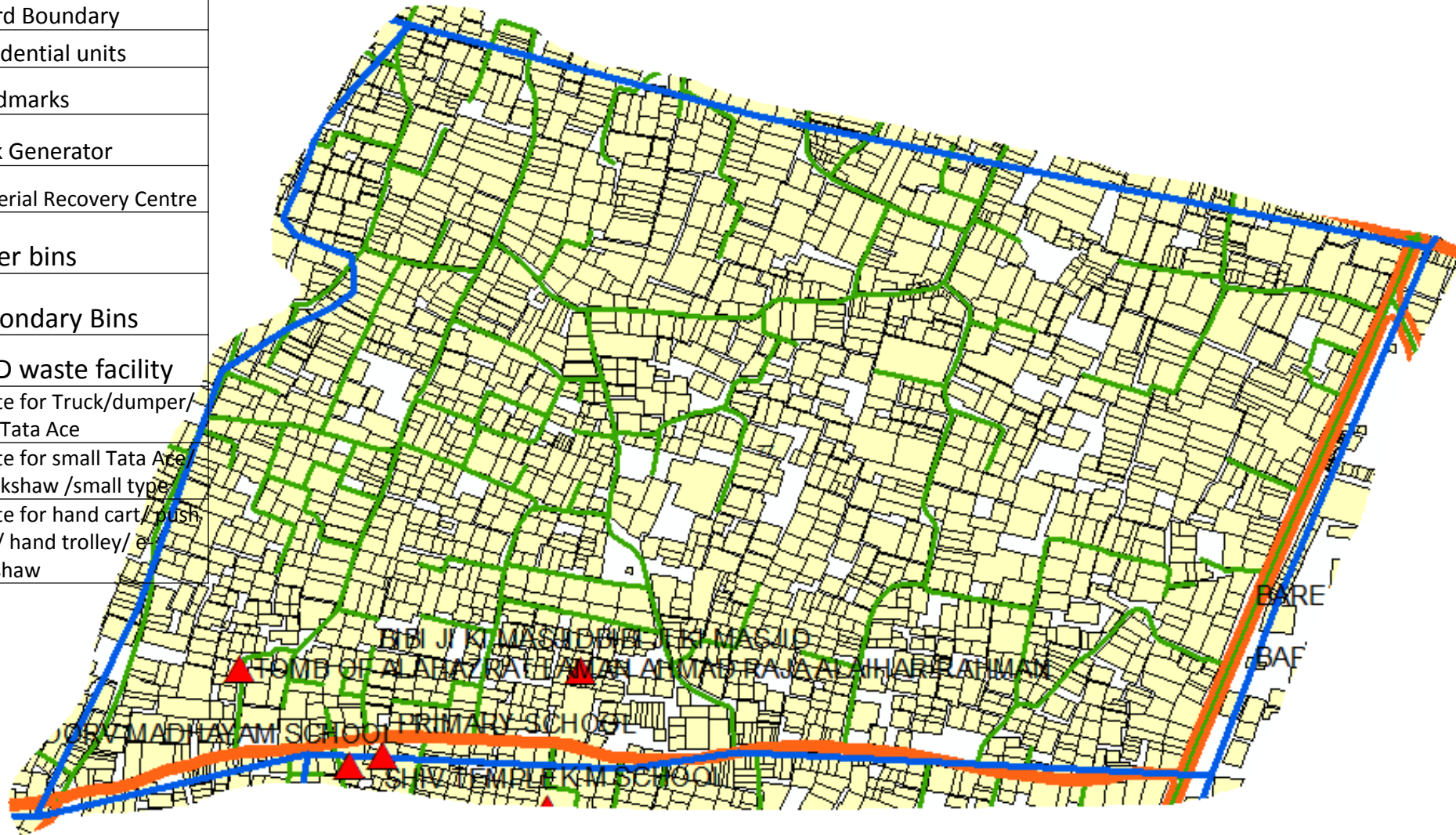




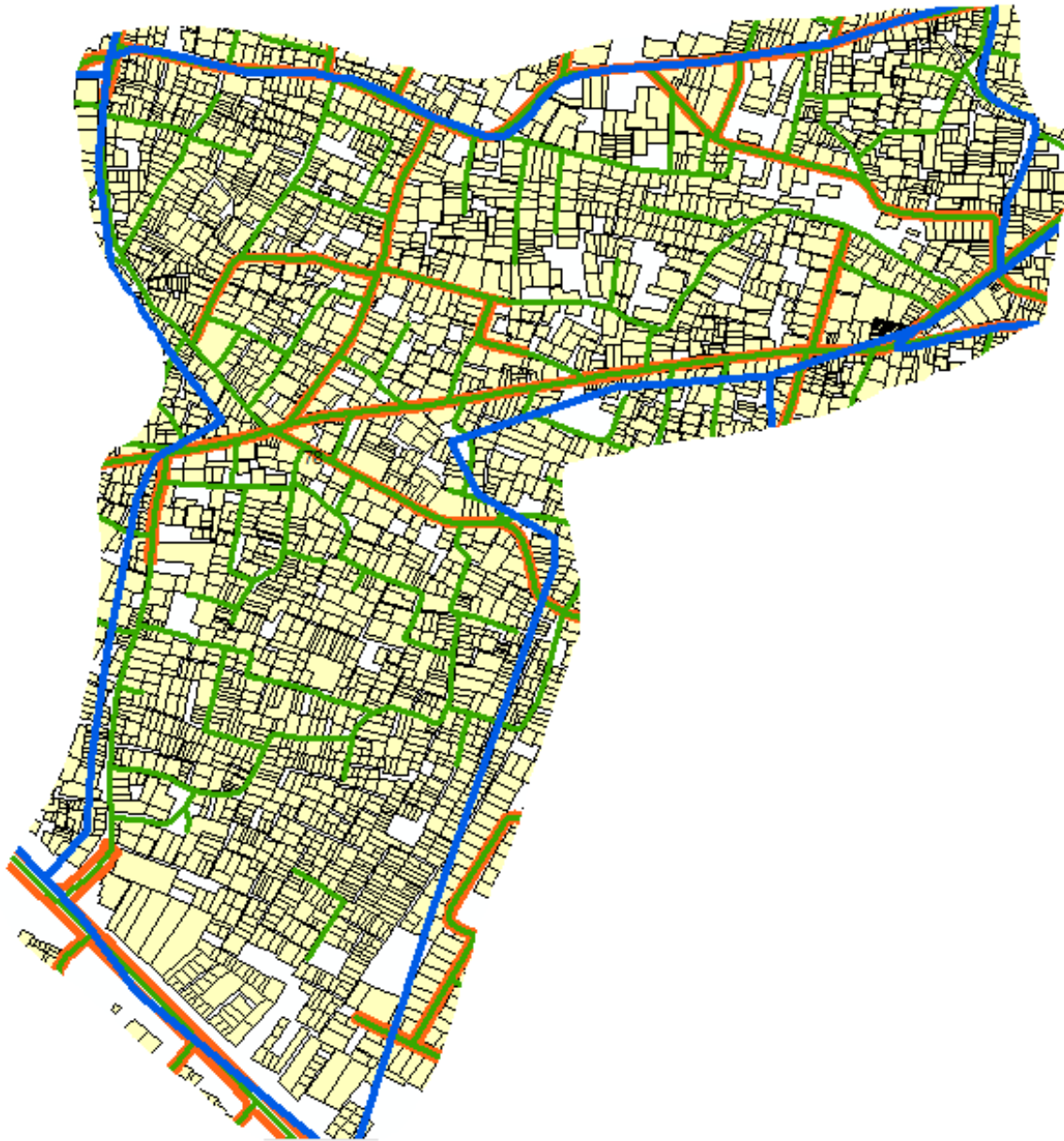
	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

# SWM Route Map for Ward no. 77












	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw


















	ward Boundary
	Residential units
	Landmarks
<b>B</b>	Bulk Generator
<b>M</b>	Material Recovery Centre
<b>LB</b>	Litter bins
<b>SB</b>	Secondary Bins
<b>CD</b>	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw



# SWM Route Map for Ward no. 80

	ward Boundary
	Residential units
	Landmarks
	Bulk Generator
	Material Recovery Centre
	Litter bins
	Secondary Bins
	C&D waste facility
	Route for Truck/dumper/ JCB/Tata Ace
	Route for small Tata Ace/ e-rickshaw /small type
	Route for hand cart/ push cart/ hand trolley/ e- rickshaw







उत्तर प्रदेश UTTAR PRADESH

ED/643589

कार्यालय मुख्य कोषाधिकारी

28 JUN 2018

\* बरेली-11 \*

**Concession Agreement**

**for**

**Setting up landfill liquidation, MSW Processing & disposal in Bareilly (Bakarganj) Uttar Pradesh**

**Between**

**Municipal Corporation, Bareilly**

**&**

**Amazo Waste Management Solution LPP**



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## PART I - PRELIMINARY

The solid waste is rising in Bareilly Municipal Area. An increase in solid waste is observed because of increase in urbanization, population density and income, changing food habits, taste and pattern. The growth of industry, commercial units such as hotels, theaters, restaurants, malls are rising fast. Such units are positively contributing to the solid waste generation. There are 37 out of 70 wards Door to Door waste collection is being done by Bareilly Municipal Corporation. No segregation at source and disposal facility of Bareilly Municipal Corporations is nil because of Municipal Solid Waste Treatment Facility is not functioning and only dumping of waste is the final disposal of waste without treatment. At present open dumping at Bakarganj dumping site is continuing and the site is situated nearby the community area and over exhausted. Therefore Bareilly Municipal Corporation must adopt scientific methods for collection, segregation and disposal of solid waste and proposed new site for treatment & Landfilling for Municipal Solid Waste. Urgent steps in this direction will reduce the water, air, soil pollutions and health hazards. It will improve the quality life of people nearby the site of Bakarganj Dumping site. Leachate generation due to open dumping is polluting the ground water and also creating the health problem for residents of that area.

Distance from Residential Areas Research has shown that as the distance from residential areas increases, the issues of public opposition to siting of waste disposal facility diminishes. It is as a result of this fact that the suitability of site increases as public opposition diminishes. The waste disposal sites should not be sited or located in populated urban or rural areas. It is for this reason that the residential areas were categorized into high dense, medium dense and low dense areas and digitized accordingly based on the development plan available of the study area. The extent of the residential areas were derived from reclassification, and distance of 500 m and above are considered as suit-able while 200 m and below were considered unsuitable. Hence the land suitability for landfill increases with the increase in distance from the residential areas. Some sites is very close to residential area like HarunNagla, Bihar man Nagla, Parsakhera, SaraiTalfiahmotoli and some having very far away from the residential like Babia.

Dumping ground at Bakarganj has almost reached its full capacity and can take more garbage only for the next two to three years. "We have informed NGT that the Bakarganj garbage dump has almost reached its full capacity and we have to find an alternate site within the next two years.

It was decided that the dump site will be liquidated and the tenders were called for executing the same.

It is estimated that there is 6,00,000 tons of garbage dumped at site and when the site was selected scientific landfill was not thought off therefore capping is not a viable solution as the ground water has been contaminated and the dump with a lot of plastic and non-biodegradables will remain such for the next 100 years when the hydrocarbons may naturally disintegrate.

The successful bidder will get the contract with a challenge to start the work immediately.

Municipality will allocate leased land near Bakarganj landfill, provide right to access the site with water and electrical connection.

The process of inviting the bids were as under :



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1. Floating of RFP : Detailed Document Annexure -1  
Bareilly Municipal Corporation  
National Competitive Bidding  
REQUEST FOR PROPOSAL (RFP)  
RFP No. BMC/BIO-MINING/2018/1  
Country: INDIA

Reclamation of Bakarganj MSW Dumpsite Through Bio-Mining Process in Bareilly on "Design-Build-Operate (DBO)".

2. Prebid meeting
3. Presentations with the applicants through a screening process.
4. Sealed Tender
5. Tender allotment



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## Concession Agreement

THIS AGREEMENT is made on this 9<sup>th</sup> day of June, 2018 at Municipal Commissioner office Bareilly Uttar Pradesh

BY & BETWEEN

**The Commissioner**  
**Municipal Corporation, Bareilly**  
Opp: Bareilly College, Bareilly  
Civil Lines, Bareilly (U.P.)  
Pin - 243001  
Ph. No. - 0581-2550074

(Hereinafter referred to as "**Municipality**", which expression shall, unless repugnant to the context or meaning thereof, mean and include its successors and permitted assigns) of the FIRST PART.

AND

**Amazo Waste Management Solution LPP** a Company incorporated under the Companies Act, 1956/ 2013 and having its registered office at Reg Office : U-02 Swagat building Near Lal Banglow C.G Road Ahmedabad (hereinafter referred to as "**Concessionaire**", which expression shall, unless repugnant to the context or meaning thereof, mean and include its successors and permitted assigns) of the OTHER PART.

### 1.1 WHEREAS,

- 1.1.1 By Seventy Fourth Amendment to the Constitution of India (with effect from 1<sup>st</sup> June 1993), Part IXA was inserted which inter-alia introduced the concept of local self-governance by urban local bodies ("ULBs" or "**Municipalities**"). Article 243W divested powers and responsibilities on the municipalities for performance of functions and implementation of schemes as may be entrusted to them including those in relation to the matters listed in the Twelfth Schedule of the Constitution of India. Public health, sanitation conservancy and solid waste management have been provided as few of the activities in Twelfth Schedule which are required to be under taken by Municipalities.



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- 1.1.2 The Ministry of Environment and Forests (MoEF) under the aegis of Government of India (GoI), has formulated the Municipal Solid Waste (MSW) Rules 2000 ("MSW Rules"), amendment 2016 which provides that every municipal authority shall within the territorial area of municipality, be responsible for implementation of MSW Rules and for any infrastructure development for collection, storage, segregation, transportation, processing and disposal of Municipal Solid Wastes ("MSW Services"). Accordingly, the ULBs are required to perform their obligatory duties within the provision of their respective Acts and also to provide MSW Services in accordance with MSW Rules and also to protect the environment and public health of their citizens and public in general.
- 1.1.3 Implementation of the MSW Services, the municipal corporation of Bareilly is authorized to select and appoint a Concessionaire to develop the Project (as defined hereinafter), for, for enabling construction of bio mining facility and remediation of garbage by any means ( Waste to Energy (WtE) Plant or a MSW Processing Facility, and perform, execute and implement the Project under and in accordance with the terms and provisions of this Agreement.
- 1.1.4 The objective of the Project is to develop and implement a viable & environmentally sustainable MSW management system in Bareilly as a 'model system' for India. The Project would include, Bio mining processing and disposal of the MSW DBOO basis on a Public Private Partnership (PPP) model.
- 1.1.5 In accordance with the Competitive Bidding Guidelines (as defined here under), the Authorized Representative, had initiated a competitive bidding process through issue of RFP
- 1.1.6 Should there be any requirement a Power Purchase Agreement can be entered with DISCOM and Municipality will recommend the case.
- 1.1.7 The municipality and Concessionaire hereto have agreed to enter into this Concession Agreement for execution of the Project on DBFOO basis subject to and on the terms, conditions and covenants set forth hereinafter.
- 1.1.8 The concessionaire is also eligible for viability gap finding as per the rules of MNRE and Municipality will recommend the case.



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## 1.2 Interpretation

### 1.2.1 In this Agreement, unless the context otherwise requires,

- a) References to any legislation or any provision thereof shall include amendment or re-enactment or consolidation of such legislation or any provision thereof so far as such amendment or re-enactment or consolidation applies or is capable of applying to any transaction entered into hereunder;
- b) References to laws of India or Indian law or regulation having the force of law shall include the laws, acts, ordinances, rules, regulations, bye laws or notifications which have the force of law in the territory of India and as from time to time may be amended, modified, supplemented, extended or re-enacted;
- c) References to a "person" and words denoting a natural person shall be construed as a reference to any individual, firm, company, corporation, society, trust, government, state or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the above and shall include successors and assigns;
- d) The table of contents, headings or sub-headings in this Agreement are for convenience of reference only and shall not be used in, and shall not affect, the construction or interpretation of this Agreement;
- e) The words "include" and "including" are to be construed without limitation and shall be deemed to be followed by "without limitation" or "but not limited to" whether or not they are followed by such phrases;
- f) References to "construction" or "building" include, unless the context otherwise requires, investigation, design, developing, engineering, procurement, delivery, transportation, installation, processing, fabrication, testing, commissioning and other activities incidental to the construction, and "construct" or "build" shall be construed accordingly;
- g) References to "development" include, unless the context otherwise requires, construction, renovation, refurbishing, augmentation, upgradation and other activities incidental thereto, and "develop" shall be construed accordingly;
- h) Any reference to any period of time shall mean a reference to that according to Indian Standard Time; Any reference to day shall mean a reference to a calendar day;
- i) References to a "business day" shall be construed as a reference to a day (other than a Sunday) on which banks in Uttar Pradesh are generally open for business;



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- j) Any reference to month shall mean a reference to a calendar month as per the Gregorian calendar;
- k) References to any date, period or Project Milestone shall mean and include such date, period or Project Milestone as may be extended pursuant to this Agreement;
- l) Any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both such days or dates; provided that if the last day of any period computed under this Agreement is not a business day, then the period shall run until the end of the next business day;
- m) The words importing singular shall include plural and vice versa;
- n) References to any gender shall include the other and the neutral gender;
- o) "Lakh" means a hundred thousand (100,000) and "Crore" means ten million (10,000,000);
- p) "indebtedness" shall be construed so as to include any obligation (whether incurred as principal or surety) for the payment or repayment of money, whether present or future, actual or contingent;
- q) References to the "winding-up", "dissolution", "insolvency", or "reorganization" of a company or corporation shall be construed so as to include any equivalent or analogous proceedings under the law of the jurisdiction in which such company or corporation is incorporated or any jurisdiction in which such company or corporation carries on business including the seeking of liquidation, winding-up, reorganization, dissolution, arrangement, protection or relief of debtors;
- r) Save and except as otherwise provided in this Agreement, any reference, at any time, to any agreement, deed, instrument, license or document of any description shall be construed as reference to that agreement, deed, instrument, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference; provided that this Sub-clause shall not operate so as to increase liabilities or obligations of the Municipality hereunder or pursuant hereto in any manner whatsoever;
- s) Any agreement, consent, approval, authorization, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or the Independent Engineer shall be valid and effective only if it is in writing under the hand of a duly authorised representative of such Party or the Independent Engineer, as the case may be, in this behalf and not otherwise;
- t) The Schedules and Recitals to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement;



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u) References to Recitals, Articles, Clauses, Sub-clauses or Schedules in this Agreement shall, except where the context otherwise requires, mean references to Recitals, Articles, Clauses, Sub-clauses and Schedules of or to this Agreement, and references to a Paragraph shall, subject to any contrary indication, be construed as a reference to a Paragraph of this Agreement or of the Schedule in which such reference appears;

v) The damages payable by either Party to the other of them, as set forth in this Agreement, whether on per diem basis or otherwise, are mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Party entitled to receive the same and are not by way of penalty (the "Damages"); and

w) Time shall be of the essence in the performance of the Parties' respective obligations. If any time period specified herein is extended, such extended time shall also be of the essence.

x) 1.2.2 Unless expressly provided otherwise in this Agreement, any Documentation required to be provided or furnished by the Concessionaire to the Municipality and/or the Independent Engineer shall be provided free of cost and in three copies, and if the Municipality and/or the Independent Engineer is required to return any such Documentation with their comments and/or approval, they shall be entitled to retain two copies thereof.

1.2.3 The rule of construction, if any, that a contract should be interpreted against the parties responsible for the drafting and preparation thereof, shall not apply.

1.2.4 Any word or expression used in this Agreement shall, unless otherwise defined or construed in this Agreement, bear its ordinary English meaning and, for these purposes, the General Clauses Act 1897 shall not apply.

### 1.3 Measurements and arithmetic conventions

All measurements and calculations shall be in the metric system and calculations done to 2 (two) decimal places, with the third digit of 5 (five) or above being rounded up and below 5 (five) being rounded down.

### 1.4 Priority of agreements, clauses and schedules

1.4.1 This Agreement, and all other agreements and documents forming part of or referred to in this agreement are to be taken as mutually explanatory and, unless otherwise expressly provided elsewhere in this Agreement, the priority of this Agreement and other documents and agreements forming part hereof or referred to herein shall, in the event of any conflict between them, be in the following order:



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- (a) This Agreement; and
- (b) All other agreements and documents forming part hereof or referred to herein; i.e. the Agreement at (a) above shall prevail over the agreements and documents at (b) above.

1.4.2 Subject to the provisions of Clause 1.4.1, in case of ambiguities or Discrepancies within this Agreement, the following shall apply:

- a) Between two or more Clauses of this Agreement, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in other Clauses;
- b) Between the Clauses of this Agreement and the Schedules, the Clauses shall prevail and between Schedules and Annexes, the Schedules shall prevail;
- c) Between any two Schedules, the Schedule relevant to the issue shall prevail;
- d) Between the written description on the Drawings and the Specifications and Standards, the latter shall prevail;
- e) Between the dimension scaled from the Drawing and its specific written dimension, the latter shall prevail; and
- f) Between any value written in numerals and that in words, the latter shall prevail.



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## **PART II - THE CONCESSION**



## 2. Scope of the Project

### 2.1 Scope of the Project

The scope of the Project (the "Scope of the Project") shall mean and include, during the Concession

Period, Design, Build, Finance, Operate and own (DBFOO) of facilities and infrastructure for

- a. Construction and operation of Bioremediation of Bakarganj dumpsite and **MSW processing facilities with any technology**, Processing Facility for salvaged Quantity of MSW and fresh garbage from the city during the Concession Period for minimum 10 years or till the time of complete liquidation of the above mentioned dumb yard ; however the Concessionaire must have the capacity to process Obligated Quantity of MSW till the end of Concession period or liquidation of dumpsite. It was also agreed that the successful bidder will get the first right of refusal for processing and disposing the garbage of Bareilly and the adjoining ULB's. after the present concession period.
- b. Setup of Scientific Landfill is not included in the project this has to be undertaken by the municipality or treated as a separate project however the first right of refusal shall be that of the concessionaire.
- c. Performance and fulfillment of all other obligations of the Concessionaire in accordance with the provisions of this Agreement and matters incidental thereto or necessary for the performance of any or all of the obligations of the Concessionaire under this Agreement.

The scope of the Project shall also include any and all other activities that are ancillary to the above mentioned scope of the Project. For detailed Scope of the Project refer the Other Background Documents.

### 2.2 Project Facilities

The Concessionaire shall construct the Project Facilities in accordance with the provisions of this Agreement including the Other Background Documents.

### 2.3 Processing Technology

The Municipality desires that its MSW management system shall be a 'model system' for the Country, which would scientifically collect, transport, process and dispose of MSW, have maximum recycling and recovery, and create public awareness. Without prejudice to the generality of the foregoing, Concessionaire shall develop the Project Facilities using technology or technologies that it had proposed in its Bid to the RFP, in accordance with terms of this

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- a) The bio-degradable and recyclable content of the MSW are separated through a Suitable Material Recovery Facility (the "MRF");
- b) A suitable Processing technology is used for Processing of the bio-degradable content of the MSW;
- c) A suitable Processing technology is used for Processing of combustible content of the MSW;
- d) A suitable technology is used for recovering and processing recyclable content of the MSW;

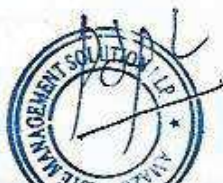
3. Grant of Concession

3.1 The Concession

3.1.1 Subject to and in accordance with the provisions of this Agreement, the Applicable Laws and the Applicable Permits, the Municipality hereby grants to the Concessionaire the concession set forth herein including the exclusive right, licence and Municipality to construct, operate and maintain the Project (the "Concession") for a period of 10 (ten) years commencing from COD, or liquidation of the dumpsite at Bakarganj and the Concessionaire hereby accepts the Concession and agrees to implement the Project subject to and in accordance with the terms and conditions set forth herein:

3.1.2 Subject to and in accordance with the provisions of this Agreement, Applicable Laws and Good Industry Practice, the Concession hereby granted shall oblige or entitle (as the case may be) the Concessionaire to:

- a) Perform and fulfill all of the Concessionaire's obligations under and in accordance with This Agreement;
- b) to design, engineer, finance, procure, construct, install, commission, operate and maintain each of the Project Facilities either itself or through such person as may be selected by it;
- c) Bear and pay all costs, expenses and charges in connection with or incidental to the performance of the obligations of the Concessionaire under this Agreement;
- d) Upon commissioning of the Project Facilities, to manage, operate and maintain the same either itself or through such person as may be selected by it, provided that the ultimate obligation and responsibility for the performance of this agreement shall continue to vest with the Concessionaire;



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- e) To borrow or raise money or funding required for the due implementation of the Project and mortgage, charge or create lien or encumbrance on the whole or part of the Project Facilities except the Site and Landfill Site;
- f) To process salvaged MSW from the landfill at and dispose the process remnants and inert waste as per provisions of this Agreement and Applicable Law using any technology;
- g) To, in accordance with the Applicable Law, store, use appropriate, market and sell or dispose all the components/ products of the MSW, including but not limited to electricity, methane, RDF, compost and to further retain and appropriate any revenues generated from the sale of such products/ end-products;
- h) To obtain the utilities required for enabling the construction of the Project Facilities;
- i) Exclusively hold, possess, and control the Site, in accordance with the terms of the Concession Agreement for the purposes of the due implementation of this Project;
- j) To receive all the fiscal incentives and benefits accruing in respect of or on account of the Project including Carbon Credits/ Certified Emission Reduction (CERs) under Clean Development Mechanism (CDM), VGF and the grants/subsidy through the municipality to be passed on to the developer.
- k) Can assign, transfer or sublet or create any lien or Encumbrance on this Agreement, or the Concession hereby granted or on the whole or any part of the Project nor transfer, lease or part possession thereof; save and except as expressly permitted by this Agreement or the Substitution Agreement.

#### 4. Conditions Precedents

##### 4.1 Conditions Precedent

- 4.1.1 Save and except as expressly or unless the context otherwise requires, the respective rights and obligations of the Parties under this Agreement shall be subject to the satisfaction in full of the conditions.
- 4.1.2 The Conditions Precedent required to be satisfied by the Municipality shall be deemed to have been fulfilled when:
  - a) The Municipality shall have procured EIA Approval for the Project;
  - b) The Municipality shall have handed over the land along with necessary clearances to the Concessionaire for the development of the Project.



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- c) The Reclaimed land shall also be a part of the project land automatically.
- d) Any prior agreements to this concession agreement shall have no bearing on this project and Municipality shall indemnify the concessioner of any loss

4.1.3 The Conditions Precedent required to be satisfied by the Concessionaire prior to the Appointed Date shall be deemed to have been fulfilled when the Concessionaire shall have:

- a. Provided Performance Security to the Municipality;
- b. Executed and procured execution of the Substitution Agreement;
- c. Received Site Authorization under MSW Rules and Consent to Establish from the Uttar Pradesh Pollution Control Board as per applicable rules and regulations including MSW Rules 2000

4.1.4 The Parties shall notify each other in writing at least once a month on the progress made in satisfying the Conditions Precedent. Each Party shall promptly inform the other Party when any Condition Precedent for which it is responsible has been satisfied.

#### 4.2 Damages for delay by the Municipality

In the event that (i) the Municipality does not procure fulfillment of any or all of the Conditions Precedent set forth in Clause 4.1.2 within the period specified in respect thereof, and (ii) the delay has not occurred as a result of breach of this Agreement by the Concessionaire or due to Force Majeure, or any other civil unrest the Municipality shall not hold the equipment of the concessionaire (movable or immovable) beyond 4 months and if the same is not resolved the of the Performance Security on demand shall be refunded .

#### 4.3 Damages for delay by the Concessionaire

In the event that (i) the Concessionaire does not procure fulfilment of any or all of the Conditions Precedent set forth in Clause 4.1.3 within a period specified in respect thereof, and (ii) the delay has not occurred as a result of failure to fulfil the obligations under Clause 4.1.2 or other breach of this Agreement by the Municipality, or due to Force Majeure, the Concessionaire shall pay to the Municipality, Damages in an amount calculated at the rate of 0.2% (zero point two per cent) of the Performance Security for each day's delay until the fulfilment of such Conditions Precedent, subject to a maximum of 20% (twenty percent) of the Performance Security.



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## 5. Obligations of the Concessionaire

### 5.1 Obligations of the Concessionaire

5.1.1 Subject to and on the terms and conditions of this Agreement, the Concessionaire shall, at its own cost and expense, procure finance for and undertake the design, engineering, procurement, construction, operation and maintenance of the Project and observe, fulfill, comply with and perform all its obligations set out in this Agreement or arising hereunder.

5.1.2 The Concessionaire shall be responsible for design, engineering, procurement, construction, operation and maintenance

5.1.3 The Concessionaire shall comply with all the Applicable Laws and procure all the Applicable Permits (including renewals as required) in the performance of its obligations under this Agreement.

### 5.3 Environmental Compliance

The Concessionaire shall, at all times, ensure that all aspects of the Project Facilities and processes employed in the construction, operation and maintenance thereof shall conform with the laws pertaining to environment, health and safety aspects including rules such as MSW Rules, policies and guidelines related thereto. The Concessionaire shall obtain and maintain from time to time all necessary clearances as detailed in the Schedule 2.

### 5.4 Land Use

The Concessionaire shall ensure optimum utilization of the Site and land available and shall not use the same for any purpose unconnected or which is not incidental to the Project or related activities. For avoidance of doubt, any land given by the Municipality to the Concessionaire for this Project shall not be used for development of residential or commercial facilities or premises for rent, lease or

Similar  
purpose.

The Concessionaire shall construct a boundary wall around the entire land parcel of [28] hectares and shall separately fence the [10] hectares of land given by the Municipality by the Appointed Date within one month of signing the Agreement. The Municipality might make



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