Passenger Travel Speed Study on Main Streets of Ulaanbaatar City

1. Introduction

This study examines vehicle travel speeds in the northern zone of Ulaanbaatar. Its objectives are to identify congestion hotspots, assess overall traffic conditions, and collect data to inform future planning and improvement measures. The five study corridors are shown in Figure 1, and their lengths and termini are presented in Table 1.

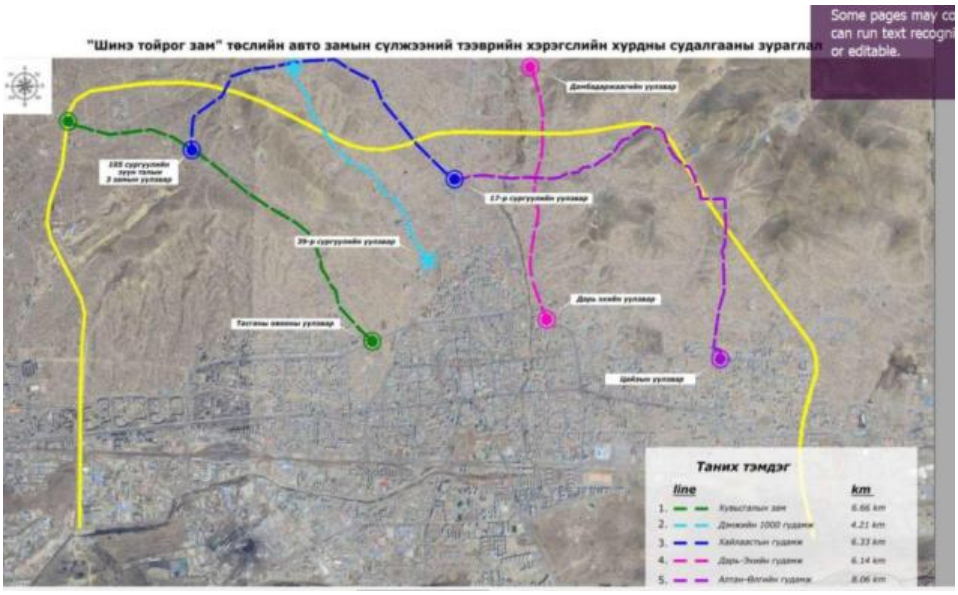

Figure 1 Route Distribution Map

Table 1: General Information on the Transport Study Corridors

Route	Distance (km)	Intersection
1	6.66	From Tasganii Ovoo Intersection to Bayankhoshuu.St
2	4.21	From No. 39 School Intersection to No. 293 Kindergarten
3	6.33	From No. 17 School Intersection to Three-Way Intersection East of No. 105 School
4	4.91/5.85	From Dari Ekh Intersection to Dambadarjaa Intersection
5	8.06	From No. 17 School Intersection to Castle Intersection

Note: ① When compiling data for Route 4 on weekdays, the actual distance is 4.91km, while when compiling data for Route 4 on non-weekdays, the actual distance is 5.85km. ②

There is only working-day data for route 3, but no non-weekday data.

2. Route speed survey

2.1 Survey of speeds on weekdays for route 1

The interval chart of the average speed of route 1 during the morning peak (7:30-10:30) on weekdays has been compiled, as shown in Figures 2 and 3.

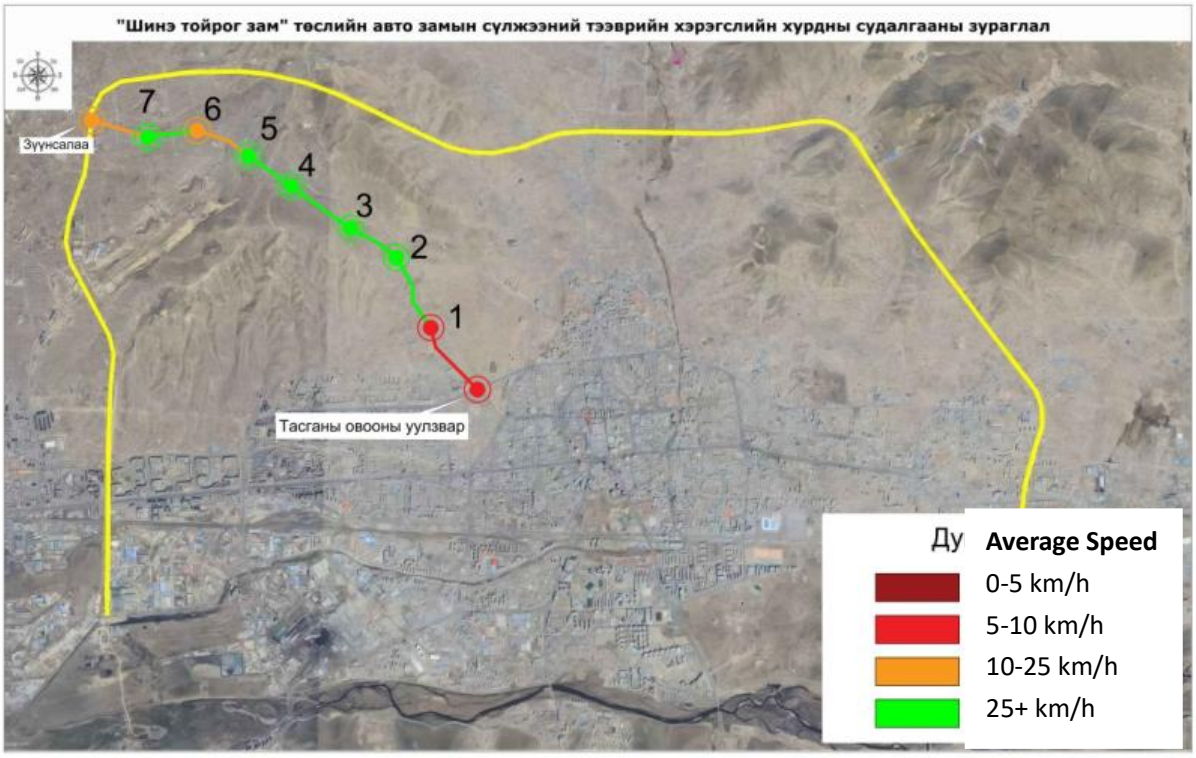

Figure 2 Average Speed during Morning Peak on Weekdays for Route 1 (Start Point to End Point)

Table 2 Survey of Morning Peak Speeds on Workdays for Route 1 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Tasganii Ovoo Intersection	Bayankhoshuu. St	6.660	7:55:48	8:17:36	00:21:48	18.33
Tasganii Ovoo Intersection	1	0.948	7:55:48	8:03:59	00:08:11	6.95
1	2	1.017	8:03:59	8:05:48	00:01:49	33.59
2	3	1.125	8:05:48	8:07:39	00:01:51	36.49
3	4	0.500	8:07:39	8:08:19	00:00:40	45.00
4	5	0.825	8:08:19	8:09:39	00:01:20	37.13

5	6	0.782	8:09:39	8:11:39	00:02:00	23.46
6	7	0.632	8:11:39	8:12:43	00:01:04	35.55
7	Bayankhoshuu. St	0.831	8:12:43	8:17:36	00:04:53	10.21

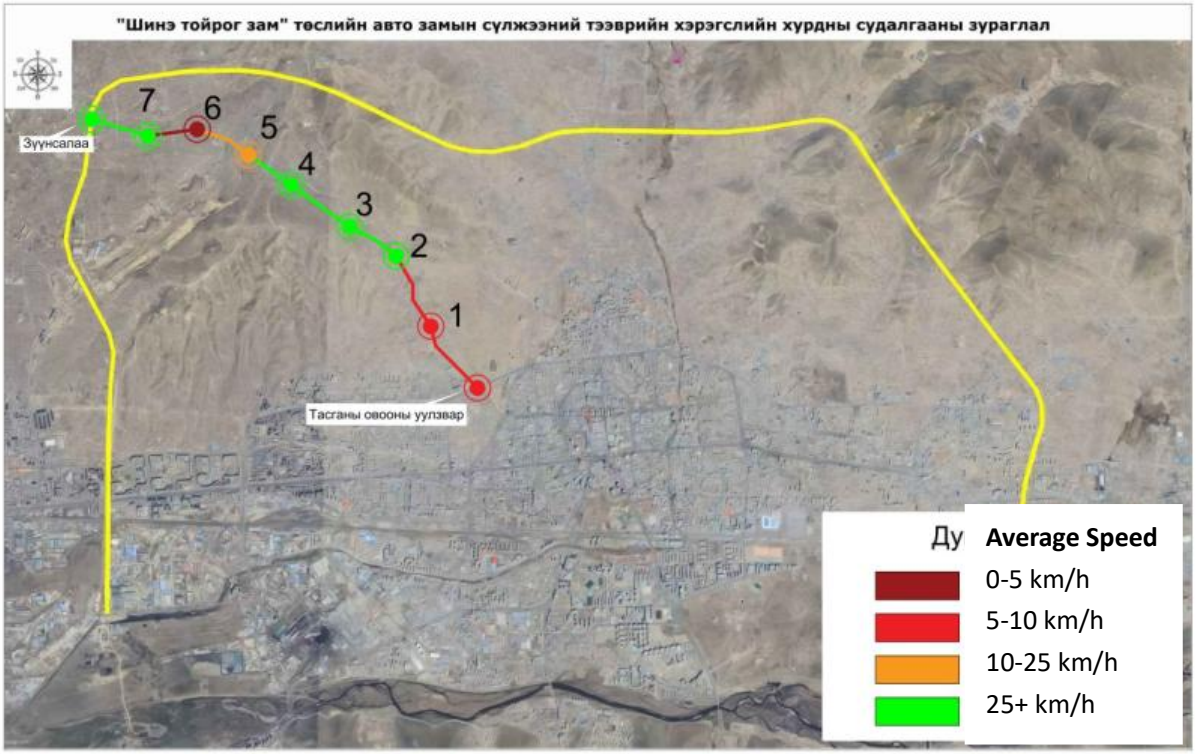

Figure 3 Average Speed during Morning Peak on Weekdays for Route 1 (End point to Start Point)

Table 3 Survey of Morning Peak Speeds on Workdays for Route 1 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Bayankhoshuu.St	Tasganii Ovoo Intersection	6.660	8:17:36	8:56:03	00:38:27	10.39
Bayankhoshuu.St	7	0.831	8:17:36	8:19:14	00:01:38	30.53
7	6	0.632	8:19:14	8:29:31	00:10:17	3.69
6	5	0.782	8:29:31	8:33:59	00:04:28	10.50
5	4	0.825	8:33:59	8:35:19	00:01:20	37.12
4	3	0.500	8:35:19	8:36:19	00:01:00	30.00
3	2	1.125	8:36:19	8:38:43	00:02:24	28.13
2	1	1.017	8:38:43	8:45:59	00:07:16	8.40

1	Tasganii Ovoo Intersection	0.948	8:45:59	8:56:03	00:10:04	5.65

The interval chart of the average speed of route 1 during the noon peak (11:30-14:00) on weekdays has been compiled, as shown in Figures 4 and 5.

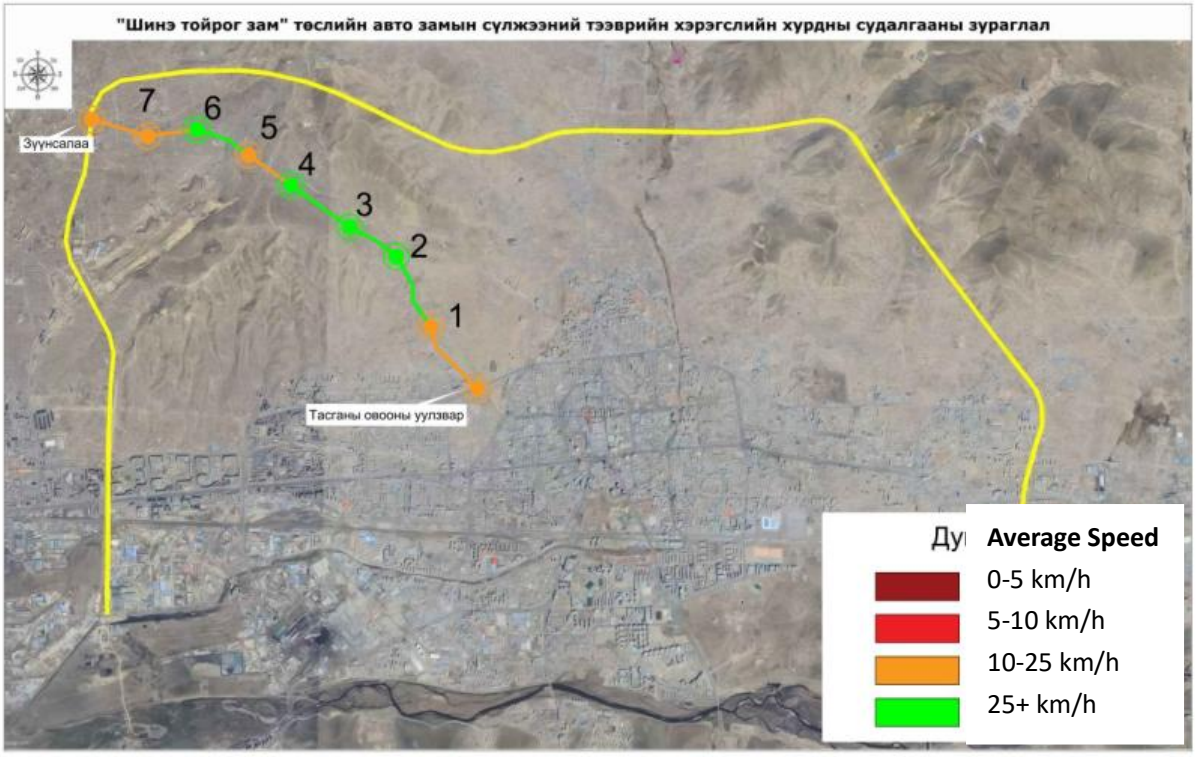

Figure 4 Average Speed during Noon Peak on Weekdays for Route 1 (Start Point to End Point)

Table 4 Survey of Noon Peak Speeds on Workdays for Route 1 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Tasganii Ovoo Intersection	Bayankhoshuu.St	6.660	11:59:27	12:17:04	00:11:37	22.68
Tasganii Ovoo Intersection	1	0.948	11:59:27	12:03:47	00:04:20	13.13
1	2	1.017	12:03:47	12:05:56	00:02:09	28.38
2	3	1.125	12:05:56	12:07:47	00:01:51	36.49
3	4	0.500	12:07:47	12:08:27	00:00:40	45.00
4	5	0.825	12:08:27	12:10:27	00:02:00	24.75
5	6	0.782	12:10:27	12:11:59	00:01:32	30.60
6	7	0.632	12:11:59	12:14:27	00:02:28	15.37

7	Bayankhoshuu.St	0.831	12:14:27	12:17:04	00:02:37	19.05

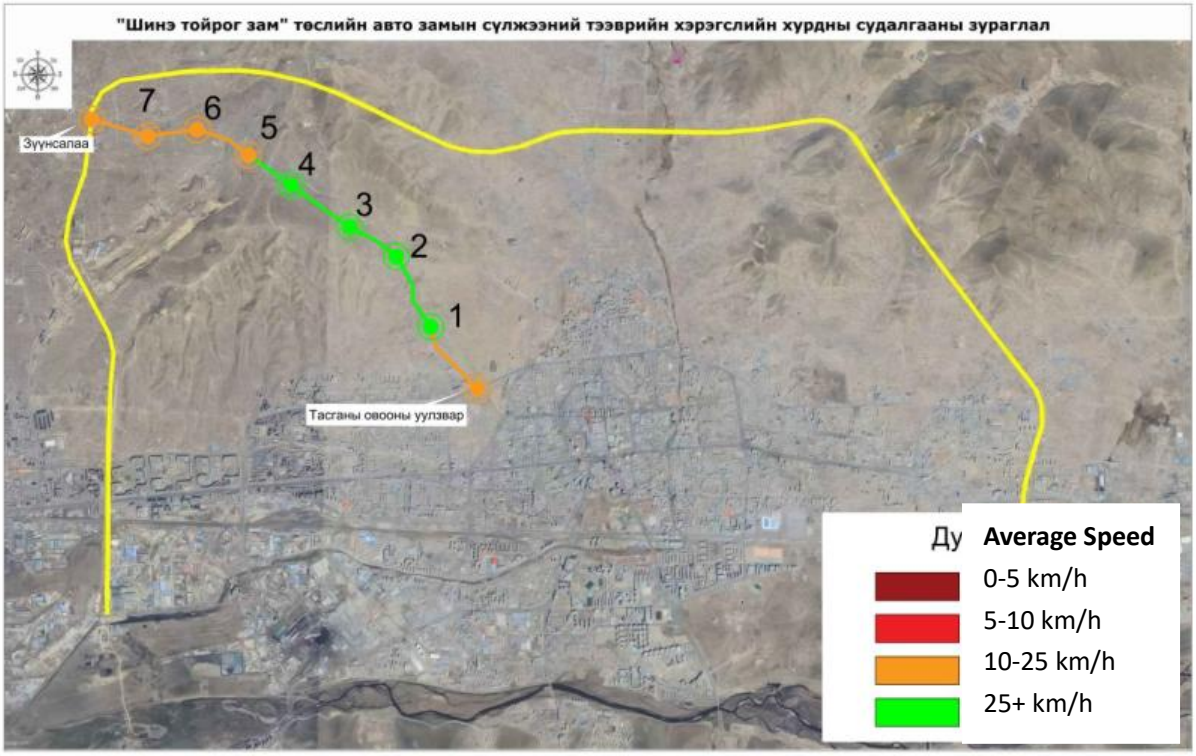

Figure 5 Average Speed during Noon Peak on Weekdays for Route 1 (End point to Start Point)

Table 5: Survey of Noon Peak Speeds on Workdays for Route 1 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Bayankhoshuu.St	Tasganii Ovoo Intersection	6.660	12:17:04	12:34:27	00:17:23	22.99
Bayankhoshuu.St	7	0.831	12:17:04	12:20:53	00:03:49	13.06
7	6	0.632	12:20:53	12:22:45	00:01:52	20.31
6	5	0.782	12:22:45	12:25:12	00:02:27	19.15
5	4	0.825	12:25:12	12:26:47	00:01:35	31.26
4	3	0.500	12:26:47	12:27:27	00:00:40	45.00
3	2	1.125	12:27:27	12:29:31	00:02:04	32.66
2	1	1.017	12:29:31	12:31:47	00:02:16	26.92
1	Tasganii Ovoo Intersection	0.948	12:31:47	12:34:27	00:02:40	21.33

The interval chart of the average speed of route 1 during the evening peak (17:30-20:00) on weekdays has been compiled, as shown in Figures 6 and 7.

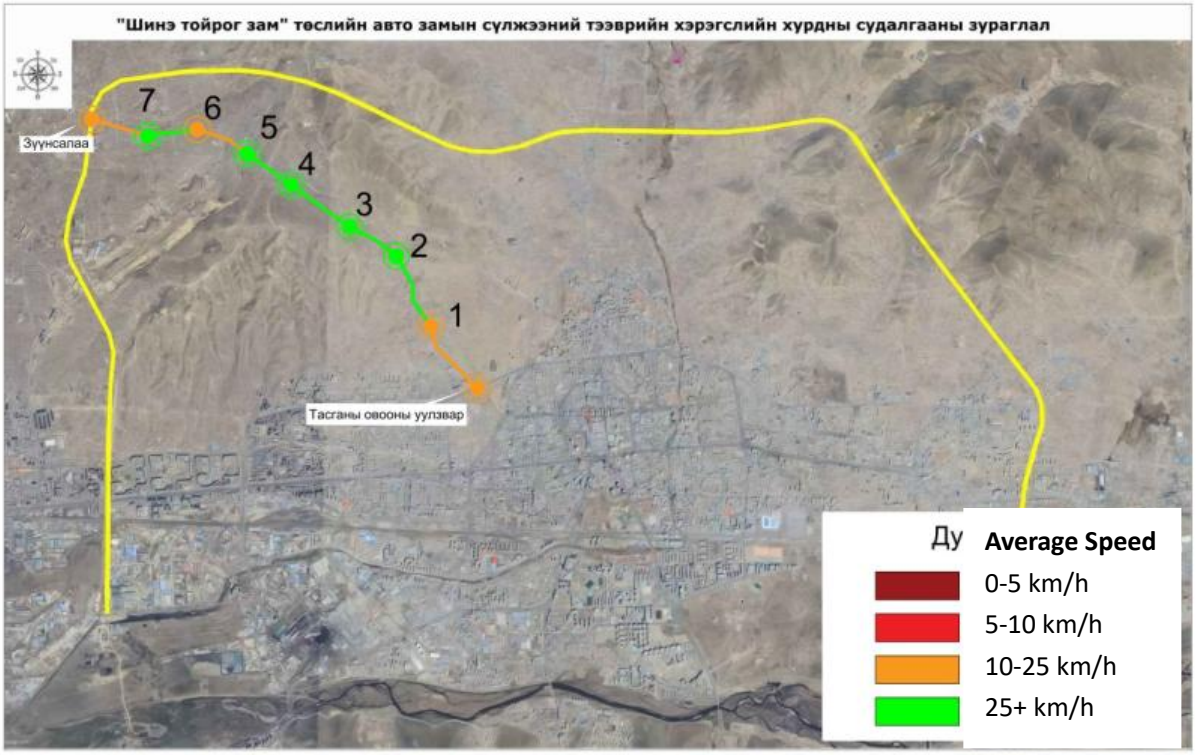

Figure 6 Average Speed during Evening Peak on Weekdays for Route 1 (Start Point to End Point)

Table 6: Survey of Evening Peak Speeds on Workdays for Route 1 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Tasganii Ovoo Intersection	Bayankhoshuu.St	6.660	17:00:31	17:17:25	00:16:54	23.64
Tasganii Ovoo Intersection	1	0.948	17:00:31	17:03:07	00:02:36	21.88
1	2	1.017	17:03:07	17:05:18	00:02:11	27.95
2	3	1.125	17:05:18	17:07:27	00:02:09	31.40
3	4	0.500	17:07:27	17:08:07	00:00:40	45.00
4	5	0.825	17:08:07	17:10:02	00:01:55	25.83
5	6	0.782	17:10:02	17:13:12	00:03:10	14.82
6	7	0.632	17:13:12	17:14:26	00:01:14	30.75
7	Bayankhoshuu.St	0.831	17:14:26	17:17:25	00:02:59	16.71

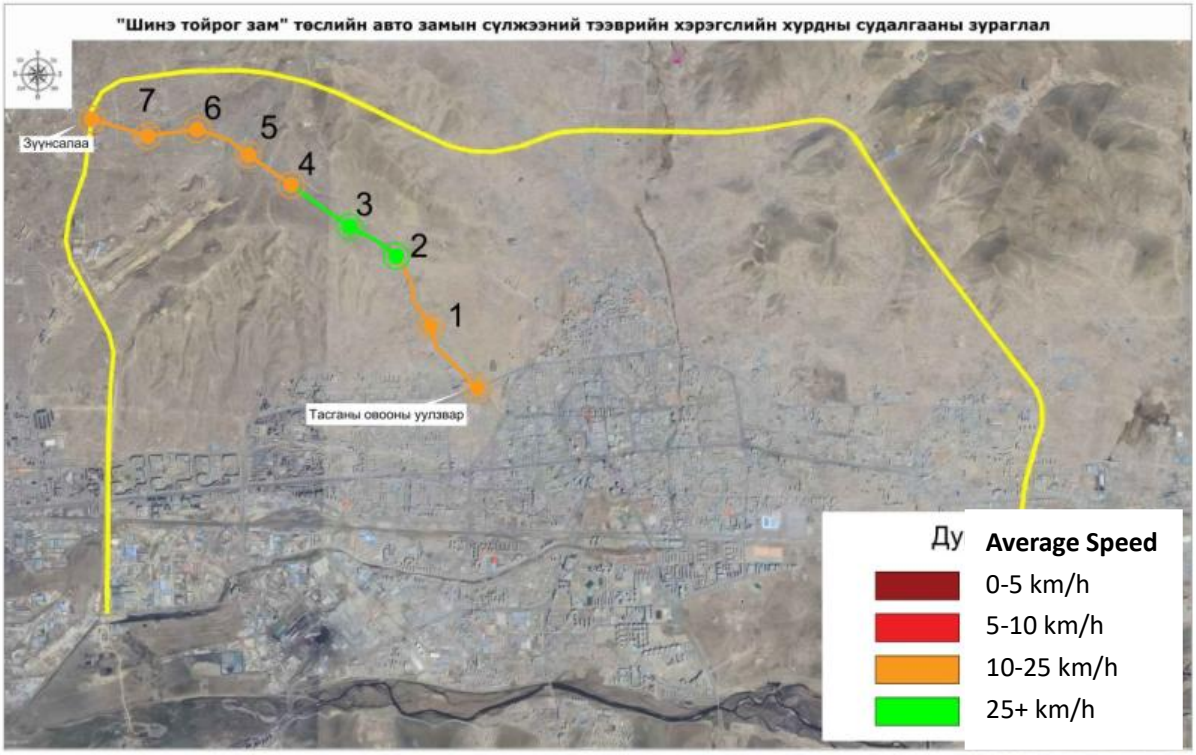

Figure 7 Average Speed during Evening Peak on Weekdays for Route 1 (Start Point to Start Point)

Table 7 Survey of Evening Peak Speeds on Workdays for Route 1 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Bayankhoshuu.St	Tasganii Ovoo Intersection	6.660	17:17:25	17:38:07	00:20:42	19.30
Bayankhoshuu.St	7	0.831	17:17:25	17:21:07	00:03:42	13.48
7	6	0.632	17:21:07	17:22:53	00:01:46	21.46
6	5	0.782	17:22:53	17:25:47	00:02:54	16.18
5	4	0.825	17:25:47	17:27:47	00:02:00	24.75
4	3	0.500	17:27:47	17:28:47	00:01:00	30.00
3	2	1.125	17:28:47	17:31:06	00:02:19	29.14
2	1	1.017	17:31:06	17:33:47	00:02:41	22.74
1	Tasganii Ovoo Intersection	0.948	17:33:47	17:38:07	00:04:20	13.13

2.2 Survey of speeds on non-weekdays for route 1

The interval chart of the average speed of route 1 during the morning peak (7:30-10:30) on non-weekdays has been compiled, as shown in Figures 8 and 9.

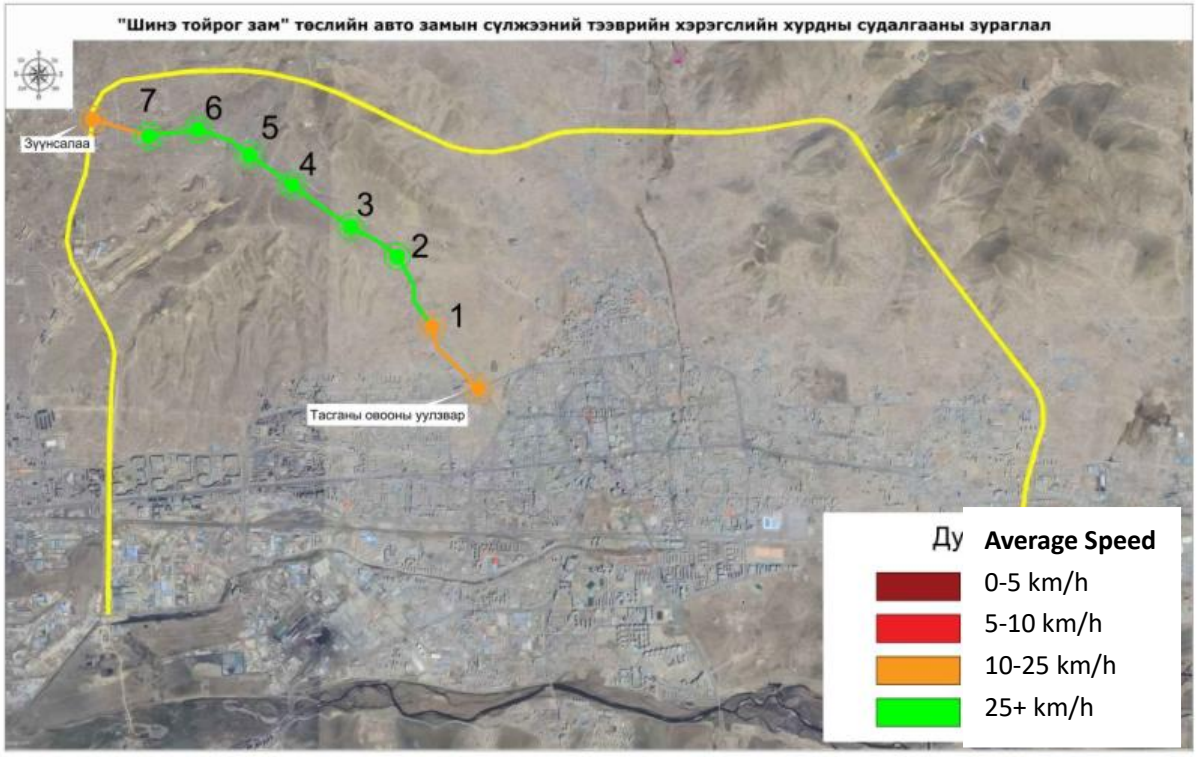

Figure 8 Average Speed during Morning Peak on Non-weekdays for Route 1 (Start Point to End Point)

Table 8 Survey of Morning Peak Speeds on Non-weekdays for Route 1 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Tasganii Ovoo Intersection	Bayankhoshuu.St	6.660	8:01:10	8:15:30	00:14:20	27.88
Tasganii Ovoo Intersection	1	0.948	8:01:10	8:03:30	00:02:20	24.38
1	2	1.017	8:03:30	8:05:15	00:01:45	34.87
2	3	1.125	8:05:15	8:07:19	00:02:04	32.66
3	4	0.500	8:07:19	8:08:10	00:00:51	35.29
4	5	0.825	8:08:10	8:09:30	00:01:20	37.12
5	6	0.782	8:09:30	8:11:22	00:01:52	25.14
6	7	0.632	8:11:22	8:12:50	00:01:28	25.85

7	Bayankhoshuu.St	0.831	8:12:50	8:15:30	00:02:40	18.70

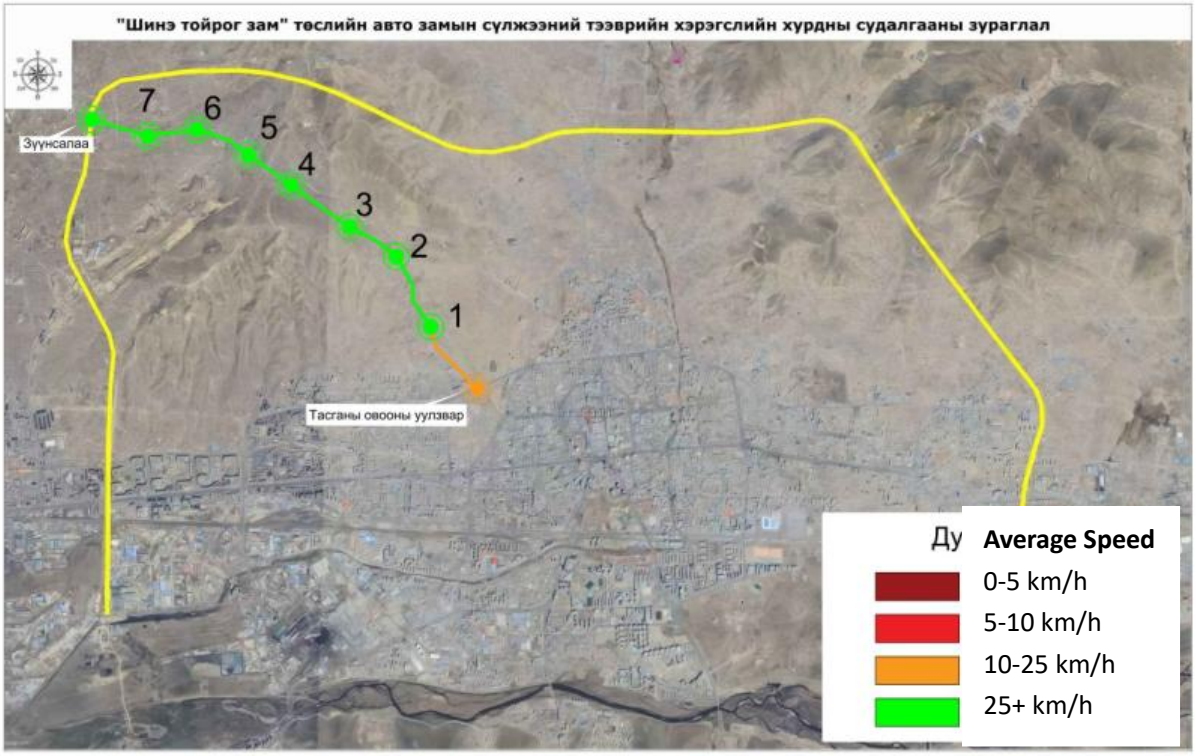

Figure 9 Average Speed during Morning Peak on Non-weekdays for Route 1 (End point to Start Point)

Table 9 Survey of Morning Peak Speeds on Non-weekdays for Route 1 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Bayankhoshuu.St	Tasganii Ovoo Intersection	6.660	8:00:05	8:12:34	00:12:29	32.01
Bayankhoshuu.St	7	0.831	8:00:05	8:01:43	00:01:38	30.53
7	6	0.632	8:01:43	8:03:04	00:01:21	28.09
6	5	0.782	8:03:04	8:04:45	00:01:41	27.87
5	4	0.825	8:04:45	8:05:54	00:01:09	43.04
4	3	0.500	8:05:54	8:06:54	00:01:00	30.00
3	2	1.125	8:06:54	8:08:25	00:01:31	44.51
2	1	1.017	8:08:25	8:10:14	00:01:49	33.59
1	Tasganii Ovoo Intersection	0.948	8:10:14	8:12:34	00:02:20	24.38

The interval chart of the average speed of route 1 during the noon peak (11:30-14:00) on non-weekdays has been compiled, as shown in Figures 10 and 11.

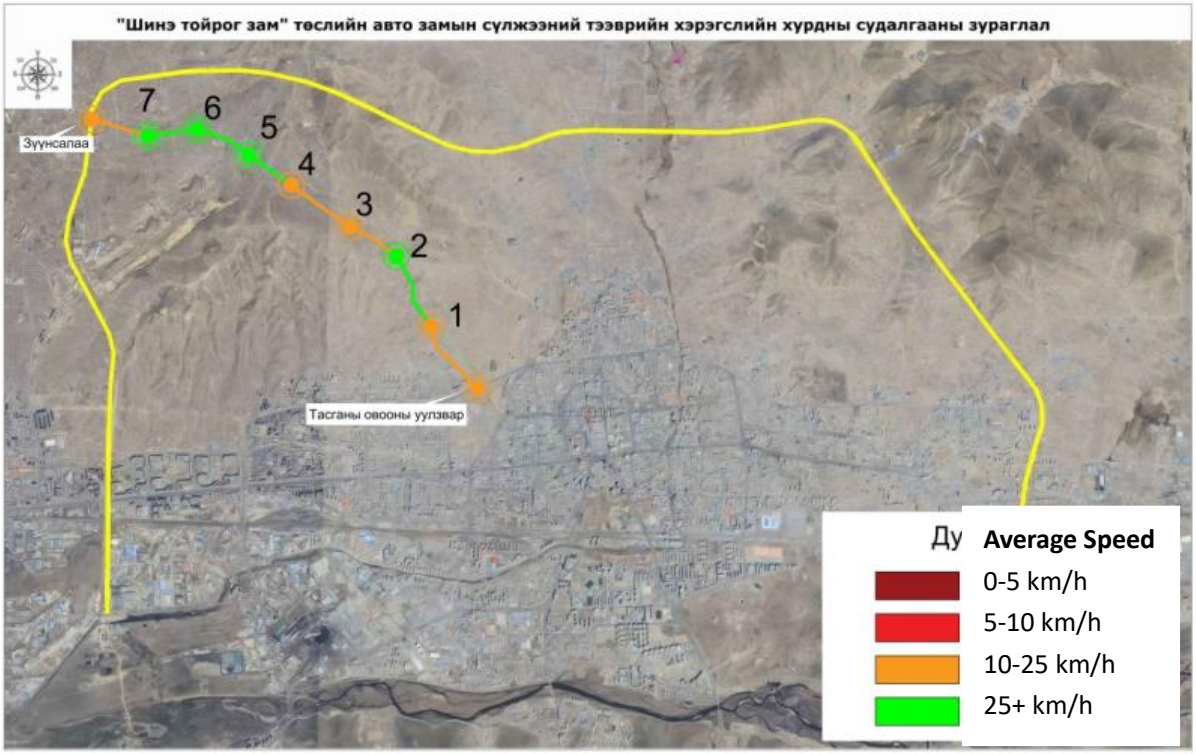

Figure 10: Average Speed during Noon Peak on Non-weekdays for Route 1 (Start Point to End Point)

Table 10 Survey of Noon Peak Speeds on Non-weekdays for Route 1 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Tasganii Ovoo Intersection	Bayankhoshuu.St	6.660	12:00:40	12:16:16	00:15:36	25.62
Tasganii Ovoo Intersection	1	0.948	12:00:40	12:03:44	00:03:04	16.26
1	2	1.017	12:03:44	12:04:47	00:01:03	36.11
2	3	1.125	12:04:47	12:06:40	00:01:53	24.91
3	4	0.500	12:06:40	12:08:51	00:02:11	22.67
4	5	0.825	12:08:51	12:09:31	00:00:40	45.00
5	6	0.782	12:09:31	12:11:04	00:01:33	43.55
6	7	0.632	12:11:04	12:13:11	00:02:07	28.83
7	Bayankhoshuu.St	0.831	12:13:11	12:16:16	00:03:05	18.45

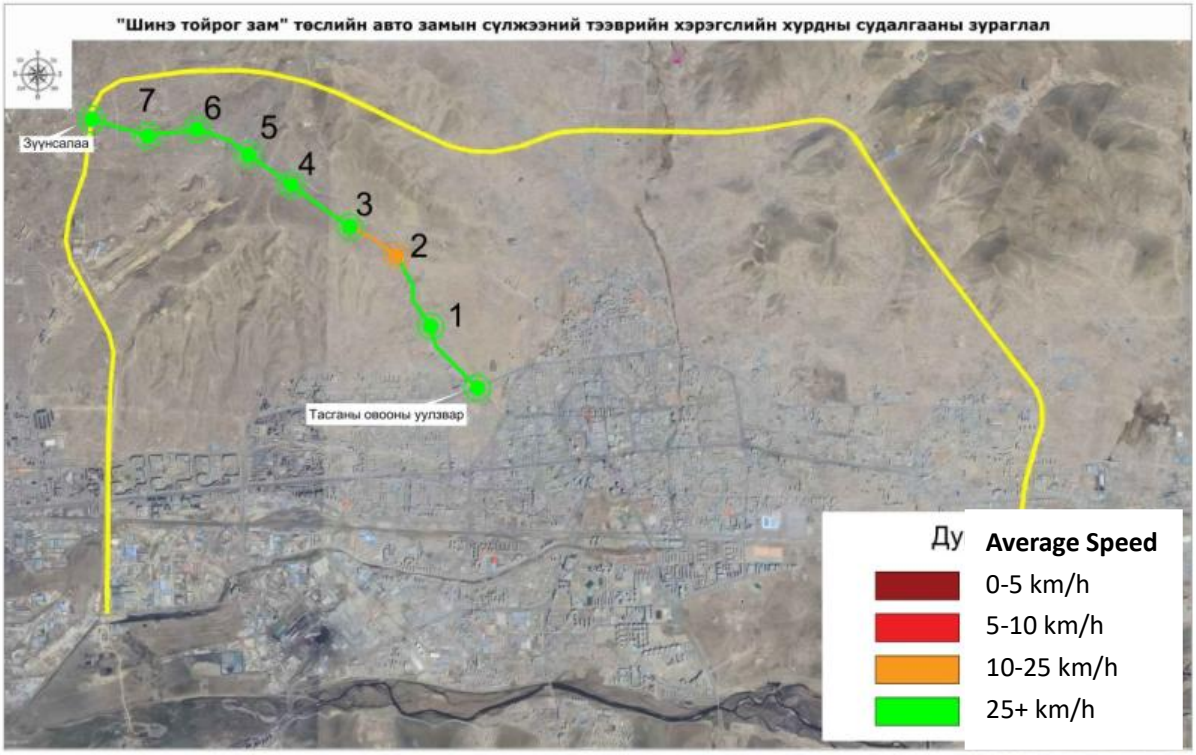

Figure 11: Average Speed during Noon Peak on Non-weekdays for Route 1 (End point to Start Point)

Table 11: Survey of Noon Peak Speeds on Non-weekdays for Route 1 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Bayankhoshuu.St	Tasganii Ovoo Intersection	6.660	12:00:02	12:13:38	00:13:36	29.38
Bayankhoshuu.St	7	0.831	12:00:02	12:02:00	00:01:58	28.92
7	6	0.632	12:02:00	12:03:59	00:01:59	30.77
6	5	0.782	12:03:59	12:06:15	00:02:16	29.78
5	4	0.825	12:06:15	12:06:55	00:00:40	45.00
4	3	0.500	12:06:55	12:08:35	00:01:40	29.70
3	2	1.125	12:08:35	12:10:40	00:02:05	22.52
2	1	1.017	12:10:40	12:11:39	00:00:59	38.56
1	Tasganii Ovoo Intersection	0.948	12:11:39	12:13:38	00:01:59	25.14

The interval chart of the average speed of route 1 during the evening peak (17:30-20:00) on non-weekdays has been compiled, as shown in Figures 12 and 13.

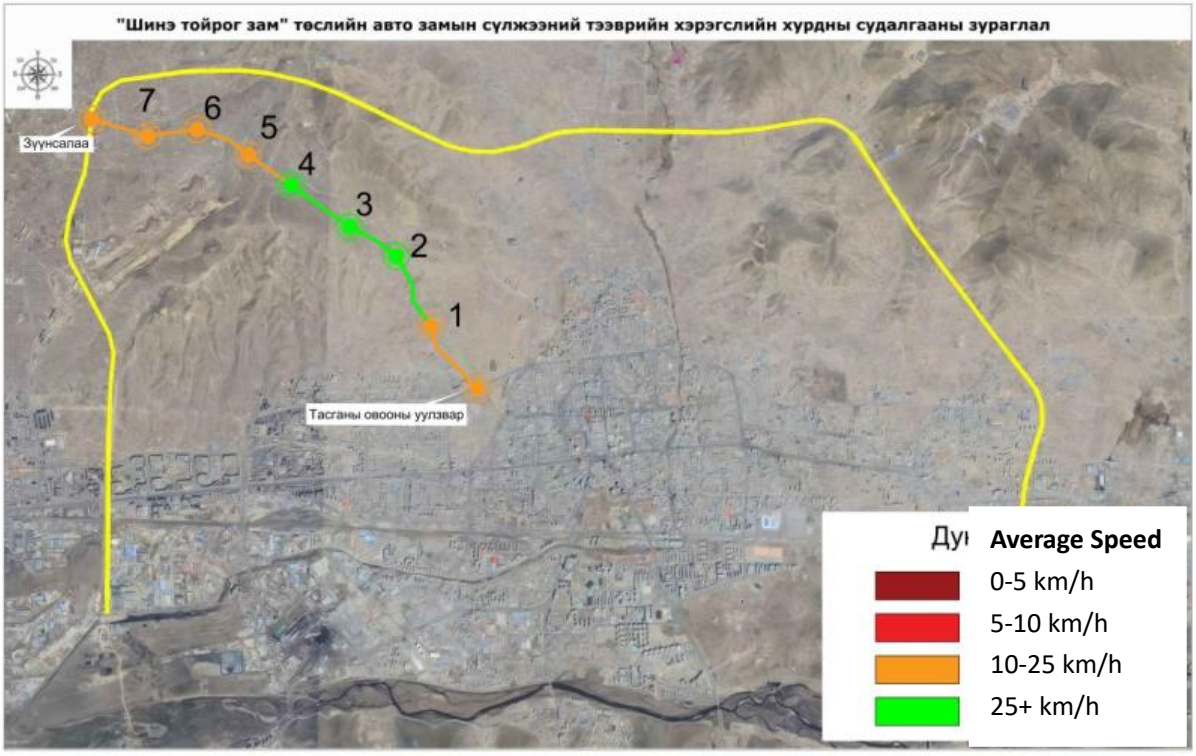

Figure 12 Average Speed during Evening Peak on Non-weekdays for Route 1 (Start Point to End Point)

Table 12 Survey of Evening Peak Speeds on Non-weekdays for Route 1 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Tasganii Ovoo Intersection	Bayankhoshuu.St	6.660	17:00:49	17:21:20	00:20:31	19.48
Tasganii Ovoo Intersection	1	0.948	17:00:49	17:05:44	00:04:55	11.57
1	2	1.017	17:05:44	17:08:06	00:02:22	25.78
2	3	1.125	17:08:06	17:10:09	00:02:03	32.93
3	4	0.500	17:10:09	17:11:09	00:01:0	30.00
4	5	0.825	17:11:09	17:14:09	00:03:00	16.50
5	6	0.782	17:14:09	17:17:17	00:03:08	14.97
6	7	0.632	17:17:17	17:19:18	00:02:01	18.80
7	Bayankhoshuu.St	0.831	17:19:18	17:21:20	00:02:02	24.52

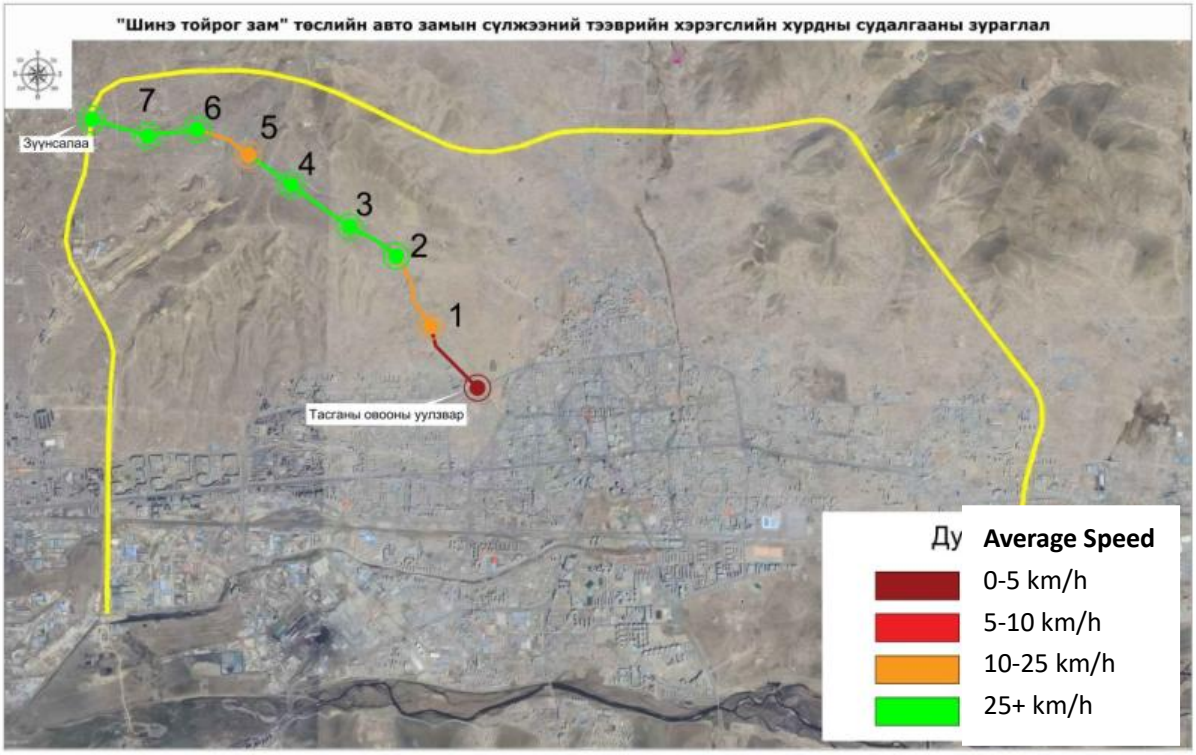

Figure 13 Average Speed during Evening Peak on Non-weekdays for Route 1 (Start Point to Start Point)

Table 13 Survey of Evening Peak Speeds on Non-weekdays for Route 1 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Bayankhoshuu.St	Tasganii Ovoo Intersection	6.660	17:01:52	17:26:24	00:24:32	16.29
Bayankhoshuu.St	7	0.831	17:01:52	17:03:46	00:01:54	26.24
7	6	0.632	17:03:46	17:04:55	00:01:09	32.97
6	5	0.782	17:04:55	17:07:15	00:02:20	20.11
5	4	0.825	17:07:15	17:08:55	00:01:40	29.70
4	3	0.500	17:08:55	17:09:35	00:00:40	45.00
3	2	1.125	17:09:35	17:11:35	00:02:00	33.75
2	1	1.017	17:11:35	17:14:12	00:02:37	23.32
1	Tasganii Ovoo Intersection	0.948	17:14:12	17:26:24	00:12:12	4.66

2.3 Survey of speeds on weekdays for route 2

The interval chart of the average speed of route 2 during the morning peak (7:30-10:30) on

weekdays has been compiled, as shown in Figures 14 and 15.

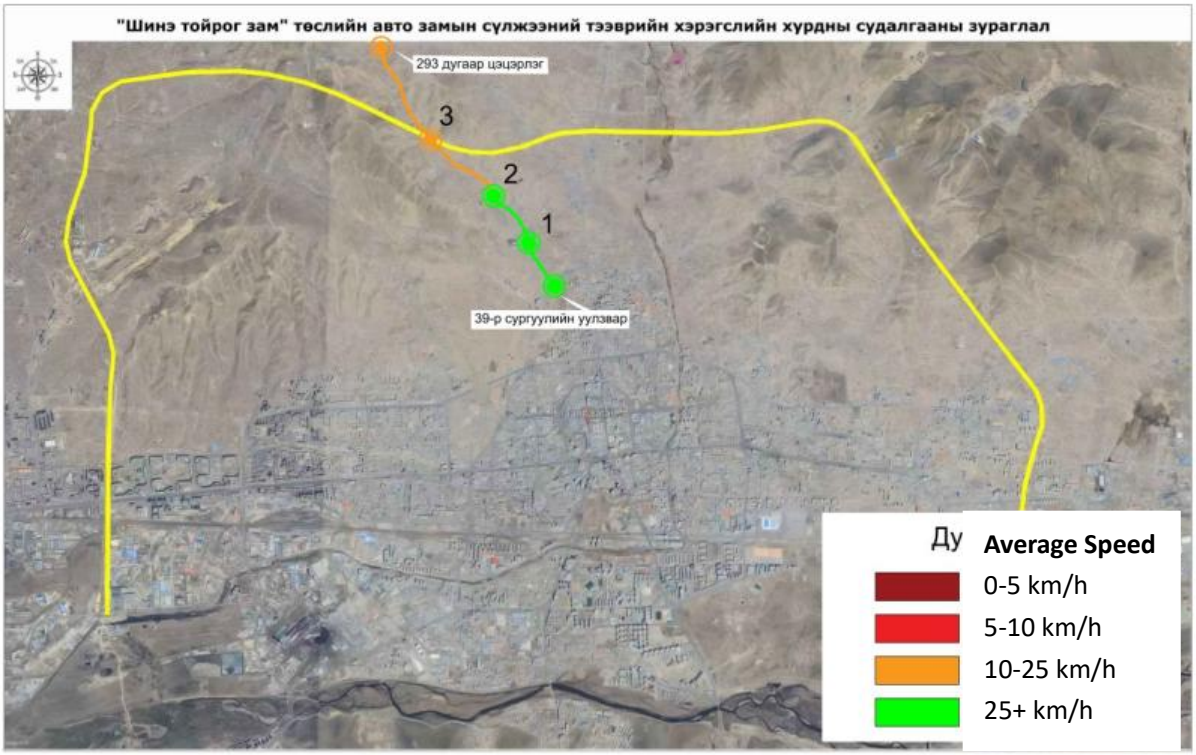

Figure 14 Average Speed during Morning Peak on Weekdays for Route 2 (Start Point to End Point)

Table 14 Survey of Morning Peak Speeds on Workdays for Route 2 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 39 School Intersection	No. 293 Kindergarten	4.218	8:01:01	8:11:29	00:10:28	24.18
No. 39 School Intersection	1	0.779	8:01:01	8:02:45	00:01:44	26.97
1	2	0.588	8:02:45	8:04:05	00:01:20	26.46
2	3	1.200	8:04:05	8:06:59	00:02:54	24.83
3	No. 293 Kindergarten	1.651	8:06:59	8:11:29	00:04:30	22.01

Figure 15 Average Speed during Morning Peak on Weekdays for Route 2 (End point to Start Point)

Table 15 Survey of Morning Peak Speeds on Workdays for Route 2 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 293 Kindergarten	No. 39 School Intersection	4.218	8:11:29	8:39:53	00:28:24	8.91
No. 293 Kindergarten	3	1.651	8:11:29	8:16:52	00:05:23	18.40
3	2	1.200	8:16:52	8:20:38	00:03:46	19.12
2	1	0.588	8:20:38	8:23:05	00:02:27	14.40
1	No. 39 School Intersection	0.779	8:23:05	8:39:53	00:16:48	2.78

The interval chart of the average speed of route 2 during the noon peak (11:30-14:00) on weekdays has been compiled, as shown in Figures 16 and 17.

Figure 16 Average Speed during Noon Peak on Weekdays for Route 2 (Start Point to End Point)

Table 16 Survey of Noon Peak Speeds on Workdays for Route 2 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 39 School Intersection	No. 293 Kindergarten	4.218	12:00:11	12:12:20	00:12:09	20.83
No. 39 School Intersection	1	0.779	12:00:11	12:02:04	00:01:53	24.82
1	2	0.588	12:02:04	12:04:00	00:01:56	18.25
2	3	1.200	12:04:00	12:06:46	00:02:46	26.02
3	No. 293 Kindergarten	1.651	12:06:46	12:12:20	00:05:34	17.80

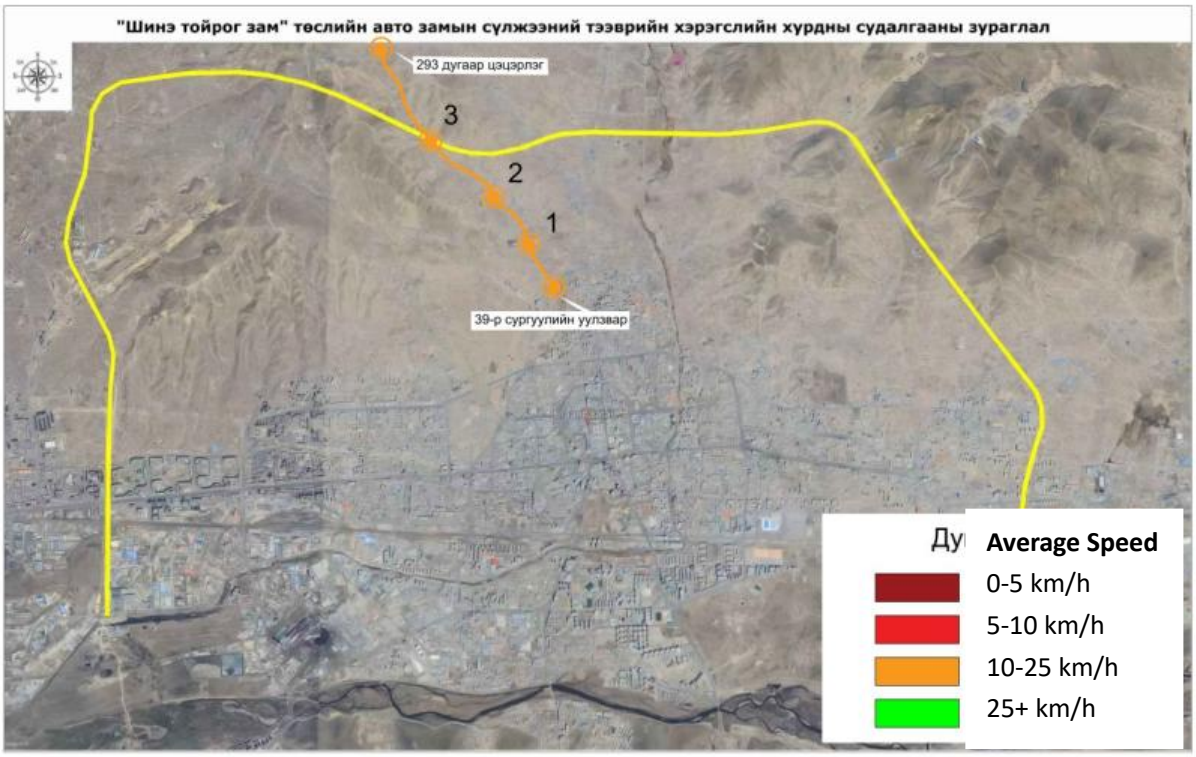

Figure 17: Average Speed during Noon Peak on Weekdays for Route 2 (End point to Start Point)

Table 17: Survey of Noon Peak Speeds on Workdays for Route 2 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 293 Kindergarten	No. 39 School Intersection	4.218	12:12:20	12:26:24	00:14:04	17.99
No. 293 Kindergarten	3	1.651	12:12:20	12:19:00	00:06:40	14.86
3	2	1.200	12:19:00	12:22:40	00:03:40	19.64
2	1	0.588	12:22:40	12:24:25	00:01:45	20.16
1	No. 39 School Intersection	0.779	12:24:25	12:26:24	00:01:59	23.57

The interval chart of the average speed of route 2 during the evening peak (17:30-20:00) on weekdays has been compiled, as shown in Figures 18 and 19.

Figure 18 Average Speed during Evening Peak on Weekdays for Route 2 (Start Point to End Point)

Table 18 Survey of Evening Peak Speeds on Workdays for Route 2 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 39 School Intersection	No. 293 Kindergarten	4.218	18:03:58	18:20:14	00:16:16	15.56
No. 39 School Intersection	1	0.779	18:03:58	18:11:20	00:07:22	6.34
1	2	0.588	18:11:20	18:13:26	00:02:06	16.80
2	3	1.200	18:13:26	18:16:16	00:02:50	25.41
3	No. 293 Kindergarten	1.651	18:16:16	18:20:14	00:03:58	24.97

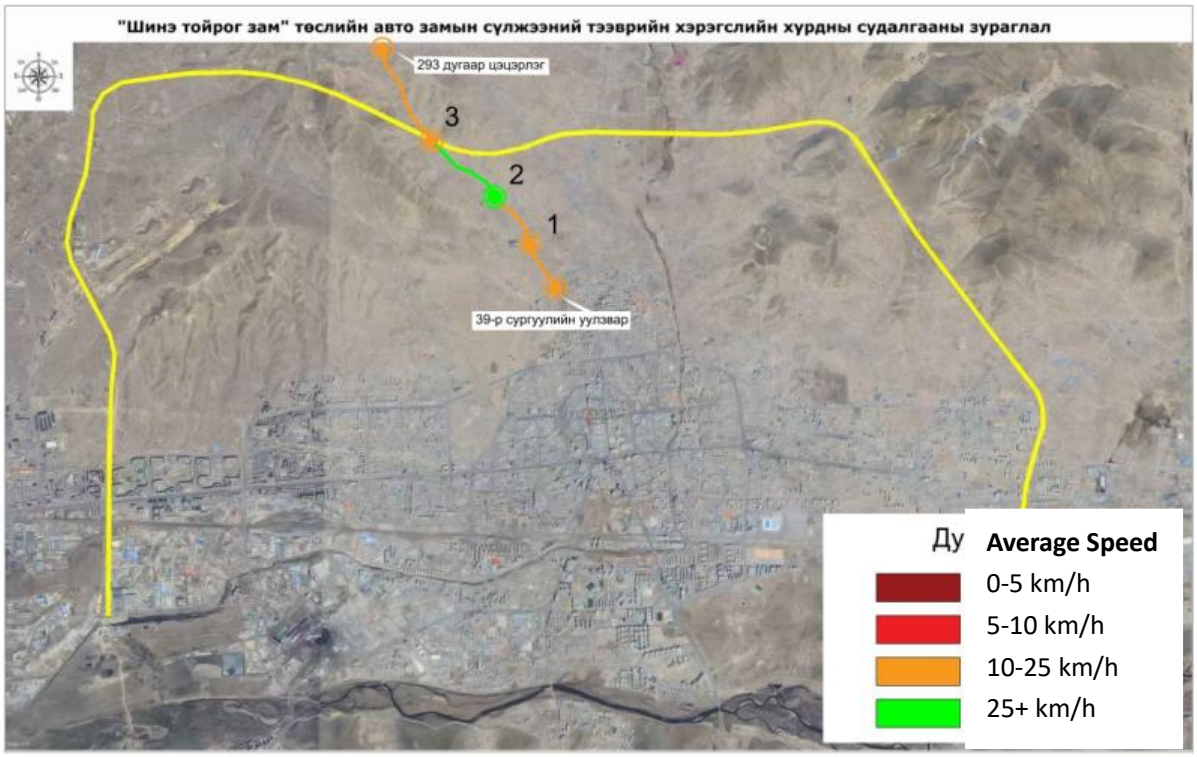

Figure 19 Average Speed during Evening Peak on Weekdays for Route 2 (Start Point to Start Point)

Table 19 Survey of Evening Peak Speeds on Workdays for Route 2 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 293 Kindergarten	No. 39 School Intersection	4.218	18:05:08	18:15:54	00:10:46	23.51
No. 293 Kindergarten	3	1.651	18:05:08	18:09:06	00:03:58	24.97
3	2	1.200	18:09:06	18:11:57	00:02:51	25.26
2	1	0.588	18:11:57	18:14:01	00:02:04	17.07
1	No. 39 School Intersection	0.779	18:14:01	18:15:54	00:01:53	24.82

2.4 Survey of speeds on non-weekdays for route 2

The interval chart of the average speed of route 2 during the morning peak (7:30-10:30) on non-weekdays has been compiled, as shown in Figures 20 and 21.

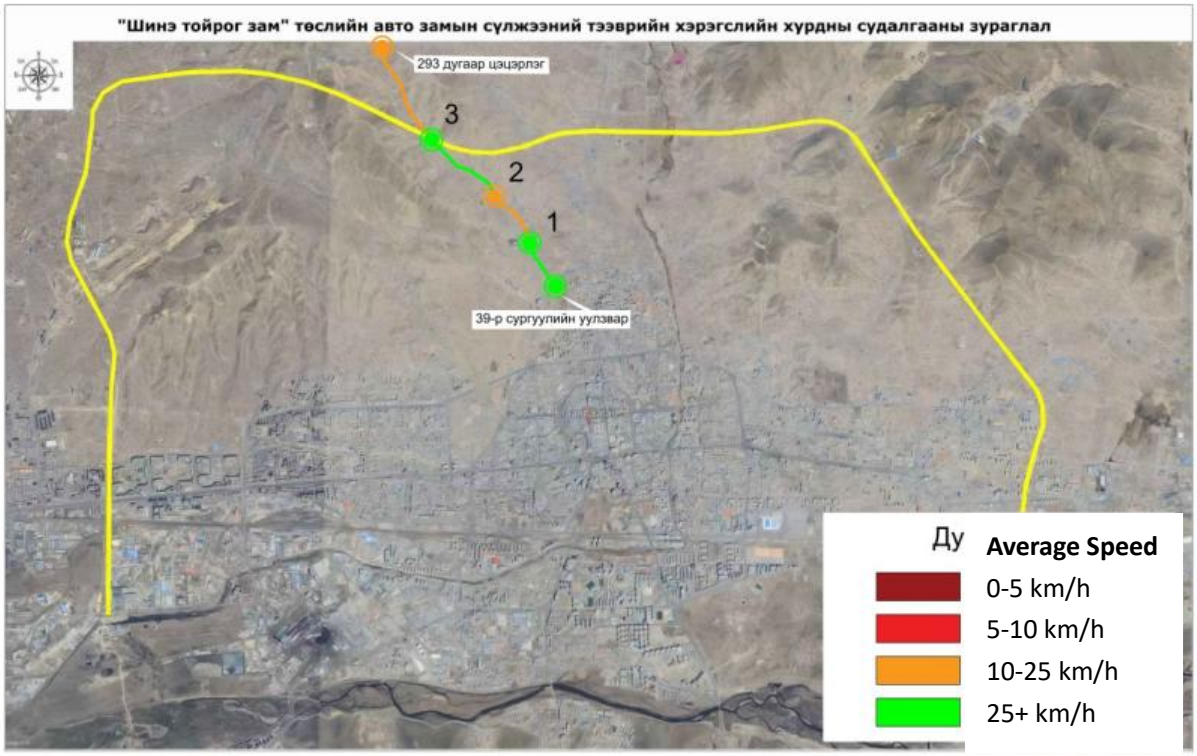

Figure 20 Average Speed during Morning Peak on Non-weekdays for Route 2 (Start Point to End Point)

Table 20 Survey of Morning Peak Speeds on Non-weekdays for Route 2 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 39 School Intersection	No. 293 Kindergarten	4.218	8:00:25	8:10:43	00:10:18	24.57
No. 39 School Intersection	1	0.779	8:00:25	8:02:09	00:01:44	26.97
1	2	0.588	8:02:09	8:03:34	00:01:25	24.90
2	3	1.200	8:03:34	8:06:18	00:02:44	26.34
3	No. 293 Kindergarten	1.651	8:06:18	8:10:43	00:04:25	22.43

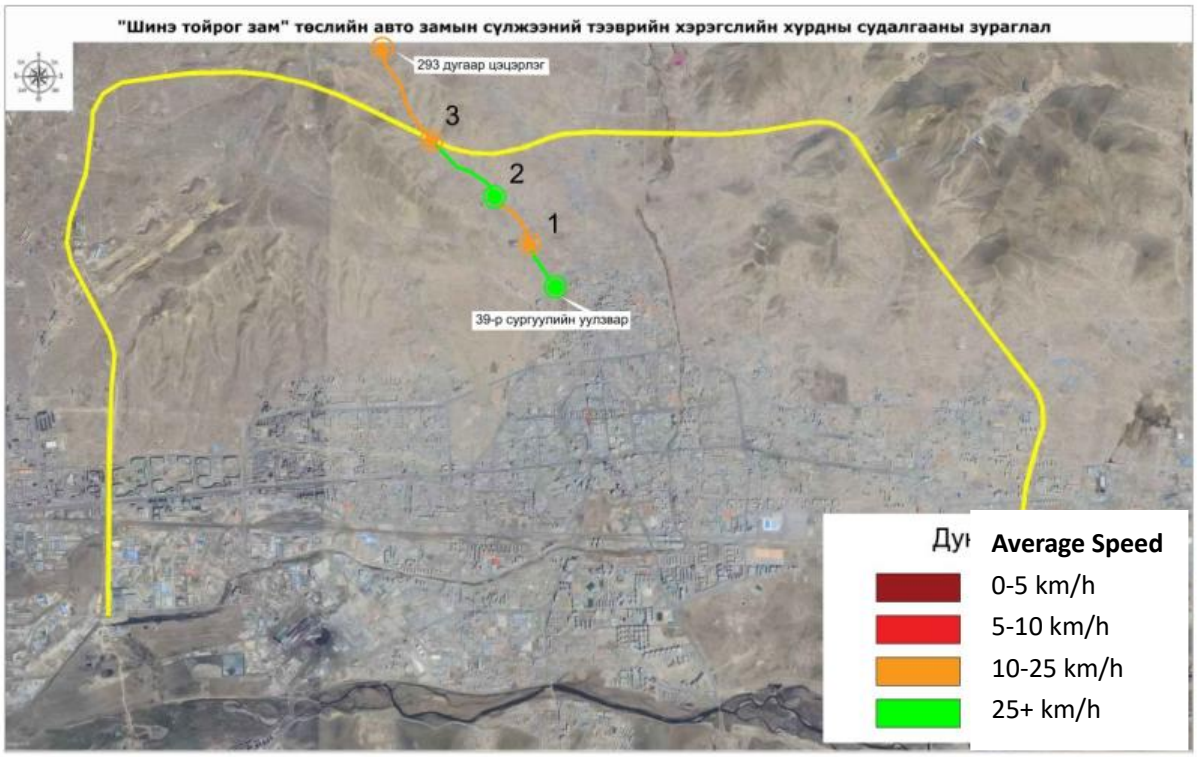

Figure 21 Average Speed during Morning Peak on Non-weekdays for Route 2 (End point to Start Point)

Table 21 Survey of Morning Peak Speeds on Non-weekdays for Route 2 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 293 Kindergarten	No. 39 School Intersection	4.218	8:12:32	8:22:53	00:10:21	24.45
No. 293 Kindergarten	3	1.651	8:12:32	8:16:38	00:04:06	24.16
3	2	1.200	8:16:38	8:19:15	00:02:37	27.52
2	1	0.588	8:19:15	8:21:06	00:01:51	19.07
1	No. 39 School Intersection	0.779	8:21:06	8:22:53	00:01:47	26.21

The interval chart of the average speed of route 2 during the noon peak (11:30-14:00) on non-weekdays has been compiled, as shown in Figures 22 and 23.

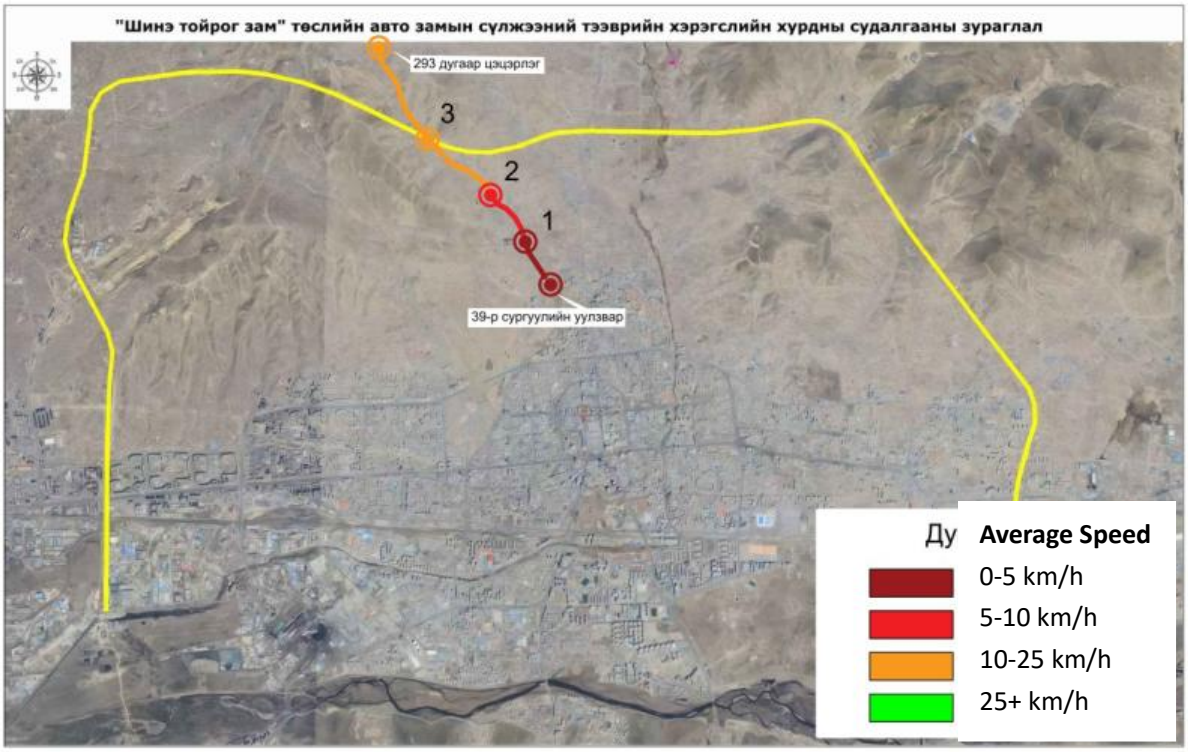

Figure 22: Average Speed during Noon Peak on Non-weekdays for Route 2 (Start Point to End Point)

Table 22 Survey of Noon Peak Speeds on Non-weekdays for Route 2 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 39 School Intersection	No. 293 Kindergarten	4.218	12:00:33	12:33:42	00:32:09	7.63
No. 39 School Intersection	1	0.779	12:00:33	12:16:55	00:15:22	2.86
1	2	0.588	12:16:55	12:22:06	00:05:11	6.81
2	3	1.200	12:22:06	12:25:49	00:03:43	19.37
3	No. 293 Kindergarten	1.651	12:25:49	12:33:42	00:07:53	12.57

Figure 23: Average Speed during Noon Peak on Non-weekdays for Route 2 (End point to Start Point)

Table 23: Survey of Noon Peak Speeds on Non-weekdays for Route 2 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 293 Kindergarten	No. 39 School Intersection	4.218	12:33:42	12:51:15	00:17:33	14.42
No. 293 Kindergarten	3	1.651	12:33:42	12:37:48	00:04:06	24.16
3	2	1.200	12:37:48	12:44:28	00:06:40	10.80
2	1	0.588	12:44:28	12:49:02	00:04:34	7.73
1	No. 39 School Intersection	0.779	12:49:02	12:51:15	00:02:13	21.09

The interval chart of the average speed of route 2 during the evening peak (17:30-20:00) on non-weekdays has been compiled, as shown in Figures 24 and 25.

Figure 24 Average Speed during Evening Peak on Non-weekdays for Route 2 (Start Point to End Point)

Table 24 Survey of Evening Peak Speeds on Non-weekdays for Route 2 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 39 School Intersection	No. 293 Kindergarten	4.218	16:57:05	17:10:49	00:13:44	18.43
No. 39 School Intersection	1	0.779	16:57:05	17:01:54	00:04:49	9.70
1	2	0.588	17:01:54	17:03:29	00:01:35	22.28
2	3	1.200	17:03:29	17:06:29	00:03:00	24.00
3	No. 293 Kindergarten	1.651	17:06:29	17:10:49	00:04:20	22.86

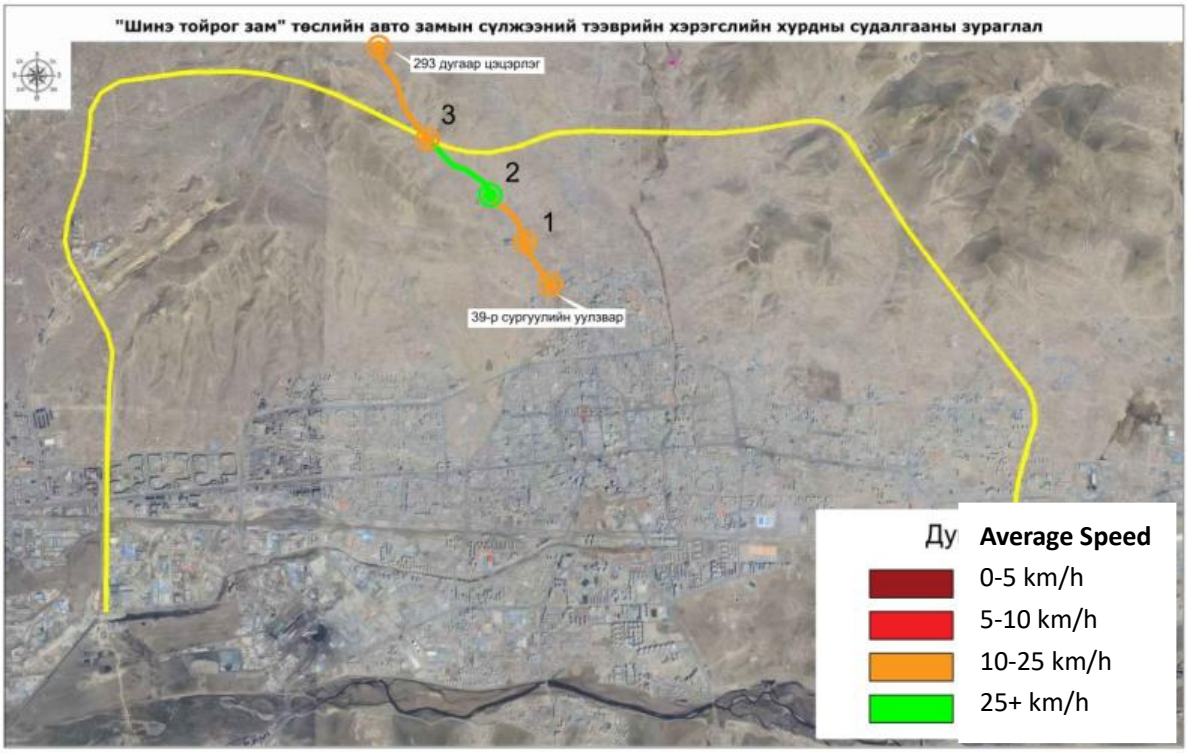

Figure 25 Average Speed during Evening Peak on Non-weekdays for Route 2 (Start Point to Start Point)

Table 25 Survey of Evening Peak Speeds on Non-weekdays for Route 2 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 293 Kindergarten	No. 39 School Intersection	4.218	17:10:49	17:20:53	00:10:04	25.14
No. 293 Kindergarten	3	1.651	17:10:49	17:14:53	00:04:04	24.36
3	2	1.200	17:14:53	17:17:29	00:02:36	27.69
2	1	0.588	17:17:29	17:18:58	00:01:29	23.78
1	No. 39 School Intersection	0.779	17:18:58	17:20:53	00:01:55	24.39

2.5 Survey of speeds on weekdays for route 3

The interval chart of the average speed of route 3 during the morning peak (7:30-10:30) on weekdays has been compiled, as shown in Figures 26 and 27.

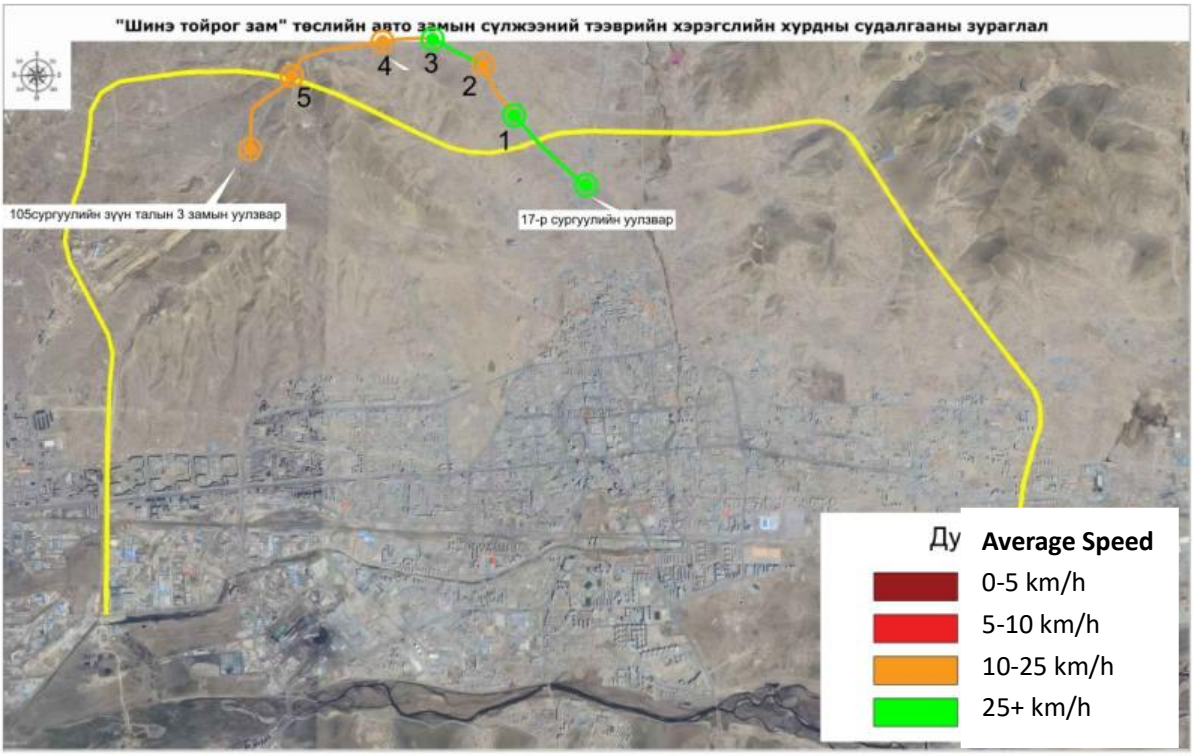

Figure 26 Average Speed during Morning Peak on Weekdays for Route 3 (Start Point to End Point)

Table 26 Survey of Morning Peak Speeds on Workdays for Route 3 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 17 School Intersection	Three-Way Intersection East of No. 105 School	6.330	8:22:57	8:39:09	00:16:12	22.22
No. 17 School Intersection	1	1.320	8:22:57	8:26:05	00:03:08	25.28
1	2	0.660	8:26:05	8:27:50	00:01:45	22.63
2	3	1.050	8:27:50	8:30:10	00:02:20	27.00
3	4	0.610	8:30:10	8:32:10	00:02:00	18.30
4	5	1.410	8:32:10	8:35:44	00:03:34	23.72
5	Three-Way Intersection East of	1.280	8:35:44	8:39:09	00:03:25	22.48

	No. 105 School					

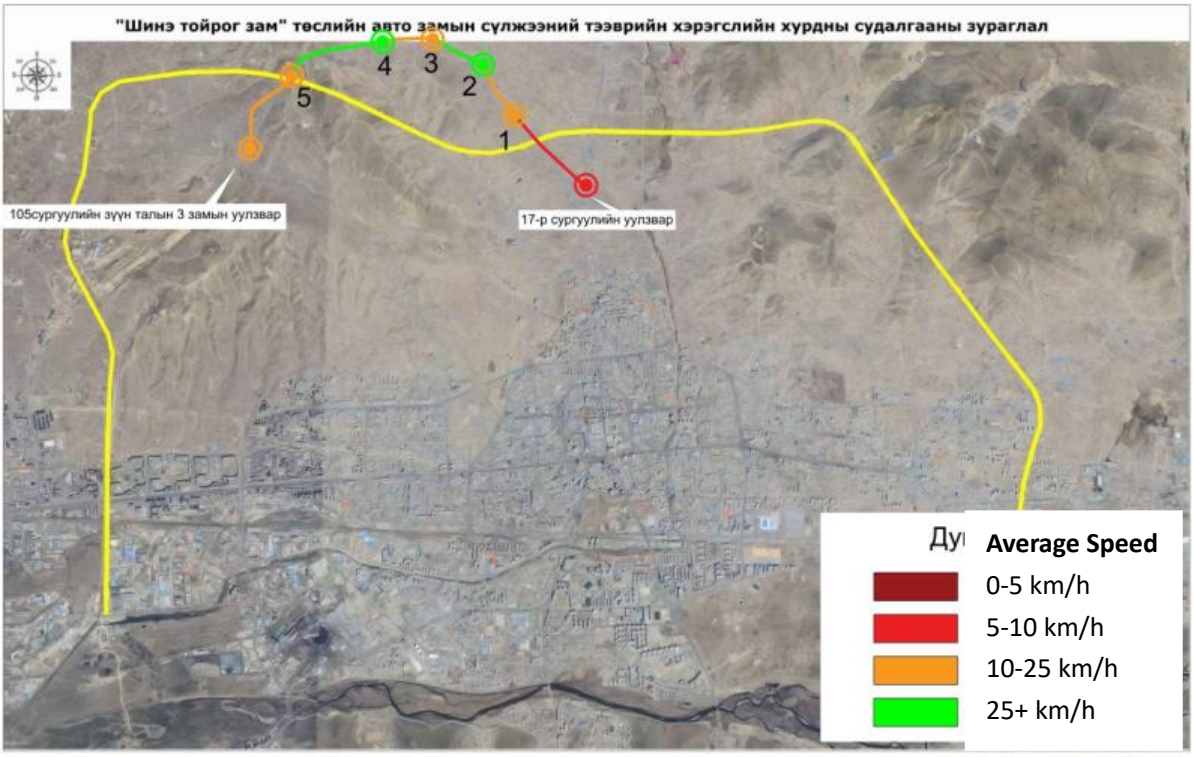

Figure 27 Average Speed during Morning Peak on Weekdays for Route 3 (End point to Start Point)

Table 27 Survey of Morning Peak Speeds on Workdays for Route 3 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Three-Way Intersection East of No. 105 School	No. 17 School Intersection	6.330	8:01:20	8:22:57	00:21:37	16.65
Three-Way Intersection East of No. 105 School	5	1.280	8:01:20	8:04:58	00:03:38	21.14
5	4	1.410	8:04:58	8:08:20	00:03:22	25.13
4	3	0.610	8:08:20	8:10:03	00:01:43	21.32
3	2	1.050	8:10:03	8:12:04	00:02:01	31.24
2	1	0.660	8:12:04	8:13:45	00:01:41	23.52
1	No. 17 School Intersection	1.320	8:13:45	8:22:57	00:09:12	8.61

The interval chart of the average speed of route 3 during the noon peak (11:30-14:00) on weekdays has been compiled, as shown in Figures 28 and 29.

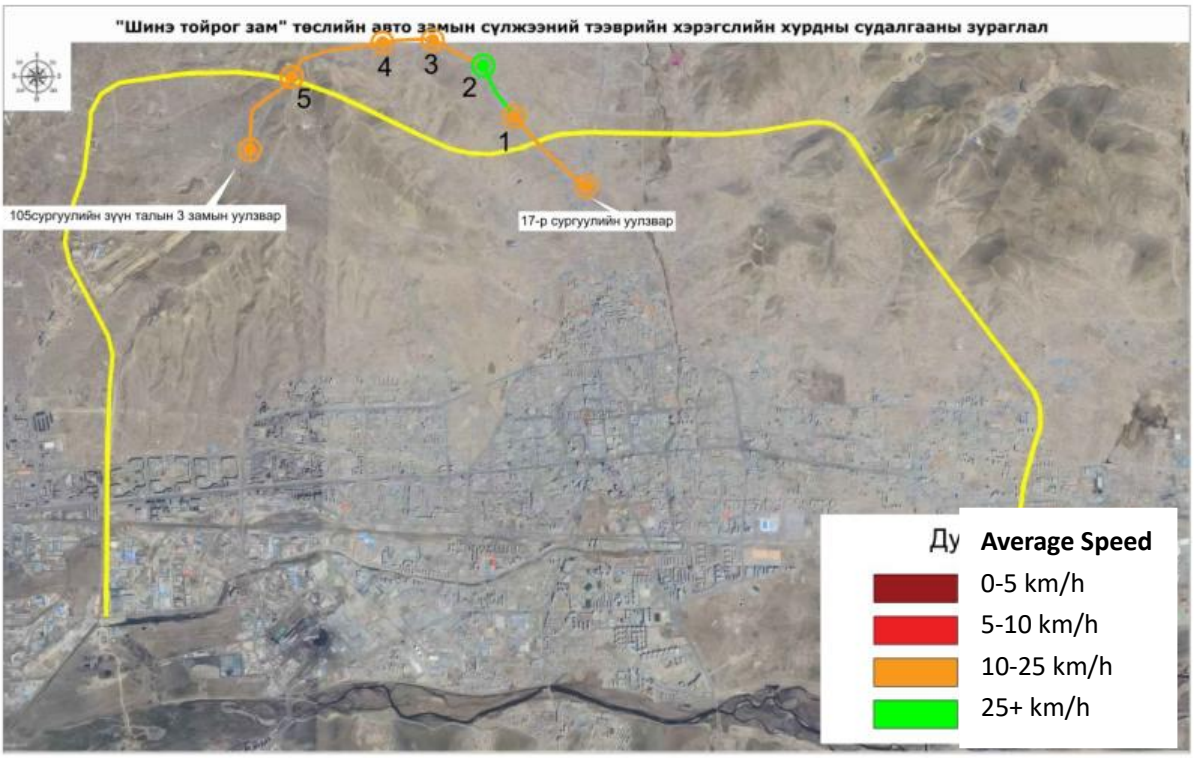

Figure 28 Average Speed during Noon Peak on Weekdays for Route 3 (Start Point to End Point)

Table 28 Survey of Noon Peak Speeds on Workdays for Route 3 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 17 School Intersection	Three-Way Intersection East of No. 105 School	6.330	12:21:08	12:40:21	00:19:13	18.73
No. 17 School Intersection	1	1.320	12:21:08	12:24:42	00:03:34	22.21
1	2	0.660	12:24:42	12:26:15	00:01:33	25.55
2	3	1.050	12:26:15	12:29:35	00:03:20	18.90
3	4	0.610	12:29:35	12:31:52	00:02:17	16.03
4	5	1.410	12:31:52	12:36:22	00:04:30	18.80
5	Three-Way Intersection East of	1.280	12:36:22	12:40:21	00:03:59	19.28

	No. 105 School					

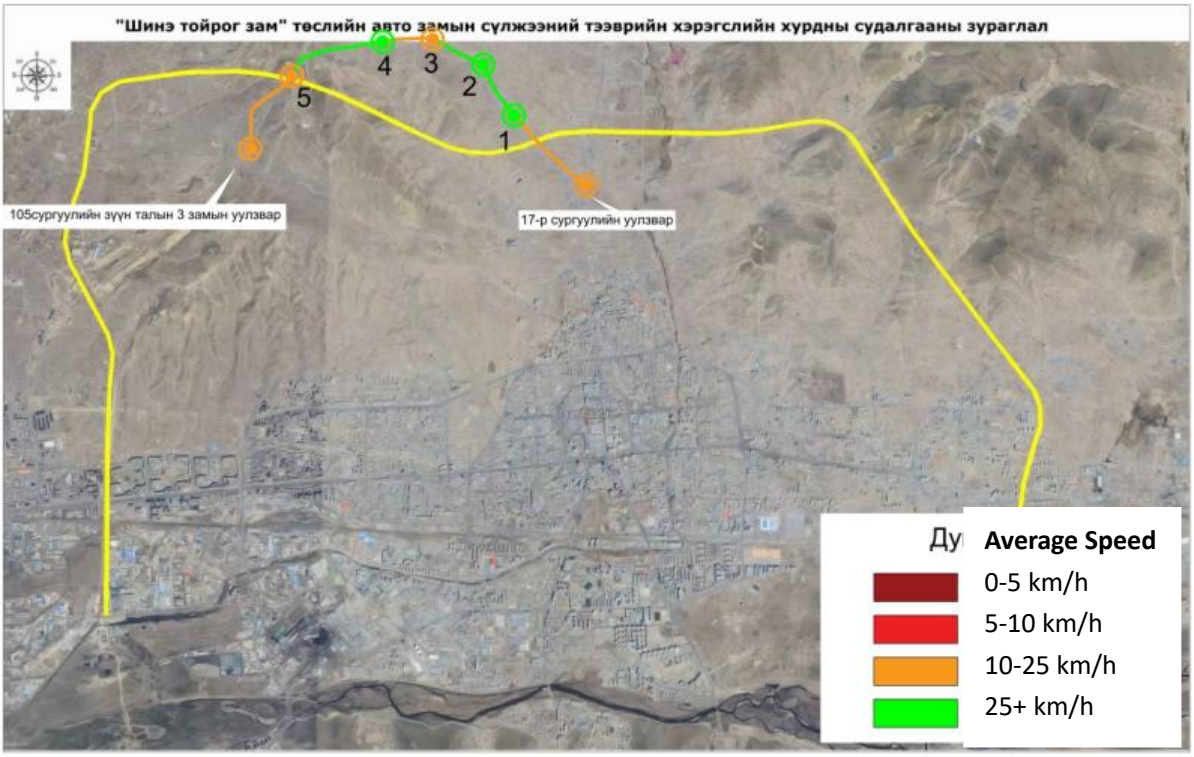

Figure 29: Average Speed during Noon Peak on Weekdays for Route 3 (End point to Start Point)

Table 29: Survey of Noon Peak Speeds on Workdays for Route 3 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Three-Way Intersection East of No. 105 School	No. 17 School Intersection	6.330	12:01:28	12:20:57	00:19:29	18.48
Three-Way Intersection East of No. 105 School	5	1.280	12:01:28	12:04:52	00:03:24	22.59
5	4	1.410	12:04:52	12:08:15	00:03:23	25.00
4	3	0.610	12:08:15	12:09:55	00:01:40	21.96
3	2	1.050	12:09:55	12:12:06	00:02:11	28.85
2	1	0.660	12:12:06	12:13:41	00:01:35	25.01
1	No. 17 School Intersection	1.320	12:13:41	12:20:57	00:07:16	10.90

The interval chart of the average speed of route 3 during the evening peak (17:30-20:00) on weekdays has been compiled, as shown in Figures 30 and 31.

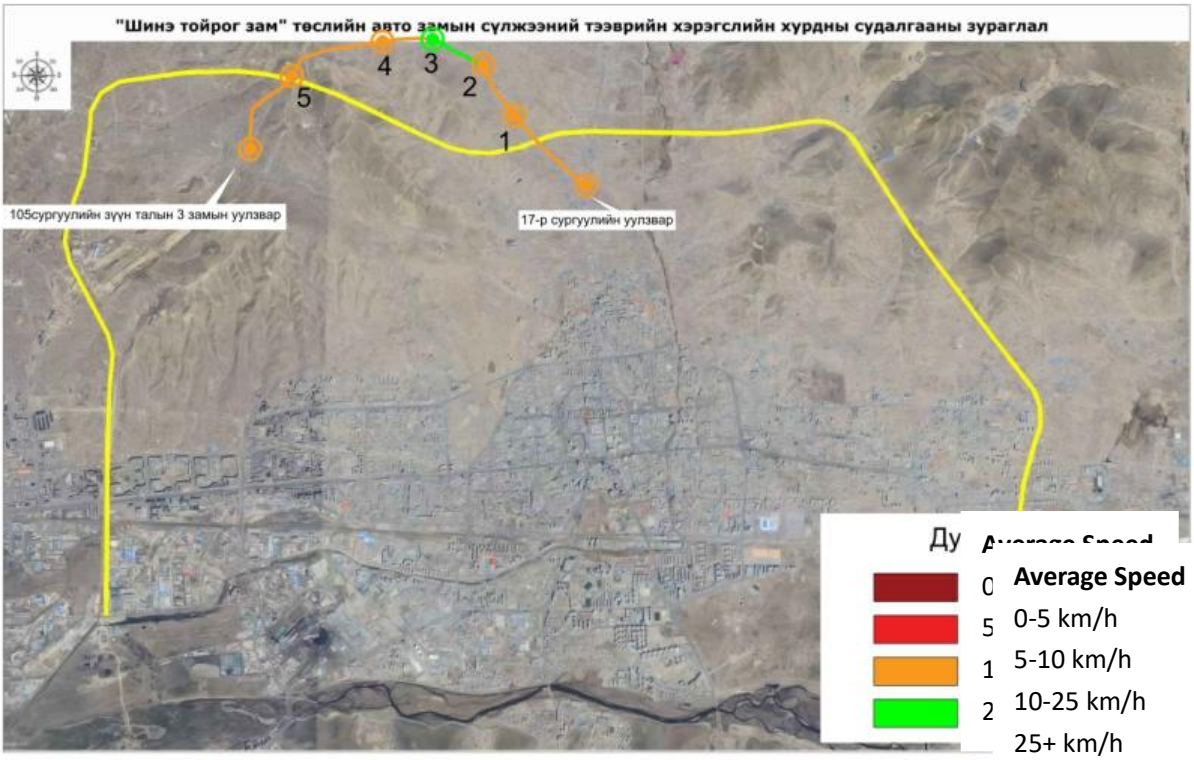

Figure 30 Average Speed during Evening Peak on Weekdays for Route 3 (Start Point to End Point)

Table 30 Survey of Evening Peak Speeds on Workdays for Route 3 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 17 School Intersection	Three-Way Intersection East of No. 105 School	6.330	17:21:37	17:39:24	00:17:47	20.24
No. 17 School Intersection	1	1.320	17:21:37	17:25:04	00:03:27	22.96
1	2	0.660	17:25:04	17:27:27	00:02:23	16.62
2	3	1.050	17:27:27	17:29:48	00:02:21	26.81
3	4	0.610	17:29:48	17:31:44	00:01:56	18.93
4	5	1.410	17:31:44	17:35:39	00:03:55	21.60
5	Three-Way Intersection East of No. 105 School	1.280	17:35:39	17:39:24	00:03:45	20.48

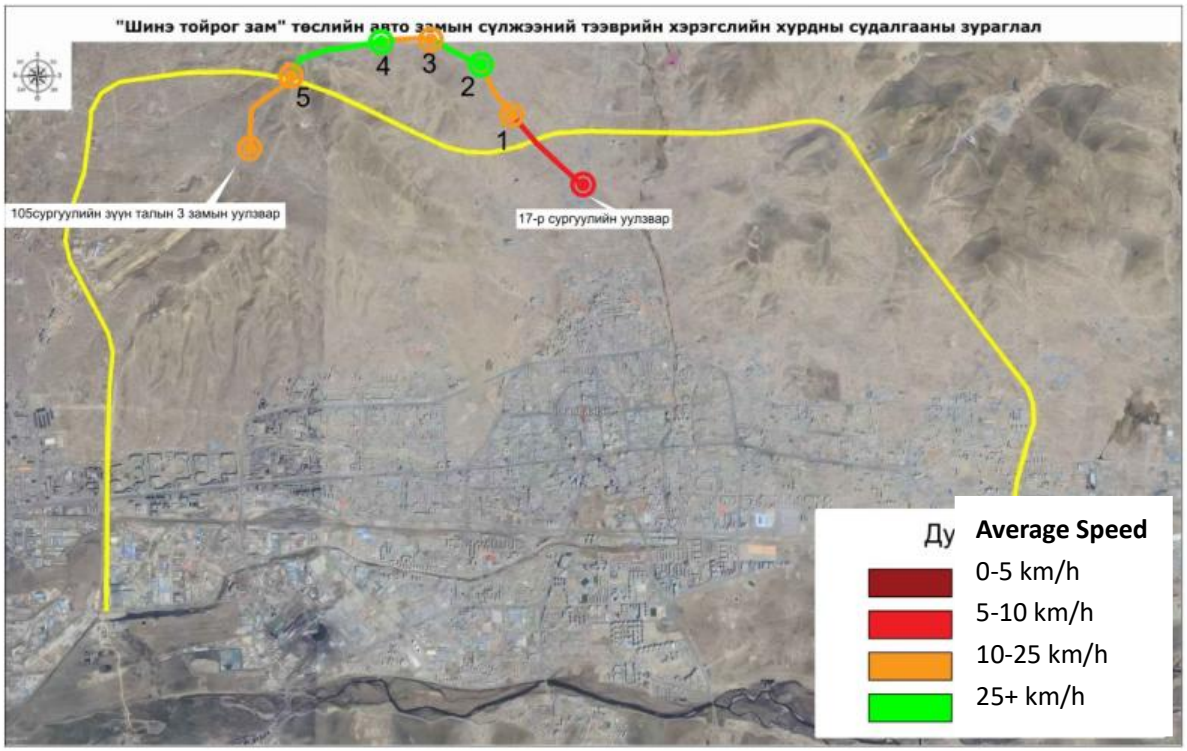

Figure 31 Average Speed during Evening Peak on Weekdays for Route 3 (Start Point to Start Point)

Table 31 Survey of Evening Peak Speeds on Workdays for Route 3 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Three-Way Intersection East of No. 105 School	No. 17 School Intersection	6.330	17:00:24	17:21:37	00:21:13	16.97
Three-Way Intersection East of No. 105 School	5	1.280	17:00:24	17:03:49	00:03:25	22.48
5	4	1.410	17:03:49	17:07:01	00:03:12	26.44
4	3	0.610	17:07:01	17:08:48	00:01:47	20.52
3	2	1.050	17:08:48	17:11:08	00:02:20	27.00
2	1	0.660	17:11:08	17:13:24	00:02:16	17.47
1	No. 17 School Intersection	1.320	17:13:24	17:21:37	00:08:13	9.64

2.6 Survey of speeds on weekdays for route 4

Note: According to the GPS trajectory and measured distance, the length of the trajectory on weekdays and non-weekdays is inconsistent for Route 4.

The interval chart of the average speed of route 4 during the morning peak (7:30-10:30) on weekdays has been compiled, as shown in Figures 32 and 33.

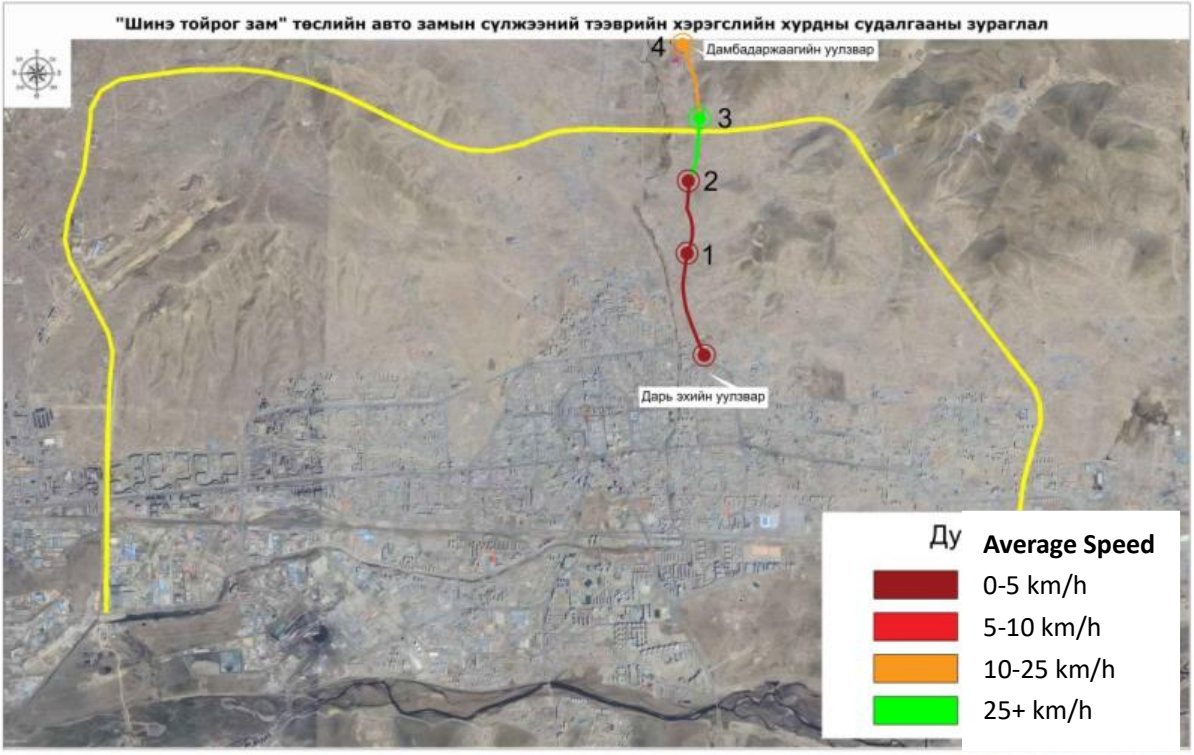

Figure 32 Average Speed during Morning Peak on Weekdays for Route 4 (Start Point to End Point)

Table 32 Survey of Morning Peak Speeds on Workdays for Route 4 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dari Ekh Intersection	Dambadarjaa Intersection	4.910	8:01:11	8:46:00	00:44:49	6.57
Dari Ekh Intersection	1	1.140	8:01:11	8:21:11	00:20:00	3.42
1	2	1.180	8:21:11	8:38:18	00:17:07	4.14
2	3	1.100	8:38:18	8:39:40	00:01:22	48.29
3	4	1.000	8:39:40	8:45:15	00:05:35	10.75
4	Dambadarjaa Intersection	0.490	8:45:15	8:46:00	00:00:45	39.20

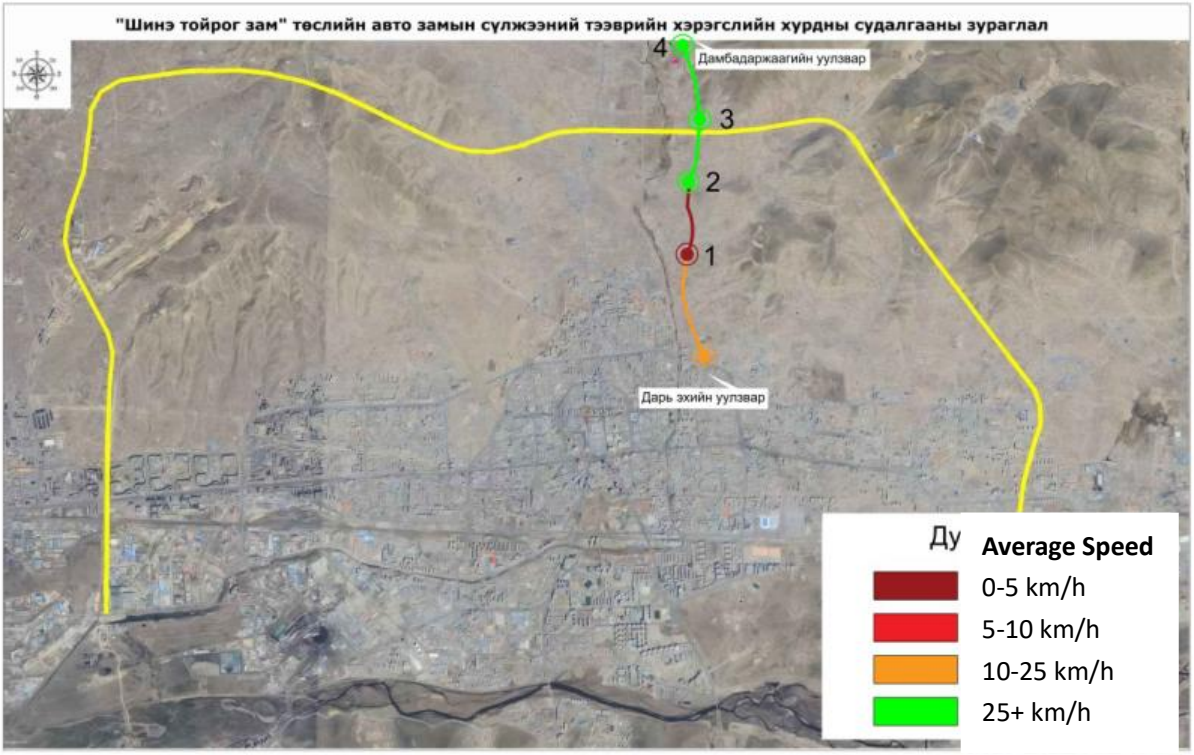

Figure 33 Average Speed during Morning Peak on Weekdays for Route 4 (End point to Start Point)

Table 33 Survey of Morning Peak Speeds on Workdays for Route 4 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dambadarjaa Intersection	Dari Ekh Intersection	4.910	8:46:00	9:10:57	00:24:57	11.81
Dambadarjaa Intersection	4	0.490	8:46:00	8:48:06	00:02:06	14.00
4	3	1.000	8:48:06	8:50:07	00:02:01	29.75
3	2	1.100	8:50:07	8:52:11	00:02:04	31.94
2	1	1.180	8:52:11	9:08:11	00:16:00	4.43
1	Dari Ekh Intersection	1.140	9:08:11	9:10:57	00:02:46	24.72

The interval chart of the average speed of route 4 during the noon peak (11:30-14:00) on weekdays has been compiled, as shown in Figures 34 and 35.

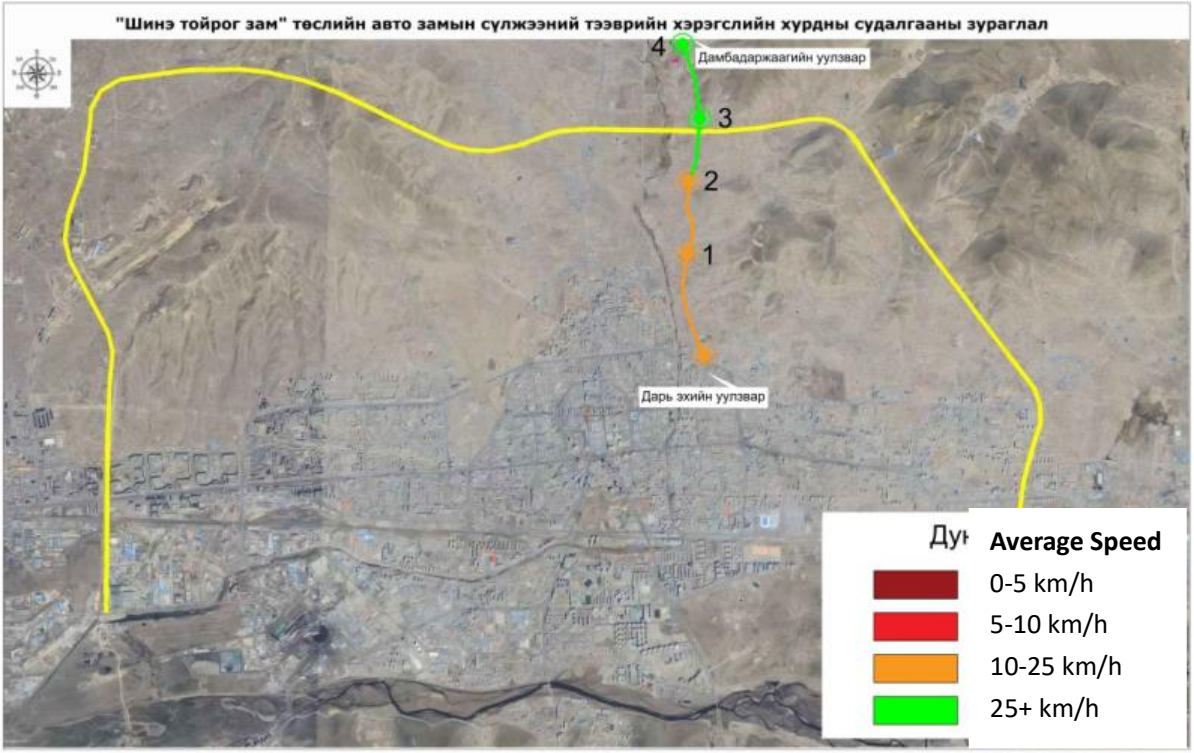

Figure 34 Average Speed during Noon Peak on Weekdays for Route 4 (Start Point to End Point)

Table 34 Survey of Noon Peak Speeds on Workdays for Route 4 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dari Ekh Intersection	Dambadarjaa Intersection	4.910	12:00:06	12:12:51	00:12:45	23.11
Dari Ekh Intersection	1	1.140	12:00:06	12:03:54	00:03:48	18.00
1	2	1.180	12:03:54	12:07:24	00:03:30	20.23
2	3	1.100	12:07:24	12:09:54	00:02:30	26.40
3	4	1.000	12:09:54	12:11:38	00:01:44	34.62
4	Dambadarjaa Intersection	0.490	12:11:38	12:12:51	00:01:13	24.16

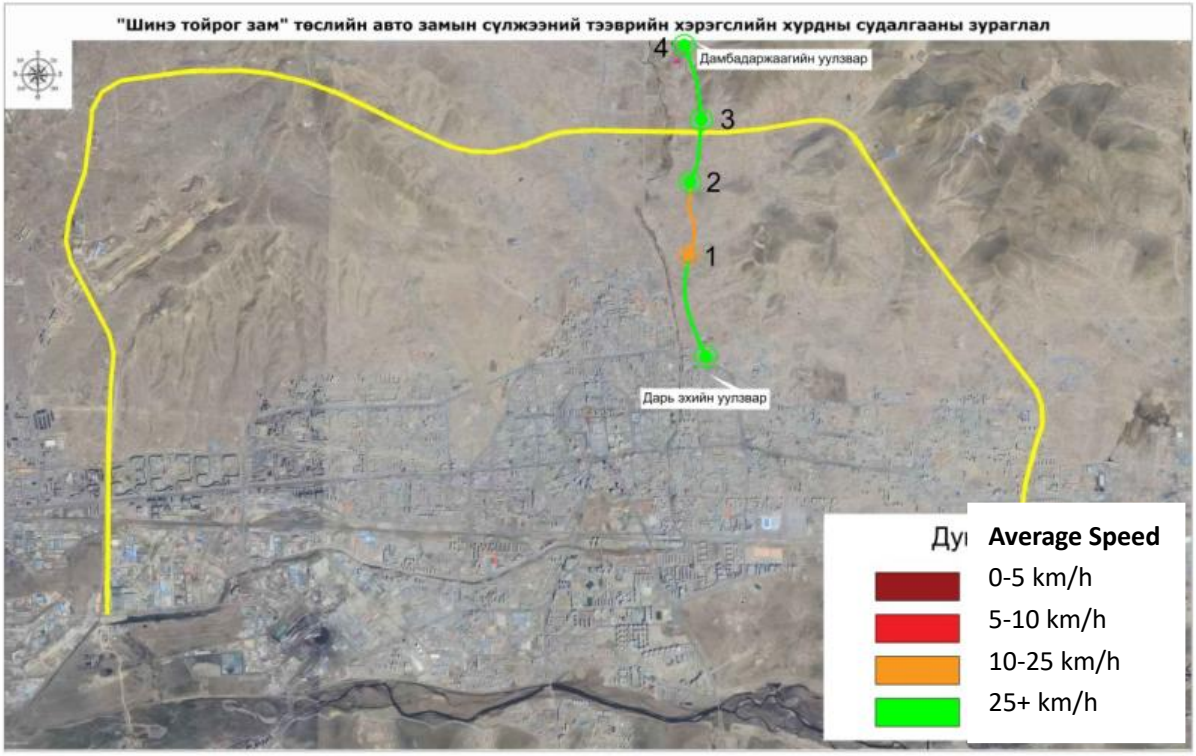

Figure 35: Average Speed during Noon Peak on Weekdays for Route 4 (End point to Start Point)

Table 35: Survey of Noon Peak Speeds on Workdays for Route 4 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dambadarjaa Intersection	Dari Ekh Intersection	4.910	12:13:17	12:25:14	00:11:57	24.65
Dambadarjaa Intersection	4	0.490	12:13:17	12:14:38	00:01:21	21.78
4	3	1.000	12:14:38	12:16:48	00:02:10	27.69
3	2	1.100	12:16:48	12:18:49	00:02:01	32.73
2	1	1.180	12:18:49	12:22:34	00:03:45	18.88
1	Dari Ekh Intersection	1.140	12:22:34	12:25:14	00:02:40	25.65

The interval chart of the average speed of route 4 during the evening peak (17:30-20:00) on weekdays has been compiled, as shown in Figures 36 and 37.

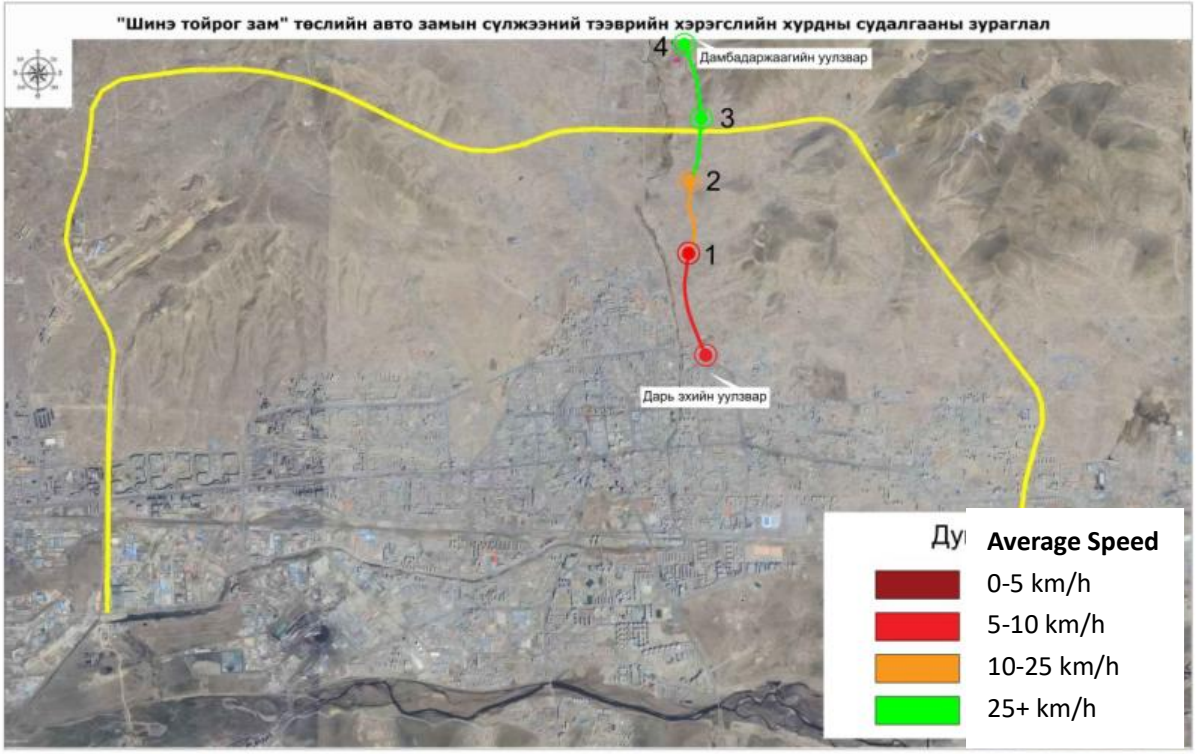

Figure 36 Average Speed during Evening Peak on Weekdays for Route 4 (Start Point to End Point)

Table 36: Survey of Evening Peak Speeds on Workdays for Route 4 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dari Ekh Intersection	Dambadarjaa Intersection	4.910	17:01:57	17:23:22	00:21:25	13.76
Dari Ekh Intersection	1	1.140	17:01:57	17:13:37	00:11:40	5.86
1	2	1.180	17:13:37	17:18:02	00:04:25	16.03
2	3	1.100	17:18:02	17:20:09	00:02:07	31.18
3	4	1.0000	17:20:09	17:22:02	00:01:53	31.86
4	Dambadarjaa Intersection	0.490	17:22:02	17:23:22	00:01:20	22.05

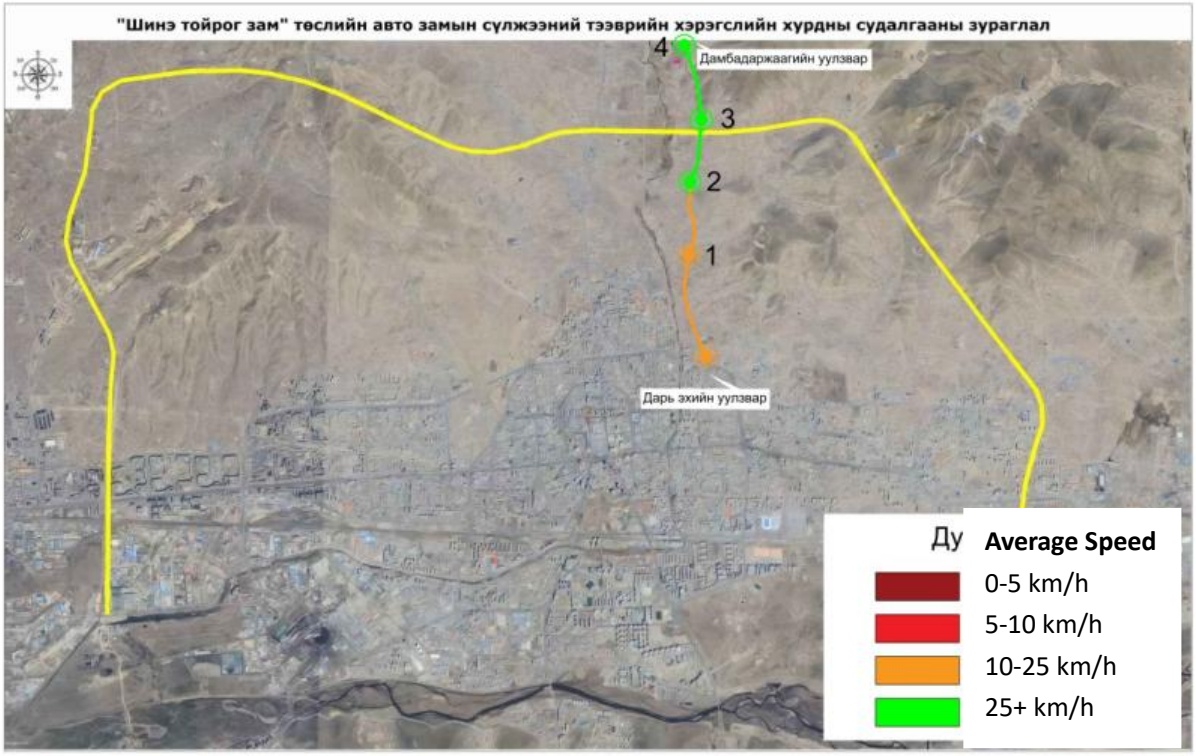

Figure 37 Average Speed during Evening Peak on Weekdays for Route 4 (Start Point to Start Point)

Table 37 Survey of Evening Peak Speeds on Workdays for Route 4 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dambadarjaa Intersection	Dari Ekh Intersection	4.910	17:00:30	17:13:34	00:13:04	22.55
Dambadarjaa Intersection	4	0.490	17:00:30	17:01:34	00:01:04	27.56
4	3	1.000	17:01:34	17:03:14	00:01:40	36.00
3	2	1.100	17:03:14	17:05:04	00:01:50	36.00
2	1	1.180	17:05:04	17:08:34	00:03:30	20.23
1	Dari Ekh Intersection	1.140	17:08:34	17:13:34	00:05:00	13.68

2.7 Survey of speeds on non-weekdays for route 4

The interval chart of the average speed of route 4 during the morning peak (7:30-10:30) on non-weekdays has been compiled, as shown in Figures 38 and 39.

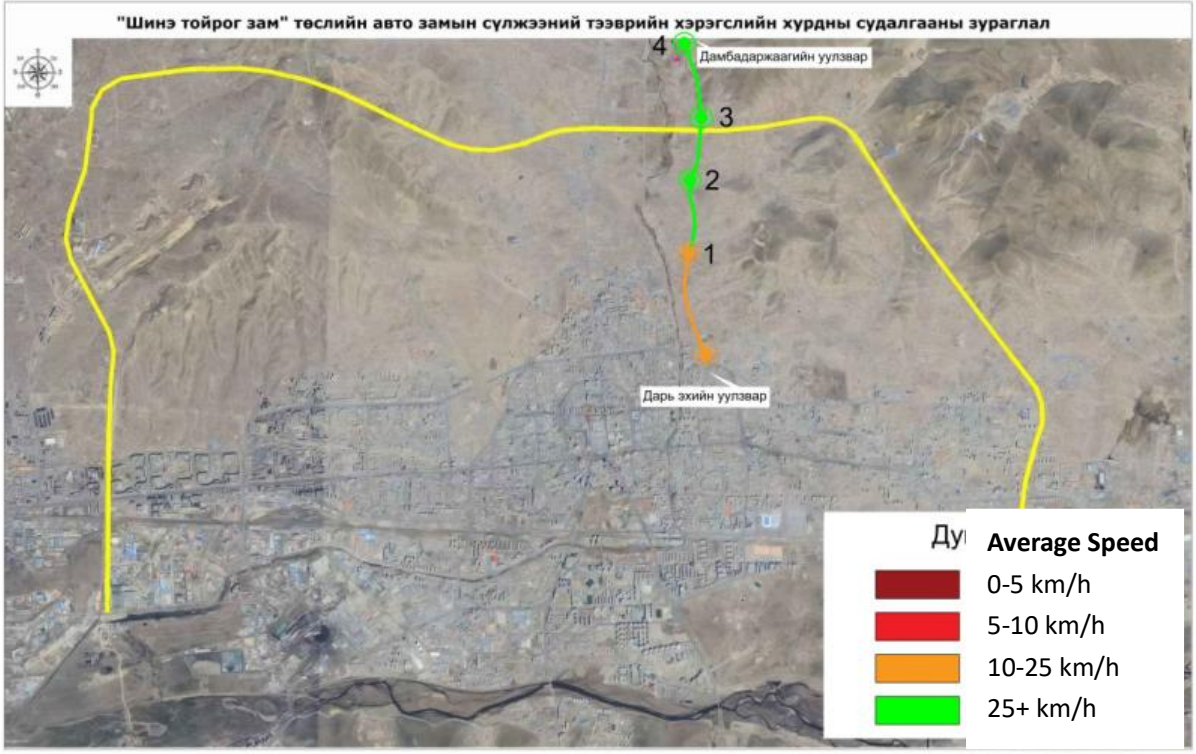

Figure 38 Average Speed during Morning Peak on Non-weekdays for Route 4 (Start Point to End Point)

Table 38 Survey of Morning Peak Speeds on Non-weekdays for Route 4 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dari Ekh Intersection	Dambadarjaa Intersection	5.850	8:35:55	8:48:41	00:12:46	27.49
Dari Ekh Intersection	1	1.140	8:35:55	8:39:09	00:03:14	21.15
1	2	1.180	8:39:09	8:41:29	00:02:20	30.34
2	3	1.100	8:41:29	8:43:39	00:02:10	30.46
3	4	1.000	8:43:39	8:45:53	00:02:14	26.87
4	Dambadarjaa Intersection	1.430	8:45:53	8:48:41	00:02:48	30.64

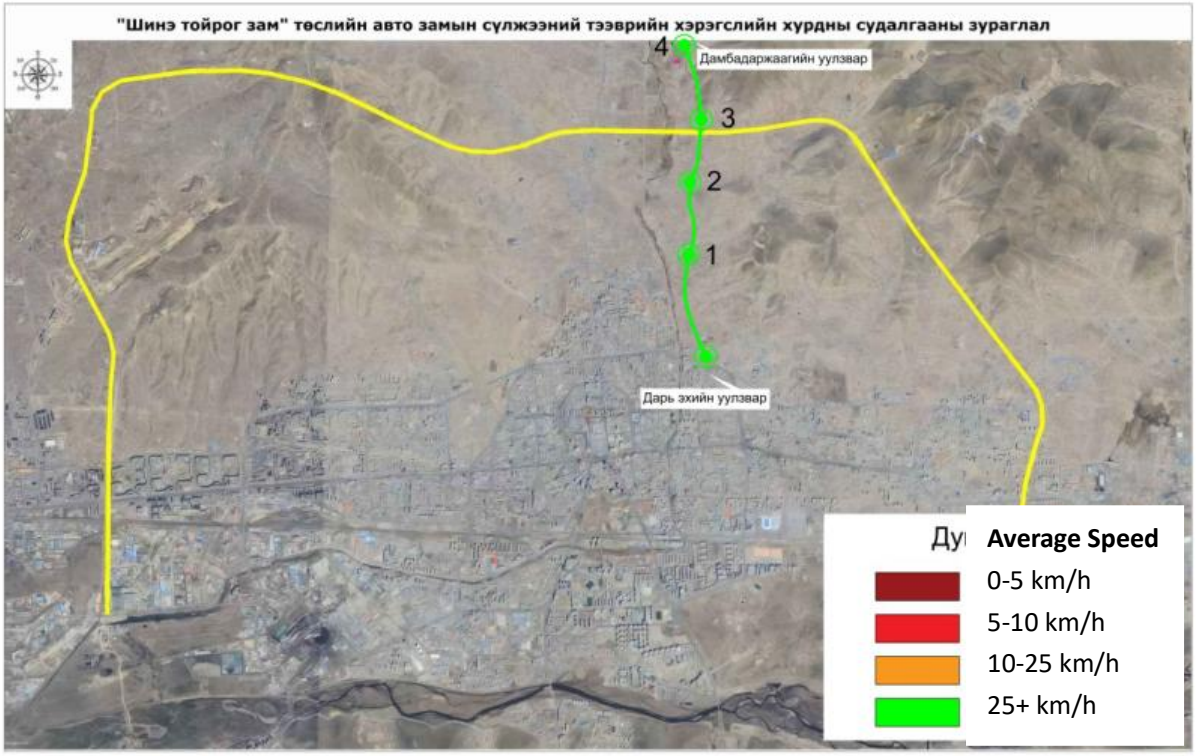

Figure 39 Average Speed during Morning Peak on Non-weekdays for Route 4 (End point to Start Point)

Table 39 Survey of Morning Peak Speeds on Non-weekdays for Route 4 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dambadarjaa Intersection	Dari Ekh Intersection	5.850	8:51:26	9:02:46	00:11:20	30.97
Dambadarjaa Intersection	4	1.430	8:51:26	8:54:29	00:03:03	28.13
4	3	1.000	8:54:29	8:56:07	00:01:38	36.73
3	2	1.100	8:56:07	8:58:16	00:02:09	30.70
2	1	1.180	8:58:16	9:00:29	00:02:13	31.94
1	Dari Ekh Intersection	1.140	9:00:29	9:02:46	00:02:17	29.96

The interval chart of the average speed of route 4 during the noon peak (11:30-14:00) on non-weekdays has been compiled, as shown in Figures 40 and 41.

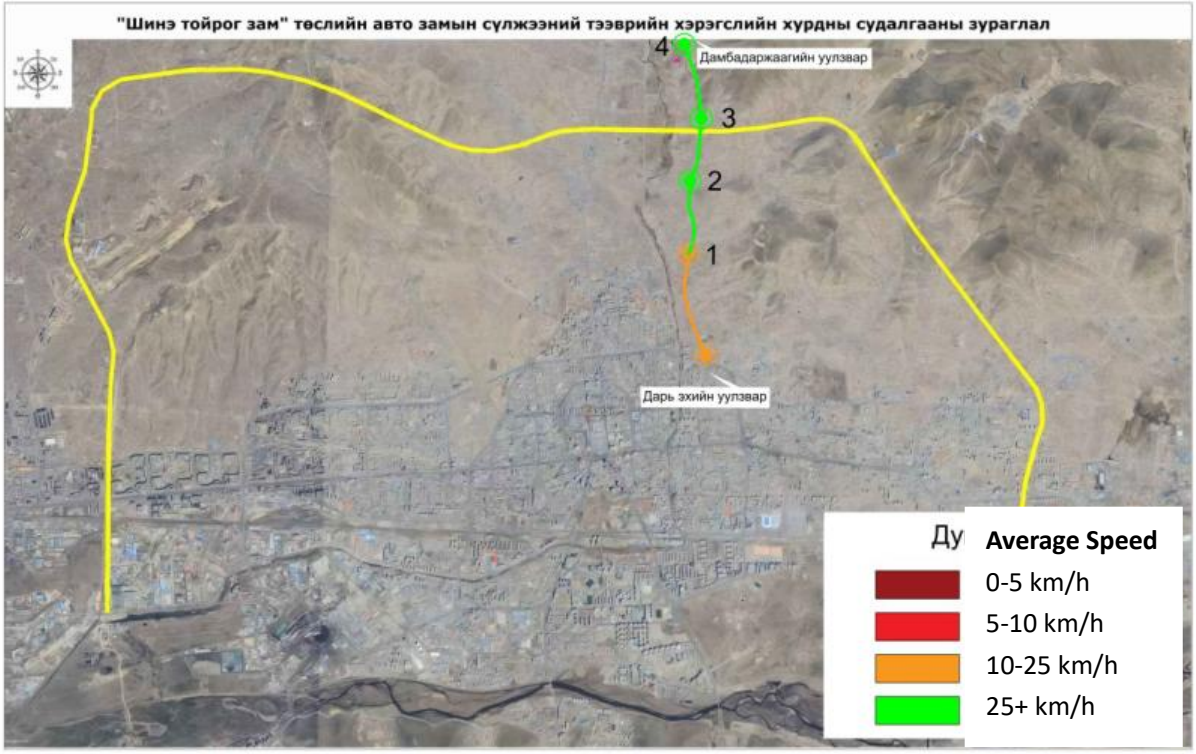

Figure 40: Average Speed during Noon Peak on Non-weekdays for Route 4 (Start Point to End Point)

Table 40 Survey of Noon Peak Speeds on Non-weekdays for Route 4 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dari Ekh Intersection	Dambadarjaa Intersection	5.850	13:08:32	13:23:25	00:14:53	23.58
Dari Ekh Intersection	1	1.140	13:08:32	13:13:12	00:04:40	14.66
1	2	1.180	13:13:12	13:15:41	00:02:29	28.51
2	3	1.100	13:15:41	13:17:45	00:02:04	31.94
3	4	1.000	13:17:45	13:19:45	00:02:00	30.00
4	Dambadarjaa Intersection	1.430	13:19:45	13:23:25	00:03:40	23.40

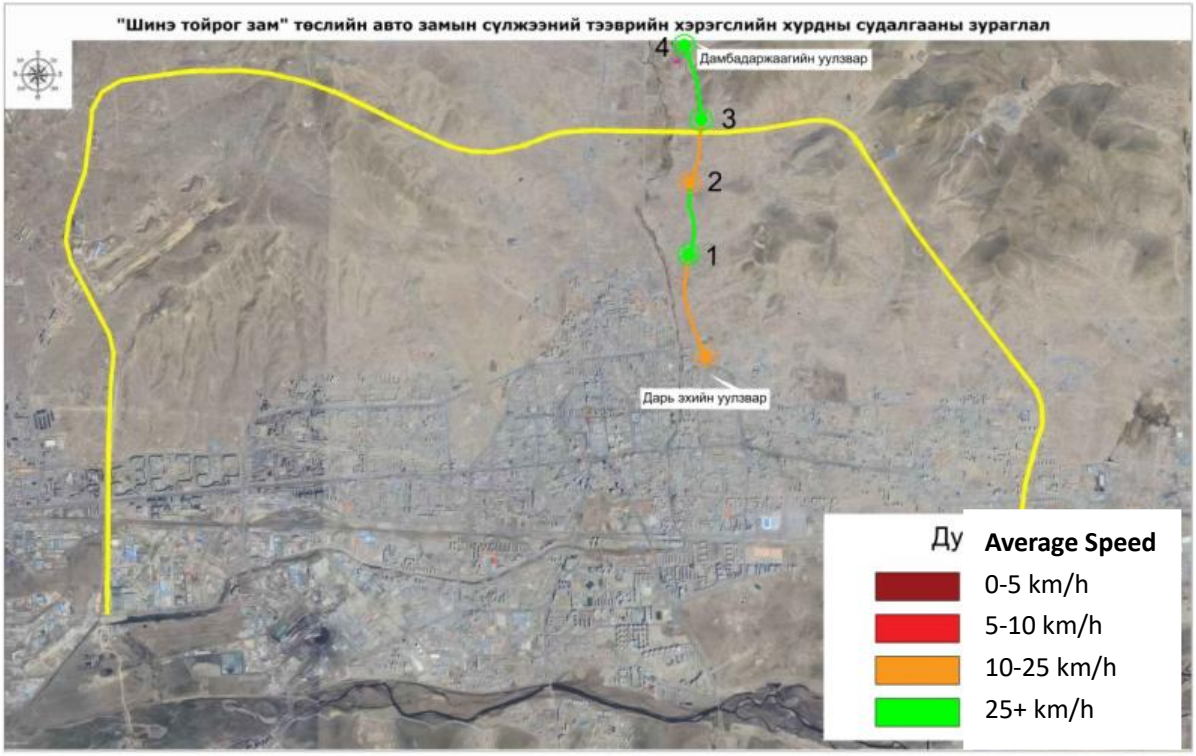

Figure 41: Average Speed during Noon Peak on Non-weekdays for Route 4 (End point to Start Point)

Table 41: Survey of Noon Peak Speeds on Non-weekdays for Route 4 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dambadarjaa Intersection	Dari Ekh Intersection	5.850	13:23:25	13:35:39	00:12:14	28.69
Dambadarjaa Intersection	4	1.430	13:23:25	13:25:52	00:02:27	35.02
4	3	1.000	13:25:52	13:27:43	00:01:51	32.43
3	2	1.100	13:27:43	13:30:30	00:02:47	23.71
2	1	1.180	13:30:30	13:32:33	00:02:03	34.54
1	Dari Ekh Intersection	1.140	13:32:33	13:35:39	00:03:06	22.06

The interval chart of the average speed of route 4 during the evening peak (17:30-20:00) on non-weekdays has been compiled, as shown in Figures 42 and 43.

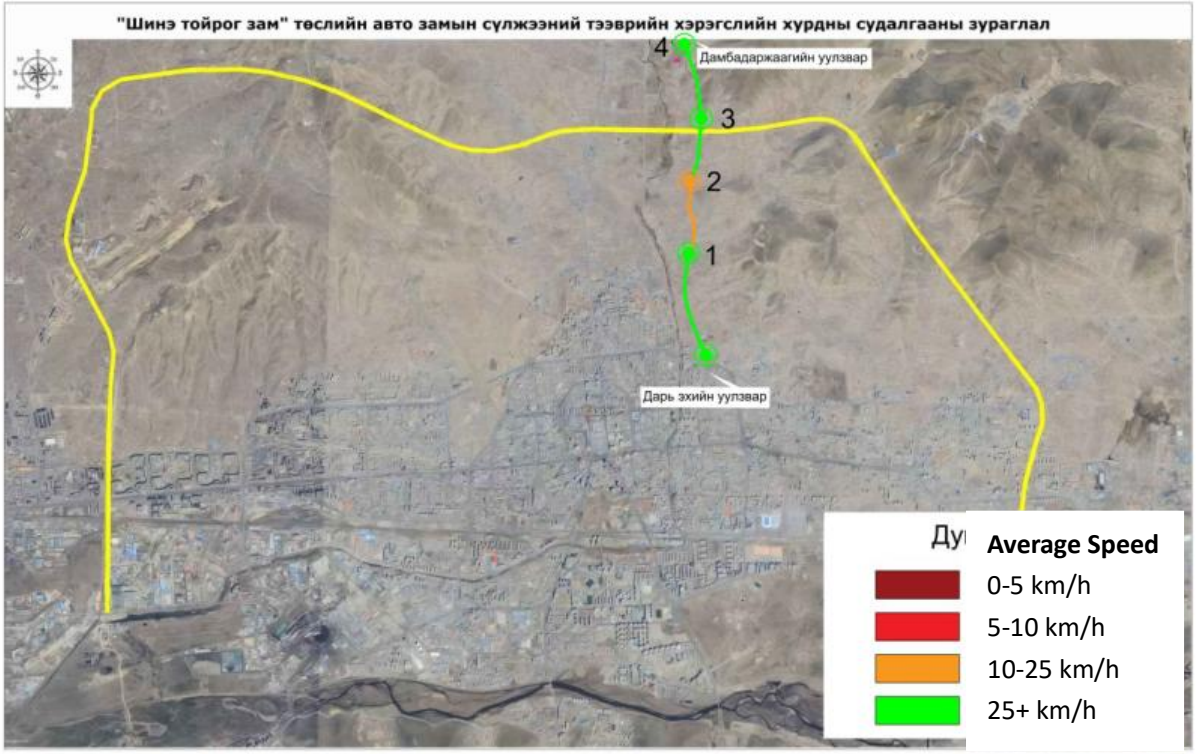

Figure 42: Average Speed during Evening Peak on Non-weekdays for Route 4 (Start Point to End Point)

Table 42: Survey of Evening Peak Speeds on Non-weekdays for Route 4 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dari Ekh Intersection	Dambadarjaa Intersection	5.850	17:36:06	17:48:19	00:12:13	28.73
Dari Ekh Intersection	1	1.140	17:36:06	17:38:26	00:02:20	29.31
1	2	1.180	17:38:26	17:41:19	00:02:53	24.55
2	3	1.100	17:41:19	17:43:26	00:02:07	31.18
3	4	1.000	17:43:26	17:45:16	00:01:50	32.73
4	Dambadarjaa Intersection	1.430	17:45:16	17:48:19	00:03:03	28.13

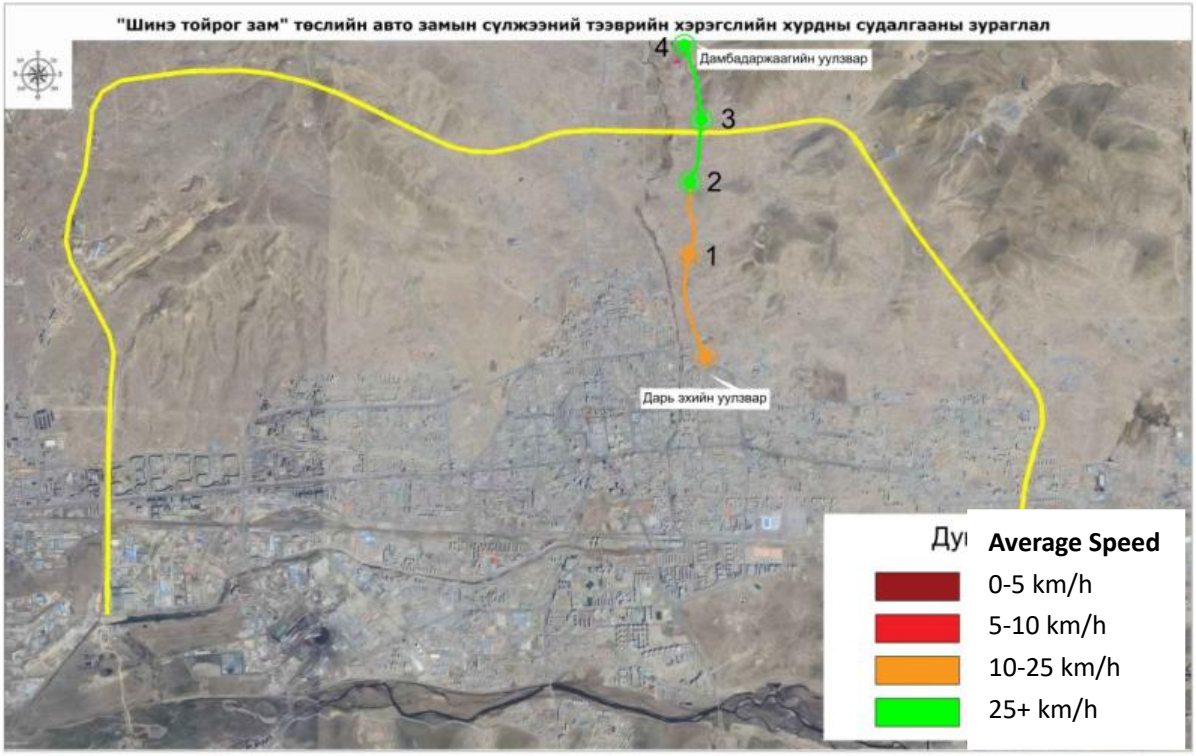

Figure 43 Average Speed during Evening Peak on Non-weekdays for Route 4 (Start Point to Start Point)

Table 43 Survey of Evening Peak Speeds on Non-weekdays for Route 4 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Dambadarjaa Intersection	Dari Ekh Intersection	5.850	17:48:19	18:02:41	00:14:22	24.43
Dambadarjaa Intersection	4	1.430	17:48:19	17:51:10	00:02:51	30.11
4	3	1.000	17:51:10	17:53:06	00:01:56	31.03
3	2	1.100	17:53:06	17:55:26	12:02:20	28.29
2	1	1.180	17:55:26	17:59:26	00:04:00	17.70
1	Dari Ekh Intersection	1.140	17:59:26	18:02:41	00:03:15	21.05

2.8 Survey of speeds on weekdays for route 5

The interval chart of the average speed of route 5 during the morning peak (7:30-10:30) on weekdays has been compiled, as shown in Figures 44 and 45.

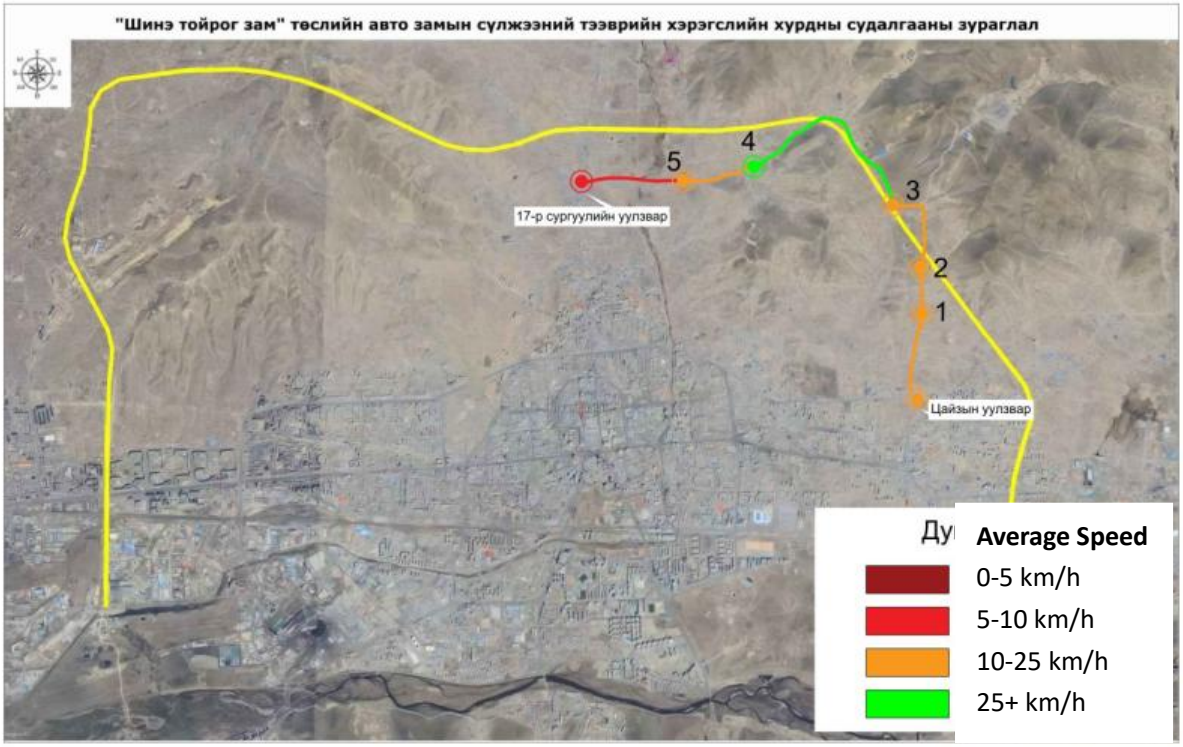

Figure 44 Average Speed during Morning Peak on Weekdays for Route 5 (Start Point to End Point)

Table 44 Survey of Morning Peak Speeds on Weekdays for Route 5 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Castle Intersection	No. 17 School Intersection	8.060	8:03:03	8:31:53	00:28:50	16.77
Castle Intersection	1	1.000	8:03:03	8:05:32	00:2:29	24.16
1	2	0.750	8:05:32	8:07:55	00:02:23	18.88
2	3	1.200	8:07:55	8:11:11	00:03:16	22.04
3	4	2.710	8:11:11	8:16:58	00:05:47	28.12
4	5	1.000	8:16:58	8:22:03	00:05:05	11.80
5	No. 17 School Intersection	1.400	8:22:03	8:31:53	00:09:50	8.54

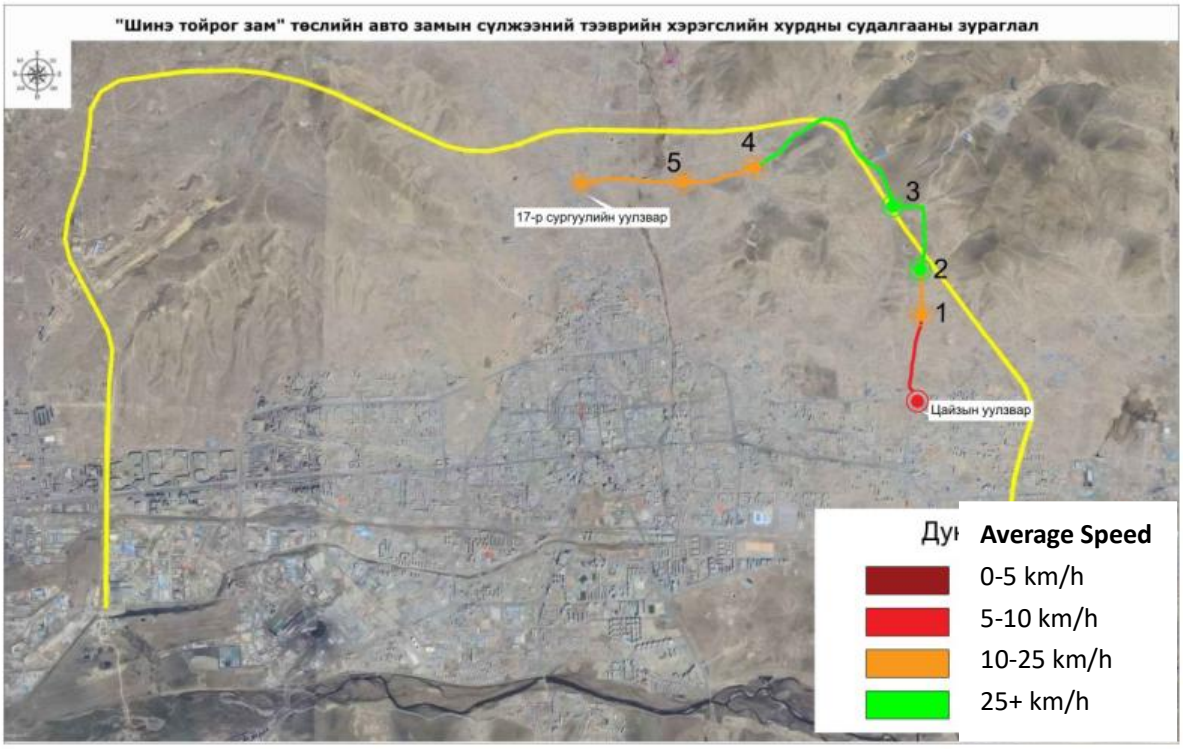

Figure 45 Average Speed during Morning Peak on Weekdays for Route 5 (End point to Start Point)

Table 45 Survey of Morning Peak Speeds on Workdays for Route 5 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 17 School Intersection	Castle Intersection	8.060	8:31:41	8:59:52	00:28:11	17.16
No. 17 School Intersection	5	1.400	8:31:41	8:35:36	00:3:55	21.45
5	4	1.000	8:35:36	8:38:27	00:02:51	21.05
4	3	2.710	8:38:27	8:43:50	00:05:23	30.20
3	2	1.200	8:43:50	8:46:23	00:02:33	28.24
2	1	0.750	8:46:23	8:48:42	00:02:19	19.42
1	Castle Intersection	1.000	8:48:42	8:59:52	00:11:10	5.37

The interval chart of the average speed of route 5 during the noon peak (11:30-14:00) on weekdays has been compiled, as shown in Figures 46 and 47.

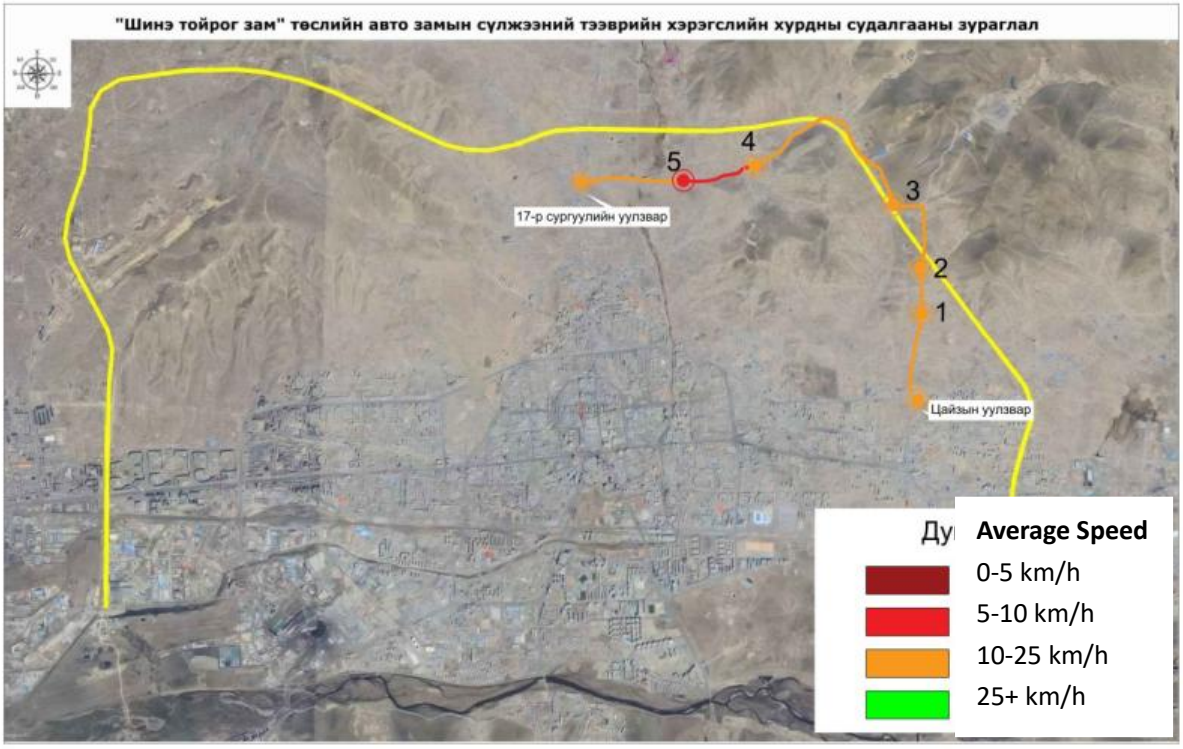

Figure 46 Average Speed during Noon Peak on Weekdays for Route 5 (Start Point to End Point)

Table 46 Survey of Noon Peak Speeds on Workdays for Route 5 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Castle Intersection	No. 17 School Intersection	8.060	12:02:18	12:29:35	00:27:17	17.73
Castle Intersection	1	1.000	12:02:18	12:05:46	00:03:28	17.31
1	2	0.750	12:05:46	12:07:43	00:01:57	23.08
2	3	1.200	12:07:43	12:11:10	00:03:27	20.87
3	4	2.710	12:11:10	12:17:47	00:06:37	24.57
4	5	1.000	12:17:47	12:24:30	00:06:43	8.93
5	No. 17 School	1.400	12:24:30	12:29:35	00:05:05	16.52

	Intersection					

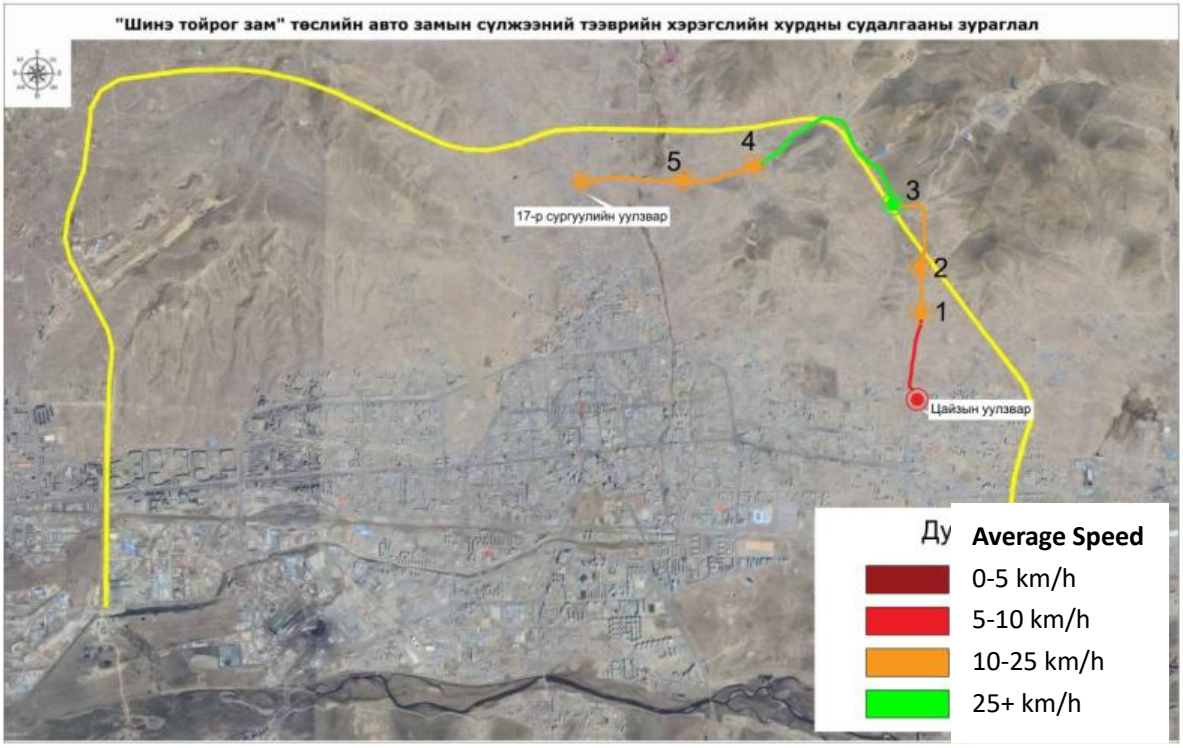

Figure 47: Average Speed during Noon Peak on Weekdays for Route 5 (End point to Start Point)

Table 47: Survey of Noon Peak Speeds on Workdays for Route 5 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 17 School Intersection	Castle Intersection	8.060	12:29:40	12:58:17	0:28:37	16.90
No. 17 School Intersection	5	1.400	12:29:40	12:34:55	00:05:15	16.00
5	4	1.000	12:34:55	12:39:27	0:04:32	13.24
4	3	2.710	12:39:27	12:45:42	0:06:15	26.02
3	2	1.200	12:45:42	12:49:11	0:03:29	20.67
2	1	0.750	12:49:11	12:51:25	0:02:14	20.15
1	Castle	1.000	12:51:25	12:58:17	0:06:52	8.74

	Intersection					

The interval chart of the average speed of route 5 during the evening peak (17:30-20:00) on weekdays has been compiled, as shown in Figures 48 and 49.

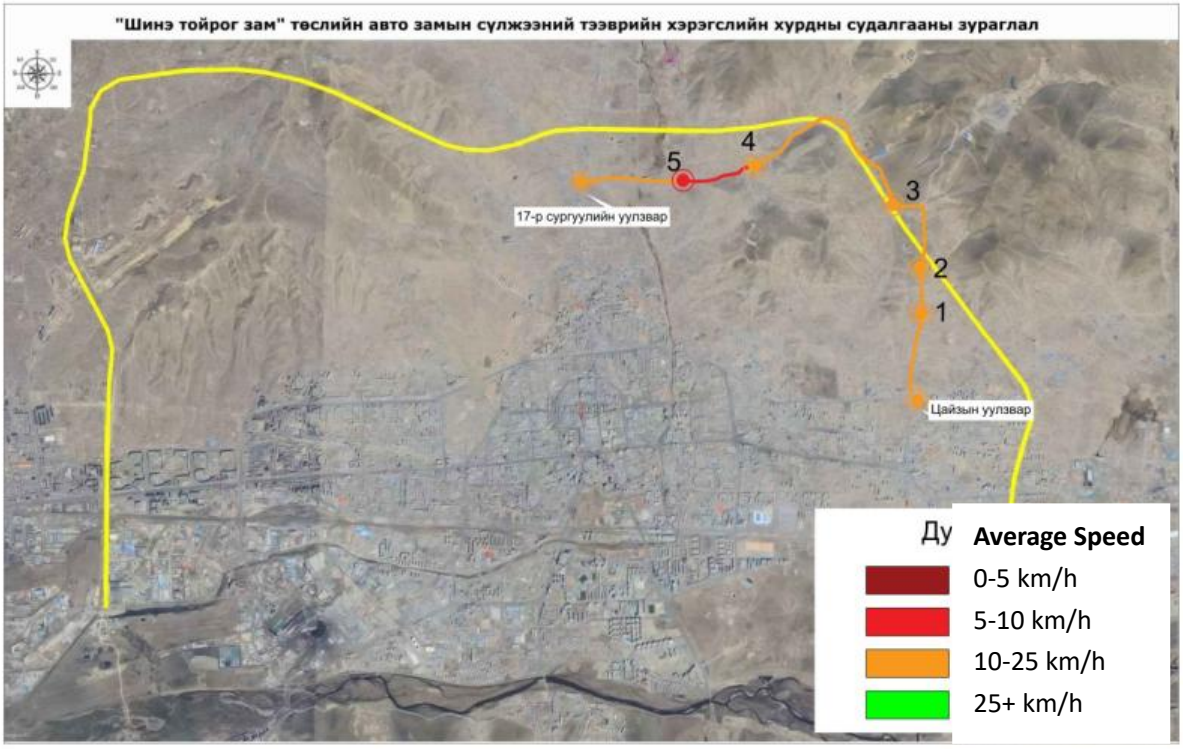

Figure 48 Average Speed during Evening Peak on Weekdays for Route 5 (Start Point to End Point)

Table 48: Survey of Evening Peak Speeds on Workdays for Route 5 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Castle Intersection	No. 17 School Intersection	8.060	17:01:50	17:36:50	00:35:00	13.82
Castle Intersection	1	1.000	17:01:50	17:06:27	00:04:37	13.00
1	2	0.750	17:06:27	17:08:28	00:02:01	22.31
2	3	1.200	17:08:28	17:13:19	00:04:51	14.85
3	4	2.710	17:13:19	17:20:30	00:07:11	22.64
4	5	1.000	17:20:30	17:30:21	00:09:51	6.09
5	No. 17	1.400	17:30:21	17:36:50	00:06:29	12.96

	School Intersection					

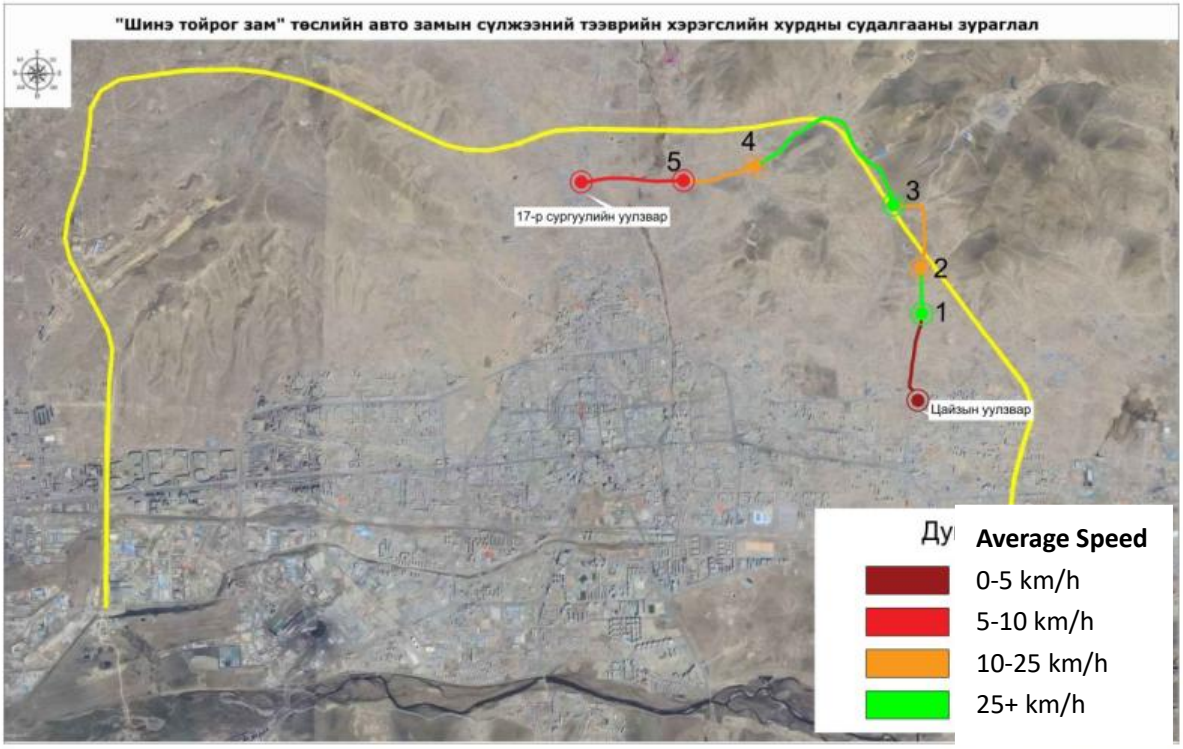

Figure 49 Average Speed during Evening Peak on Weekdays for Route 5 (Start Point to Start Point)

Table 49 Survey of Evening Peak Speeds on Workdays for Route 5 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 17 School Intersection	Castle Intersection	8.060	17:36:50	18:14:10	00:37:20	12.95
No. 17 School Intersection	5	1.400	17:36:50	17:47:05	0:10:15	8.20
5	4	1.000	17:47:05	17:50:30	00:03:25	17.56
4	3	2.710	17:50:30	17:56:03	00:05:33	29.30
3	2	1.200	17:56:03	17:59:23	00:03:20	21.60
2	1	0.750	17:59:23	18:01:10	00:01:47	25.23

1	Castle Intersection	1.000	18:01:10	18:14:10	00:13:00	4.62

2.9 Survey of speeds on non-weekdays for route 5

The interval chart of the average speed of route 5 during the morning peak (7:30-10:30) on non-weekdays has been compiled, as shown in Figures 50 and 51.

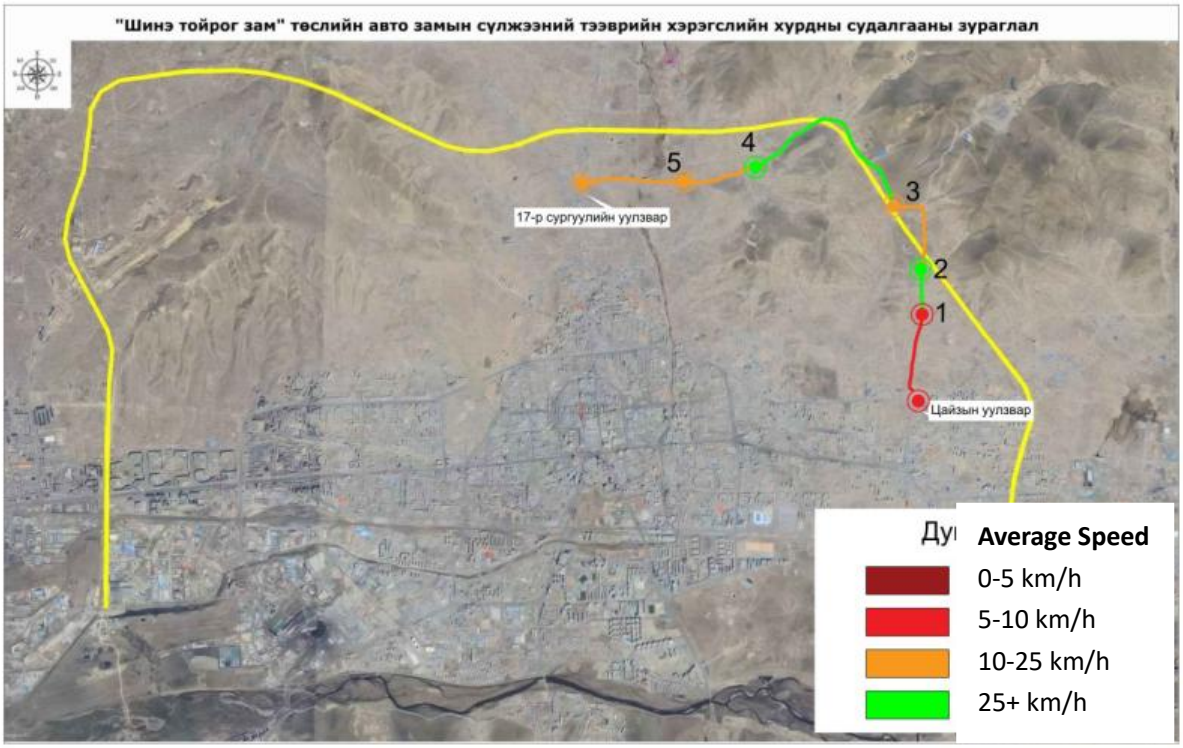

Figure 50 Average Speed during Morning Peak on Non-weekdays for Route 5 (Start Point to End Point)

Table 50 Survey of Morning Peak Speeds on Non-weekdays for Route 5 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Castle Intersection	No. 17 School Intersection	8.060	7:51:32	8:21:27	00:29:55	16.17
Castle Intersection	1	1.000	7:51:32	8:02:29	00:10:57	5.48
1	2	0.750	8:02:29	8:03:59	00:01:30	30.00
2	3	1.200	8:03:59	8:06:54	00:02:55	24.69
3	4	2.710	8:06:54	8:12:05	00:05:11	31.37

4	5	1.000	8:12:05	8:16:12	00:04:07	14.57
5	No. 17 School Intersection	1.400	8:16:12	8:21:27	00:05:15	16.00

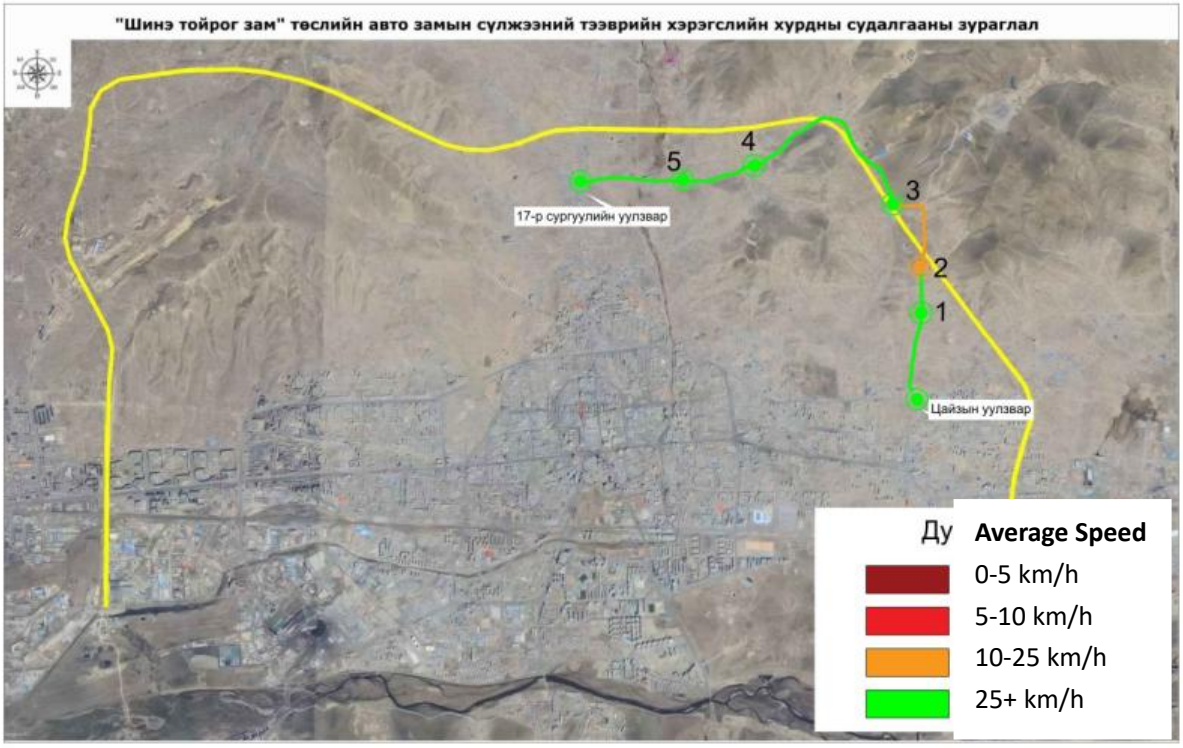

Figure 51 Average Speed during Morning Peak on Non-weekdays for Route 5 (End point to Start Point)

Table 51 Survey of Morning Peak Speeds on Non-weekdays for Route 5 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 17 School Intersection	Castle Intersection	8.060	7:59:51	8:18:10	00:18:19	26.40
No. 17 School Intersection	5	1.400	7:59:51	8:02:44	00:02:53	29.13
5	4	1.000	8:02:44	8:05:04	00:02:20	25.71
4	3	2.710	8:05:04	8:10:52	00:05:48	28.03
3	2	1.200	8:10:52	8:14:11	00:03:19	21.71
2	1	0.750	8:14:11	8:15:51	00:01:40	27.00

1	Castle Intersection	1.000	8:15:51	8:18:10	00:02:19	25.90

The interval chart of the average speed of route 5 during the noon peak (11:30-14:00) on non-weekdays has been compiled, as shown in Figures 52 and 53.

Figure 52: Average Speed during Noon Peak on Non-weekdays for Route 5 (Start Point to End Point)

Table 52 Survey of Noon Peak Speeds on Non-weekdays for Route 5 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Castle Intersection	No. 17 School Intersection	8.060	12:01:50	12:43:04	00:41:14	11.73
Castle Intersection	1	1.000	12:01:50	12:06:20	00:4:30	13.33
1	2	0.750	12:06:20	12:08:45	00:02:25	18.62
2	3	1.200	12:08:45	12:12:19	00:03:34	20.19
3	4	2.710	12:12:19	12:19:06	00:06:47	23.97
4	5	1.000	12:19:06	12:26:30	00:07:24	8.11

5	No. 17 School Intersection	1.400	12:26:30	12:43:04	00:16:34	5.07

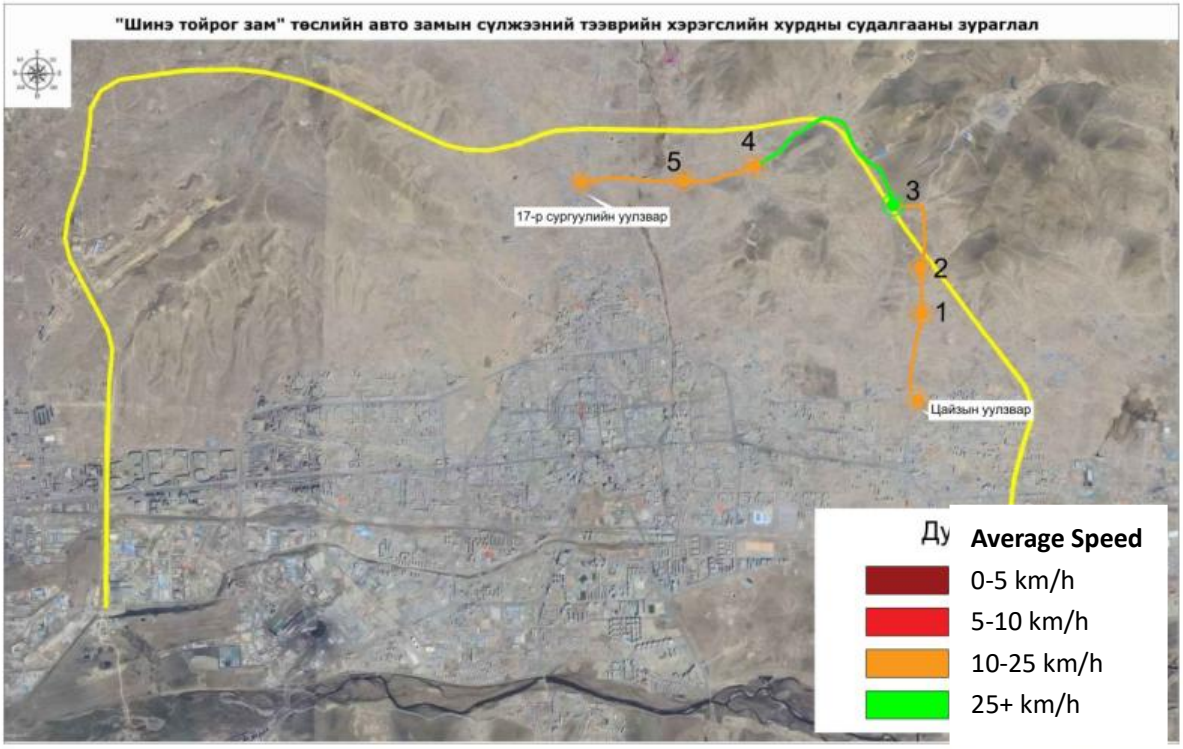

Figure 53: Average Speed during Noon Peak on Non-weekdays for Route 5 (End point to Start Point)

Table 53: Survey of Noon Peak Speeds on Non-weekdays for Route 5 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed （km/h）
No. 17 School Intersection	Castle Intersection	8.060	11:59:59	12:26:58	00:26:59	17.92
No. 17 School Intersection	5	1.400	11:59:59	12:03:56	00:03:57	21.27
5	4	1.000	12:03:56	12:08:13	00:04:17	14.01
4	3	2.710	12:08:13	12:14:38	00:06:25	25.34
3	2	1.200	12:14:38	12:17:52	00:03:14	22.27
2	1	0.750	12:17:52	12:22:19	00:04:27	10.11

1	Castle Intersection	1.000	12:22:19	12:26:58	00:04:39	12.90

The interval chart of the average speed of route 5 during the evening peak (17:30-20:00) on non-weekdays has been compiled, as shown in Figures 54 and 55.

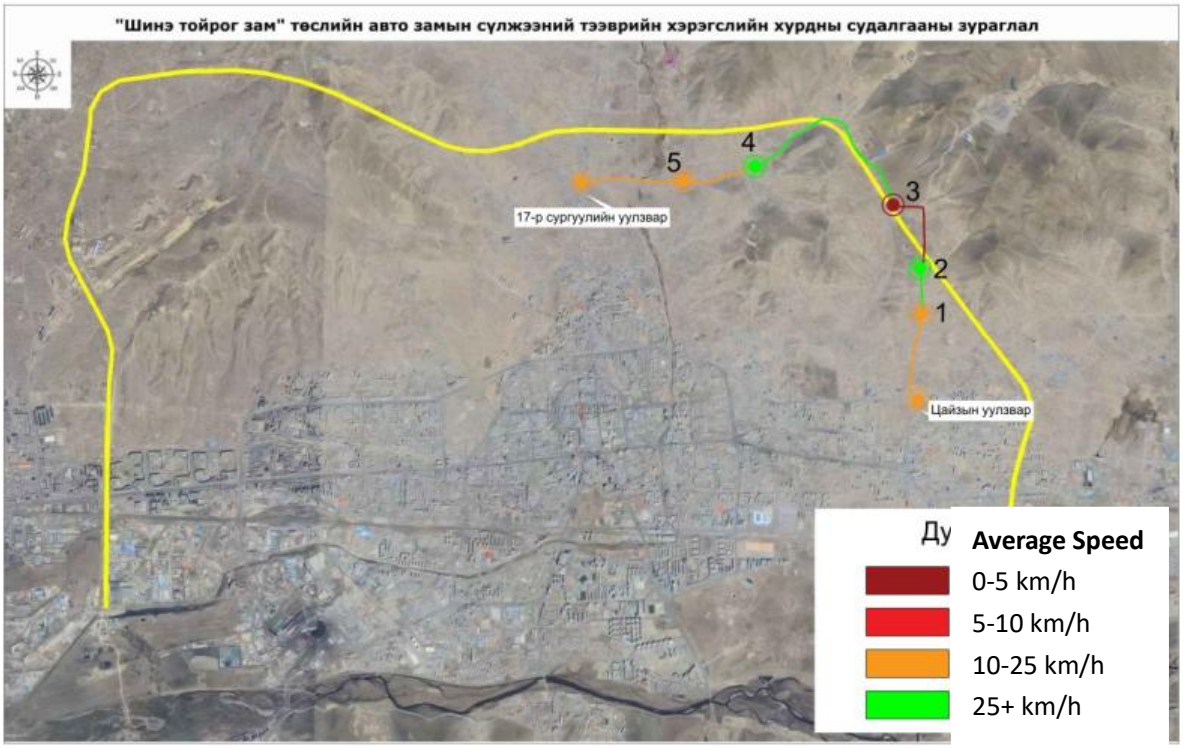

Figure 54 Average Speed during Evening Peak on Non-weekdays for Route 5 (Start Point to End Point)

Table 54 Survey of Evening Peak Speeds on Non-weekdays for Route 5 (Start Point to End Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
Castle Intersection	No. 17 School Intersection	8.060	17:00:22	17:47:31	00:47:09	10.26
Castle Intersection	1	1.000	17:00:22	17:04:41	00:04:19	13.90
1	2	0.750	17:04:41	17:06:17	00:01:36	28.13
2	3	1.200	17:06:17	17:33:34	00:27:17	4.35
3	4	2.710	17:33:34	17:39:26	00:05:52	27.72

4	5	1.000	17:39:26	17:42:51	00:03:25	17.56
5	No. 17 School Intersection	1.400	17:42:51	17:47:31	00:04:40	18.00

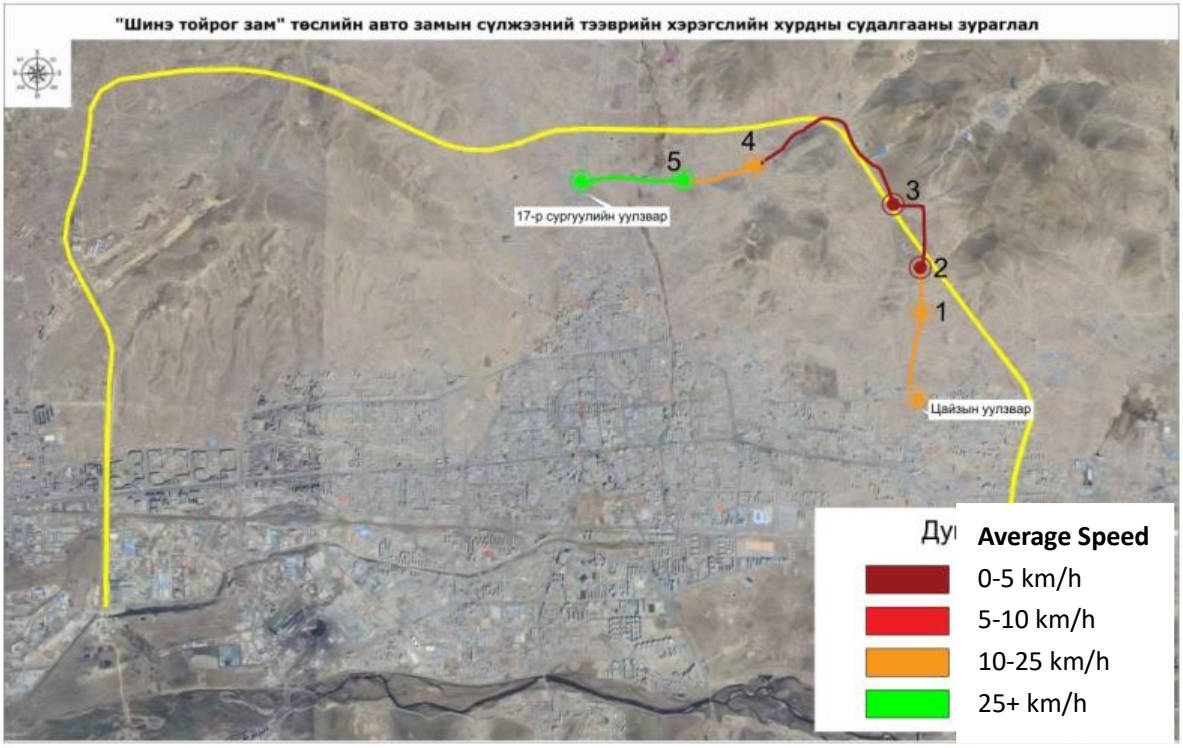

Figure 55 Average Speed during Morning Peak on Non-weekdays for Route 5 (End point to Start Point)

Table 55 Survey of Morning Peak Speeds on Non-weekdays for Route 5 (End point to Start Point)

Start Point	End point	Distance (km)	Start time	End time	Time	Speed (km/h)
No. 17 School Intersection	Castle Intersection	8.060	16:59:46	17:55:28	00:55:42	8.68
No. 17 School Intersection	5	1.400	16:59:46	17:02:49	00:03:03	27.54
5	4	1.000	17:02:49	17:06:42	00:3:53	15.45
4	3	2.710	17:06:42	17:16:04	00:9:22	4.35
3	2	1.200	17:16:04	17:50:58	0:34:54	3.77
2	1	0.750	17:50:58	17:52:49	0:01:51	24.32

1	Castle Intersection	1.000	17:52:49	17:55:28	0:02:39	22.64

3. Visualization Results of Morning/Noon/Evening Peak Traffic for Five Major Routes

Table 56 Five routes with distances and start/end point information

Route	Distance（km）	Intersection
1	6.66	From Tasganii Ovoo Intersection To Bayankhoshuu.St
2	4.21	From No. 39 School Intersection To No. 293 Kindergarten
3	6.33	From No. 17 School Intersection To Three-Way Intersection East of No. 105 School
4	4.91/5.85	From Dari Ekh Intersection To Dambadarjaa Intersection
5	8.06	From No. 17 School Intersection To Castle Intersection

3.1 Weekday Peak Hour Statistics of Average Speed

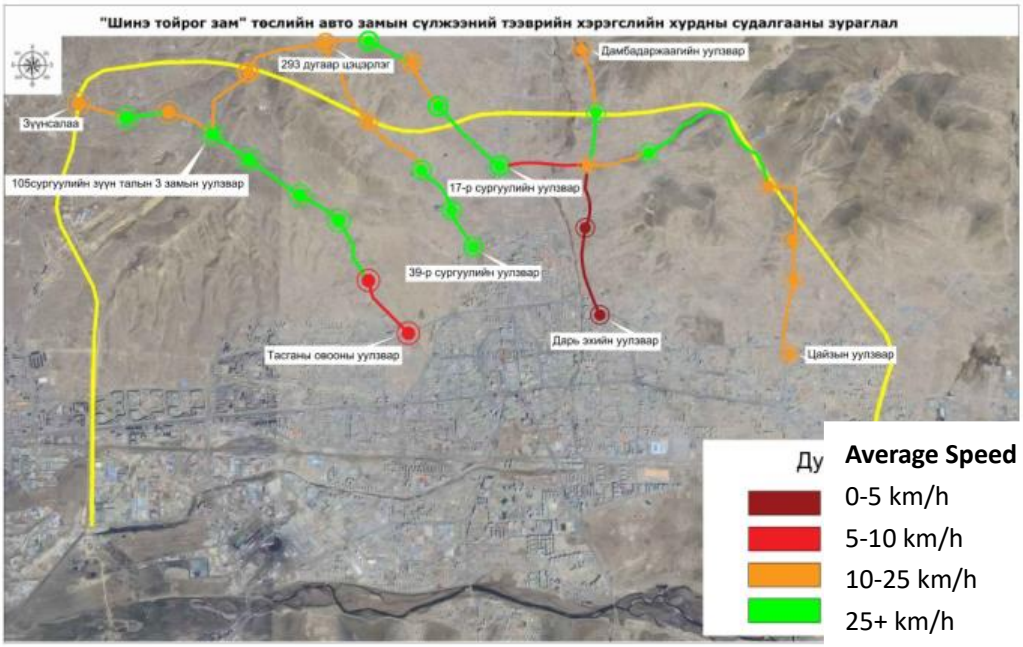

Figure 56 Average Speed during Morning Peak on Weekdays

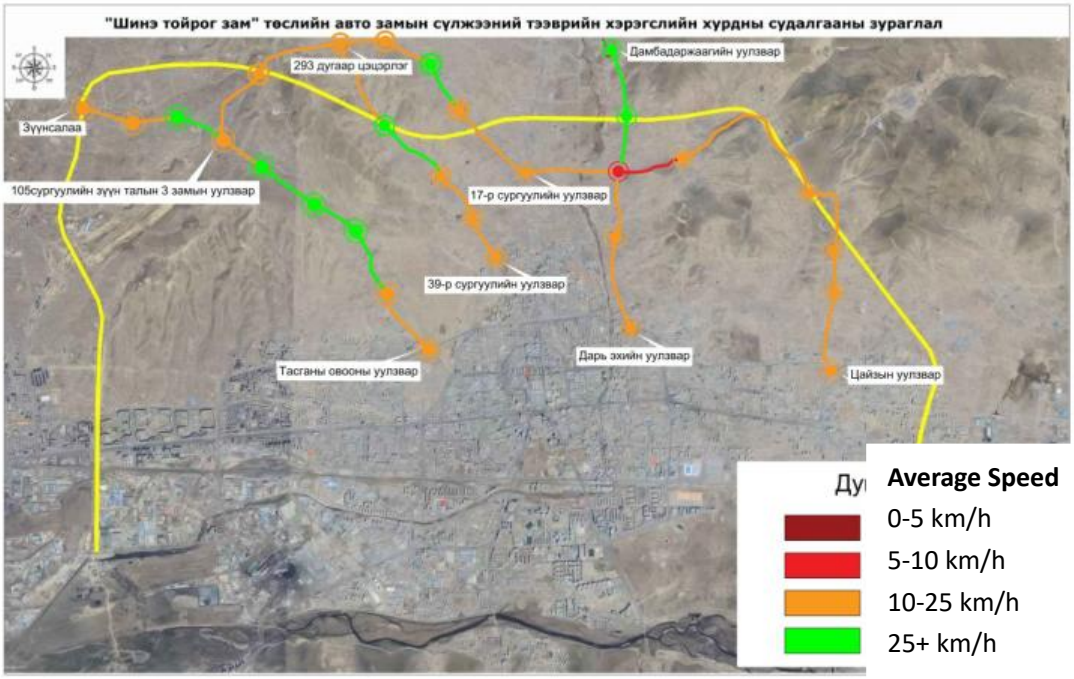

Figure 57 Average Speed during Noon Peak on Weekdays

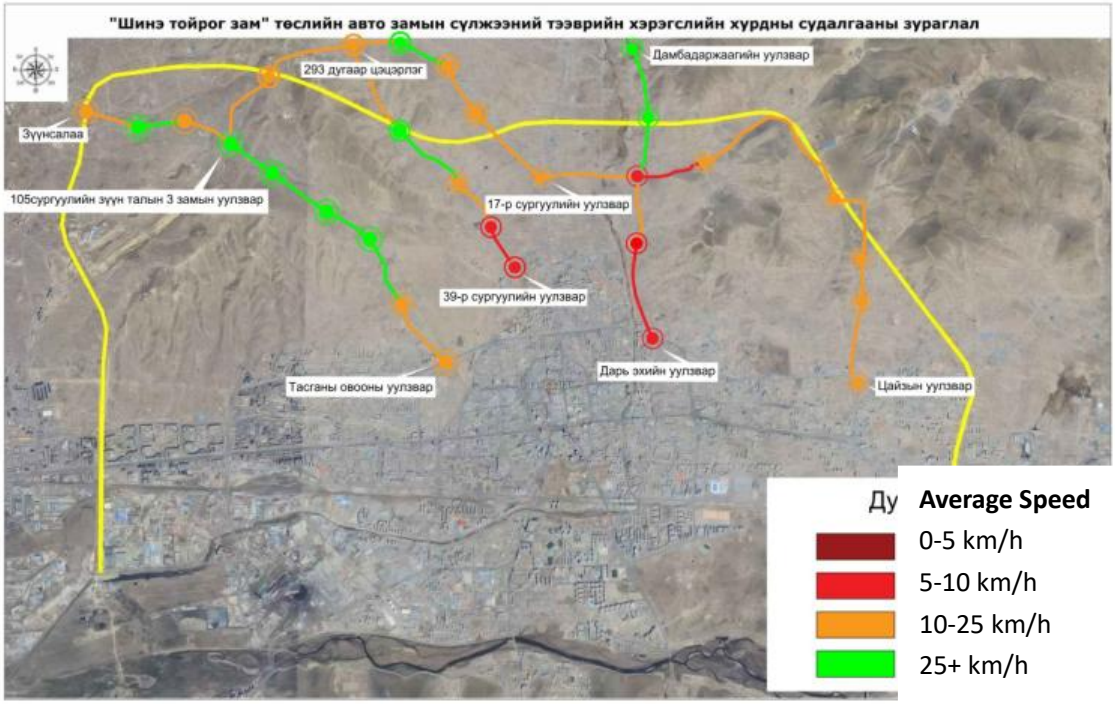

Figure 58 Average Speed during Evening Peak on Weekdays

3.2 Non-weekday Peak Hour Statistics of Average Speed

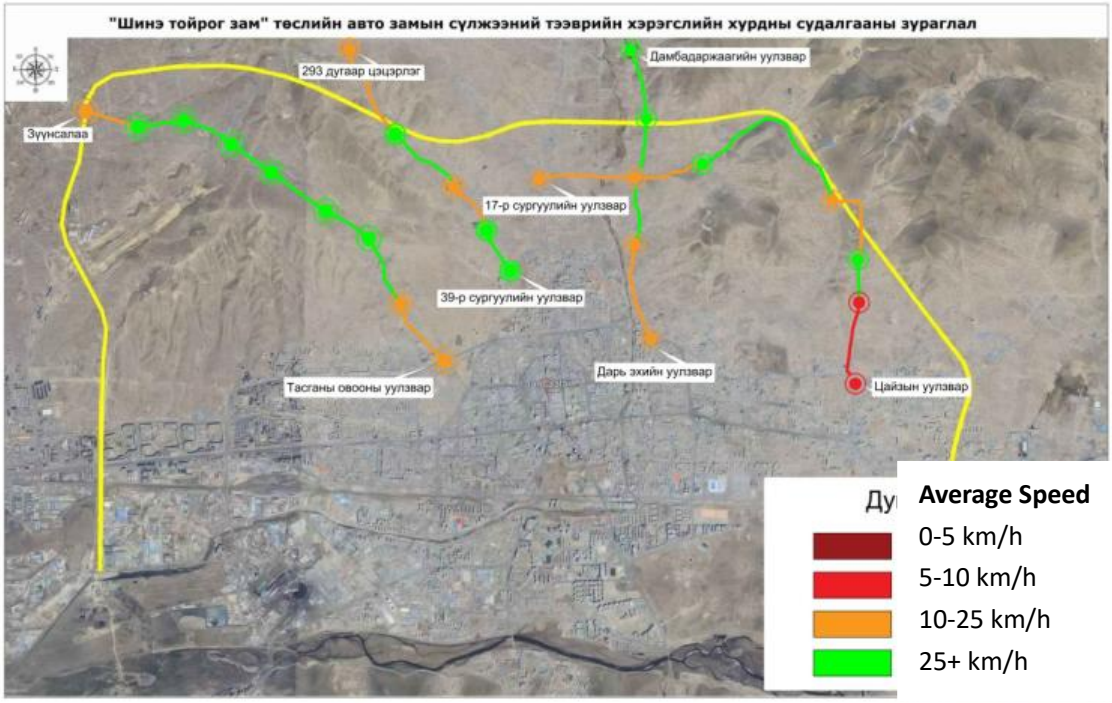

Figure 59 Average Speed during Morning Peak on Non-weekdays

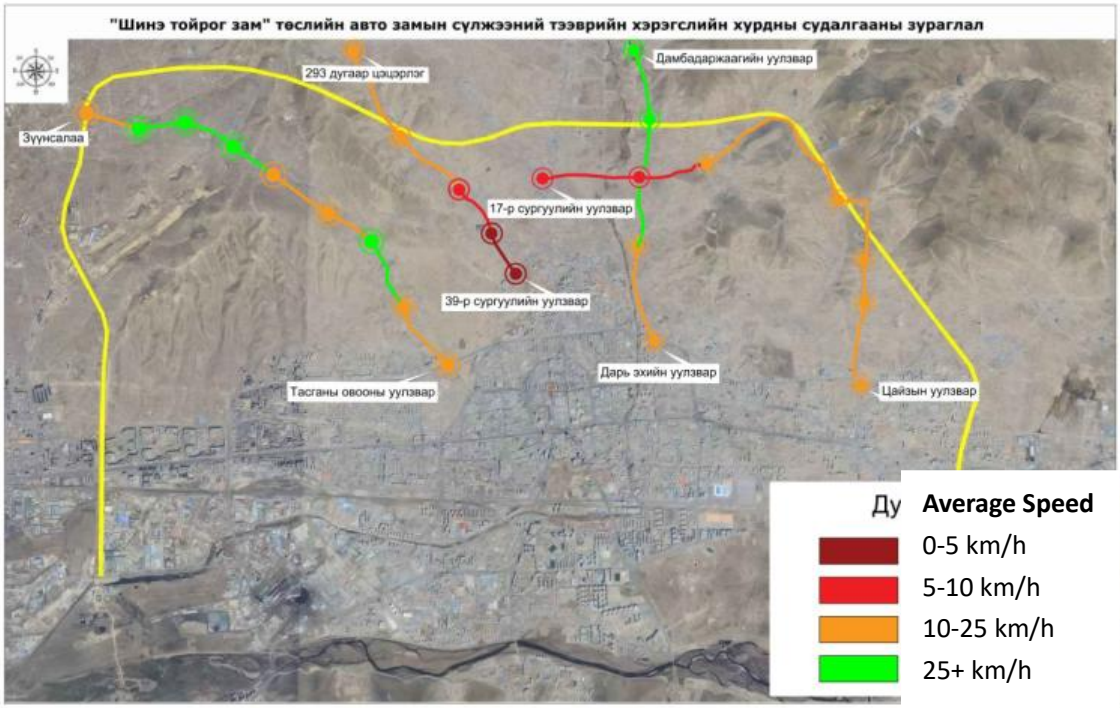

Figure 60 Average Speed during Noon Peak on Non-weekdays

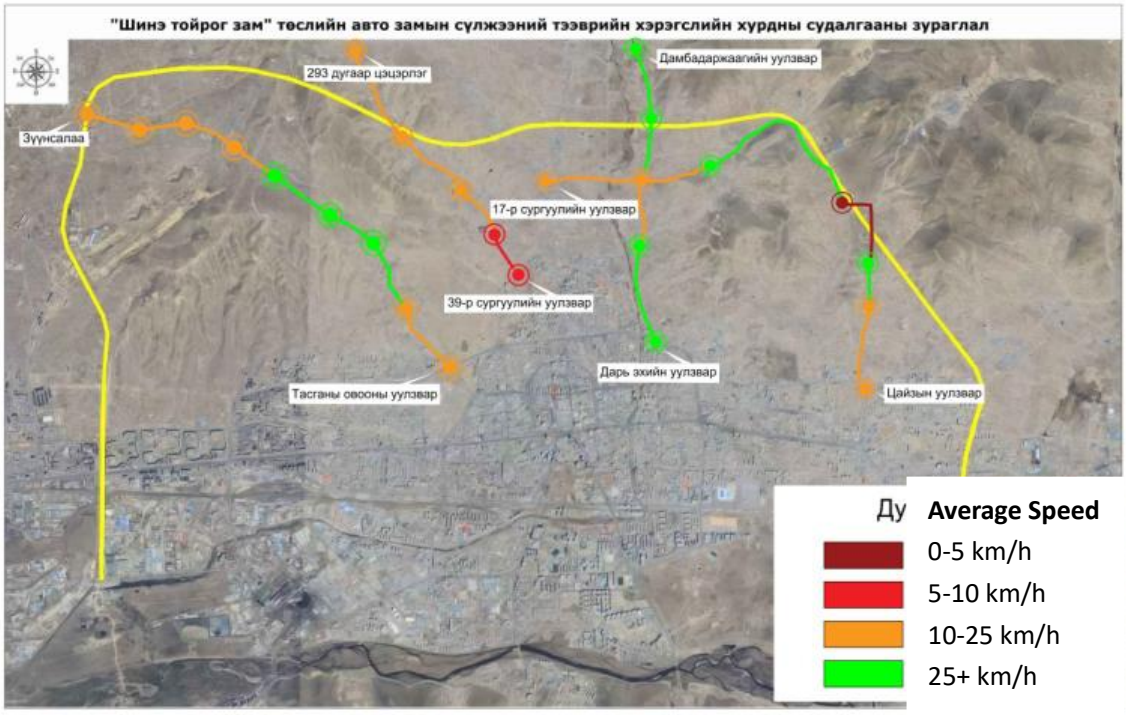

Figure 61 Average Speed during Evening Peak on Non-weekdays