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I. Person Trips

1. Purposes of the Trip

1.1. Trips made in Seoul

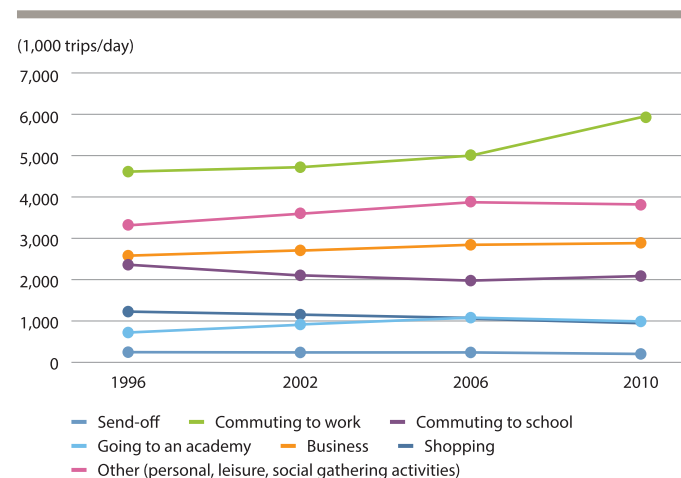
The total number of trips made in Seoul was 29,135,000 in 2010, which was an increase of 3,812,000 from 1996

The number of trips made in Seoul means the number of trips to and from and also within Seoul. In 2010, of the trips made in Seoul (excluding the number of trips from work), the number of trips to work was the highest at 5,924,000, followed by trips for social gathering, leisure and personal purposes (3,828,000 trips) and trips for business purposes (2,892,000). In 2010, the total number of trips made in Seoul was 29,135,000, which was about a 15% increase (3,812,000) from 25,323,000 trips recorded in 1996. A comparison of the purposes of the trips made in 1996 and 2010 revealed that the number of trips made for going to school, shopping and sending-off decreased, while the number of trips for going to work, academy, returning home and business had increased.

The number of trips made in Seoul for going to an academy and business purposes increased by 2.28% and 1.82%

The number of trips for commuting to work, commuting to an academy, and for business purposes increased by 1.82%, 2.28% and 0.83%, respectively, on average every year from 1996 to 2010. On the other hand, the trips made for the purpose of commuting to school and going shopping decreased slightly by 0.90% and 1.22%.

Fig. 1-1 Trends in the number of trips made in Seoul



Note: The commute from work or school was excluded as it is an activity that is dependent on another activity.

Source: Seoul Metropolitan Government, Household Travel Survey in Seoul (2002)
Metropolitan Transportation Authority, Household Travel Survey in Seoul Metropolitan Area (2006)
Metropolitan Transportation Authority, Joint Survey on the Trips Based on Origin and Destination (O/D) and Projections on Future Demands (2012)

The total number of trips made in Seoul in the morning rush hour in 2010 was 5,922,000, which was an increase of 1,126,000 from 2002

The total number of trips made in Seoul in the morning rush hour (peak hour) increased by 1,126,000 from 4,796,000 in 2002 to 5,922,000 in 2010. The trips made within Seoul showed an average annual increase of 2.02%, while the number of trips made from and to Seoul increased more significantly at an average annual increase of 4.63%.

Table 1-1 Number of trips made in Seoul

Unit: trips/day

	1996	2002	2006	2010	Average annual fluctuations
Send-off	225,392	232,874	246,300	193,772	-1.07%
Returning home	10,290,250	10,268,530	10,410,766	12,210,561	1.23%
Commuting to work	4,604,233	4,711,482	5,012,162	5,923,655	1.82%
Commuting to school	2,377,459	2,128,689	1,964,399	2,096,079	-0.90%
Going to an academy	700,002	900,100	1,087,790	959,837	2.28%
Business	2,575,925	2,709,984	2,875,093	2,891,680	0.83%
Shopping	1,224,436	1,160,123	1,090,515	1,031,422	-1.22%
Other	3,325,134	3,582,424	3,883,102	3,827,755	1.01%
Total	25,322,831	25,694,206	26,570,127	29,134,761	1.01%

Note: "Other" includes personal, leisure and social gathering activities, and the trips based in Seoul are trips made Seoul↔Seoul and Seoul↔Outskirts
Source: Seoul Metropolitan Government, Household Travel Survey in Seoul (2002)
Metropolitan Transportation Authority, Household Travel Survey in Seoul Metropolitan Area (2006)
Metropolitan Transportation Authority, Joint Survey on the Trips Based on Origin and Destination (O/D) and Projections on Future Demands (2012)

More trips based in Seoul are for going to work and academy and fewer trips with the purposes for school, business and shopping in the morning rush hour

As for the number of trips made in Seoul in the morning rush hour in 2010, the number of trips for commuting to work and going to an academy accounted for a higher percentage of the total trips, while the number of trips for commuting to school, business purposes and shopping accounted for a lower

percentage of the total trips. The number of trips to school, in particular, decreased at the greatest rate from 1,715,000 in 1996 to 1,558,000 in 2010 (decrease by 156,000 and ratio of 9.43%).

Table 1-2 Number of trips with the purposes made in Seoul in the morning rush hour (07:00~09:00)

Unit: trips/2 hours, (%)

	2002		2006		2010		Average annual fluctuations	
	Seoul ↔ Seoul	Seoul ↔ Outskirts	Seoul ↔ Seoul	Seoul ↔ Outskirts	Seoul ↔ Seoul	Seoul ↔ Outskirts	Seoul ↔ Seoul	Seoul ↔ Outskirts
Returning home	40,968 (1.11)	45,551 (4.10)	55,943 (1.39)	37,525 (2.83)	89,383 (2.07)	68,502 (4.29)	10.24% -	5.23% -
Commuting to work	1,617,828 (43.91)	763,481 (68.68)	2,073,465 (51.64)	974,862 (73.55)	2,414,052 (55.82)	1,121,244 (70.21)	5.13% -	4.92% -
Commuting	1,556,327 (42.24)	158,291 (14.24)	1,388,125 (34.57)	130,744 (9.86)	1,382,858 (31.97)	175,550 (10.99)	-1.47% -	1.30% -
Going to an academy	53,369 (1.45)	10,689 (0.96)	66,612 (1.66)	20,319 (1.53)	77,051 (1.78)	18,381 (1.15)	4.70% -	7.01% -
Business	161,128 (4.37)	66,336 (5.97)	169,164 (4.21)	75,762 (5.72)	89,276 (2.06)	90,016 (5.64)	-7.12% -	3.89% -
Shopping	24,342 (0.66)	6,524 (0.59)	19,125 (0.48)	4,264 (0.32)	21,133 (0.49)	6,154 (0.39)	-1.75% -	-0.73% -
Other	230,285 (6.25)	60,845 (5.47)	242,704 (6.04)	82,037 (6.19)	251,071 (5.81)	117,140 (7.34)	1.09% -	8.53% -
Total	3,684,247 (100)	1,111,717 (100)	4,015,138 (100)	1,325,513 (100)	4,324,824 (100)	1,596,987 (100)	2.02% -	4.63% -

Note: "Other" includes personal, leisure and social gathering activities

Source: Seoul Metropolitan Government, Household Travel Survey in Seoul (2002)

Metropolitan Transportation Authority, Household Travel Survey in Seoul Metropolitan Area (2006)

Metropolitan Transportation Authority, Joint Survey on the Trips Based on Origin and Destination (O/D) and Projections on Future Demands (2012)

The number of trips per person in Seoul increased by 0.24 from 2.34 in 1996 to 2.59 in 2010

The number of daily trips with the purposes per person aged 5 and older in Seoul was 2.59 in 2010, which was a 10.3% (0.24 trips/person) increase compared to 2.34 trips/person recorded in 1996. This shows that the number of trips per person increased at a higher rate than the population increase.

The number of commuting-to-work trips per worker increased by 0.16 from 0.96 in 1996 to 1.12 in 2010

In 2010, there were 4,177,000 workers in Seoul and 4.663,000 commuting-to-work trips were made on a daily basis, on average. Based on these figures, the number of commuting-to-work trips made per worker was 1.12, which was a 0.16 increase from 1996. It is deemed that the ratio exceeded 1 because there were workers who performed diverse types of work on a daily basis.

Table 1-3 Number of trips with the purposes per person in Seoul

Unit: person, trips/day, trips/person-day

	Population	Total number of trips with the purposes	Number of trips with the purposes per person
1996	9,683,996	22,697,291	2.34
2002	9,655,693	22,724,112	2.35
2006	9,737,347	23,198,152	2.38
2010	9,887,254	25,562,200	2.59

Note: The number of trips concerns the trips between Seoul ↔ Seoul and Seoul ↔ Outskirts, and the population is based on registered resident population (aged 5 and over)
Source: Internal data of the Seoul Institute, Seoul Statistics Yearbook

Table 1-4 Number of commuting-to-work trip per commuting worker in Seoul

Unit: person, trips/day, trips/person-day

	Number of workers	Number of commuting-to-work trips per day	Number of commuting-to-work trips per person
2002	3,805,462	3,643,065	0.96
2006	3,843,010	3,796,460	0.99
2010	4,177,336	4,662,864	1.12

Note: The number of trips concerns the trips between Seoul ↔ Seoul and Seoul → Outskirts
Source: Internal data of the Seoul Institute, Seoul Statistics Yearbook, annually

1.2. Trips made in the Seoul Metropolitan Area

The total number of trips made in the Seoul Metropolitan Area was 57,091,000 in 2010, which was an increase of 14,754,000 from 1996

In 2010, of the trips made in the Seoul Metropolitan Area (excluding the commuting trips from work), the number of trips to work was the highest at 10,680,000, followed by trips for social gatherings, leisure and personal purposes (7,485,000 trips) and trips for business purposes (5,250,000). In 2010, the total number of trips with the purposes in the Seoul Metropolitan Area was 57,091,000, which was about a 34.85% (4,754,000) increase from 57,091,000 trips recorded in 1996. A comparison based on the purposes of the trips made in 1996 and 2010 revealed that the number of trips made for the purpose of commuting to school and going shopping decreased, while the number of trips made for the purpose of returning home, commuting to work or commuting to an academy increased.

The number of trips made in the Seoul Metropolitan Area for the purpose of going to an academy increased by 3.72%

There was an increased number of trips made for the purpose of returning home, commuting to work, other purposes (social gatherings, leisure and personal purposes), and business purposes in this order. Of these, the number of trips made for the purpose of commuting to an academy increased at the most significant rate at 3.72% (851,000 trips), but this number dropped again between 2006 and 2010.

Table 1-5 Number of trips with the purposes in the Seoul Metropolitan Area

Unit: trips/day

	1996	2002	2006	2010	Average annual fluctuations
Send-off	366,588	502,299	584,797	486,860	2.05%
Returning home	17,452,569	19,140,652	20,082,373	24,242,292	2.37%
Commuting to work	7,339,397	8,157,755	9,117,821	10,679,575	2.72%
Commuting to school	4,613,055	4,656,756	4,522,822	4,730,791	0.18%
Going to an academy	1,273,898	1,857,340	2,337,064	2,125,075	3.72%
Business	3,982,803	4,688,640	5,292,147	5,250,407	1.99%
Shopping	1,932,215	2,102,851	2,124,588	2,091,821	0.57%
Other	5,376,663	5,996,834	6,994,394	7,484,521	2.39%
Total	42,337,188	47,103,127	51,056,006	57,091,342	2.16%

Note: "Other" includes personal, leisure and social gathering activities

Source: Seoul Metropolitan Government, Household Travel Survey in Seoul (2002)

Metropolitan Transportation Authority, Household Travel Survey in Seoul Metropolitan Area (2006)

Metropolitan Transportation Authority, Joint Survey on the Trips Based on Origin and Destination (O/D) and Projections on Future Demands (2012)

The total number of trips in the morning rush hour in 2010 was 11,841,000, which was an increase of 2,382,000 from 2002

The total number of trips made in the morning rush hour (peak hour) increased by 2,382,000 from 9,459,000 in 2002 to 11,841,000 in 2010. As for the traffic concentration ratio during the morning rush hour, it was 20.9% for the Seoul Metropolitan Area, 19.0% for Seoul, 22.1% for Incheon and 22.5% for Gyeonggi Province.

More trips with the purposes of going to work and academy and fewer trips with the purposes for school, business and shopping in the morning rush hour

Compared to the number of trips made in the morning rush hour in the Seoul Metropolitan Area in 2002, the trips for commuting to work increased by 2,241,000 in 2010 and the composition ratio also increased by over 10.2%p. On the other hand, the trips for commuting to school decreased by 155,000, and the composition ratio also decreased by over 9.8%p.

Table 1-6 Number of trips with the purposes in the Seoul Metropolitan Area in the morning rush hour (7:00~09:00)

Unit: trips/2 hours, (%)

	2002			2006			2010			Average annual fluctuations		
	Seoul ↔ Seoul	Seoul ↔ Outskirts	Outskirts ↔ Outskirts	Seoul ↔ Seoul	Seoul ↔ Outskirts	Outskirts ↔ Outskirts	Seoul ↔ Seoul	Seoul ↔ Outskirts	Outskirts ↔ Outskirts	Seoul ↔ Seoul	Seoul ↔ Outskirts	Outskirts ↔ Outskirts
Returning home	40,968 (1.11)	45,551 (4.10)	106,944 (2.29)	55,943 (1.39)	37,525 (2.83)	124,541 (2.15)	89,383 (2.07)	68,502 (4.29)	144,350 (2.44)	10.24%	5.23%	3.82%
Commuting to work	1,617,828 (43.91)	763,481 (68.68)	1,711,849 (36.71)	2,073,465 (51.64)	974,862 (73.55)	2,728,248 (47.19)	2,414,052 (55.82)	1,121,244 (70.21)	2,798,432 (47.28)	5.13%	4.92%	6.34%
Commuting to school	1,556,327 (42.24)	158,291 (14.24)	2,290,303 (49.12)	1,388,125 (34.57)	130,744 (9.86)	2,278,011 (39.41)	1,382,858 (31.97)	175,550 (10.99)	2,291,325 (38.71)	-1.47%	1.30%	0.01%
Going to an academy	53,369 (1.45)	10,689 (0.96)	24,162 (0.52)	66,612 (1.66)	20,319 (1.53)	34,686 (0.60)	77,051 (1.78)	18,381 (1.15)	57,244 (0.97)	4.70%	7.01%	11.38%
Business	161,128 (4.37)	66,336 (5.97)	222,764 (4.78)	169,164 (4.21)	75,762 (5.72)	243,516 (4.21)	89,276 (2.06)	90,016 (5.64)	190,338 (3.22)	-7.12%	3.89%	-1.95%
Shopping	24,342 (0.66)	6,524 (0.59)	23,455 (0.50)	19,125 (0.48)	4,264 (0.32)	20,589 (0.36)	21,133 (0.49)	6,154 (0.39)	23,819 (0.40)	-1.75%	-0.73%	0.19%
Other	230,285 (6.25)	60,845 (5.47)	283,232 (6.07)	242,704 (6.04)	82,037 (6.19)	351,309 (6.08)	251,071 (5.81)	117,140 (7.34)	413,298 (6.98)	1.09%	8.53%	4.84%
Total	3,684,247 (100)	1,111,717 (100)	4,662,709 (100)	4,015,138 (100)	1,325,513 (100)	5,780,900 (100)	4,324,824 (100)	1,596,987 (100)	5,918,806 (100)	2.02%	4.63%	3.03%

Note: "Other" includes personal, leisure and social gathering activities

Source: Seoul Metropolitan Government, Household Travel Survey in Seoul (2002)

Metropolitan Transportation Authority, Household Travel Survey in Seoul Metropolitan Area (2006)

Metropolitan Transportation Authority, Joint Survey on the Trips Based on Origin and Destination (O/D) and Projections on Future Demands (2012)

The number of trips per person increased by 0.14 from 2.23 in 1996 to 2.37 in 2010

The population of the Seoul Metropolitan Area was 23,686,000 in 2010. The number of trips with the purposes per person was 2.37 in 2010, and this was an increase of 0.14 from 2.23 reported in 2006. To be more specific, the number of trips per person in 2010 was 2.59 in Seoul, 2.24 in Incheon and 2.22 in Gyeonggi Province.

Table 1-7 Number of trips with the purposes per person in the Seoul Metropolitan Area

Unit: person, trips/day, trips/person · day

		Population	Total number of trips with the purposes	Number of trips with the purposes per person
2006	Seoul Metropolitan Area	22,542,205	50,334,292	2.23
	Seoul	9,737,347	23,198,152	2.38
	Incheon	2,499,163	5,207,464	2.08
	Gyeonggi Province	10,305,695	21,928,676	2.13
2010	Seoul Metropolitan Area	23,686,297	56,232,899	2.37
	Seoul	9,887,254	25,562,200	2.59
	Incheon	2,630,123	5,897,123	2.24
	Gyeonggi Province	11,168,920	24,773,576	2.22

Note: The population is based on registered resident population (aged 5 and over) and the number of trips is based on the actual number of trips occurred
Source: Metropolitan Transportation Authority, Joint Survey on the Trips Based on Origin and Destination (O/D) and Projections on Future Demands (2012)

The number of commuting trips per worker increased by 0.17 from 1.18 in 2006 to 1.35 in 2010

In 2010, there were 8,526,000 workers in the Seoul Metropolitan Area and 10,640,000 commuting trips were made. Based on these figures, the number of commuting trips made per commuting worker was 1.25. To be more specific, the number of commuting trips made per commuting worker was 1.12 in Seoul, 1.48 in Incheon and 1.35 in Gyeonggi Province. There was an increase of 0.13 trips/person in Seoul and Incheon and 0.03 trips/person in Gyeonggi Province compared to 2006.

Table 1-8 Number of commuting-to-work trip per commuting worker in the Seoul Metropolitan Area

Unit: person, trips/day, trips/person · day

		Number of workers	Number of commuting-to-work trips per day	Number of commuting-to-work trips per person
2006	Seoul Metropolitan Area	7,637,127	8,996,451	1.18
	Seoul	3,843,010	3,796,460	0.99
	Incheon	728,042	982,665	1.35
	Gyeonggi Province	3,066,075	4,217,326	1.38
2010	Seoul Metropolitan Area	8,526,197	10,635,113	1.25
	Seoul	4,177,336	4,662,864	1.12
	Incheon	790,202	1,168,802	1.48
	Gyeonggi Province	3,558,659	4,803,447	1.35

Note: The number of trips is based on the actual number of trips occurred

Source: Metropolitan Transportation Authority, Joint Survey on the Trips Based on Origin and Destination (O/D) and Projections on Future Demands (2012)

2. Mode of Transportation

2.1. Trips made in Seoul

Total number of daily trips by all travel modes in Seoul in 2010 was 37,655,000 and the biggest increase (average annual increase of 2.84%) was observed in walking and bicycling trips

The total number of daily trips by all travel modes (incl. transfers) in Seoul in 2010 was 37,655,000, which was approximately a 17% (5,465,000 trips) increase from 1996. The most frequent trips were made on the subway (incl. transfers) at 11,289,000 trips/day, followed by bus trips (8,746,000 trips/

day), and private vehicle trips (7,502,000 trips/day). Walking and bicycling trips increased at an average annual rate of 2.84% from 1996 to 2010, while the average annual increase was 0.67% for private vehicle trips, 0.32% for bus trips and 2.33% for subway trips (incl. transfers). On the other hand, taxi, motorcycle, and other trips decreased by 1.84% and 0.72%, respectively.

Table 1-9 Number of trips by travel mode

Unit: trips/day, %

	1996	2002	2006	2010	Average annual fluctuations
Walking and bicycling	4,389,859	5,230,690	6,110,389	6,499,084	2.84%
Private vehicle	6,829,224	7,982,832	8,188,781	7,501,988	0.67%
Taxi	2,901,178	2,194,799	1,959,612	2,236,058	-1.84%
Bus	8,357,730	7,705,001	8,616,326	8,745,685	0.32%
Subway/Railway (excl. transfers)	5,084,989	6,026,878	6,298,380	6,848,620	2.15%
Subway/Railway (incl. transfers)	8,182,634	10,284,673	10,839,341	11,289,362	2.33%
Motorcycle and other	1,528,794	1,512,971	1,592,022	1,382,479	-0.72%
Total (excl. transfers)	29,091,774	30,653,171	32,765,510	33,213,914	0.95%
Total (incl. transfers)	32,189,419	34,910,966	37,306,471	37,654,656	1.13%

Note: "Other" includes motorcycles, freight trucks and special vehicles, etc. and excludes walking and bicycling, and the trips made in Seoul are trips made Seoul ↔ Seoul and Seoul ↔ outskirts
Source: Seoul Metropolitan Government, Household Travel Survey in Seoul (2002)
Metropolitan Transportation Authority, Household Travel Survey in Seoul Metropolitan Area (2006)
Metropolitan Transportation Authority, Joint Survey on the Trips Based on Origin and Destination (O/D) and Projections on Future Demands (2012)

As for the mode shares in Seoul, there is a rise in public transportation share and a drop in private vehicle and taxi shares

As for the mode shares, the public transportation share in Seoul rose 4.8%p from 59.5% in 1996 to 64.3% in 2010, taking into account subway transfers. In the case of the bus share, it decreased slightly by 2.0%p from 30.1% in 1996 to 28.1% in 2010. On the other hand, the subway · railway shares in Seoul increased significantly from 29.4% in 1996 to 36.2% in 2010. In contrast, the private vehicle, taxi and other mode shares have fallen gradually since 1996.

The number of public transportation trips in Seoul in 2010 was 20,035,000, a 21.1%p increase from 1996

A review of the changes in the number of bus trips in Seoul from 1996 to 2010 showed that it had decreased from 8,358,000 in 1996 to 7,705,000 in 2002 before climbing up again after 2006. As for the number of trips via the subway and railway, it steadily increased from 8,183,000 in 1996 to 11,289,000 in 2010.

Table 1-10 Number of trips by travel mode

Unit: 1,000 trips/day, (%)

	1996		2002		2006		2010	
	Number of trips	Mode share	Number of trips	Mode share	Number of trips	Mode share	Number of trips	Mode share
Private vehicle	6,829	(24.6)	7,983	(26.9)	8,189	(26.3)	7,502	(24.1)
Bus	8,358	(30.1)	7,705	(26.0)	8,616	(27.6)	8,746	(28.1)
Subway/Railway (incl. transfer)	8,183	(29.4)	10,285	(34.6)	10,839	(34.7)	11,289	(36.2)
Taxi	2,901	(10.4)	2,195	(7.4)	1,960	(6.3)	2,236	(7.2)
Other	1,529	(5.5)	1,513	(5.1)	1,592	(5.1)	1,382	(4.4)
Total	27,800	(100)	29,680	(100)	31,196	(100)	31,155	(100)

Note: "Other" includes motorcycles, freight trucks and special vehicles, etc. and excludes walking and bicycling, and the trips made in Seoul are trips made Seoul ↔ Seoul and Seoul ↔ outskirts
Source: Seoul Statistics (<http://stat.seoul.go.kr/>)

2.2. Trips made in the Seoul Metropolitan Area

Total number of daily trips by all travel modes in the Seoul Metropolitan Area in 2010 was 67,891,000 and the biggest increase (average annual increase of 3.69%) was observed in walking and bicycling trips

The total number of daily trips by all travel modes in Seoul Metropolitan Area in 2010 was 67,891,000, which was approximately a 34.6% (17,450,000 trips/day) increase compared to 1996. The most frequent trips were made via private vehicles at 18,291,000 trips/day, followed by bus trips (15,507,000 trips/day), walking and bicycling trips (14,994,000 trips/day) and subway trips (12,529,000 trips/day). Walking

and bicycling trips increased at an average annual rate of 3.69% from 1996 to 2010, while the average annual increase was 2.98% for private vehicle trips, 0.96% for bus trips and 2.77% for subway trips (incl. transfers). On the other hand, taxi, motorcycle, and other trips decreased by 0.71% and 0.48%, respectively.

Table 1-11 Number of trips by travel mode in the Seoul Metropolitan Area

Unit: trips/day, %

	1996	2002	2006	2010	Average annual fluctuations
Walking and bicycling	9,031,741	11,292,016	13,723,983	14,993,997	3.69%
Private vehicle	12,123,358	15,740,902	18,210,028	18,291,454	2.98%
Taxi	4,211,508	4,000,108	3,351,212	3,811,960	-0.71%
Bus	13,571,196	13,864,635	14,638,542	15,507,167	0.96%
Subway/Railway (excl. transfers)	5,372,989	6,723,636	7,015,608	7,836,173	2.73%
Subway/Railway (incl. transfers)	8,552,420	11,254,851	11,864,135	12,529,414	2.77%
Motorcycle and other	2,950,359	2,929,230	3,412,118	2,757,419	-0.48%
Total (excl. transfers)	47,261,151	54,550,527	60,351,491	63,198,170	2.10%
Total (incl. transfers)	50,440,582	59,081,742	65,200,018	67,891,411	2.14%

Source: Seoul Metropolitan Government, Household Travel Survey in Seoul (2002)
 Metropolitan Transportation Authority, Household Travel Survey in Seoul Metropolitan Area (2006)
 Metropolitan Transportation Authority, Joint Survey on the Trips Based on Origin and Destination (O/D) and Projections on Future Demands (2012)

The public transportation share in 2010 was 53.0%, a 0.5%p decrease from 1996

As for the mode shares, the public transportation share in the Seoul Metropolitan Area dropped 0.5%p from 53.5% in 1996 to 53.0% in 2010, considering subway transfers. In the case of the bus share, it decreased by 3.5%p from 32.8% in 1996 to 29.3% in 2010, while the subway · railway shares increased slightly (3.0%p) from 20.7% in 1996 to 23.7% in 2010. The number of private vehicle trips increased steadily from 29.3% in 1996 to 34.6% in 2010, and this mode of transportation accounted for the largest mode share in the Seoul Metropolitan Area.

The number of public transportation trips in 2010 was 28,037,000, a 26.7% increase from 1996

A review of the changes in the number of bus trips in the Seoul Metropolitan Area from 1996 to 2010 showed that it had increased by 1,936,000 from 13,571,000 in 1996 to 15,507,000 in 2010. As for the number of trips via the subway and railway, it increased by 3,977,000 from 8,552,000 in 1996 to 12,529,000 in 2010.

Table 1-12 Number of trips per day and mode shares in the Seoul Metropolitan Area

Unit: trips/day, (%)

	1996		2002		2006		2010	
	Number of trips	Mode share	Number of trips	Mode share	Number of trips	Mode share	Number of trips	Mode share
Private vehicle	12,123,358	(29.3)	15,740,902	(32.9)	18,210,028	(35.4)	18,291,454	(34.6)
Bus	13,571,196	(32.8)	13,864,635	(29.0)	14,638,542	(28.4)	15,507,163	(29.3)
Subway/Railway	8,552,420	(20.7)	11,254,851	(23.6)	11,864,135	(23.0)	12,529,415	(23.7)
Taxi	4,211,508	(10.2)	4,000,108	(8.4)	3,351,212	(6.5)	3,811,960	(7.2)
Other	2,950,359	(7.1)	2,929,230	(6.1)	3,412,118	(6.6)	2,757,422	(5.2)
Total	41,408,841	(100)	47,789,726	(100)	51,476,035	(100)	52,897,414	(100)

Note: Subway/Railway incl. transfers between different lines, "Other" includes motorcycles, freight trucks and special vehicles, etc. and excludes walking and bicycling, and number of trips include trips within and to-and-from Seoul

Source: Seoul Metropolitan Government, Household Travel Survey in Seoul (2002)

Metropolitan Transportation Authority, Household Travel Survey in Seoul Metropolitan Area (2006)

Metropolitan Transportation Authority, Joint Survey on the Trips Based on Origin and Destination (O/D) and Projections on Future Demands (2012)

II. Public Transportation

1. Subway

1.1. Overview

Daily subway service frequency on weekdays was 4,486 times (2012), and it increased dramatically with the opening of the Shinbundang Line

The daily service frequency of the subway on weekdays gradually decreased from 2003 until 2010 before increasing dramatically starting in 2011. The reason for the fall in the service frequency in 2008 was that Seoul Metro had increased the service intervals due to a drop in the transportation demand resulting from school breaks and as a means to save energy. With the opening of the Shinbundang Line on October 29, 2011, the absolute subway service frequency increased again.

Table 2-1 Subway

	Number of lines	Length of lines (km)	Number of stations	Service frequency on weekdays	Highest congestion level (%)
2003	8	287	263	4,256	168
2004	8	287	263	4,256	168
2005	8	287	265	4,262	171
2006	8	287	265	4,107	-
2007	8	287	265	4,107	171
2008	8	287	265	3,332	-
2009	8	290	268	3,281	165
2010	9	290	268	3,225	-
2011	9	290	268	3,985	164
2012	9	327	302	4,486	-

Note: When the number of passengers and the number of seats were equal, the congestion level was set to be 34%. Survey conducted every 2 years from 2005
Source: Seoul Statistics (<http://www.stats.seoul.go.kr/>)

1.2. Passengers

The number of transported subway passengers (boarding and transferring passengers) in Seoul was 2,518,165,000, which increased at an average annual rate of 2.1% since 2006

The total and daily average number of transported subway passengers in Seoul has been increasing annually. The total number of transported passengers increased by 248,755,000 from 2,269,410,000 in 2006 to 2,518,165,000 in 2011, while the number of daily average passengers was recorded to be 6,899,000.

The number of passengers transported on Line 2 in 2011 was 747,578,000, accounting for the highest proportion (29.7%) among the 9 lines

A review of the number of transported passengers for each subway line in Seoul showed that Line No. 2 transported the largest number of passengers, accounting for nearly 30% of the total passengers, followed by lines 3, 4, 5 and 7 (approx. 11 to 14%), lines 1 and 6 (approx. 6 to 7%) and lines 8 and 9 (approx. 3 to 4%).

Table 2-2 Number of transported passengers by subway line

Unit: 1,000 persons, (%)

	Total	Daily average	Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9
2006	2,269,410	6,218	169,903	699,222	257,544	304,327	300,028	158,188	297,896	82,302	-
	(100)	(0.27)	(7.49)	(30.81)	(11.35)	(13.41)	(13.22)	(6.97)	(13.13)	(3.63)	
2007	2,267,676	6,213	169,635	707,328	256,173	298,621	297,274	158,442	298,282	81,921	-
	(100)	(0.27)	(7.48)	(31.19)	(11.30)	(13.17)	(13.11)	(6.99)	(13.15)	(3.61)	
2008	2,293,848	6,267	168,097	727,057	256,548	295,222	298,451	162,045	302,946	83,482	-
	(100)	(0.27)	(7.33)	(31.70)	(11.18)	(12.87)	(13.01)	(7.06)	(13.21)	(3.64)	
2009	2,293,042	6,282	163,860	732,038	257,501	297,132	292,496	164,820	302,715	82,480	-
	(100)	(0.27)	(7.15)	(31.92)	(11.23)	(12.96)	(12.76)	(7.19)	(13.20)	(3.60)	
2010	2,446,519	6,703	164,409	731,848	275,467	303,625	296,458	177,622	315,541	84,404	97,145
	(100)	(0.27)	(6.72)	(29.91)	(11.26)	(12.41)	(12.12)	(7.26)	(12.90)	(3.45)	(3.97)
2011	2,518,165	6,899	170,110	747,578	282,998	308,843	301,380	182,791	328,845	86,052	109,568
	(100)	(0.27)	(6.76)	(29.69)	(11.24)	(12.26)	(11.97)	(7.26)	(13.06)	(3.42)	(4.35)

Note: Transported passengers (boarding+transferring passengers)
Source: Seoul Metropolitan Government, Seoul Statistics Yearbook, 2012

1.3. Congestion Level

The subway congestion level in Seoul in 2011 was 164%, with the highest congestion level observed on Line 2

As for the congestion level of the subway system in Seoul, it was set to be 34% when the number of passengers and the number of seats were equal, and determined every 2 years. In 2011, the average congestion level of the subway system in Seoul was calculated to be 164%. It began increasing in 2001 before dropping again in 2007. As of 2011, the lines found to be the most congested were Line 2, operated by Seoul Metro, which had a congestion level of 196%, and Line 7, operated by Seoul Metropolitan Rapid Transit Corporation, which had a congestion level of 182%.

Table 2-3 Congestion level on the subway

Unit: %

Year	Average congestion level	Seoul Metro				Seoul Metropolitan Rapid Transit Corporation			
		Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8
2001	162	133	220	136	195	158	107	192	151
2003	168	135	224	140	199	158	150	178	160
2005	171	135	225	142	196	162	169	179	158
2007	171	129	221	137	189	176	175	179	176
2009	165	122	202	122	172	168	177	179	176
2011	164	144	196	149	180	170	143	182	147

Note: When the number of passengers and the number of seats were equal, the congestion level was set to be 34%. Survey conducted every 2 years from 2005
Source: Seoul Statistics (<http://www.stat.seoul.go.kr/>)

1.4. Fare System

Seoul subway fare system: base fare of 1,050 KRW and distance-based rate system

The base subway fare had initially been 30 KRW in 1974 at the start of the subway operation. The base subway fare as of 2012 is 1,050 KRW, indicating a 35-fold increase over the course of 40 years. A review of the changes in the subway fare system in Seoul showed that the fare was adjusted arbitrarily and there were no specific standards in relation to the fare increases. At present, the subway fare system applied in Seoul is a distance-based rate system, where all sections of the railway system are considered unitary, and the integrated distance-based rate system is applied in the case of bus transfers.

Table 2-4 Changes in the subway fare system

Unit : KRW

		'74. Aug 15	'86. Dec 29	'90. Dec 31	'93. Feb 10	'94. Jan 15	'95. Nov 20	'97. Jul 4	'99. Jan 18	'00. Sep 1	'03. Mar 10	'04. Jul 1	'07. Apr 1	'12. Feb 25
	Base fare	30	200	250	300	350	400	450	500	600	700	800	900	1,050
General												Every 6km	Every 5km	Every 5km
	Add fare	3	300	50	400	450	500	550	600	700	800			
												100	100	100
Child (13 years old and under)											57% discount on the general fare			

Source: Seoul Statistics (<http://www.stat.seoul.go.kr/>)

Seoul Metro, 2013 Seoul Metro Transportation Plan, 2013

Seoul Metropolitan Rapid Transit Corporation, 2013 Seoul Metropolitan Rapid Transit Transportation Plan, 2013

2. Bus

2.1. Number of Routes and Vehicles

Seoul operated 361 bus routes and 7,522 buses in 2012

Following the reorganization of the bus operation system in July 2004, the number of routes and vehicles for each bus type changed drastically. For instance, the number of routes and vehicles for the arterial road bus (blue bus) lines decreased, while the number of routes and vehicles for the local road (green bus) lines increased. Compared to the year 2000, 34 fewer bus routes and 1,029 fewer buses are in operation in Seoul (361 bus routes and 7,522 buses in operation).

Table 2-5 Number of bus routes and vehicles

Unit: routes, vehicles

	Total		Arterial road buses (blue)		Local road buses (green)		Broad-area buses (red)		Circulation buses (yellow)	
	Routes	Vehicles	Routes	Vehicles	Routes	Vehicles	Routes	Vehicles	Routes	Vehicles
2000	395	8,551	260	6,593	68	1,356	6	72	61	530
2001	376	8,249	252	6,582	49	1,031	8	103	67	533
2002	367	8,134	252	6,564	41	919	10	127	64	524
2003	365	8,110	255	6,653	36	787	10	130	64	540
2004	457	8,307	96	2,997	318	4,554	38	722	5	34
2005	402	7,792	104	3,246	267	3,986	26	532	5	28
2006	395	7,766	106	3,369	263	3,946	22	430	4	21
2007	390	7,748	106	3,416	258	3,882	21	425	5	25
2008	381	7,736	112	3,503	245	3,803	19	396	5	34
2009	375	7,598	114	3,603	238	3,608	17	353	6	34
2010	369	7,548	119	3,699	231	3,538	13	277	6	34
2011	363	7,534	118	3,700	226	3,529	13	271	6	34
2012	361	7,522	119	3,701	223	3,518	13	269	6	34

Note: The number of vehicles indicate the total number of vehicles approved by Seoul Metropolitan Government
Source: Seoul Statistics (<http://www.stat.seoul.go.kr/>)

2.2. Passengers

The number of transported bus passengers in Seoul in 2011 was 1,684,312,000, which was an increase from 2005

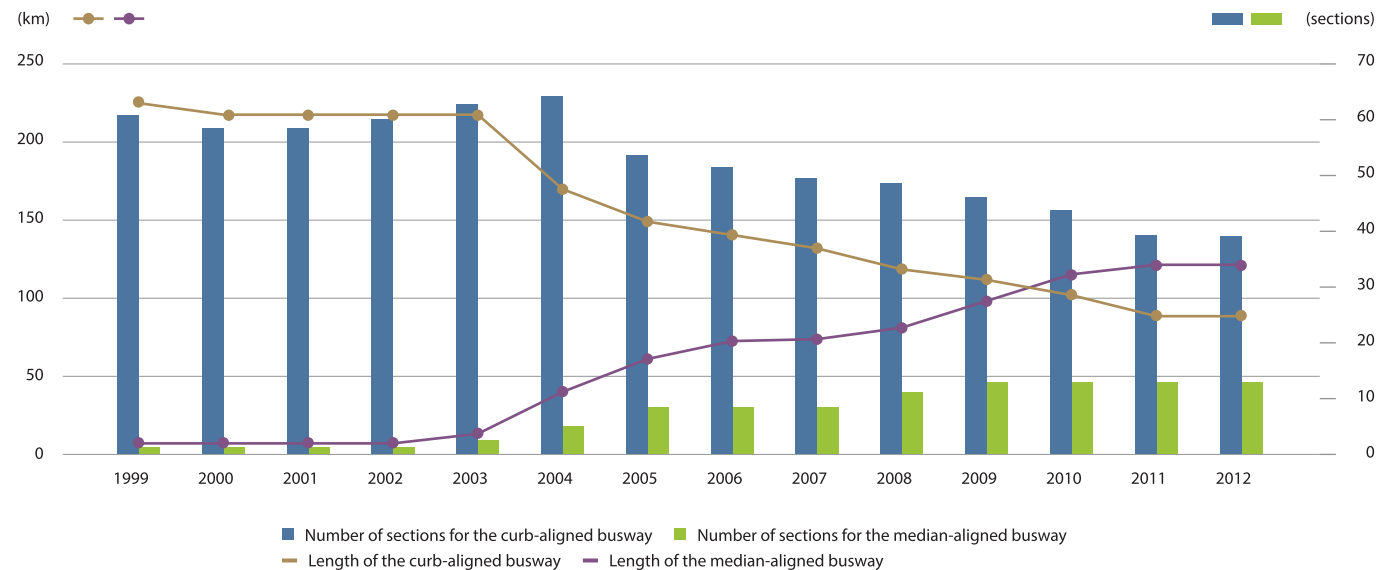
The number of passengers transported by the intra-city buses of Seoul decreased from 1,772,859,000 in 1996 to 1,772,859,000 in 2004 before soaring to 1,631,004,000 in 2005. The reorganization of the bus system in Seoul in 2004 is speculated to have had an impact on this trend. The number of passengers transported by the intra-city buses of Seoul in 2011 was 1,684,313,000, which accounted for 30.4% of the total number of transported bus passengers in the nation.

2.3. Busway Alignment

Increased number of median-aligned busway dedicated to improve system quality in Seoul (13 sections with a distance of 122.1km in 2012)

Since the designation of the median-aligned busway on Cheonho-daero, there have been a total of 13 sections designated as median-aligned busway (as of 2012). With the simultaneous launch of the three bus routes along the median-aligned busway in 2004, the number of sections and extensions of the curb-aligned busway declined. In 2012 in Seoul, there were 40 sections of curb-aligned busway near the roadsides that extended 88.3km in distance and 13 sections of median-aligned busway that extended 122.1km.

Fig. 2-1 Length of the bus lanes



Note: The right auxiliary axis unit used for the number of bus lane sections
Source: Seoul Statistics (<http://www.stat.seoul.go.kr/>)

2.4. Low-floor Buses

As of 2012, there are 2,018 low-floor buses in Seoul, with a goal to increase it to 3,685 by 2015

The "vulnerable transportation users" refer to those who face challenges in using the various modes of transportation and they include the disabled and the elderly. As part of an effort to ensure their mobility right, low-floor buses were officially introduced in 2004 following a pilot operation in 2003. The low-floor bus services contributed to the improved convenience in movement for not only the vulnerable transportation users but also the general public. In 2012, there were 2,018 low-floor buses in operation. There are plans to introduce an additional 1,667 low-floor buses by 2015 with a goal to increase its proportion up to 50% of the total buses in operation, and to provide more low-floor bus service information via the websites of welfare facilities and organizations assisting the disabled and the elderly population.

Table 2-6 Low-floor buses

Unit: vehicles

	Number of vehicles introduced	Cumulative number of vehicles introduced
2003	2	2
2004	66	68
2005	51	119
2006	230	349
2007	127	476
2008	265	741
2009	484	1,225
2010	329	1,554
2011	203	1,757
2012	261	2,018
2013 (Plan)	522	2,540
2014 (Plan)	573	3,113
2015 (Plan)	572	3,685

Source: Seoul of Hope Living Index (<http://www.socialindex.seoul.go.kr/>)

2.5. CNG Buses

The natural gas bus penetration rate in Seoul is 100% (7,896 vehicles)

As part of the low-pollution project involving intra-city buses, with high service frequency in metropolitan cities, the Ministry of Environment took the initiatives to distribute buses running on compressed natural gas (CNG) starting in September 1999. The penetration rate of CNG buses increased every year starting from 0.5% in 2000, and reached 100% by 2012 with all 7,896 buses replaced with CNG buses.

Table 2-7 CNG buses

Unit: vehicles, %

	Total number of buses	CNG buses	Number of CNG buses introduced	Penetration rate of CNG buses
2000	8,551	43	43	0.5
2001	8,249	367	324	4.4
2002	8,134	929	562	11.4
2003	8,110	1247	318	15.4
2004	8,307	1998	751	24.1
2005	7,792	2384	386	30.6
2006	7,766	3334	950	42.9
2007	7,748	4850	1181	62.6
2008	7,740	5414	922	69.9
2009	7,746	6759	1345	87.3
2010	7,522	7419	758	98.6
2011	7,534	7464	45	99.1
2012	7,896	7,896	432	100.0

Source: Seoul Statistics (<http://www.stat.seoul.go.kr/>)

III. Sustainable Transportation

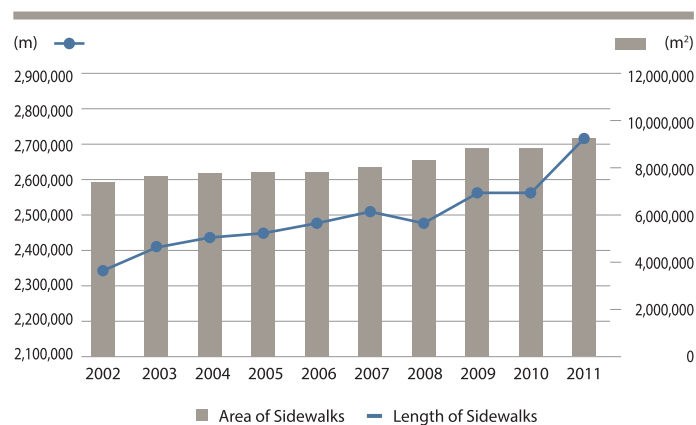
1. Walking

1.1. Length and Area of Sidewalks

The sidewalks in Seoul extended 2,789km in distance and were 10,249,537m² in area in 2011

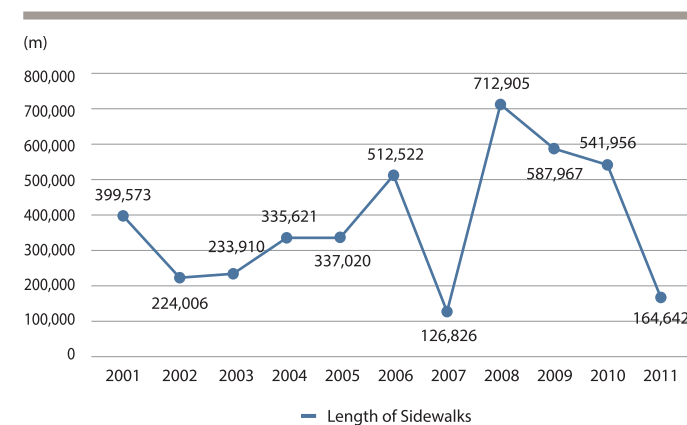
The sidewalks (i.e. pedestrian paths) in Seoul in 2011 extended 2,788,619m in distance, which was 413,860m longer than in 2002, and they were 10,249,537m² in total area, which was 2,087,520m² larger than in 2002. There was a significant decline in sidewalk construction starting in 2000. Sidewalk construction work increased substantially with a large-scale sidewalk improvement project implemented in 2008, but it has been gradually declining ever since.

Fig. 3-1 Sidewalk length and area



Source: Internal data of Seoul Metropolitan Government

Fig. 3-2 Sidewalk area by construction year



Source: Internal data of Seoul Metropolitan Government

Table 3-1 Sidewalk length and area

Unit: m, m²

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Average annual increase rate
Length	2,374,759	2,445,977	2,474,215	2,488,494	2,509,743	2,557,277	2,506,588	2,609,103	2,609,103	2,788,619	1.80%
Area	8,162,017	8,459,892	8,517,595	8,549,779	8,590,409	8,866,726	9,184,148	9,619,433	9,619,433	10,249,537	2.56%

Source: Internal data of Seoul Metropolitan Government

Table 3-2 Sidewalk status by construction year

Unit: m, m²

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Length	98,918	58,190	58,333	93,220	82,899	118,058	33,997	160,084	133,446	121,887	42,809
Area	399,573	224,006	233,910	335,621	337,020	512,522	126,826	712,905	587,967	541,956	164,642

Source: Internal data of Seoul Metropolitan Government

1.2. Road Crossing Facilities

A total of 28,004 crosswalks, with 3.51 crosswalks for every kilometer of general road

As of 2011, there are 28,004 crosswalks and 3.51 crosswalks for every kilometer of general road with an estimated interval of 285m between the crosswalks in Seoul.

Table 3-3 Crosswalks

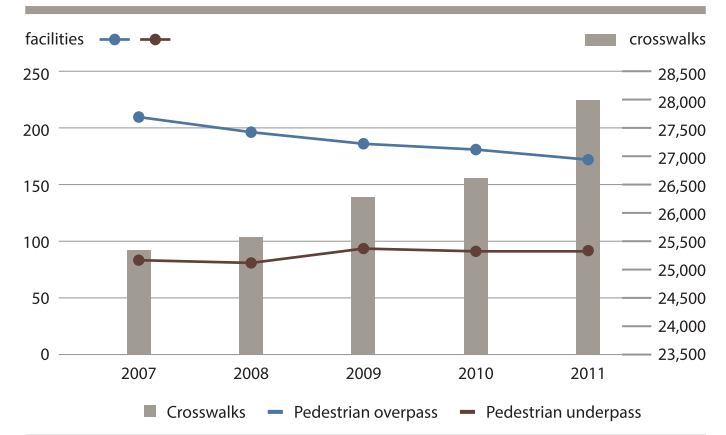
Year	Number of crosswalks	Number of crosswalks per km of general road
2007	25,275	3.20
2008	25,590	3.23
2009	26,273	3.31
2010	26,695	3.35
2011	28,004	3.51

Source: Seoul Statistics (<http://www.stat.seoul.go.kr/>)

169 pedestrian overpasses and 88 pedestrian underpasses in Seoul as of 2011

As of 2011, there are 169 pedestrian overpasses and 88 pedestrian underpasses in Seoul. The length of pedestrian overpasses has been decreasing at an average annual rate of 1.95% since 2007, while the length of pedestrian underpasses has been increasing at an average annual rate of 1.97%.

Fig. 3-3 Number of road crossing facilities



Note: The right auxiliary axis unit used for the number of crosswalks
Source: Seoul Statistics (<http://www.stat.seoul.go.kr/>)

Table 3-4 Road crossing facilities

Year	Pedestrian overpass			Pedestrian underpass		
	Number of locations	Length (m)	Area (m ²)	Number of locations	Length (m)	Area (m ²)
2007	206	7,963.8	50,797.9	81	4,608.0	46,714.7
2008	198	7,703.2	49,863.8	79	4,540.2	46,088.9
2009	187	7,675.0	48,418.0	91	4,930.0	47,062.0
2010	180	7,612.0	47,161.0	87	4,822.0	47,655.0
2011	169	7,360.0	45,266.0	88	4,982.0	47,890.0
Average annual fluctuations	-4.83%	-1.95%	-2.84%	2.09%	1.97%	0.62%

Source: Seoul Metropolitan Government, Seoul Statistics Yearbook, 2012

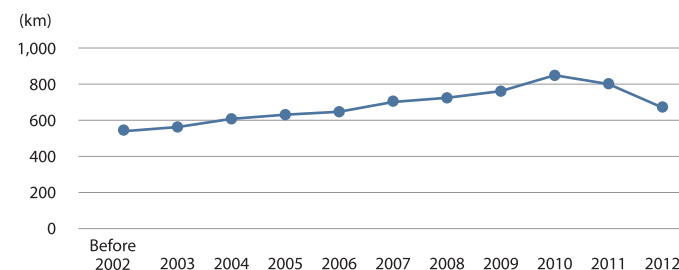
2. Bicycling

2.1. Bicycle Paths and Facilities

As of 2012, the bicycle paths extend 674km in distance and there are 121,092 bicycle racks

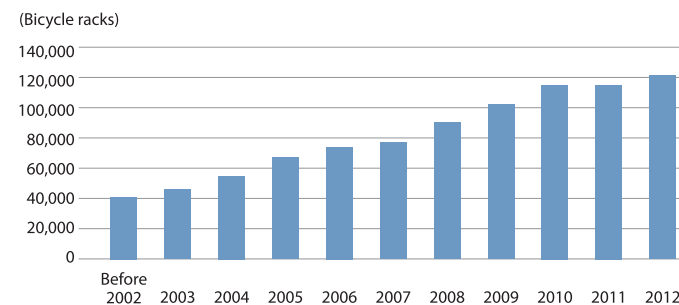
The total distance of bicycle paths in Seoul has been increasing gradually to 674km as of 2012, while the total number of bicycle racks was reported to be 121,092, which was a 192% (79,581) increase from 41,511 racks in 2002. Compared to the year 2010, the distance of the bicycle paths decreased by 40.5km in 2011 as a result of the Hangang Bicycle Path Removal and Improvement Project, Road Renaissance Project, and Pedestrian and Bicycle Path Improvement Project. Also, there was a problem of redundancy in the previous calculation method; to be more specific, some of the autonomous -gu offices took into account the single-lane, bi-directional bicycle paths twice when calculating the distances of the bicycle paths, and the standards for the statistical data differed among the autonomous -gu offices. Thus, the total distance of the bicycle paths decreased once the standards for the statistical data were established to eliminate redundant data.

Fig. 3-4 Length of bicycle paths



Source: Internal data of Seoul Metropolitan Government

Fig. 3-5 Number of bicycle racks



Source: Internal data of Seoul Metropolitan Government

Table 3-5 Length of bicycle paths and number of bicycle racks

	Before 2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Bicycle paths (km)	554	586	616	629	649	715	729	766	845	804	674
Bicycle racks	41,511	46,313	55,193	67,014	74,967	77,515	90,786	102,702	114,943	114,943	121,092

Source: Seoul Metropolitan Government, Seoul Statistics Yearbook, 2012

9 -gu offices operate a bicycle parking lot each (total area: 2,411m² and 2,190 parking spaces)

As of 2012, the 9 autonomous -gu offices of Seoul operate a bicycle parking lot each and there is enough space to park a total of 2,190 bicycles.

2.2. Bicycle Path to Road Ratio

The bicycle path to road ratio for Seoul is 8.2% (as of 2012)

The bicycle path to road ratio refers to the ratio of the total length of bicycle paths to the total length of roads in a given

city. Bicycle paths provide convenience for bicycle users and contribute to the creation of an eco-friendly urban environment. The bicycle path to road ratio for Seoul as of 2012 is 8.2%.

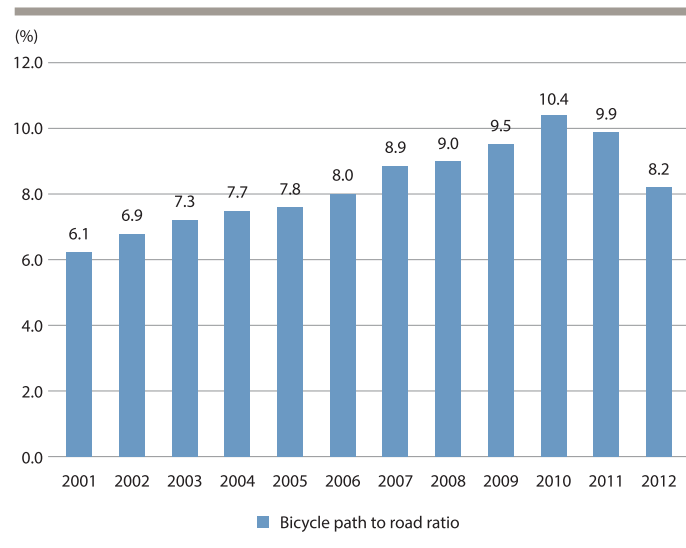
Table 3-6 Bicycle parking lots

Unit: routes, vehicles

Gu office	Location	Number of parking spaces	Effective date	Area (m ²)	Facility type
Guro-gu	East side of Sindorim Station	430	2008.12	260.0	Self-parking (2-level)
Yeongdeungpo-gu	Yeongdeungpo-gu Office site	80	2008. 5	80.0	Unmanned, automated arrangement
Gangbuk-gu	Gangbuk-gu Suyu 3-dong	750	2009.12	862.0	Self-parking
Yeongdeungpo-gu	East side of Yeongdeungpo Station	162	2010.1	17.5	Lift, rotary type 9-level parking
Guro-gu	North side of Gaebong Station	130	2010.12	181.8	Self-parking
Yangcheon-gu	Near Sinmokdong Station	230	2010.12	408.1	Self-parking (2-level)
Eunpyeong-gu	Eungam Station	166	2012. 1	355	Self-parking (2-level)
Dongjak-gu	Sindaebang Station	112	2012. 4	112	Self-parking (2-level)
Gwanak-gu	West side of Sillim Station	130	2012.1	134.4	Self-parking (2-level)

Source: Internal data of Seoul Metropolitan Government

Fig. 3-6 Bicycle path to road ratio



Source: Internal data of Seoul Metropolitan Government

Table 3-7 Bicycle path to road ratio

Unit: km, %

Year	Length of bicycle paths	Length of roads	Bicycle path to road ratio
2001	482	7,935	6.1
2002	554	7,973	6.9
2003	586	7,988	7.3
2004	616	8,011	7.7
2005	629	8,046	7.8
2006	649	8,067	8.0
2007	715	8,078	8.9
2008	729	8,093	9.0
2009	766	8,102	9.5
2010	845	8,142	10.4
2011	804	8,148	9.9
2012	674	8,174	8.2

Source: Internal data of Seoul Metropolitan Government

Table 3-8 Bicycle path construction

Unit: sections, km

		Section	Length	Note
Total		290	674.4	-
Roadside	Subtotal	254	429.9	-
	Exclusive bicycle paths	-	62.1	-
	Exclusive bicycle lanes	-	55.8	-
	Bicycle and pedestrian paths	-	312	-
	Subtotal	36	244.5	-
Other	Hangang, rivers	31	232	Hangang Project Div., River Management Division, etc.
	Parks	2	8.8	Green City Project Office, etc.
	Bridges	3	3.7	Road Project Office: Bridge Management Div., etc.

Source: Internal data of Seoul Metropolitan Government

IV. Private Transportation

1. Passenger Car

1.1. Number of Vehicles

The number of registered vehicles in Seoul has been declining and was 2,969,000 in 2012

The number of registered motor vehicles (excl. two-wheeled vehicles) in Seoul was 2,969,000 in 2012. It steadily increased between 2003 and 2010, but began to fall in 2011. While the number of registered passenger cars and two-wheeled vehicles has been increasing annually, the number of registered vans and trucks has been decreasing annually.

1.2. Trips and Mode Share

The average cost per liter for regular gasoline in Seoul increased steadily to 2,059 by 2012, while the number of trips for passenger cars decreased

The average cost of regular gasoline (per liter) in Seoul in 2012 was 2,058.96 KRW, which was a 145% increase from 839.17 KRW in 1997. The number of passenger car trips based in Seoul was 7,502,000 in 2012, which was a 9.85% increase from 1996, but this figure has been declining since 2006. Furthermore, the passenger car share concerning Seoul has been steadily decreasing (24.08% in 2010).

Table 4-1 Number of vehicles by purpose of use

Unit: vehicles

Year	Seoul				Passenger car	Van	Truck	Special vehicle	Two-wheeled vehicle
	Total	Official use	Private use	Business use					
2003	2,776,536	10,319	2,599,637	166,580	2,143,502	231,414	399,117	2,503	374,909
2004	2,779,841	10,441	2,596,891	172,509	2,162,256	219,509	395,441	2,635	379,608
2005	2,808,771	10,510	2,618,332	179,929	2,209,526	204,138	392,196	2,911	382,121
2006	2,856,857	10,484	2,653,944	192,429	2,266,106	198,696	388,988	3,067	389,683
2007	2,933,286	10,485	2,713,852	208,949	2,347,758	195,302	386,876	3,350	401,667
2008	2,949,211	10,418	2,721,761	217,032	2,375,173	191,335	379,247	3,456	408,082
2009	2,954,704	10,520	2,730,327	213,857	2,394,901	185,343	370,894	3,566	410,209
2010	2,981,400	10,499	2,751,620	219,281	2,434,230	176,999	366,306	3,865	410,615
2011	2,977,599	10,815	2,756,126	210,658	2,443,261	169,922	360,103	4,313	410,090
2012	2,969,184	10,858	2,759,567	198,759	2,447,876	162,723	353,905	4,680	444,693

Total: Two-wheeled motor vehicles are not included in the total.
Source: Seoul Statistics (<http://www.stats.seoul.go.kr/>)

Fig. 4-1 Fuel costs

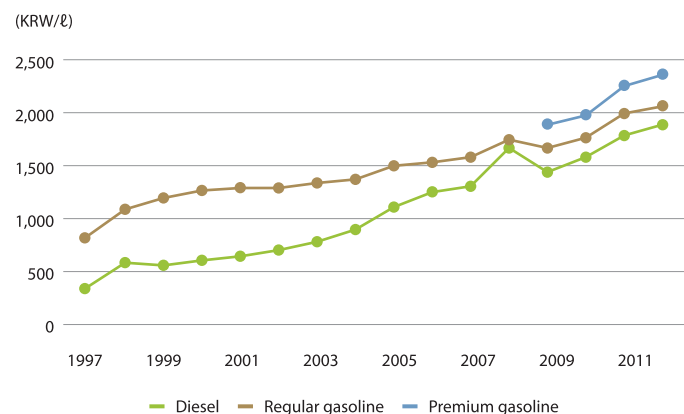
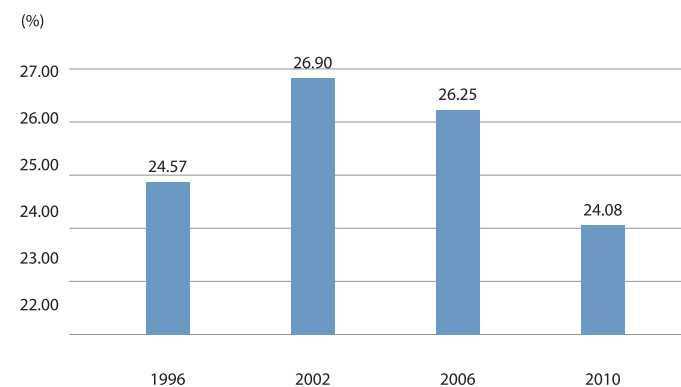
Source: website of Korea National Oil Corp. (<http://www.opinet.co.kr/>)

Fig. 4-2 Passenger car share by mode



Source: Internal data of the Seoul Institute

Table 4-2 Fuel costs

Unit: KRW/ℓ

	1998	2000	2002	2004	2006	2008	2010'	2011	2012
Premium gasoline	-	-	-	-	-	-	1,982.58	2,230.16	2,340.38
Regular gasoline	1,122.82	1,261.61	1,304.23	1,406.96	1,538.67	1,751.86	1,775.73	1,995.59	2,058.96
Diesel	550.78	625.17	716.81	956.72	1,285.09	1,670.07	1,582.10	1,826.82	1,890.63

Source: website of Korea National Oil Corp. (<http://www.opinet.co.kr/>)

Table 4-3 Passenger car trips and mode shares

Unit: trips/day, (%)

	1996		2002		2006		2010	
	Number of trips	Mode share	Number of trips	Mode share	Number of trips	Mode share	Number of trips	Mode share
Total	6,829,224	(24.57)	7,982,832	(26.90)	8,188,781	(26.25)	7,501,988	(24.08)
Seoul ↔ Seoul	4,656,268	(21.55)	5,032,507	(24.06)	4,838,925	(21.74)	4,491,365	(19.93)
Seoul ↔ Outskirts	2,172,956	(35.11)	2,950,325	(33.66)	3,349,856	(37.47)	3,010,623	(34.91)

Note: Incl. subway transfers and excl. walking and bicycling
Source: Internal data of the Seoul Institute

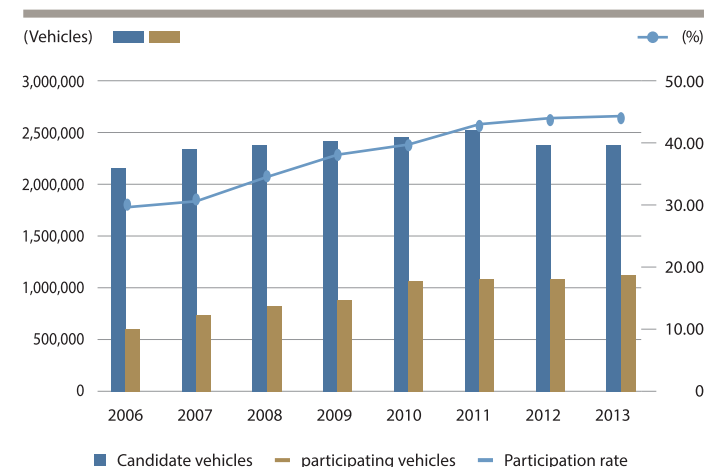
1.3. Transportation Demand Management

1,086,000 passenger cars (44.4%) participating in the weekly no-driving day program

Under the weekly no-driving day program, the operators of ten-seaters and smaller cars used for non-business purposes must select a weekday on which they will voluntarily not use their vehicles.

The number of passenger cars subject to the program including company cars has been increasing steadily since 2006 to 1,086. Participation rate has been recorded to be 44.4%.

Fig. 4-3 Weekly no-driving day program participation



Source: Internal data of Seoul Metropolitan Government

Table 4-4 Participation in the weekly no-driving day program

Unit: vehicles, %

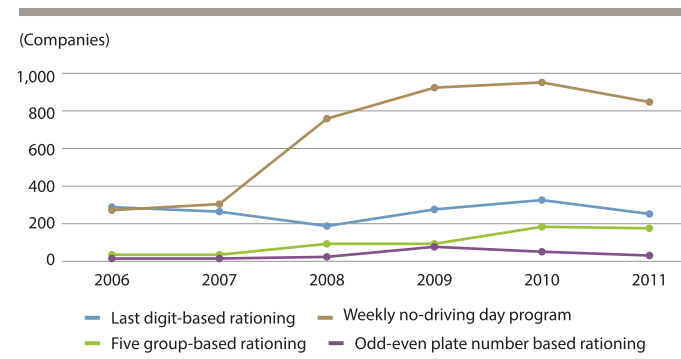
	2006	2007	2008	2009	2010	2011	2012	2013
Target vehicles	2,140,554	2,365,379	2,397,413	2,421,421	2,490,712	2,515,404	2,442,353	2,442,285
Participating vehicles	653,236	748,890	837,349	943,329	1,023,811	1,078,042	1,080,793	1,085,503
Participation rate	30.50%	31.60%	34.90%	38.90%	41.20%	42.90%	44.30%	44.40%

Source: Internal data of Seoul Metropolitan Government

Corporate participation is the highest in the weekly no-driving day program out of all the transportation demand management programs

Corporate transportation demand management programs are implemented as a part of the traffic demand management (TDM) system with the aim to discourage any unnecessary use of passenger cars and to encourage the use of public transportation. Incentives are provided to companies taking part in TDM in the form of reduced charges imposed for inducing traffic. Of the corporation transportation demand management programs, the highest participation rate has been observed in the weekly no driving day program, with 847 participating enterprises as of 2011.

Fig. 4-4 Corporate participation in transportation demand management programs



Source: Internal data of Seoul Metropolitan Government

Table 4-5 Corporate participation in the transportation demand management programs

Unit: companies

	Last digit-based rationing	Weekly no driving day program	Five group-based rationing	Odd-even plate number based rationing
2006	282	271	21	6
2007	253	300	23	8
2008	191	766	105	14
2009	260	925	111	103
2010	331	946	199	54
2011	250	847	189	29

Source: Internal data of Seoul Metropolitan Government

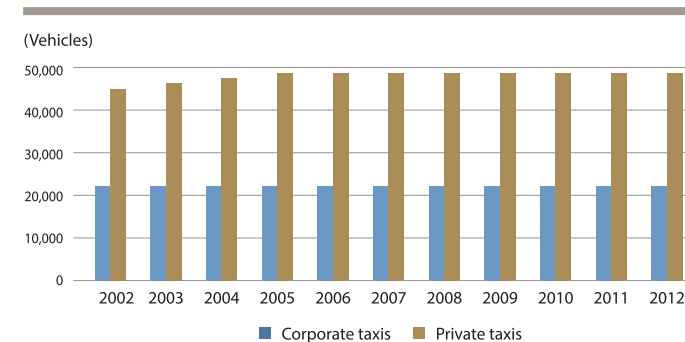
2. Taxi

2.1. Number of Taxis

The number of taxis (22,824 corporate-operated taxis and 49,424 privately operated taxis in 2012) in Seoul has been decreased since 2007

The number of taxis in Seoul has increased at an average annual rate of 0.32% (2,200 vehicles) from 70,002 in 2002 to 72,248 in 2012. The ratio of corporate taxis to private taxis was 32:68.

Fig. 4-5 Changes in the number of taxis



Source: Internal data of Seoul Metropolitan Government

Table 4-6 Number of taxis

Unit: vehicles, (%)

	Total	Corporate taxis		Private taxis	
		Number of corporate taxis	Percentage of the total taxis	Number of private taxis	Percentage of the total taxis
2002	70,002	23,130	(33.0)	46,872	(67.0)
2003	70,903	23,130	(32.6)	47,773	(67.4)
2004	71,775	23,071	(32.1)	48,704	(67.9)
2005	72,500	22,949	(31.7)	49,551	(68.3)
2006	72,500	22,949	(31.7)	49,551	(68.3)
2007	72,453	22,854	(31.5)	49,599	(68.5)
2008	72,363	22,806	(31.5)	49,557	(68.5)
2009	72,366	22,843	(31.6)	49,523	(68.4)
2010	72,355	22,851	(31.6)	49,504	(68.4)
2011	72,280	22,831	(31.6)	49,449	(68.4)
2012	72,248	22,824	(31.6)	49,424	(68.4)

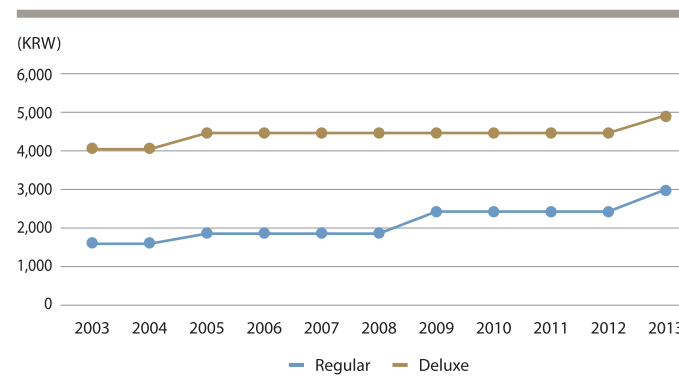
Source: Internal data of Seoul Metropolitan Government

2.2. Fare System

Base fare was 3,000 KRW for regular taxis (less than 2km) and 5,000 KRW for deluxe taxis (less than 2km)

The base fare was 3,000 KRW for regular taxis and 5,000 KRW for deluxe taxis in Seoul in 2013, and this was an increase of 1,400 KRW and 1,000 KRW since 2003, respectively. The base fare for taxis remained at 2,400 KRW for 4 years from 2009, but was increased to 3,000 KRW as of October 12, 2013. The additional charging rate was adjusted from 100KRW/144m to 100KRW/142m.

Fig. 4-6 Changes the base taxi fares



Source: Seoul Statistics (<http://www.stat.seoul.go.kr/>)

Table 4-7 Changes in the base taxi fares

Year	Taxi	
	Regular	Deluxe
2003	1,600	4,000
2004	1,600	4,000
2005	1,900	4,500
2006	1,900	4,500
2007	1,900	4,500
2008	1,900	4,500
2009	2,400	4,500
2010	2,400	4,500
2011	2,400	4,500
2012	2,400	4,500
2013	3,000	5,000

Note: The base fare pays for a trip of less than 2km for regular taxis and a trip of less than 3km for deluxe taxis

Source: Seoul Statistics (<http://www.stat.seoul.go.kr/>)

V. Others

1. Roads

1.1. Overview

The roads are 8,174km in total length and 83.28km² in total area and the road ratio is 22.24%

The roads in Seoul have increased slightly since 2004 to 8,174km in total length and 83.28km² in total area as of 2012. An "urbanized area" is represented as a sum of the areas of residential, commercial, and industrial zones, and the road ratio calculated by dividing the area of roads by the urbanized area increased 0.41% annually on average starting in 2004 to 22.2% by 2012.

Table 5-1 Road overview

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Road ratio (%)	21.53	21.68	21.78	21.83	21.89	21.96	22.02	22.06	22.24
Road length (km)	8,011	8,046	8,067	8,078	8,093	8,102	8,142	8,148	8,174
City expressway (km)	183.9	183.9	183.9	183.9	183.9	183.9	183.9	183.9	183.9
Road area (km ²)	80.64	81.22	81.57	81.75	82.02	82.25	82.47	82.62	83.28
Pavement ratio (%)	99.94	99.94	99.99	99.99	100	100	100	100	100
Number of Hangang bridges/ lanes	20/128	20/130	20/130	20/130	20/130	20/130	20/130	20/130	20/130

Note: Road ratio = Road area / Urbanization area * 100
Source: Internal data of Seoul Metropolitan Government

1.2. Length and Area

26,500m of expressways, 168,880m of general national roads and 7,952,149m of city roads in Seoul as of 2012

A review of the changes in the length of the roads by road type from 2006 to 2012 showed that there were no changes in the length of the expressways and general national roads, which were 26,550m and 168,880m respectively, while the length of the city roads increased by 25,930m from 7,871,771m in 2006 to 7,978,079m in 2012.

Table 5-2 Length and area by road type

Unit: m, m²

Year	Road							
	Total		Expressway		General national road		City road	
	Length	Area	Length	Area	Length	Area	Length	Area
2006	8,067,201	81,565,711	26,550	872,456	168,880	6,219,938	7,871,771	74,473,317
2007	8,078,293	81,752,016	26,550	872,456	168,880	6,219,938	7,882,863	74,659,622
2008	8,092,960	82,023,171	26,550	872,456	168,880	6,219,938	7,897,530	74,930,777
2009	8,101,593	83,150,027	26,550	872,456	168,880	6,219,938	7,906,163	76,057,633
2010	8,142,122	82,474,728	26,550	872,456	168,880	6,219,938	7,946,692	75,382,334
2011	8,147,579	82,623,846	26,550	872,456	168,880	6,219,938	7,952,149	75,531,452
2012	8,173,509	83,283,652	26,550	872,456	168,880	6,219,938	7,978,079	76,191,258

Note: The roads are classified according to management authority.
Source: Seoul Metropolitan Government, Seoul Statistics Yearbook, 2012

2. Energy and Environment

2.1. Energy Consumption

30.8% of the energy consumption in Seoul in 2010 occurred in the transportation sector

In Seoul in 2010, the transportation sector accounted for 30.8% of the total energy consumption at 4,846,000 TOE. The energy consumption level of the transportation level, which had been showing a steady increase annually, dropped slightly in 2010, but it still accounts for a large portion of the total energy consumption.

Table 5-3 Energy consumption

Unit: 1,000 TOE, (%)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average annual fluctuations
Industry	2,283	1,467	1,366	1,586	1,527	1,512	1,551	1,380	1,044	1,023	-8.53%
	(14.82)	(9.78)	(9.24)	(10.53)	(10.06)	(9.70)	(9.69)	(8.91)	(6.95)	(6.51)	-
Household/ Commercial	8,114	8,264	8,350	8,385	8,777	8,847	8,829	8,493	8,380	9,153	1.35%
	(52.68)	(55.07)	(56.51)	(55.67)	(57.81)	(56.77)	(55.15)	(54.86)	(55.76)	(58.23)	-
Transportation	4,547	4,802	4,612	4,625	4,292	4,674	4,870	4,942	4,857	4,846	0.71%
	(29.52)	(32.00)	(31.21)	(30.71)	(28.27)	(29.99)	(30.42)	(31.92)	(32.32)	(30.83)	-
Public/Other	457	473	448	466	587	552	758	666	747	696	4.79%
	(2.97)	(3.15)	(3.03)	(3.09)	(3.87)	(3.54)	(4.74)	(4.30)	(4.97)	(4.43)	-
Total	15,401	15,006	14,776	15,062	15,183	15,585	16,008	15,481	15,028	15,718	0.23%
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	-

Note: Application of the converted calorie coefficient after the 2007 revision, excl. international bunkering for energy balances
Source: Korea Energy Economics Institute (2011), Regional Energy Statistics Yearbook (2012)

2.2. GHG Emissions

GHG emissions in the transportation sector in Seoul recorded to be 10,185,000 tCO₂ eq in 2010

The greenhouse gas (GHG) emissions in the transportation sector account for the largest proportion of the total GHG emissions in Seoul, and it increased by 0.76% (1,371,000 tCO₂eq) annually on average from 8.814,000 tCO₂eq in 1990 to 10,185,000 in 2010.

Table 5-4 GHG emissions

Unit: 1,000 tCO₂eq

	1990	1995	2000	2005	2006	2007	2008	2009	2010	Average annual fluctuations
Total	44,983	49,655	48,336	49,467	48,961	50,472	50,383	49,111	49,751	0.53%
Subtotal	38,534	38,424	32,346	29,719	28,699	29,028	28,157	26,273	26,102	-2.03%
Energy industry	1,518	1,535	1,526	1,414	1,432	1,513	1,272	1,095	1,492	-0.09%
Manufacturing and construction industries	2,289	2,581	995	1,491	1,453	1,401	1,368	431	386	-8.94%
Transportation	8,814	11,316	11,679	10,673	10,634	10,826	10,785	10,636	10,185	0.76%
Household	21,842	6,165	8,493	8,306	7,777	7,142	6,987	6,764	7,016	-5.80%
Commercial		10,062	5,332	4,538	4,283	4,558	4,250	4,056	4,464	-
Public		405	284	309	382	200	351	352	169	-4.50%
Agriculture, forestry and fishery	917	2,838	905	14	138	316	257	183	150	-9.09%
Fugitive emissions	12	59	100	118	114	115	115	114	122	12.98%
Industrial processing and production	-	85	714	1,229	1,142	1,372	1,403	1,415	1,541	-
Farmland, forest and other land uses	-733	122	-61	73	58	-7	57	-43	-658	-0.57%
Waste	3,470	3,377	2,354	1,481	1,468	1,429	1,312	1,270	1,235	-5.29%
Subtotal	6,450	11,232	15,990	19,748	20,263	21,442	22,224	22,837	23,648	7.08%
Electric power	6,232	9,528	13,226	17,304	17,957	19,198	20,067	20,724	21,610	6.76%
Heat	218	125	348	263	257	294	307	364	377	2.92%

Note: The fugitive emissions in the energy sector are calculated based on the amount of GHG emissions missing during the process of producing, storing, processing, transporting and using fuels
Source: Seoul Metropolitan Government (2011), Energy White Book (2012)

3. Road Traffic Safety

3.1. Traffic Accidents

1,677 traffic accidents per 100,000 people and 491 traffic accidents per 10,000 vehicles (2011)

The number of traffic accidents per 100,000 people in Seoul decreased by 12.7% (244 cases) from 1,921 in 2009 to 1,677 in 2011. The number of traffic accidents per 10,000 vehicles in Seoul decreased by 13.2% (75 cases) from 566 in 2009 to 491 in 2011.

2,463 injured people per 100,000 people and 721 injured people per 10,000 vehicles (2011)

The number of injured people per 100,000 people in Seoul decreased by 8.6% (232 people) from 2,695 in 2009 to 2,463 in 2011. The number of injured people per 10,000 vehicles decreased by 9.2% (73 people) from 793 in 2009 to 721 in 2011.

Table 5-5 Number of traffic accidents and injured people

Unit: accidents, people

	Accidents			Fatalities	Injured people		
	Subtotal	Per 100,000 people	Per 10,000 vehicles		Subtotal	Per 100,000 people	Per 10,000 vehicles
2009	192,789	1,920.9	565.6	501	270,449	2,694.7	793.4
2010	186,513	1,857.9	542.8	429	267,614	2,665.8	778.9
2011	168,353	1,677.0	490.8	435	247,204	2,462.5	720.6

Note: Used the estimated population data of Statistics Korea

Source: Road Traffic Authority (KoROAD), statistics on the regional traffic accidents (<http://www.taas.koroad.or.kr/>)

3.2. Pedestrian Accidents

246 pedestrian deaths in 2011 and half of the fatalities resulted while crossing the road

Total pedestrian fatalities in Seoul increased by 12.3% (27 deaths) from 2007 to 2011. The most common cause of pedestrian fatalities in 2011 was an accident occurring while the pedestrian was crossing the road, and this accounted for 56.5% of all pedestrian accidents. Based on this, it is deemed that there are still many risk factors related to pedestrian crossing.

Table 5-6 Pedestrian deaths in traffic accidents

Unit: deaths, (%)

	2007		2008		2009		2010		2011	
	Deaths	%	Deaths	%	Deaths	%	Deaths	%	Deaths	%
Total	219	(100)	256	(100)	241	(100)	223	(100)	246	(100)
Crossing the road	145	(66.21)	161	(62.89)	130	(53.94)	121	(54.26)	139	(56.50)
Passing through the road	32	(14.61)	37	(14.45)	47	(19.50)	17	(7.62)	27	(10.98)
Passing through the roadside	7	(3.20)	12	(4.69)	6	(2.49)	9	(4.04)	7	(2.85)
Passing through the sidewalks	15	(6.85)	9	(3.52)	10	(4.15)	12	(5.38)	11	(4.47)
Other	20	(9.13)	37	(14.45)	48	(19.92)	64	(28.70)	62	(25.20)

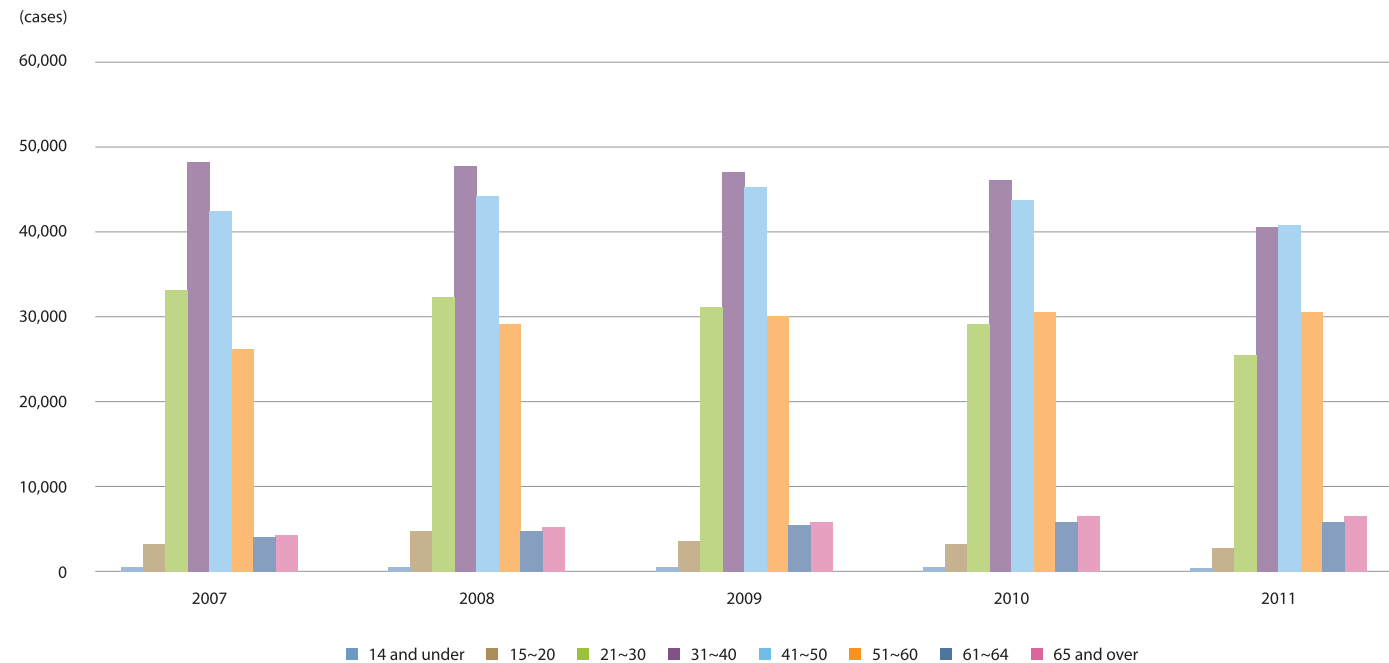
Source: Road Traffic Authority (KoROAD), statistics on traffic accidents (<http://www.taas.koroad.or.kr/>)

3.3. Traffic Accidents by Age Group

Traffic accidents involving seniors aged 65 and over increased and there were 7,025 such traffic accidents in 2011

Nearly half (48.8%) of all traffic accidents that occurred in Seoul in 2011 involved people between the ages of 31 and 50. The number of traffic accidents involving children ages 14 and under decreased by 722 from 1,421 in 2007 to 699 in 2011, whereas traffic accidents involving seniors ages 65 and over increased by 2,137 cases from 4,888 in 2007 to 7,025 in 2011.

Fig. 5-1 Number of traffic accidents by age group



Source: Road Traffic Authority (KoROAD), statistics on the regional traffic accidents (<http://www.taas.koroad.or.kr/>)

Table 5-7 Number of traffic accidents

Unit: cases

Year		14 and under	15~20	21~30	31~40	41~50	51~60	61~64	65 and over	Unclassified
2007	Accidents	1,421	4,088	33,324	47,835	42,761	25,665	4,809	4,888	27,206
	(%)	(0.7)	(2.1)	(17.4)	(24.9)	(22.3)	(13.4)	(2.5)	(2.5)	(14.2)
	Deaths	0	39	82	96	107	86	10	26	6
	Injuries	1,546	5,501	49,017	68,385	60,932	36,147	6,744	6,638	38,813
	Proportion	(0.6)	(2.0)	(17.9)	(25.0)	(22.3)	(13.2)	(2.5)	(2.4)	(14.2)
2008	Accidents	1,335	5,161	32,494	47,583	44,114	28,629	5,374	5,975	24,059
	(%)	(0.7)	(2.7)	(16.7)	(24.4)	(22.7)	(14.7)	(2.8)	(3.1)	(12.4)
	Deaths	1	31	111	96	121	78	18	18	8
	Injuries	1,435	6,673	47,281	68,287	62,445	40,171	7,552	8,039	29,628
	(%)	(0.5)	(2.5)	(17.4)	(25.2)	(23.0)	(14.8)	(2.8)	(3.0)	(10.9)
2009	Accidents	1,258	4,413	31,402	46,693	44,686	29,642	5,849	6,254	22,592
	(%)	(0.7)	(2.3)	(16.3)	(24.2)	(23.2)	(15.4)	(3.0)	(3.2)	(11.7)
	Deaths	1	21	91	106	111	113	22	33	3
	Injuries	1,350	5,669	46,040	67,558	63,621	41,503	8,070	8,430	28,208
	(%)	(0.5)	(2.1)	(17.0)	(25.0)	(23.5)	(15.3)	(3.0)	(3.1)	(10.4)
2010	Accidents	1,022	4,215	28,920	45,528	43,937	30,527	6,150	6,823	19,391
	(%)	(0.5)	(2.3)	(15.5)	(24.4)	(23.6)	(16.4)	(3.3)	(3.7)	(10.4)
	Deaths	0	16	95	88	89	92	17	31	1
	Injuries	1,153	5,589	42,917	66,799	63,144	43,549	8,606	9,420	26,437
	(%)	(0.4)	(2.1)	(16.0)	(25.0)	(23.6)	(16.3)	(3.2)	(3.5)	(9.9)
2011	Accidents	699	4,116	25,378	41,126	41,161	30,885	6,537	7,025	11,426
	(%)	(0.4)	(2.4)	(15.1)	(24.4)	(24.4)	(18.3)	(3.9)	(4.2)	(6.8)
	Deaths	0	28	85	80	92	91	26	31	2
	Injuries	811	5,461	38,165	61,582	60,169	44,748	9,437	9,729	17,102
	(%)	(0.3)	(2.2)	(15.4)	(24.9)	(24.3)	(18.1)	(3.8)	(3.9)	(6.9)

Source: Road Traffic Authority (KoROAD), statistics on the regional traffic accident (<http://www.taas.koroad.or.kr/>)