

Density Control and Urban Growth Management System

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2001-20

Density Control and Urban Growth Management System



. . .





2001-20

· 2-22 / · 2001 12 28 / · 2001 12 31
· 1591-6 (431-712)
· 031-380-0426() 031-380-0114() / · 031-380-0474

<http://www.krihs.re.kr>

©2001,

*



1960

, 1990

가

,

,

가

가

가

가

가

가

, 2000

2003

가 , 가 가 .

, 가

가 가

가 . 가 ,

2001 12



1960
· , 1990
가 , 가
가 . ,
 , 가
 ,
가
 ,
가 ,
가 . ,
가 . , ,
가 . , ,

2

가

가 가

가 가

가

가

가

(clustering)

(compact city)

가

가

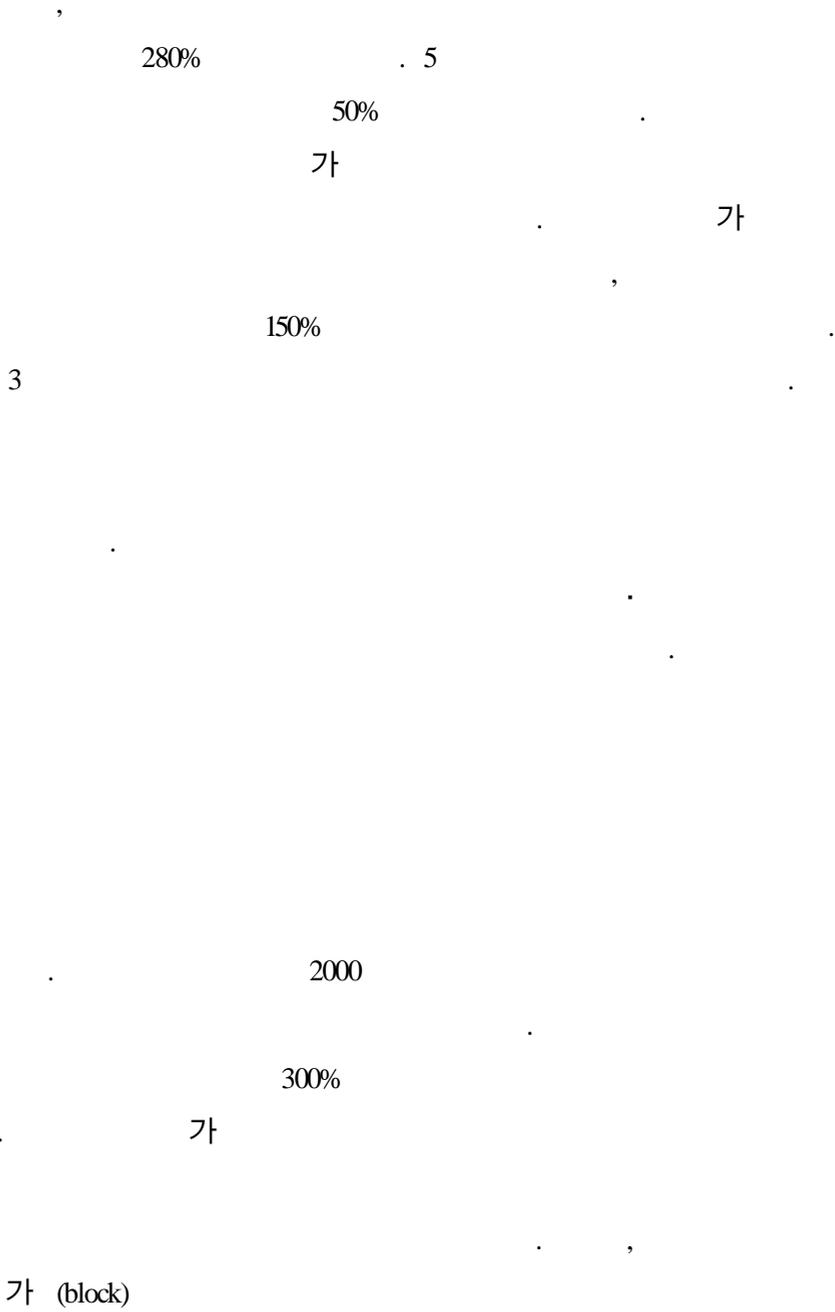
가

(gross density)

가

가

5



250%

117%

(72)

(327 /ha)가

(84)

가

가

가

가

3가

31

1,000

1/2

가

3

가

가

가

3

가

가

4

가

가

5

가

가

가

가



.....
.....

1

- 1. 1
- 2. 2
- 3. 3

2

- 1. 5
 - 1) 5
 - 2) 7
 - 3) 9
- 2. () 11
 - 1) 11
 - 2) 12
 - 3) 14
 - 4) 18
- 3. 21
 - 1) () 21
 - 2) 24

3

1.	.....	29
1)	.....	29
2)	.....	30
3)	.....	34
2.	.....	36
1)	.....	36
2)	.....	42
3)	.....	46
3.	.....	47
1)	.....	47
2)	.....	48
3)	.....	52

4

1.	.....	63
2.	.....	64
1)	.....	64
2)	.....	67
3.	.....	72
1)	.....	72
2)	.....	76

5

1.	.....	85
2.	.....	87
	.....	89
SUMMARY	.....	93
	.....	99



< 2-1>	( )	.....	7
< 2-2>	(1990)	.....	9
< 2-3>	가	.....	12
< 2-4>	(2000)	.....	13
< 2-5>		.....	13
< 2-6>	가 (1998)	.....	14
< 2-7>	( )	.....	17
< 2-8>		.....	20
< 2-9>	() (1999)	.....	20
< 2-10>		.....	21
< 2-11>		.....	22
< 2-12>		.....	23
< 2-13>		.....	23
< 2-14>	( )	.....	24
< 2-15>	( )	.....	25
< 2-16>	가 (1)	.....	27
< 2-17>	가 (2)	.....	28
< 3-1>		.....	30
< 3-2>		.....	34

< 3-3>	.....	35
< 3-4>	.....	36
< 3-5>	.....	39
< 3-6>	.....	40
< 3-7>	.....	43
< 3-8>	.....	44
< 3-9>	(1)	49
< 3-10>	(2)	50
< 3-11>	.....	51
< 3-12>	()	53
< 3-13>	.....	53
< 4-1>	()	66
< 4-2>	.....	68
< 4-3>	가	69
< 4-4>	.....	70
< 4-5>	.....	71
< 4-6>	.....	73
< 4-7>	()	74
< 4-6>	2가	81
< 4-7>	.....	81
< 4-8>	.....	82



< 1-1>	.....	3
< 2-1>	.....	11
< 2-2>	.....	15
< 2-3>	(1970 1995)	16
< 2-4>	.....	18
< 3-1>	.....	41
< 3-2>	.....	46
< 3-3>	.....	54
< 4-1>	.....	68
< 4-2>	.....	77
< 4-3> 가	.....	78
< 4-4>	.....	78
< 4-5>	.....	80
< 4-6>	.....	84

CHAPTER 1

1.

1960 .

. , 1990

가 가 ,

가
가

. ,

가

, . ,

가

가

가 .

가 . ,

가

, 가

가

2.

. , , 가

< 1-1 >

, 가

< 1-1 >

		(/)	

3.

가

CHAPTER 2

1.

1)

가 가
가

가 가

가 1) .

1) . 2000. Paper presented to the international workshop on Growth Management. June 23-24.

가 . 가
가 .
가
1960 , 1970 . (growth management)

.2)

가 .

·
·

가

.3)

· ,

, 가

4).

가

가

. Simon Eisner

12가 ,

18가

. < 2-1 >

가

. 가

2) John M. DeGrove and Patricia M. Metzger, 1995, *Growth Management and the Integrated Roles of State, Regional and Local Governments. Growth Management: The Planning Challenge of the 1990s*, Classic Readings in Urban Planning, McGraw Hill, inc.;p.167.

3) , 2000.11, , pp 3 4.

4) , p.5.

(user-friendly)

5).

가

< 2-1 >

()

	<p>1. , 2. , 3. , 4. , 5. , 6. 가 , 7. , 8. , 9. , 10. , 11. , 12.</p>
	<p>1. , 2. , 3. , 4. , 5. 6. , 7. , 8. , 9. , 10. , 11. (time-lag), , 12. , 13. , 14. , 15. , 16. , 17. (가) , 18. (, 가, , , , ,)</p>

: Simon Eisner, Arthur Gallion, Stanley Eisner, 1993, *Urban Pattern*, Van Nostrand Reinhold:469-470

2)

(1)

가

5) Katie Williams, Elizabeth Burton and Mike Jenks, 2000, *Achieving Sustainable Urban Form*: Spom Press. London: 3.

가 (compact city)
 (sprawl)
 (leapfrog development),
 (scattered development), (strip development)
 .6)
 (compact city) (clustering)
 가
 (clustering)
 .7)
 (concurrency)

(2)

. < 2-2 >

가

6) Reid Ewing, 1997, *Is Los Angeles Style Sprawl Desirable?*, Journal of the American Planning Association, Vol.63, No.1, American Planning Association, Chicago, IL, Winter, p.108

7) Ibid., p.108

< 2-2>

(1990)

	(/ha)			
	244.8	203.7	298.8	235.7
	63.2	132.1	61.2	71.0
	113.8	803.9	258.0	300.5
가	82.8	124.2	80.5	86.8
	324.6	288.6	89.1	149.3
	235.1	266.7	138.0	170.8
	444.8	372.4	138.2	198.0
	20.8	39.2	15.3	16.8
	77.5	86.9	39.3	49.9
	50.2	35.6	11.8	14.2

: 1) : , , , , , , , , , ,

2) : , , , , , , , , , ,

: Newman and Kenworthy,1999,Sustainability and Cities, Table 3.12, p.94-95(Peter J. Marcotullio,2001)

가 가 ,

가 .

3)

(1)

가 . 가 . 가 가
, . 가
가

(2)

‘ ’ 가
‘ ’ ,
, , 가 ,
, . , 가
‘ ’ ,
, , 가
(overall density) ,
(housing density) ,
(commercial density) 가 가
. ,
, . ,

(gross density)

가 (block) (net density)
가 (lot)

< 2-1 >



2. ()

1)

1980 ~1990 10 40.28%, 1990 ~1998 8
 16.02% 가 . 1980 ~1990 10 가
 17 , 1990~1998 8 가

< 2-3> 가

	1980	1990	1990	1998	
150%	(1980.31) (315.11) (195.02)	(406.25) (201.63)	(207.13) (157.59)	(170.95)	
100 150 %	(148.58) (105.36)	(125.26)	(118.02)		
50 100%	(89.81) (84.15) (59.13) (56.81)	(86.78) (59.45) (57.44) (51.88)	(70.94) (56.75) (51.09)	(70.31) (54.84)	
0 50%	(43.50) (32.65) (26.88) (15.99) (12.07) (3.07)	(36.17) (29.5) (18.80) (14.76) (6.69)	(34.32) (32.27) (29.90) (28.21) (22.37) (18.41) (16.46) (10.35) (5.83) (4.87) (3.81)	(33.39) (30.23) (29.40) (22.52) (22.21) (17.01) (10.71) (7.32) (5.36) (4.65)	
0%	(- 1.37) (- 10.55) (- 17.39) 가	(- 7.54) (- 11.69) (- 17.82)	(- 2.74) (- 11.06)	(- 2.74)	

: ()

2)

가 가 < 2-4>

14.7 /ha, 50 /ha

< 2-4>

(2000)

1.	(171 /ha),	2.	(146 /ha),	3.	(100 /ha),	4.	(88 /ha),
5.	(79 /ha),	6.	(75 /ha),	7.	(65 /ha),	8.	(65 /ha),
9.	(51 /ha),	10.	(44 /ha),	11.	(40 /ha),	12.	(30 /ha),
13.	(25 /ha),	14.	(25 /ha),	15.	(23 /ha),	16.	(20 /ha),
17.	(13 /ha),						

< 2-5>

	19.2		46.6		198
	10.5		48.8	가	86.8
	12.0		47.1		104.4
	9.5		74.9		300.5
	13.7		53.6		58.7
	16.0		53.1		176.9
	12.8		42.3		170.8
	16.6		39.8		149.3
	23.9		46.1		141.0

: Andre Sorensen, 2001, *Major Issues of Land Management for Sustainable Urban Regions in Japan*, Draft Paper for the International Workshop: New Approaches to Land Management for Sustainable Urban Regions held in Tokyo, 29-31 Oct. 2001, Appendix A

가 377 /ha 가 , (324 /ha), (309 /ha), (300 /ha), (294 /ha), (292 /ha), (291 /ha) (285 /ha) .

< 2-6> 가 (1998)

		30km	40km	50km	60km
300 /ha	(377) (324) (309) (300)				
200 - 300 /ha	(294) (292) (291)	(285)	(223)		
100 - 200 /ha	(198) (186) (145)	(183) (163) (159) (110)	(145) (138)	(103)	
100 /ha		(56)	(62) (60) (48)	(82) (47) (36)	(74) (54) (39) (36) (32) (31)

: 가

, , ,

3)

1980~1998 18

< 2-2> . (1970~1995)

< 2-3> , 15km

, 15~30km

가 , 30~45km 가

가

.

15km

가

. . . 가 . 15~30

km

, , , , , , ,

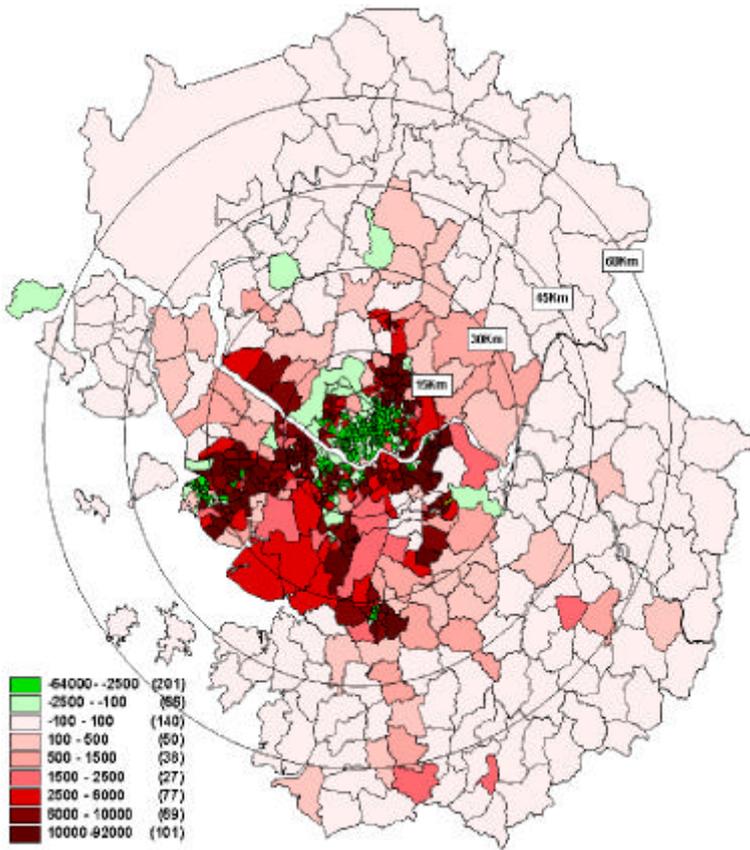
가가

가

30~45km

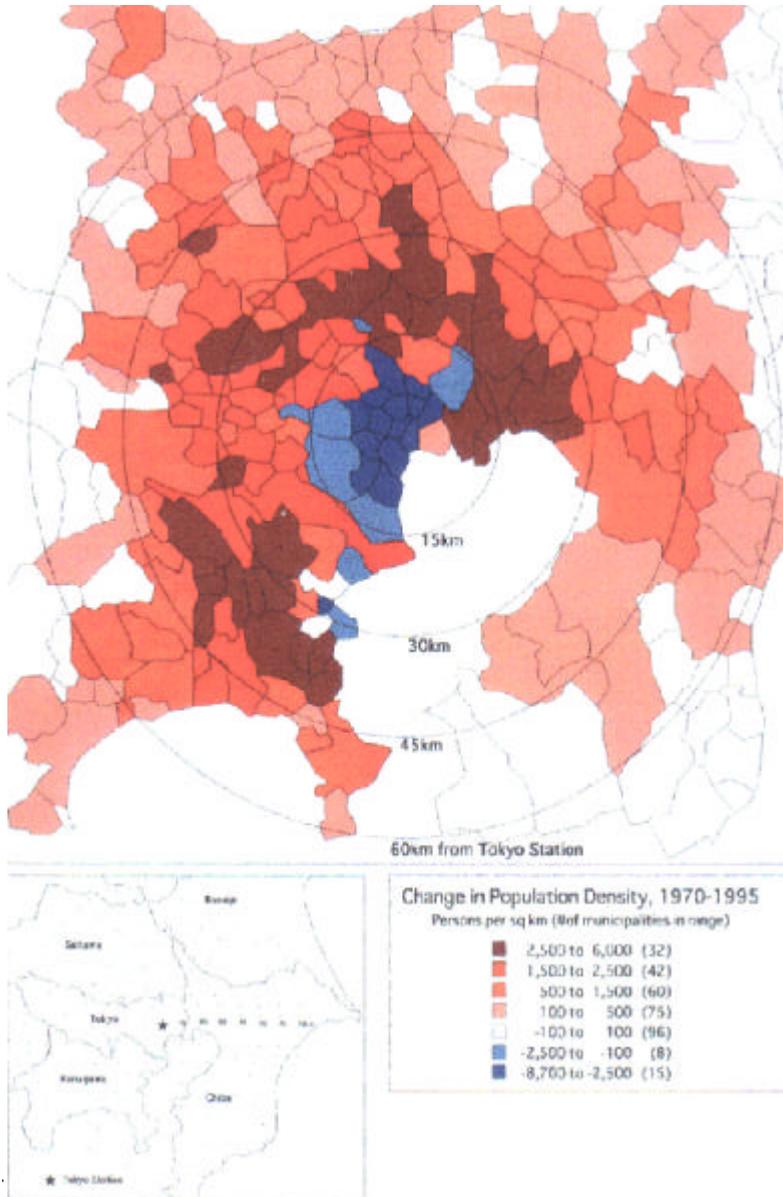
가

< 2-2 >



< 2-3>

(1970 1995)



SUSTAINABLE URBAN REGIONS NEAR IN TOKYO, 27-31 Oct. 2001, Figure 3

< 2-7 >

()

	(ha)	(/ha)					
	1998	1980	1985	1990	1995	1998	2000
	1,175,361	13,227,028 (11)	15,780,180 (13)	18,555,430 (16)	20,753,637 (18)	21,528,405 (18)	22,231,183 (19)
	60,554	8,364,379 (138)	9,639,110 (159)	10,612,577 (175)	10,580,107 (175)	10,321,636 (170)	10,373,234 (171)
	38,360	1,095,591 (29)	1,397,998 (36)	1,835,752 (48)	2,277,922 (59)	2,414,843 (63)	2,493,704 (65)
	27,659	74,973 (3)	83,740 (3)	96,750 (3)	108,824 (4)	129,056 (5)	165,466 (6)
	26,729	155,601 (6)	183,125 (7)	244,975 (9)	564,111 (21)	752,396 (28)	800,297 (30)
	68,260	165,098 (2)	164,804 (2)	185,028 (3)	168,803 (2)	179,958 (3)	193,719 (3)
	8,198	133,177 (16)	162,688 (20)	212,352 (26)	281,896 (34)	328,807 (40)	362,529 (44)
	30,986	73,780 (2)	74,407 (2)	84,672 (3)	94,992 (3)	103,741 (3)	120,293 (4)
	9,568	60,144(6)	68,633 (7)	71,449 (7)	72,879 (8)	74,173 (8)	76,758 (8)
	3,329	66,490 (20)	83,988 (25)	124,192 (37)	143,742 (43)	164,268 (49)	170,008 (51)
	46,003	124,989 (3)	150,819 (3)	195,998 (4)	237,761 (5)	307,232 (7)	359,388 (8)
	9,308	20,015 (2)	81,874 (9)	101,325 (11)	117,462 (13)	123,989 (13)	123,664 (13)
	14,185	376,840 (27)	447,692 (32)	540,754 (38)	888,844 (63)	924,383 (65)	928,196 (65)
	43,189	86,731 (2)	69,983 (2)	76,593 (2)	93,195 (2)	115,723 (3)	141,077 (3)
	12,114	310,476 (26)	430,752 (36)	637,605 (53)	748,326 (62)	856,404 (71)	951,253 (79)
	59,161	123,779 (2)	153,787 (3)	187,993 (3)	244,763 (4)	320,166 (5)	395,028 (7)
	68,764	160,067 (2)	165,051 (2)	170,779 (2)	164,284 (2)	180,729 (3)	195,362 (3)
	3,586	16,074 (4)	65,428 (18)	66,724 (19)	70,385 (20)	71,608 (20)	71,749 (20)
	5,852	253,560 (43)	361,577 (62)	481,291 (82)	594,427 (102)	588,191 (101)	583,240 (100)
	3,638	40,253 (11)	52,664 (14)	100,059 (28)	245,190 (67)	271,106 (75)	271,306 (75)
	5,401	32,842 (6)	54,993 (10)	96,892 (18)	109,948 (20)	112,839 (21)	121,777 (23)
	3,852	145,870 (38)	219,611 (57)	328,593 (85)	344,417 (89)	344,593 (89)	338,855 (88)
	5,344	221,463 (41)	456,292 (85)	667,993 (125)	781,369 (146)	781,641 (146)	780,003 (146)
	13,107	53,874 (4)	56,014 (4)	99,209 (8)	139,901 (11)	255,549 (19)	322,457 (25)
	14,492	12,183 (1)	102,141 (7)	253,444 (17)	507,952 (35)	552,557 (35)	575,574 (40)

: 1. 40km 가 2. , 3.

4)

(1)

가

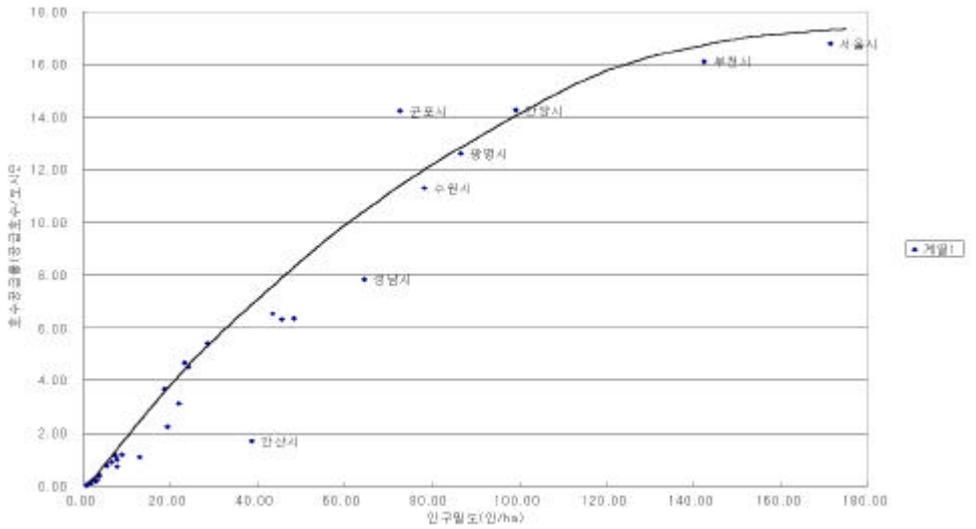
33

2000

가

< 2-4>

< 2-4>



$$Y = 0.69 X - 2.07$$

R-square 60.54

0.0001

0.05

가

(2)

()
 1990 89 2000 257 가 10
 2.87 11.1% 가 . 1.18
 가 2 가 . 2000 474
 가 257 54% .

() , ,
 1990 50 2000 102 가 10
 7.3% 가 . 1990 13 2000
 35 가 10 10.2% 가 .
 , , 1990 26 2000
 121 가 10 50.6% 가 .
 10 167 56.3% 94 가

. 1999
 가 85.4%
 . 8.3% ,
 6.3% . 1999
 91.6% 8). 2.3% ,
 6.1% .

8) 1986 1990 가 58.5%
 가 1991 1995 가 , 1996 1997
 50.9% . (91.6%)
 . (: 住宅金融公庫住宅総合調査室, 1998, ポケット住宅データ, p8.)

< 2-8>

(:)

					1990	1995	2000			
	21,346,590	4,742,099	153,219	1,134,015	893,326	1,667,942	2,566,947	548,504	364,093	128,540
	9,891,333	1,978,913	56,199	501,552	502,501	716,251	1,015,699	217,415	186,634	57,613
	2,475,805	632,806	17,984	122,503	131,248	247,530	346,150	82,530	66,308	15,315
	8,979,452	2,130,380	79,036	509,960	260,123	704,161	1,205,098	248,559	111,151	55,612

: 1990 (47,606) .
 : 1) 2000 2000 .
 2) 1990 1995 . 1999.

< 2-9>

() (1999)

	404,715	33,772	345,345	7,640	17,958
	237,454	5,436	217,588	3,543	10,887
	61,460	1,082	54,146	1,416	4,816
	9,253	634	6,935	31	1,653
	166,741	3,720	156,507	2,096	4,418

: , , 2001

3.

1) ()

(1)

'95 '98 4 1,138 (520,059)
 '99 ()
 가 50.9%, 38.8%,
 10.3%, 56.1%, 31.6%, 12.2%
 .
 258% , 302%, 274%,
 219% 1.5 .
 2000 ,
 가
 400% 가 .

< 2- 10> .

(: ())

		100	100 150	150 200	200 250	250 300	300 350	350	
	1,138 (520,059)	27 (9,505)	103 (48,611)	181 (111,148)	266 (138,054)	237 (96,883)	152 (52,946)	172 (61,638)	258
	441 (162,546)	11 (3,411)	5 (652)	26 (11,127)	77 (35,569)	116 (45,690)	87 (27,517)	119 (38,679)	302
	117 (63,526)	2 (233)	4 (1,917)	6 (4,399)	36 (24,557)	33 (19,783)	18 (7,497)	18 (5,140)	274
	580 (292,008)	14 (5,869)	94 (46,042)	149 (95,622)	153 (77,937)	88 (31,388)	47 (17,932)	35 (17,217)	219

:

(2)

100 300 288% 가 , 500 1,000
 229%, 1,000 2,000 241%
 가

< 2- 11>

(: ())

		100%	100 150%	150 200%	200 250%	250 300%	300 350%	350%	(%)*
100	150 (9,952)	5 (343)	13 (899)	23 (1,385)	32 (1,771)	43 (2,943)	16 (1,176)	18 (1,435)	252
100 300	404 (79,290)	11 (2,040)	19 (4,158)	32 (6,911)	66 (13,873)	93 (17,802)	78 (14,694)	105 (19,812)	288
300 500	223 (89,509)	3 (1,055)	28 (11,015)	38 (15,657)	57 (23,137)	43 (17,538)	30 (11,669)	24 (9,438)	248
500 1,000	261 (185,441)	3 (1,761)	37 (25,740)	55 (39,598)	86 (62,001)	43 (31,676)	17 (11,484)	20 (13,181)	229
1,000 2,000	90 (120,124)	2 (2,066)	6 (6,799)	29 (37,562)	23 (32,781)	13 (17,619)	11 (13,923)	6 (9,374)	241
2,000	12 (34,469)	1 (2,240)	-	4 (10,035)	2 (4,491)	3 (9,305)	-	2 (8,398)	272

가 190%

가 263%

, ()가

243%

334% ,

305%,

268%,

255%

< 2- 12>

(: ())

		100%	100 150%	150 200%	200 250%	250 300%	300 350%	350%	(%)*
	32 (24,721)	-	1 (346)	9 (7,333)	10 (8,980)	7 (5,017)	2 (1,610)	3 (1,435)	243
	52 (53,755)	3 (2,164)	13 (9,457)	15 (16,573)	16 (15,612)	3 (2,808)	-	2 (7,141)	190
()	1,048 (438,553)	21 (7,301)	87 (38,476)	154 (86,164)	240 (113,462)	227 (88,968)	149 (51,120)	170 (53,062)	263
()	8 (1,756)	1 (40)	2 (332)	3 (1,078)	-	1 (90)	1 (216)	-	179

< 2- 13>

(: ())

		100%	100 150%	150 200%	200 250%	250 300%	300 350%	350%	(%)
	898 (407,345)	14 (6,827)	46 (21,230)	153 (96,729)	199 (102,792)	196 (76,870)	134 (460,011)	156 (56,886)	268
	15 (6,896)	1 (98)	-	1 (1,435)	6 (3,201)	4 (677)	1 (1,017)	2 (468)	255
	59 (28,848)	1 (123)	1 (96)	1 (839)	5 (5,080)	26 (15,014)	13 (4,591)	12 (3,105)	305
	9 (1,918)	1 (135)	-	-	3 (315)	-	2 (761)	3 (707)	334
	159 (73,778)	8 (2,322)	56 (27,285)	26 (12,145)	53 (26,666)	12 (4,322)	2 (566)	2 (472)	183

2)

(1)

· (20) 5 가
 80% . 5
 가 , 300
 가 5 가

< 2- 14> ()

			5		5	
	183	118.5	150	76.6	33	308.9
100	58	91.0	56	88.0	2	175.2
100 300	72	105.7	61	81.0	11	251.6
300 500	20	143.2	13	61.9	7	294.3
500 1,000	24	147.6	16	31.8	8	379.2
1,000 2,000	7	220.8	3	63.9	4	338.4
2,000	2	421.4	1	214.3	1	628.5

: , 20015, ,

p.144

(20) 5 ,
 100% . 5 가
 50%

5

가

< 2- 15>

()

(: ())

			5		5	
	177	132.8	121	98.9	56	205.9
100	72	100.0	71	97.1	1	300.0
100 300	46	127.3	36	109.9	10	190.9
300 500	18	220.8	6	102.2	12	280.0
500 1,000	19	150.7	4	67.2	15	155.0
1,000 2,000	18	169.9	3	56.0	15	192.7
2,000	5	161.6	1	59.0	4	187.3

: , 2001.6,

:

, . p.118 .

(2) 가

가

가

가

122

2001. 10. 15 10. 24 10 , 13

85

70% .

가 70%

, 21% .

가 70%

, 10 가 66% .

가 90%

가 , 11-15 가

21

5-10

1 , 가

53%가 200% , 29%

가 150% 150~200%

150% , 150% 가

100% 가

15 가 73%

< 2-16 > 가 (1)

1. 5)가 ?	1)	1	5- 10	3	3.53
		2	11- 15	8	9.41
		3	16- 20	27	31.76
		4	21	47	55.29
	2)	1	5- 10	6	7.06
		2	11- 15	51	60.00
		3	16- 20	22	25.88
		4	21	6	7.06
	3)	1	5- 10	71	83.53
		2	11- 15	14	16.47
		3	16- 20	0	0.00
		4	21	0	0.00
	4)	1	5- 10	71	83.53
		2	11- 15	13	15.29
		3	16- 20	1	1.18
		4	21	0	0.00
2. ?	1)	1		45	52.94
		2		29	34.12
		3		11	12.94
	2)	1		4	4.71
		2		31	36.47
		3		50	58.82
	3)	1		36	42.35
		2		25	29.41
		3		24	28.24

< 2-17> 가 (2)

3. , 가 ?	1)	1	100%	4	4.71
		2	150%	25	29.41
		3	200%	46	54.12
		4	250%	9	10.59
		5	300%	1	1.18
	2)	1	100%	40	47.06
		2	150%	41	48.24
		3	200%	3	3.53
		4	250%	1	1.18
		5	300%	0	0.00
	3)	1	100%	51	60.00
		2	150%	27	31.76
		3	200%	4	4.71
		4	250%	1	1.18
		5	300%	2	2.35
4. ()	1		44	51.76	
	2		33	38.82	
	3		7	8.24	
	4		1	1.18	
5. 250% , ?	1	5	3	3.53	
	2	10	18	21.18	
	3	15	41	48.24	
	4	20	16	18.82	
	5	25	7	8.24	

CHAPTER 3

1.

1)

가

가 (zoning system)

가

< 3-1 >

	· (·)	()
	· ()	
	·	
	·	
	·	

2)

(1)

2

20

가

9)

, 가 ,

, . , , ,

, ,

가

, , .

(2)

3 ‘

, , , , , , ,

9) , 2001.9,

10)

1. , 2.

, 3. , 4.

, 5. , .

, 6. , 7.

.

.

.

(3)

11)

가

· , , , ,

.

· , , ,

10) 4 1 .

11) , 1999, .

가

3)

(1)

< 3-2>

	(%)	(%)
	60	200
	40	80
	60	400
	40	80

: 20%, 80%, 20%, 80%, 40%, 80%

(2)

167

< 3-3 >

1	50	50 100
2	50	100 150
1	60	100 200
2	60	150 250
3	50	200 300
	70	200 700
	70	200 900
	80	300 1300
	90	400 1500
	80	200 1,100
	70	200 400
	70	200 300
	70	150 300
	20 (: 40)	50 100
	20 (: 40)	50 100
	20 (: 40)	50 80
	20	50 100

2.

1)

(1)

가

< 3-4>

	가
	1,2

1997

2

3

(2) :

(Metro Plan 2000 : The Regional Development Plan for Metropolitan Boston)

(general plan)

Metropolitan

Area Planning Council(MAPC)

1987

45km

101

(21 city 80

county)

3,681km²

. 1990

292

1970 299

1980 286

가

가

가

4%

가

‘MetroPlan 2000 ’

가 ,

, ,

.

, ,

, 4

15 MAPC

, ,

, , , , 5

,

, .

(action recommendations) 7 (

. . .)

89 .

(capital investment program) MAPC

CIP

, CIP 6

4

,

, 3 < 3-5>

ha 37 , 17 37 , 17

ha 17 , 7 17 , 7

< 3-5>

	()		37 /ha
			17 37 /ha
			17 /ha
	()		200%
			50 200%
			50%
()	()		17 /ha
			7 17 /ha
			7 /ha
	()		200%
			20 100%
			20%

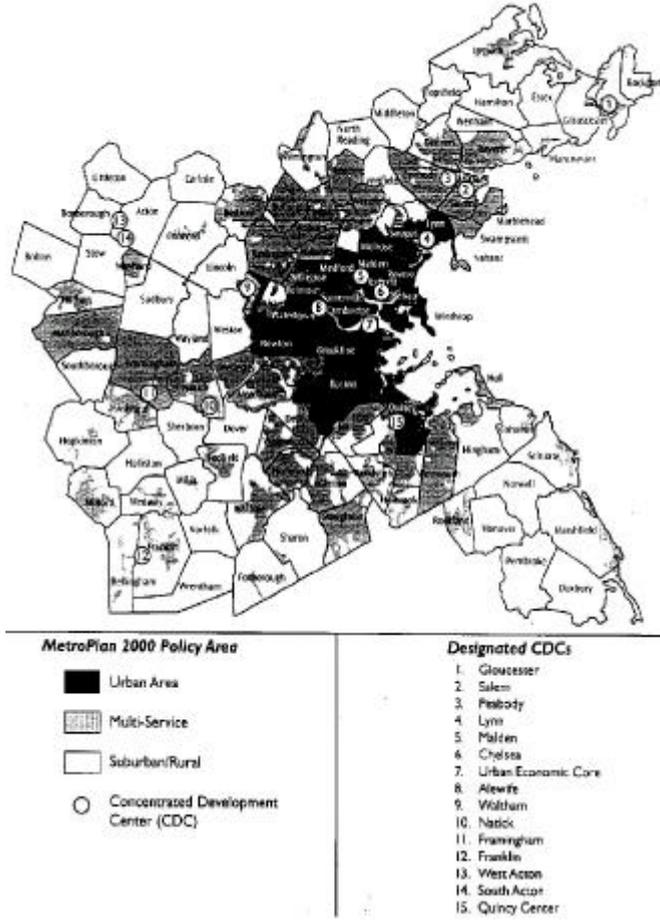
: ha

4 ,
 < 3-6> < 3-1> .
 가

< 3-6>

	0.8km 30 ha 16 17	.	.
		, . 가	.
		. 가 , ,	.
		, , ,	-

< 3-1 >



(3)

가

가

가

12)

가 .

2)

(1)

, , 가 , ,
가
, 가

, , ,
.13)

. 가
가 , ,
가
가 .

12) Reid Ewing, op.cit., p.108.

13) (97)

(2)

1: 2011

(99)

129 가

109

110

100

/ha , 100 /ha 200 /ha, 200 /ha 300 /ha, 300 /ha
 181 /ha , 가
 342 /ha . 2000 142 /ha
 가 , 1998 가 294 /ha

< 3-7>

(: km² , /ha)

		가				가
	53.45	28.36	782	970	181	342
	6.98	5.94	152	210	301	354
	3.31	2.27	136	100	302	441
	3.54	2.06	32	86	243	417
	4.96	4.17	120	125	252	300
	5.51	4.81	103	136	247	283
	9.31	2.74	83	64	69	234
	8.27	3.20	80	128	155	400
	11.57	3.17	77	121	104	382

110 . . 가
 (97) 90% 가 , 95%(92)가
 420 / ha

2: 2016 (1997)

1996 60
 73 , 가
 73 .
 7 127 /ha , 가
 322 / ha . 2000
 99 /ha, 1998 가 309 /ha 1.28 ,
 가 1.04 가 .

< 3-8>

(: km² , /ha)

		가				
	57.63	22.68	600	730	127	322
	15.30	2.68	90	104	68	388
	9.83	5.35	83	101	103	189
	10.58	2.46	89	115	108	468
	11.03	2.67	95	109	99	410
	4.13	3.63	77	92	223	253
	3.01	2.50	84	107	355	428
	3.74	3.40	82	102	273	300

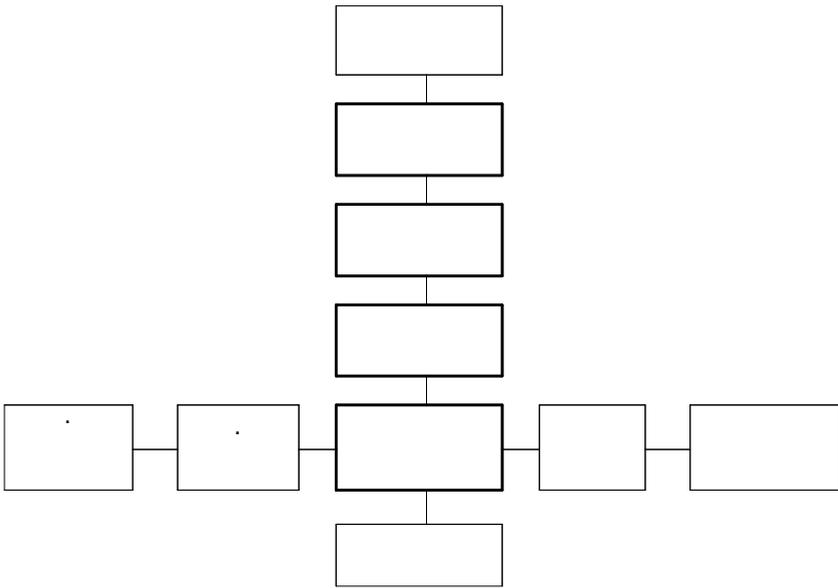
가 .
 가 95% , 150%,
 200% 15.94km² .
 390 /ha
 17km² .

(3)

가
 가
 가 1990 124.99 / ha
 1995 146.21 /ha , 2000 142.25 /ha
 1990 82.24 /ha 1995 101.58 /ha
 , 2000 99.23 /ha .
 가
 가 가 ,
 가

가

< 3-2 >

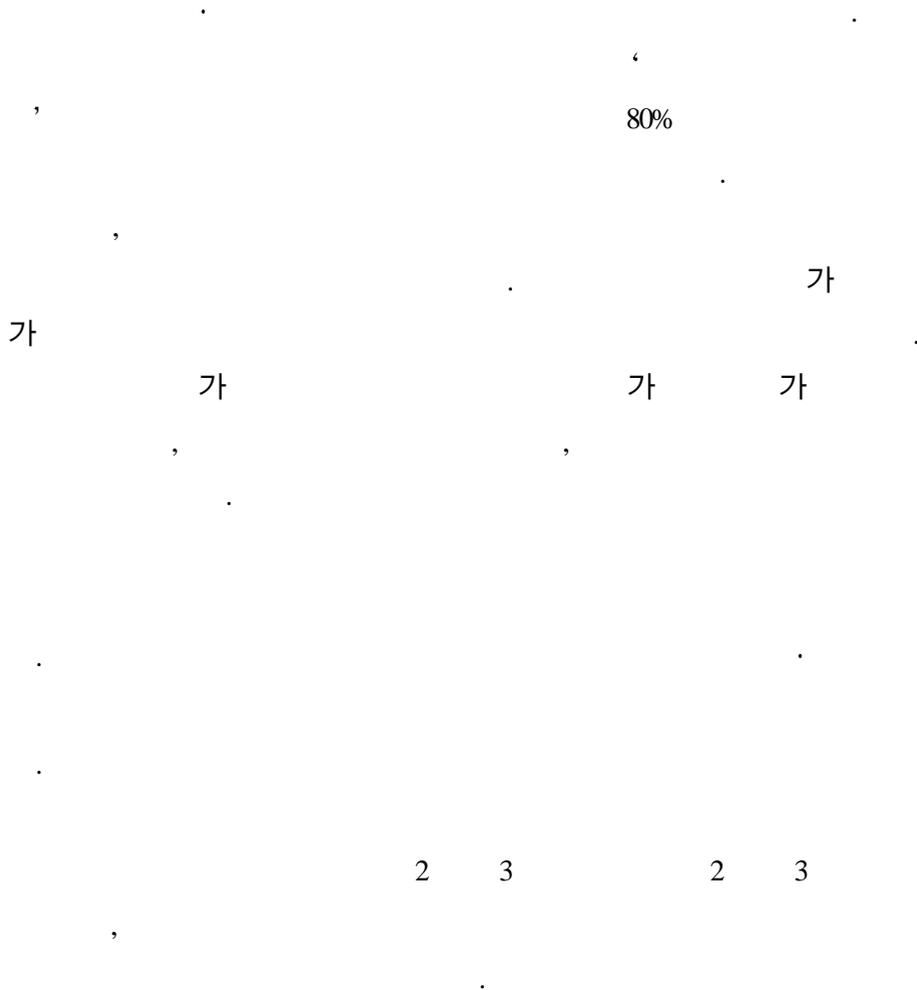


3)

가

3.

1)



2)

(1)

가 가 2
100~150% . 31
15 가 150% , 1 가 130%, 2 가 120%, 12
가 100% . 120%

가 가 2 3
. 2
150~250% , 14 200%
, 14 250% , 1 2
가 220% 230% . 3
200~300% 11 가
250% , 300% 13 .
200% , 230% 270%
가 1 , 280% 가 4 .
200~700% , 400%,
350%, 300% 700% , 300%가 3 ,
350%가 1 , 400% 6 , 450% 1 , 500% 11 , 600% 3 , 700% 5

가 가 .
200~400% 400% 200% ,
2 29 400% 10
, 350% 3 , 300% 12 , 250% 4 .

< 3-9>

(1)

%	2 (100 150%)			(200 700%)	(200 400%)
		2 (150 250%)	3 (200 300%)		
	1			1	2
100	12				
120	4(,)				
130	1				
150	15				
200		16(,)	1		
220		1	0		
230		2	1		
250		14	13(,)		4()
270			1		
280			4		
300			13	3	12
350				2()	3
400				7()	10()
450				1	
500				11	
600				3	
700				5	

400~1,500%

, 1,000% 31 2
 , 19 1,100% 1,500% 7
 가 1,000% 3 700%, 800%, 900%
 . 300~1,300% , ,
 800% , 31 20 900% 1,300%
 , 800% 8 가, 500% 1 , 700% 2
 . 200~900% ,
 600% , 2 가

29 18 가 700% 900% , 600% 5
 , 500% 2 , 400% 4 .

가

< 3-10>

(2)

(%)	(400 1,500%)	(300 1,300%)	(200 900%)
	2		2
400			4
500		1	2
600		0	7(,)
700	1	2	7
800	1	10(,)	5
900	1	3	6
1000	9(,)	5	
1100	5	3	
1200	2	4	
1300	6	5	
1500	6		

(2)

'95 '98 4 1,144
 (520,059) (1'99 ,
) 985

< 3-11>

< 3- 11>

(: ())

		100%	100 150%	150 200%	200 250%	250 300%	300 350%	350%	(%)*
	902 (408,618)	14 (6,827)	46 (21,230)	156 (98,596)	199 (101,754)	196 (76,249)	131 (45,607)	160 (58,159)	272
	15 (6,896)	1 (98)	-	1 (1,435)	6 (3,201)	4 (677)	1 (1,017)	2 (468)	255
	59 (28,848)	1 (123)	1 (96)	1 (839)	5 (5,080)	26 (15,014)	14 (4,732)	11 (2,964)	305
	9 (1,918)	1 (135)	-	-	3 (315)	-	2 (761)	3 (707)	334
	159 (73,779)	8 (2,445)	56 (27,291)	26 (12,145)	53 (26,666)	12 (4,322)	2 (566)	2 (472)	183

272% , 255%,
 305%, 334% .
 , 270%
 .
 , 가
 가
 5~10 150%
 , 가
 3 250%

가
가
.14)
가 가

3)

(1)

2 · 3
2000 1 2003
1 3
2 3 , 2 3
가

가 가 가
(downzoning)

가 (block)

2 3 , ,

14) , 2001.6, , pp115-126.

< 3-12>

()

1	60	150	4
2	60	200	12 / 7
3	50	250	-

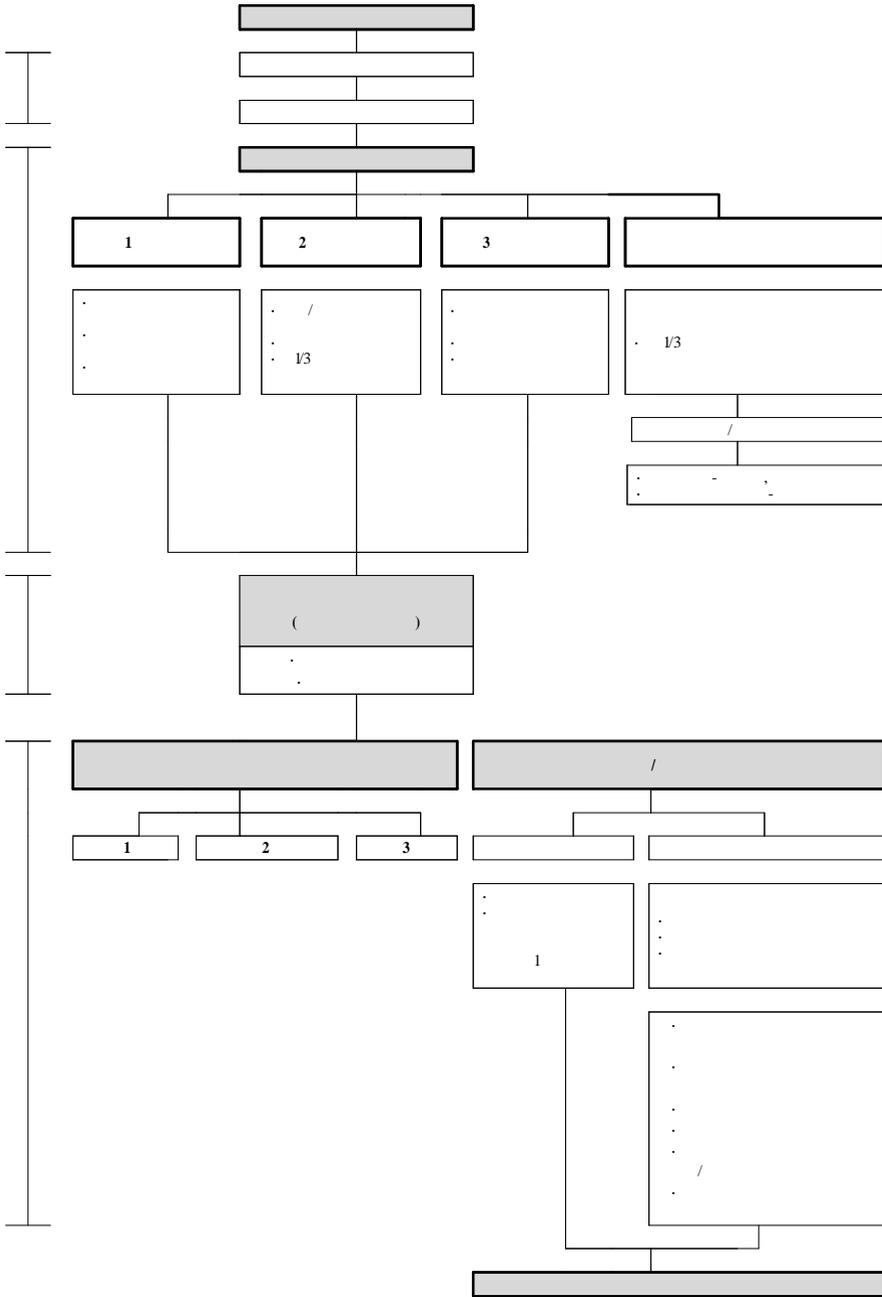
가 가

가

< 3-13>

				lha
	40%	160%	4	60 150
	30%	150%	5 6	70 250
	25%	200%	7 12	100 350
	25%	250%	13	150 400
	50%	250%	5	-

< 3-3 >



(2)

가 . , , 3
 가 .
 0 . , 가
 , . 가가
 가 가 .
 가가
 가 , . ,
 . 가 가
 가 .
 , .15)
 가
 가 .
 가

15) 가 가 .
 가 가

○ ()

2

가 , 가 가 .
가 , 가
가 , 가
. 가가가
,

가 , .
가 ,
가 , , , 가
. 가
가 가 ,

가
○ , 가가
.

가

가

(reward)

○

가

○

()

“ ”

“ ” “ 가 ”

,

1000%

1300% 가

1000%,

800%

가

,

1000%

가

700-800%,

500-700%가

가

가

가

가

..

가

(3)

2
30%
(400%) 가
230%
가
,
,
가
,
가
,
1.2
가 ()
()

4 CHAPTER

1.

가

1

가

2.

1)

(1)

·
'90 가

·
95 , ·

·
98 , ·

가 가 가 가

·
가

·
가

· 1980 1998

< 2-2> · 15km

가 , · · · 가 가

15 30km (), , (),

, 30 45km : 30km (,) 가 .
20 가 ,

- , - . 30km

(2)

가 가 . ,
25km
가 ,
가 .

,
(carrying capacity)

13 . 1
1998 (17.3m²) 145 (25m²) (455.26km²)
가 가 가 (27.72km²) .

, . .
가 가

0.90 270 /ha

1,304 , 1998 (1,380) 80

..

150~200 /ha
50~100 /ha

100~150 /ha.

2)

(1)

1990

가

가

(2)

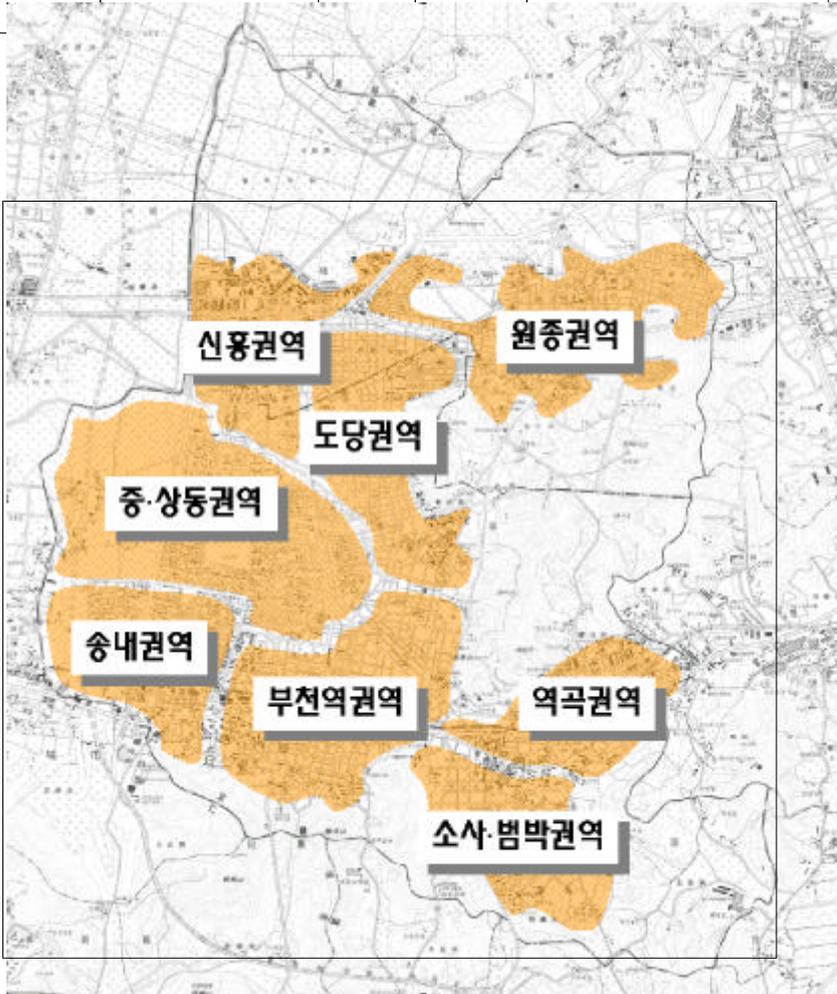
가

8

< 43 >

< 4-2 >

	(가 , km ²)	가		(가 , /km ²)
	6.68(4.08)	41,025	136,116	20,377(33,362)
	3.44(2.45)	25,963	82,547	23,996(33,693)
	8.24(3.08)	10,474	31,470	3,819(10,217)
	11.02(4.15)	44,289	136,169	12,357(32,812)
	5.11(3.53)	28,344	85,786	16,788(24,302)
	5.88(4.90)	52,485	151,474	25,761(30,913)
	5.66(2.56)	26,621	79,923	14,121(31,220)
	7.37(1.80)	24,460	76,493	10,379(42,496)



(3)

가 가
 . 1990 가 가
 ,
 가 가
 가 가 4 2.54km² ,
 . 10 1/2
 가 . 가 .
 . 가 , 가
 .

< 4-3> 가 .

(: km²)

		가	.		
	19.50	2.54	3.54	15.96	22.04
.	3.63	-	-	3.63	3.63
	1.71	0.09	-	1.71	1.80
	2.21	0.93	0.55	1.66	3.14
	3.86	0.70	0.97	2.89	4.56
	1.40	-	0.35	1.05	1.40
	2.85	-	0.71	2.14	2.85
	2.13	-	0.53	1.60	2.13
.	1.71	0.82	0.43	1.28	2.53

: 가 가 .

가
 .
 .
 .
 .
 1
 20m²
 27m²
 .
 가
 .
 150%
 ,
 .
 ,
 .
 200%
 ,
 .
 250%
 .
 <

4- 4>

< 4-4>

(: , %)

			()			
			가	가		
	632	92	150	225	92	117
	136	145	-	-	145	145
	83	187	150	-	187	185
	25	28	150	200	28	90
	110	71	150	200	71	107
	70	125	-	250	125	153
	123	108	-	250	108	140
	65	76	-	250	76	115
	62	91	150	200	91	126

- : 1. 가 0.9 0.9
 . 가
 2. 30%, 가 20% .

1 ()
30m² 가

117%

72

327 /ha

84

< 4-5>

(: , /ha)

			가		
	720	327	777	146	841
	123	338	123	184	123
	78	433	78	226	78
	75	239	83	101	93
	130	286	144	131	160
	57	409	63	124	70
	106	374	118	201	131
	65	307	72	129	80
	85	336	94	128	105

: 가 0.9 가 0.9

(4)

(‘99) 2011 970,000

840,000

가

가

3.

1)

(1)

4

1

150%

가

2

3

4- 6>

31

50%

2

3

1,000

가

< 4-6>

	.			
2	0	15	15	1
2	17	14	0	0
3	18	11	2	0
	20	7	3	1
()	25	4	0	2
	19	7	3	2
	20	8	3	0
	18	5	6	2

2 , 3

4 4

2 , 17 14
250% 150%, 200%

18 3 300% 13
200%, 250%

(2)

250%

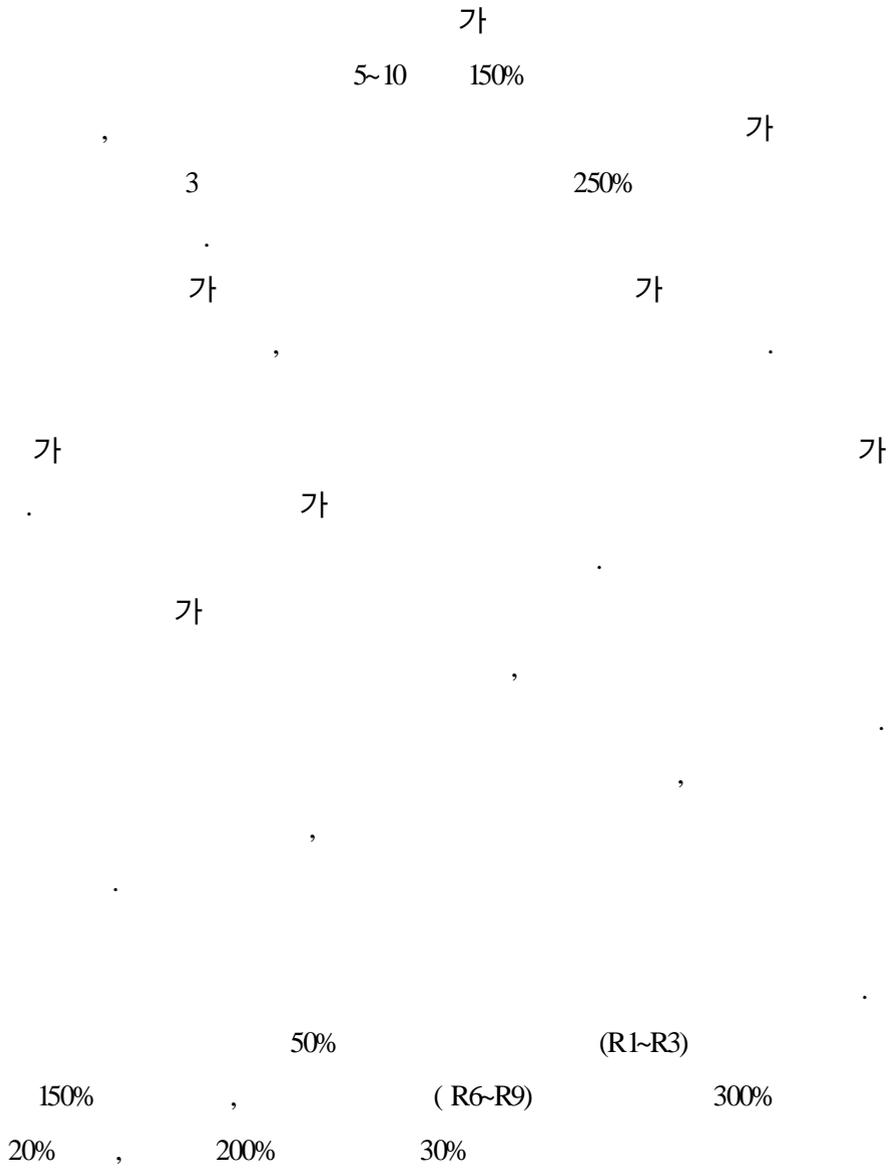
< 4-7>

()

%						
	4		4			
80	90	600%	580%	480%	500%	420%
70	80	650%	650%	510%	550%	450%
60	70	700%	720%	540%	600%	480%
50	60	750%	790%	570%	650%	510%
40	50	800%	860%	600%	700%	540%
30	40	800%	930%	600%	750%	570%
20	30	800%	1,000%	600%	800%	600%
20		800%	1,000%	600%	800%	600%

가 3

(3)



2)

(1) 가

. < 42 > < 43 >

.

가 , /
. < 43 > 가

.

가 가 .

, , < 44 > ,

, , 4

가 .

가 .

가 , 가

가 , 가

.

가

.

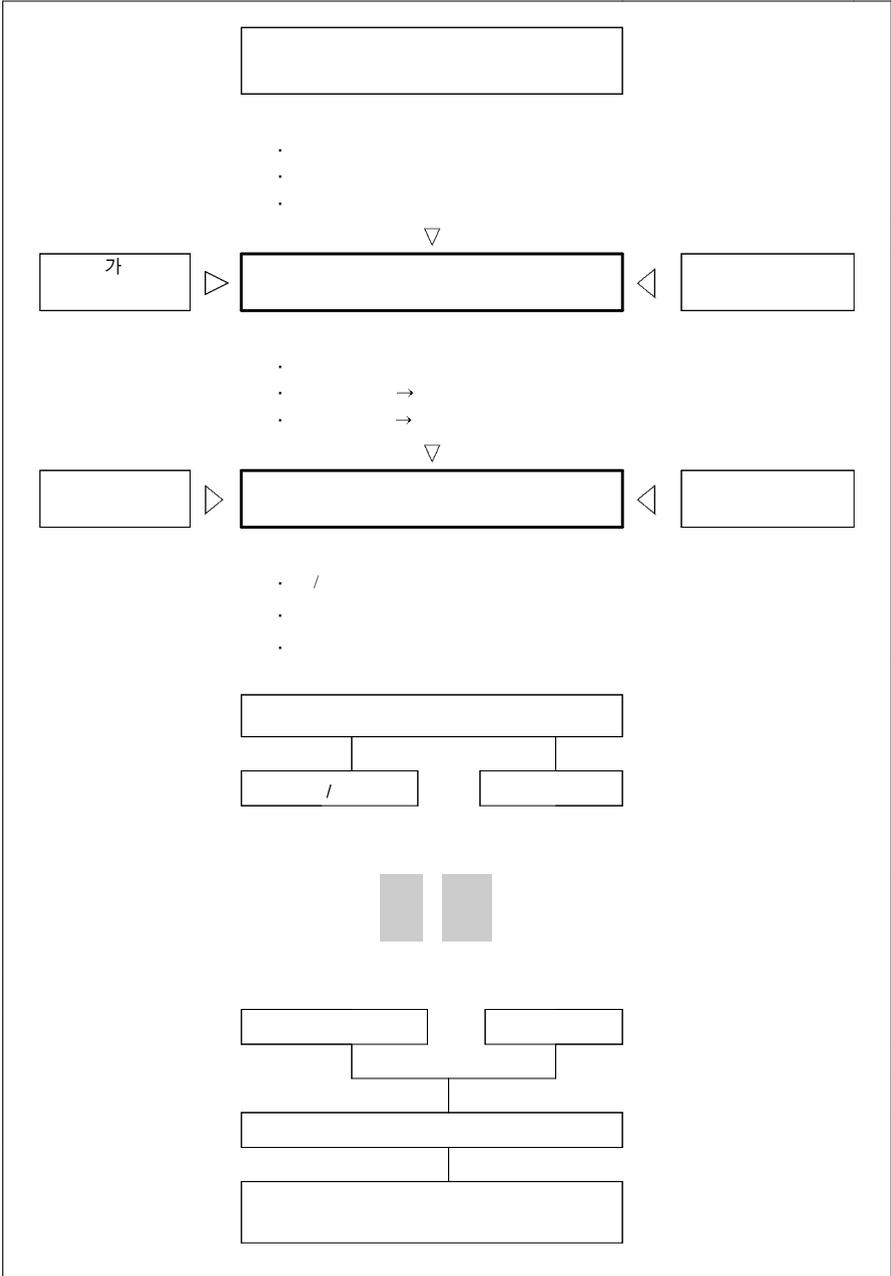
.

.

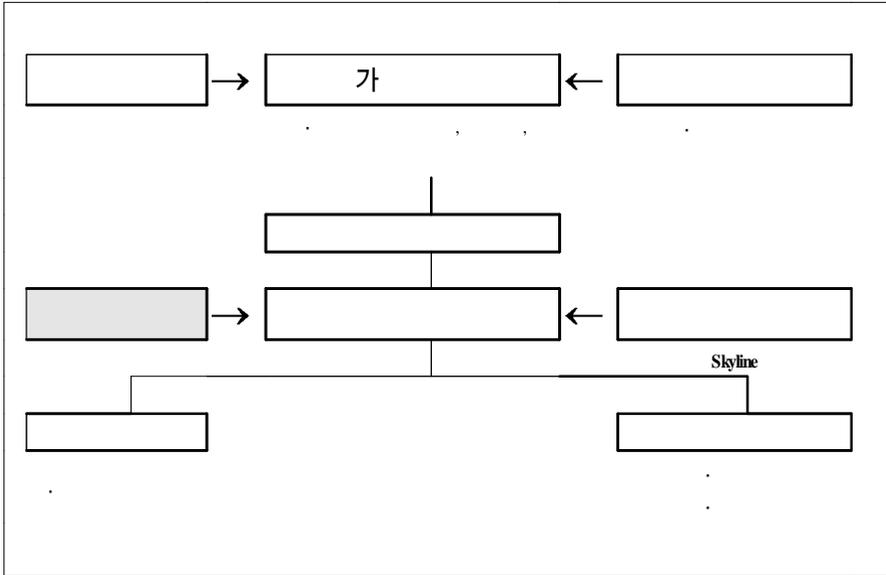
,

가

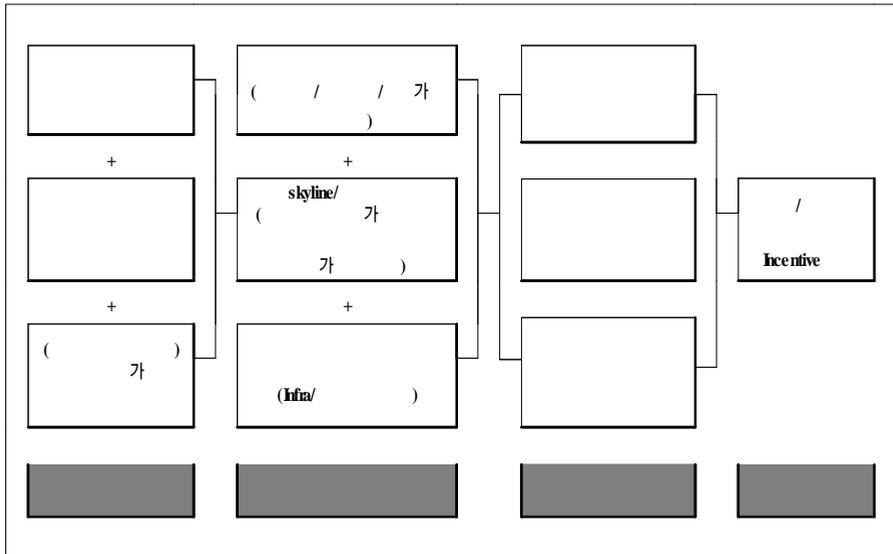
가 .



< 4-3> 가



< 4-4>



(2)

가

< 4-5>

.

,

.

가

.

,

가

,

()

()

.

가

.

가

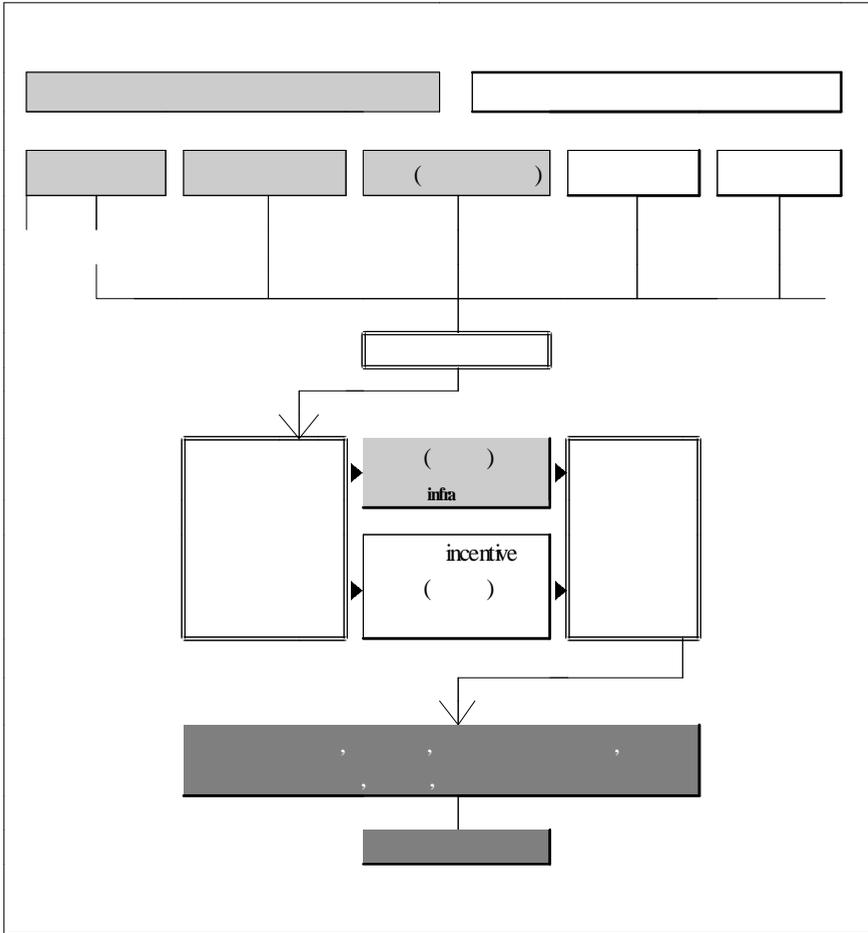
.

.< 4-7>

가

.

< 4-5 >



가

가

< 4-6>

2가

		▶ 가 , ,	Incentive (/)
	code	▶ ▶ ▶	
		▶ ,	Incentive (/)
		▶ , ,	
		▶ , ,	
		▶ , , code	

< 4-7>

1	가 . : . 1 .	10 10 10 10	> □ : , 가 ▶ Incentive
2	가 / / . / . /	20 15 15	□ : , 가

< 4-6 >

가 ,
가 ,

, ,
가

가 ,

16) 가

가
가

가 가

. < 4-8 >

< 4-8 >

	, , , , ,
	, , , , , , , , , ,
	, ,

16) , Incentive Incentive (50%,30%) 가

(3)

가 , 가 가

가 ,

가 ,

(up-zoning)

/ /

가 ,

가

가

(down-zoning)

가 . 가

, 가

2 .

가 . .

1

2

가

,

< 4-6 >

(Framework)	
1	<div style="border: 1px solid black; padding: 2px;"> <input type="text"/> </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 2px;"> <input type="text"/> </div>
<ul style="list-style-type: none"> • 가 가 (가) 	
2	<div style="border: 1px solid black; padding: 2px;"> <input type="text"/> </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 2px;"> <input type="text"/> </div>
<div style="display: flex; justify-content: space-around; margin-bottom: 5px;"> <input style="width: 100px;" type="text"/> <input style="width: 100px;" type="text"/> <input style="width: 100px;" type="text"/> </div> <div style="display: flex; align-items: center;"> 2 () <div style="border-left: 1px solid black; border-right: 1px solid black; height: 20px; margin-right: 10px;"></div> → </div> <div style="display: flex; align-items: center;"> <div style="border-left: 1px solid black; border-right: 1px solid black; height: 20px; margin-right: 10px; margin-left: 20px;"></div> 3 → </div>	
3	<div style="border: 1px solid black; padding: 2px;"> <input type="text"/> </div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 2px;"> <input type="text"/> </div>
<div style="display: flex; justify-content: space-between;"> <ul style="list-style-type: none"> ▪ - (,) • - 가 가 ※ 가 <ul style="list-style-type: none"> ▪ - () • - () </div>	
4	

4가

가

3

가

가

가

2.

가 . , 가 , 가 . 가 . 가 . (compact city) 가 . 가 . 가 . 가 . , .

, 2000. 11, 가,
 : . . , .
 . , 2001. 6, :
), .
 . , 2001. 5, ,
 .
 , 1996, , .
 , 1983, 가 ,
 .
 , 1996.10, . ,
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 . , 1988, ,
 .
 , 1989.7, .
 , 2001, INCENTIVE , HAUD .
 , 1994, :
 , .
 , 1999, 가 :
 , .

・ , 2001.5, ,

・ , 2001.6, :

・ , 1999, , .

2 .

・ , 1999, .

・ , 2001, .

・ , 1995, 가 , .

・ , 2000, (

・), .

・ , 1998. 10, , .

・ , 1997, , .

・ , 2000, ,

・ , 1995. 8, , .

・ , 2000. 8, , .

・ , 2000.8, , .

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・ , .

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SUMMARY

Density Control and Urban Growth Management System

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In mid 1990s, populations of two major cities in Korea , Seoul and Busan, stopped to increase. Many People emigrated from the central cities to the surrounding area by expanding commuting distance to those central cities. Expanded urban areas have been mainly filled up with high-rise and high-density apartments to accommodate emigrating population. Urban growth management is needed for spatial restructuring and scattered/ concentrated urban development. Density control system should be also adopted and managed in regional, urban and district level in context of urban growth management. This study focuses on the alternatives of density planning and implementations for sustainable urban development.

In chapter 2, we will discuss the legitimacy of density control in urban growth management and define types of density and finally analyze the density level of newly developed apartment housing site in

Seoul Capital Region. The density used in this study covers population density and building density. And also gross density in urban and built-up area and net density in each lot will be utilized. And building density will be studied through floor area ratios (FAR).

The building density(FAR) of over 1,000 apartment sites completed in these 5 years is compared with those of foreign advanced countries: Europe, U.S.A and Japan. We concluded that the housing density (280% as of the late 1990s in Seoul Capital Region) in Korea is much higher than that of those countries. In foreign countries, generally apartment houses are built below 5 stories. And also about the existing density condition and desirable density, we questionaried to urban researchers and planners. They agreed that the density nowadays in Korea is too high, and consumed that about 150%(FAR) is desirable.

In chapter 3, the existing density control and management system is reviewed in two aspects: comprehensive planning and density implementation tools.

Comprehensive plan about density allocation and management includes not only city-region plans but also urban general plans. City-region plan is recommended to include density management strategies as important planning elements compared with Metro Plan 2000 of Metropolitan Boston. And through the review of urban general plan documents of Buchon-si and Anyang-si, more deliberated and meaningful efforts for density planning seemed to be needed.

About density implementation tools, FAR control under land use zoning and density control by Detailed District Plan(Zikudannei-Geihoek) are reviewed. The FAR was reinforced by the amendment of the Urban Planning Law and the Zoning Ordinances of municipalities in the year of 2000. Through this amendment, the apartment building over 300% of FAR is unable institutionally, and more active and diverse use of density control in zoning is needed according to the city

characteristics. Detailed District Plan is expected to play more important role in land use control, but by now it is not yet clarified to formulate density allocation process into residential block.

In chapter 4, several alternatives are proposed to solve density control and management problems in two aspects: comprehensive planning and density implementation tools. Comprehensive planning should include and give guidelines explicitly to the density allocation and management of related plans. Not only City-Region Plan but also Urban General Plan should include density strategies for each sub-region or sub-area. Zoning is the most prevalent one of density implementation tools, and FAR maximum in each zone is prescribed by the ordinances in municipalities. But problems to be solved are as follows; FAR of some zones in small and medium cities is higher than those of 10 million metropolitan Seoul; Because of too loosely controlled in Semi-Residential, Semi-Industrial, and Commercial Zone than General Residential Zone, the apartments are driven to be built in those Semi and Commercial Zoned area, where it is very difficult to preserve residential good environments.; And present ordinances should be restructured to induce low Building Coverage Ratio(BCR) and high story buildings. To solve these problems, some proposals are made; FAR prescribed in ordinances of small and medium cities should be more lowered; And when apartments are located in Semi-Residential, Semi-Industrial, and Commercial Zone, FAR to those buildings should be adopted according to the General Residential Zone; And in stead of high story, it should be allowed to give option to choose high BCR.

Another important density implementation tool is Detailed District Plan. In Detailed District Planning, it is proposed to clarify the process to allocate density to residential block level. Density planning process can be divided into 4 steps: diagnosis of existing FAR, preparation of proposed FAR, formulation of Detailed District guidelines, preparation

of Base FAR and Approving FAR. In particular, Approving FAR is functioned to provide infrastructures and environmental quality preservation.

Finally, in conclusion of chapter 5, the following studies should be done focusing on the realization of those proposals in this study, and also studies about urban growth management and density control be done respectively. Besides, through the revision of existing circulars about urban planning and management, rearrangement and amendment of FAR should be done. And in enhancing the role of Detailed District Plan, it is proposed to evaluate the planning procedure, incentive system management through the Approving FAR, etc., and select the exemplary case and promote the spread of the procedure and management system.

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	80	150	150	200	250	500
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	1,300	1,200	800	400
	1,100	900	600	600
	1,300	1,100	800	1,000
	700	500	400	400
	1,100	800	500	500
	1,200	1,000	800	900
	1,000	900	400	400
	1,100	800	700	700
	1,500	1,300	900	1,100
	1,500	1,300	900	1,100
	900	800	700	700
	1,000	700	400	400
	1,000	700	400	400
	1,200	1,200	800	1,000
	1,000	800	700	700
	1,000	900	700	700
	1,100	1,100	500	400
	1,300	1,000	700	900
	800	800	600	500
	1,500	1,200	900	1,100
	1,300	1,100	600	600
	1,100	1,000	700	1,000
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	(%)	(m ²)	(%)	(m ²)	(%)
	11.0	29,126	62.4	43,218	1.48
	21.0	73,794	95.2	62,955	0.85
	24.0	114,229	118.2	76,599	0.67
	16.3	165,640	200.7	78,240	0.47
4	16.0	123,126	75.6	140,942	1.14
5	9.0	450,004	117.0	376,854	0.84
2	13.0	130,637	89.1	127,910	0.98
	12.0	525,684	94.9	507,911	0.97
	18.0	83,227	136.5	51,582	0.62
4	11.9	95,087	154.8	58,762	0.62
	14.4	210,986	148.5	131,609	0.62
3	17.3	174,697	113.9	135,438	0.78
4	16.7	122,023	171.8	67,948	0.56
	21.4	230,476	201.7	108,655	0.47
가 2	17.3	88,924	184.1	45,079	0.50
가 4	18.0	76,360	181.1	40,304	0.53
5	15.9	51,783	200.6	25,346	0.48
	20.9	114,339	163.8	62,076	0.54
	15.3	29,580	186.5	14,948	0.51
2	20.8	34,242	184.4	16,776	0.49
3	18.6	46,423	189.3	22,475	0.48
	15.5	19,375	122.5	14,299	0.74
5	20.0	100,741	169.1	54,841	0.54

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	134 931	30 689	2 393	9 546	3 634	3 532	12 798	2 047	3 846	2 452
	231 497	48 567	3 495	19 218	12 918	11 156	20 197	3 627	3 820	1 705
	325 133	59 998	3 153	18 891	13 571	11 265	30 322	4 032	4 708	2 045
	381 384	54 243	822	21 318	-	11 619	20 469	6 335	3 744	2 377
	367 581	65 733	2 786	28 420	10 086	13 131	24 430	7 620	1 937	3 326
	441 061	71 857	1 430	25 252	4 199	12 300	32 106	9 854	2 192	2 453
	460 511	84 106	1 655	41 802	3 239	8 271	23 706	9 056	6 331	3 211
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	605 917	164 288	3 074	10 775	66 402	110 785	141 441	6 103	4 520	1 449
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	351 441	72 673	2 886	24 195	9 994	15 417	28 081	6 990	11 349	2 058
	366 939	75 494	2 548	25 593	9 051	13 256	26 222	9 420	11 839	2 420
	459 471	99 643	3 219	13 411	33 035	38 146	55 795	18 899	9 514	2 024
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	355 261	81 526	2 670	15 257	5 597	22 913	53 469	8 635	2 314	1 851
	580 714	130 422	2 203	14 690	34 152	74 637	83 399	18 824	10 768	2 741
	761 301	162 029	2 469	25 220	32 540	70 916	86 103	31 445	15 212	4 049
	333 759	79 939	859	8 243	35 571	44 639	48 615	15 072	6 809	1 200
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