

Seaport Square Trip Generation

**Seaport Square - Total Development**  
**Daily Peak Hour Trip Generation Estimation (Rates)**  
Howard/Stein-Hudson Associates  
May 14, 2009

Daily																	
Land Use	Size	Category	Trip Rates (Trips/ksf or unit)	Unadjusted Vehicle Trips	Internal Trips	Capture Rate	Less capture trips	Assumed national vehicle occupancy rate <sup>1</sup>	Converted to Person trips	Transit Share <sup>2</sup>	Transit Trips	Walk/Bike/ Other Share <sup>2</sup>	Walk/ Bike/ Other Trips	Vehicle Share <sup>2</sup>	Vehicle Person Trips	Assumed local vehicle occupancy rate <sup>3</sup>	Total Adjusted Vehicle Trips
<b>Residential - Apartment<sup>4</sup></b>																	
Based on dwelling units																	
	1,575	Total	6.50	10,238	3,430		6,807	1.2	8,169		2,859		3,186		2,124	1.2	1,831
		units In	3.25	5,119	1,783		3,336	1.2	4,003	35%	1,401	39%	1,561	26%	1,041	1.2	897
		Out	3.25	5,119	1,647		3,471	1.2	4,166	35%	1,458	39%	1,625	26%	1,083	1.2	934
<b>Residential - Condominium<sup>5</sup></b>																	
Based on dwelling units																	
	925	Total	5.81	5,374	1,801		3,573	1.2	4,288		1,501		1,672		1,115	1.2	961
		units In	2.91	2,687	936		1,751	1.2	2,101	35%	735	39%	820	26%	546	1.2	471
		Out	2.91	2,687	865		1,822	1.2	2,187	35%	765	39%	853	26%	569	1.2	490
<b>Hotel<sup>6</sup></b>																	
	550	Total	8.92	4,906			4,906	1.2	5,887		1,295		2,414		2,178	1.8	1,210
		rooms In	4.46	2,453			2,453	1.2	2,944	22%	648	41%	1,207	37%	1,089	1.8	605
		Out	4.46	2,453			2,453	1.2	2,944	22%	648	41%	1,207	37%	1,089	1.8	605
<b>Performing Arts Center<sup>7</sup></b>																	
based on seats																	
	1,800	Total	1.92	3,459			3,459	2.1	7,264		3,051		2,034		2,179	2.4	908
		seats In	0.96	1,730			1,730	2.1	3,632	42%	1,526	28%	1,017	30%	1,090	2.4	454
		Out	0.96	1,730			1,730	2.1	3,632	42%	1,526	28%	1,017	30%	1,090	2.4	454
<b>School<sup>8</sup></b>																	
based on students																	
	1,800	Total	1.29	2,322			2,322	1.8	4,180		1,755		1,170		1,254	1.8	697
		students In	0.65	1,161			1,161	1.8	2,090	42%	878	28%	585	30%	627	1.8	348
		Out	0.65	1,161			1,161	1.8	2,090	42%	878	28%	585	30%	627	1.8	348
<b>Office<sup>9</sup></b>																	
	1,300	Total	11.01	14,313	2,097		12,216	1.2	14,659		7,183		2,932		4,544	1.2	3,918
		KSF In	5.51	7,157	837		6,319	1.2	7,583	49%	3,716	20%	1,517	31%	2,351	1.2	2,026
		Out	5.51	7,157	1,260		5,897	1.2	7,076	49%	3,467	20%	1,415	31%	2,194	1.2	1,891
<b>Retail<sup>10</sup></b>																	
	1,300	Total	42.94	55,822	7,042	25%	36,585	1.8	65,853		22,390		17,780		25,683	1.8	14,268
		KSF In	21.47	27,911	3,628	25%	18,212	1.8	32,781	34%	11,146	27%	8,851	39%	12,785	1.8	7,103
		Out	21.47	27,911	3,413	25%	18,373	1.8	33,072	34%	11,244	27%	8,929	39%	12,898	1.8	7,166
<b>Church<sup>11</sup></b>																	
	24	Total	9.11	219			219	2.1	459		188		138		133	2.4	55
		KSF In	4.56	109			109	2.1	230	41%	94	30%	69	29%	67	2.4	28
		Out	4.56	109			109	2.1	230	41%	94	30%	69	29%	67	2.4	28
<b>Library<sup>13</sup></b>																	
	10	Total	56.24	562			562	1.8	1,012		425		283		304	1.8	169
		KSF In	28.12	281			281	1.8	506	42%	213	28%	142	30%	152	1.8	84
		Out	28.12	281			281	1.8	506	42%	213	28%	142	30%	152	1.8	84
<b>Total</b>																	
		Total		97,215			70,650		111,772		40,648		31,610		39,514		24,017
		In		48,608			35,352		55,870		20,355		15,768		19,747		12,017
		Out		48,608			35,298		55,902		20,293		15,842		19,768		12,000

- Notes:
- 2001 National vehicle occupancy rates - 1.2:home to work; 1.8: family/personal business; 1.8: shopping; 2.1 social/recreational
  - Local vehicle occupancy rates based on 2000 Census data.
  - ITE Trip Generation, 8th Edition, LUC 220 (Apartment)
  - ITE Trip Generation, 8th Edition, LUC 230 (Condominium)
  - ITE Trip Generation, 8th Edition, LUC 310 (Hotel)
  - ITE Trip Generation, 8th Edition, LUC 310 (Hotel)
  - Trip generation based on Boston Opera House DPIR (November 1999).  
Mode shares and local vehicle occupancy rate based on Opera House DPIR.  
Peak-hour trip generation assumes 87% seat occupancy and 100% enter and 7% exit during peak hour.
  - ITE Trip Generation, 8th Edition, LUC 520 (Elementary School)
  - ITE Trip Generation, 8th Edition, LUC 710 (General Office Building)
  - ITE Trip Generation, 8th Edition, LUC 820 (Shopping Center)
  - ITE Trip Generation, 8th Edition, LUC 560 (Church) amended on 4/17/09 to use standard ITE rate calculation per LP
  - ITE Trip Generation, 8th Edition, LUC 444 (Movie Theater with Matinee) - pm peak hour  
Daily trip rate calculated from LUC 443 ratio --- (weekday/pm peak) \* 20.22
  - ITE Trip Generation, 8th Edition, LUC 590 (Library)

**Seaport Square - Total Development**  
**Daily Peak Hour Trip Generation Estimation (Rates)**  
 Howard/Stein-Hudson Associates  
 May 14, 2009

AM Peak Hour																	
Land Use	Size	Category	Trip Rates (Trips/ksf or unit)	Unadjusted Vehicle Trips	Internal Trips	Capture Rate	Less capture trips	Assumed national vehicle occupancy rate <sup>1</sup>	Converted to Person trips	Transit Share <sup>2</sup>	Transit Trips	Walk/Bike/ Other Share <sup>2</sup>	Walk/ Bike/ Other Trips	Vehicle Share <sup>2</sup>	Vehicle Person Trips	Assumed local vehicle occupancy rate <sup>3</sup>	Total Adjusted Vehicle Trips
<b>Residential - Apartment<sup>4</sup></b>																	
Based on dwelling units	1,575	Total	0.51	803			803	1.2	964		337		376		251	1.2	216
	units	In	0.10	161			161	1.2	193	35%	67	39%	75	26%	50	1.2	43
		Out	0.41	643			643	1.2	771	35%	270	39%	301	26%	200	1.2	173
<b>Residential - Condominium<sup>5</sup></b>																	
Based on dwelling units	925	Total	0.44	407			407	1.2	488		171		190		127	1.2	109
	units	In	0.07	69			69	1.2	83	35%	29	39%	32	26%	22	1.2	19
		Out	0.37	338			338	1.2	405	35%	142	39%	158	26%	105	1.2	91
<b>Hotel<sup>6</sup></b>																	
	550	Total	0.67	369			369	1.2	442		79		199		164	1.8	91
	rooms	In	0.39	214			214	1.2	256	20%	51	43%	110	37%	95	1.8	53
		Out	0.28	155			155	1.2	186	15%	28	48%	89	37%	69	1.8	38
<b>Performing Arts Center<sup>7</sup></b>																	
	1800	Total	0.00	9			9	2.1	18		11		0		7	2.4	3
	seats	In	0.00	9			9	2.1	18	62%	11	0%	0	38%	7	2.4	3
		Out	0.00	0			0	2.1	0	62%	0	0%	0	38%	0	2.4	0
<b>School<sup>8</sup></b>																	
	1800	Total	0.45	810			810	1.8	1,458		591		436		431	1.8	239
	students	In	0.25	446			446	1.8	802	41%	329	29%	233	30%	241	1.8	134
		Out	0.20	365			365	1.8	656	40%	262	31%	203	29%	190	1.8	106
<b>Office<sup>9</sup></b>																	
	1,300	Total	1.55	2,015			2,015	1.2	2,418		1,243		395		781	1.2	673
	KSF	In	1.36	1,773			1,773	1.2	2,128	55%	1,170	12%	255	33%	702	1.2	605
		Out	0.19	242			242	1.2	290	25%	73	48%	139	27%	78	1.2	68
<b>Retail<sup>10</sup></b>																	
	1,300	Total	1.00	1,300	25%		975	1.8	1,755		979		103		674	1.8	374
	KSF	In	0.61	793	25%		595	1.8	1,071	62%	664	0%	0	38%	407	1.8	226
		Out	0.39	507	25%		380	1.8	684	46%	315	15%	103	39%	267	1.8	148
<b>Church<sup>11</sup></b>																	
	24	Total	0.56	13			13	2.1	28		12		8		9	2.4	4
	KSF	In	0.35	8			8	2.1	17	44%	8	25%	4	31%	5	2.4	2
		Out	0.21	5			5	2.1	11	40%	4	31%	3	29%	3	2.4	1
<b>Library<sup>13</sup></b>																	
	10	Total	1.04	10			10	1.8	19		8		6		6	1.8	3
	KSF	In	0.74	7			7	1.8	13	41%	5	29%	4	30%	4	1.8	2
		Out	0.30	3			3	1.8	5	40%	2	31%	2	29%	2	1.8	1
<b>Total</b>																	
		Total		5,736			5,411		7,591		3,431		1,712		2,447		1,712
		In		3,480			3,281		4,581		2,335		714		1,532		1,087
		Out		2,257			2,130		3,009		1,096		998		915		626

- Notes:
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  - Local vehicle occupancy rates based on 2000 Census data.
  - ITE Trip Generation, 8th Edition, LUC 220 (Apartment)
  - ITE Trip Generation, 8th Edition, LUC 230 (Condominium)
  - ITE Trip Generation, 8th Edition, LUC 310 (Hotel)
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  - Trip generation based on Boston Opera House DPIR (November 1999).  
Mode shares and local vehicle occupancy rate based on Opera House DPIR.  
Peak-hour trip generation assumes 87% seat occupancy and 100% enter and 7% exit during peak hour.
  - ITE Trip Generation, 8th Edition, LUC 520 (Elementary School)
  - ITE Trip Generation, 8th Edition, LUC 710 (General Office Building)
  - ITE Trip Generation, 8th Edition, LUC 820 (Shopping Center)
  - ITE Trip Generation, 8th Edition, LUC 560 (Church) amended on 4/17/09 to use standard ITE rate calculation per LP
  - ITE Trip Generation, 8th Edition, LUC 444 (Movie Theater with Matinee) - pm peak hour  
Daily trip rate calculated from LUC 443 ratio --- (weekday/pm peak) \* 20.22
  - ITE Trip Generation, 8th Edition, LUC 590 (Library)

# Seaport Square - Total Development

## Daily Peak Hour Trip Generation Estimation (Rates)

Howard/Stein-Hudson Associates  
May 14, 2009

PM Peak Hour																	
Land Use	Size	Category	Trip Rates (Trips/ksf or unit)	Unadjusted Vehicle Trips	Internal Trips	Capture Rate	Less capture trips	Assumed national vehicle occupancy rate <sup>1</sup>	Converted to Person trips	Transit Share <sup>2</sup>	Transit Trips	Walk/Bike/ Other Share <sup>2</sup>	Walk/ Bike/ Other Trips	Vehicle Share <sup>2</sup>	Vehicle Person Trips	Assumed local vehicle occupancy rate <sup>3</sup>	Total Adjusted Vehicle Trips
<b>Residential - Apartment<sup>4</sup></b>																	
Based on dwelling units	1,575	Total	0.62	977	355		622	1.2	746		261		291		194	1.2	167
	units	In	0.40	635	209		425	1.2	510	35%	179	39%	199	26%	133	1.2	114
		Out	0.22	342	146		196	1.2	235	35%	82	39%	92	26%	61	1.2	53
<b>Residential - Condominium<sup>5</sup></b>																	
Based on dwelling units	925	Total	0.52	481	175		306	1.2	367		129		144		96	1.2	83
	units	In	0.35	322	106		216	1.2	259	35%	91	39%	101	26%	67	1.2	58
		Out	0.17	159	68		91	1.2	109	35%	38	39%	43	26%	28	1.2	24
<b>Hotel<sup>6</sup></b>																	
	550	Total	0.70	385			385	1.2	462		79		212		171	1.8	95
	rooms	In	0.34	189			189	1.2	226	15%	34	48%	109	37%	84	1.8	47
		Out	0.36	196			196	1.2	236	19%	45	44%	104	37%	87	1.8	48
<b>Performing Arts Center<sup>7</sup></b>																	
	1,800	Total	0.13	235			235	2.1	494		214		129		152	2.4	63
	seats	In	0.08	151			151	2.1	318	44%	140	25%	79	31%	99	2.4	41
		Out	0.05	84			84	2.1	177	42%	74	28%	49	30%	53	2.4	22
<b>School<sup>8</sup></b>																	
	1800	Total	0.15	270			270	1.8	486		199		143		143	1.8	80
	students	In	0.07	132			132	1.8	238	40%	95	31%	74	29%	69	1.8	38
		Out	0.08	138			138	1.8	248	42%	104	28%	69	30%	74	1.8	41
<b>Office<sup>9</sup></b>																	
	1,300	Total	1.49	1,937	141		1,796	1.2	2,155		1,149		307		699	1.2	603
	KSF	In	0.25	329	74		255	1.2	306	37%	113	34%	104	29%	89	1.2	77
		Out	1.24	1,608	67		1,541	1.2	1,849	56%	1,036	11%	203	33%	610	1.2	526
<b>Retail<sup>10</sup></b>																	
	1,300	Total	3.73	4,849	632	25%	3,163	1.8	5,693		2,163		1,309		2,220	1.8	1,233
	KSF	In	1.83	2,376	261	25%	1,586	1.8	2,855	38%	1,085	23%	657	39%	1,113	1.8	619
		Out	1.90	2,473	371	25%	1,577	1.8	2,838	38%	1,078	23%	653	39%	1,107	1.8	615
<b>Church<sup>11</sup></b>																	
	24	Total	0.55	13			13	2.1	28		12		8		8	2.4	3
	KSF	In	0.30	7			7	2.1	15	40%	6	31%	5	29%	4	2.4	2
		Out	0.25	6			6	2.1	12	44%	5	25%	3	31%	4	2.4	2
<b>Library<sup>13</sup></b>																	
	10	Total	7.30	73			73	1.8	131		54		39		39	1.8	22
	KSF	In	3.50	35			35	1.8	63	40%	25	31%	20	29%	18	1.8	10
		Out	3.80	38			38	1.8	68	42%	29	28%	19	30%	20	1.8	11
<b>Total</b>																	
		Total		9,220			6,863		10,563		4,259		2,582		3,722		2,348
		In		4,177			2,997		4,791		1,768		1,347		1,676		1,005
		Out		5,043			3,866		5,772		2,492		1,235		2,045		1,343

- Notes:
- 2001 National vehicle occupancy rates - 1.2:home to work; 1.8: family/personal business; 1.8: shopping; 2.1 social/recreational
  - Local vehicle occupancy rates based on 2000 Census data.
  - ITE Trip Generation, 8th Edition, LUC 220 (Apartment)
  - ITE Trip Generation, 8th Edition, LUC 230 (Condominium)
  - ITE Trip Generation, 8th Edition, LUC 310 (Hotel)
  - ITE Trip Generation, 8th Edition, LUC 520 (Elementary School)
  - ITE Trip Generation, 8th Edition, LUC 710 (General Office Building)
  - ITE Trip Generation, 8th Edition, LUC 820 (Shopping Center)
  - ITE Trip Generation, 8th Edition, LUC 560 (Church) amended on 4/17/09 to use standard ITE rate calculation per LP
  - ITE Trip Generation, 8th Edition, LUC 444 (Movie Theater with Matinee) - pm peak hour  
Daily trip rate calculated from LUC 443 ratio --- (weekday/pm peak) \* 20.22
  - ITE Trip Generation, 8th Edition, LUC 590 (Library)

# Seaport Square - Total Development

## Daily Peak Hour Trip Generation Estimation (Rates)

Howard/Stein-Hudson Associates  
May 14, 2009

Saturday Mid-Day Peak Hour Trip Generation																	
Land Use	Size	Category	Trip Rates (Trips/ksf or unit)	Unadjusted Vehicle Trips	Internal Trips	Capture Rate	Less capture trips	Assumed national vehicle occupancy rate <sup>1</sup>	Converted to Person trips	Transit Share <sup>2</sup>	Transit Trips	Walk/Bike/ Other Share <sup>2</sup>	Walk/ Bike/ Other Trips	Vehicle Share <sup>2</sup>	Vehicle Person Trips	Assumed local vehicle occupancy rate <sup>3</sup>	Total Adjusted Vehicle Trips
<b>Residential - Apartment<sup>4</sup></b>																	
Based on dwelling units	1,575	Total	0.52	819	108		711	1.2	853		299		333		222	1.2	191
	units	In	0.28	442	3		439	1.2	527	35%	184	39%	206	26%	137	1.2	118
		Out	0.24	377	105		272	1.2	326	35%	114	39%	127	26%	85	1.2	73
<b>Residential - Condominium<sup>5</sup></b>																	
Based on dwelling units	925	Total	0.28	259	63		196	1.2	235		82		92		61	1.2	53
	units	In	0.16	145	2		143	1.2	172	35%	60	39%	67	26%	45	1.2	39
		Out	0.12	114	62		52	1.2	63	35%	22	39%	24	26%	16	1.2	14
<b>Hotel<sup>6</sup></b>																	
	550	Total	0.72	396			396	1.2	475		105		195		176	1.8	98
	rooms	In	0.40	222			222	1.2	266	22%	59	41%	109	37%	98	1.8	55
		Out	0.32	174			174	1.2	209	22%	46	41%	86	37%	77	1.8	43
<b>Performing Arts Center<sup>7</sup></b>																	
	1,800	Total	0.00	0			0	2.1	0		0		0		0	2.4	0
	seats	In	0.00	0			0	2.1	0	42%	0	28%	0	30%	0	2.4	0
		Out	0.00	0			0	2.1	0	42%	0	28%	0	30%	0	2.4	0
<b>School<sup>8</sup></b>																	
	1800	Total	0.00	0			0	1.8	0		0		0		0	1.8	0
	students	In	0.00	0			0	1.8	0	42%	0	28%	0	30%	0	1.8	0
		Out	0.00	0			0	1.8	0	42%	0	28%	0	30%	0	1.8	0
<b>Office<sup>9</sup></b>																	
	1,300	Total	0.09	117	15		102	1.2	123		60		25		38	1.2	33
	KSF	In	0.05	63	3		60	1.2	72	49%	35	20%	14	31%	22	1.2	19
		Out	0.04	54	12		42	1.2	50	49%	25	20%	10	31%	16	1.2	13
<b>Retail<sup>10</sup></b>																	
	1,300	Total	4.89	6,357	181	25%	4,632	1.8	8,337		2,835		2,251		3,251	1.8	1,806
	KSF	In	2.54	3,306	176	25%	2,347	1.8	4,225	34%	1,436	27%	1,141	39%	1,648	1.8	915
		Out	2.35	3,051	5	25%	2,284	1.8	4,112	34%	1,398	27%	1,110	39%	1,604	1.8	891
<b>Church<sup>11</sup></b>																	
	24	Total	3.54	85			85	2.1	178		73		54		52	2.4	22
	KSF	In	2.51	60			60	2.1	127	41%	52	30%	38	29%	37	2.4	15
		Out	1.03	25			25	2.1	52	41%	21	30%	16	29%	15	2.4	6
<b>Library<sup>13</sup></b>																	
	10	Total	6.75	68			68	1.8	122		51		34		36	1.8	20
	KSF	In	3.58	36			36	1.8	64	42%	27	28%	18	30%	19	1.8	11
		Out	3.17	32			32	1.8	57	42%	24	28%	16	30%	17	1.8	10
<b>Total</b>																	
		Total		8,100			6,189		10,323		3,504		2,982		3,836		2,222
		In		4,274			3,308		5,453		1,854		1,593		2,006		1,172
		Out		3,826			2,881		4,869		1,650		1,389		1,830		1,050

- Notes:
- 2001 National vehicle occupancy rates - 1.2: home to work; 1.8: family/personal business; 1.8: shopping; 2.1 social/recreational
  - Local vehicle occupancy rates based on 2000 Census data.
  - ITE Trip Generation, 8th Edition, LUC 220 (Apartment)
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