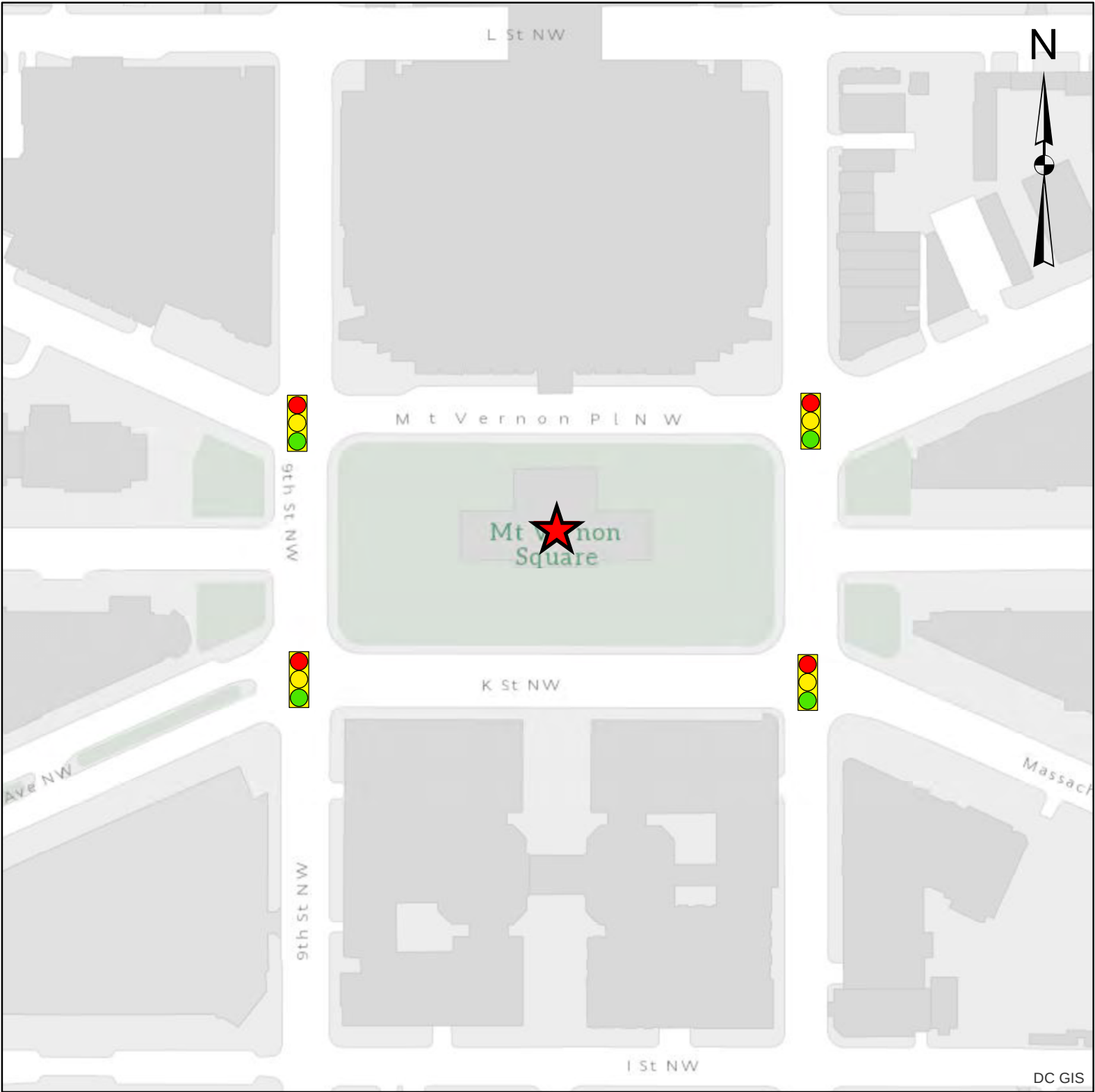




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Legend



Project Site



Signalized Intersection

Notes

Client/Project

APPLE, INC

CARNEGIE LIBRARY REDEVELOPMENT
801 K STREET NW
Washington, DC

Title

Exhibit 1 - Study Area

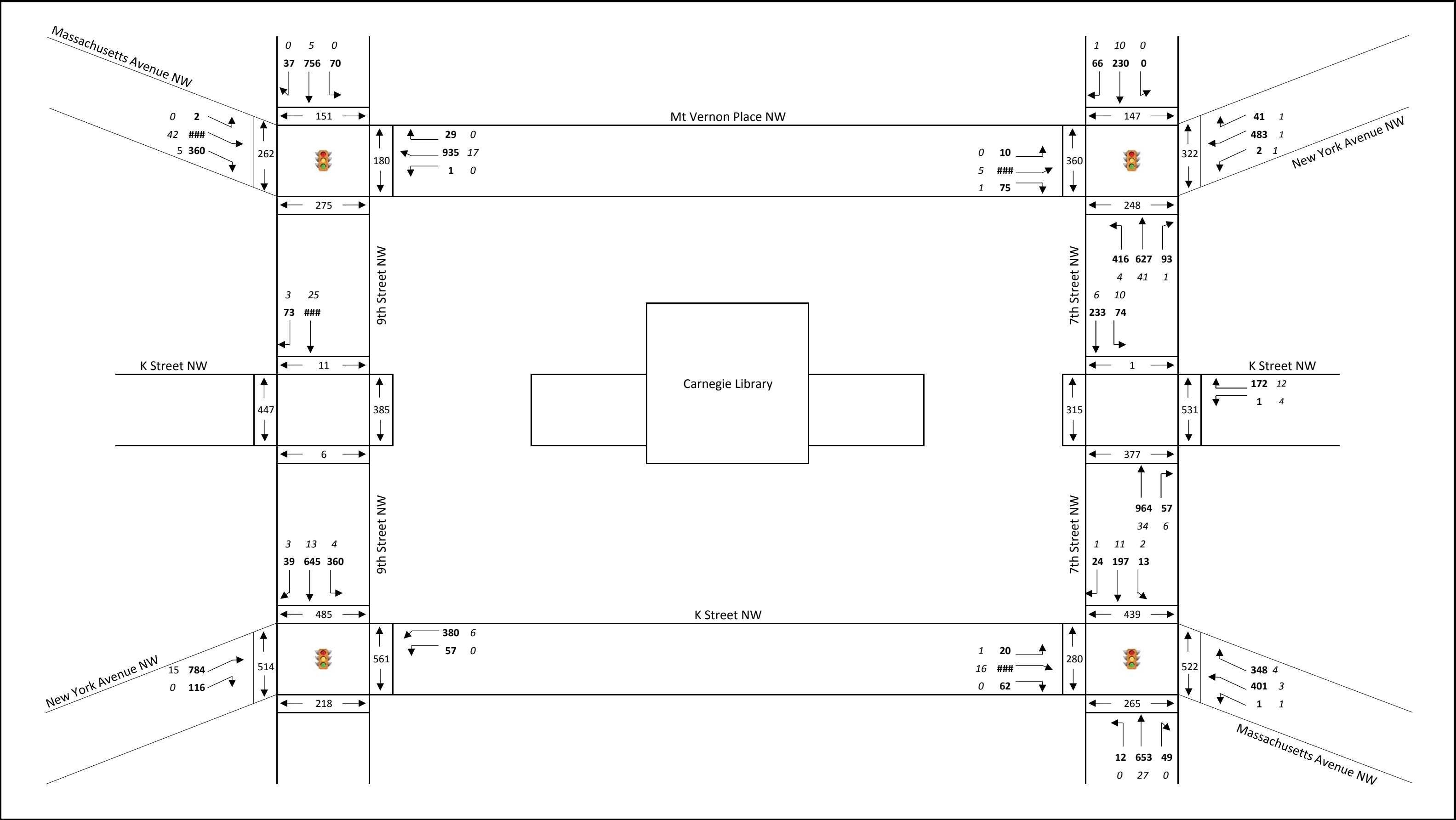
Project No.

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Scale

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DC GIS



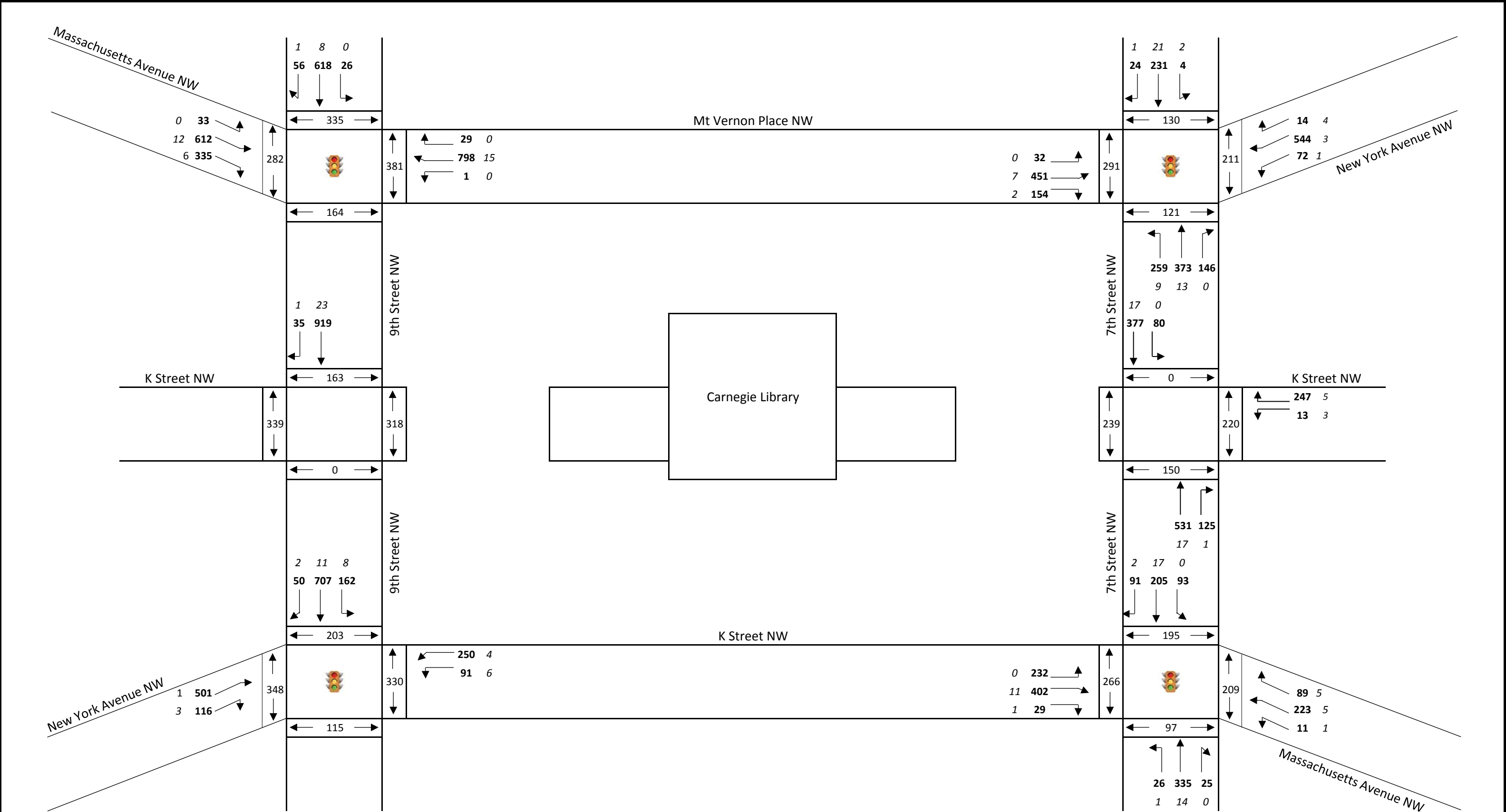


Exhibit 4
801 K Street NW
Capacity Analysis Results
2017 Existing Condition

Intersection	Lane Group	PM Peak Hour (4:45 PM - 5:45 PM)					Lane Group	Sat Peak Hour (1:00 PM - 2:00 PM)				
		v/c Ratio	Delay (sec)	Level of Service	50th %tile Queue Length (ft)	95th %tile Queue Length (ft)		v/c Ratio	Delay (sec)	Level of Service	50th %tile Queue Length (ft)	95th %tile Queue Length (ft)
9th Street NW & Massachusetts Avenue NW/ Mt Vernon Place NW <i>Signalized</i>	EB-LT	1.09	83.6	F	~508	#642	EB-LT	0.68	30.1	C	188	256
	EB-R	1.02	71.3	F	~101	#290	EB-R	0.78	18.0	B	0	#122
	WB-LTR	0.84	35.2	D	295	384	WB-LTR	0.74	22.3	C	288	m362
	SB-LTR	0.57	20.0	B	202	263	SB-LTR	0.47	18.9	B	161	212
	Intersection	-	53.2	D	-	-	Intersection	-	22.8	C	-	-
9th Street NW & New York Avenue NW/ K Street NW <i>Signalized</i>	EB-T	0.90	52.6	D	295	#410	EB-T	0.43	24.6	C	128	175
	EB-R	0.44	15.4	B	15	70	EB-R	0.29	7.9	A	7	47
	WB-LT	0.91dl	63.3	E	154	m#230	WB-LT	0.43	29.3	C	105	150
	SB-L	0.51	41.5	D	170	266	SB-L	0.61	61.0	E	117	m176
	SB-LT	0.36	14.3	B	97	121	SB-LT	0.45	32.6	C	168	217
	SB-R	0.07	2.2	A	0	11	SB-R	0.10	12.0	B	8	m31
	Intersection	-	38.6	D	-	-	Intersection	-	30.0	C	-	-
7th Street NW & Mt Vernon Place NW/ New York Avenue NW <i>Signalized</i>	EB-LTR	0.99	75.2	E	509	#683	EB-LTR	0.58	37.9	D	156	217
	WB-LT	0.34	20.4	C	118	159	WB-LT	0.60	26.0	C	163	222
	WB-R	0.08	0.3	A	0	0	WB-R	0.03	0.1	A	0	0
	NB-L	1.28	184.3	F	~395	m#482	NB-L	0.85	70.8	E	177	m#265
	NB-T	0.46	78.2	E	235	m263	NB-T	0.27	20.6	C	70	m90
	NB-R	0.20	10.9	B	22	m37	NB-R	0.29	7.2	A	8	m20
	SB-LTR	0.53	39.5	D	93	140	SB-LTR	0.49	39.0	D	78	119
	Intersection	-	75.5	E	-	-	Intersection	-	33.6	C	-	-
7th Street NW & K Street NW <i>Unsignalized</i>	WB-LR	1.46	310.4	F	-	318	WB-LR	0.82	52.1	F	-	176
	NB-TR	0.17	0.0	A	-	0	NB-TR	0.12	0.0	A	-	0
	SB-LT	0.23	4.4	A	-	22	SB-LT	0.15	2.0	A	-	12
	Intersection	-	36.9	E	-	-	Intersection	-	10.7	B	-	-
7th Street NW & K Street NW/ Massachusetts Avenue NW <i>Signalized</i>	EB-LTR	1.01	88.8	F	~297	m#413	EB-LTR	1.09	79.8	F	~226	#153
	WB-LTR	0.69	23.3	C	173	245	WB-LTR	0.31	19.5	B	64	100
	NB-LTR	1.01	108.9	F	~282	#416	NB-LTR	0.49	31.2	C	108	156
	SB-LTR	0.42	59.4	E	85	m118	SB-LTR	0.71	23.6	C	66	184
	Intersection	-	74.1	E	-	-	Intersection	-	45.7	D	-	-

v/c ratio = volume/capacity ratio
Source: Synchro 9

Exhibit 5
801 K Street NW
Site-Specific Development Trip Generation and Mode Splits

Trip Generation

1126 9th Street NW			PM Peak Hour			Saturday Peak Hour		
LUC	Size	Units	IN	OUT	TOTAL	IN	OUT	TOTAL
230	33	DU	16	8	24	28	24	52
TDM Reduction (70%)			11	6	17	20	17	36
New Vehicle Trips			5	2	7	8	7	16
710	3,723	SF	1	5	6	1	1	2
TDM Reduction (75%)			1	4	5	1	1	2
New Vehicle Trips			0	1	1	0	0	1
Total Trips			17	13	30	29	25	54
Total TDM Reduction			12	10	22	20	18	38
Total New Trips			5	3	8	9	7	16

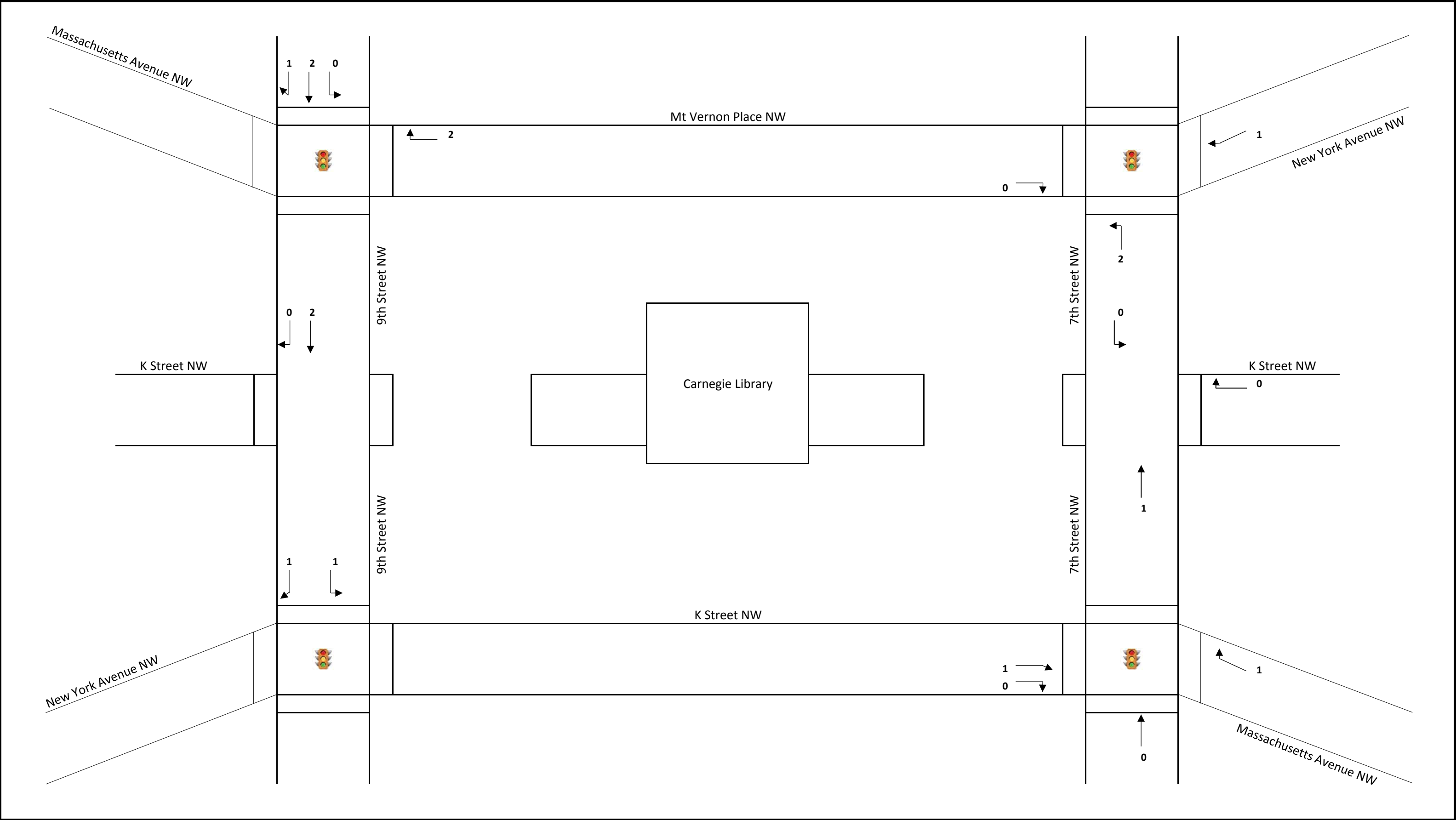
655 New York Avenue NW			PM Peak Hour			Saturday Peak Hour		
LUC	Size	Unit	IN	OUT	TOTAL	IN	OUT	TOTAL
710	678,000	SF	142	696	838	158	134	292
820	79,000	SF	246	266	512	390	360	750
Total New Vehicular Trips			388	962	1350	548	494	1042

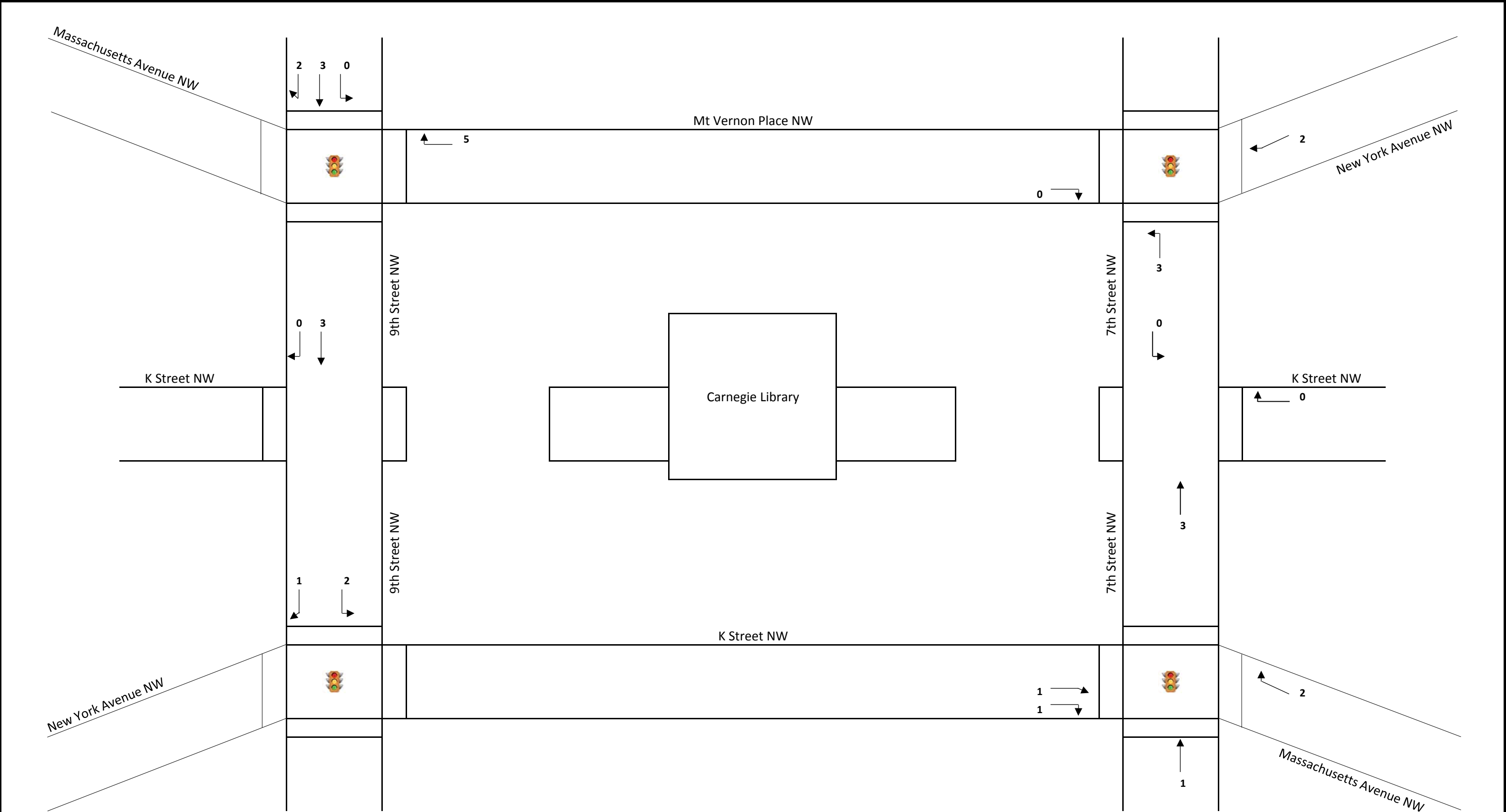
950 New York Avenue NW			PM Peak Hour			Saturday Peak Hour		
LUC	Size	Unit	IN	OUT	TOTAL	IN	OUT	TOTAL
310	360	SF	110	106	216	145	114	259
820	30,000	SF	128	139	267	208	192	400
Total New Vehicular Trips			238	245	483	353	306	659

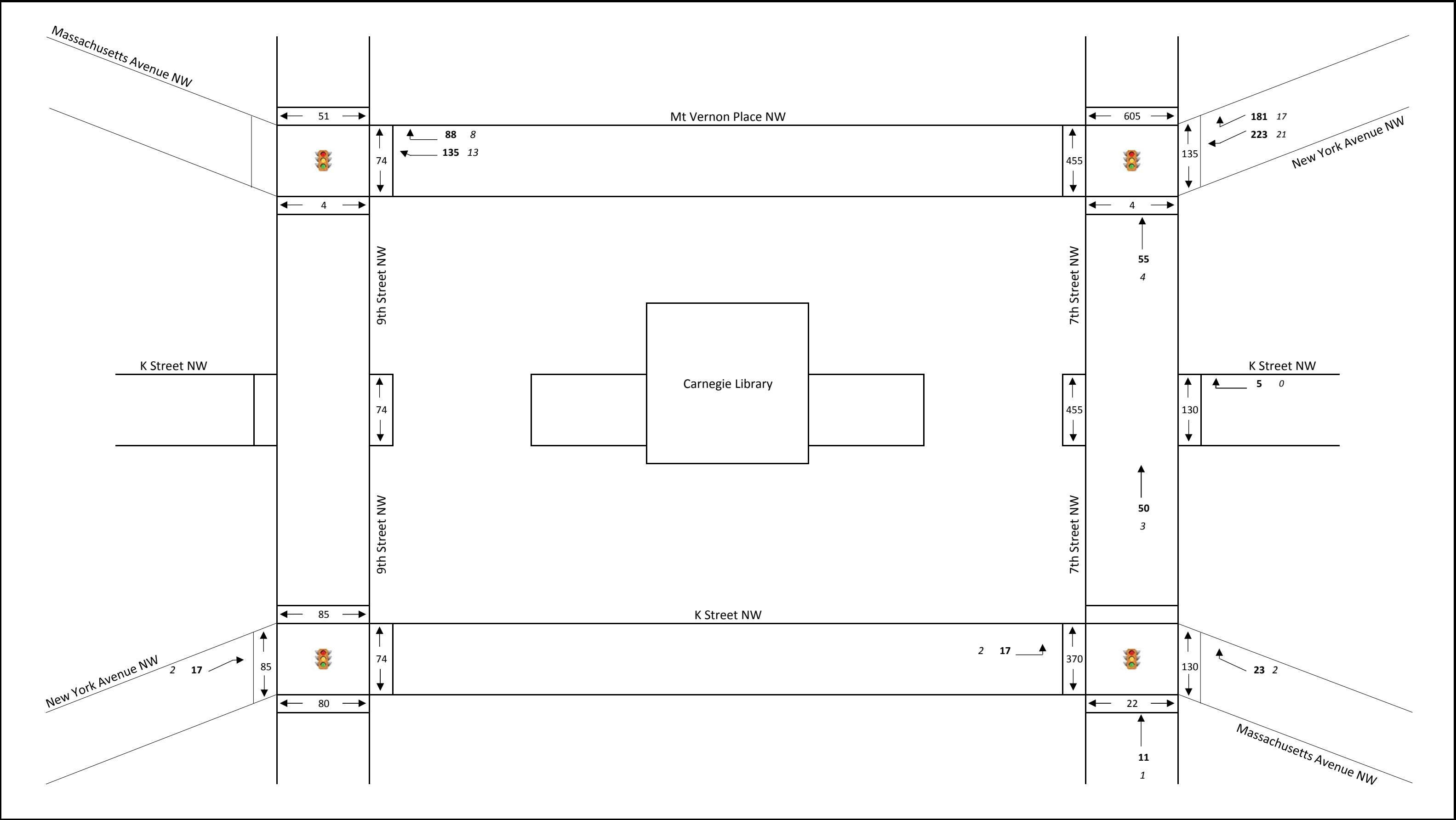
Mode Splits

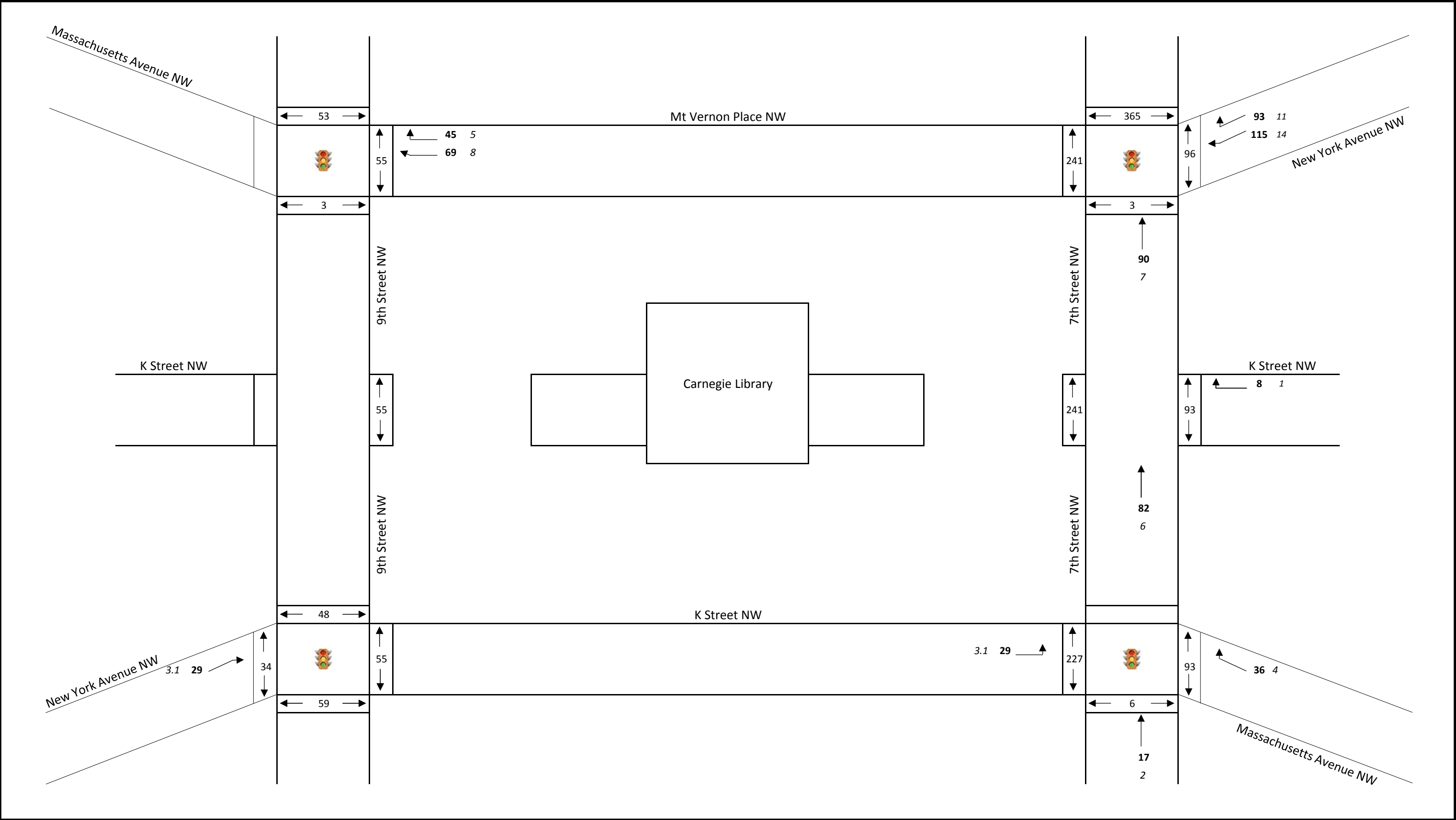
Mode	PM %		Trips								
			1126 9th Street NW			655 New York Avenue NW			950 New York Avenue NW		
	In	Out	In	Out	Total	In	Out	Total	In	Out	Total
Drive Alone	16%	16%	3	2	5	62	154	216	38	39	77
Carpool	4%	4%	1	1	1	16	38	54	10	10	19
Car-share	0.5%	0.5%	0	0	0	2	5	7	1	1	2
Taxi/ Uber/ Lyft	17%	17%	3	2	5	66	164	230	40	42	82
Delivery	0.5%	0.5%	0	0	0	2	5	7	1	1	2
Bus	5%	5%	1	1	2	19	48	68	12	12	24
Rail/ Subway	29%	29%	5	4	9	113	279	392	69	71	140
Walk	24%	24%	4	3	7	93	231	324	57	59	116
Bike	4%	4%	1	1	1	16	38	54	10	10	19
Total			17	13	30	388	962	1350	238	245	483

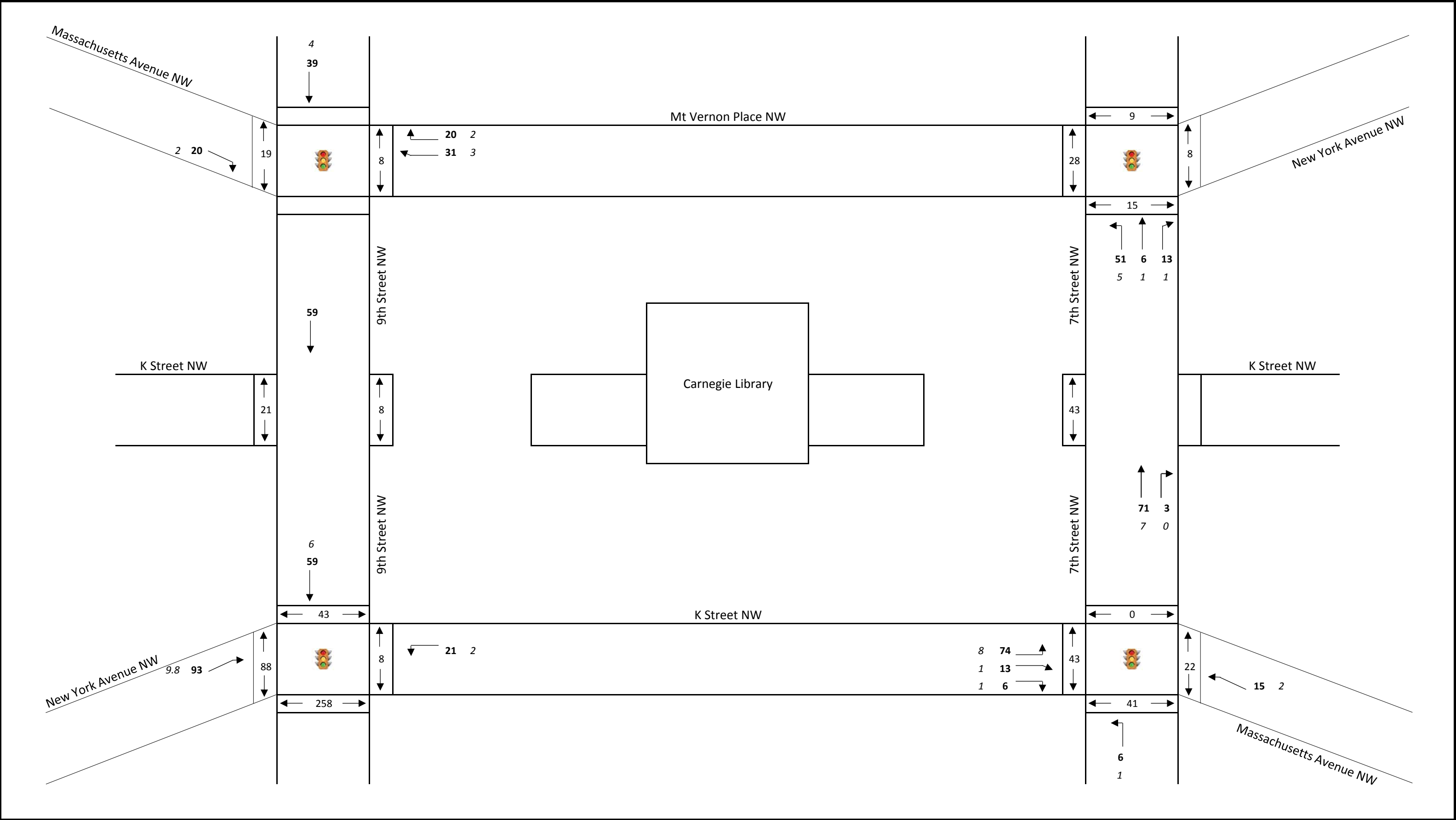
Mode	Saturday %		Trips								
			1126 9th Street NW			655 New York Avenue NW			950 New York Avenue NW		
	In	Out	In	Out	Total	In	Out	Total	In	Out	Total
Drive Alone	14%	14%	4	4	8	77	69	146	49	43	92
Carpool	11%	11%	3	3	6	60	54	115	39	34	72
Car-share	0.5%	0.5%	0	0	0	3	2	5	2	2	3
Taxi/ Uber/ Lyft	16%	16%	5	4	9	88	79	167	56	49	105
Delivery	0.5%	0.5%	0	0	0	3	2	5	2	2	3
Bus	5%	5%	1	1	3	27	25	52	18	15	33
Rail/ Subway	23%	23%	7	6	12	126	114	240	81	70	152
Walk	25%	25%	7	6	14	137	124	261	88	77	165
Bike	5%	5%	1	1	3	27	25	52	18	15	33
Total			29	25	54	548	494	1042	353	306	659

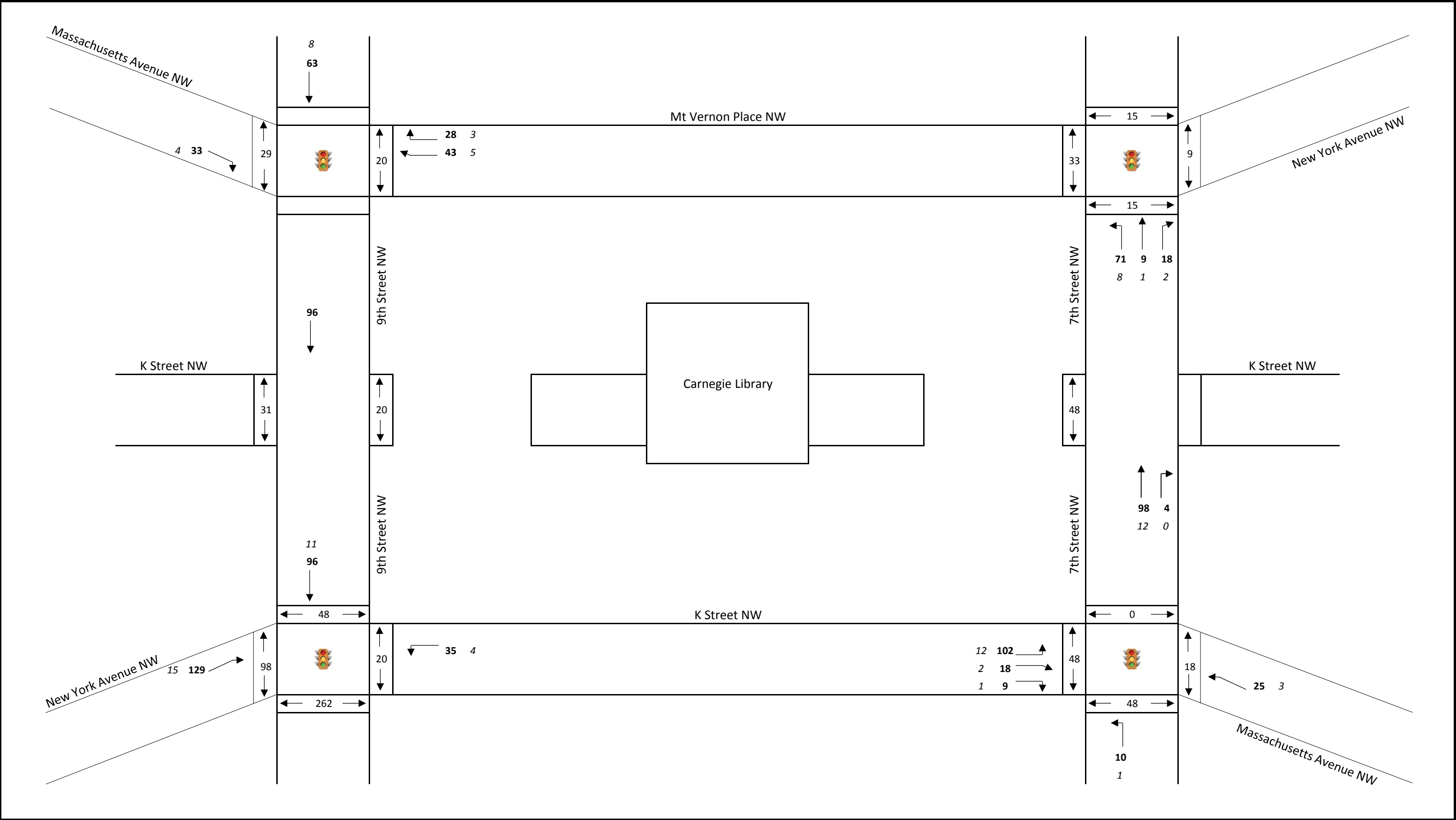


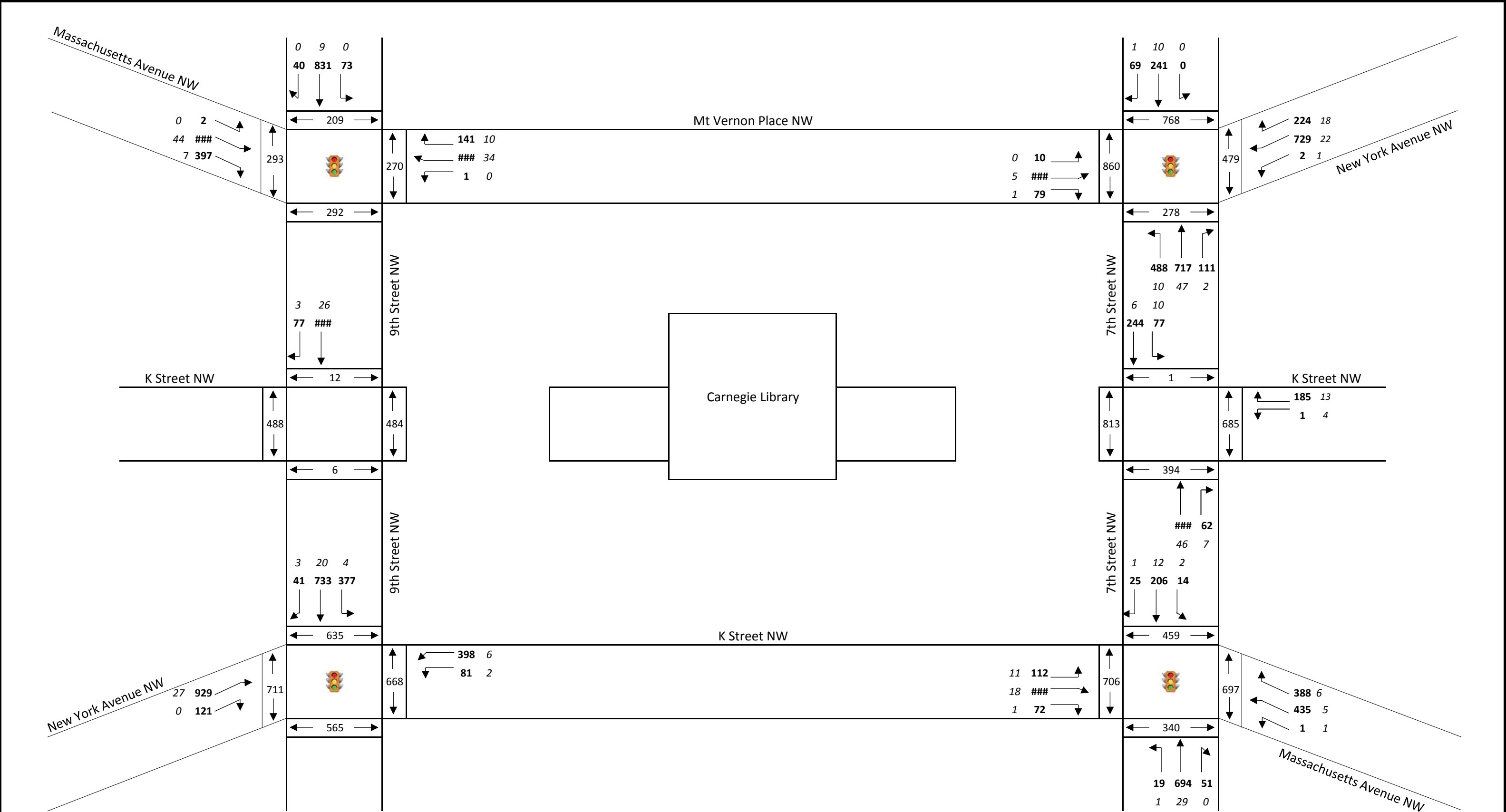












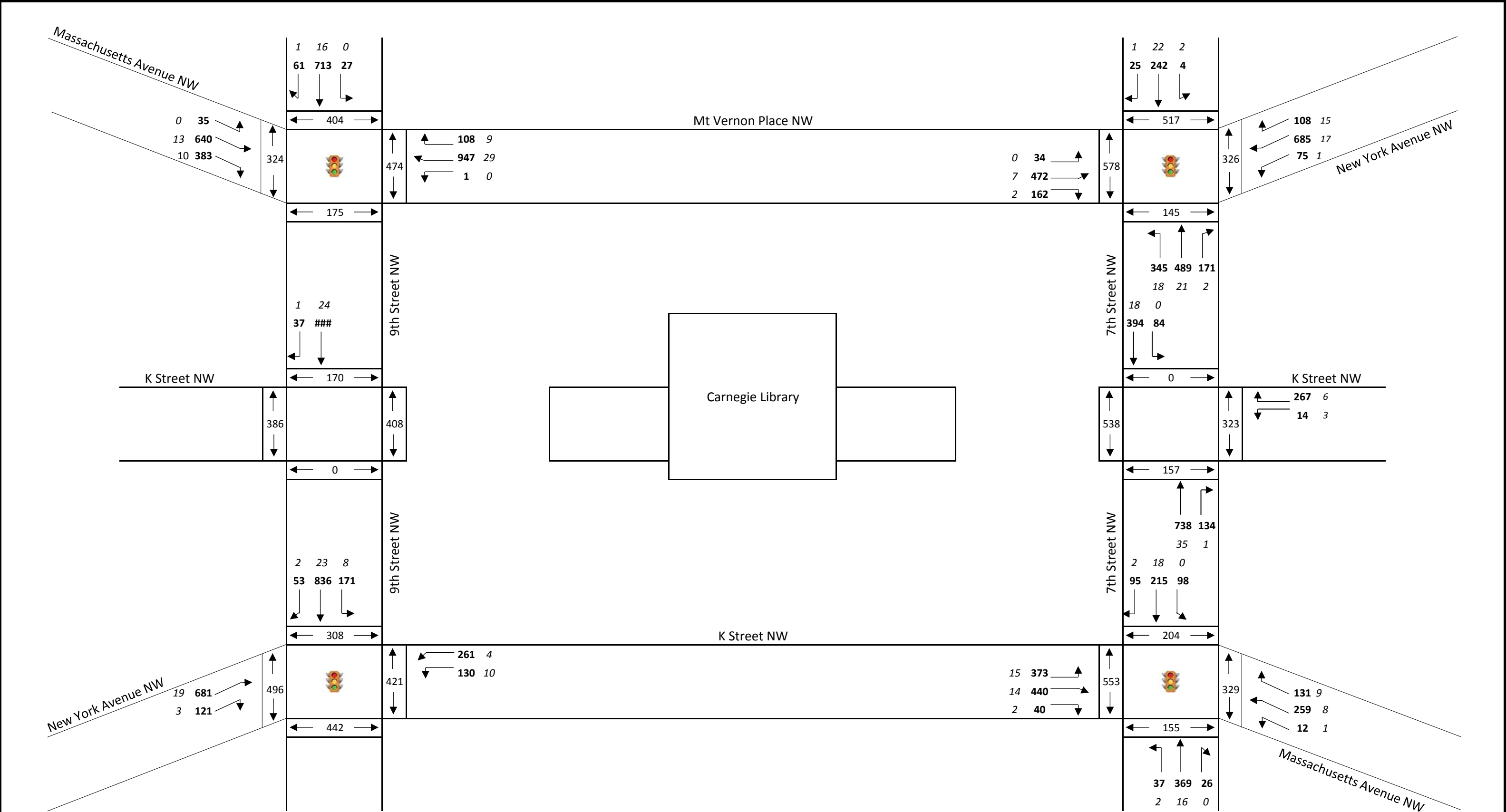


Exhibit 14
801 K Street NW
Capacity Analysis Results
2020 No Build Condition

Intersection	Lane Group	PM Peak Hour (4:45 PM - 5:45 PM)					Lane Group	Sat Peak Hour (1:00 PM - 2:00 PM)				
		v/c Ratio	Delay (sec)	Level of Service	50th %tile Queue Length (ft)	95th %tile Queue Length (ft)		v/c Ratio	Delay (sec)	Level of Service	50th %tile Queue Length (ft)	95th %tile Queue Length (ft)
9th Street NW & Massachusetts Avenue NW/ Mt Vernon Place NW <i>Signalized</i>	EB-LT	1.21	130.6	F	~576	#712	EB-LT	0.83	37.6	D	214	#302
	EB-R	1.09	91.7	F	~143	#331	EB-R	0.85	24.4	C	16	#169
	WB-LTR	1.20	129.9	F	~543	#680	WB-LTR	0.98	62.5	E	406	m#463
	SB-LTR	0.62	21.1	C	230	297	SB-LTR	0.56	20.5	C	196	255
	Intersection	-	100.6	F	-	-	Intersection	-	40.2	D	-	-
9th Street NW & New York Avenue NW/ K Street NW <i>Signalized</i>	EB-T	1.07	89.2	F	~404	#533	EB-T	0.58	27.3	C	186	246
	EB-R	0.48	17.6	B	18	79	EB-R	0.35	9.3	A	9	53
	WB-LT	1.29dl	88.5	F	~176	m#290	WB-LT	0.58	34.4	C	136	m186
	SB-L	0.56	46.8	D	189	293	SB-L	0.64	42.8	D	116	m182
	SB-LT	0.39	15.5	B	110	136	SB-LT	0.53	15.6	B	107	m131
	SB-R	0.07	2.4	A	0	12	SB-R	0.12	1.3	A	2	m2
	Intersection	-	57.1	E	-	-	Intersection	-	23.6	C	-	-
7th Street NW & Mt Vernon Place NW/ New York Avenue NW <i>Signalized</i>	EB-LTR	1.04	89.2	F	~600	#740	EB-LTR	0.62	33.7	C	238	m292
	WB-LT	0.53	23.5	C	198	257	WB-LT	0.74	30.2	C	217	292
	WB-R	0.62	19.4	B	58	155	WB-R	0.31	4.8	A	0	26
	NB-L	1.51	270.6	F	~511	m#538	NB-L	1.13	126.5	F	~271	m#336
	NB-T	0.52	76.9	E	254	m258	NB-T	0.36	26.0	C	106	m115
	NB-R	0.25	11.2	B	29	m37	NB-R	0.34	14.4	B	25	m47
	SB-LTR	0.58	41.5	D	100	149	SB-LTR	0.52	39.7	D	82	125
	Intersection	-	87.3	F	-	-	Intersection	-	41.1	D	-	-
7th Street NW & K Street NW <i>Unsignalized</i>	WB-LR	3.39	err	F	-	err	WB-LR	1.21	168.6	F	-	346
	NB-TR	0.20	0.0	A	-	0	NB-TR	0.14	0.0	A	-	0
	SB-LT	0.78	90.1	F	-	107	SB-LT	0.21	3.8	A	-	20
	Intersection	-	1103.7	F	-	-	Intersection	-	30.1	D	-	-
7th Street NW & K Street NW/ Massachusetts Avenue NW <i>Signalized</i>	EB-LTR	1.92	448.6	F	~787	m#776	EB-LTR	1.66	323.3	F	~440	#534
	WB-LTR	0.78	27.1	C	208	293	WB-LTR	0.42	24.3	C	98	142
	NB-LTR	1.10	104.5	F	~339	#465	NB-LTR	0.57	34.0	C	125	177
	SB-LTR	0.47	60.8	E	90	m123	SB-LTR	0.79	29.4	C	70	#205
	Intersection	-	224.0	F	-	-	Intersection	-	149.0	F	-	-

v/c ratio = volume/capacity ratio
Source: Synchro 9

Exhibit 15**801 K Street NW****2015 Existing Network AADT for Trip Distribution (Car and Truck)**

Roadway	AADT	Car Distribution	Truck AADT	Truck Distribution
Massachusetts Avenue NW west of 9th Street NW	17850	21%	17850	22%
New York Avenue NW west of 9th Street NW	9450	11%	9450	12%
K Street NW west of 9th Street NW (one direction)	900	1%	900	1%
9th Street NW (one direction)	18300	22%	18300	22%
7th Street NW	11400	14%	11400	14%
Massachusetts Avenue NW east of 7th Street NW	11800	14%	11800	14%
New York Avenue NW east of 7th Street NW	12000	14%	12000	15%
K Street NW east of 7th Street NW	2500	3%	-	-
Total Network AADT	84200	100%	81700	100%

Notes:

"Car" includes drive alone, carpool, carshare, and taxi/Uber/Lyft modes.

"Truck" includes delivery mode.

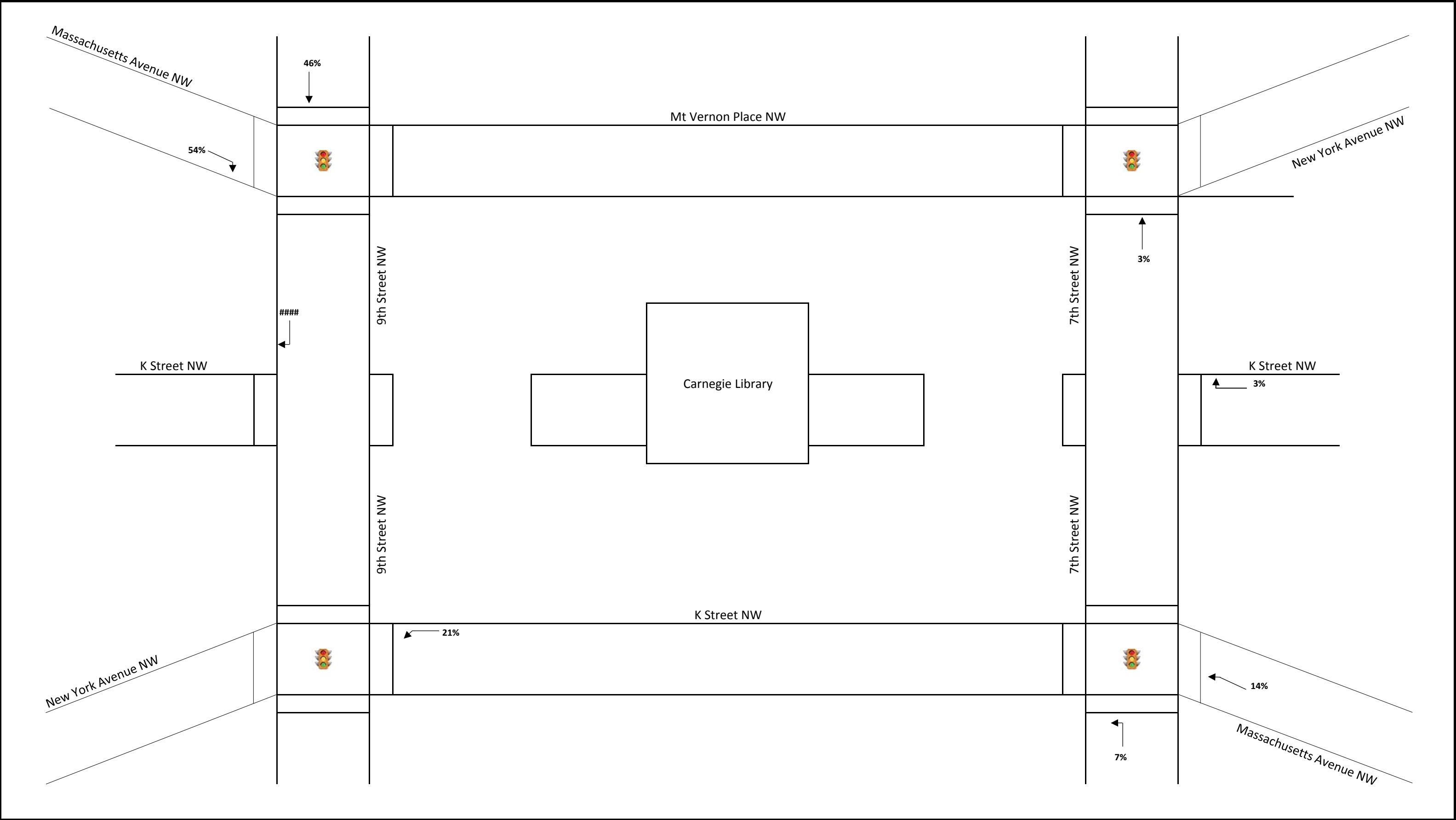
K Street NW east of 7th Street NW is not a truck through route, therefore, that AADT was excluded from the Truck Distribution calculation.

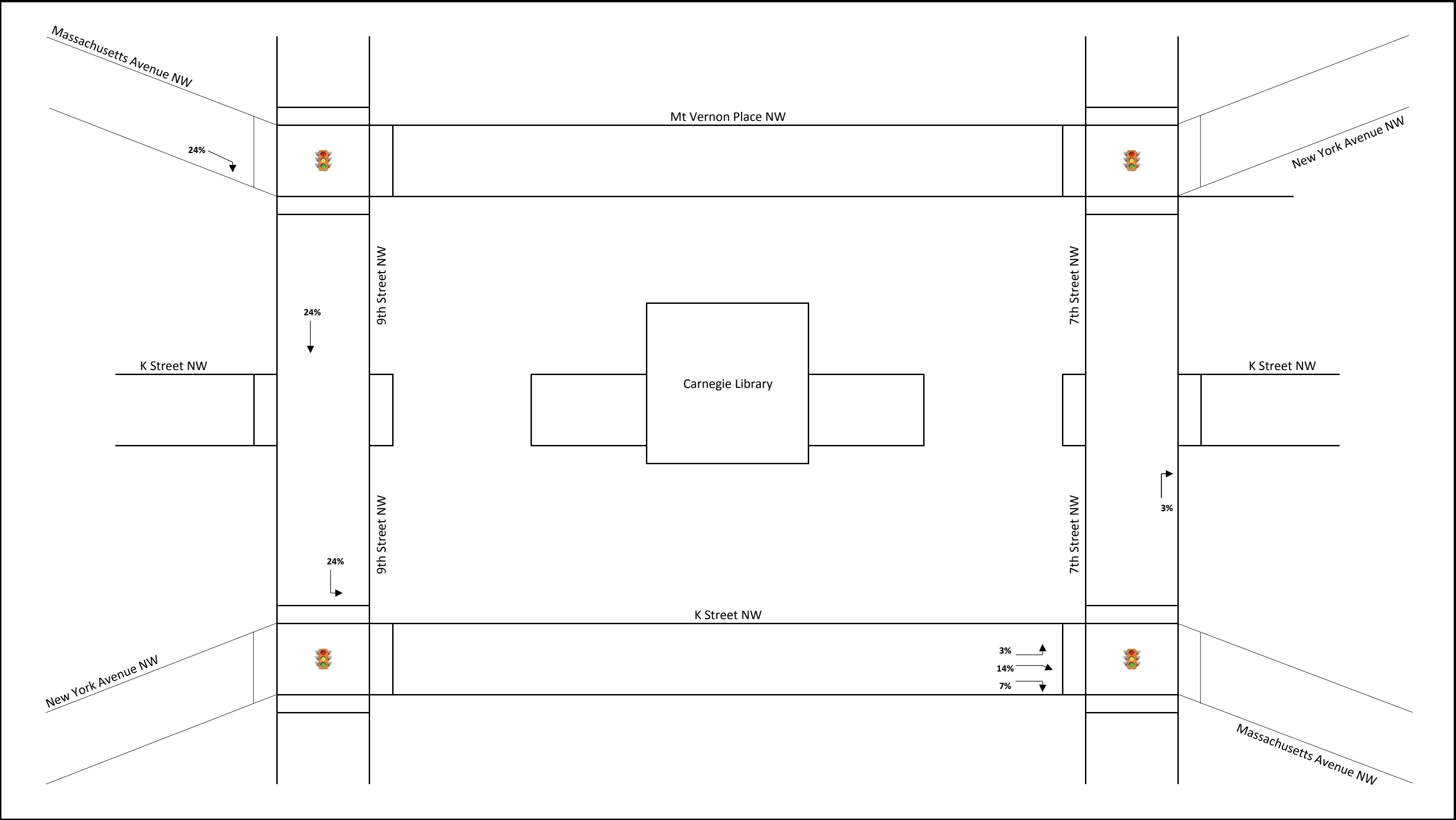
AADT Source: RTDC Data Viewer, maintained by MWCOC.

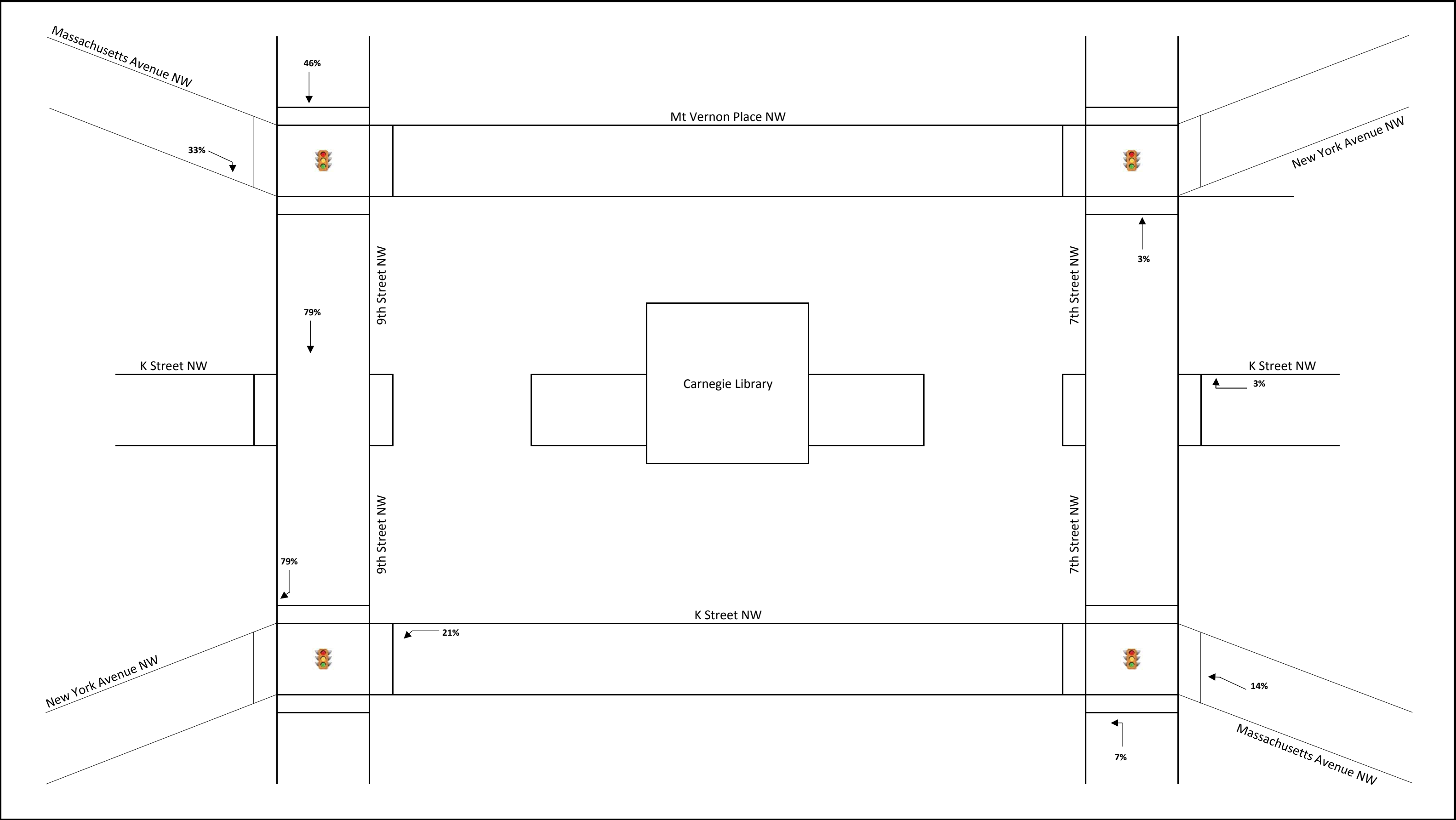
Exhibit 16
801 K Street NW
Parking Facility Distribution

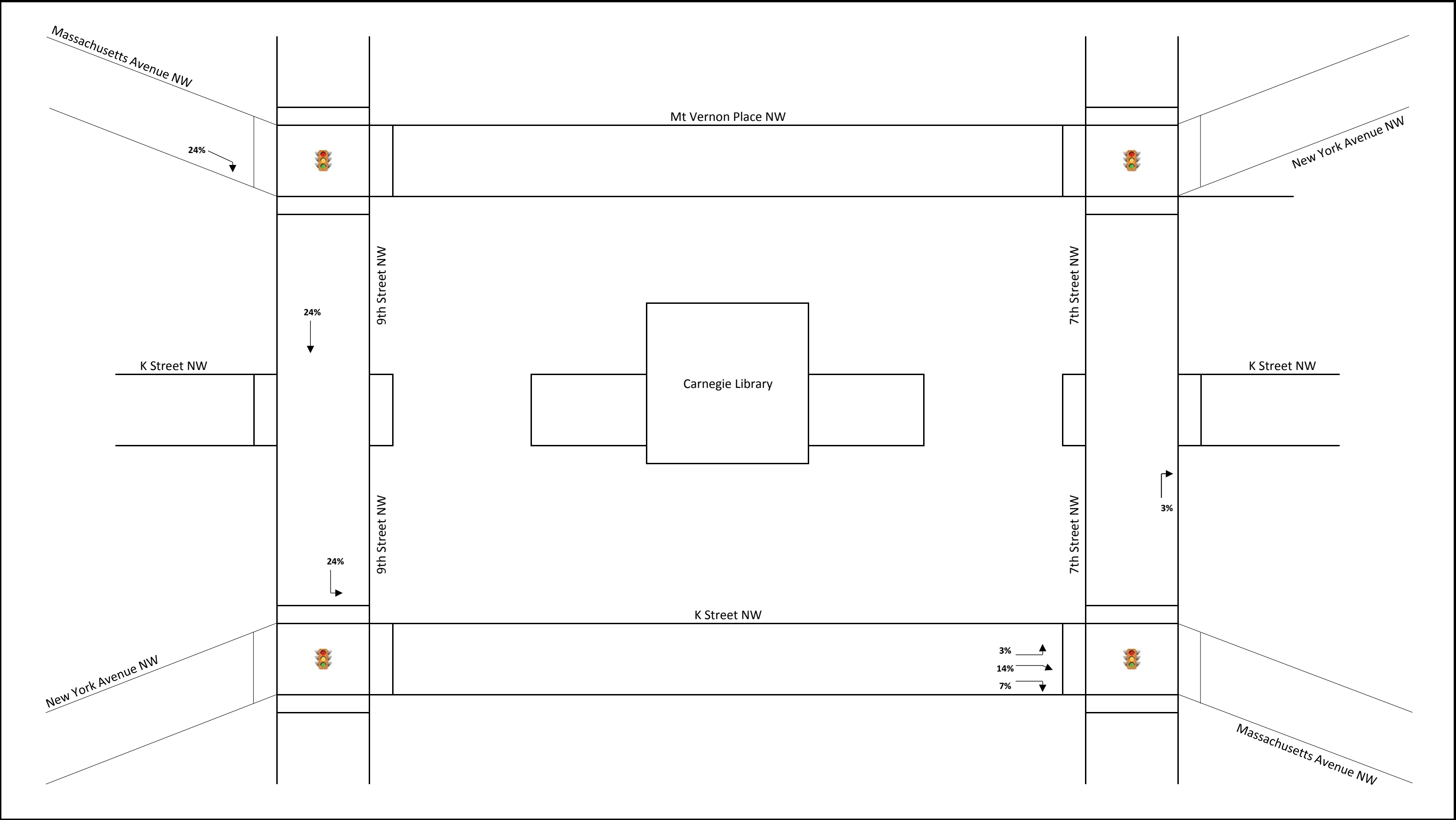
Parking Facility Distribution	No. of Facilities Available		Total % Using	% Using Each	
	PM	Sat		PM	Sat
On-Street (ST)	6	12	15%	2.50%	1.25%
Off-Street Surface (SUR)	2	2	25%	12.50%	12.50%
Off-Street Structured Self-Park (STR)	6	2	45%	7.50%	22.50%
Off-Street Structured Valet Only (STR)	1	1	15%	15.00%	15.00%

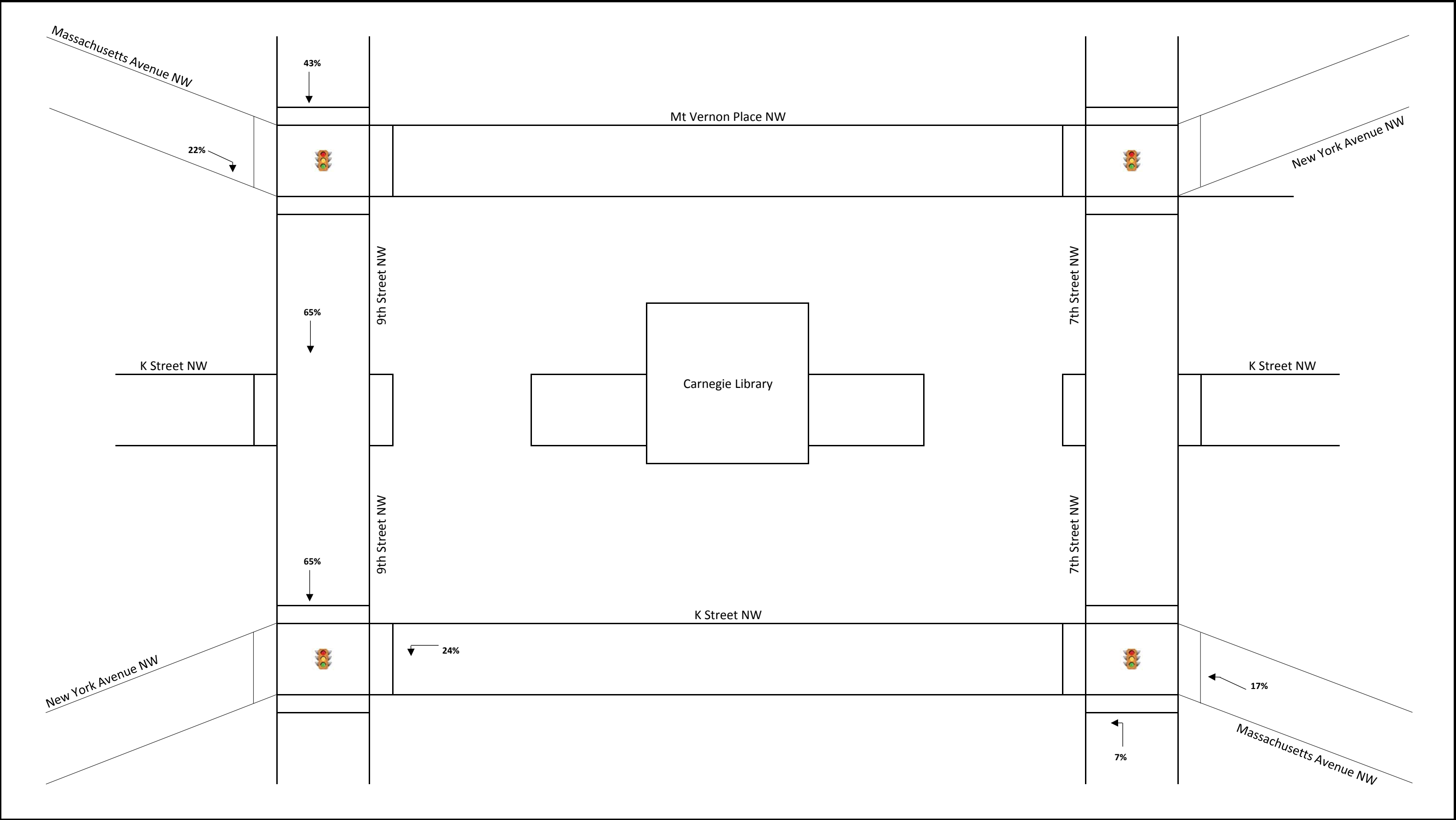
Parking Facilities	Type	PM Trips					Saturday Trips				
		Facility Use	Car In	Car Out	Ped In	Ped Out	Facility Use	Car In	Car Out	Ped In	Ped Out
Marriott Marquis	Structured	15.00%	12	7	14	8	15.00%	14	10	20	14
901 K Street	Structured	7.50%	6	3	7	4	0%	0	0	0	0
901 New York Avenue	Structured	7.50%	6	3	7	4	0%	0	0	0	0
K Street west of 9th Street	Street	2.50%	2	1	2	1	1.25%	1	1	2	1
WB New York Avenue west of 9th Street	Street	2.50%	2	1	2	1	1.25%	1	1	2	1
EB New York Avenue west of 9th Street	Street	2.50%	2	1	2	1	1.25%	1	1	2	1
900 New York Avenue	Surface	12.50%	10	6	12	7	12.50%	12	8	16	11
999 9th Street	Structured	7.50%	6	3	7	4	22.50%	21	14	29	20
650 Massachusetts Avenue	Structured	7.50%	6	3	7	4	0%	0	0	0	0
600 Massachusetts Avenue	Structured	7.50%	6	3	7	4	22.50%	21	14	29	20
EB Massachusetts Avenue east of 7th Street	Street	0%	0	0	0	0	1.25%	1	1	2	1
WB Massachusetts Avenue east of 7th Street	Street	0%	0	0	0	0	1.25%	1	1	2	1
601 Massachusetts Avenue	Structured	7.50%	6	3	7	4	0%	0	0	0	0
SB 7th Street south of K Street	Street	0%	0	0	0	0	1.25%	1	1	2	1
EB K Street east of 7th Street	Street	2.50%	2	1	2	1	1.25%	1	1	2	1
WB K Street east of 7th Street	Street	2.50%	2	1	2	1	1.25%	1	1	2	1
EB New York Avenue east of 7th Street	Street	0%	0	0	0	0	1.25%	1	1	2	1
WB New York Avenue east of 7th Street	Street	0%	0	0	0	0	1.25%	1	1	2	1
1016 6th Street	Surface	12.50%	10	6	12	7	12.50%	12	8	16	11
NB 7th Street north of Mt Vernon Place	Street	2.50%	2	1	2	1	1.25%	1	1	2	1
SB 7th Street north of Mt Vernon Place	Street	0%	0	0	0	0	1.25%	1	1	2	1

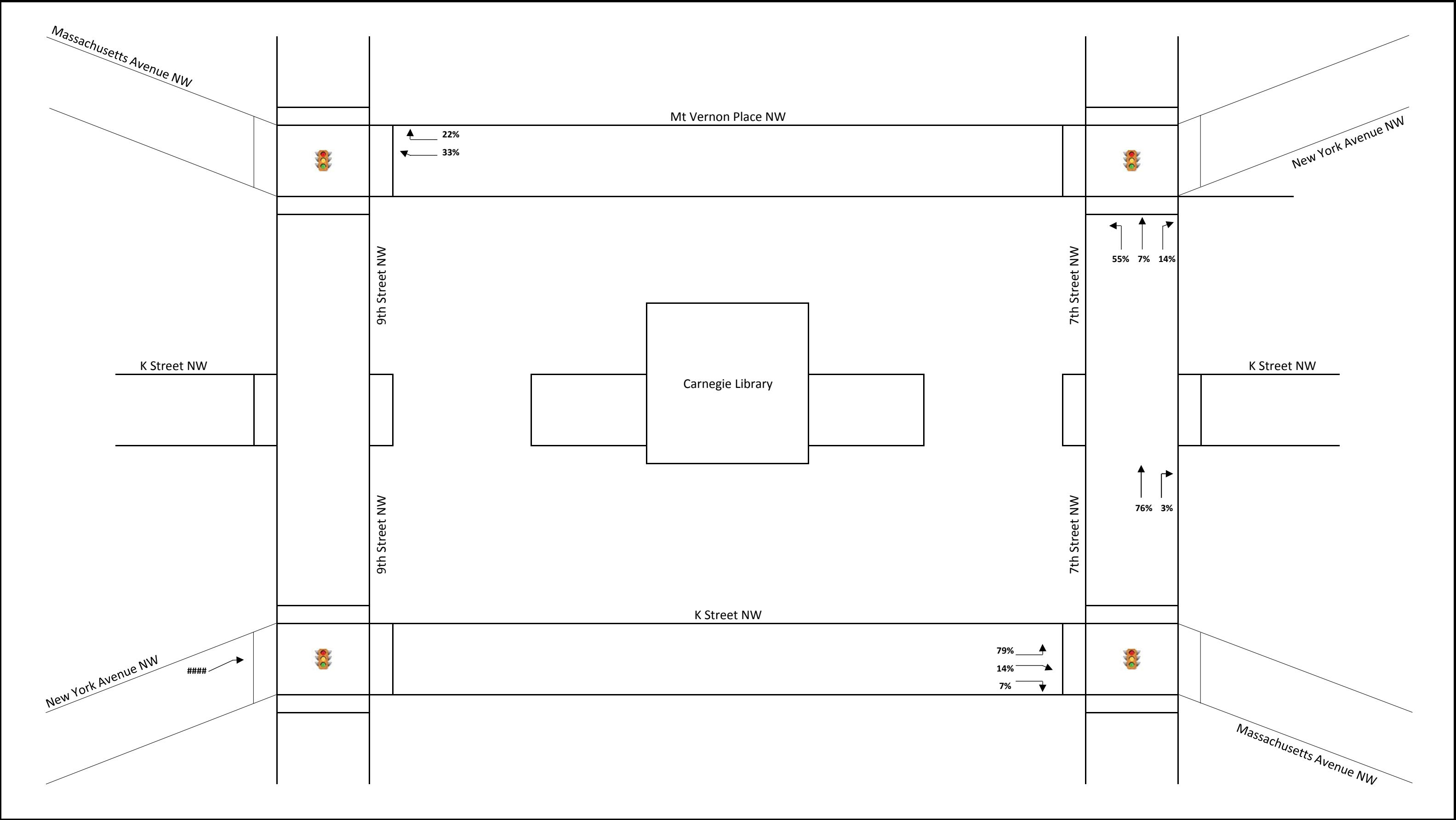


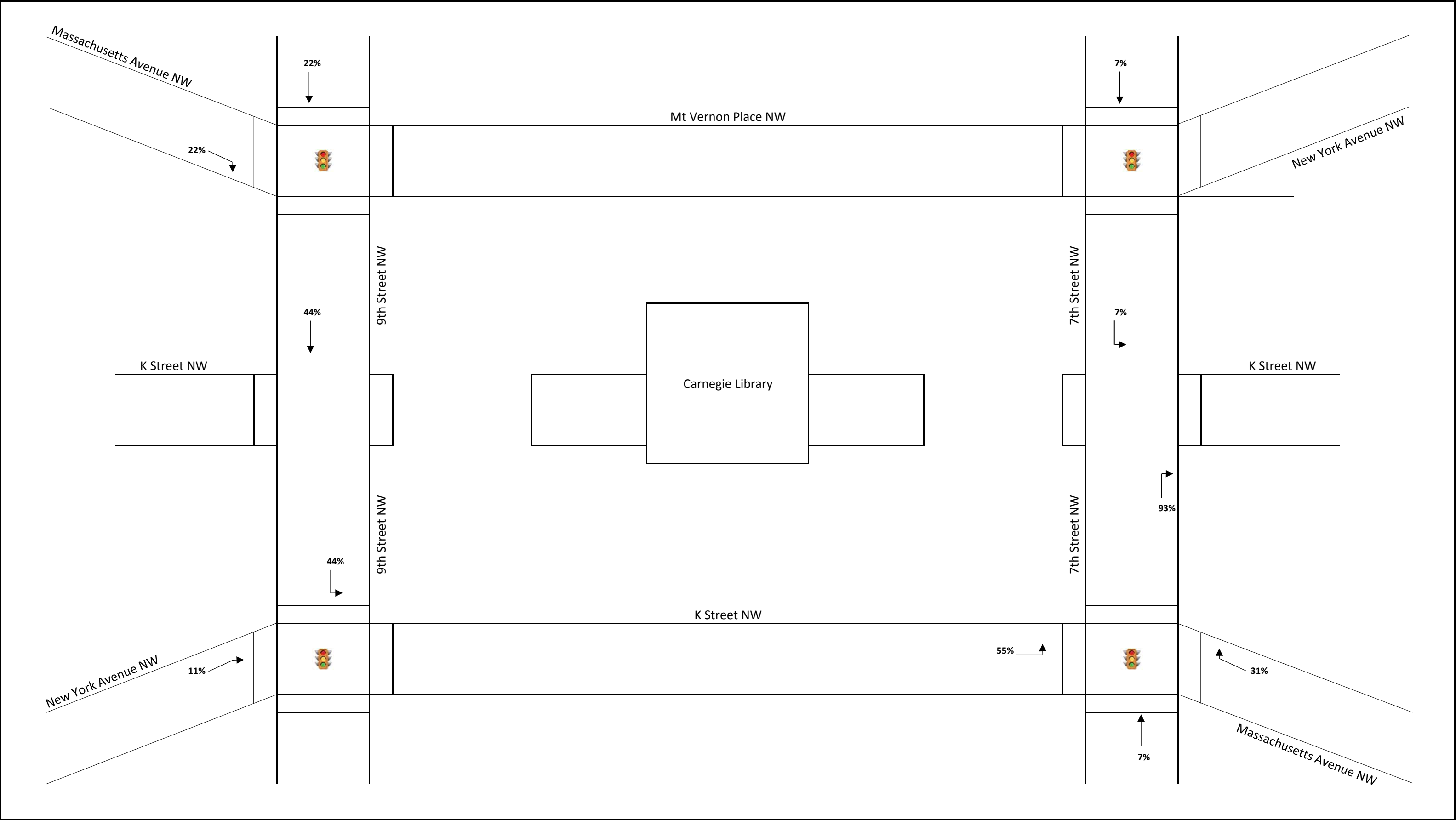


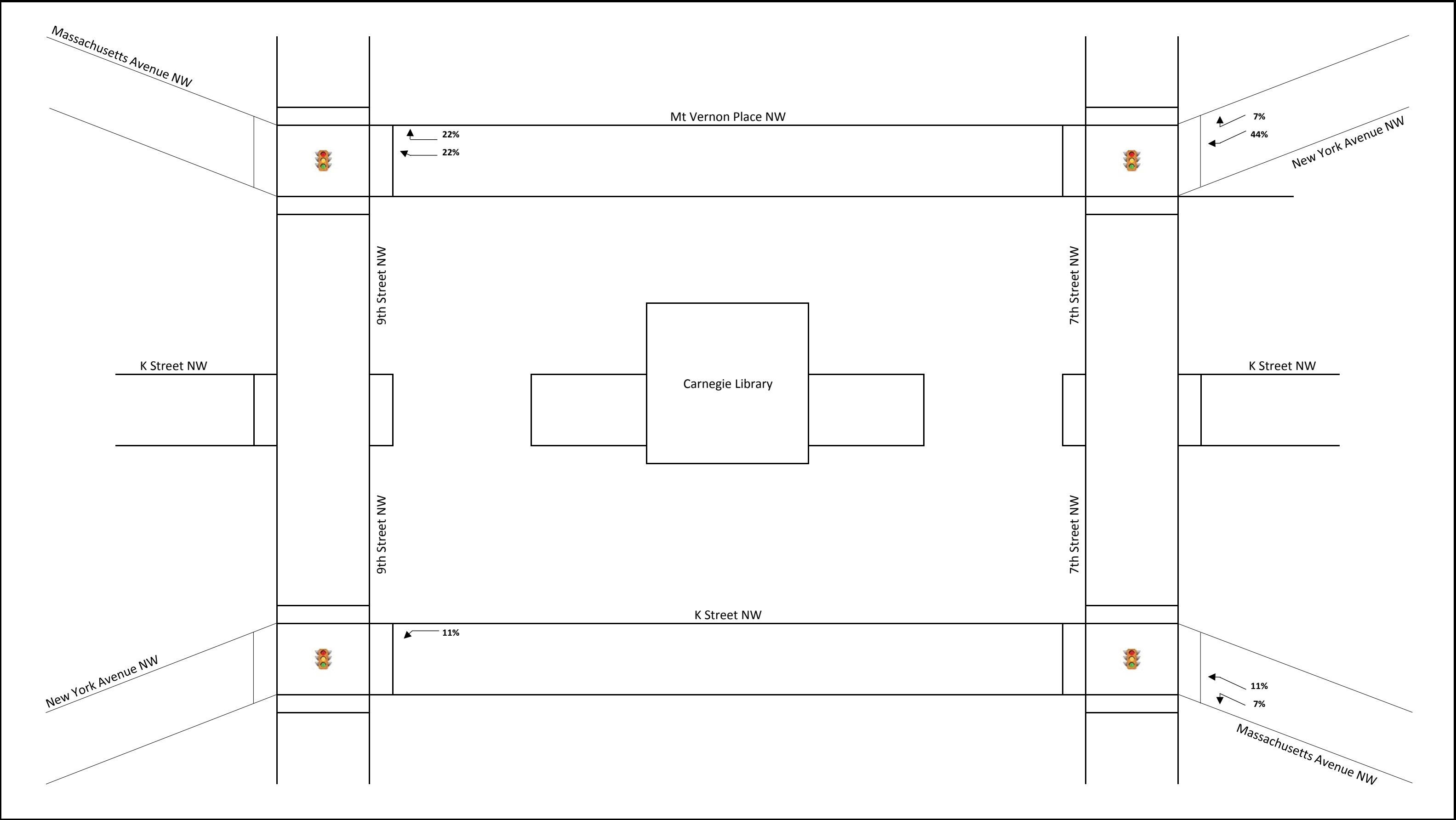


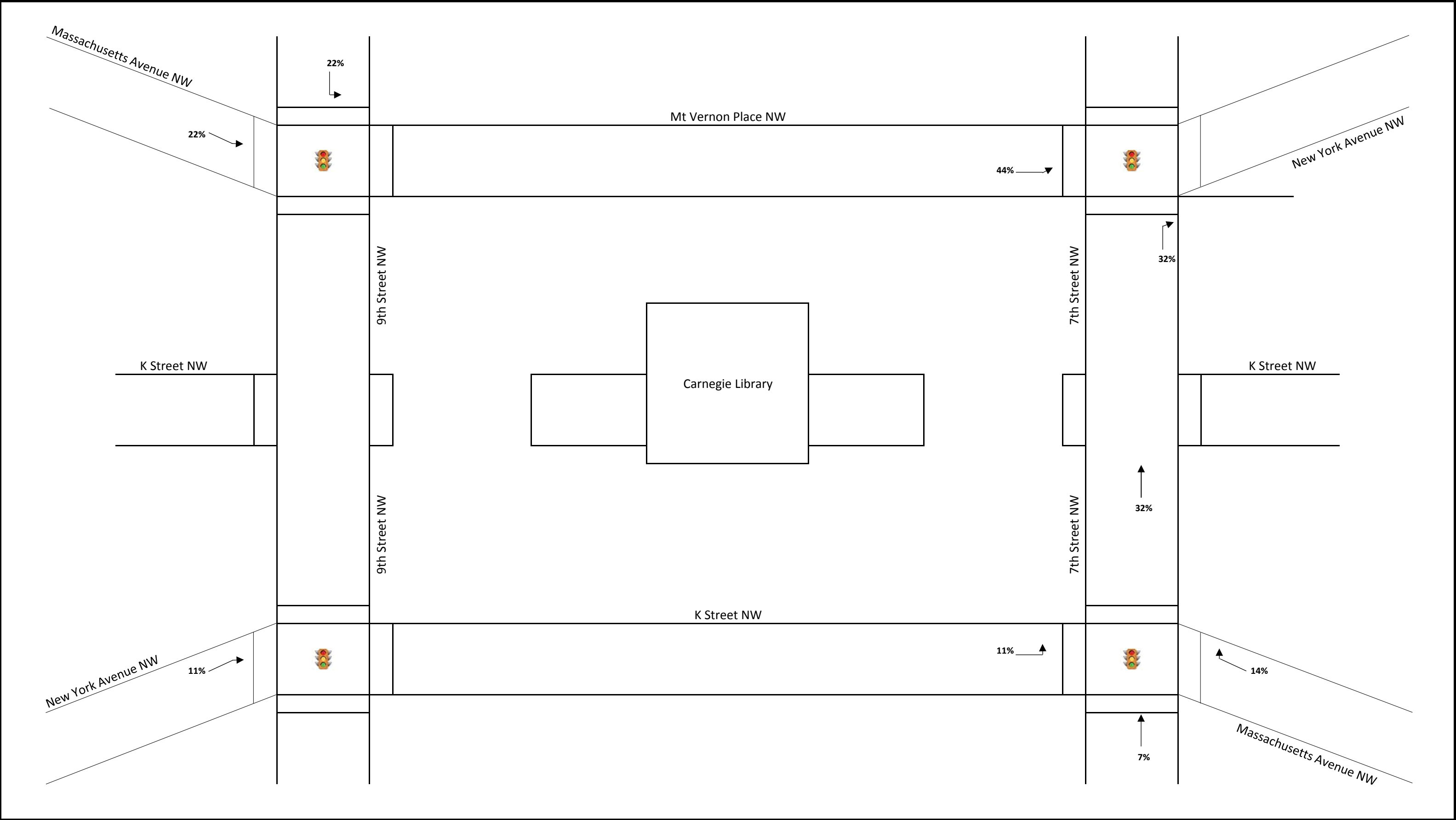


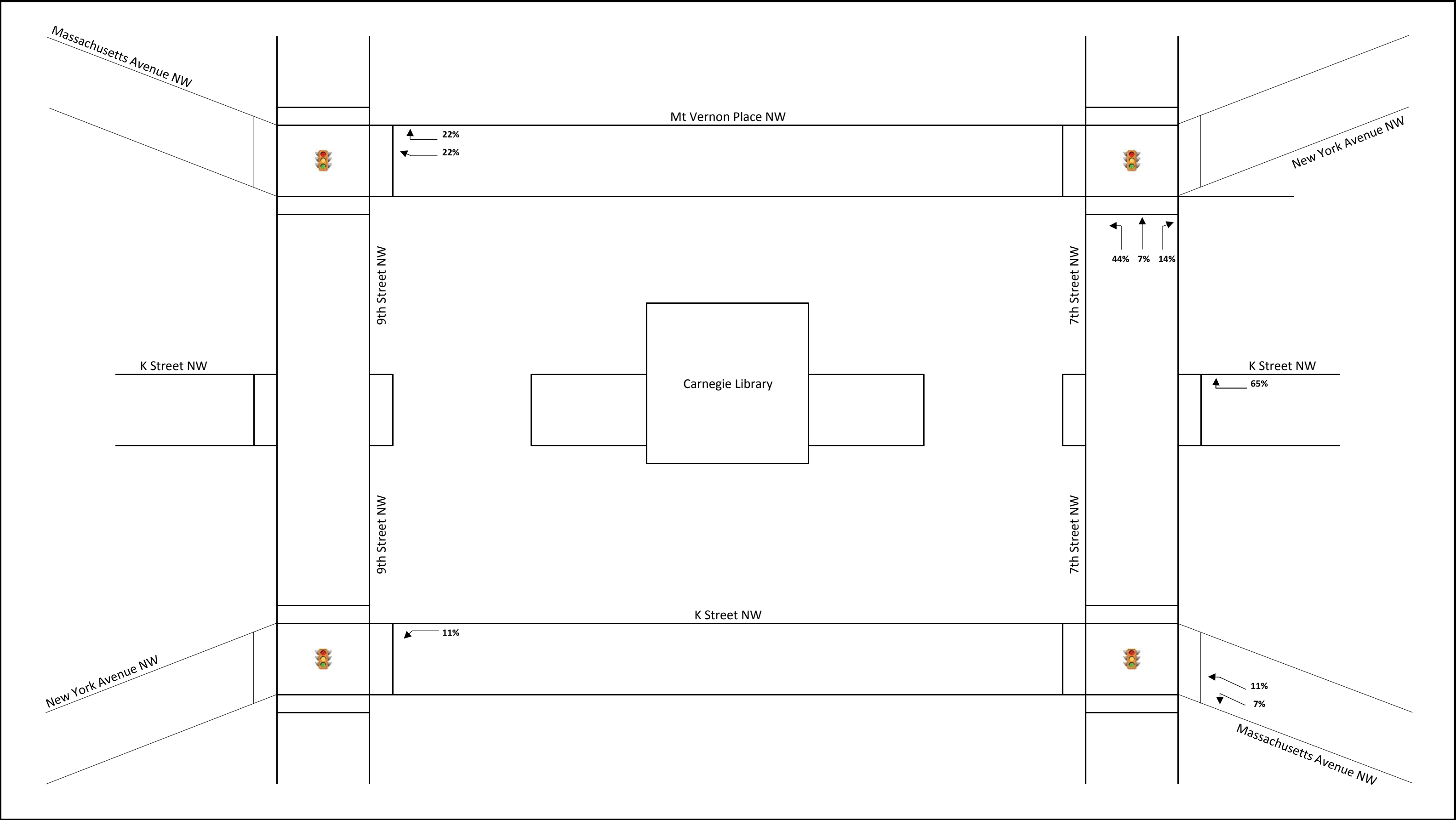


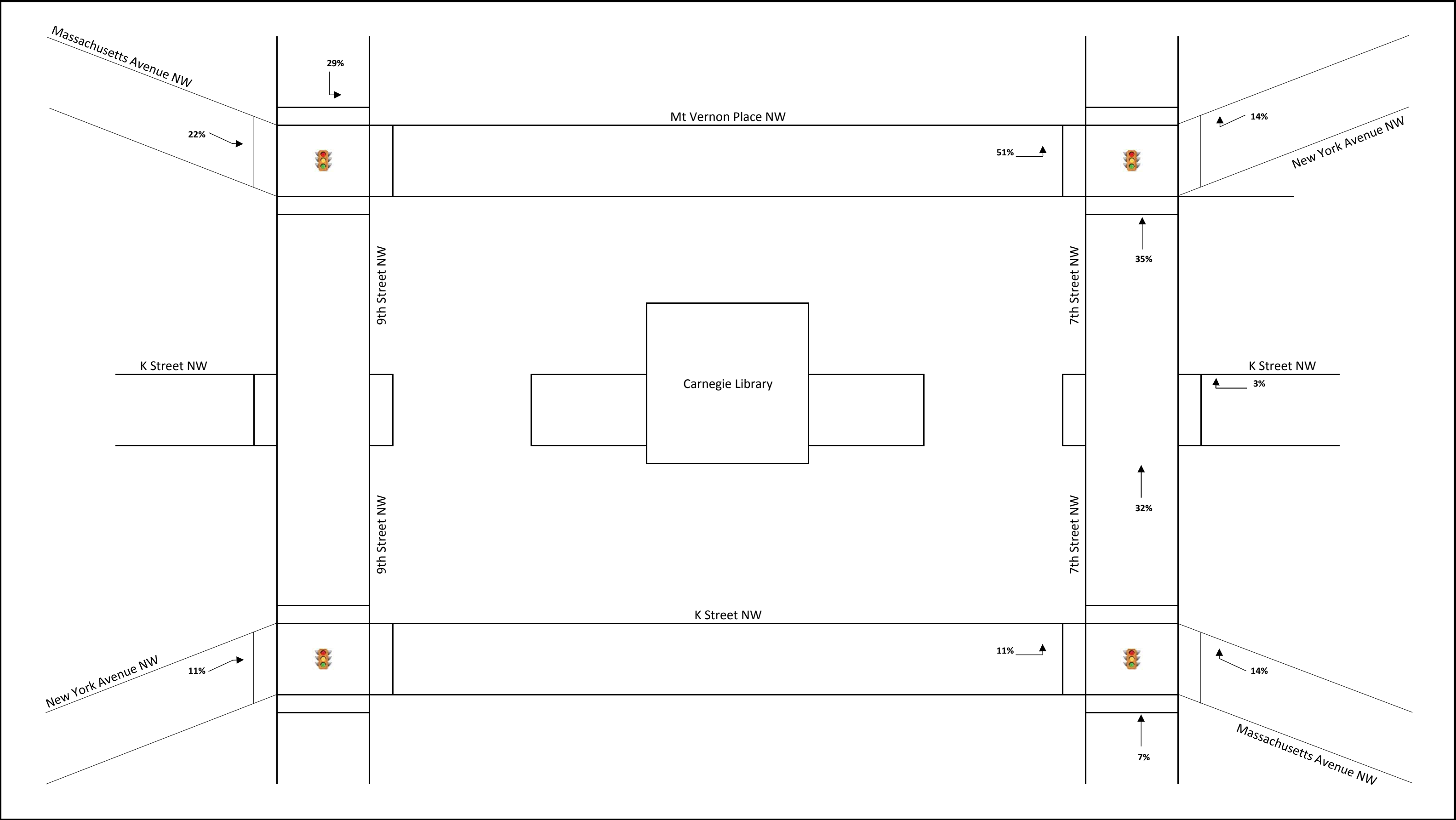


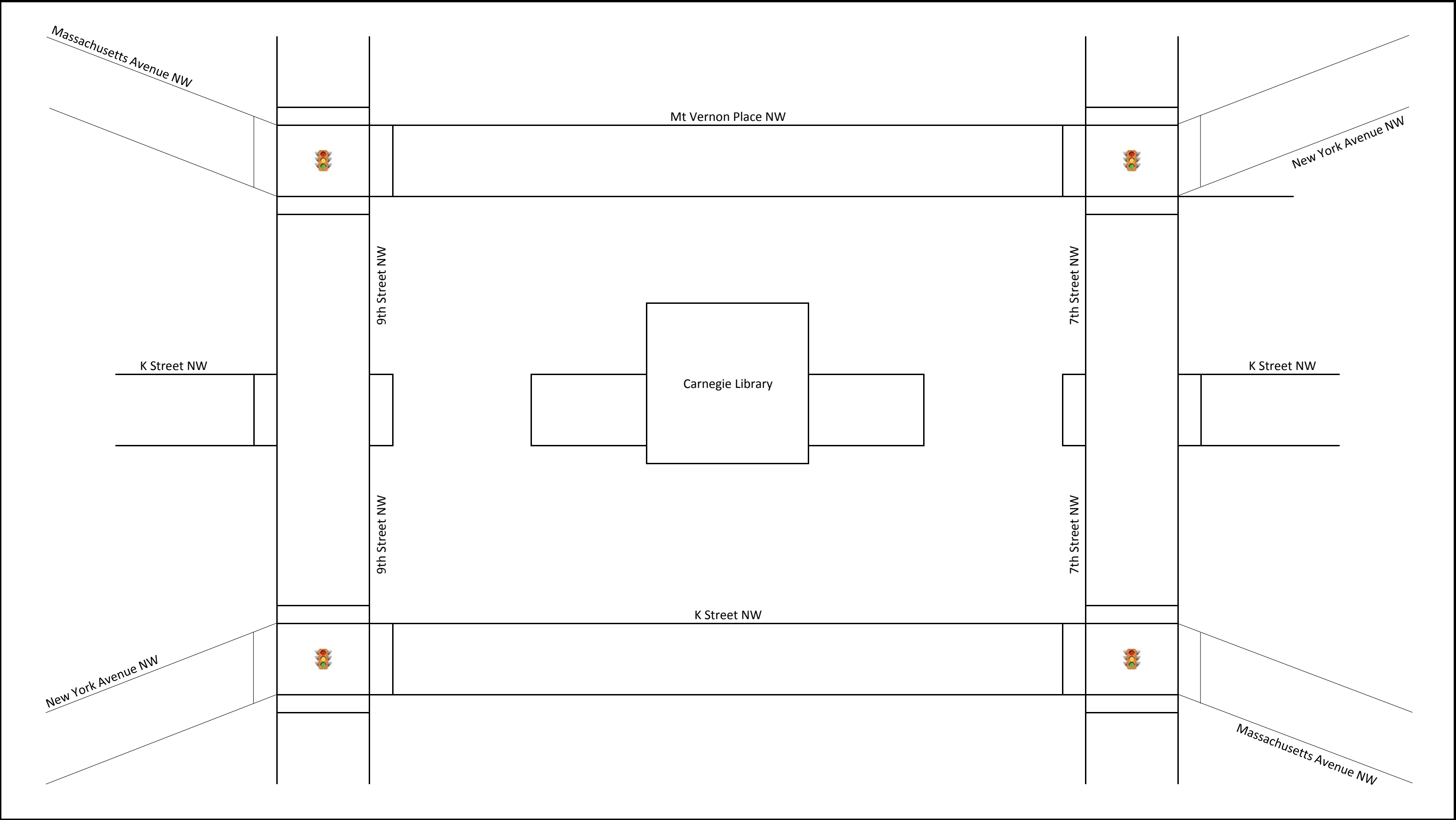


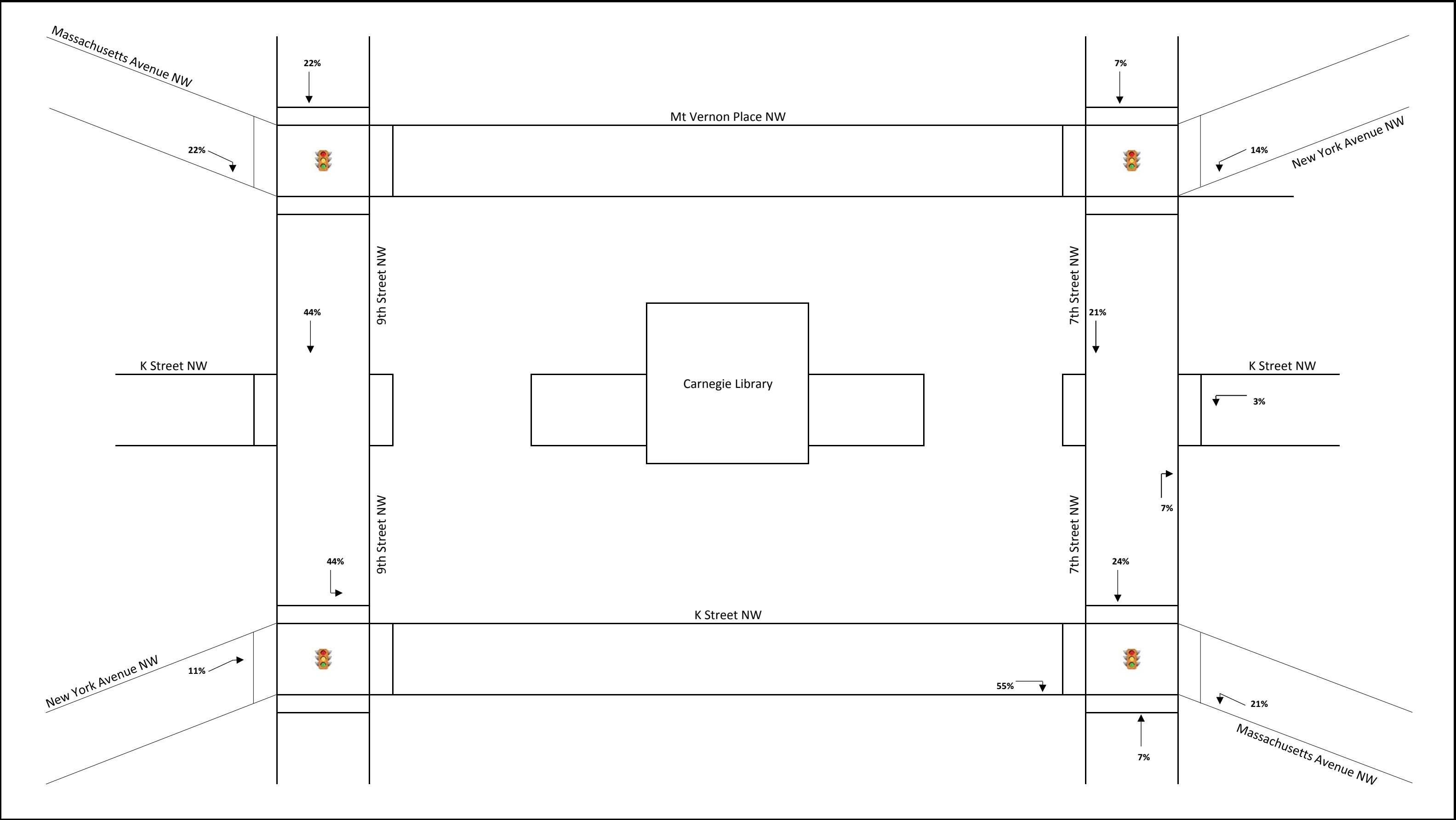


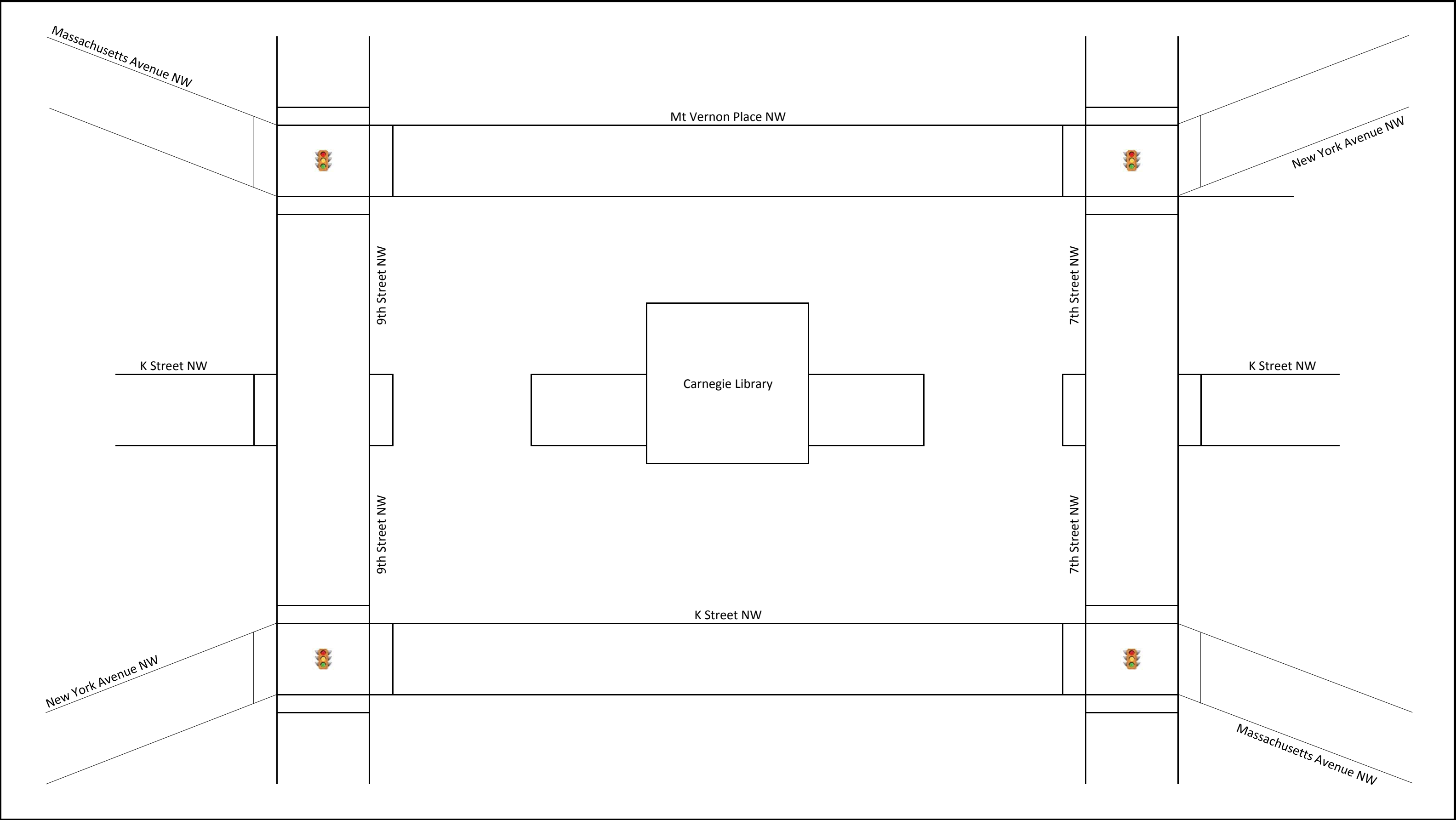


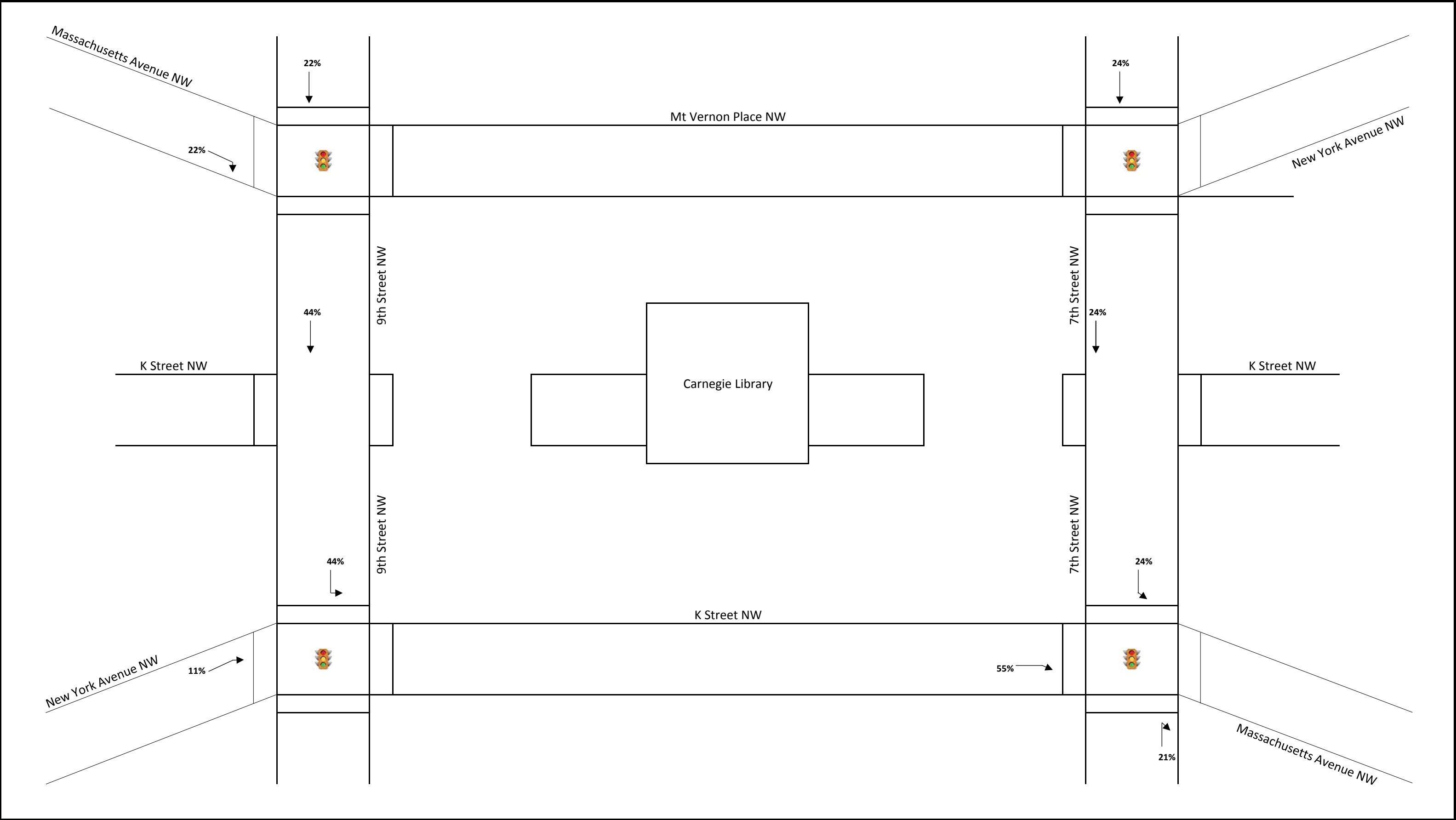


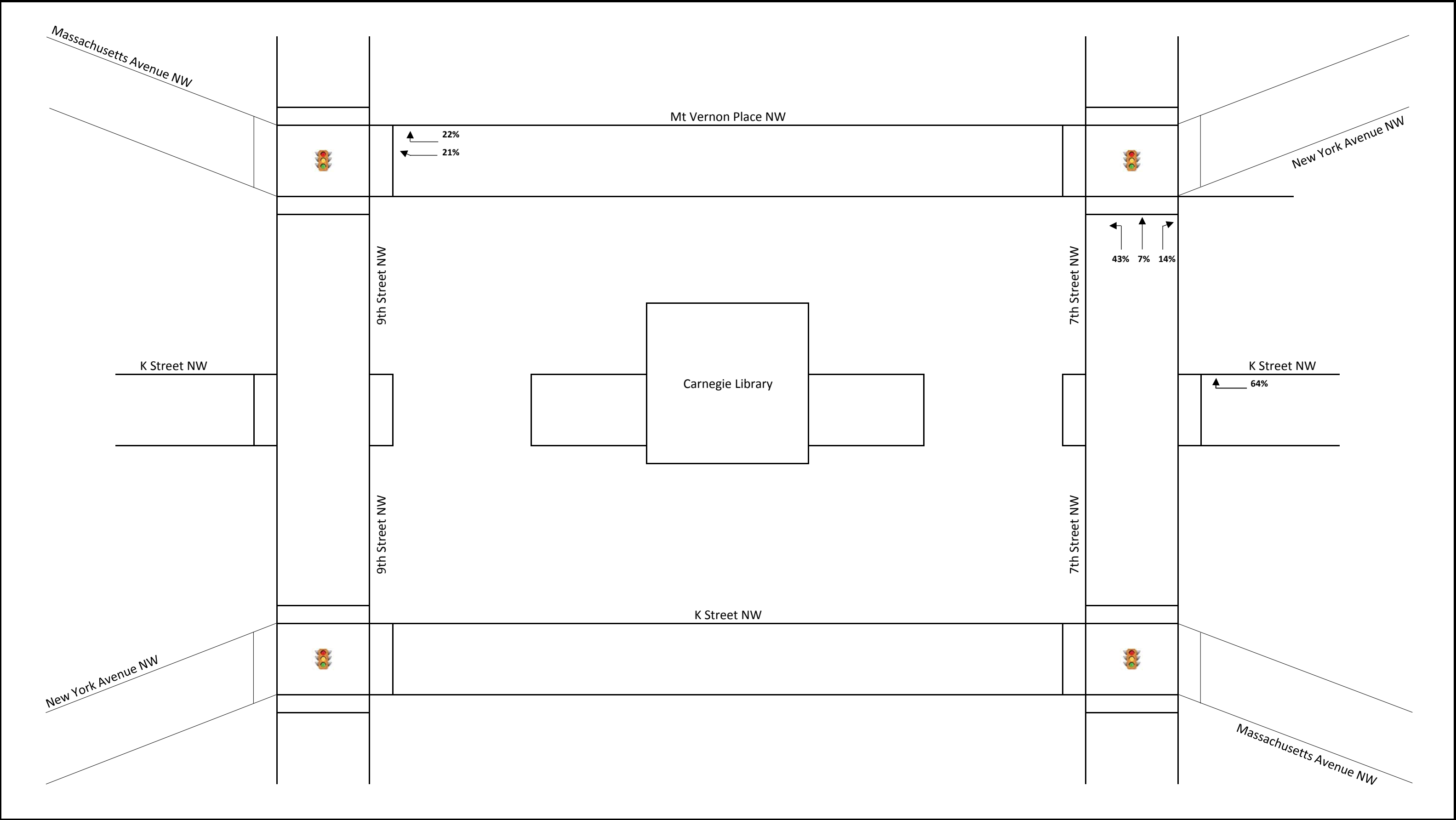


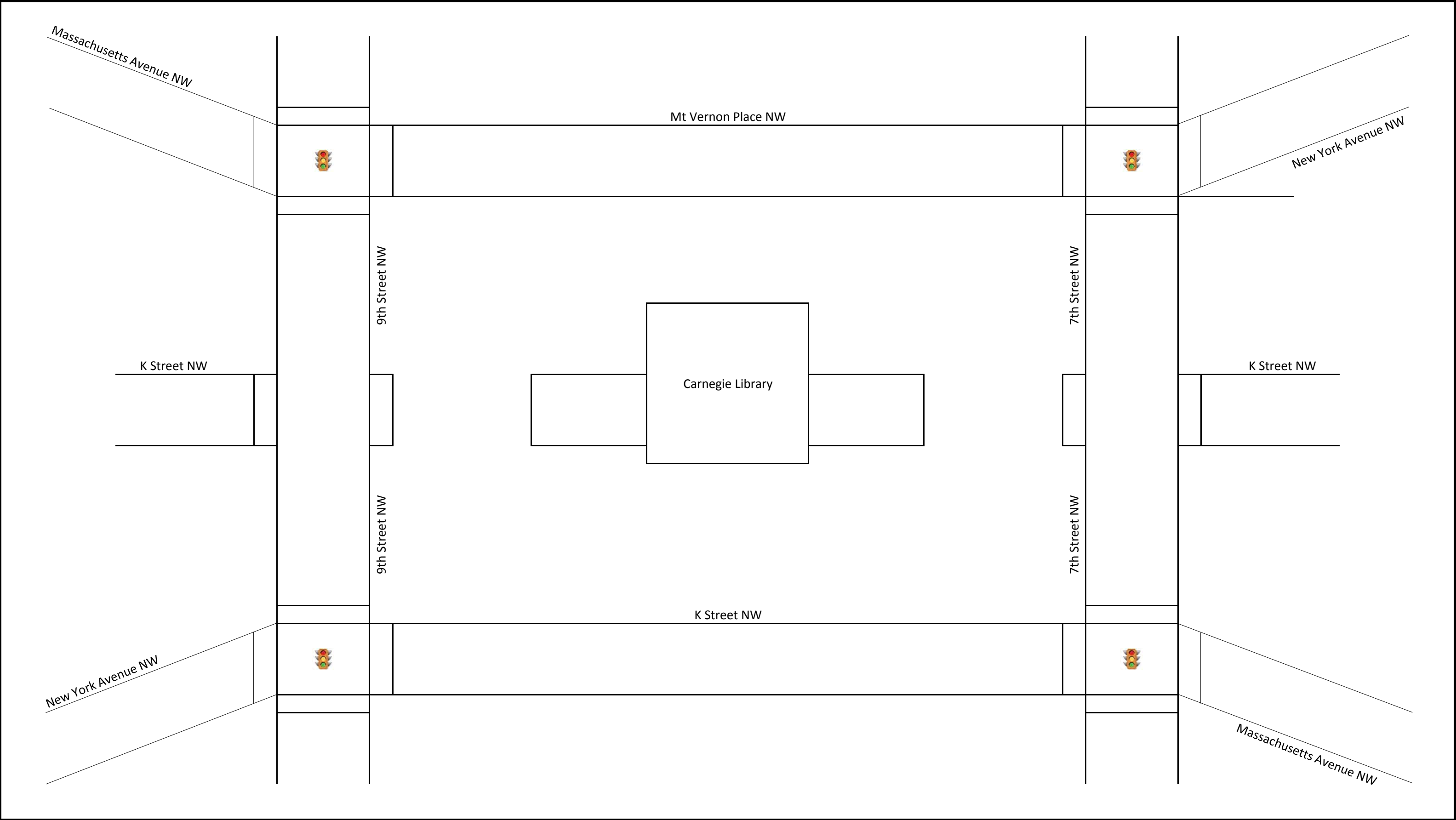


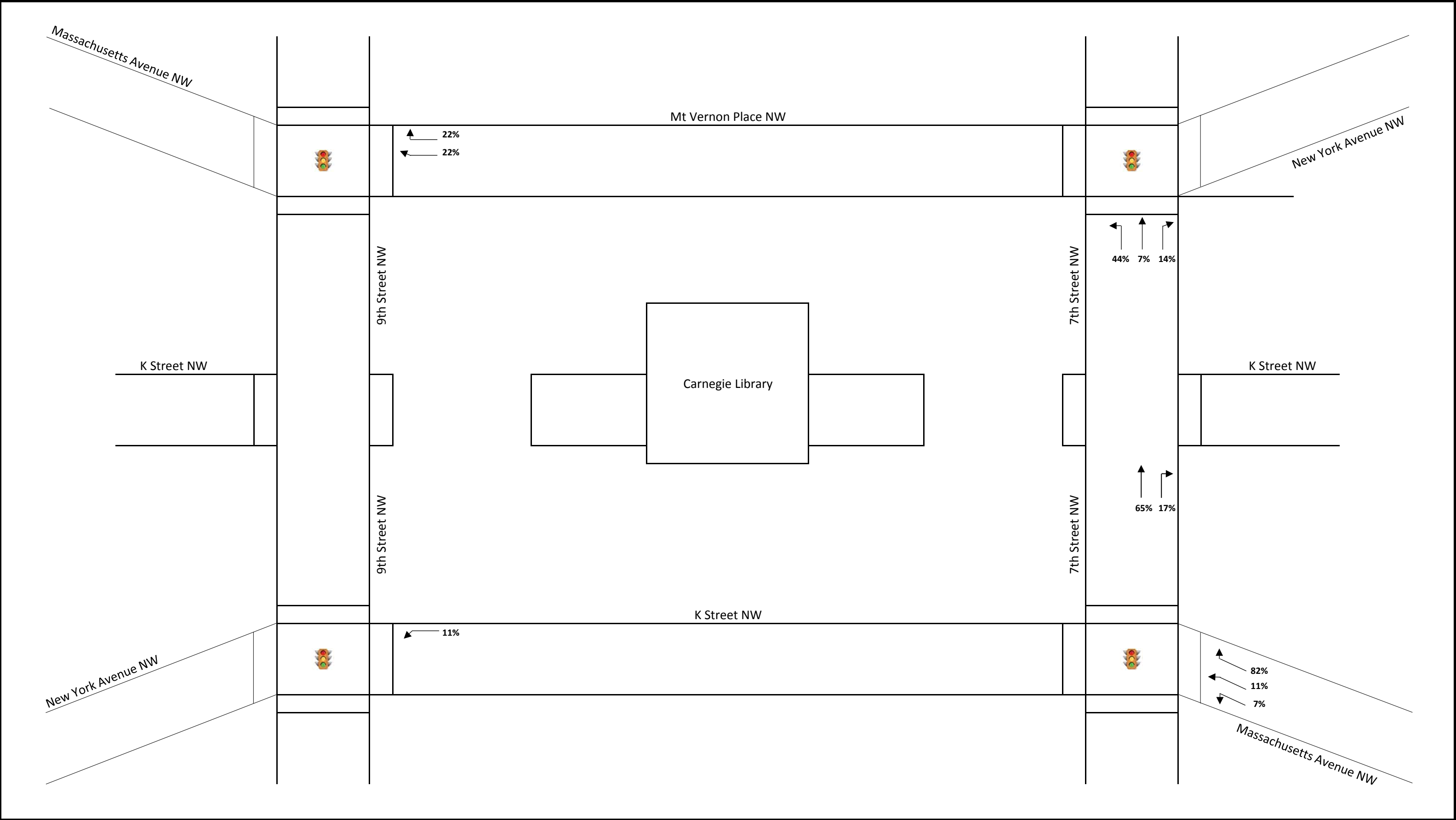


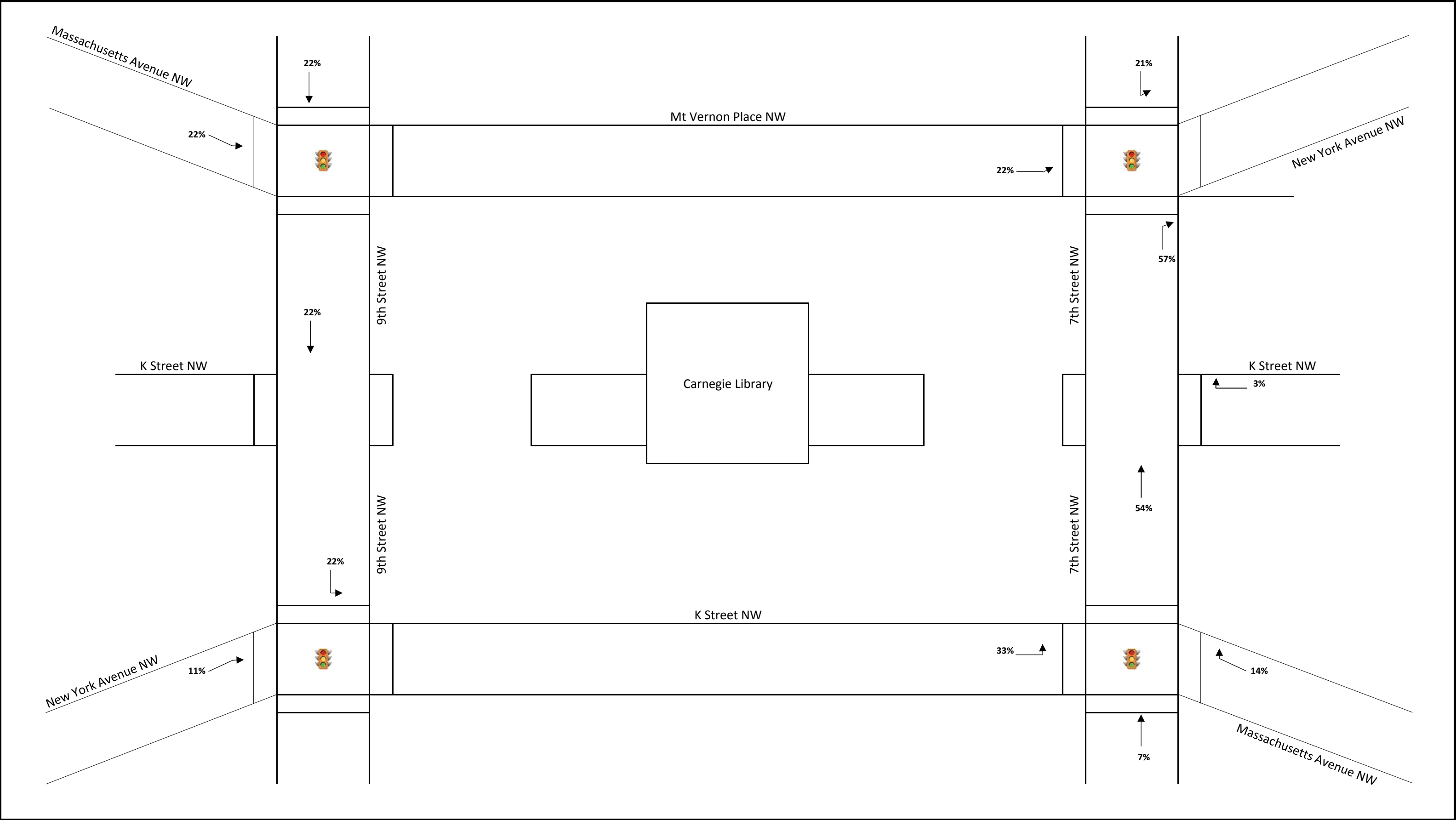


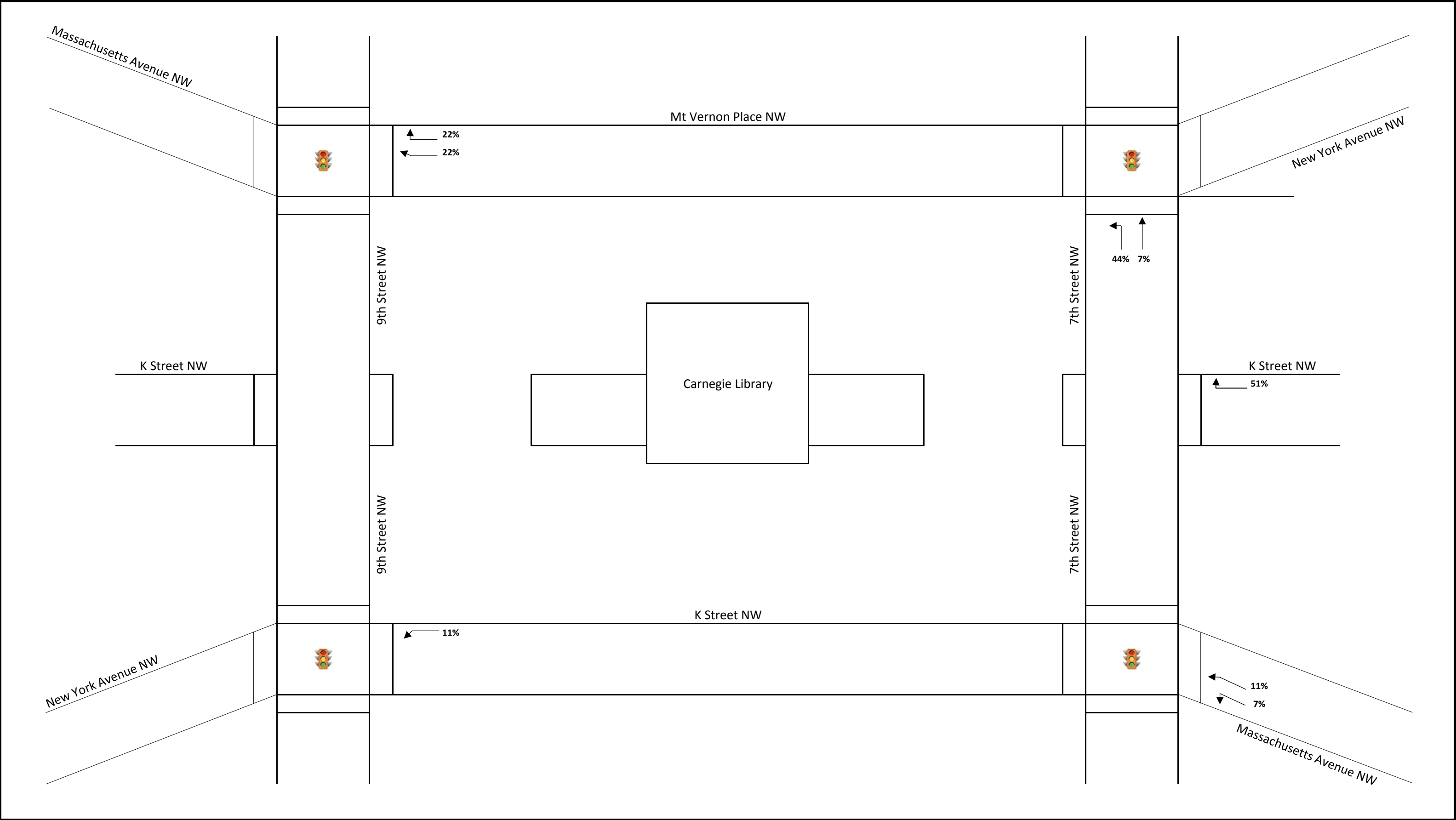


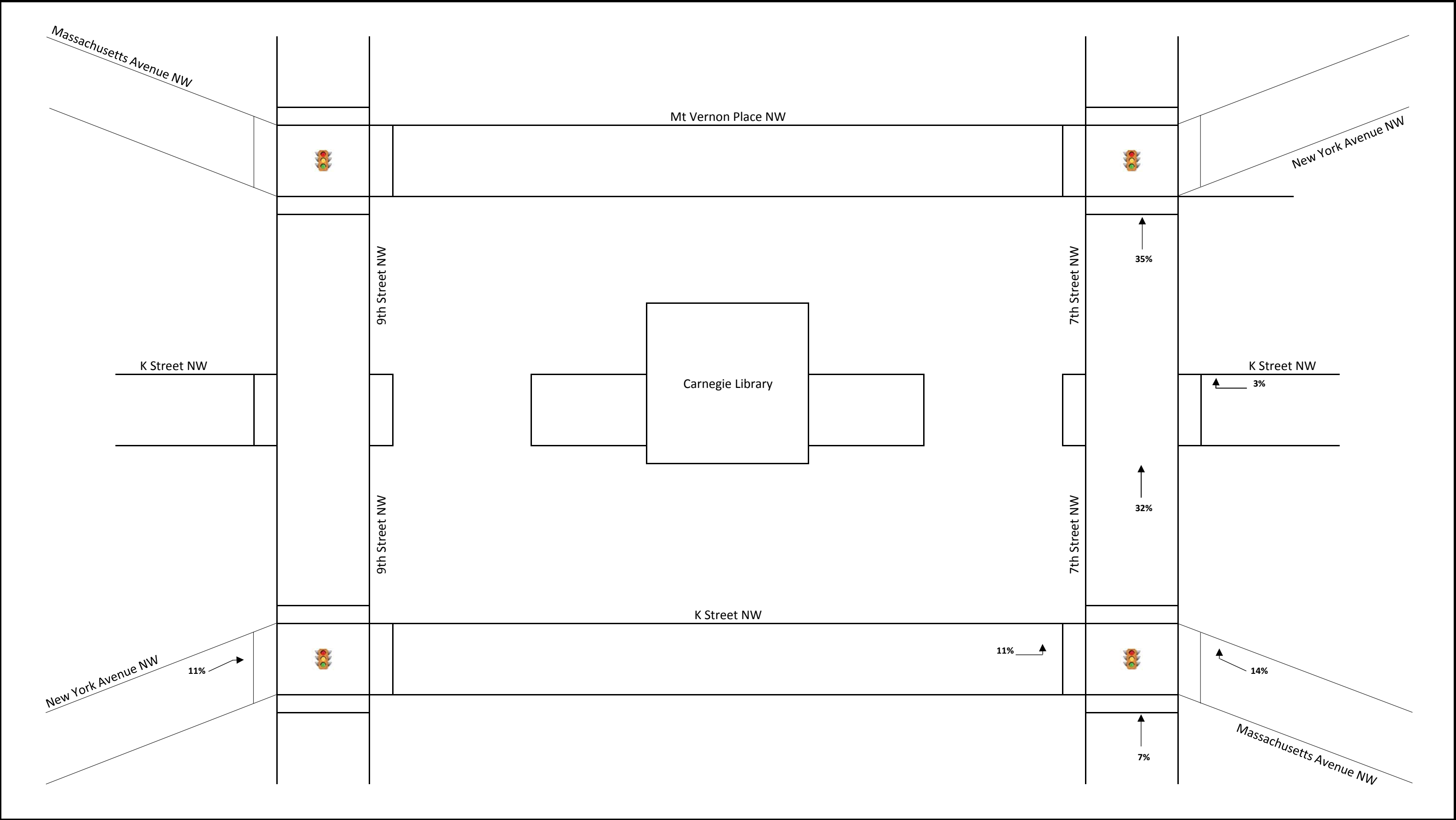


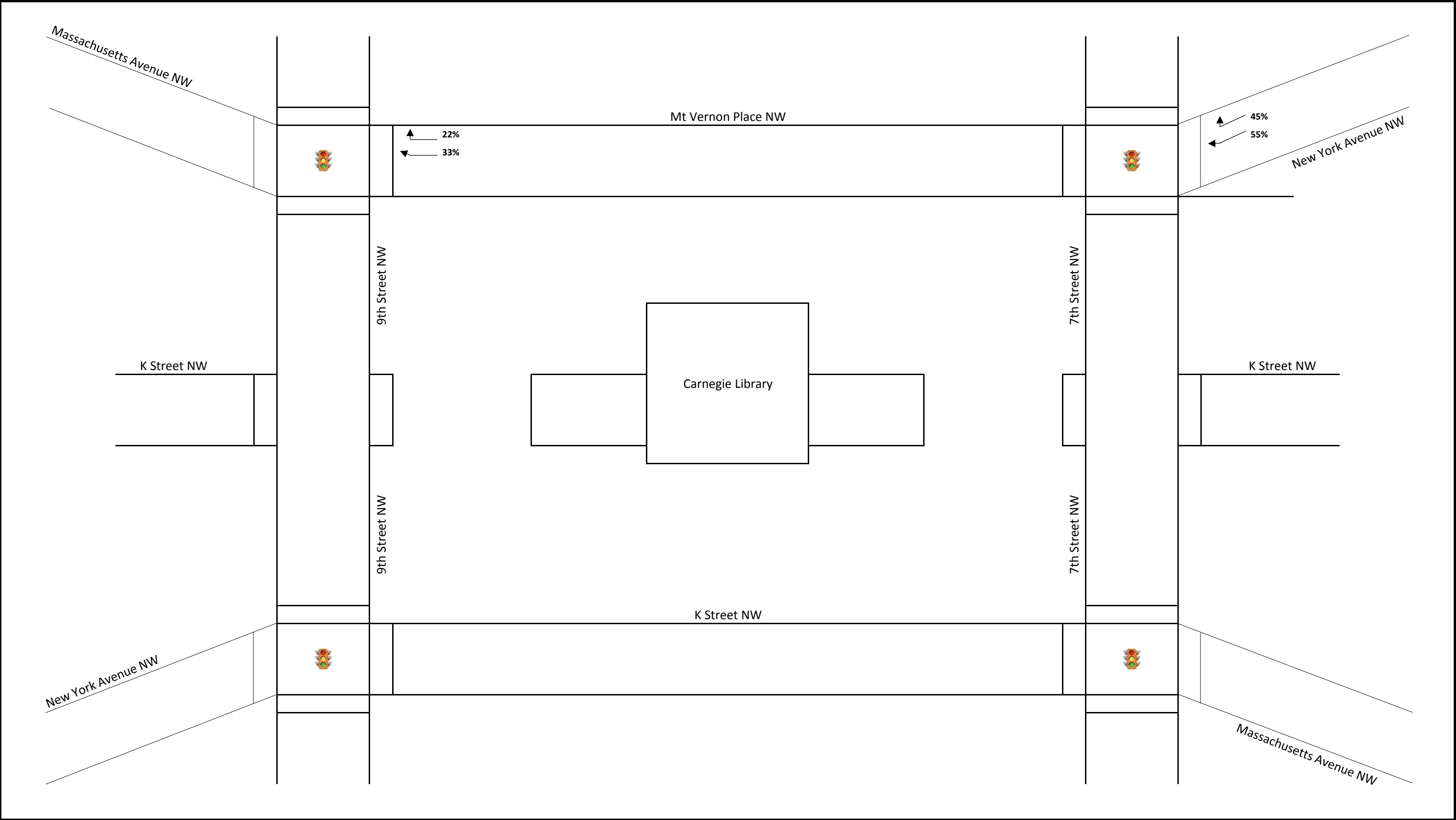


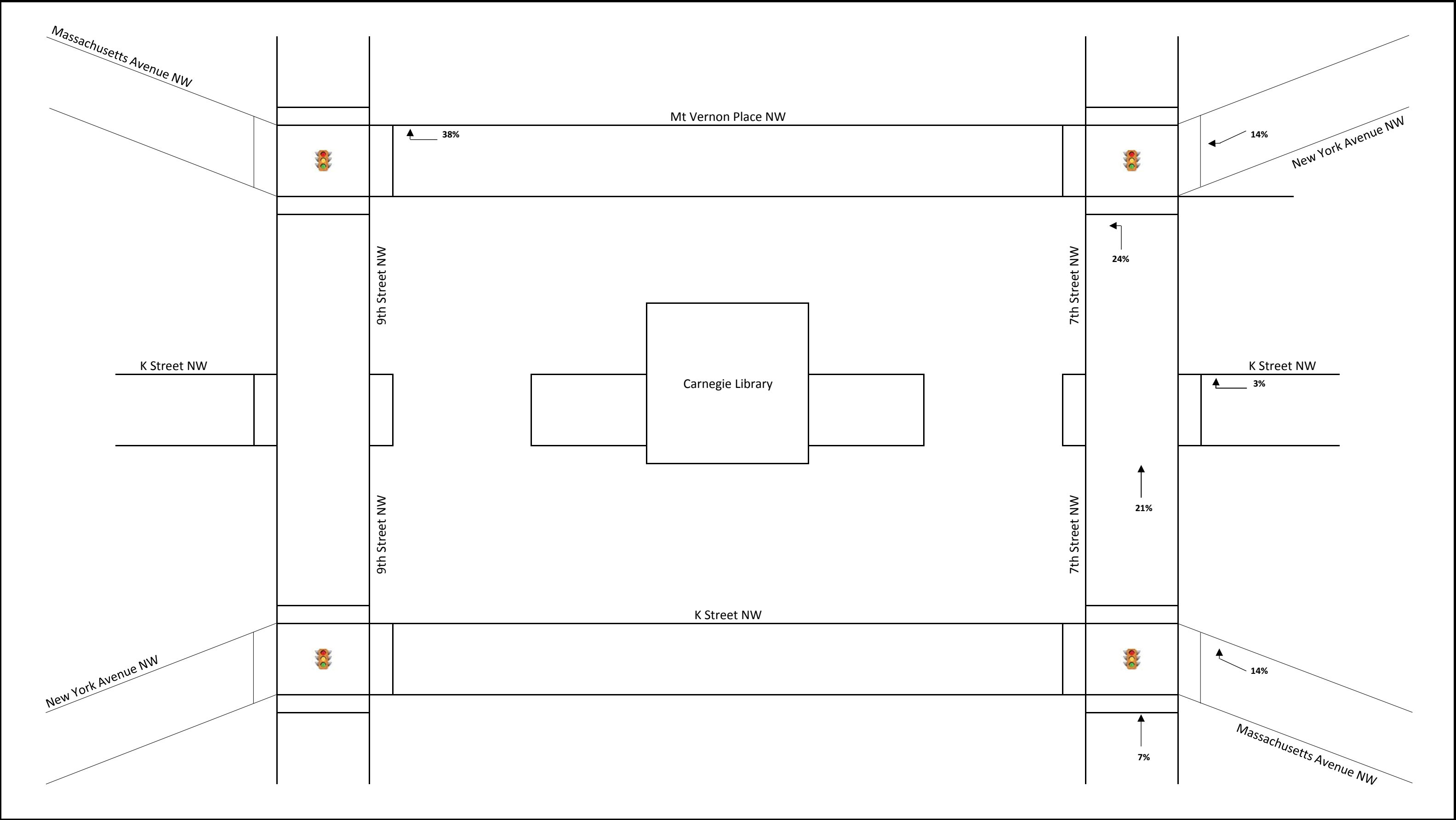


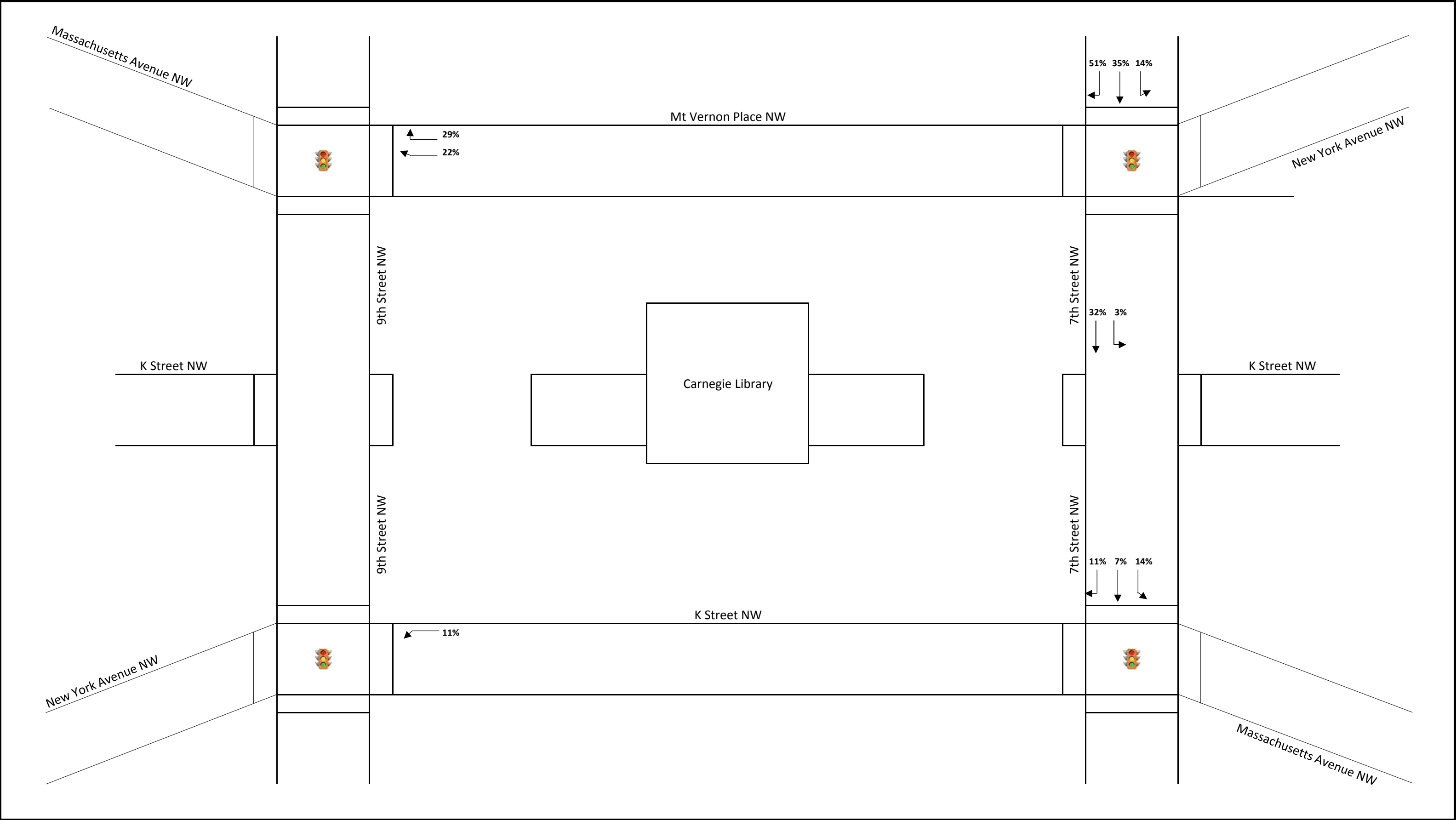


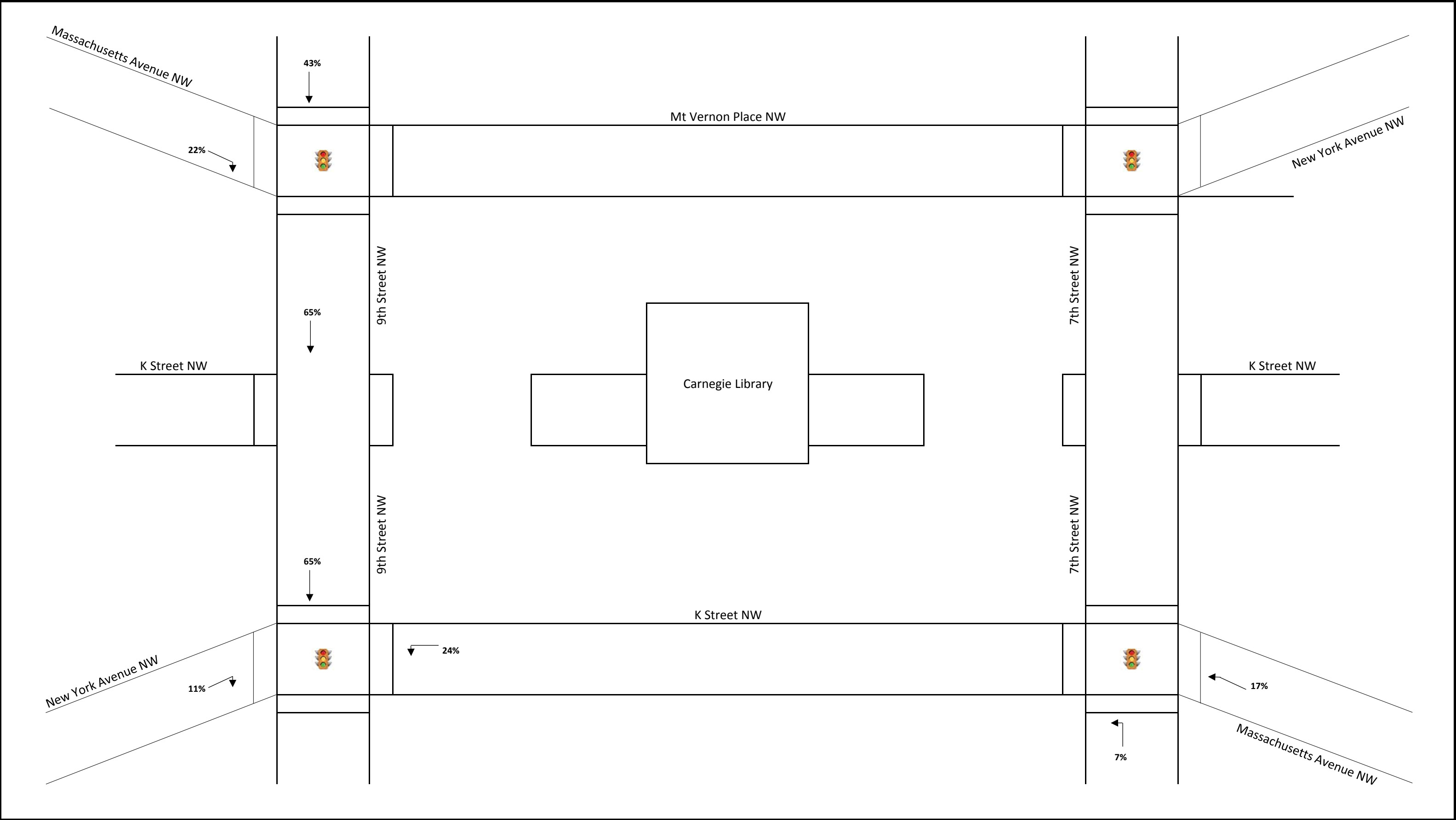


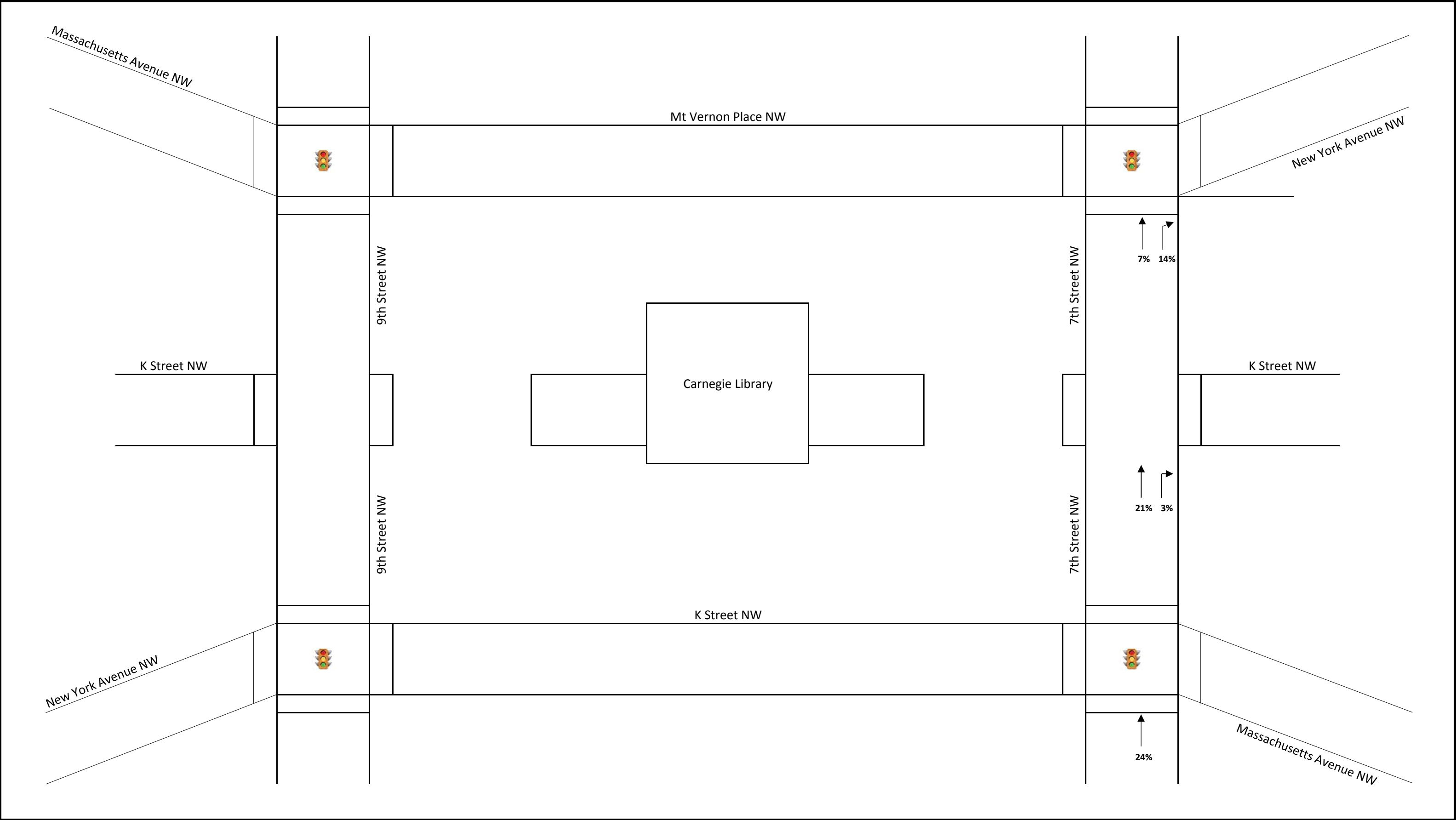


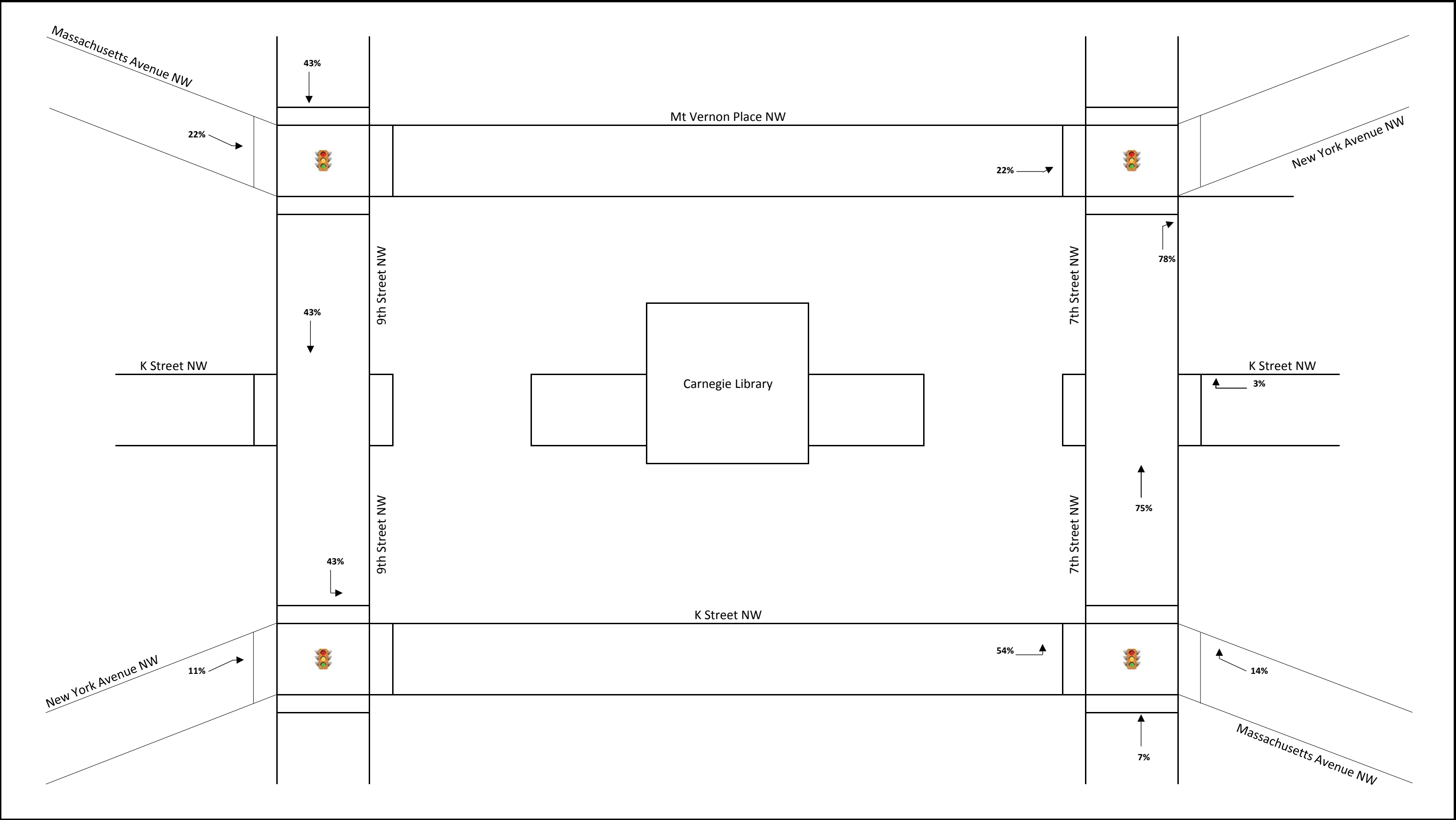


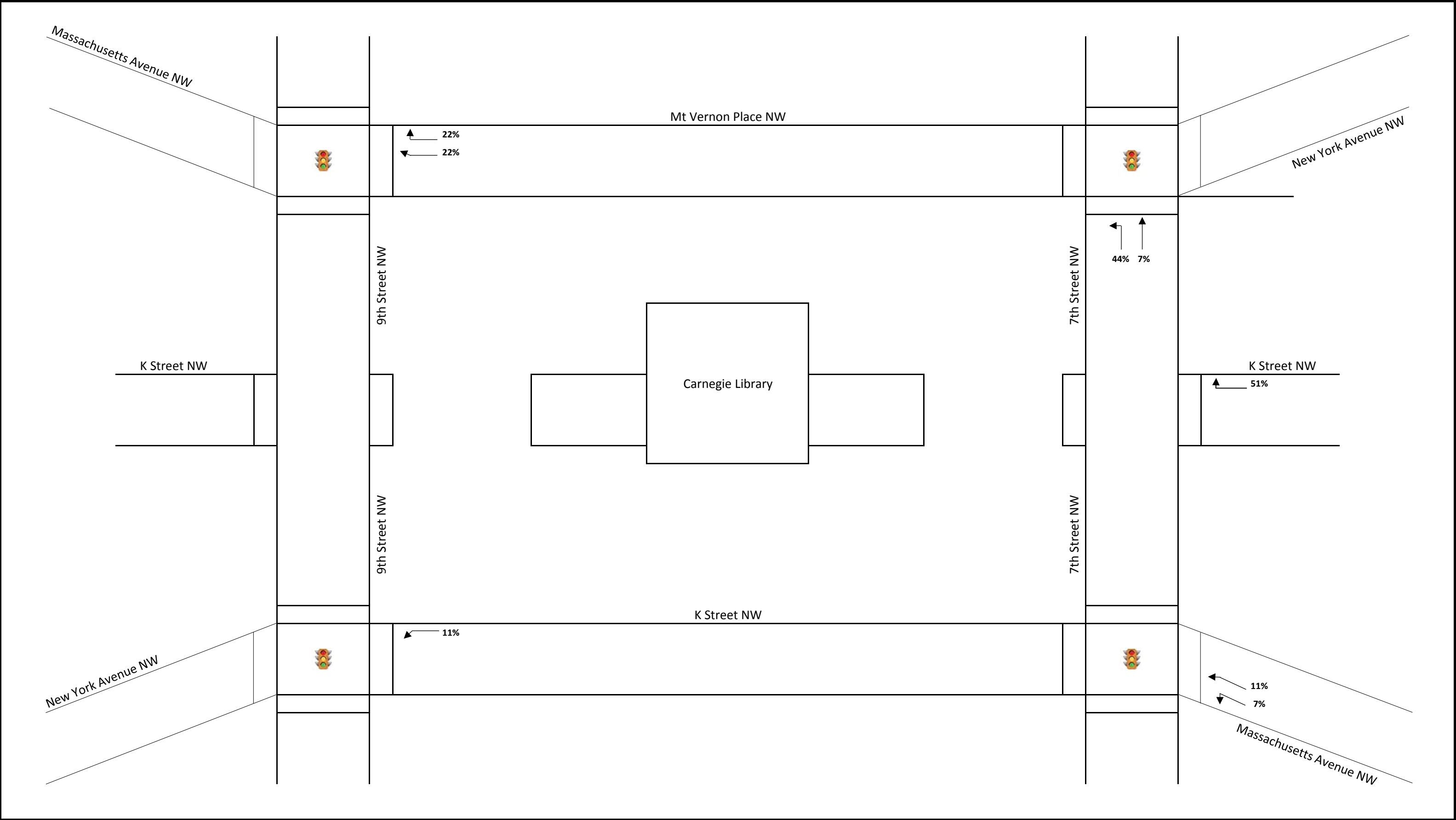


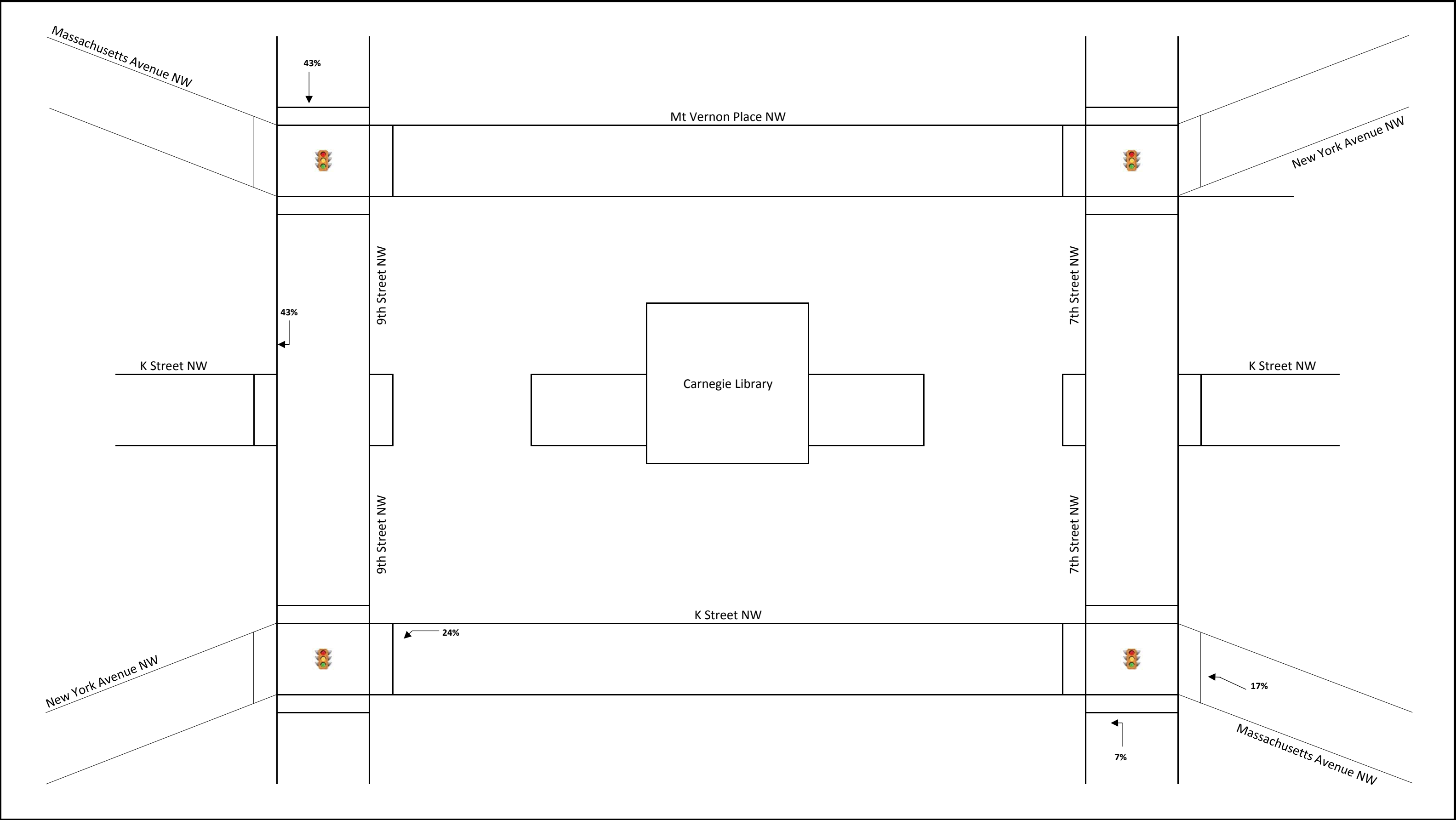


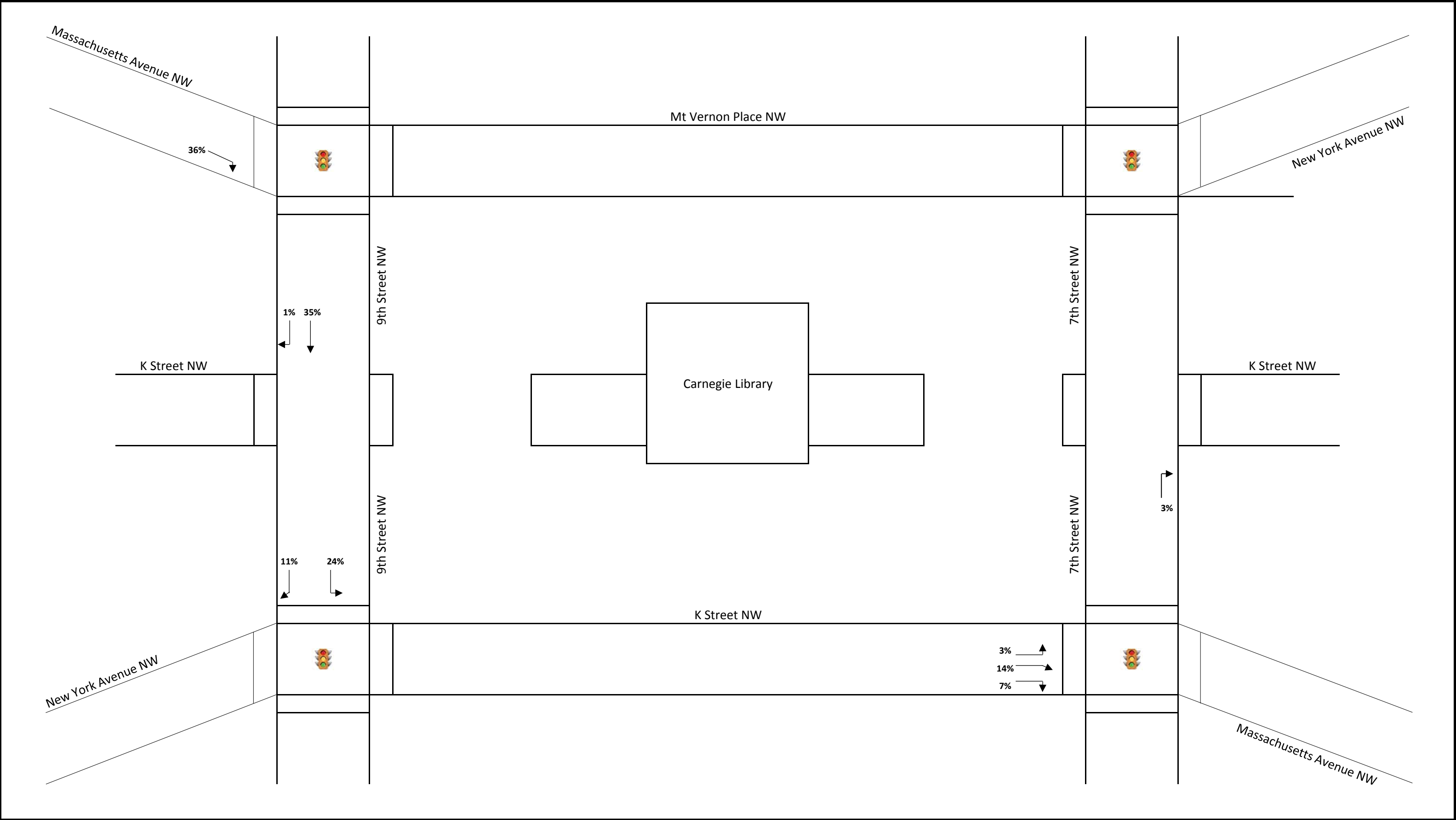


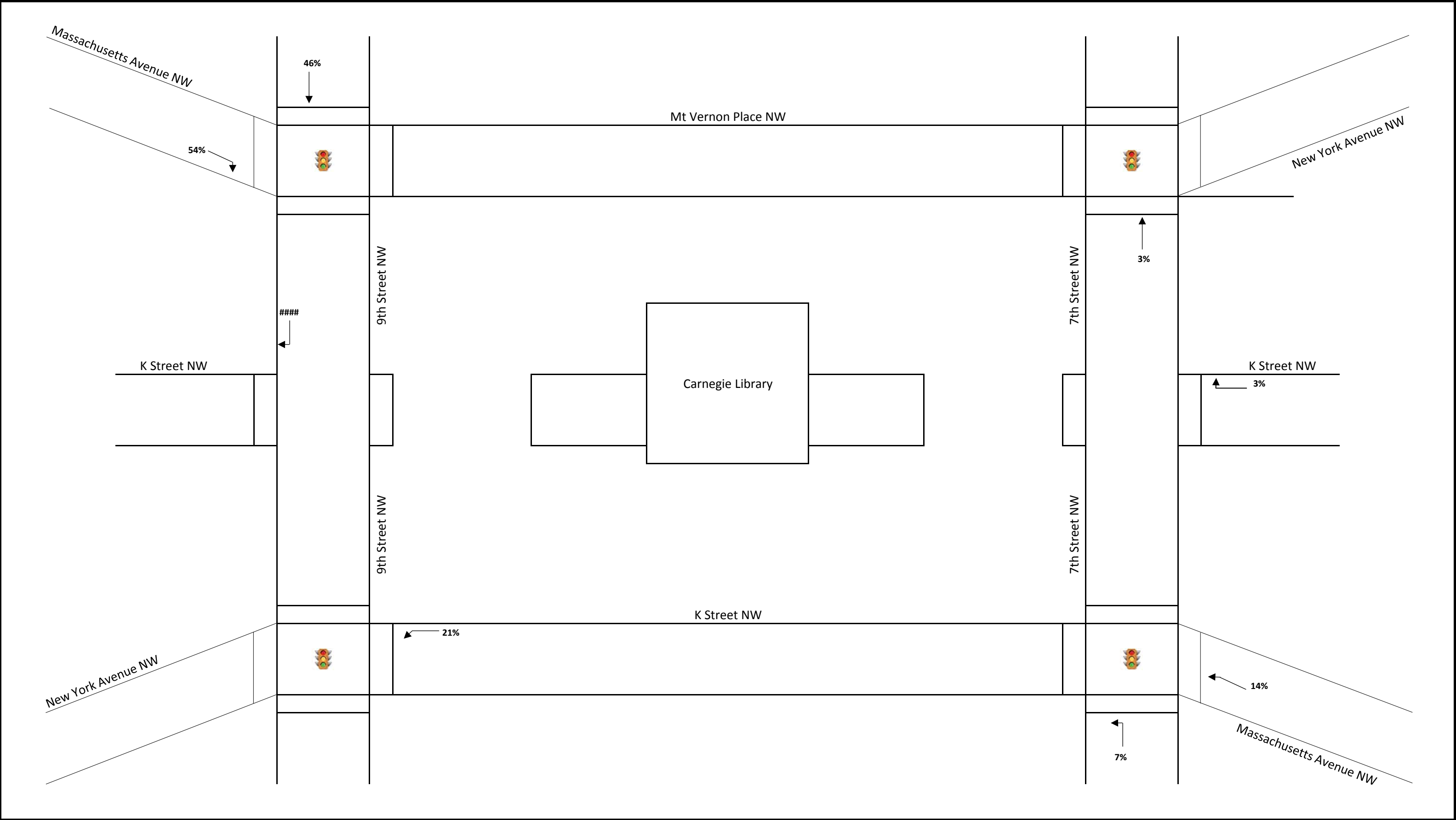


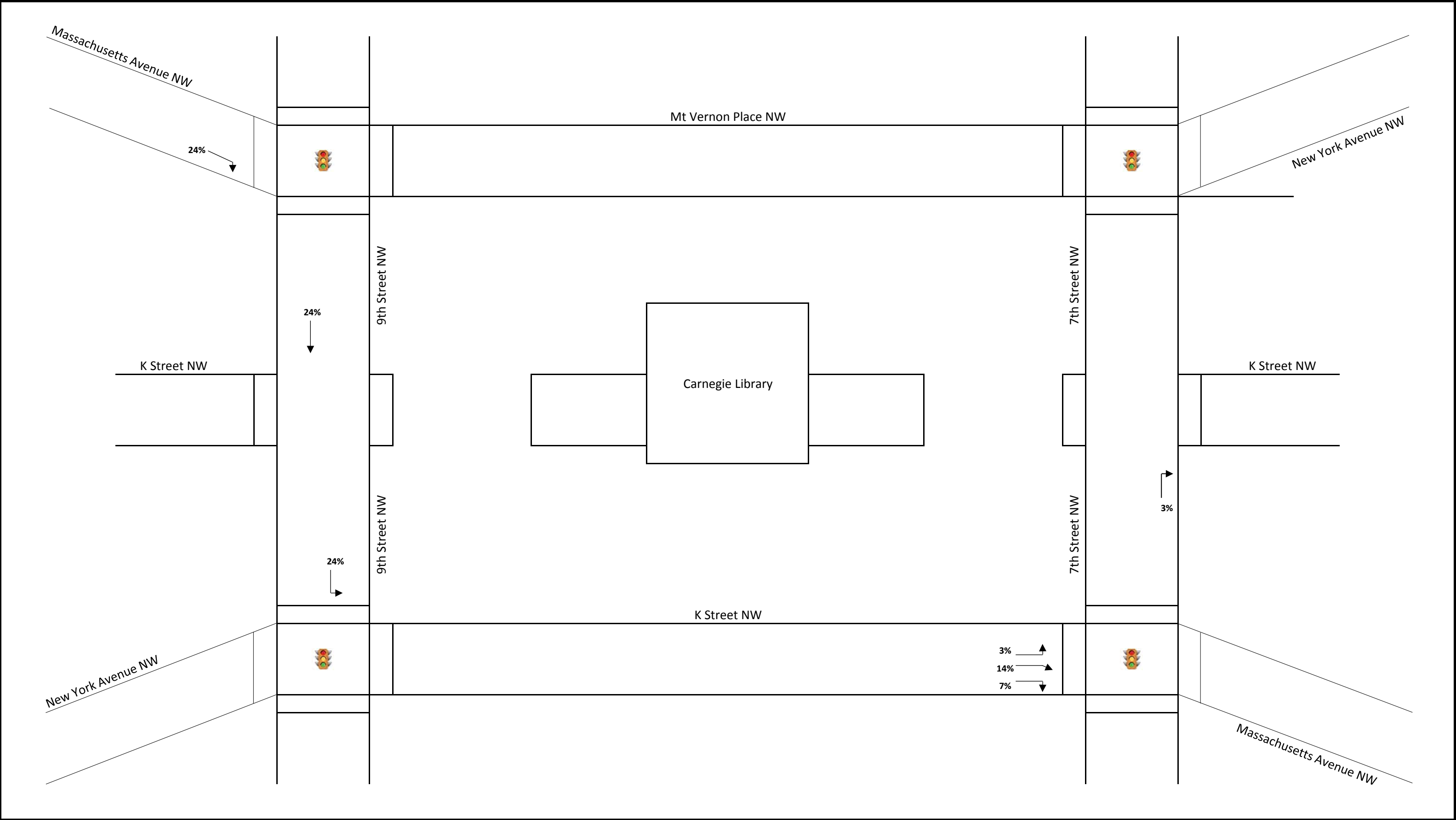


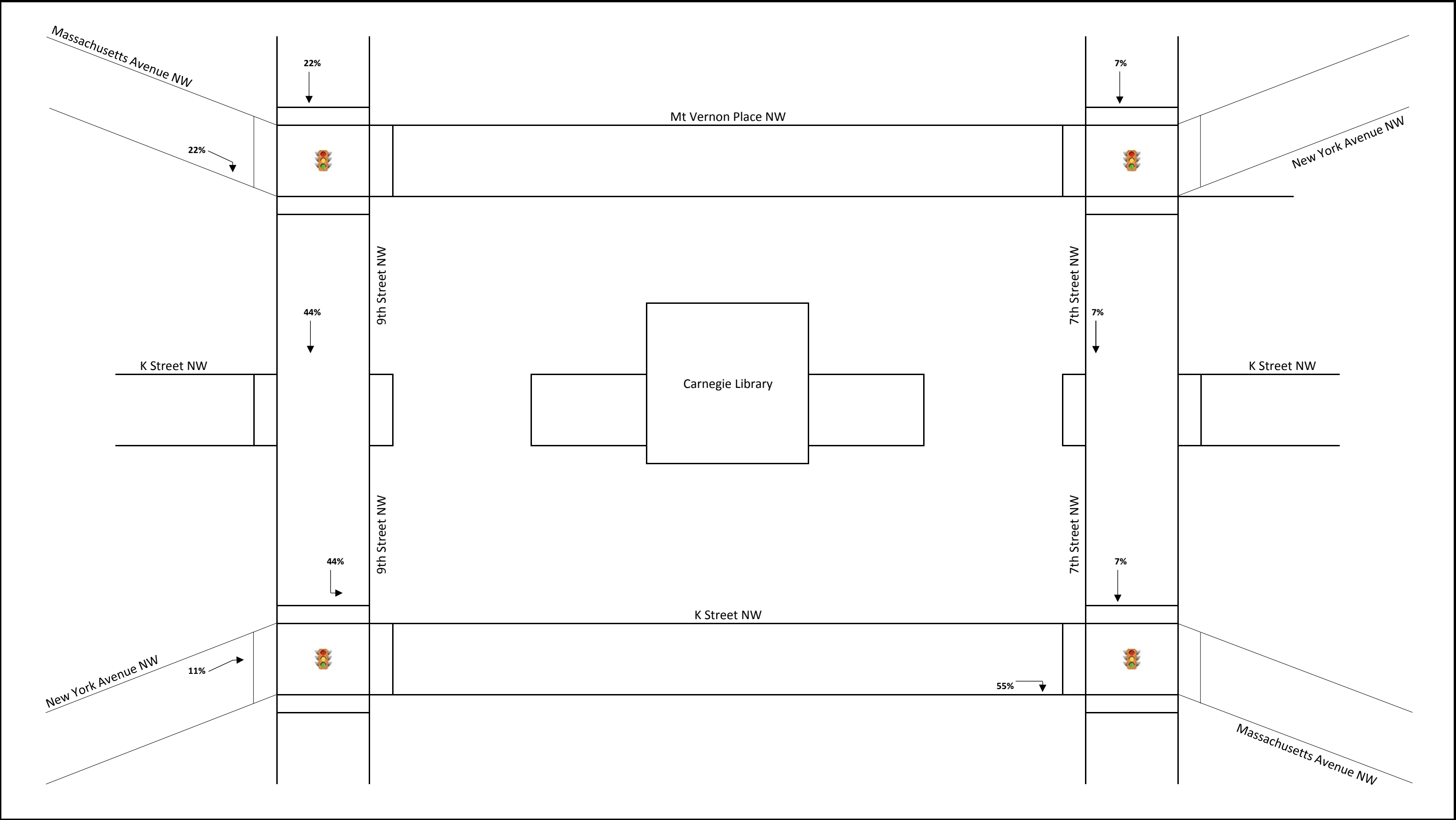


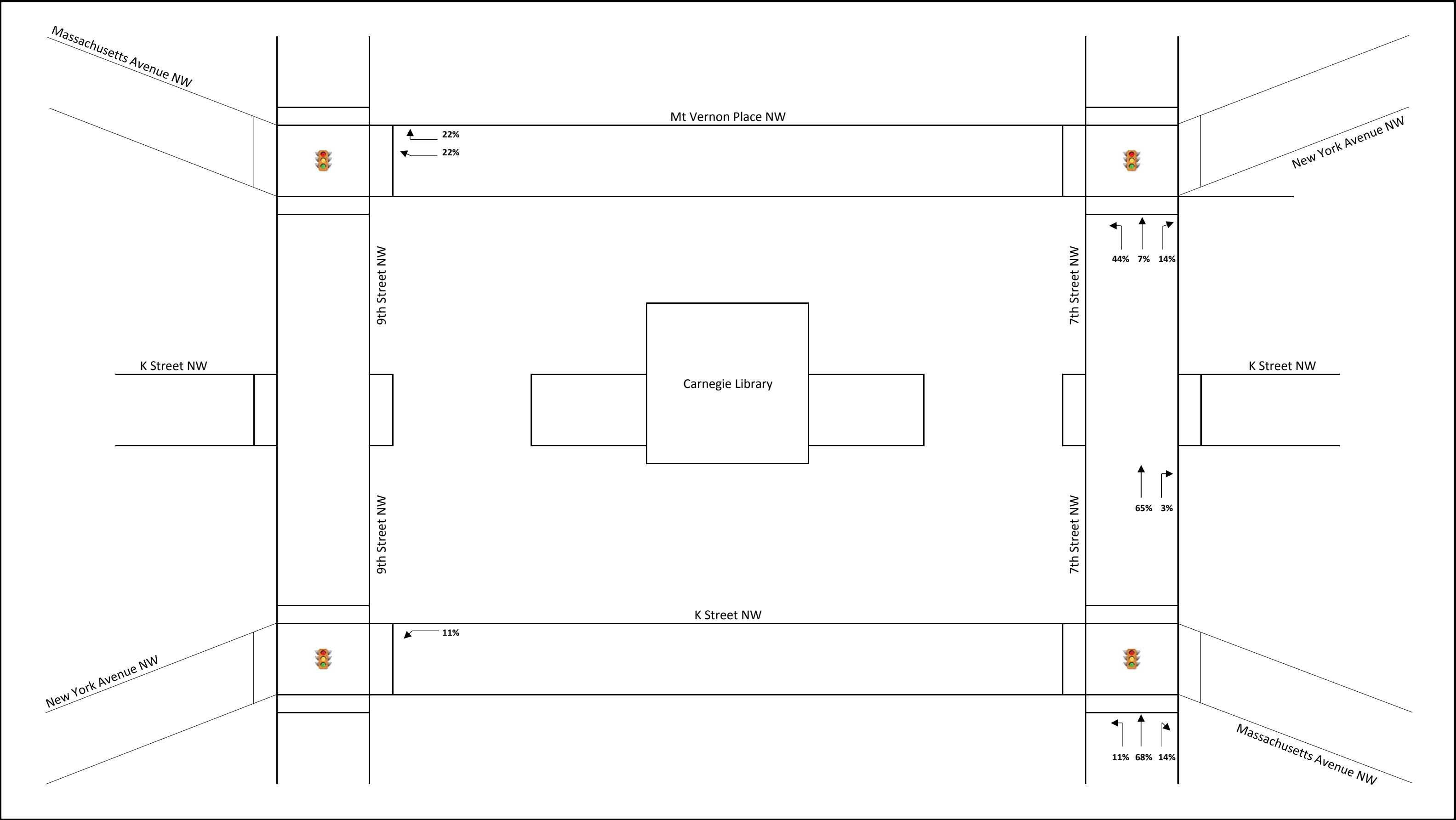


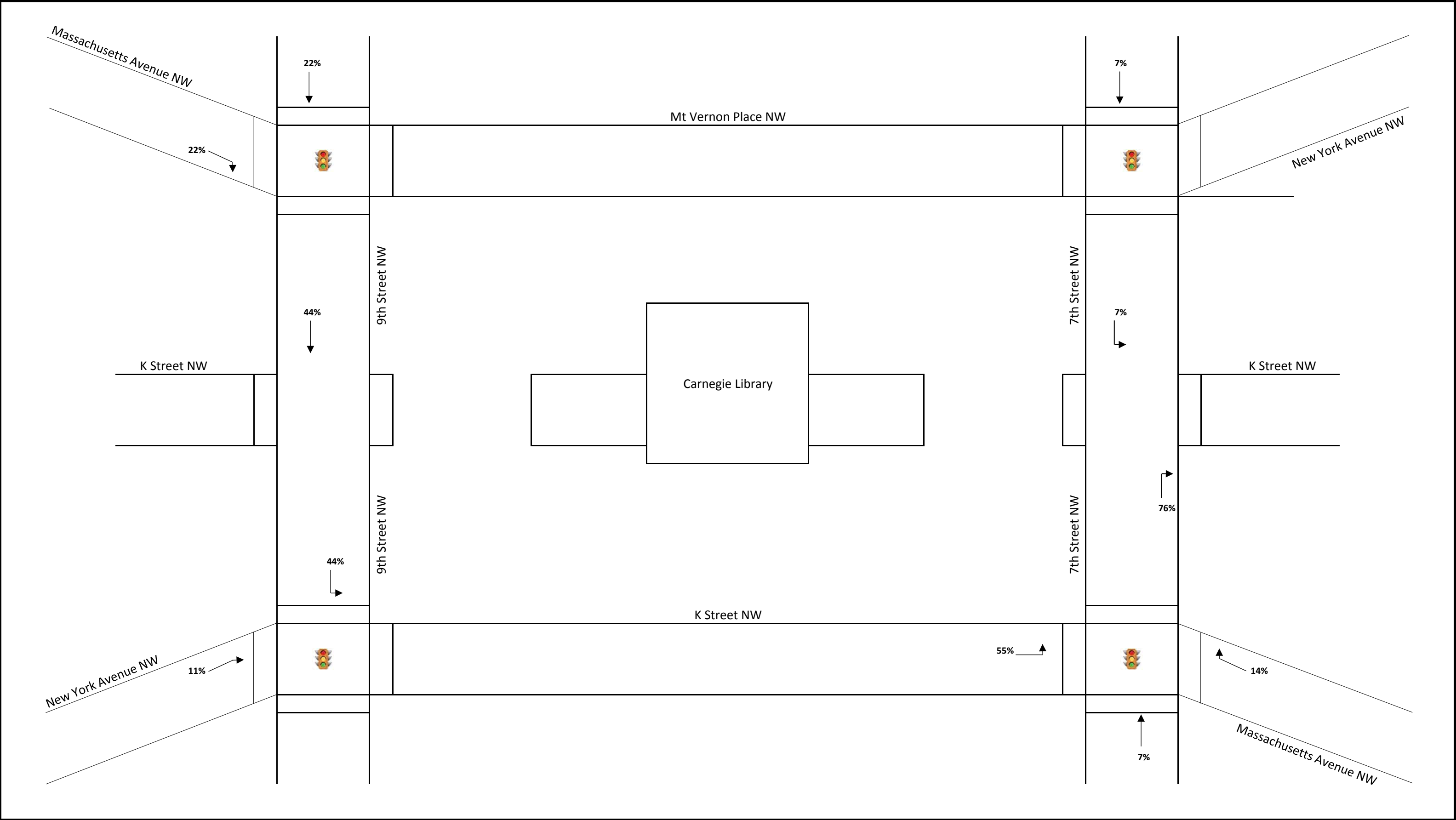


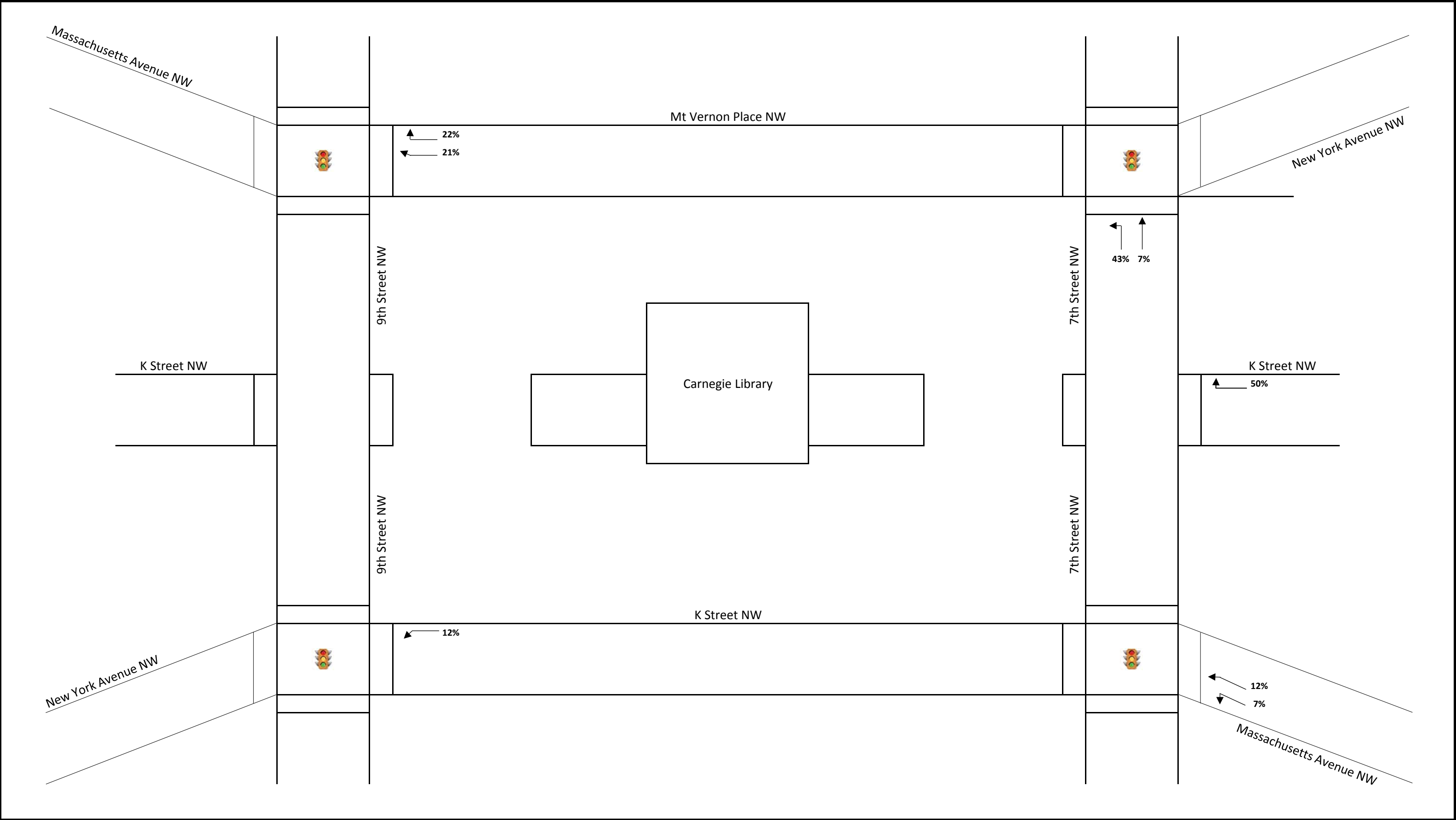


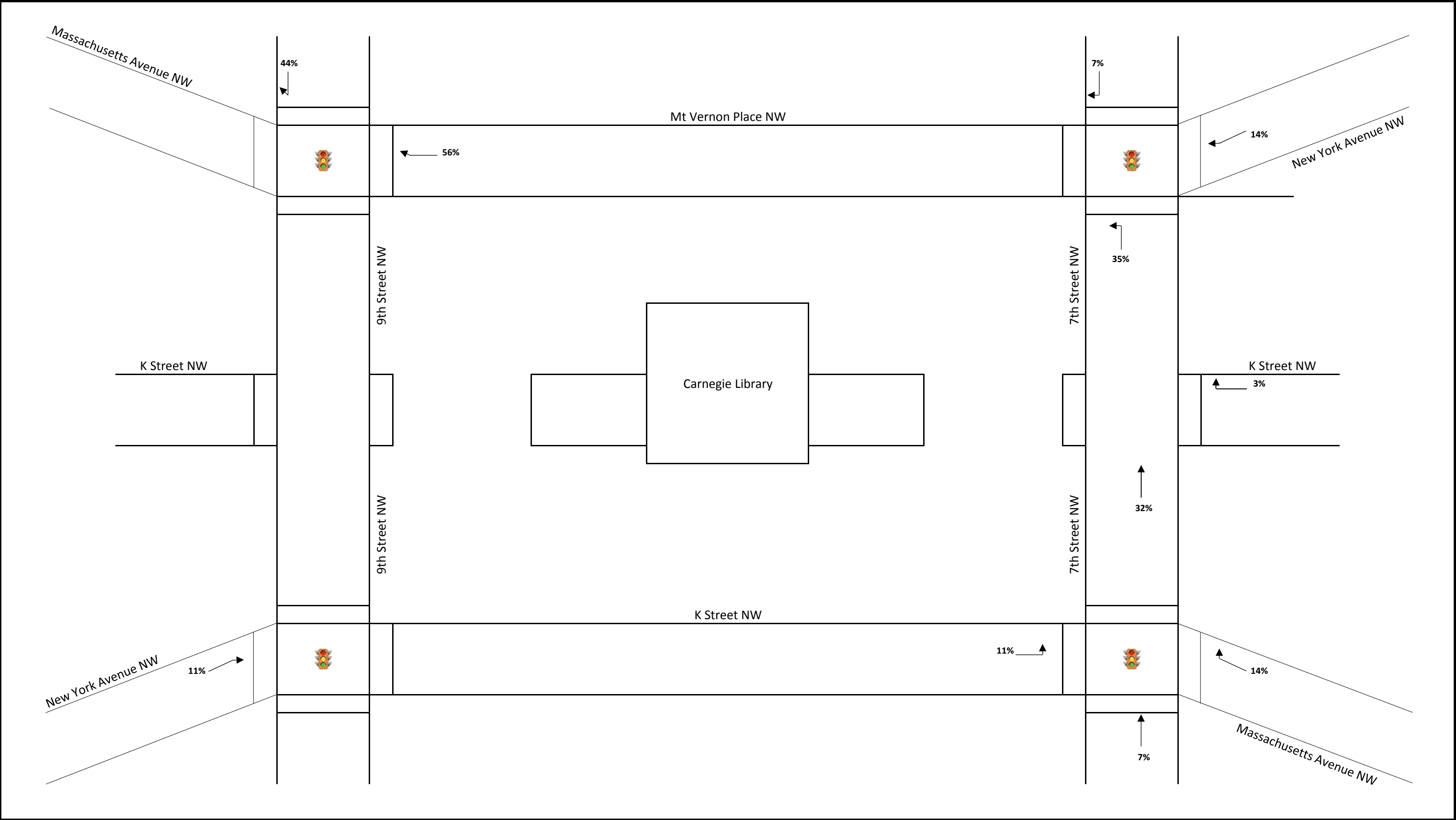


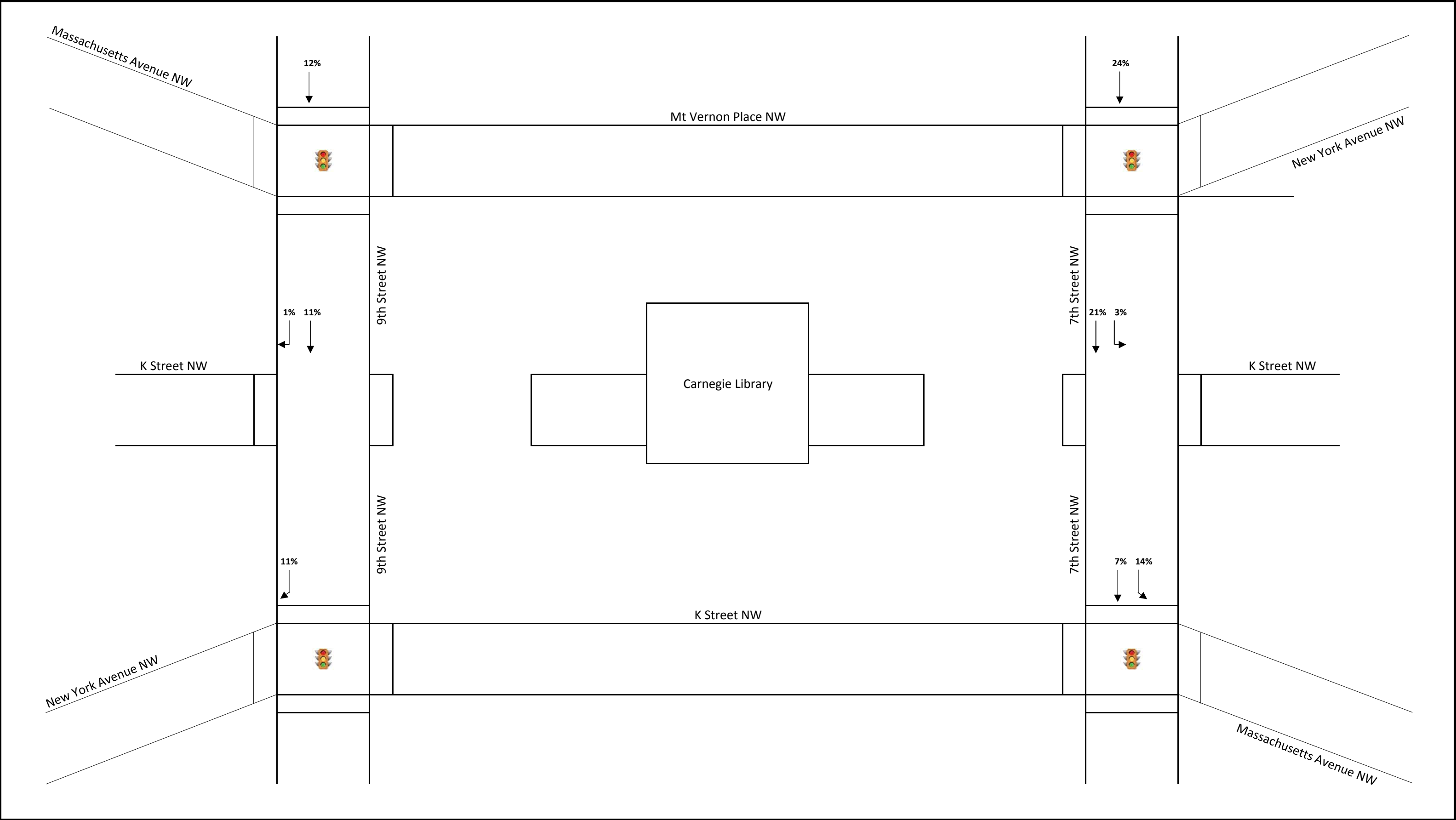


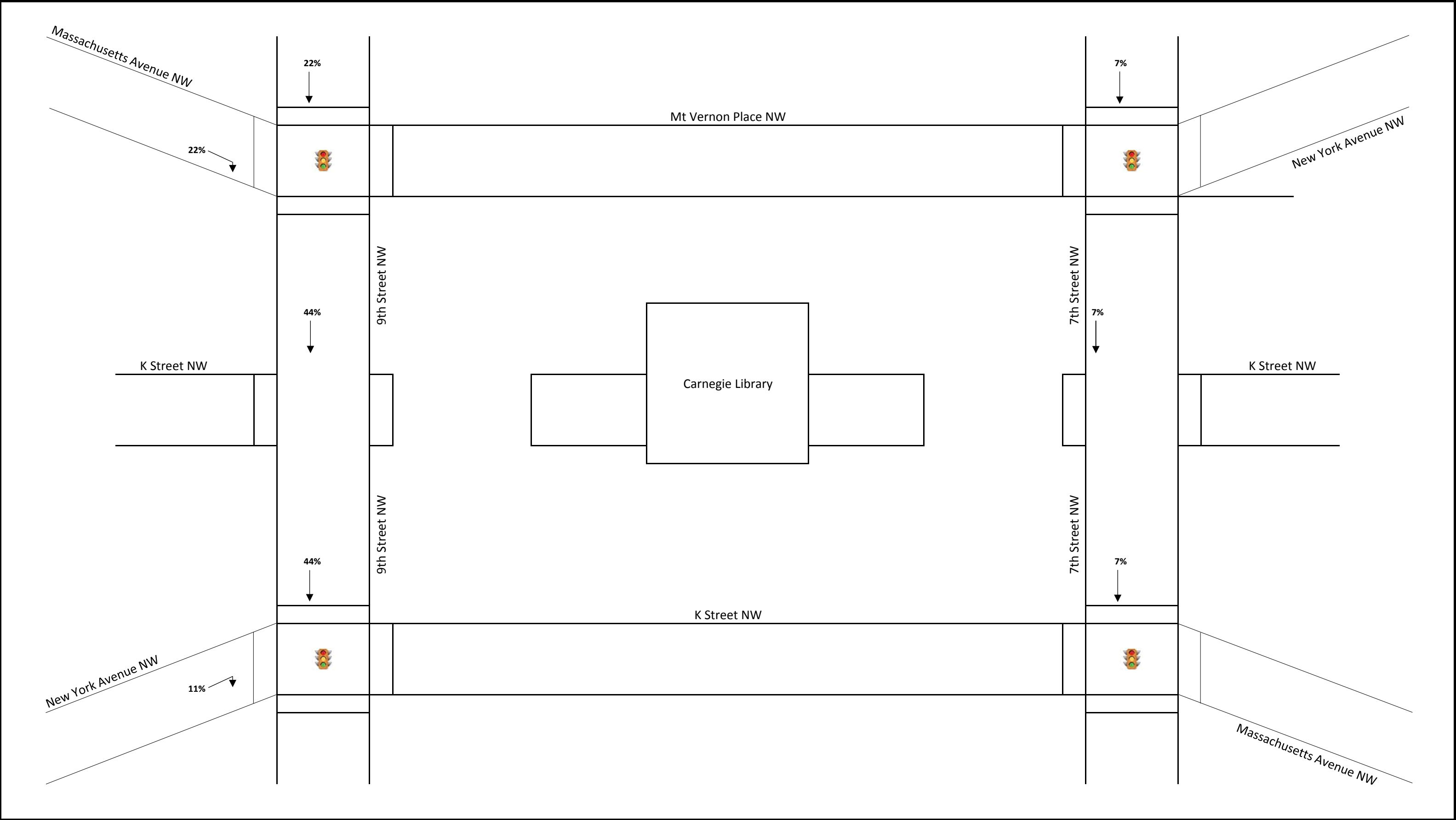


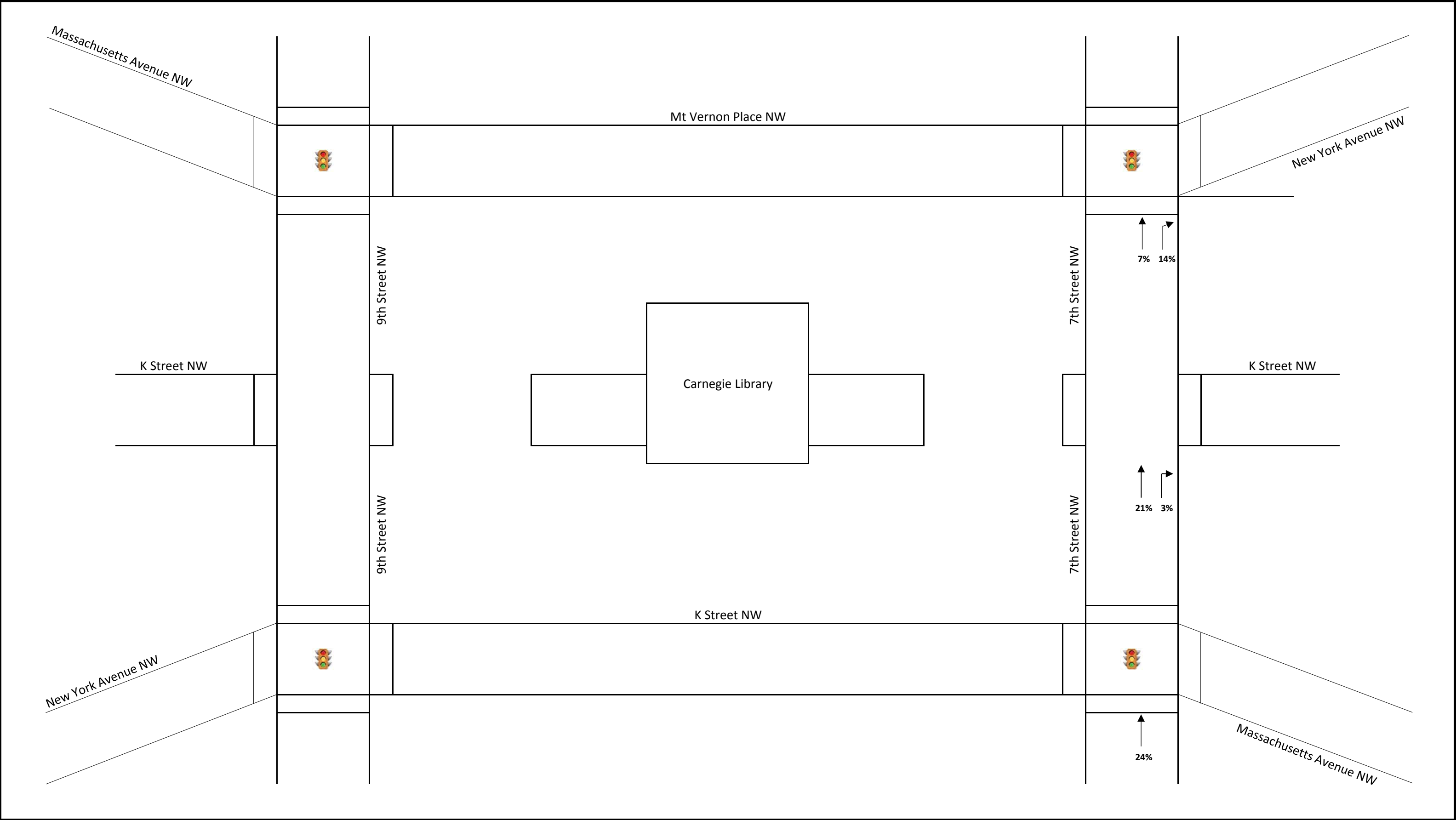


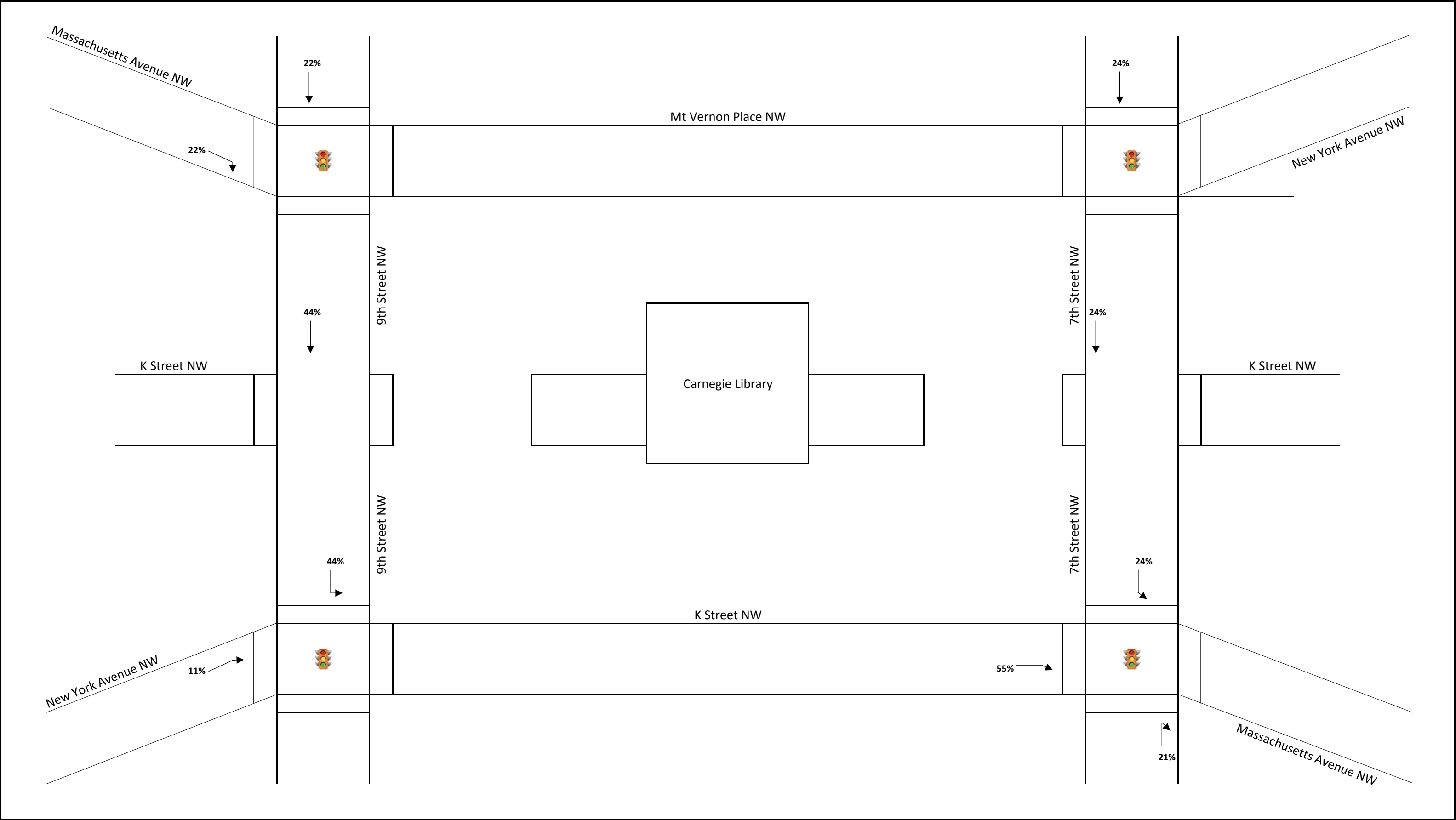


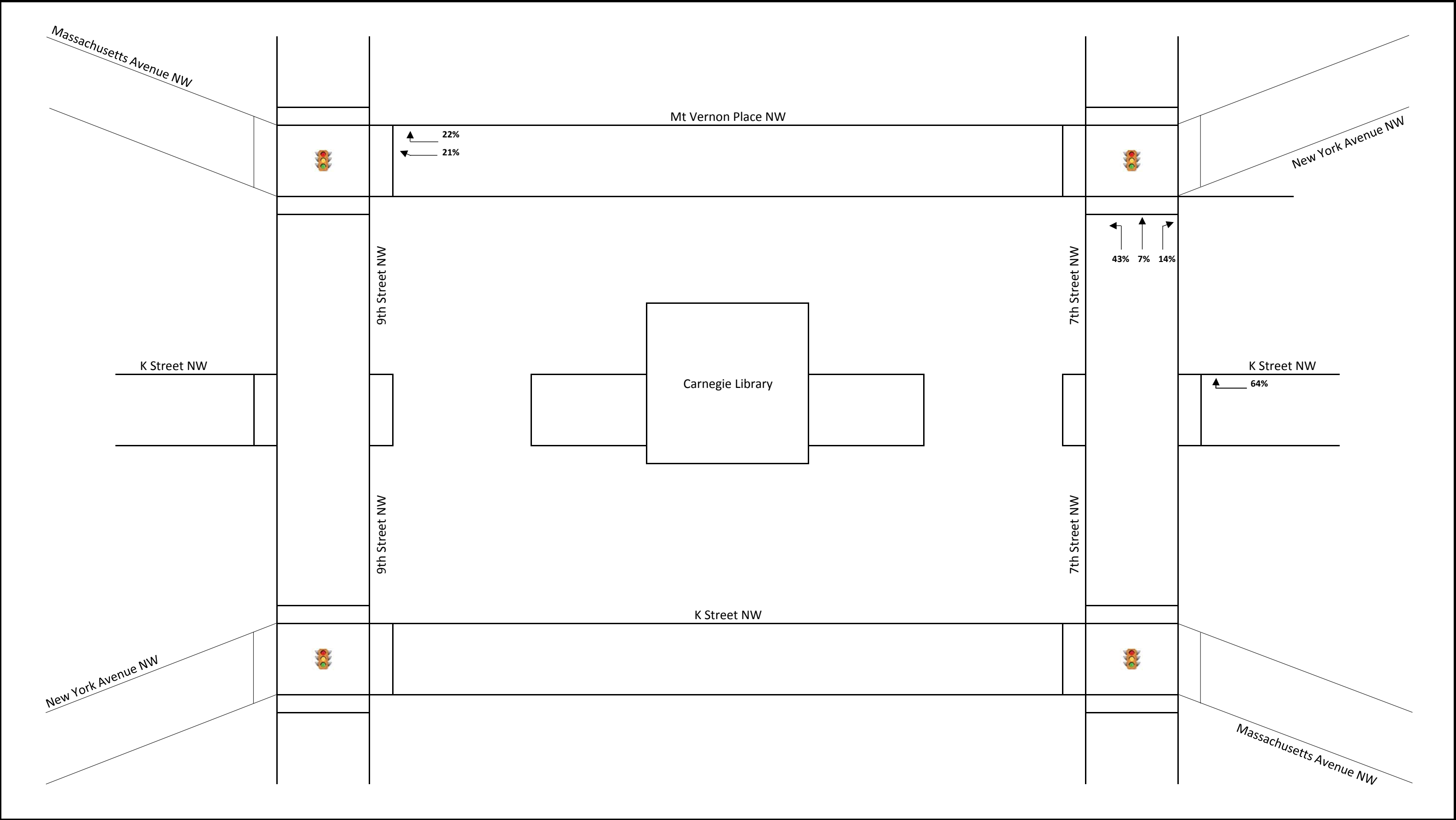


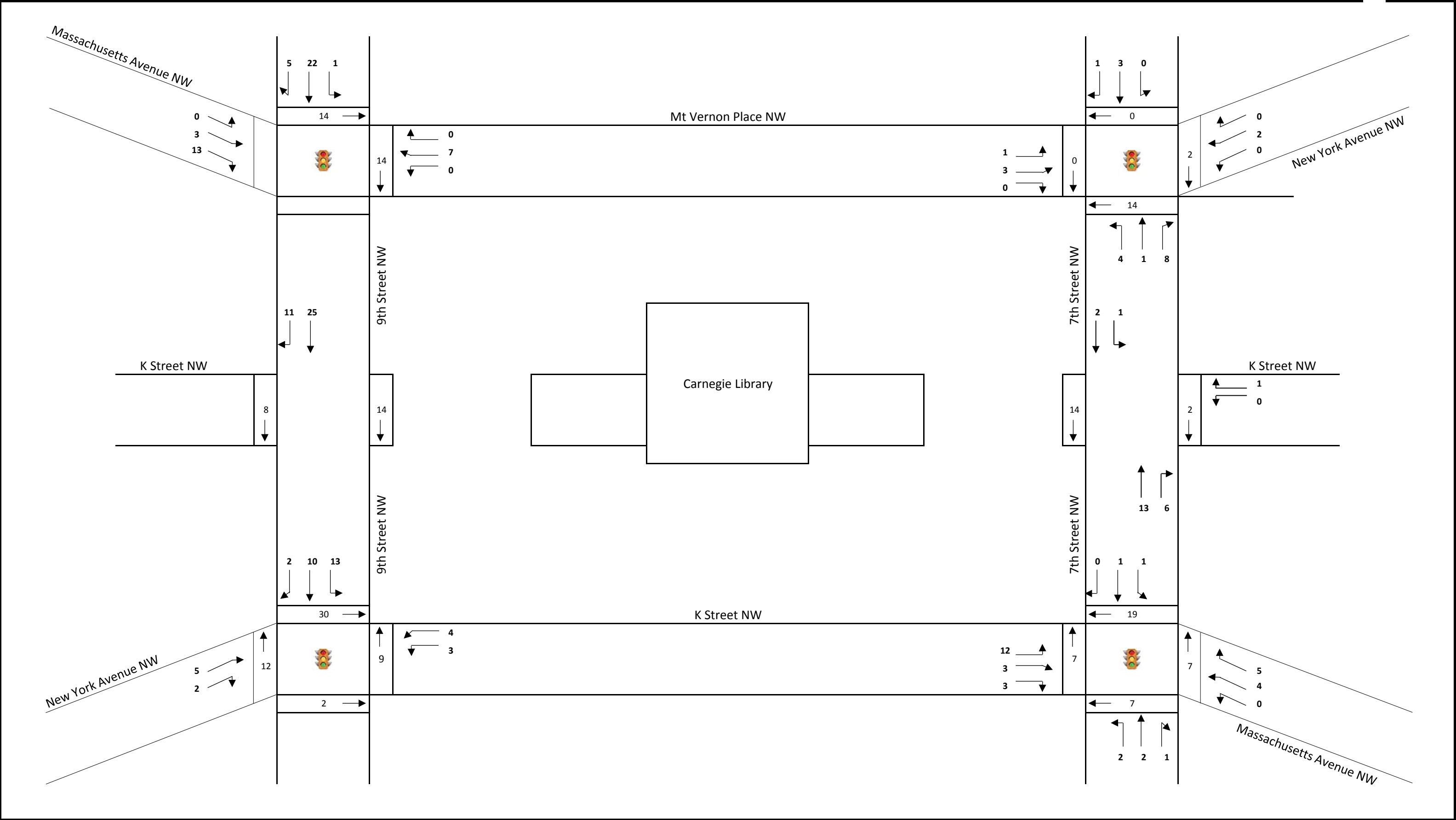


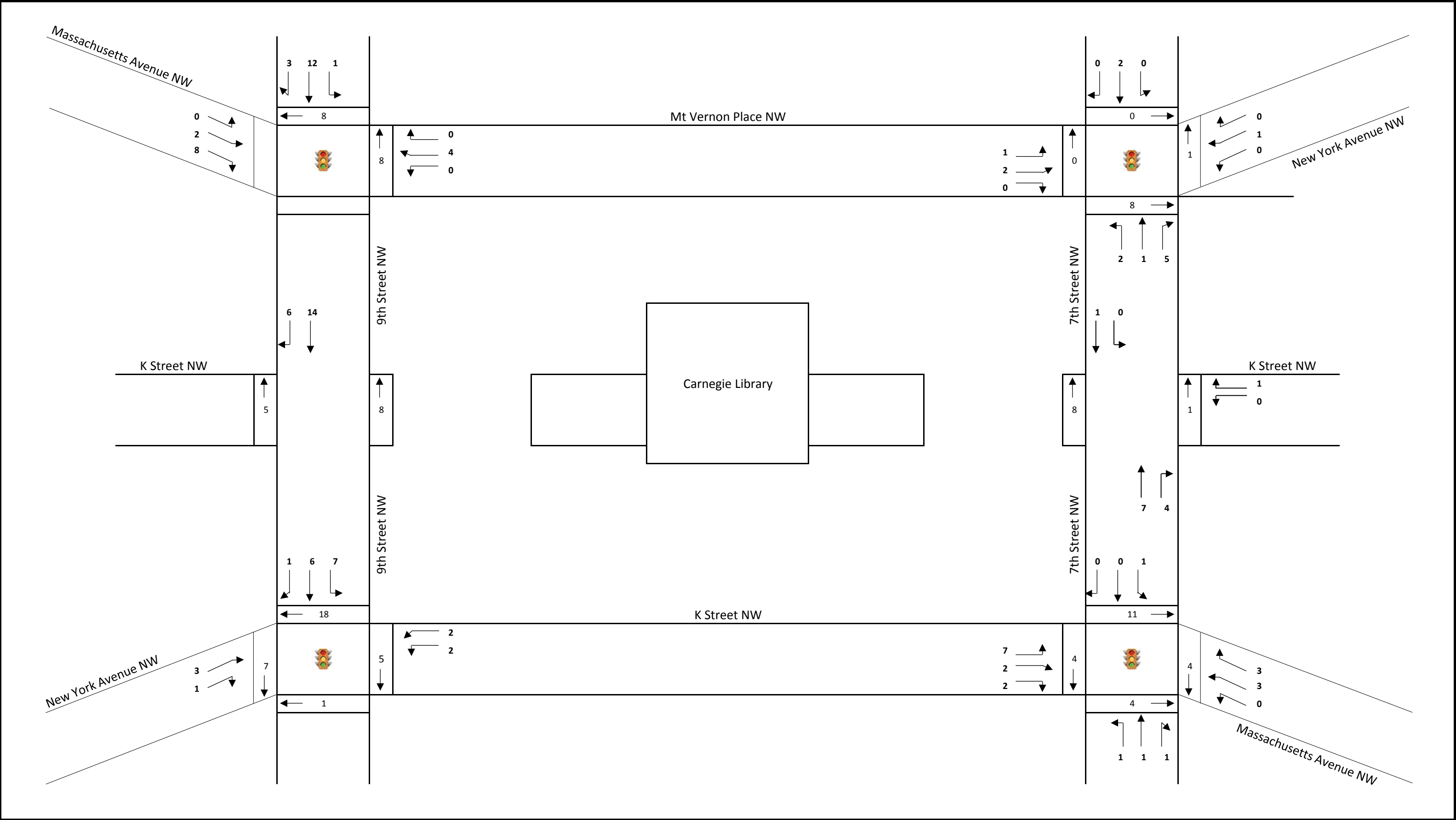


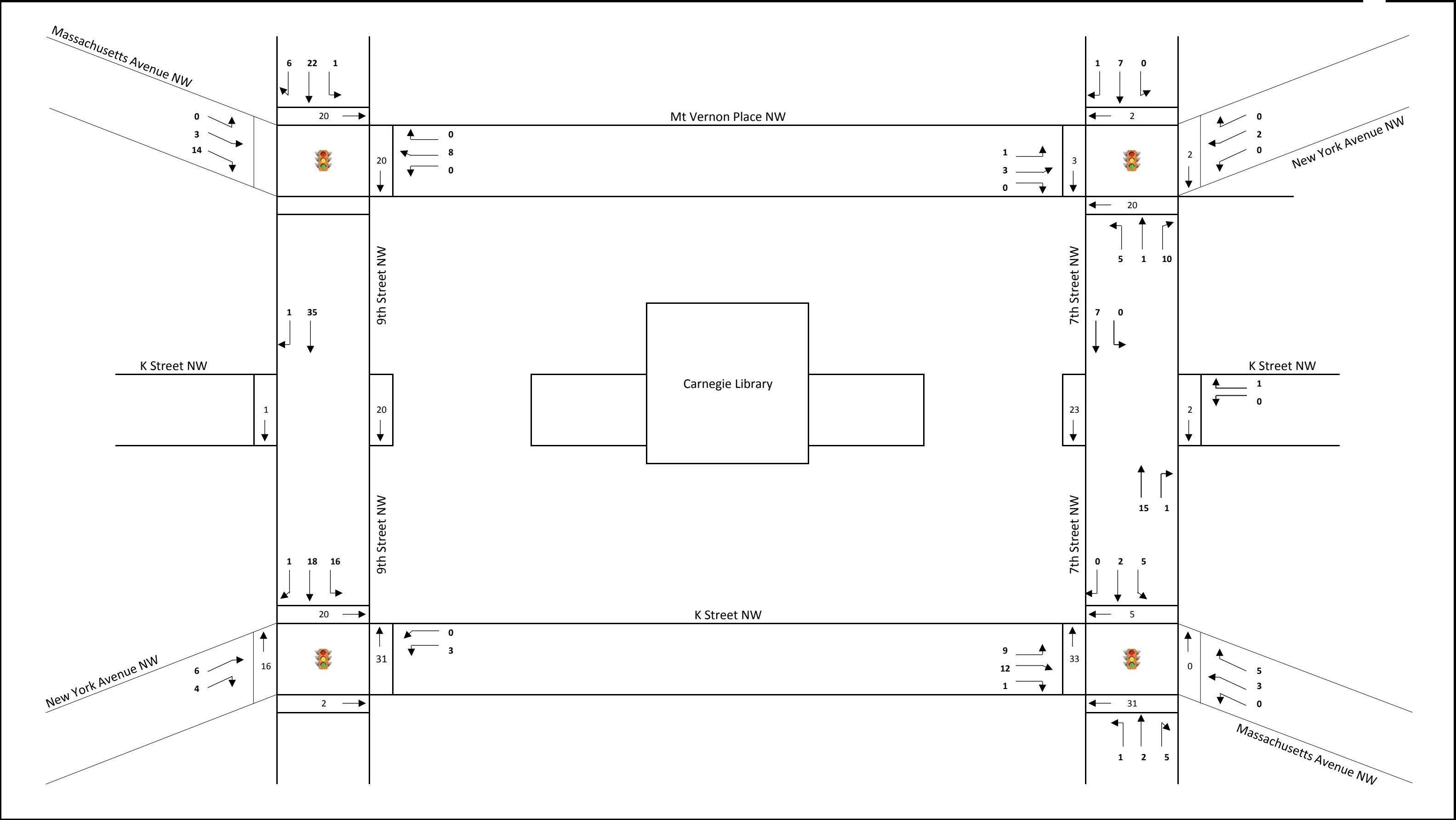


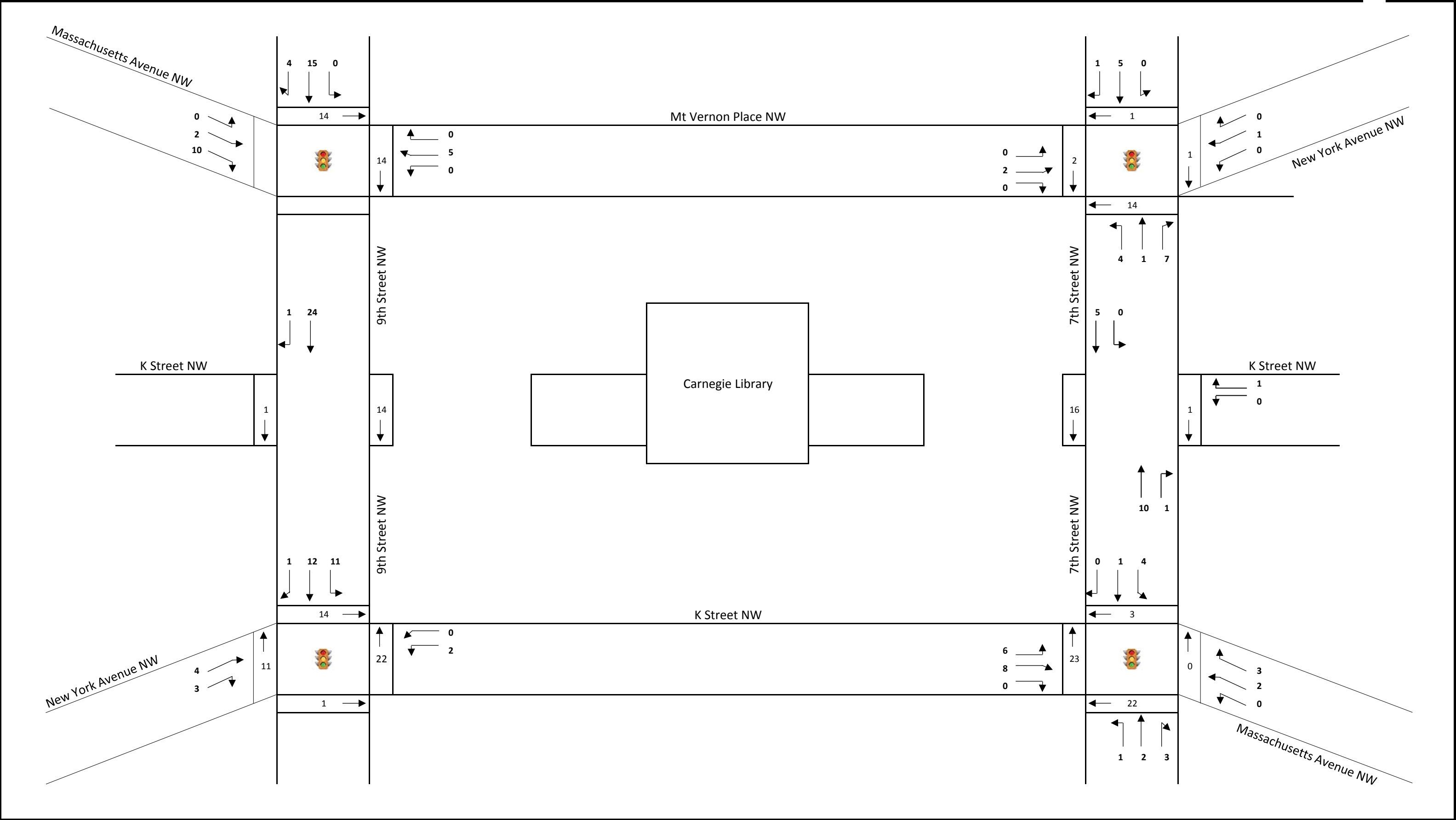


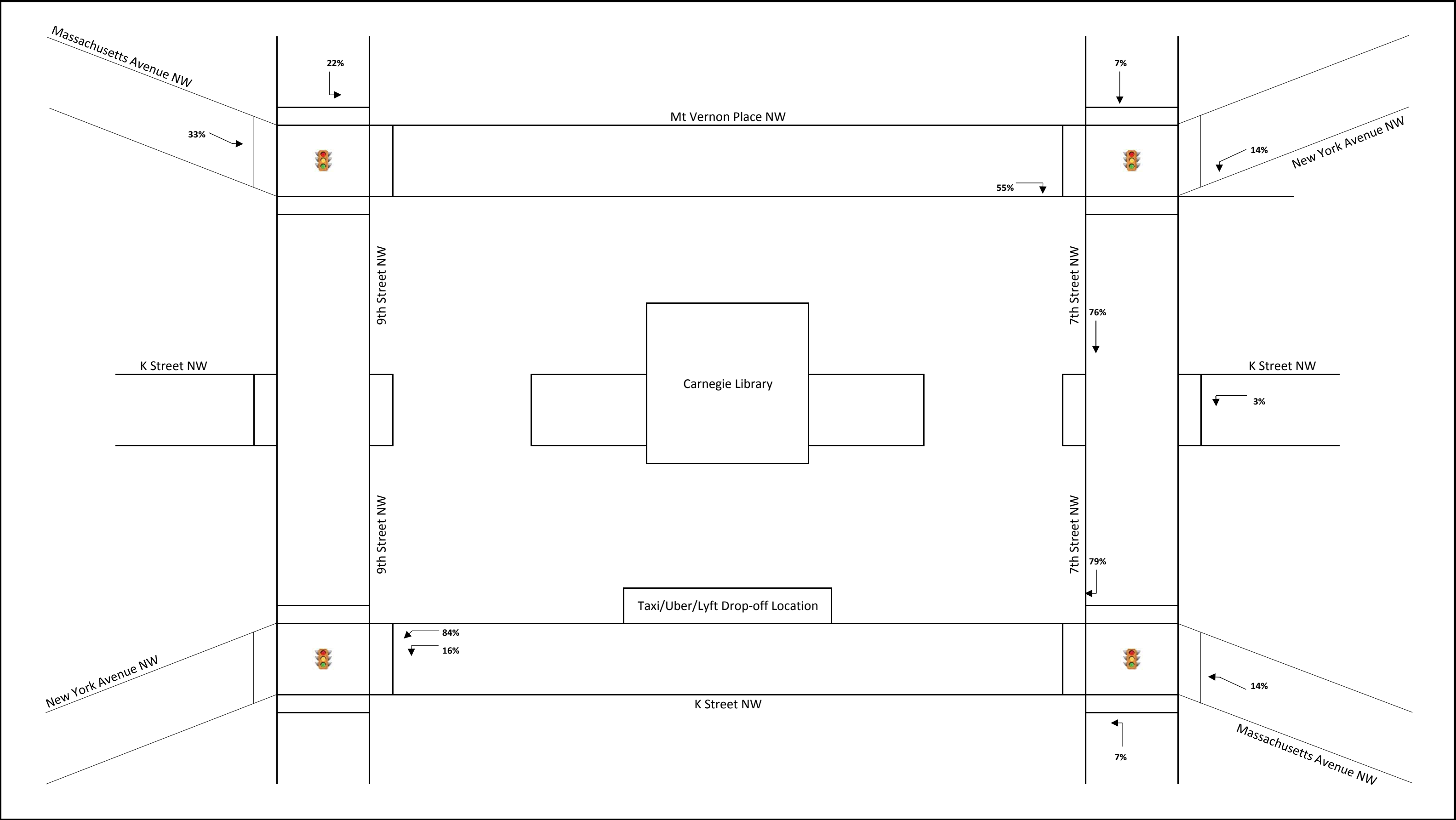


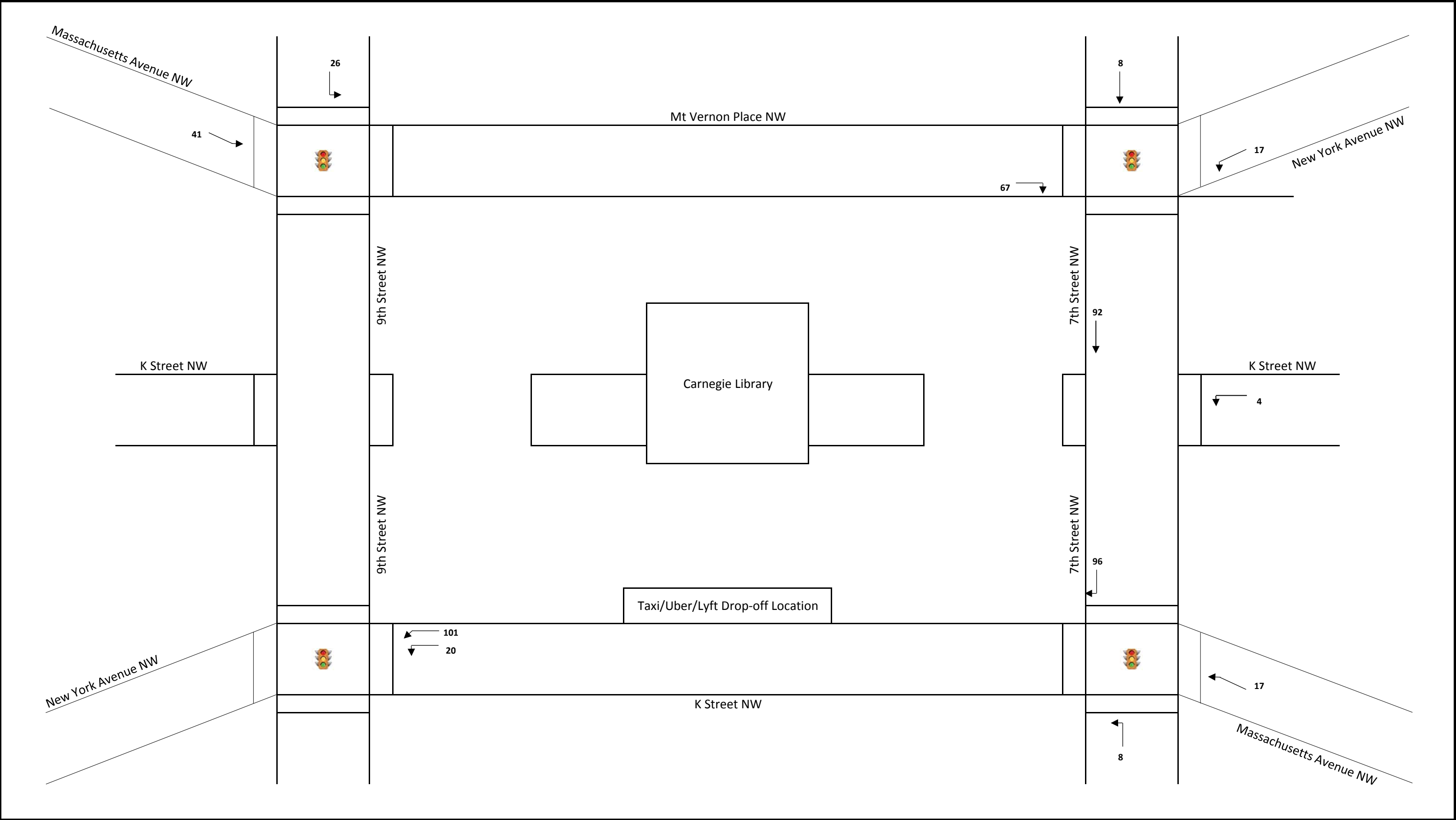


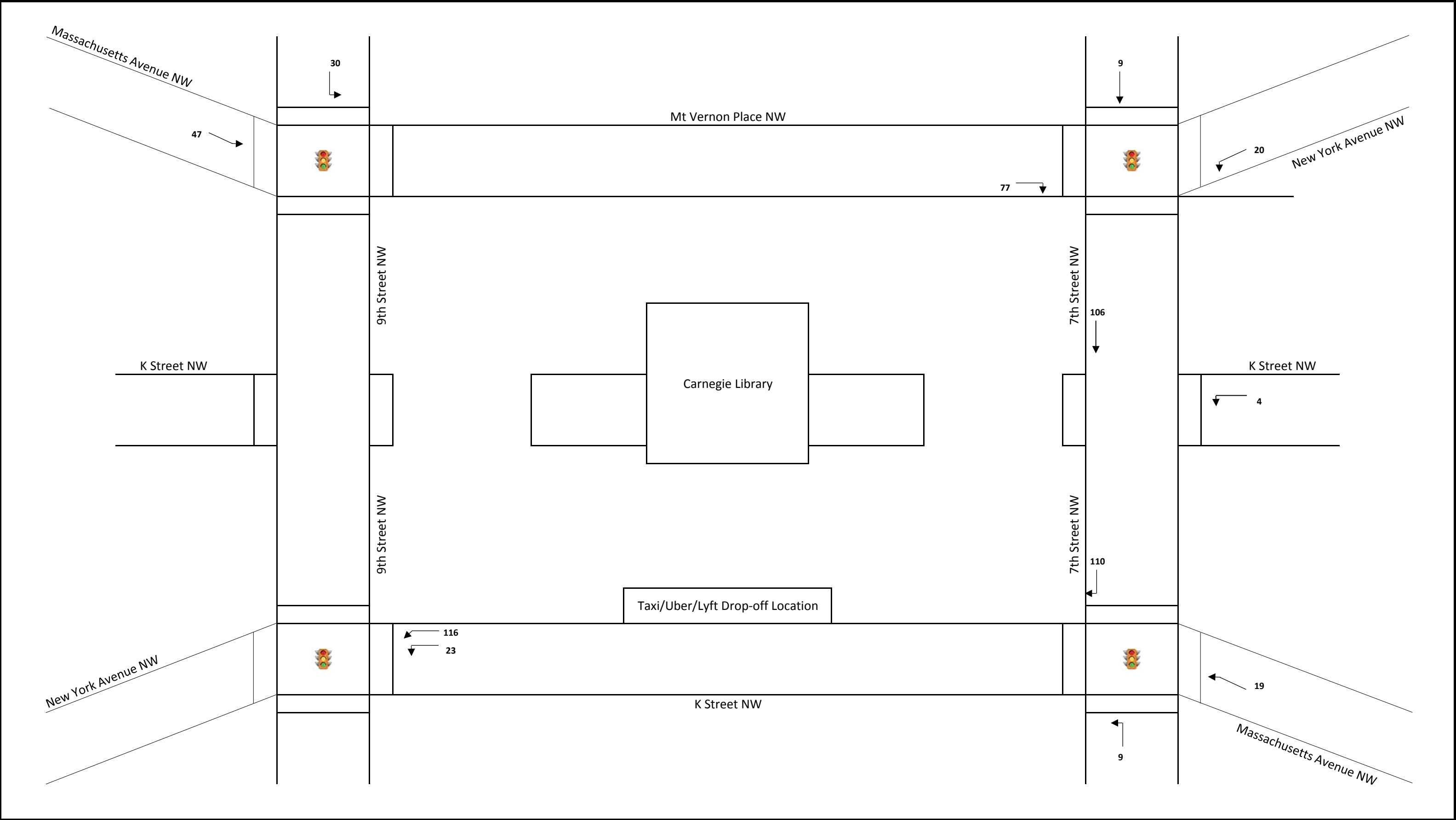


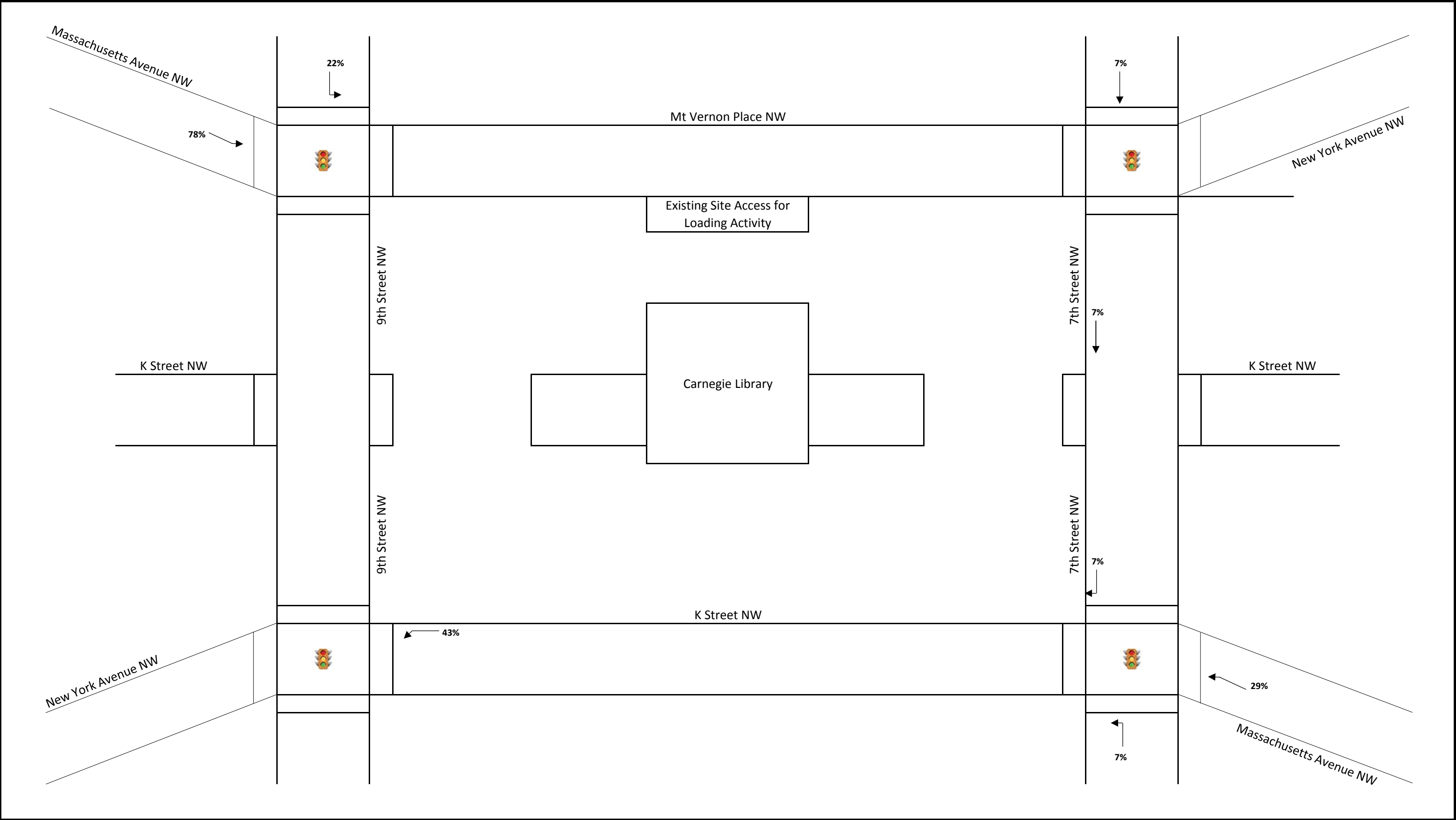


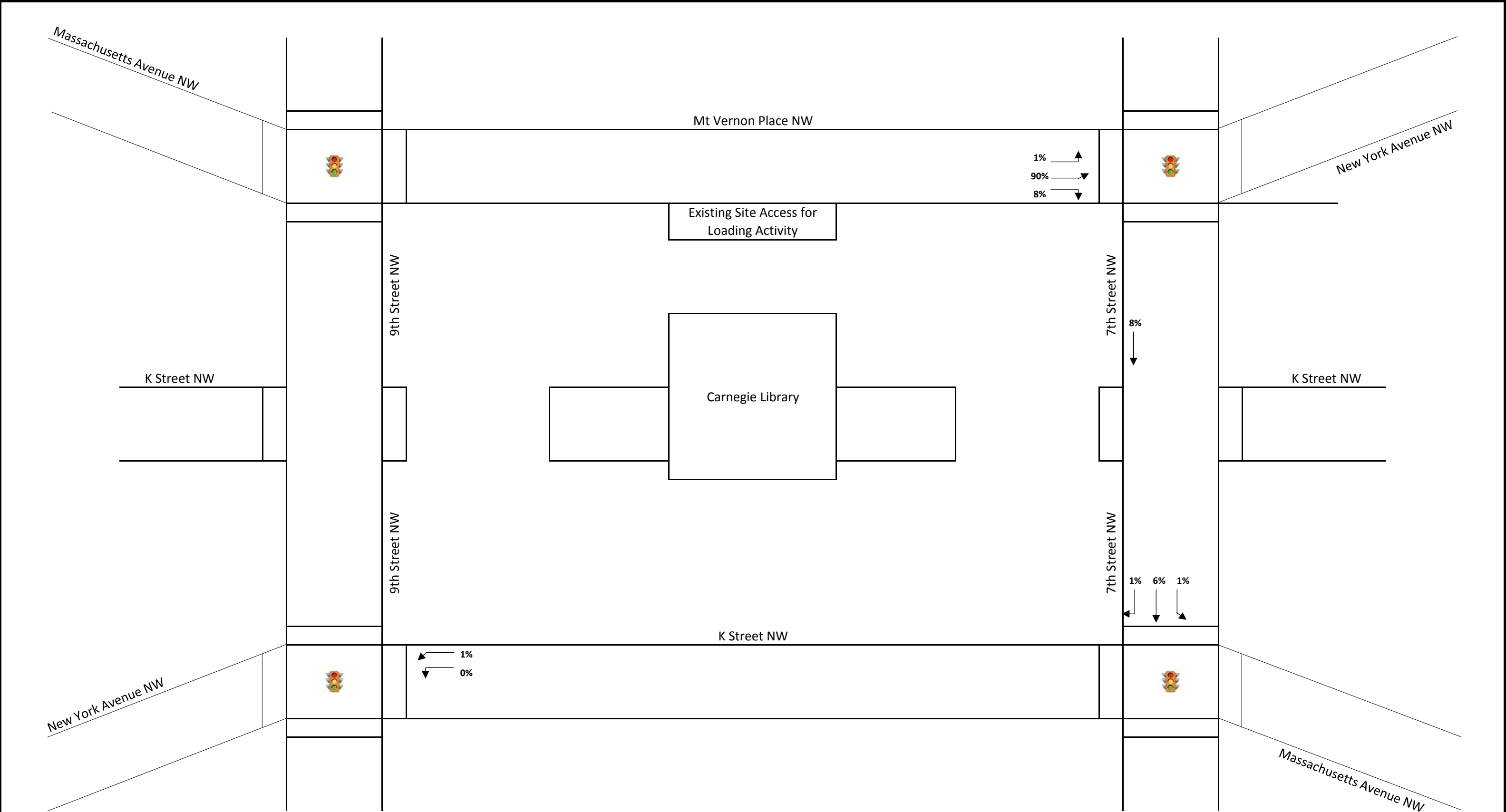


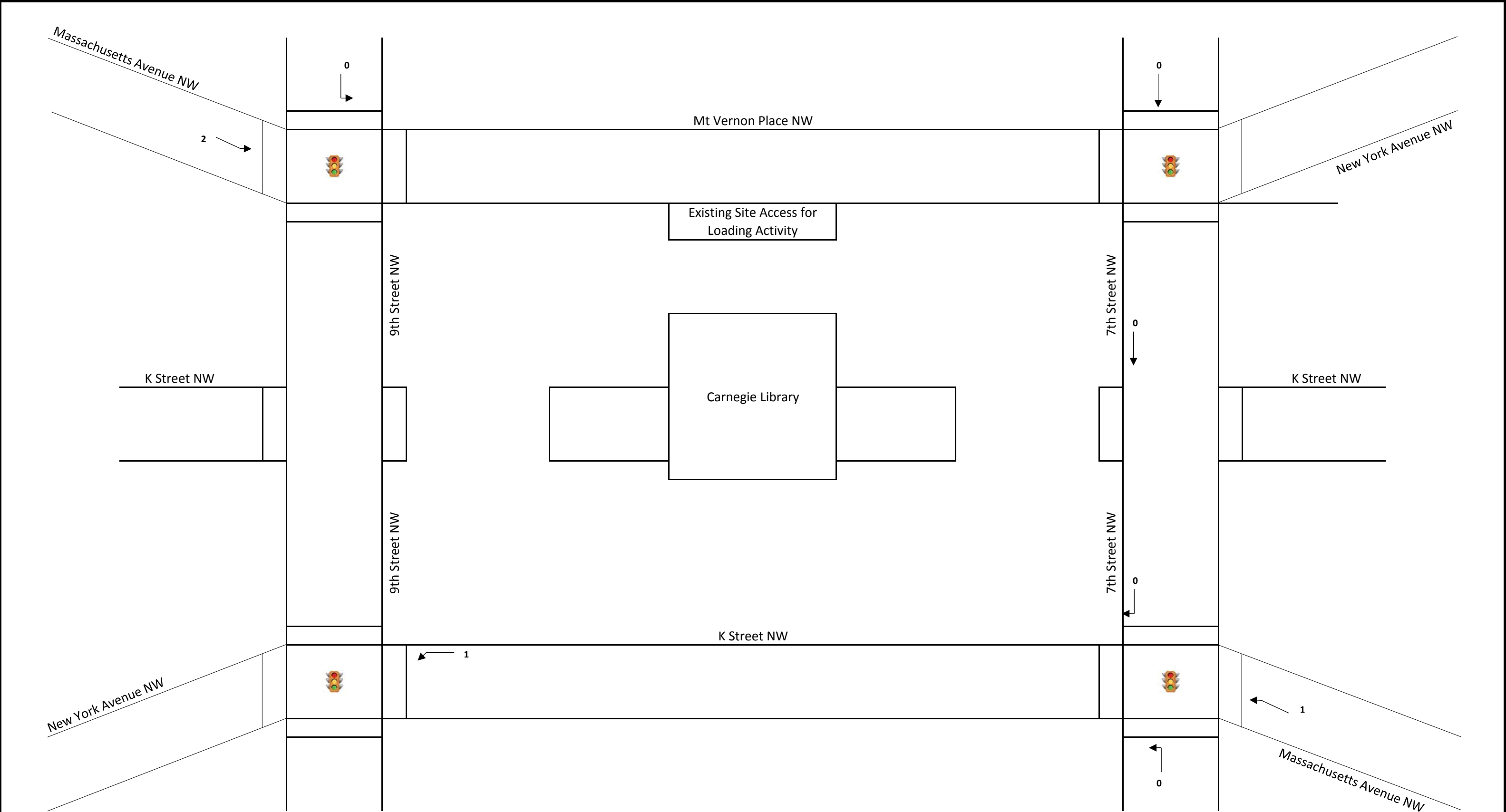


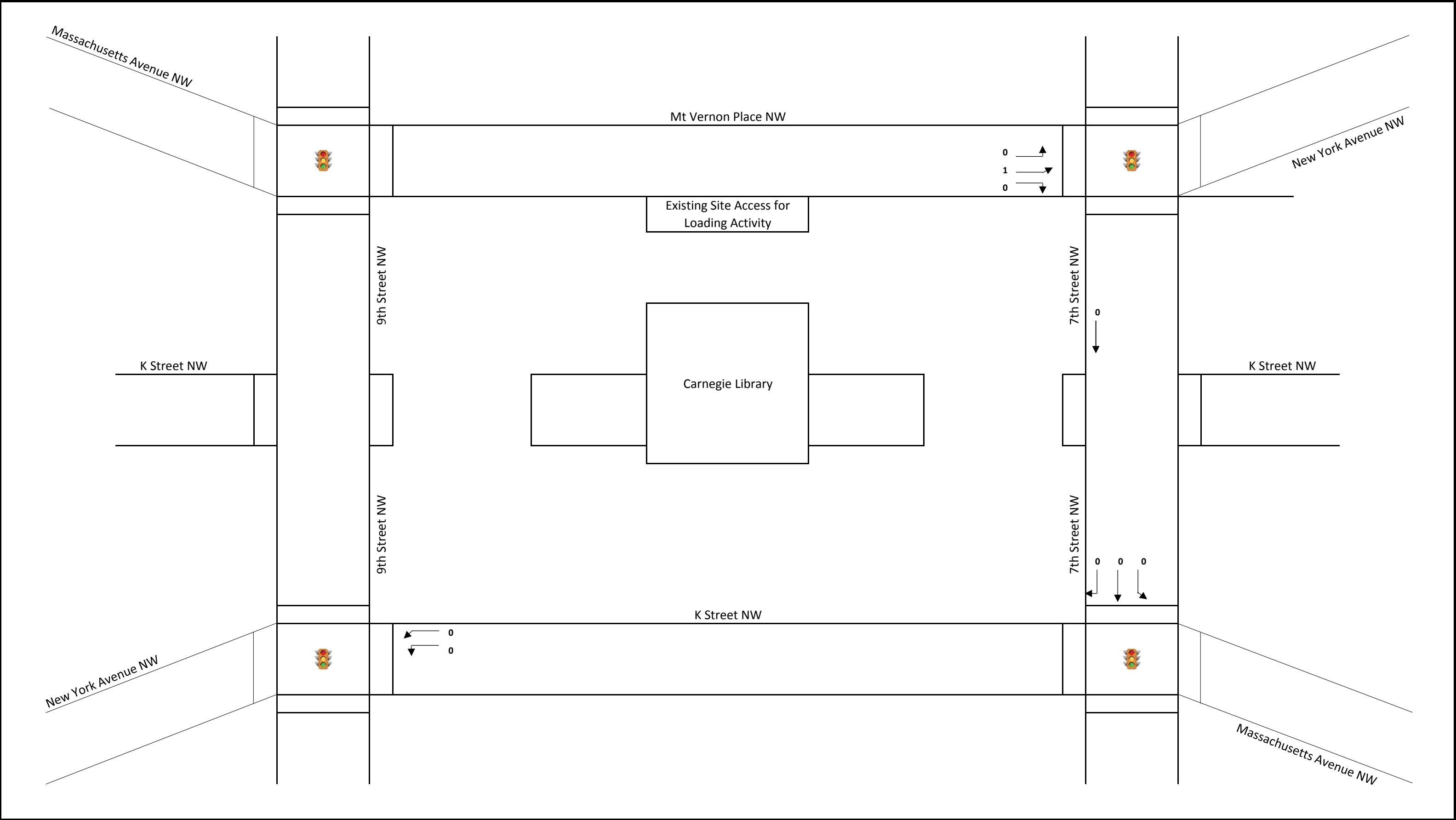


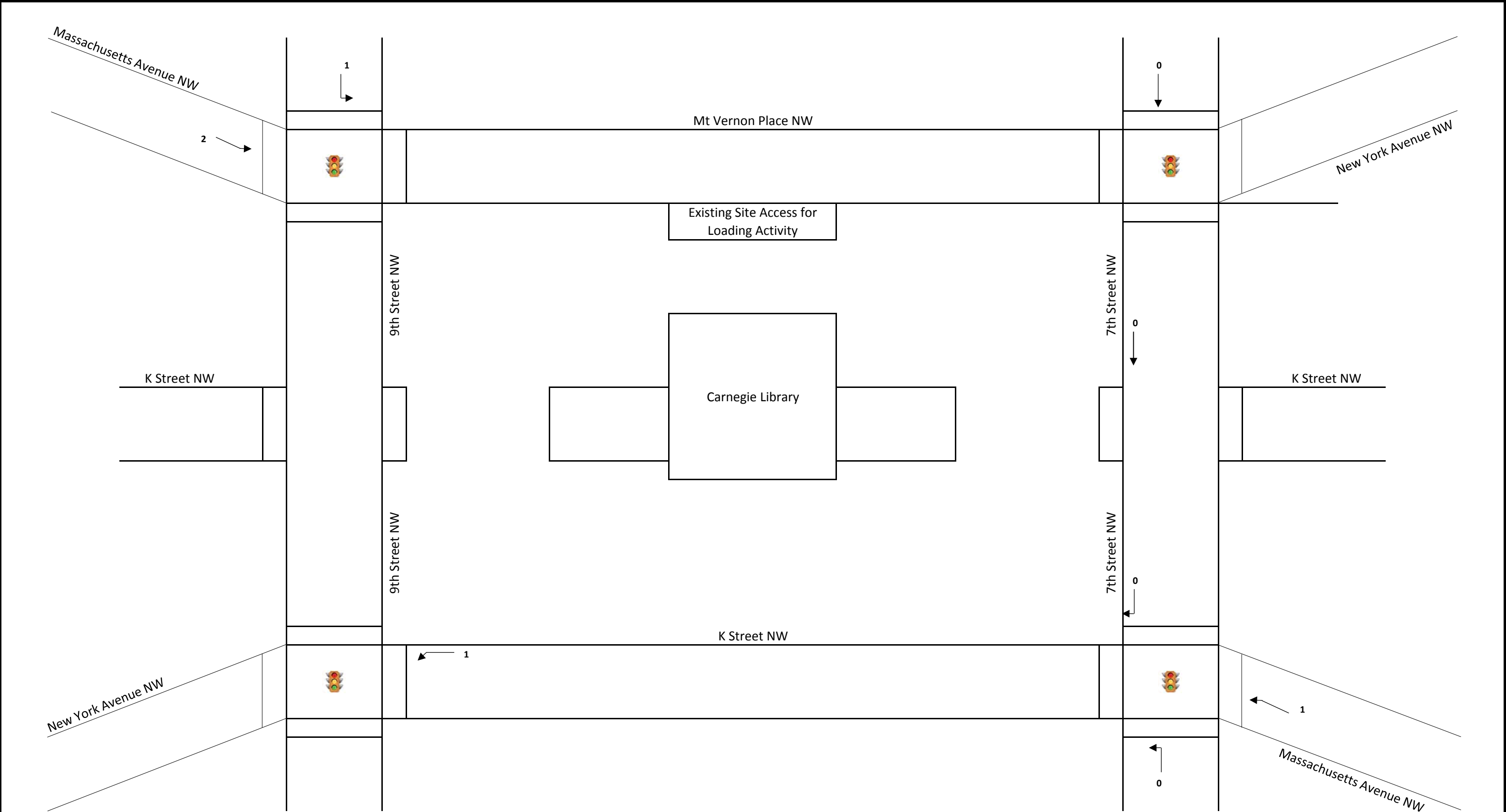












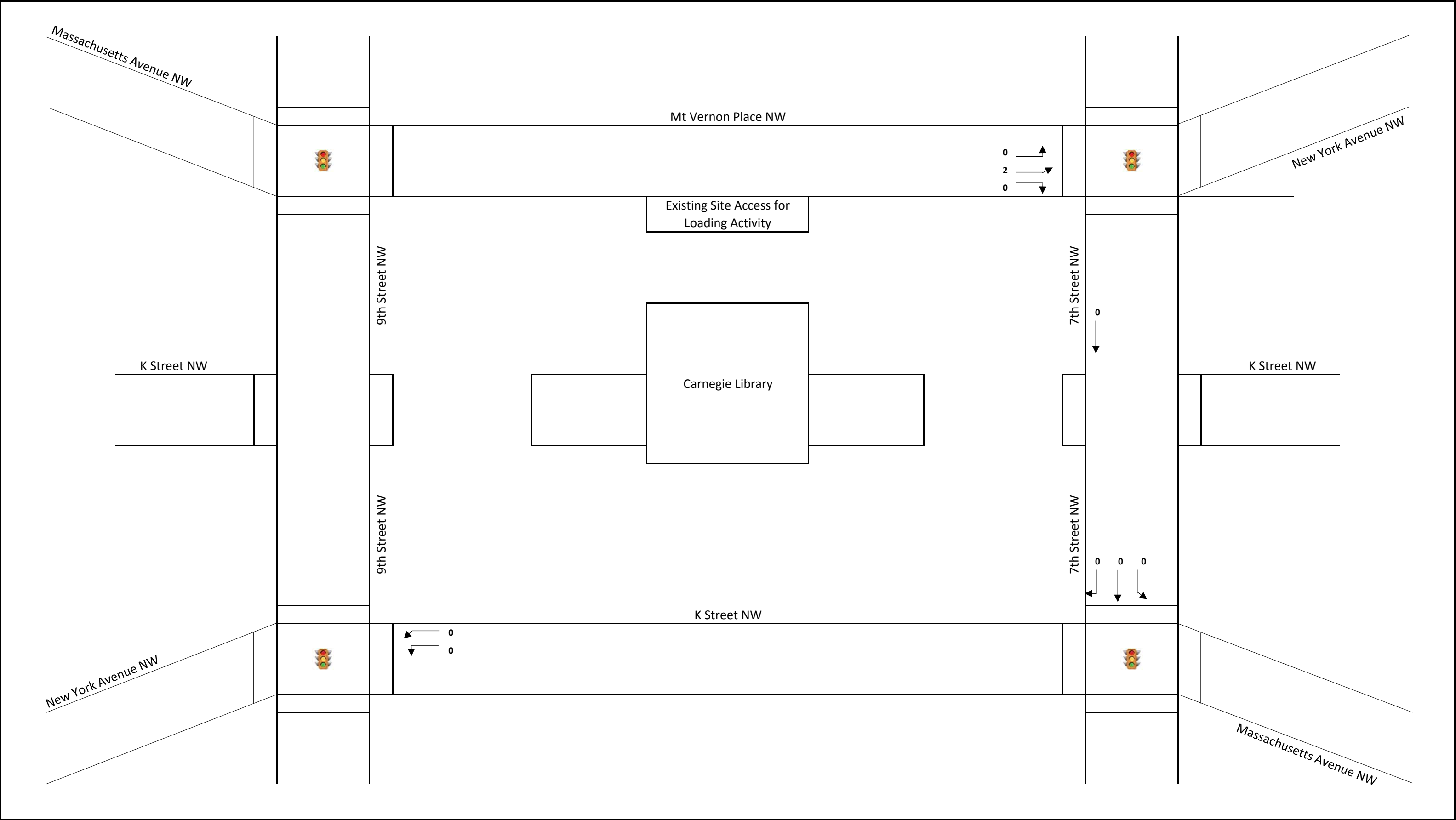
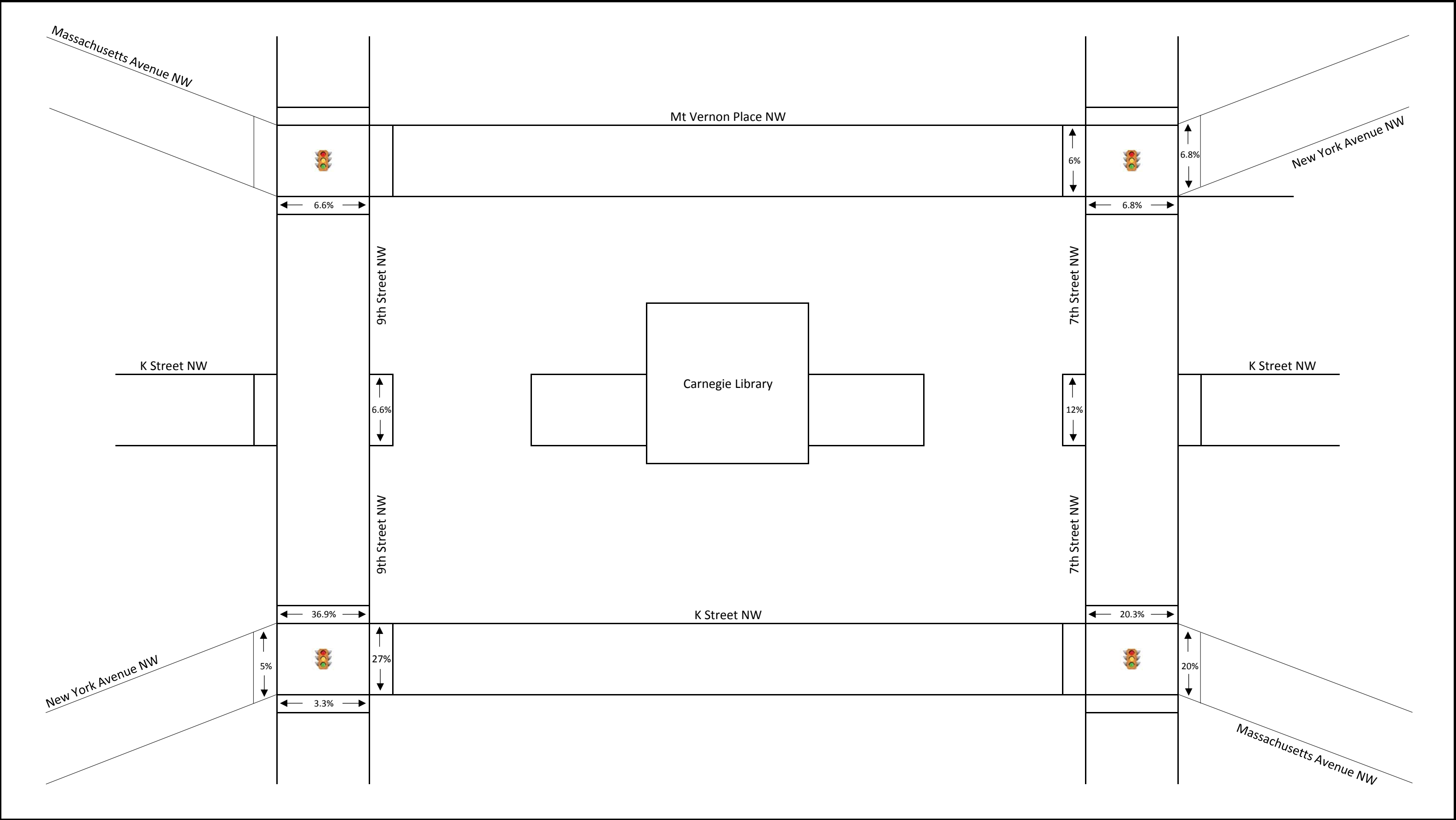


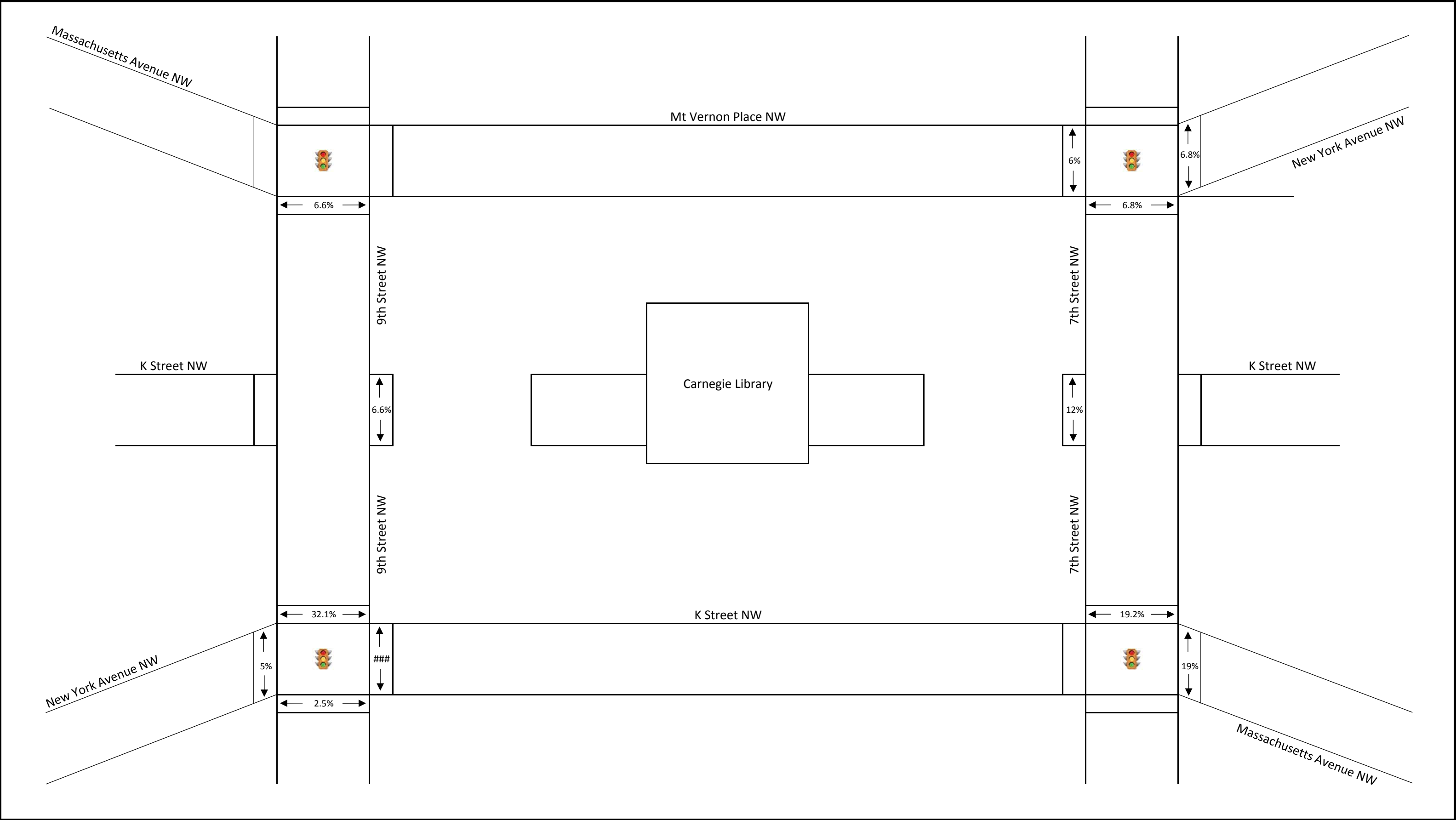
Exhibit 72
801 K Street NW
Bus and Metrorail Trip Distribution

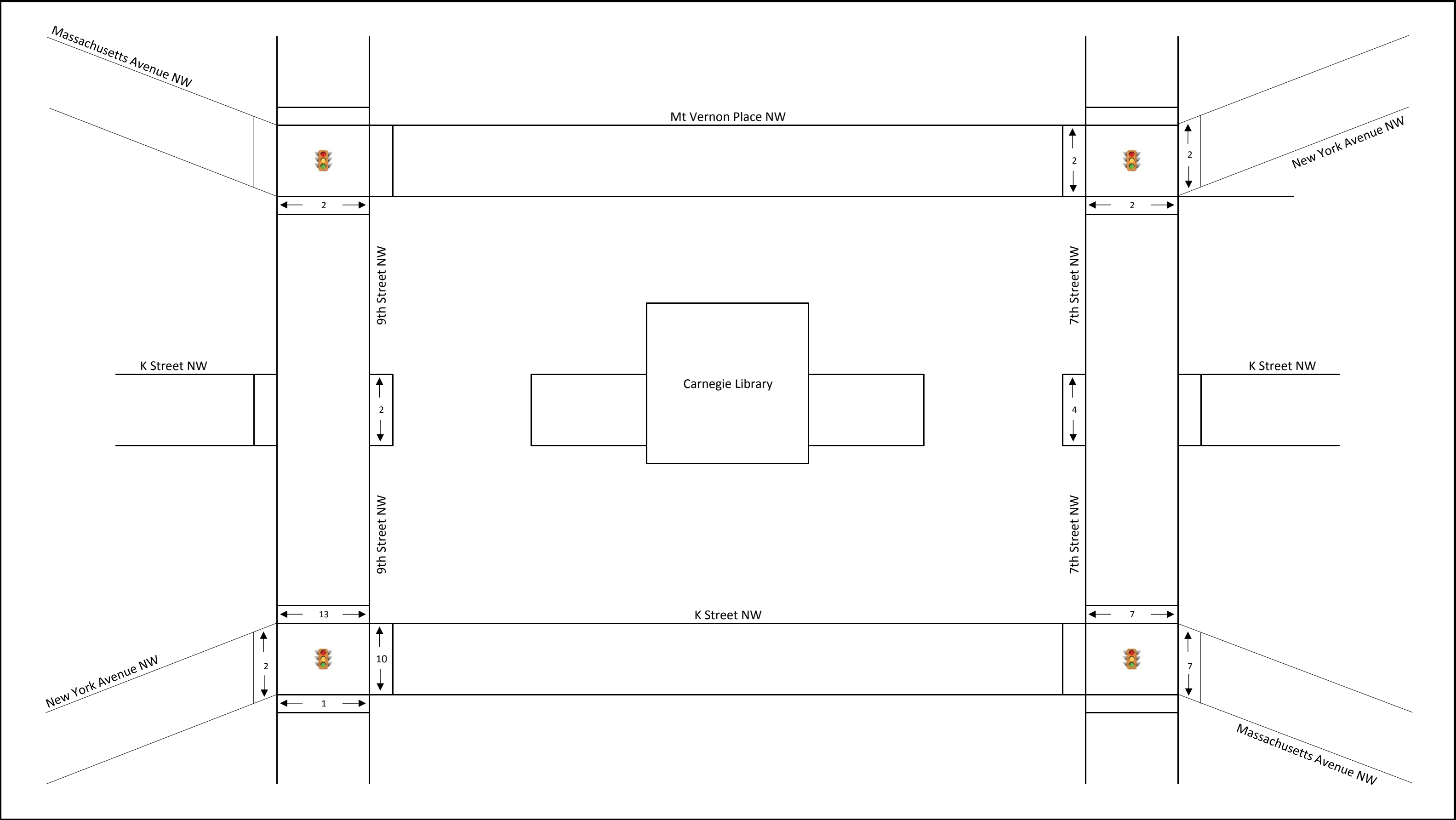
Route	From	To	Line	Wkday Avg	% Wkdy Avg	Sat Avg	% Sat Avg
42	Mt. Pleasant	Gallery Place	Mt. Pleasant	6784	6.6%	3627	6.4%
53	Takoma	McPherson Square	14th Street	13870	13.5%	9113	16.2%
63	Takoma	Federal Triangle	Takoma-Petworth	3551	3.5%	1079	1.9%
64	Fort Totten	Federal Triangle	Fort Totten-Petworth	4564	4.5%	2237	4.0%
70	Silver Spring	Archives	Georgia Avenue-7th Street	11510	11.2%	8652	15.4%
74	Mt. Vernon Square	SW Waterfront	Southwest Waterfront	1485	1.4%	721	1.3%
79	Silver Spring	Archives	Georgia Avenue-7th Street MetroExtra	7006	6.8%	4136	7.4%
80	Fort Totten	Kennedy Center	North Capitol Street	6909	6.7%	2556	4.5%
D1	Glover Park	Franklin Square	Glover Park-Federal Triangle	377	0.4%	0	0.0%
D4	Ivy City	Franklin Square	Ivy City-Franklin Square	1334	1.3%	737	1.3%
D6	Stadium-Armory	Sibley Hospital	Sibley Hospital-Stadium Armory	4423	4.3%	1690	3.0%
G8	Farragut West	Avondale	Rhode Island Avenue	3768	3.7%	1701	3.0%
P17/P19	Fort Washington	Farragut West	Oxon Hill-Fort Washington	1116	1.1%	0	0.0%
P6	Anacostia	Rhode Island Avenue	Anacostia-Eckington Line	4154	4.1%	2029	3.6%
S2	Silver Spring	Federal Triangle	16th Street	12527	12.2%	8821	15.7%
S9	Silver Spring	McPherson Square	16th Street MetroExtra	3703	3.6%	0	0.0%
W13	Fort Washington Forest via Friendly	Farragut West	Bock Road	596	0.6%	0	0.0%
X2	Minnesota Avenue	Lafayette Square	Benning Road-H Street	12439	12.1%	9143	16.3%
X9	Capitol Heights	Metro Center	Benning Road-H Street MetroExtra	2391	2.3%	0	0.0%
Chinatown-Gallery Place	Glenmont	Shady Grove	Red Line	4394	94.5%	7293	71.0%
	Branch Avenue	Greenbelt	Green Line	1131			
	Huntington	Fort Totten	Yellow Line	2092			
Mt. Vernon Square-7th	Branch Avenue	Greenbelt	Green Line	172	5.5%	2974	29.0%
	Huntington	Fort Totten	Yellow Line	268			

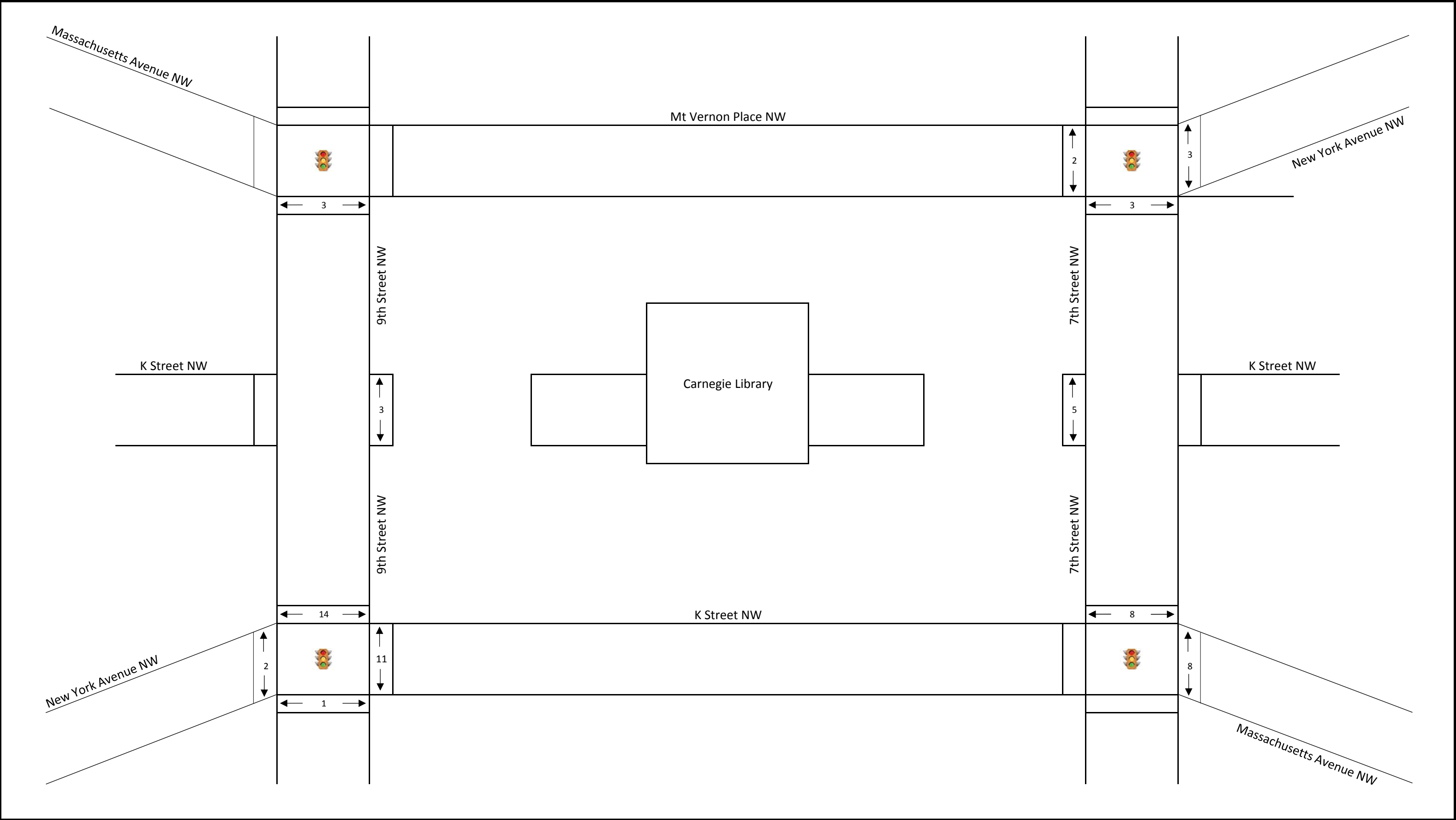
Source

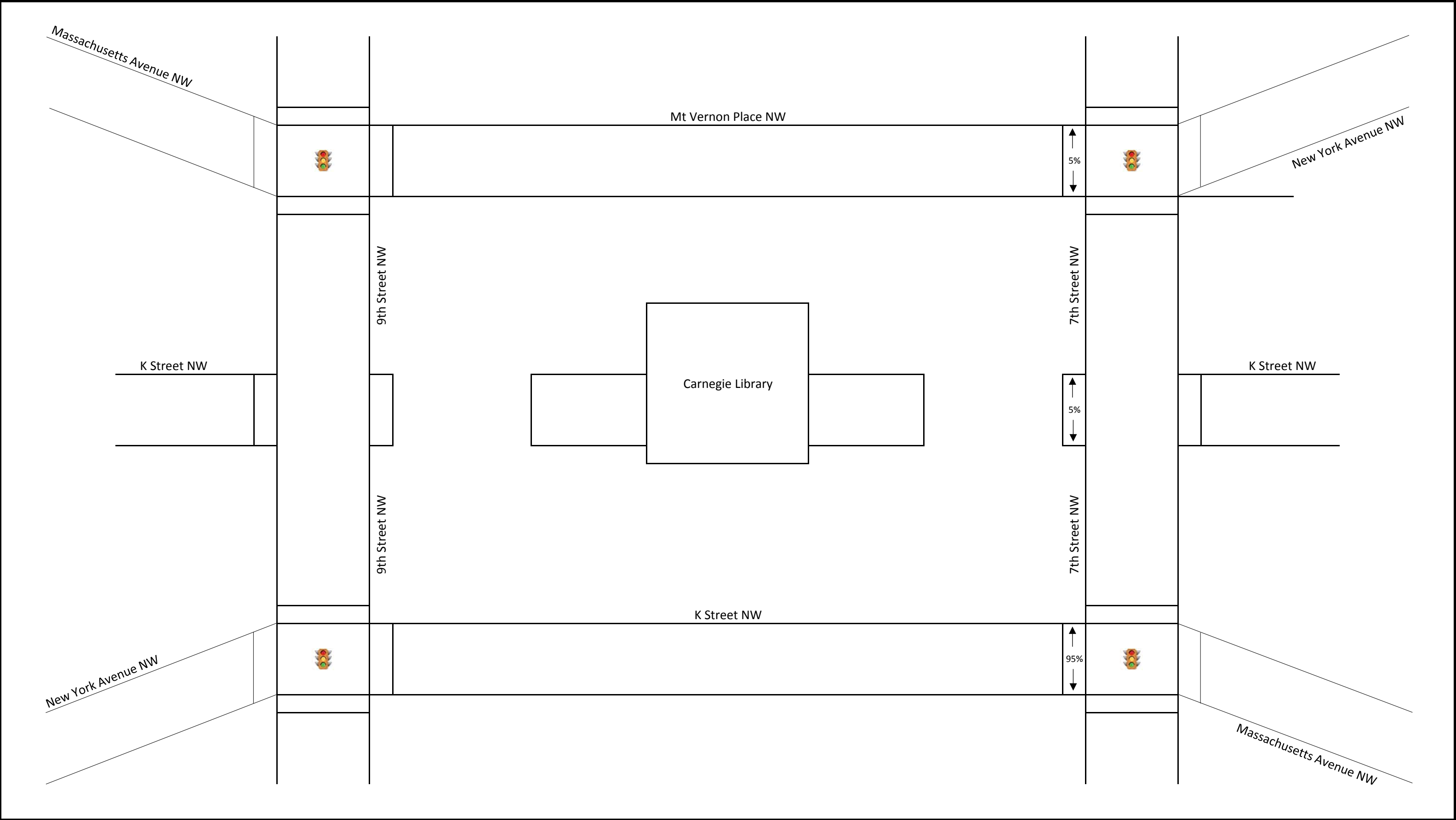
Bus: <https://www.wmata.com/initiatives/plans/upload/2016-06-JCC-June-2016-bus-ridership.pdf>
Metro: <https://public.tableau.com/profile/planitmetro#!/vizhome/MetrorailLinkVolumesbyHour/LinkVolumesbyHour>

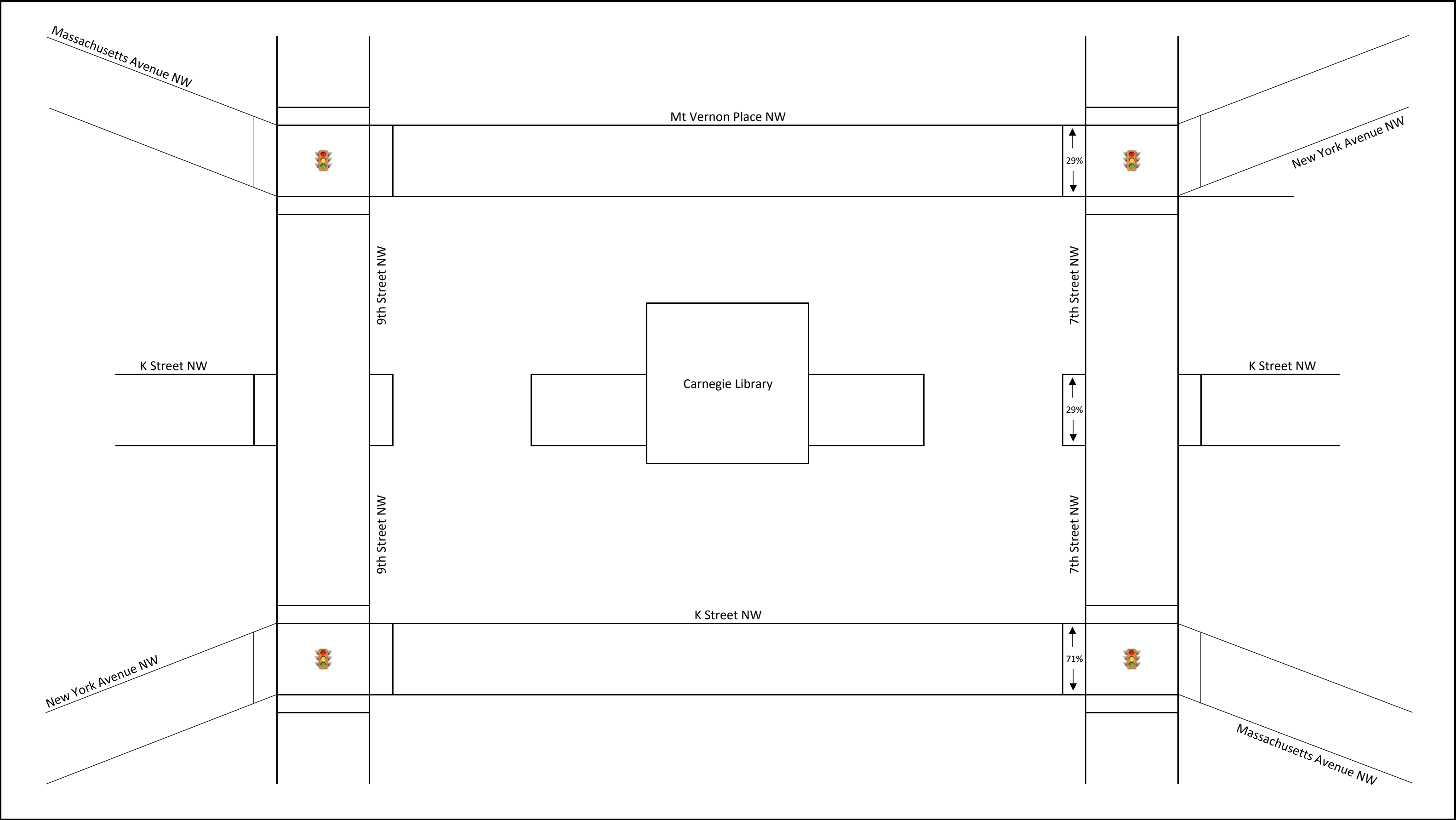


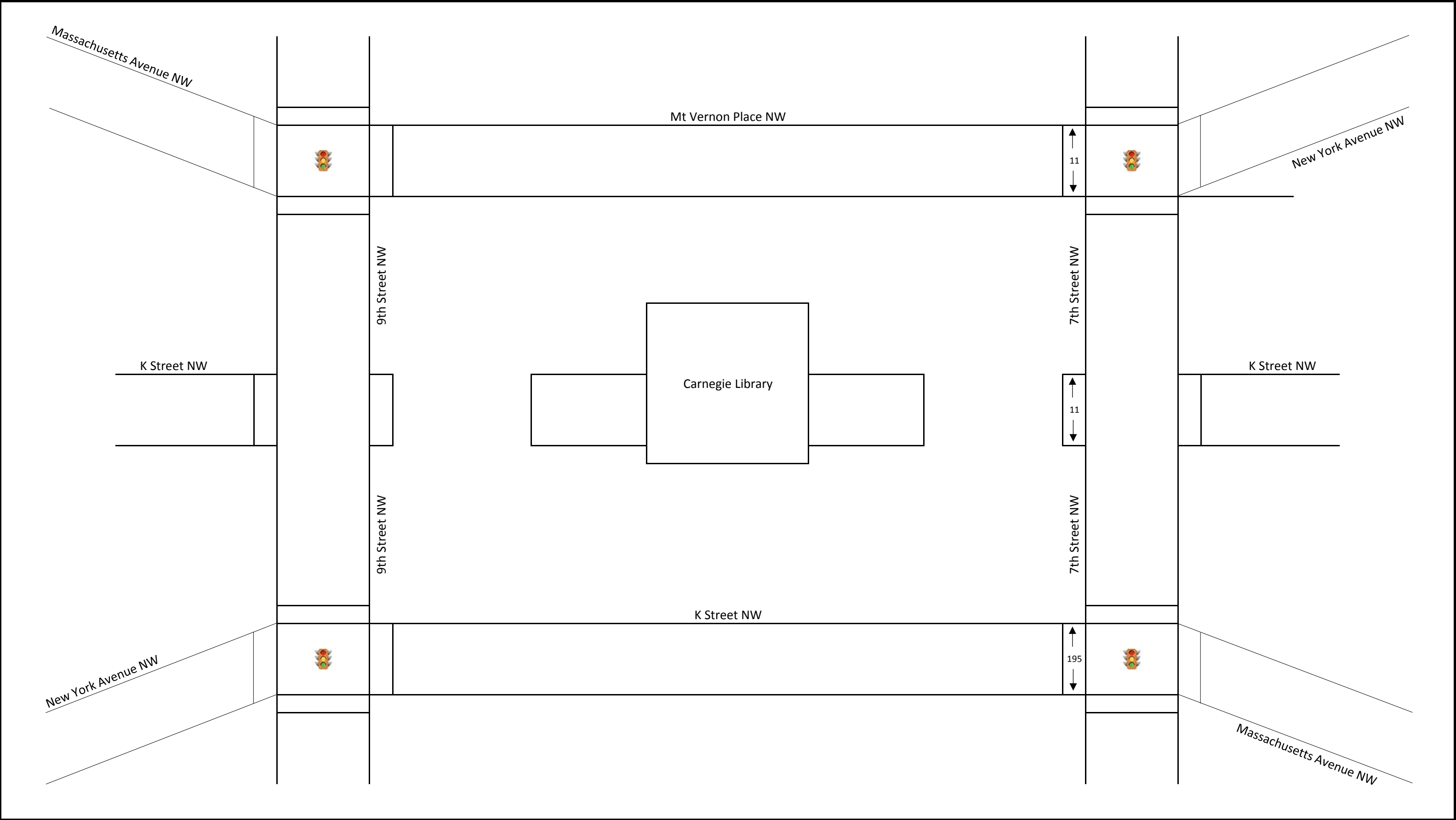


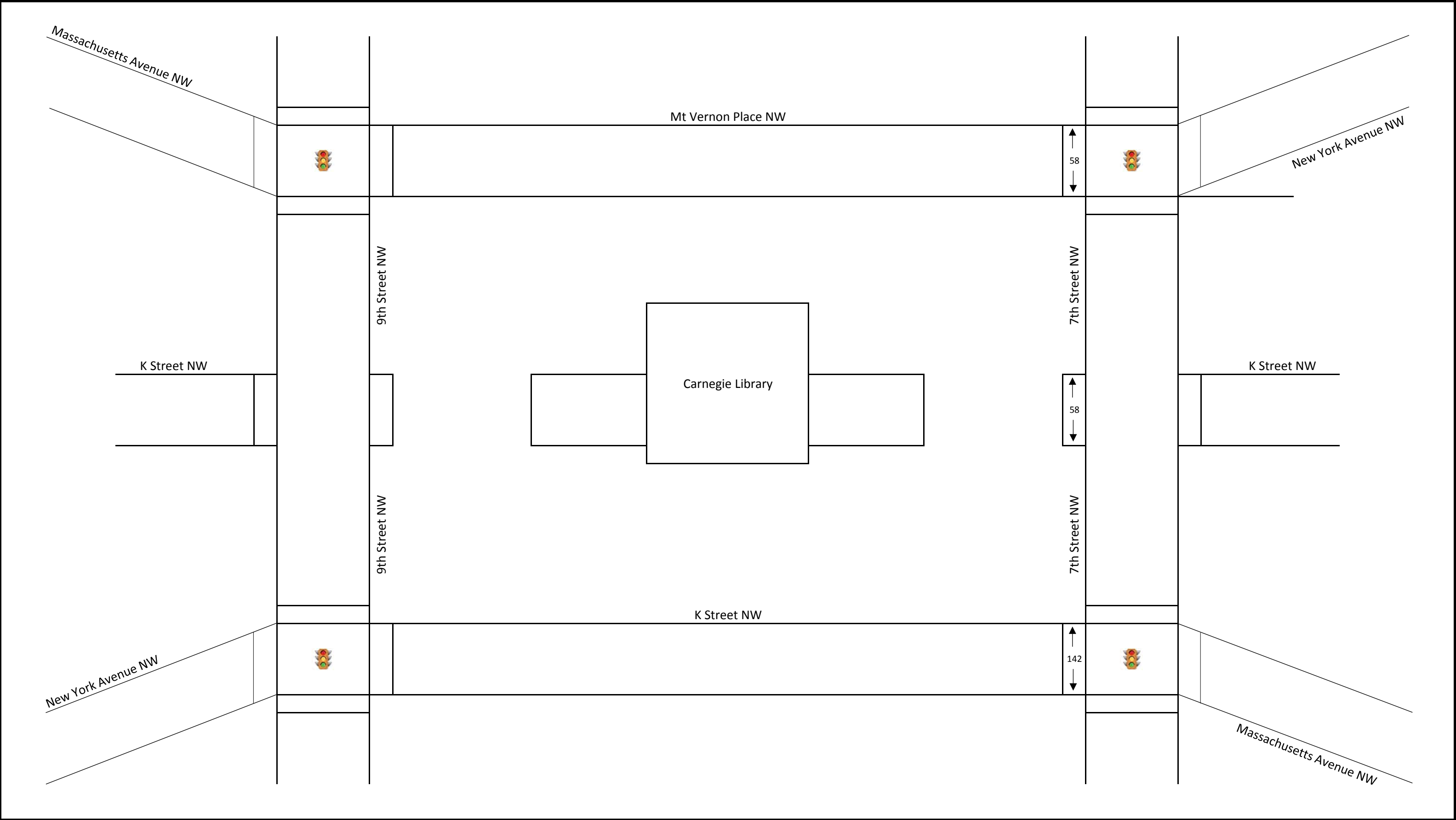


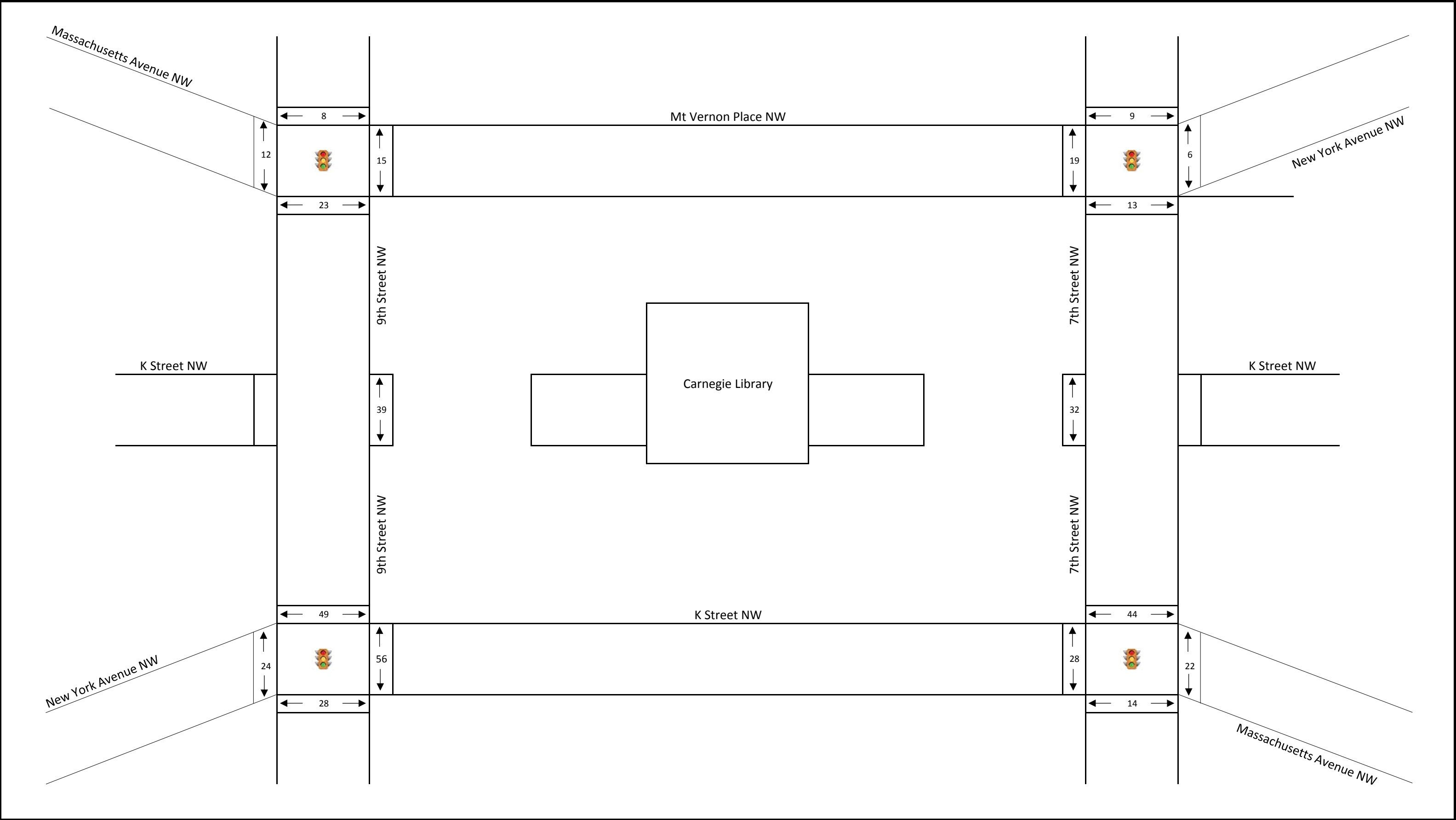


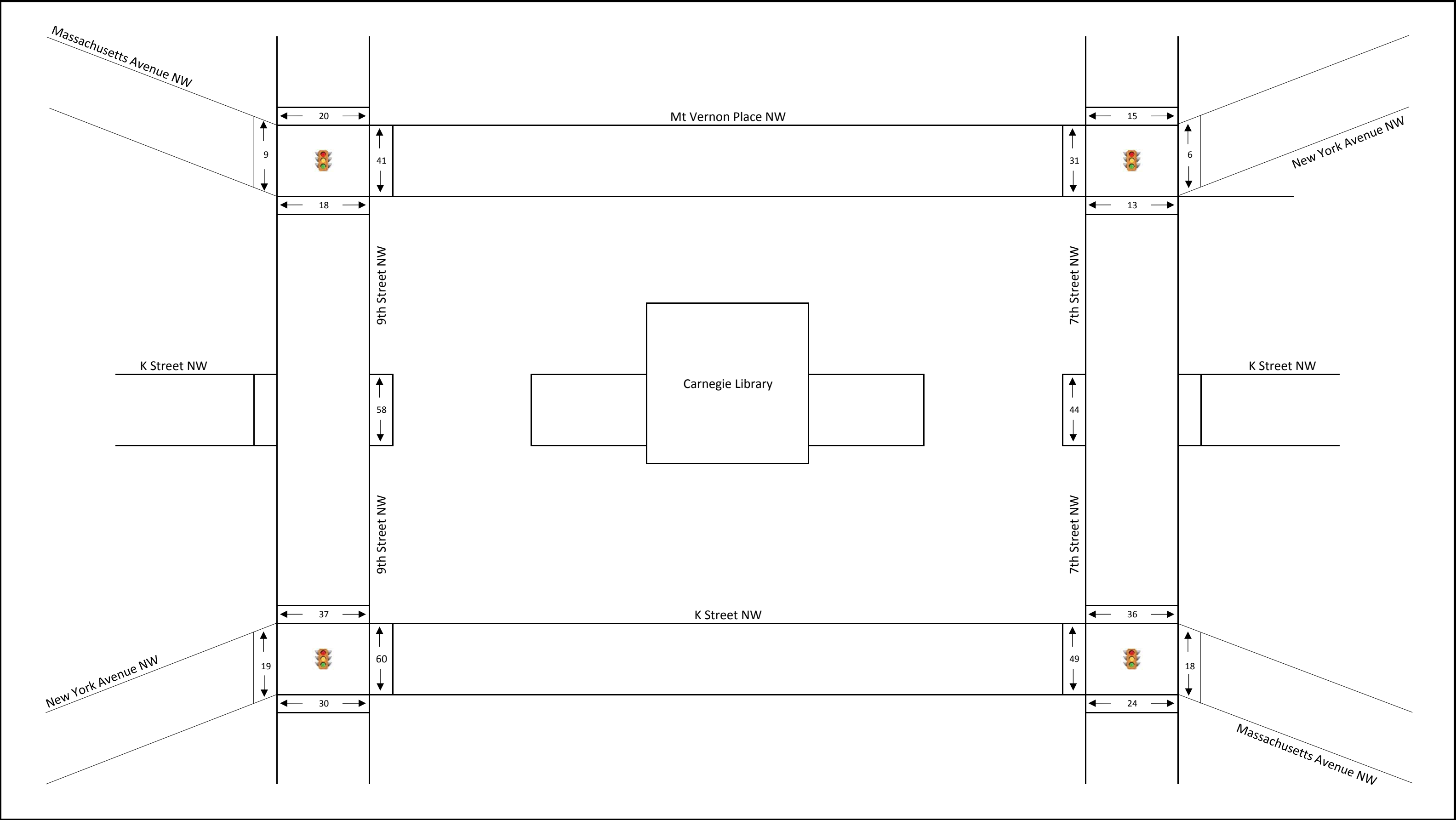


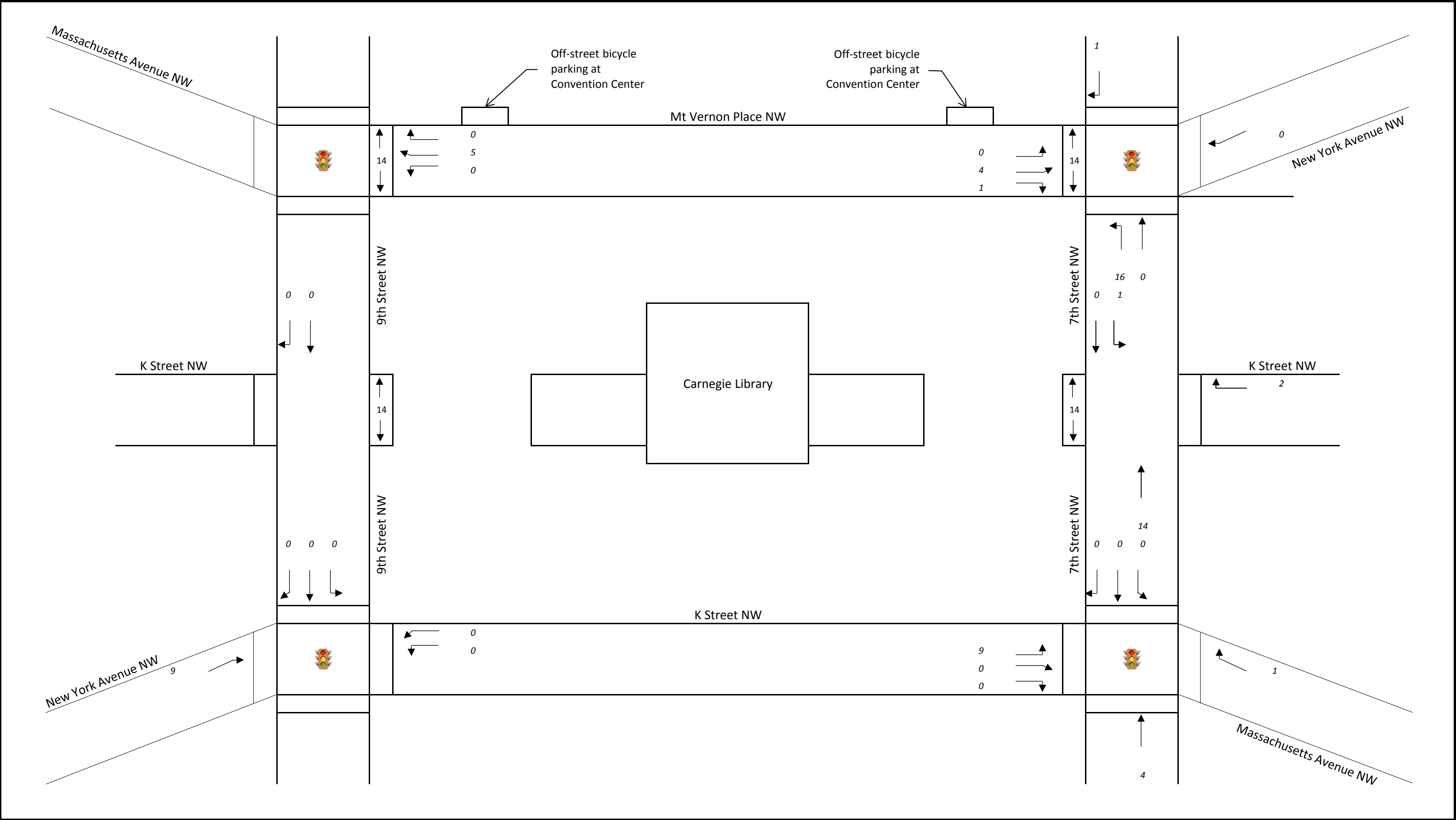


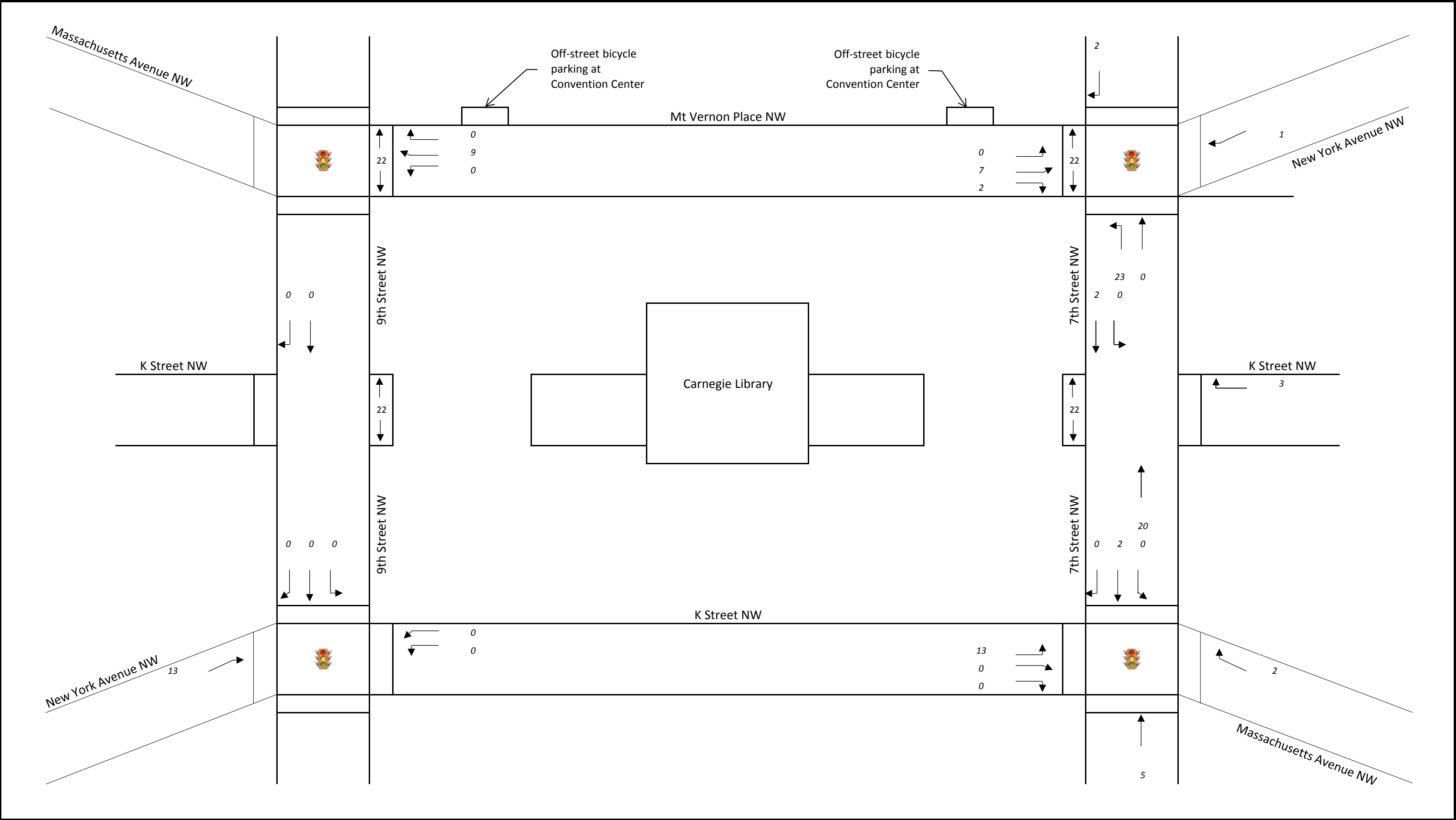


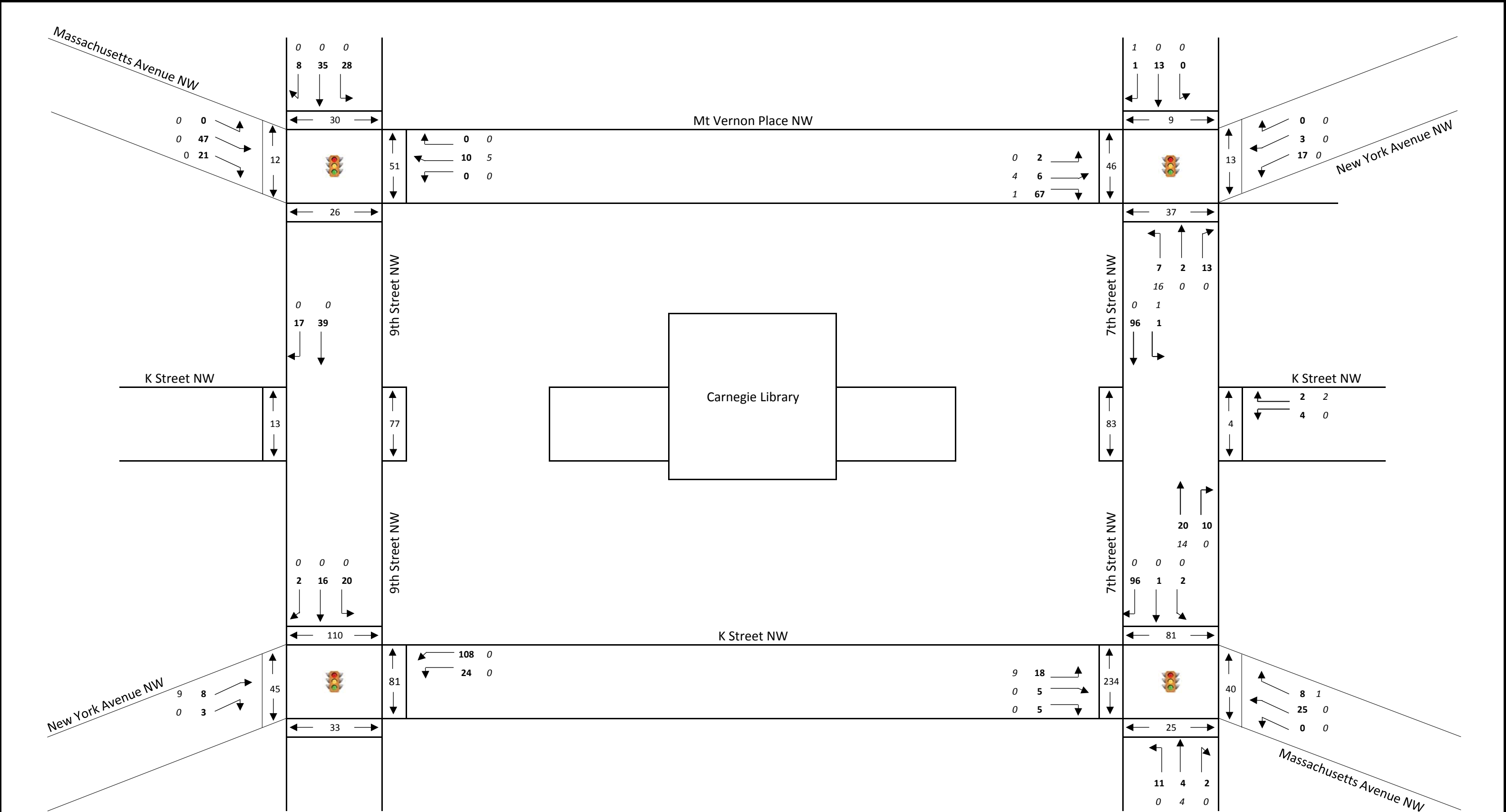


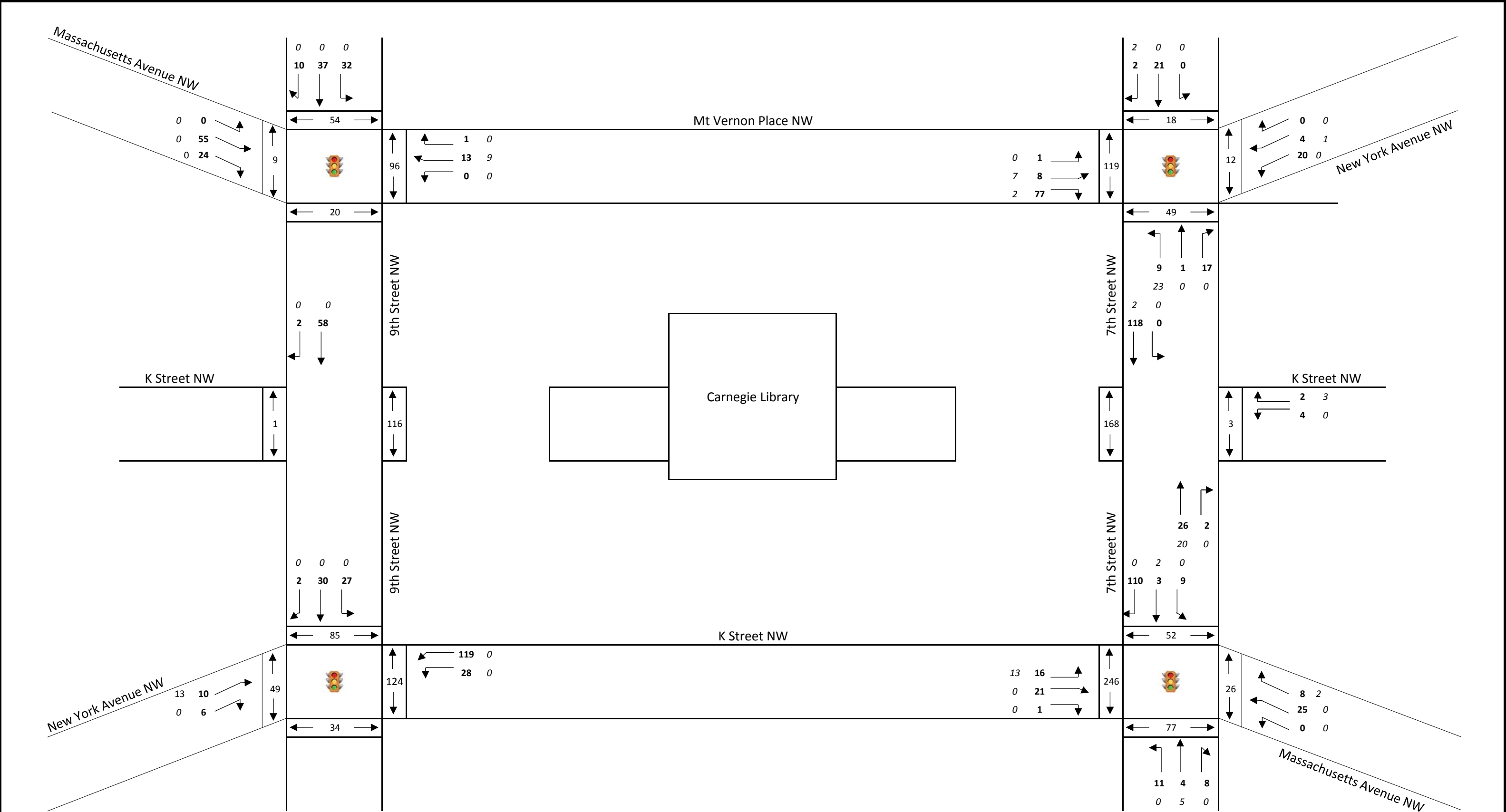


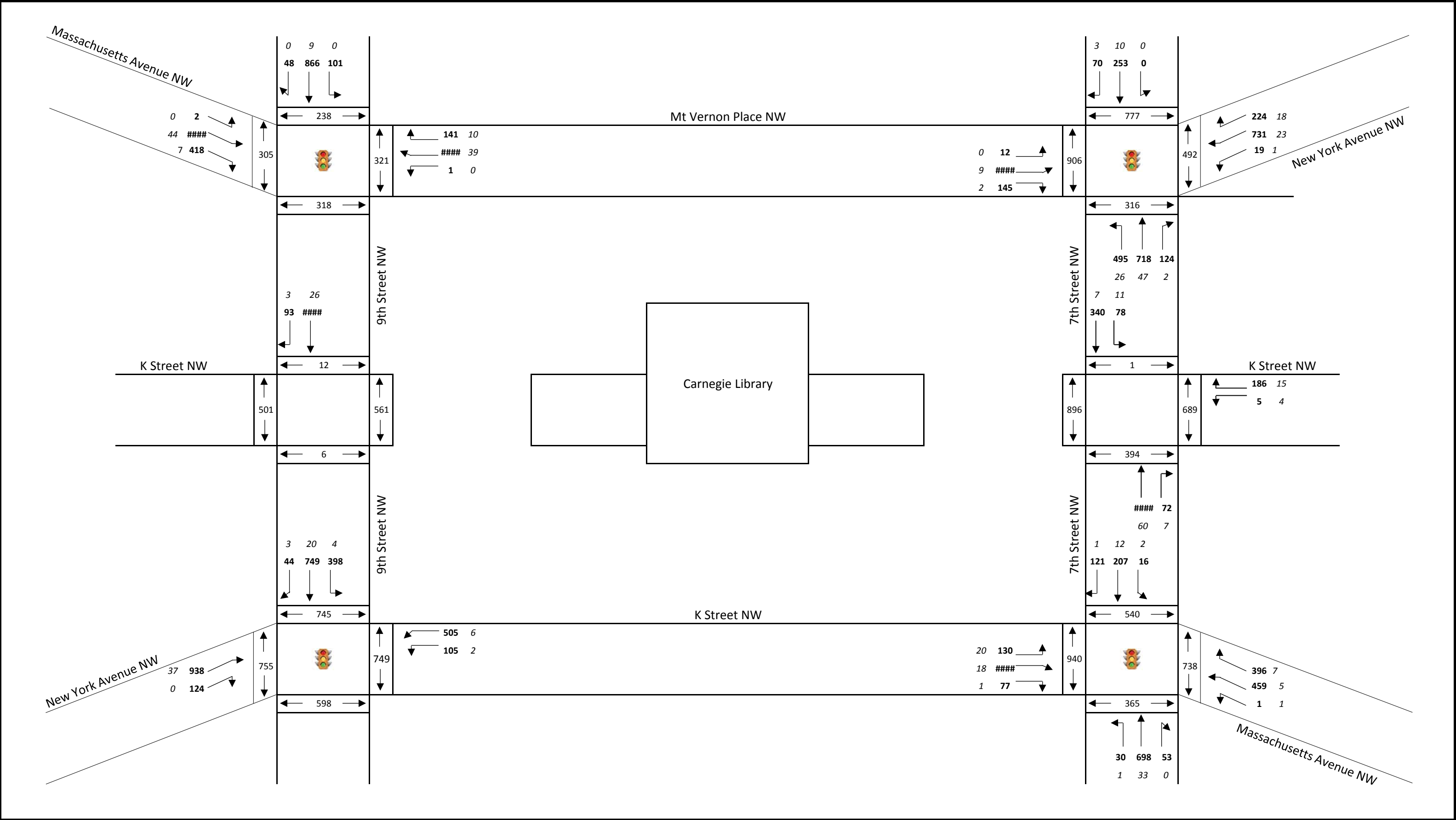












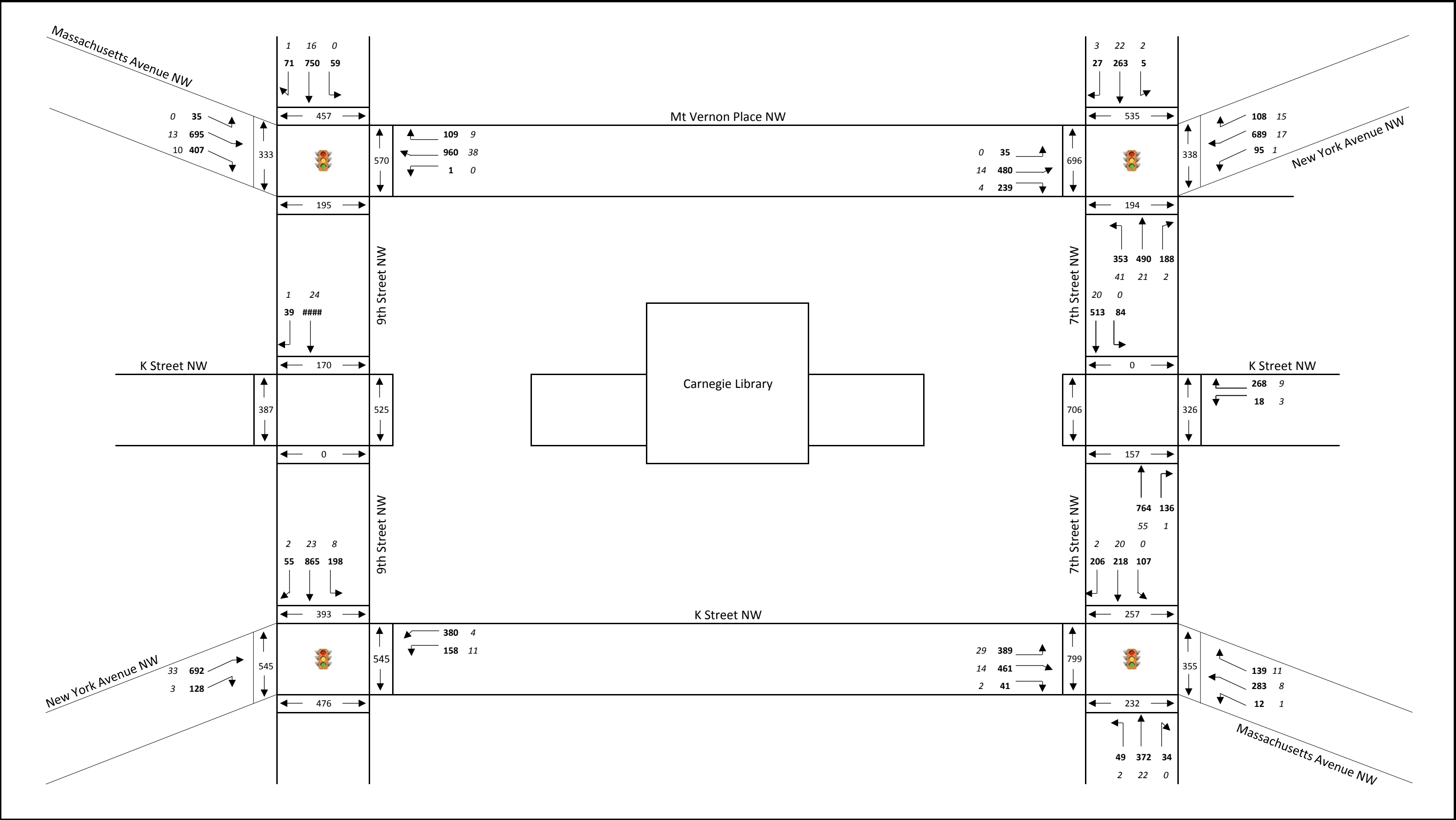


Exhibit 89
801 K Street NW
Capacity Analysis Results
2020 Build Condition

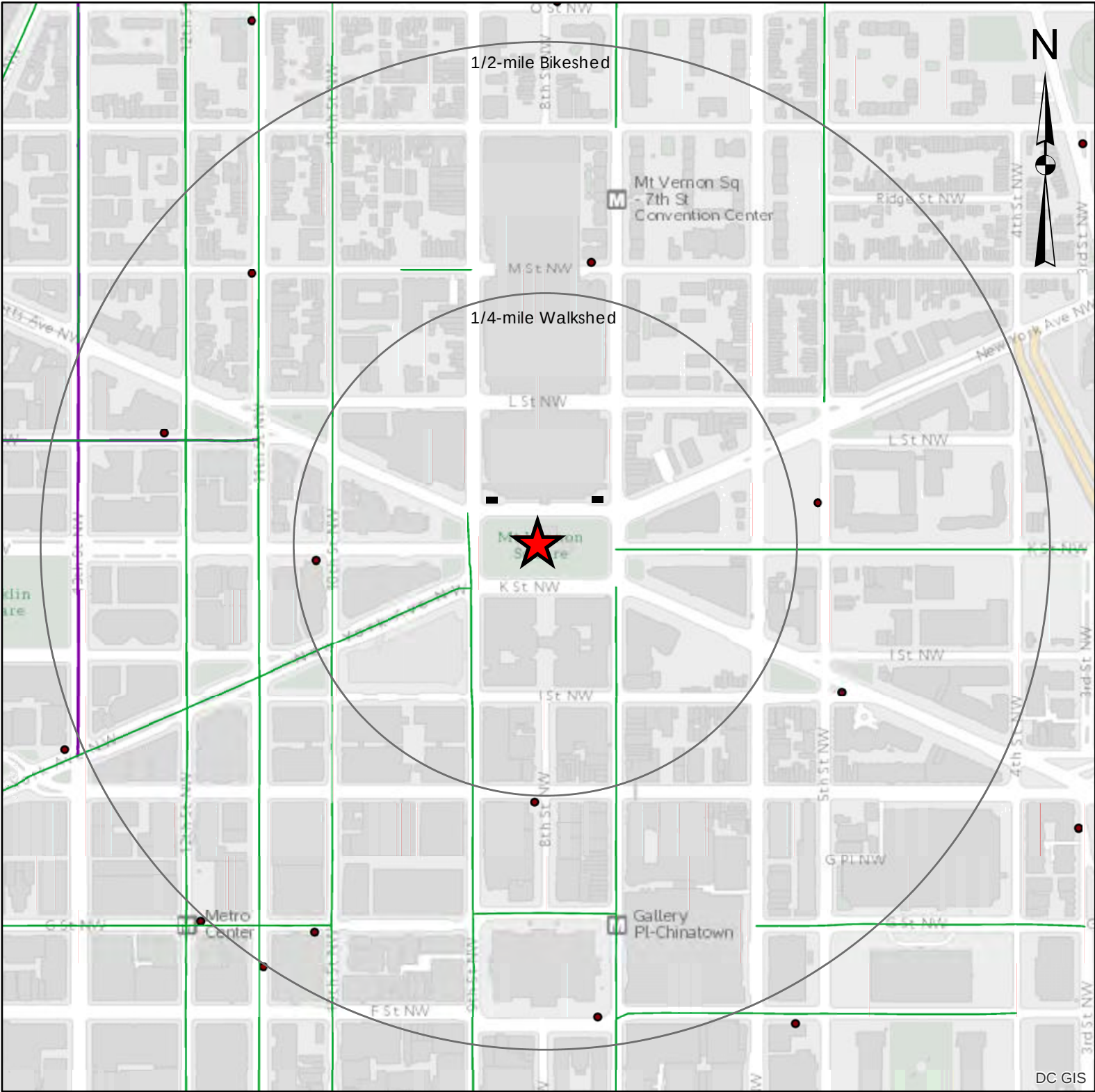
Intersection	Lane Group	PM Peak Hour (4:45 PM - 5:45 PM)					Lane Group	Sat Peak Hour (1:00 PM - 2:00 PM)				
		v/c Ratio	Delay (sec)	Level of Service	50th %tile Queue Length (ft)	95th %tile Queue Length (ft)		v/c Ratio	Delay (sec)	Level of Service	50th %tile Queue Length (ft)	95th %tile Queue Length (ft)
9th Street NW & Massachusetts Avenue NW/ Mt Vernon Place NW <i>Signalized</i>	EB-LT	1.26	152.0	F	~613	#748	EB-LT	0.90	43.8	D	240	#359
	EB-R	1.14	109.0	F	~168	#360	EB-R	0.91	32.7	C	34	#211
	WB-LTR	1.25	149.8	F	~564	#701	WB-LTR	1.00	61.5	E	412	m#457
	SB-LTR	0.68	22.5	C	257	332	SB-LTR	0.63	22.0	C	225	292
	Intersection	-	115.2	F	-	-	Intersection	-	42.3	D	-	-
9th Street NW & New York Avenue NW/ K Street NW <i>Signalized</i>	EB-T	1.08	92.4	F	~441	#541	EB-T	0.59	27.5	C	191	251
	EB-R	0.51	19.0	B	20	84	EB-R	0.38	10.4	B	11	59
	WB-LT	1.68dl	174.1	F	~294	m#396	WB-LT	0.90dl	36.7	D	190	m238
	SB-L	0.58	50.8	D	198	305	SB-L	0.74	47.4	D	138	m#208
	SB-LT	0.41	15.9	B	114	141	SB-LT	0.55	16.3	B	106	m122
	SB-R	0.08	2.7	A	0	14	SB-R	0.12	1.3	A	1	m2
	Intersection	-	78.0	E	-	-	Intersection	-	25.4	C	-	-
7th Street NW & Mt Vernon Place NW/ New York Avenue NW <i>Signalized</i>	EB-LTR	1.12	94.7	F	~672	#814	EB-LTR	0.73	33.5	C	259	m294
	WB-LT	0.72	29.2	C	230	306	WB-LT	0.88	39.6	D	244	#364
	WB-R	0.63	19.6	B	58	156	WB-R	0.31	4.8	A	0	26
	NB-L	1.53	278.5	F	~523	m#513	NB-L	1.16	132.2	F	~283	m#339
	NB-T	0.52	76.3	E	251	m246	NB-T	0.36	26.6	C	107	m115
	NB-R	0.28	11.7	B	36	m40	NB-R	0.39	18.6	B	45	m61
	SB-LTR	0.60	42.3	D	106	156	SB-LTR	0.56	41.5	D	91	135
	Intersection	-	91.0	F	-	-	Intersection	-	44.5	D	-	-
7th Street NW & K Street NW <i>Unsignalized</i>	WB-LR	6.71	err	F	-	err	WB-LR	1.40	250.7	F	-	422
	NB-TR	0.21	0.0	A	-	0	NB-TR	0.15	0.0	A	-	0
	SB-LT	0.82	108.7	F	-	114	SB-LT	0.22	4.1	A	-	21
	Intersection	-	1044.2	F	-	-	Intersection	-	41.3	E	-	-
7th Street NW & K Street NW/ Massachusetts Avenue NW <i>Signalized</i>	EB-LTR	2.16	554.6	F	~863	m#846	EB-LTR	1.76	370.1	F	~471	#571
	WB-LTR	0.83	31.4	C	237	328	WB-LTR	0.47	25.4	C	110	157
	NB-LTR	1.15	122.5	F	~360	#487	NB-LTR	0.68	39.9	D	138	196
	SB-LTR	0.72	50.9	D	106	m140	SB-LTR	0.98	60.2	E	103	m#266
	Intersection	-	265.5	F	-	-	Intersection	-	169.1	F	-	-

v/c ratio = volume/capacity ratio
Source: Synchro 9

Exhibit 90
801 K Street NW
Capacity Analysis Results
2020 Build Condition with Mitigation

Intersection	Lane Group	PM Peak Hour (4:45 PM - 5:45 PM)					Lane Group	Sat Peak Hour (1:00 PM - 2:00 PM)				
		v/c Ratio	Delay (sec)	Level of Service	50th %tile Queue Length (ft)	95th %tile Queue Length (ft)		v/c Ratio	Delay (sec)	Level of Service	50th %tile Queue Length (ft)	95th %tile Queue Length (ft)
9th Street NW & Massachusetts Avenue NW/ Mt Vernon Place NW <i>Signalized</i>	EB-LT	0.56	24.1	C	382	488	EB-LT	0.55	18.0	B	166	223
	EB-R	0.26	16.8	B	67	184	EB-R	0.64	8.2	A	0	84
	WB-LTR	0.56	23.1	C	332	428	WB-LTR	0.73	8.4	A	154	m182
	SB-LTR	0.32	66.3	E	~358	#502	SB-LTR	0.89	43.7	D	293	#412
	Intersection	-	33.4	C	-	-	Intersection	-	20.7	C	-	-
9th Street NW & New York Avenue NW/ K Street NW <i>Signalized</i>	EB-T	0.94	54.2	D	355	#490	EB-T	0.73	39.9	D	240	311
	EB-R	0.42	8.0	A	0	41	EB-R	0.41	7.8	A	0	40
	WB-L	0.68	48.9	D	60	m82	WB-L	0.47	15.1	B	49	m57
	WB-T	0.40	31.4	C	133	m175	WB-T	0.26	10.4	B	71	m82
	SB-L	0.89	109.7	F	236	#418	SB-L	0.57	49.0	D	137	225
	SB-LT	0.53	27.7	C	153	188	SB-LT	0.58	32.5	C	180	222
	SB-R	0.09	0.4	A	0	0	SB-R	0.13	1.5	A	0	7
	Intersection	-	44.5	D	-	-	Intersection	-	29.3	C	-	-
7th Street NW & Mt Vernon Place NW/ New York Avenue NW <i>Signalized</i>	EB-LTR	1.14	104.3	F	~684	#825	EB-LTR	0.78	15.4	B	62	m79
	WB-LT	0.75	31.1	C	236	315	WB-LT	0.94	49.8	D	256	#386
	WB-R	0.64	20.4	C	59	159	WB-R	0.32	5.2	A	0	27
	NB-L	1.19	134.8	F	~434	m#568	NB-L	0.91	114.5	F	227	#397
	NB-T	0.51	19.6	B	138	m176	NB-T	0.34	20.1	C	106	146
	NB-R	0.27	9.1	A	20	m31	NB-R	0.38	14.0	B	45	100
	SB-LTR	0.77	54.1	D	112	#176	SB-LTR	0.68	47.5	D	94	141
	Intersection	-	68.7	E	-	-	Intersection	-	39.8	D	-	-
7th Street NW & K Street NW <i>Unsignalized</i>	WB-LR	6.72	err	F	-	err	WB-LR	1.40	249.6	F	-	421
	NB-TR	0.21	0.0	A	-	0	NB-TR	0.15	0.0	A	-	0
	SB-LT	0.82	108.7	F	-	114	SB-LT	0.22	4.1	A	-	21
	Intersection	-	1044.2	F	-	-	Intersection	-	41.1	E	-	-
7th Street NW & K Street NW/ Massachusetts Avenue NW <i>Signalized</i>	EB-L	0.79	69.1	E	99	m111	EB-L	0.83	26.5	C	118	#426
	EB-TR	0.75	7.4	A	148	m152	EB-TR	0.31	4.1	A	45	58
	WB-LTR	0.85	37.7	D	283	#377	WB-LTR	0.74	42.8	D	136	196
	NB-LTR	0.90	71.6	E	287	#405	NB-LTR	0.57	32.7	C	141	196
	SB-LTR	0.51	19.0	B	118	m144	SB-LTR	0.88	43.4	D	150	#261
	Intersection	-	34.0	C	-	-	Intersection	-	29.8	C	-	-

v/c ratio = volume/capacity ratio
Source: Synchro 9



Stantec
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Laurel, MD 20707-2927
Tel. 301.982.2800
www.stantec.com

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Legend

- Bicycle Lanes
- Capital Bike Share Locations
- Signed Bike Routes
- Bicycle Rack

Notes

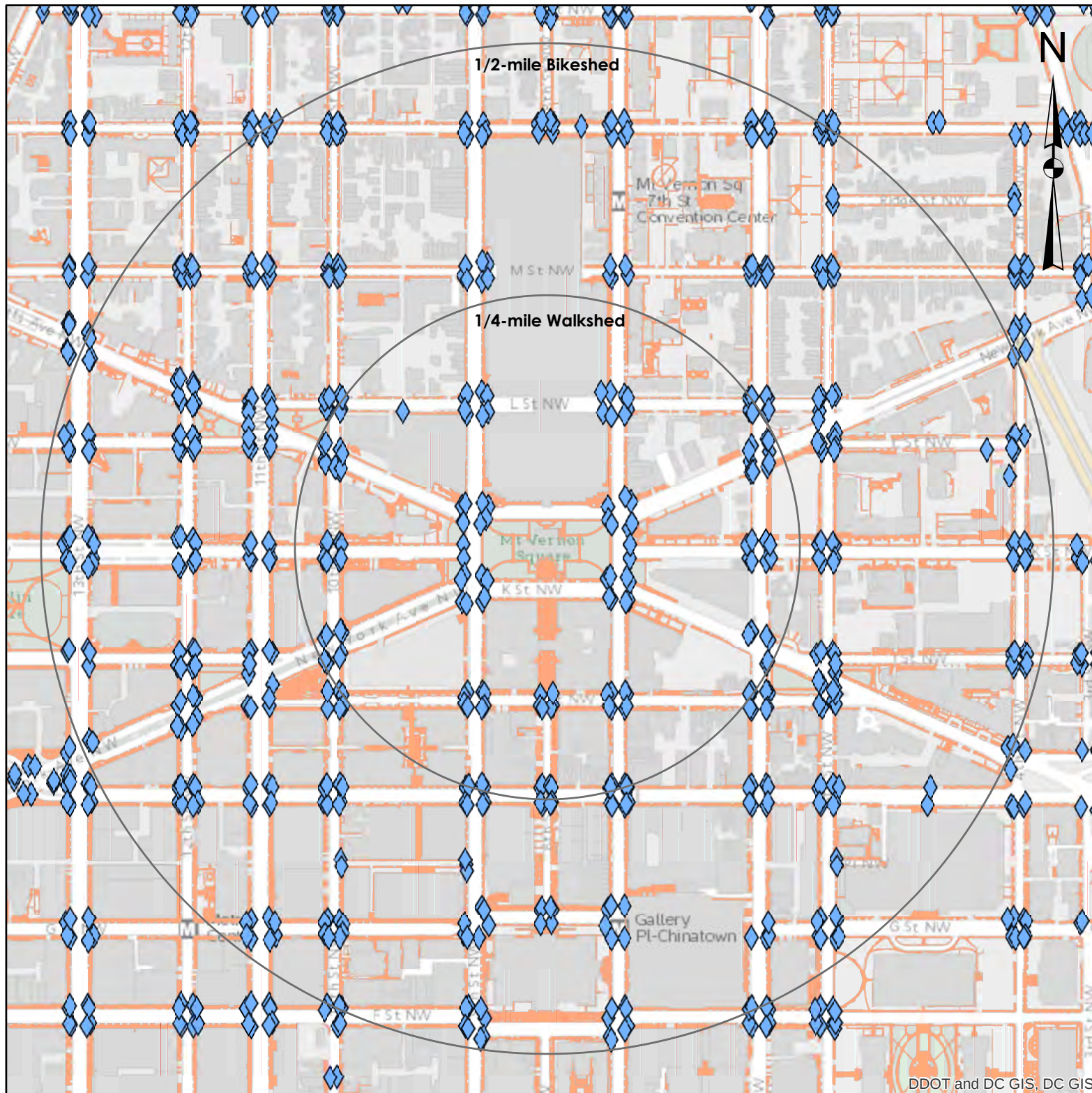
Client/Project
APPLE, INC

CARNEGIE LIBRARY REDEVELOPMENT
801 K STREET NW
Washington, DC

Title
Exhibit 91 - Existing Bicycle Facilities

Project No.
2028113119

Scale
1:700



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Legend

-  Curb Ramp
-  Sidewalks - Dark

Notes

Symbols denoting the crosswalks are not included on this figure to avoid overcrowding. However, it should be noted that all curb ramps within the study area, 1/4-mile walkshed, and 1/2-mile bikeshed are connected via marked crosswalks at both unsignalized and signalized intersections.

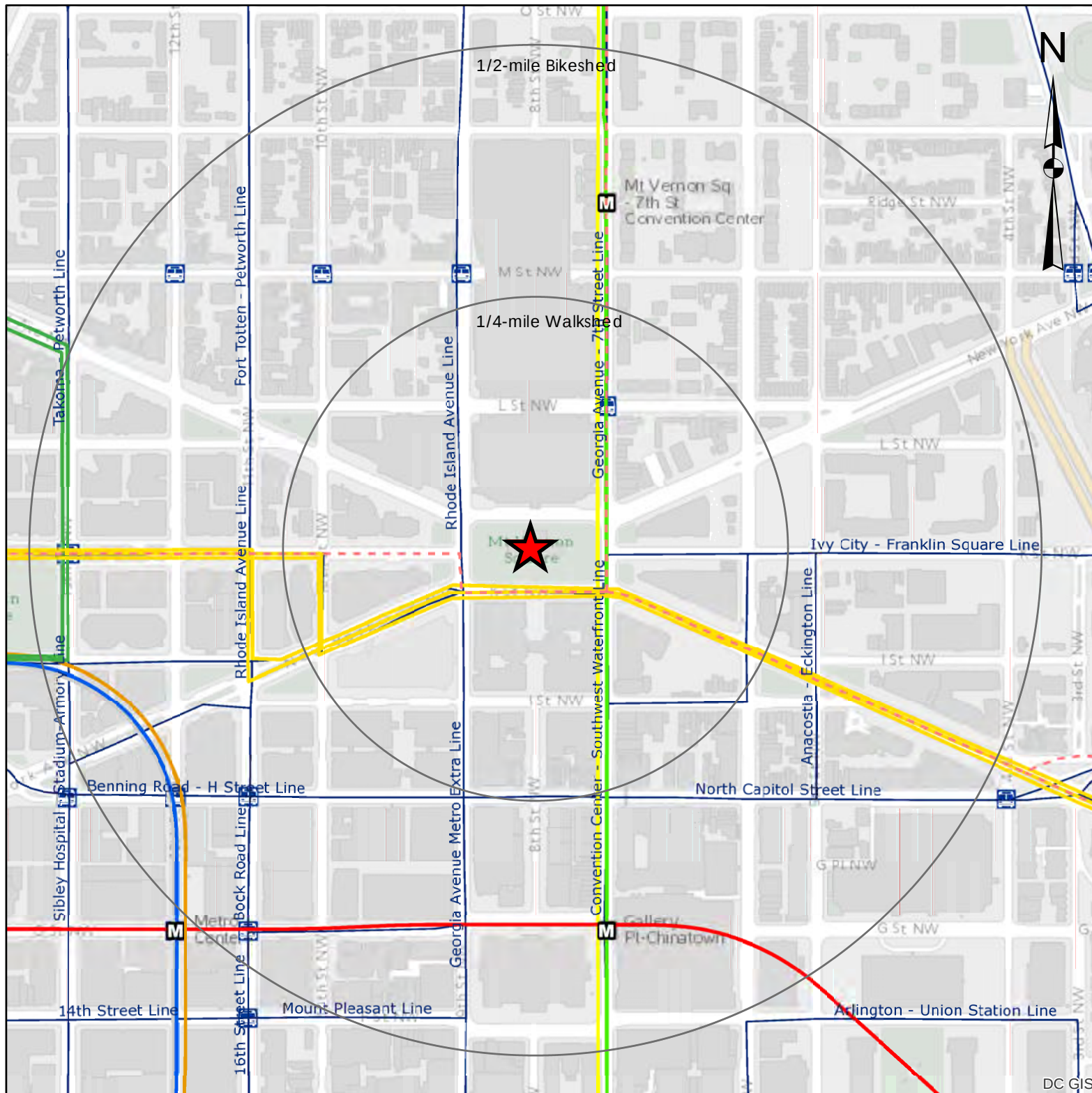
Client/Project
APPLE, INC

CARNEGIE LIBRARY REDEVELOPMENT
801 K STREET NW
Washington, DC

Title
Exhibit 92 - Existing Pedestrian Facilities

Project No.
2028113119

Scale
1:700



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Legend

-  Metro Red Line
-  Metro Green Line
-  Metro Yellow Line
-  Metro Stations (District)
-  Metro Bus Lines
-  Commuter Bus Locations
-  2030 Proposed Street Car
-  DC Circulator Route Union Station-Georgetown

Notes

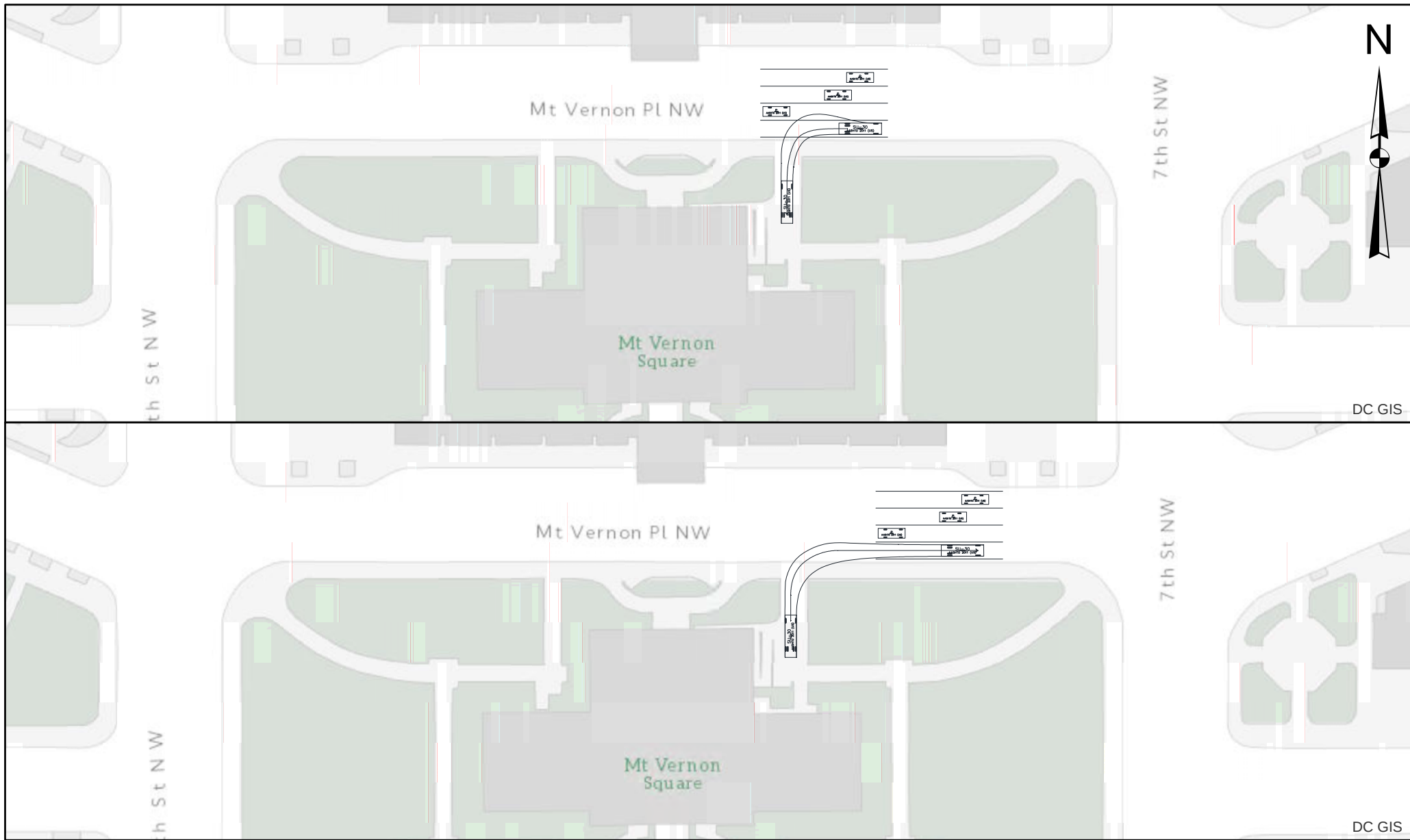
Client/Project
APPLE, INC

CARNEGIE LIBRARY REDEVELOPMENT
801 K STREET NW
Washington, DC

Title
Exhibit 93 -
Existing and Proposed Transit Facilities

Project No.
2028113119

Scale
1:700



JUNE 2017
2028113119



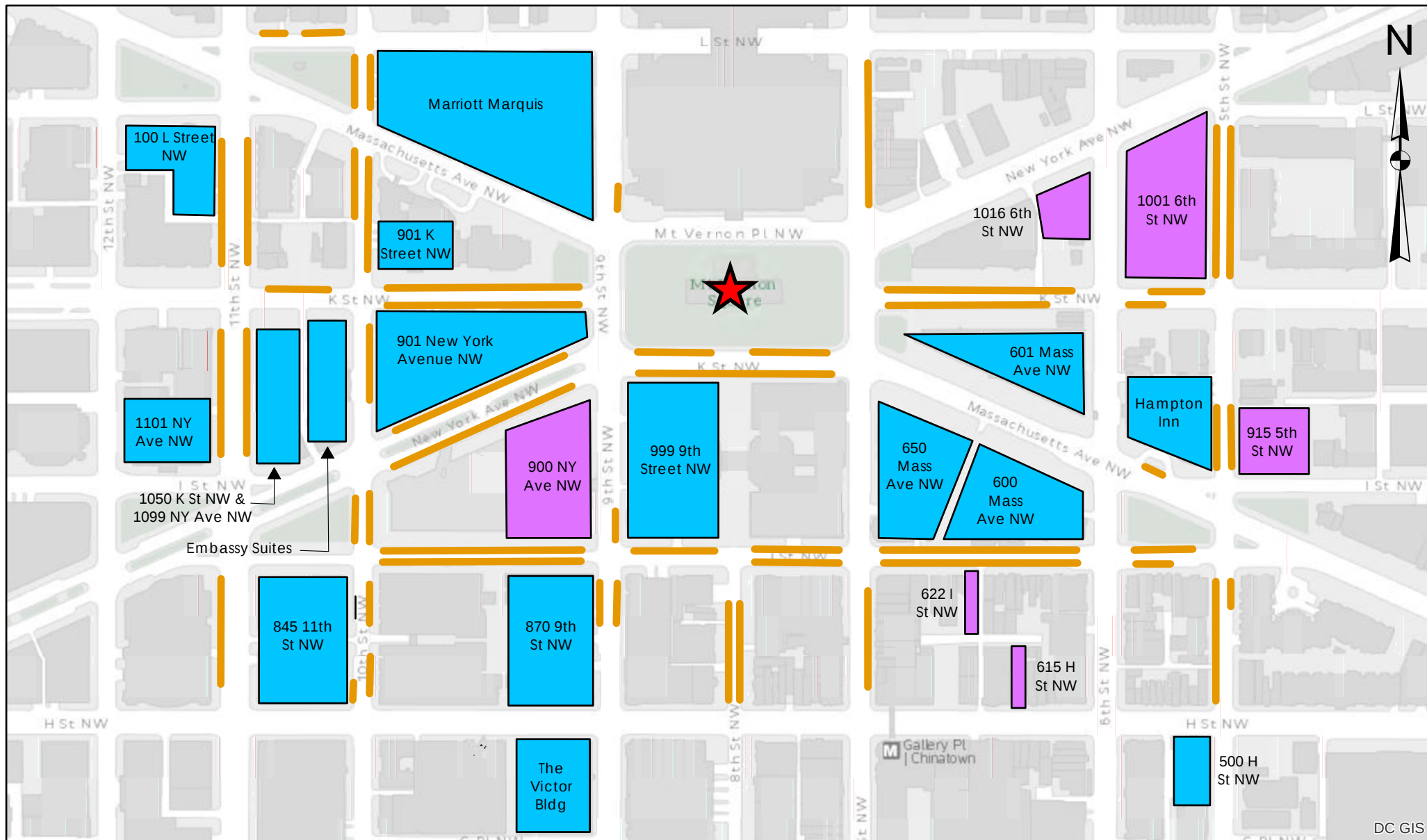
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APPLE, INC.
CARNEGIE LIBRARY REDEVELOPMENT

Figure No.
EXHIBIT 94

Scale
1:400

Title
DELIVERY TRUCK TURNING MOVEMENTS
IN (TOP), OUT (BOTTOM)



JUNE 2017
2028113119



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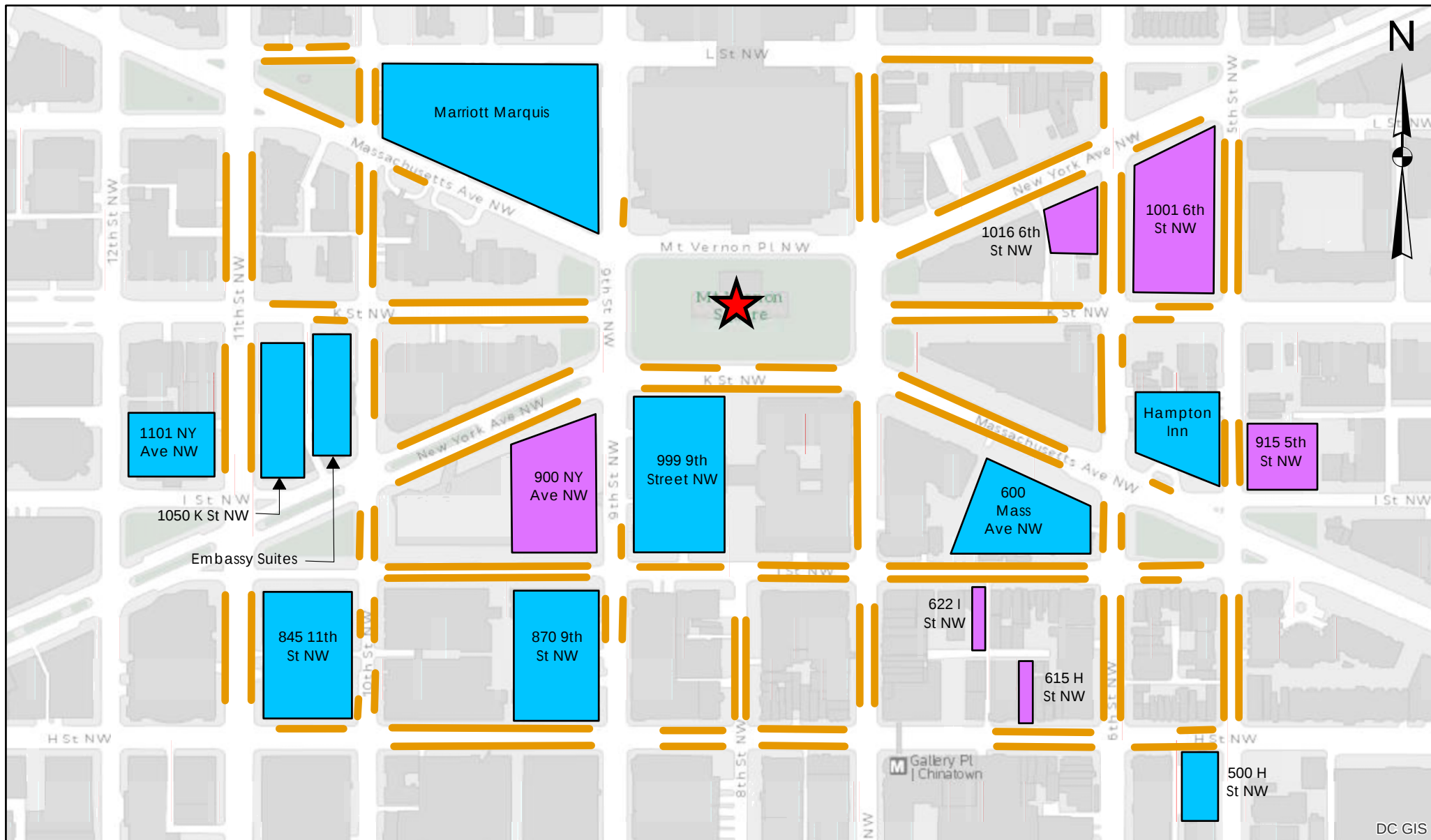
Client/Project
APPLE, INC.
CARNEGIE LIBRARY REDEVELOPMENT

Figure No. EXHIBIT 95
Scale 1:400

Title
AVAILABLE PM PEAK HOUR
PARKING FACILITIES

Legend

- On-Street Parallel or Angled Parking
- Off-Street Surface Parking Lot
- Off-Street Parking Garage



DC GIS

JUNE 2017
2028113119



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Client/Project

APPLE, INC.
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Figure No.

EXHIBIT 96

Scale

1:400

Title

AVAILABLE SAT PEAK HOUR
PARKING FACILITIES

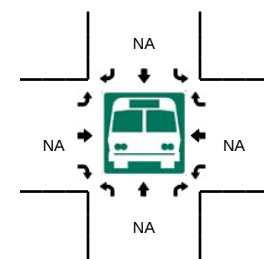
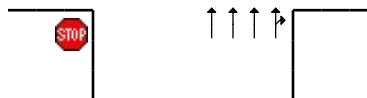
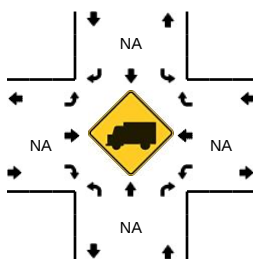
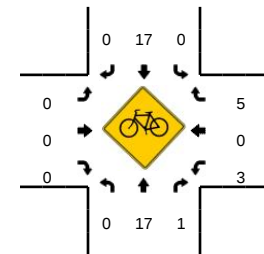
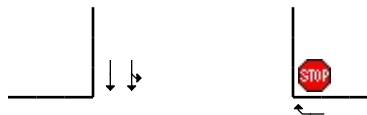
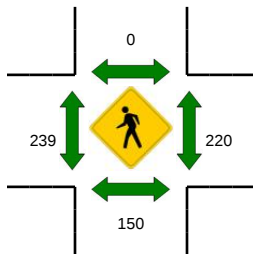
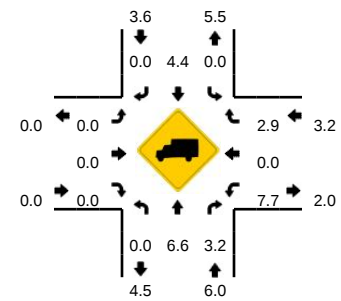
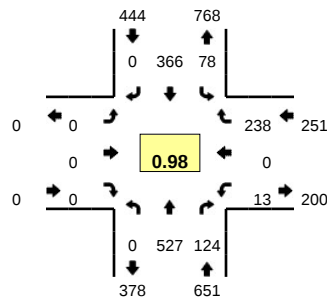
Legend

-  On-Street Parallel or Angled Parking
-  Off-Street Surface Parking Lot
-  Off-Street Parking Garage

LOCATION: 7th St NW -- K St NW
CITY/STATE: Washington, DC

QC JOB #: 14426101
DATE: Sat, May 20 2017

Peak-Hour: 1:00 PM -- 2:00 PM
Peak 15-Min: 1:00 PM -- 1:15 PM

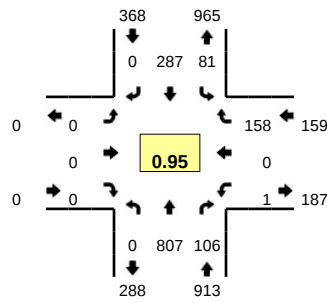


15-Min Count Period Beginning At	7th St NW (Northbound)				7th St NW (Southbound)				K St NW (Eastbound)				K St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	98	17	0	23	69	0	0	0	0	0	0	3	0	46	0	256	1079
10:15 AM	0	104	12	1	15	75	0	0	0	0	0	0	5	0	64	1	277	
10:30 AM	0	98	14	0	15	82	0	0	0	0	0	0	9	0	62	0	280	
10:45 AM	0	93	25	0	18	64	0	0	0	0	0	0	1	0	65	0	266	
11:00 AM	0	115	27	0	18	86	0	0	0	0	0	0	5	0	45	0	296	
11:15 AM	0	102	19	0	9	69	0	0	0	0	0	0	4	0	57	0	260	
11:30 AM	0	103	28	0	15	90	0	2	0	0	0	0	1	0	60	0	299	
11:45 AM	0	125	17	0	13	84	0	0	0	0	0	0	4	0	65	0	308	
12:00 PM	0	127	29	0	21	71	0	0	0	0	0	0	0	0	50	0	298	
12:15 PM	0	153	34	0	14	72	0	0	0	0	0	0	4	0	63	0	340	
12:30 PM	0	127	33	0	13	102	0	0	0	0	0	0	2	0	54	0	331	
12:45 PM	0	130	30	0	17	85	0	0	0	0	0	0	1	0	64	1	328	
1:00 PM	0	140	36	0	12	92	0	2	0	0	0	0	4	0	56	0	342	1341
1:15 PM	0	127	20	0	20	84	0	1	0	0	0	0	1	0	71	0	324	1325
1:30 PM	0	136	33	0	20	95	0	0	0	0	0	0	2	0	53	0	339	1333
1:45 PM	0	124	35	0	23	95	0	0	0	0	0	0	5	0	58	1	341	1346
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	560	144	0	48	368	0	8	0	0	0	0	16	0	224	0	1368	
Heavy Trucks	0	32	4		0	20	0		0	0	0		4	0	4		64	
Pedestrians		164				0				268				184			616	
Bicycles	0	5	1		0	1	0		0	0	0		1	0	1		9	
Railroad																		
Stopped Buses																		

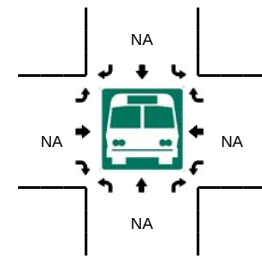
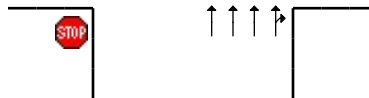
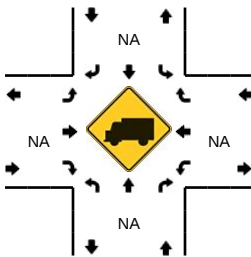
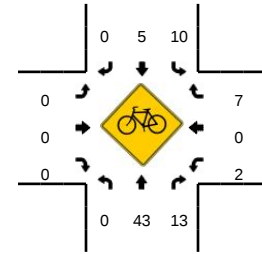
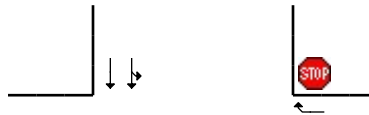
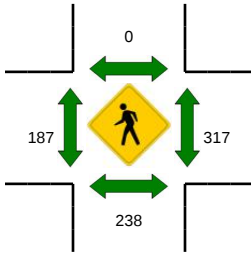
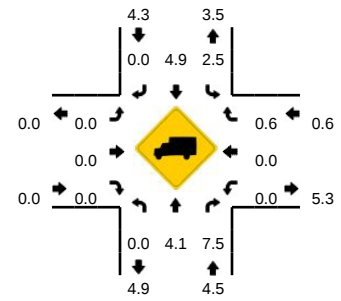
Comments:

LOCATION: 7th St NW -- K St NW
CITY/STATE: Washington, DC

QC JOB #: 14426102
DATE: Tue, May 23 2017



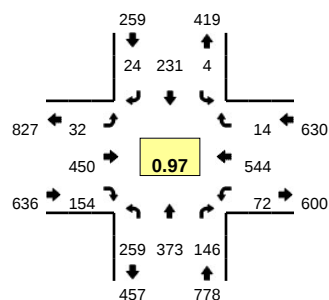
Peak-Hour: 6:00 PM -- 7:00 PM
Peak 15-Min: 6:30 PM -- 6:45 PM

[illegible]

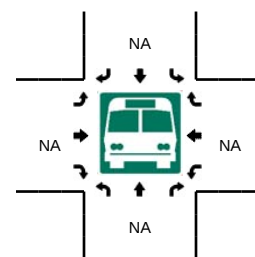
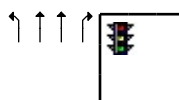
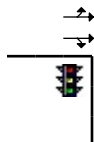
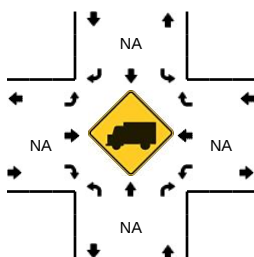
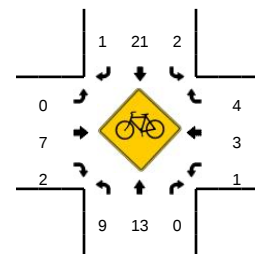
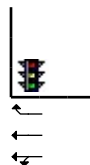
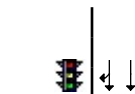
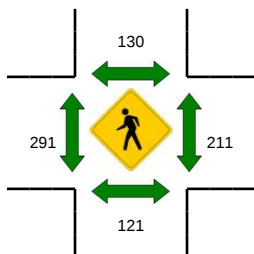
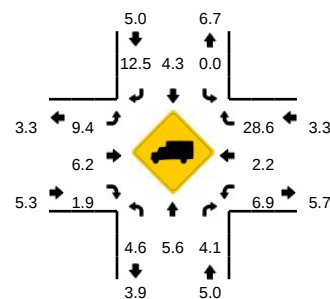
Comments:

LOCATION: 7th St NW -- New York Ave NW/Mt Vernon
CITY/STATE: Washington, DC

QC JOB #: 14426103
DATE: Sat, May 20 2017



Peak-Hour: 1:00 PM -- 2:00 PM
Peak 15-Min: 1:30 PM -- 1:45 PM

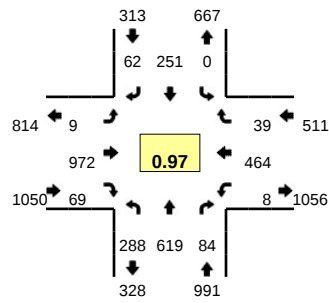


15-Min Count Period Beginning At	7th St NW (Northbound)				7th St NW (Southbound)				New York Ave NW/Mt Vernon (Eastbound)				New York Ave NW/Mt Vernon (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	54	71	22	0	0	54	4	0	7	141	29	1	10	115	1	0	509	2063
10:15 AM	56	84	29	0	2	51	7	0	6	140	30	0	12	98	2	0	517	
10:30 AM	59	75	27	0	1	41	7	0	4	144	28	0	19	129	6	0	540	
10:45 AM	64	68	24	0	0	45	7	0	12	131	34	0	7	102	3	0	497	
11:00 AM	59	76	29	0	0	45	5	0	6	109	42	0	14	122	4	0	511	
11:15 AM	54	79	22	0	0	44	3	0	10	135	29	0	10	132	4	0	522	
11:30 AM	62	70	34	1	2	59	7	0	4	146	30	0	11	110	9	0	545	
11:45 AM	57	90	46	0	0	54	5	0	6	137	35	0	10	117	3	0	560	
12:00 PM	47	107	29	0	2	49	10	0	16	114	36	0	6	137	3	0	556	
12:15 PM	71	112	31	0	0	53	14	0	7	117	21	0	15	116	3	0	560	
12:30 PM	51	102	35	0	0	62	7	0	12	121	34	0	19	100	3	0	546	
12:45 PM	73	95	32	0	0	57	3	0	4	145	37	0	11	107	3	0	567	
1:00 PM	65	88	48	0	0	59	5	0	7	94	21	0	26	120	3	0	536	
1:15 PM	67	97	33	0	1	58	5	0	12	132	38	0	12	135	3	0	593	
1:30 PM	62	96	35	0	1	64	7	0	6	106	43	0	18	153	5	0	596	
1:45 PM	65	92	30	0	2	50	7	0	7	118	52	0	16	136	3	0	578	

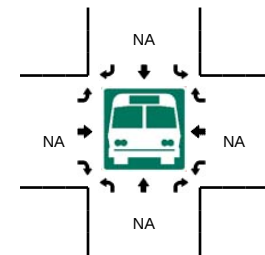
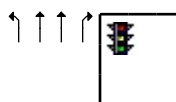
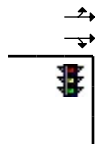
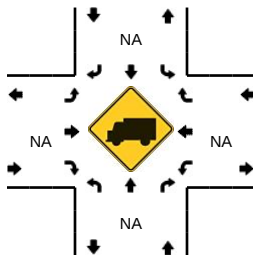
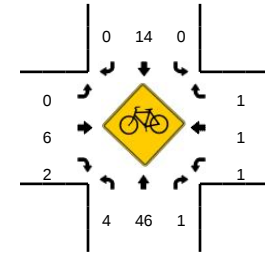
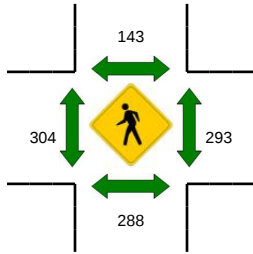
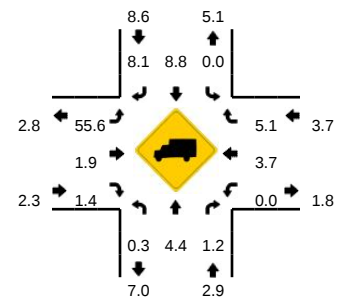
Comments:

LOCATION: 7th St NW -- New York Ave NW/Mt Vernon
CITY/STATE: Washington, DC

QC JOB #: 14426104
DATE: Tue, May 23 2017



Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:30 PM -- 5:45 PM



15-Min Count Period Beginning At	7th St NW (Northbound)				7th St NW (Southbound)				New York Ave NW/Mt Vernon (Eastbound)				New York Ave NW/Mt Vernon (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	73	134	25	0	0	40	21	0	1	177	8	0	5	102	4	0	590	
4:15 PM	79	132	15	1	0	57	17	1	1	221	14	0	0	112	4	0	654	
4:30 PM	68	124	21	0	0	49	21	0	0	220	19	0	1	131	7	0	661	
4:45 PM	56	126	28	0	0	57	15	0	2	258	21	0	0	106	7	0	676	2581
5:00 PM	64	164	23	0	0	52	17	0	3	222	17	0	0	126	7	0	695	2686
5:15 PM	75	151	17	0	0	59	13	0	0	255	15	0	1	118	17	0	721	2753
5:30 PM	80	169	25	0	0	62	19	0	5	228	22	0	1	117	10	0	738	2830
5:45 PM	69	135	19	0	0	78	13	0	1	267	15	0	6	103	5	0	711	2865
6:00 PM	90	128	10	0	0	61	13	0	1	241	18	0	2	64	4	0	632	2802
6:15 PM	88	119	33	0	1	61	10	0	0	225	25	0	2	122	5	0	691	2772
6:30 PM	80	137	28	0	1	59	11	0	4	215	32	0	8	106	4	0	685	2719
6:45 PM	76	141	34	0	0	55	7	0	5	219	34	0	7	99	3	0	680	2688
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	320	676	100	0	0	248	76	0	20	912	88	0	4	468	40	0	2952	
Heavy Trucks	0	28	0		0	24	8		12	16	4		0	16	8		116	
Pedestrians		280				128				232				336			976	
Bicycles	0	14	0		0	2	0		0	1	0		1	1	1		20	
Railroad																		
Stopped Buses																		

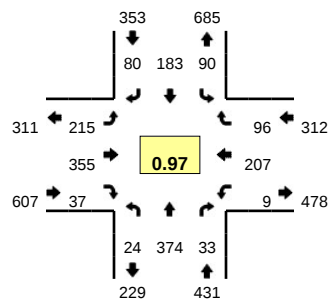
Comments:

Type of peak hour being reported: Intersection Peak

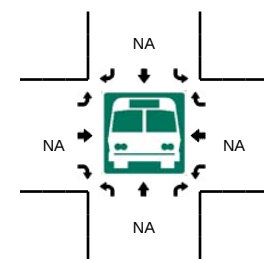
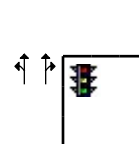
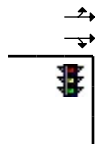
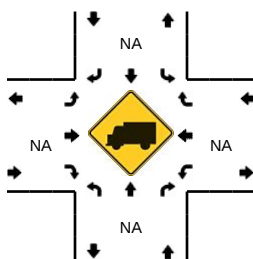
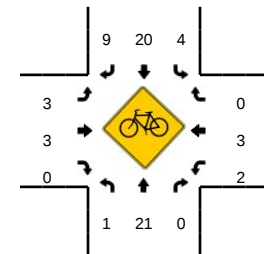
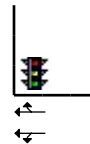
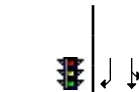
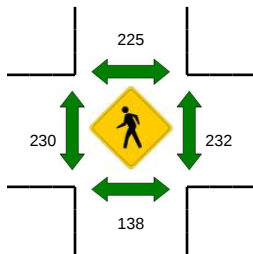
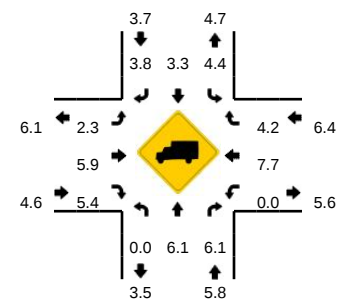
Method for determining peak hour: Total Entering Volume

LOCATION: 7th St NW -- K St NW/Massachusetts Ave NW
CITY/STATE: Washington, DC

QC JOB #: 14426105
DATE: Sat, May 20 2017



Peak-Hour: 12:15 PM -- 1:15 PM
Peak 15-Min: 12:15 PM -- 12:30 PM



15-Min Count Period Beginning At	7th St NW (Northbound)				7th St NW (Southbound)				K St NW/Massachusetts Ave NW (Eastbound)				K St NW/Massachusetts Ave NW (Westbound)				NW Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	5	74	6	0	13	38	17	0	33	62	5	0	1	44	8	0	306	
10:15 AM	4	76	13	1	17	49	20	0	37	67	1	0	0	51	12	0	348	
10:30 AM	5	68	3	0	16	41	25	0	36	73	5	0	2	46	10	0	330	
10:45 AM	6	50	7	0	19	40	9	0	43	81	7	0	1	46	21	0	330	1314
11:00 AM	3	75	10	0	28	44	19	0	60	81	1	0	5	45	12	0	383	1391
11:15 AM	8	61	9	0	22	43	9	0	36	78	6	0	0	38	14	0	324	1367
11:30 AM	7	71	6	0	13	54	19	0	44	55	10	0	0	43	18	0	340	1377
11:45 AM	13	79	6	0	23	53	11	0	48	88	6	0	2	40	16	0	385	1432
12:00 PM	5	94	9	0	23	41	8	0	51	91	10	0	1	52	20	1	406	1455
12:15 PM	6	99	14	0	13	46	13	0	66	104	8	0	2	51	19	0	441	1572
12:30 PM	5	100	5	0	34	45	26	0	46	76	15	0	2	62	17	0	433	1665
12:45 PM	10	89	7	0	27	49	15	0	48	84	6	0	4	46	32	0	417	1697
1:00 PM	3	86	7	0	16	43	26	0	55	91	8	0	1	48	28	0	412	1703
1:15 PM	6	82	7	0	25	45	20	0	46	109	9	0	4	60	20	0	433	1695
1:30 PM	7	90	5	0	23	57	14	0	60	109	4	0	4	47	20	0	440	1702
1:45 PM	9	77	6	0	22	44	24	0	63	80	7	0	2	58	21	0	413	1698
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	24	396	56	0	52	184	52	0	264	416	32	0	8	204	76	0	1764	
Heavy Trucks	0	24	4		4	12	0		4	20	4		0	20	4		96	
Pedestrians		164				248				264				312			988	
Bicycles	0	5	0		3	5	1		0	2	0		1	0	0		17	
Railroad																		
Stopped Buses																		

Comments:

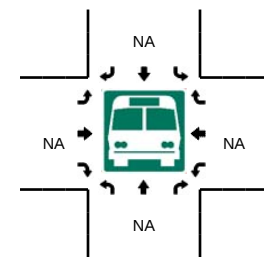
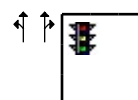
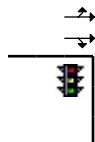
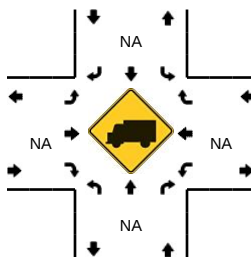
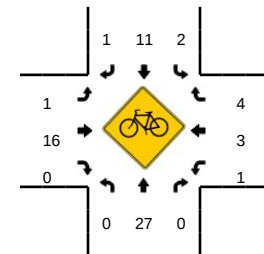
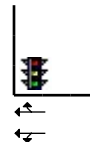
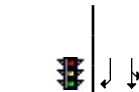
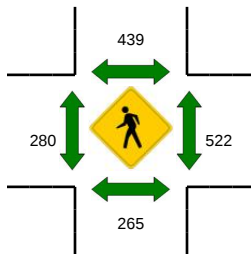
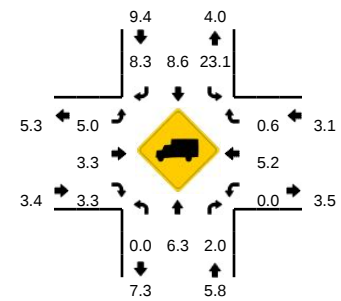
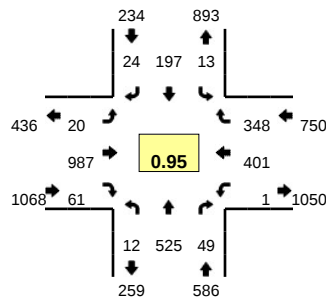
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: 7th St NW -- K St NW/Massachusetts Ave NW
CITY/STATE: Washington, DC

QC JOB #: 14426106
DATE: Tue, May 23 2017

Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

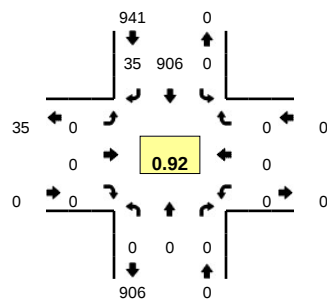


15-Min Count Period Beginning At	7th St NW (Northbound)				7th St NW (Southbound)				K St NW/Massachusetts Ave NW (Eastbound)				K St NW/Massachusetts Ave NW (Westbound)				NW Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	146	13	0	5	33	3	1	17	237	9	0	1	103	62	0	633	
4:15 PM	4	95	5	0	0	63	4	0	4	250	11	0	0	96	93	0	625	
4:30 PM	3	106	5	0	2	43	6	0	5	214	15	0	1	120	77	0	597	
4:45 PM	3	132	17	1	2	52	6	0	6	274	17	0	0	103	78	0	691	2546
5:00 PM	2	148	13	0	3	35	7	0	2	240	16	0	0	104	88	0	658	2571
5:15 PM	4	108	7	0	5	52	7	0	7	235	12	0	0	79	88	1	605	2551
5:30 PM	2	137	12	0	3	58	4	0	5	238	16	0	0	115	94	0	684	2638
5:45 PM	2	120	9	0	2	58	10	0	9	249	21	0	0	86	88	0	654	2601
6:00 PM	6	91	12	0	5	55	9	0	3	243	8	0	1	90	109	0	632	2575
6:15 PM	1	140	15	0	4	58	9	0	9	237	8	0	3	69	85	0	638	2608
6:30 PM	7	105	10	0	14	56	11	1	46	175	13	0	1	68	98	0	605	2529
6:45 PM	14	106	13	0	8	42	14	0	42	162	7	0	2	86	81	0	577	2452
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	528	68	4	8	208	24	0	24	1096	68	0	0	412	312	0	2764	
Heavy Trucks	0	44	0		0	20	0		4	40	8		0	12	4		132	
Pedestrians		208				356				312				464			1340	
Bicycles	0	4	0		0	3	0		0	2	0		0	1	2		12	
Railroad																		
Stopped Buses																		

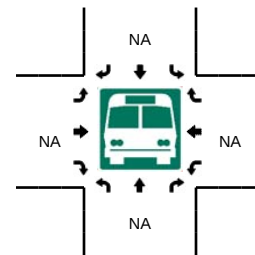
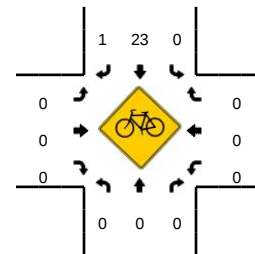
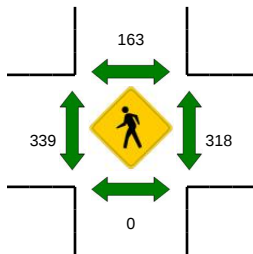
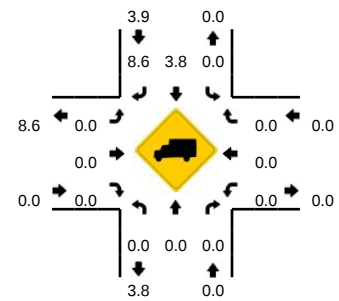
Comments:

LOCATION: 9th St NW -- K St NW
CITY/STATE: Washington, DC

QC JOB #: 14426107
DATE: Sat, May 20 2017



Peak-Hour: 1:00 PM -- 2:00 PM
Peak 15-Min: 1:45 PM -- 2:00 PM



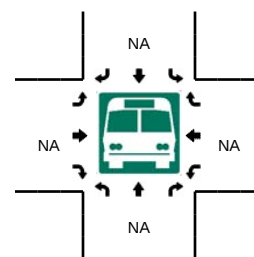
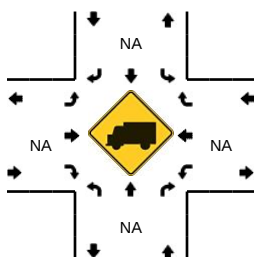
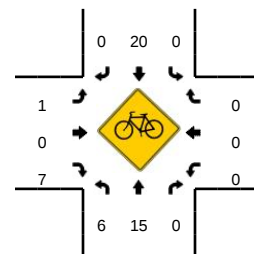
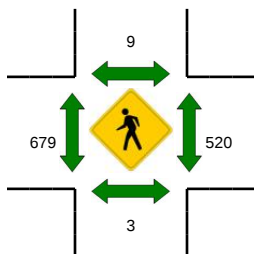
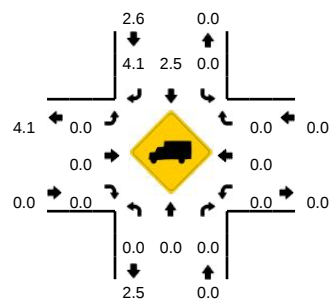
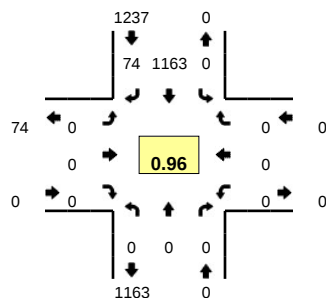
15-Min Count Period Beginning At	9th St NW (Northbound)				9th St NW (Southbound)				K St NW (Eastbound)				K St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	0	0	0	0	200	9	0	0	0	0	0	0	0	0	0	209	
10:15 AM	0	0	0	0	0	218	7	0	0	0	0	0	0	0	0	0	225	
10:30 AM	0	0	0	0	0	172	13	0	0	0	1	0	0	0	0	0	186	
10:45 AM	0	0	0	0	0	190	20	0	0	0	0	0	0	0	0	0	210	830
11:00 AM	0	0	0	0	0	223	13	0	0	0	0	0	0	0	0	0	236	857
11:15 AM	0	0	0	0	0	183	16	0	0	0	0	0	0	0	0	0	199	831
11:30 AM	0	0	0	0	0	184	13	0	0	0	1	0	0	0	0	0	198	843
11:45 AM	0	0	0	0	0	210	17	0	0	0	0	0	0	0	0	0	227	860
12:00 PM	0	0	0	0	0	227	9	0	0	0	0	0	0	0	0	0	236	860
12:15 PM	0	0	0	0	0	210	6	0	0	0	0	0	0	0	0	0	216	877
12:30 PM	0	0	0	0	0	225	14	0	0	0	0	0	0	0	0	0	239	918
12:45 PM	0	0	0	0	0	220	6	0	0	0	0	0	0	0	0	0	226	917
1:00 PM	0	0	0	0	0	213	8	0	0	0	0	0	0	0	0	0	221	902
1:15 PM	0	0	0	0	0	213	7	0	0	0	0	0	0	0	0	0	220	906
1:30 PM	0	0	0	0	0	231	14	0	0	0	0	0	0	0	0	0	245	912
1:45 PM	0	0	0	0	0	249	6	0	0	0	0	0	0	0	0	0	255	941
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	996	24	0	0	0	0	0	0	0	0	0	1020	
Heavy Trucks	0	0	0	0	0	28	0	0	0	0	0	0	0	0	0	0	28	
Pedestrians	0	0	0	0	0	144	0	0	0	0	0	0	0	0	0	0	764	
Bicycles	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 9th St NW -- K St NW
CITY/STATE: Washington, DC

QC JOB #: 14426108
DATE: Tue, Jun 06 2017

Peak-Hour: 6:00 PM -- 7:00 PM
Peak 15-Min: 6:30 PM -- 6:45 PM

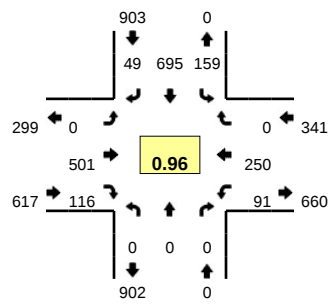


15-Min Count Period Beginning At	9th St NW (Northbound)				9th St NW (Southbound)				K St NW (Eastbound)				K St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	296	18	0	0	0	0	0	0	0	0	0	314	1169
4:15 PM	0	0	0	0	0	297	20	0	0	0	0	0	0	0	0	0	317	
4:30 PM	0	0	0	0	0	269	17	0	0	0	0	0	0	0	0	0	286	
4:45 PM	0	0	0	0	0	231	21	0	0	0	0	0	0	0	0	0	252	
5:00 PM	0	0	0	0	0	296	14	0	0	0	0	0	0	0	0	0	310	
5:15 PM	0	0	0	0	0	254	22	0	0	0	0	0	0	0	0	0	276	
5:30 PM	0	0	0	0	0	257	16	0	0	0	0	0	0	0	0	0	273	
5:45 PM	0	0	0	0	0	261	21	0	0	0	0	0	0	0	0	0	282	
6:00 PM	0	0	0	0	0	290	23	0	0	0	0	0	0	0	0	0	313	1144
6:15 PM	0	0	0	0	0	277	16	0	0	0	0	0	0	0	0	0	293	1161
6:30 PM	0	0	0	0	0	308	13	0	0	0	0	0	0	0	0	0	321	1209
6:45 PM	0	0	0	0	0	288	22	0	0	0	0	0	0	0	0	0	310	1237
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	1232	52	0	0	0	0	0	0	0	0	0	1284	
Heavy Trucks	0	0	0	0	0	32	0	0	0	0	0	0	0	0	0	0	32	
Pedestrians	8				12				636				312				968	
Bicycles	1	3	0		0	1	0		1	0	1		0	0	0		7	
Railroad																		
Stopped Buses																		

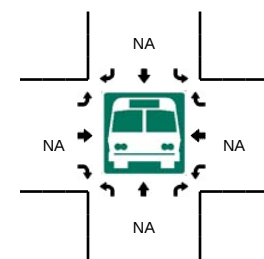
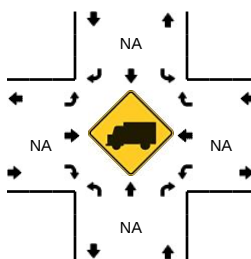
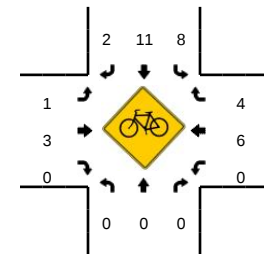
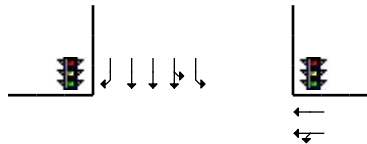
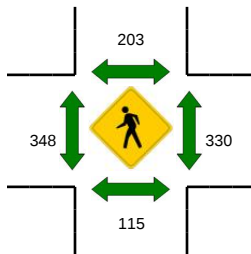
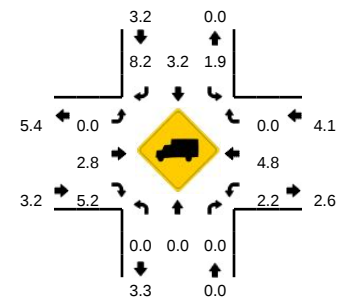
Comments:

LOCATION: 9th St NW -- New York Ave NW/K St NW
CITY/STATE: Washington, DC

QC JOB #: 14426109
DATE: Sat, May 20 2017



Peak-Hour: 1:00 PM -- 2:00 PM
Peak 15-Min: 1:45 PM -- 2:00 PM



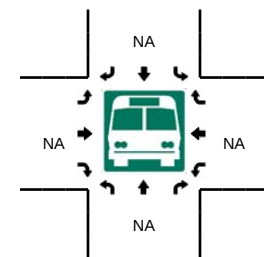
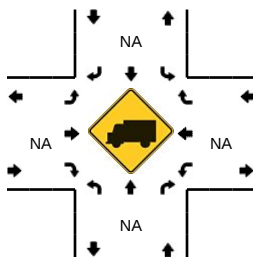
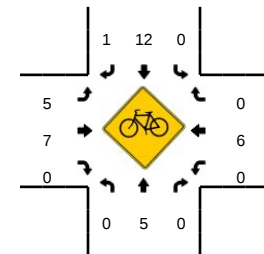
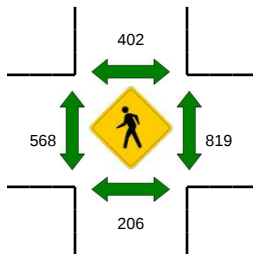
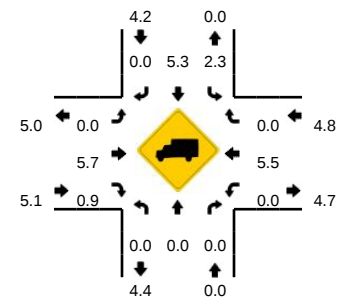
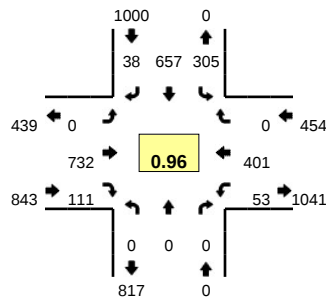
15-Min Count Period Beginning At	9th St NW (Northbound)				9th St NW (Southbound)				New York Ave NW/K St NW (Eastbound)				New York Ave NW/K St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	0	0	0	26	156	12	0	0	63	32	0	5	59	0	0	353	
10:15 AM	0	0	0	0	37	175	10	0	0	73	34	0	10	67	0	0	406	
10:30 AM	0	0	0	0	28	140	7	0	0	93	23	1	14	69	0	0	375	
10:45 AM	0	0	0	0	36	147	9	0	0	99	19	0	14	45	0	0	369	1503
11:00 AM	0	0	0	0	35	178	8	0	0	96	37	0	13	58	0	0	425	1575
11:15 AM	0	0	0	0	27	146	13	0	0	104	26	0	11	40	0	0	367	1536
11:30 AM	0	0	0	0	31	152	9	0	0	79	27	0	13	59	0	1	371	1532
11:45 AM	0	0	0	0	31	167	9	0	0	111	36	0	11	53	0	1	419	1582
12:00 PM	0	0	0	0	29	186	10	0	0	124	33	0	13	53	0	1	449	1606
12:15 PM	0	0	0	0	40	152	20	0	0	140	29	0	14	57	0	1	453	1692
12:30 PM	0	0	0	0	37	167	14	0	0	97	16	0	18	78	0	0	427	1748
12:45 PM	0	0	0	0	38	172	8	0	0	100	34	0	19	54	0	0	425	1754
1:00 PM	0	0	0	0	28	169	13	0	0	124	29	0	21	63	0	0	447	1752
1:15 PM	0	0	0	0	42	160	13	0	0	131	28	0	19	68	0	0	461	1760
1:30 PM	0	0	0	0	52	166	15	0	0	124	35	0	22	52	0	0	466	1799
1:45 PM	0	0	0	0	37	200	8	0	0	122	24	0	29	67	0	0	487	1861
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	148	800	32	0	0	488	96	0	116	268	0	0	1948	
Heavy Trucks	0	0	0	0	0	32	4	0	0	20	0	0	0	12	0	0	68	
Pedestrians		148				284				412				400			1244	
Bicycles	0	0	0	0	1	3	1	0	0	0	0	0	0	0	0	0	5	
Railroad																		
Stopped Buses																		

Comments:

LOCATION: 9th St NW -- New York Ave NW/K St NW
CITY/STATE: Washington, DC

QC JOB #: 14426110
DATE: Tue, May 23 2017

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

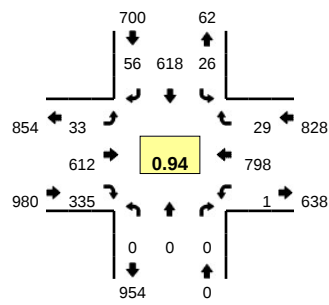


15-Min Count Period Beginning At	9th St NW (Northbound)				9th St NW (Southbound)				New York Ave NW/K St NW (Eastbound)				New York Ave NW/K St NW (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	81	173	12	0	0	183	26	0	15	104	0	0	594	
4:15 PM	0	0	0	0	68	161	6	0	0	190	22	0	10	95	0	0	552	
4:30 PM	0	0	0	0	68	150	11	0	0	163	32	0	15	112	0	3	554	
4:45 PM	0	0	0	0	88	173	9	0	0	196	31	0	9	90	0	1	597	2297
5:00 PM	0	0	0	0	92	153	9	0	0	184	24	2	11	98	0	1	574	2277
5:15 PM	0	0	0	0	82	138	8	0	0	177	30	0	19	84	0	0	538	2263
5:30 PM	0	0	0	0	79	147	11	0	0	176	31	0	15	103	0	0	562	2271
5:45 PM	0	0	0	0	65	145	15	0	0	196	29	0	21	79	0	0	550	2224
6:00 PM	0	0	0	0	89	173	16	0	0	176	26	0	19	82	0	0	581	2231
6:15 PM	0	0	0	0	103	142	12	0	0	163	33	0	10	71	0	0	534	2227
6:30 PM	0	0	0	0	87	167	24	0	0	148	40	0	16	71	0	1	554	2219
6:45 PM	0	0	0	0	49	143	24	0	0	162	32	0	17	89	0	1	517	2186
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	352	692	36	0	0	784	124	0	36	360	0	4	2388	
Heavy Trucks	0	0	0	0	8	32	0	0	0	40	0	0	0	12	0	0	92	
Pedestrians		192				400				488				708			1788	
Bicycles	0	1	0	0	0	2	0	0	3	2	0	0	0	1	0	0	9	
Railroad																		
Stopped Buses																		

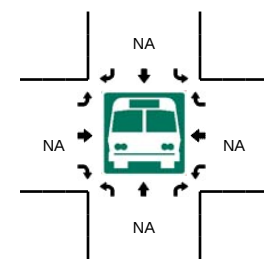
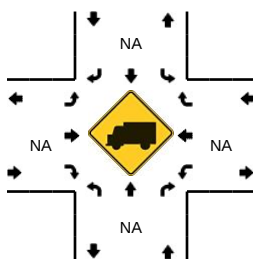
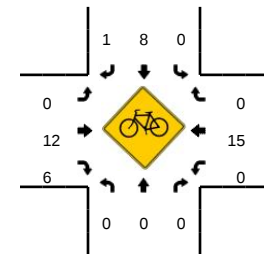
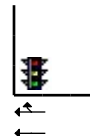
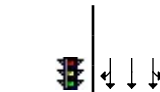
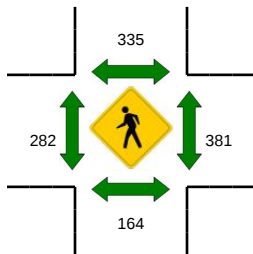
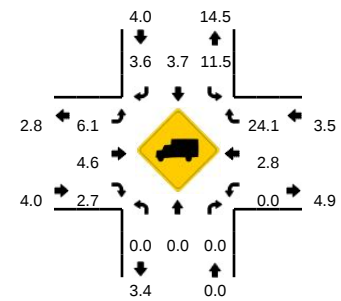
Comments:

LOCATION: 9th St NW -- Massachusetts Ave NW/ Mt Vernon
CITY/STATE: Washington, DC

QC JOB #: 14426111
DATE: Sat, May 20 2017



Peak-Hour: 1:00 PM -- 2:00 PM
Peak 15-Min: 1:45 PM -- 2:00 PM



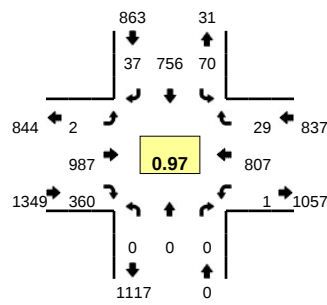
15-Min Count Period Beginning At	9th St NW (Northbound)				9th St NW (Southbound)				Massachusetts Ave NW/ Mt Vernon (Eastbound)				Massachusetts Ave NW/ Mt Vernon (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	0	0	0	5	147	21	0	5	180	64	0	0	168	9	0	599	
10:15 AM	0	0	0	0	5	155	19	0	2	168	65	0	0	150	4	0	568	
10:30 AM	0	0	0	0	6	113	21	0	1	173	58	0	3	192	5	0	572	
10:45 AM	0	0	0	0	5	146	19	0	1	168	74	0	0	172	8	0	593	2332
11:00 AM	0	0	0	0	5	144	14	0	6	151	83	0	0	176	11	0	590	2323
11:15 AM	0	0	0	0	6	147	21	0	3	168	55	0	0	178	8	0	586	2341
11:30 AM	0	0	0	0	6	123	23	0	7	181	59	0	0	173	8	0	580	2349
11:45 AM	0	0	0	0	9	156	12	0	6	174	80	0	0	162	6	0	605	2361
12:00 PM	0	0	0	0	7	155	22	0	9	184	79	0	0	182	13	1	652	2423
12:15 PM	0	0	0	0	5	142	26	0	25	124	66	0	0	181	13	0	582	2419
12:30 PM	0	0	0	0	2	143	23	0	7	170	93	0	0	156	13	0	607	2446
12:45 PM	0	0	0	0	12	136	17	0	9	167	84	0	0	183	9	0	617	2458
1:00 PM	0	0	0	0	6	142	17	0	6	144	78	0	0	181	9	0	583	2389
1:15 PM	0	0	0	0	6	145	20	0	8	154	75	0	1	204	7	0	620	2427
1:30 PM	0	0	0	0	4	161	12	0	10	159	89	0	0	196	6	0	637	2457
1:45 PM	0	0	0	0	10	170	7	0	9	155	93	0	0	217	7	0	668	2508
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	40	680	28	0	36	620	372	0	0	868	28	0	2672	
Heavy Trucks	0	0	0	0	4	12	0	0	0	32	16	0	0	24	4	0	92	
Pedestrians		140				388				280				380			1188	
Bicycles	0	0	0	0	0	3	0	0	0	3	1	0	0	3	0	0	10	
Railroad																		
Stopped Buses																		
Comments:																		

Type of peak hour being reported: Intersection Peak

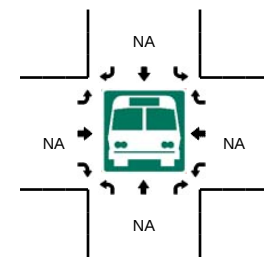
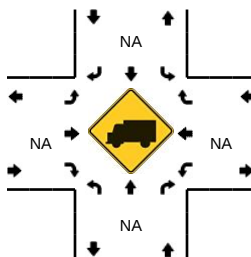
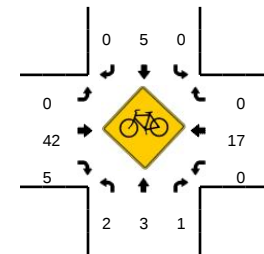
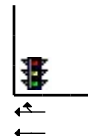
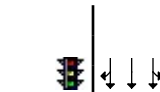
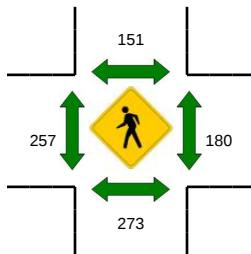
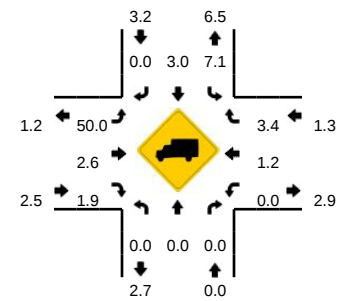
Method for determining peak hour: Total Entering Volume

LOCATION: 9th St NW -- Massachusetts Ave NW/ Mt Vernon
CITY/STATE: Washington, DC

QC JOB #: 14426112
DATE: Wed, May 24 2017



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 4:45 PM -- 5:00 PM



15-Min Count Period Beginning At	9th St NW (Northbound)				9th St NW (Southbound)				Massachusetts Ave NW/ Mt Vernon (Eastbound)				Massachusetts Ave NW/ Mt Vernon (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	16	189	10	0	1	265	91	0	0	194	9	0	775	
4:15 PM	0	0	0	0	18	212	10	0	0	227	93	0	0	178	16	0	754	
4:30 PM	0	0	0	0	15	193	11	0	2	214	74	0	1	197	16	0	723	
4:45 PM	0	0	0	0	18	195	10	0	1	254	94	0	1	211	2	0	786	3038
5:00 PM	0	0	0	0	15	161	8	0	0	219	94	0	0	227	12	0	736	2999
5:15 PM	0	0	0	0	15	196	4	0	0	257	82	0	0	193	10	0	757	3002
5:30 PM	0	0	0	0	22	204	15	0	1	257	90	0	0	176	5	0	770	3049
5:45 PM	0	0	0	0	8	212	11	0	0	266	83	0	0	165	7	0	752	3015
6:00 PM	0	0	0	0	17	187	11	0	0	221	62	0	0	233	7	0	738	3017
6:15 PM	0	0	0	0	5	216	10	1	0	234	100	0	0	195	16	0	777	3037
6:30 PM	0	0	0	0	25	155	7	0	0	245	82	0	0	167	6	0	687	2954
6:45 PM	0	0	0	0	10	145	8	0	3	203	76	0	0	173	7	0	625	2827
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	72	780	40	0	4	1016	376	0	4	844	8	0	3144	
Heavy Trucks	0	0	0	0	0	20	0	0	4	24	4	0	0	16	0	0	68	
Pedestrians		228				128				244				184			784	
Bicycles	0	1	0		0	1	0		0	7	2		0	3	0		14	
Railroad																		
Stopped Buses																		

Comments:

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1061	62	1	401	348	12	653	49	13	197	24
Future Volume (vph)	20	1061	62	1	401	348	12	653	49	13	197	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12	10	10	10	9	9	9
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.98			0.83			0.97			0.96	
Frt		0.992			0.930			0.990			0.985	
Flt Protected		0.999						0.999			0.997	
Satd. Flow (prot)	0	3240	0	0	2686	0	0	3067	0	0	2811	0
Flt Permitted		0.942			0.954			0.947			0.808	
Satd. Flow (perm)	0	3052	0	0	2562	0	0	2896	0	0	2267	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			231			7			11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		576			341			401			151	
Travel Time (s)		13.1			7.8			9.1			3.4	
Confl. Peds. (#/hr)	439		265	265		439	280		522	522		280
Confl. Bikes (#/hr)			16			3			27			11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	3%	3%	0%	5%	1%	0%	6%	2%	23%	9%	8%
Parking (#/hr)		0										
Adj. Flow (vph)	21	1117	65	1	422	366	13	687	52	14	207	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1203	0	0	789	0	0	752	0	0	246	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.07	1.00	1.00	1.00	1.00	1.09	1.09	1.09	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4			4		
Minimum Split (s)	10.0	28.0		28.0	28.0		29.0	29.0		29.0	29.0	
Total Split (s)	28.0	76.0		48.0	48.0		34.0	34.0		34.0	34.0	
Total Split (%)	25.5%	69.1%		43.6%	43.6%		30.9%	30.9%		30.9%	30.9%	
Maximum Green (s)	23.0	70.0		42.0	42.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0		15.0	15.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		70.0			42.0			28.0			28.0	
Actuated g/C Ratio		0.64			0.38			0.25			0.25	
v/c Ratio		1.01			0.70			1.01			0.42	
Control Delay		53.9			23.8			77.3			59.4	
Queue Delay		34.7			0.1			31.4			0.0	
Total Delay		88.7			23.9			108.8			59.4	
LOS		F			C			F			E	
Approach Delay		88.7			23.9			108.8			59.4	
Approach LOS		F			C			F			E	
Queue Length 50th (ft)		~291			175			~284			85	
Queue Length 95th (ft)		m#407			250			#417			m118	
Internal Link Dist (ft)		496			261			321			71	
Turn Bay Length (ft)												
Base Capacity (vph)		1197			1121			742			585	
Starvation Cap Reductn		108			0			0			0	
Spillback Cap Reductn		170			24			107			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.17			0.72			1.18			0.42	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 74.2

Intersection LOS: E

Intersection Capacity Utilization 85.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2061: 7th St NW & K St NW/Massachusetts Ave NW



Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1283	75	2	483	41	416	627	93	0	230	66
Future Volume (vph)	10	1283	75	2	483	41	416	627	93	0	230	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	11	11	11	12	11	11	11
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.98				0.71	0.73		0.66		0.91	
Frt		0.992				0.850			0.850		0.967	
Flt Protected							0.950					
Satd. Flow (prot)	0	3347	0	0	3505	1487	1728	3323	1615	0	2845	0
Flt Permitted		0.951			0.945		0.950					
Satd. Flow (perm)	0	3180	0	0	3312	1053	1267	3323	1071	0	2845	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				119			50		30	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		574			375			144			280	
Travel Time (s)		13.0			8.5			3.3			6.4	
Confl. Peds. (#/hr)	147		248	248		147	360		322	322		360
Confl. Bikes (#/hr)			5			1			41			10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	70%	1%	3%	0%	3%	5%	1%	5%	0%	0%	8%	6%
Adj. Flow (vph)	10	1336	78	2	503	43	433	653	97	0	240	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1424	0	0	505	43	433	653	97	0	309	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			8			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.04	1.04	1.04	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm		NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6		6			8			
Minimum Split (s)	27.0	27.0		24.0	24.0	24.0	25.0	33.0	33.0		21.0	
Total Split (s)	54.0	54.0		54.0	54.0	54.0	27.0	53.0	53.0		26.0	
Total Split (%)	49.1%	49.1%		49.1%	49.1%	49.1%	24.5%	48.2%	48.2%		23.6%	
Maximum Green (s)	48.0	48.0		48.0	48.0	48.0	20.0	46.0	46.0		20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5		4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5	2.5		2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	
Total Lost Time (s)		4.5			4.5	4.5	5.5	5.5	5.5		4.5	
Lead/Lag												Lag
Lead-Lag Optimize?												Yes
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		4.0	4.0		4.0	
Flash Dont Walk (s)	14.0	14.0		10.0	10.0	10.0		22.0	22.0		10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0		0	
Act Effct Green (s)		49.5			49.5	49.5	21.5	47.5	47.5		21.5	

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon Pl NW/New York Ave NW

06/28/2017

Lane Group	Ø9	Ø13
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Minimum Split (s)	3.0	3.0
Total Split (s)	3.0	3.0
Total Split (%)	3%	3%
Maximum Green (s)	1.0	1.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Efft Green (s)		

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.45			0.45	0.45	0.20	0.43	0.43		0.20	
v/c Ratio		0.99			0.34	0.08	1.28	0.46	0.20		0.53	
Control Delay		52.7			20.4	0.3	181.7	25.0	10.8		39.6	
Queue Delay		23.7			0.0	0.0	2.4	53.2	0.0		0.0	
Total Delay		76.4			20.4	0.3	184.1	78.2	10.8		39.6	
LOS		E			C	A	F	E	B		D	
Approach Delay		76.4			18.9			111.5			39.6	
Approach LOS		E			B			F			D	
Queue Length 50th (ft)		511			118	0	~395	235	21		93	
Queue Length 95th (ft)		#685			159	0	m#481	m263	m36		140	
Internal Link Dist (ft)		494			295			64			200	
Turn Bay Length (ft)												
Base Capacity (vph)		1434			1490	539	337	1434	490		580	
Starvation Cap Reductn		98			0	0	63	849	0		0	
Spillback Cap Reductn		0			0	0	0	0	0		0	
Storage Cap Reductn		0			0	0	0	0	0		0	
Reduced v/c Ratio		1.07			0.34	0.08	1.58	1.12	0.20		0.53	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 30 (27%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 110

Control Type: Pretimed

Maximum v/c Ratio: 1.28

Intersection Signal Delay: 76.0

Intersection LOS: E

Intersection Capacity Utilization 92.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

														
Ø2 (R)						Ø4						Ø3		
54 s						3 s	26 s					27 s		
														
Ø6 (R)						Ø1						Ø8		
54 s						3 s	53 s							

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

Lane Group	Ø9	Ø13
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑					↑	↑↑↑	↑
Traffic Volume (vph)	0	784	116	57	380	0	0	0	0	360	645	39
Future Volume (vph)	0	784	116	57	380	0	0	0	0	360	645	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	10	9	12	12	12	12	12	12	13	12	12
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.86	0.86	1.00
Ped Bike Factor			0.65							0.66	0.94	0.62
Frt			0.850									0.850
Flt Protected					0.994					0.950	0.992	
Satd. Flow (prot)	0	3240	1425	0	3394	0	0	0	0	1573	4689	1615
Flt Permitted					0.581					0.950	0.992	
Satd. Flow (perm)	0	3240	922	0	1984	0	0	0	0	1031	4418	1006
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94									50
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		585			576			255			113	
Travel Time (s)		13.3			13.1			5.8			2.6	
Confl. Peds. (#/hr)	485		218	218		485	514		561	561		514
Confl. Bikes (#/hr)			15			6			1			13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	2%	4%	0%
Adj. Flow (vph)	0	825	122	60	400	0	0	0	0	379	679	41
Shared Lane Traffic (%)										32%		
Lane Group Flow (vph)	0	825	122	0	460	0	0	0	0	258	800	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			0			13			13	
Link Offset(ft)		0			-22			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.09	1.14	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Prot	NA	Perm
Protected Phases		6			2					7	4	
Permitted Phases			6	2								4
Minimum Split (s)		20.0	20.0	24.0	24.0					11.5	32.5	32.5
Total Split (s)		35.5	35.5	35.5	35.5					40.5	71.5	71.5
Total Split (%)		32.3%	32.3%	32.3%	32.3%					36.8%	65.0%	65.0%
Maximum Green (s)		29.5	29.5	29.5	29.5					34.0	65.0	65.0
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.5	2.5	2.5
Lost Time Adjust (s)		-1.5	-1.5		-1.5					-1.5	-1.5	-1.5
Total Lost Time (s)		4.5	4.5		4.5					5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lag	Lag					Lag		
Lead-Lag Optimize?		Yes	Yes	Yes	Yes					Yes		
Walk Time (s)		4.0	4.0	4.0	4.0						7.0	7.0
Flash Dont Walk (s)		10.0	10.0	14.0	14.0						19.0	19.0
Pedestrian Calls (#/hr)		0	0	0	0						0	0
Act Effct Green (s)		31.0	31.0		31.0					35.5	66.5	66.5

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø5	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Lane Width (ft)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	5	8
Permitted Phases			
Minimum Split (s)	3.0	3.0	31.0
Total Split (s)	3.0	3.0	31.0
Total Split (%)	3%	3%	28%
Maximum Green (s)	1.0	1.0	27.0
Yellow Time (s)	2.0	2.0	4.0
All-Red Time (s)	0.0	0.0	0.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Walk Time (s)			7.0
Flash Dont Walk (s)			20.0
Pedestrian Calls (#/hr)			0
Act Effct Green (s)			

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.28	0.28		0.28					0.32	0.60	0.60
v/c Ratio		0.90	0.37		0.91dl					0.51	0.36	0.07
Control Delay		52.6	13.5		63.3					34.5	13.1	2.2
Queue Delay		0.0	0.0		0.0					7.0	1.2	0.0
Total Delay		52.6	13.5		63.3					41.5	14.3	2.2
LOS		D	B		E					D	B	A
Approach Delay		47.6			63.3						20.2	
Approach LOS		D			E						C	
Queue Length 50th (ft)		295	15		155					170	97	0
Queue Length 95th (ft)		#410	66		m#231					266	121	11
Internal Link Dist (ft)		505			496			175			33	
Turn Bay Length (ft)												
Base Capacity (vph)		913	327		559					507	2251	627
Starvation Cap Reductn		0	0		0					199	1164	0
Spillback Cap Reductn		0	0		0					0	0	0
Storage Cap Reductn		0	0		0					0	0	0
Reduced v/c Ratio		0.90	0.37		0.82					0.84	0.74	0.07

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 1:Ped and 5:Ped, Start of Green

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 38.5

Intersection LOS: D

Intersection Capacity Utilization 70.0%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2074: 9th St NW & New York Ave NW/K St NW

														
3 s	35.5 s					71.5 s								
3 s	35.5 s					31 s					40.5 s			

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø5	Ø8
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1298	360	1	935	29	0	0	0	70	756	37
Future Volume (vph)	2	1298	360	1	935	29	0	0	0	70	756	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		1.00			0.99						0.96	
Frt			0.850		0.995						0.994	
Flt Protected											0.996	
Satd. Flow (prot)	0	3269	1478	0	3295	0	0	0	0	0	3298	0
Flt Permitted		0.954			0.911						0.996	
Satd. Flow (perm)	0	3118	1478	0	3002	0	0	0	0	0	3214	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			233		4						6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		334			574			169			292	
Travel Time (s)		7.6			13.0			3.8			6.6	
Confl. Peds. (#/hr)	151		275	275		151	262		180	180		262
Confl. Bikes (#/hr)			42			17			3			5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	50%	3%	2%	0%	1%	3%	0%	0%	0%	7%	3%	0%
Adj. Flow (vph)	2	1338	371	1	964	30	0	0	0	72	779	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1340	371	0	995	0	0	0	0	0	889	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	custom	Perm	NA					Perm	NA	
Protected Phases		7 8	7		4						2	
Permitted Phases	7 8			4						2		
Minimum Split (s)			11.0	28.0	28.0					21.0	21.0	
Total Split (s)			15.0	44.0	44.0					53.0	53.0	
Total Split (%)			15.0%	44.0%	44.0%					53.0%	53.0%	
Maximum Green (s)			9.0	38.0	38.0					47.0	47.0	
Yellow Time (s)			4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)			-1.5		-1.5						-1.5	
Total Lost Time (s)			4.5		4.5						4.5	
Lead/Lag			Lag							Lag	Lag	
Lead-Lag Optimize?			Yes							Yes	Yes	
Walk Time (s)				10.0	10.0					4.0	4.0	
Flash Dont Walk (s)				12.0	12.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		39.5	10.5		39.5						48.5	

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

Lane Group	Ø1	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	1	8
Permitted Phases		
Minimum Split (s)	3.0	29.0
Total Split (s)	3.0	29.0
Total Split (%)	3%	29%
Maximum Green (s)	1.0	23.0
Yellow Time (s)	2.0	4.0
All-Red Time (s)	0.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)		10.0
Flash Dont Walk (s)		13.0
Pedestrian Calls (#/hr)		0
Act Efect Green (s)		

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.40	0.10		0.40						0.48	
v/c Ratio		1.09	1.02		0.84						0.57	
Control Delay		83.6	71.3		35.0						20.0	
Queue Delay		0.0	0.0		0.0						0.0	
Total Delay		83.6	71.3		35.0						20.0	
LOS		F	E		C						B	
Approach Delay		80.9			35.0						20.0	
Approach LOS		F			C						B	
Queue Length 50th (ft)		~508	~101		295						202	
Queue Length 95th (ft)		#642	#290		383						263	
Internal Link Dist (ft)		254			494			89			212	
Turn Bay Length (ft)												
Base Capacity (vph)		1231	363		1188						1561	
Starvation Cap Reductn		0	0		0						0	
Spillback Cap Reductn		0	0		0						0	
Storage Cap Reductn		0	0		0						0	
Reduced v/c Ratio		1.09	1.02		0.84						0.57	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 3 (3%), Referenced to phase 4:WBTL and 7:EBTL, Start of Green

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 53.1

Intersection LOS: D

Intersection Capacity Utilization 93.5%

ICU Level of Service F

Analysis Period (min) 15

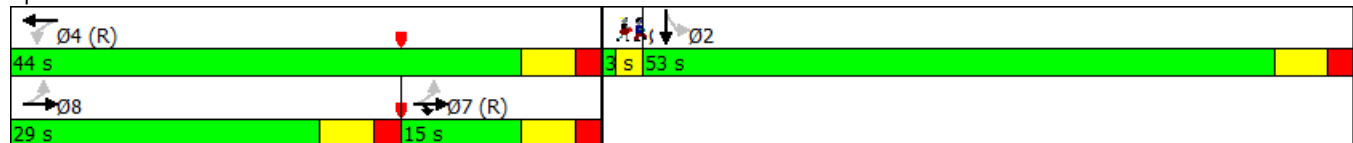
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW



Lane Group	Ø1	Ø8
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

15: 7th St NW & K St NW

06/28/2017

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	1	172	964	57	74	233	
Future Volume (Veh/h)	1	172	964	57	74	233	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Hourly flow rate (vph)	1	183	1026	61	79	248	
Pedestrians	531		377			1	
Lane Width (ft)	12.0		10.0			9.0	
Walking Speed (ft/s)	3.5		3.5			3.5	
Percent Blockage	51		30			0	
Right turn flare (veh)							
Median type			None			None	
Median storage (veh)							
Upstream signal (ft)			151			144	
pX, platoon unblocked	0.93						
vC, conflicting volume	2246	819			1618		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2188	819			1618		
tC, single (s)	6.8	7.0			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	87	0			61		
cM capacity (veh/h)	8	156			202		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	184	293	293	293	208	162	165
Volume Left	1	0	0	0	0	79	0
Volume Right	183	0	0	0	61	0	0
cSH	142	1700	1700	1700	1700	202	1700
Volume to Capacity	1.30	0.17	0.17	0.17	0.12	0.39	0.10
Queue Length 95th (ft)	284	0	0	0	0	43	0
Control Delay (s)	236.9	0.0	0.0	0.0	0.0	23.7	0.0
Lane LOS	F					C	
Approach Delay (s)	236.9	0.0				11.7	
Approach LOS	F						
Intersection Summary							
Average Delay		29.7					
Intersection Capacity Utilization		45.0%		ICU Level of Service		A	
Analysis Period (min)		15					

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	232	402	29	11	223	89	26	335	25	93	205	91
Future Volume (vph)	232	402	29	11	223	89	26	335	25	93	205	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12	10	10	10	9	9	9
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.94			0.92			0.97			0.89	
Frt		0.993			0.958			0.990			0.965	
Flt Protected		0.983			0.998			0.997			0.988	
Satd. Flow (prot)	0	3108	0	0	3020	0	0	3169	0	0	2716	0
Flt Permitted		0.669			0.926			0.901			0.706	
Satd. Flow (perm)	0	2008	0	0	2797	0	0	2833	0	0	1874	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			62			7			40	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		576			341			389			151	
Travel Time (s)		13.1			7.8			8.8			3.4	
Confl. Peds. (#/hr)	195		97	97		195	266		209	209		266
Confl. Bikes (#/hr)			11			5			14			17
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	9%	4%	3%	6%	5%	2%	3%	4%	9%	5%	3%
Parking (#/hr)		0										
Adj. Flow (vph)	242	419	30	11	232	93	27	349	26	97	214	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	691	0	0	336	0	0	402	0	0	406	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.07	1.00	1.00	1.00	1.00	1.09	1.09	1.09	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4			4		
Minimum Split (s)	10.0	28.0		28.0	28.0		29.0	29.0		29.0	29.0	
Total Split (s)	23.0	65.0		42.0	42.0		35.0	35.0		35.0	35.0	
Total Split (%)	23.0%	65.0%		42.0%	42.0%		35.0%	35.0%		35.0%	35.0%	
Maximum Green (s)	18.0	59.0		36.0	36.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0		15.0	15.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		59.0			36.0			29.0			29.0	
Actuated g/C Ratio		0.59			0.36			0.29			0.29	
v/c Ratio		1.12			0.32			0.49			0.71	
Control Delay		88.9			19.6			31.2			25.4	
Queue Delay		0.0			0.0			0.1			0.0	
Total Delay		88.9			19.6			31.3			25.4	
LOS		F			B			C			C	
Approach Delay		88.9			19.6			31.3			25.4	
Approach LOS		F			B			C			C	
Queue Length 50th (ft)		~238			64			108			66	
Queue Length 95th (ft)		#165			101			156			184	
Internal Link Dist (ft)		496			261			309			71	
Turn Bay Length (ft)												
Base Capacity (vph)		619			1046			826			571	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			1			46			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.12			0.32			0.52			0.71	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 61 (61%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 49.6

Intersection LOS: D

Intersection Capacity Utilization 95.7%

ICU Level of Service F

Analysis Period (min) 15

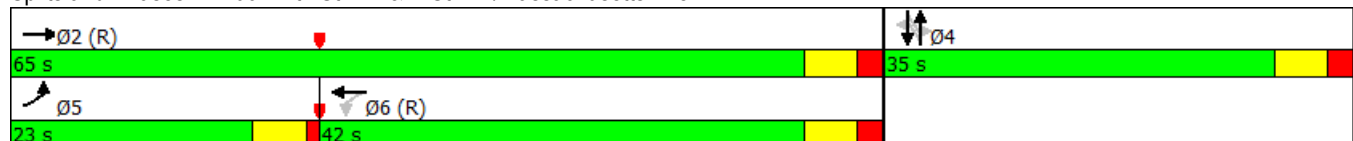
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2061: 7th St NW & K St NW/Massachusetts Ave NW



Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	451	154	72	544	14	259	373	146	4	231	24
Future Volume (vph)	32	451	154	72	544	14	259	373	146	4	231	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	11	11	11	12	11	11	11
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	1.00	0.95	0.95	0.95
Ped Bike Factor		0.95			0.99	0.76	0.75		0.75		0.96	
Frt		0.964				0.850			0.850		0.986	
Flt Protected		0.997			0.994		0.950				0.999	
Satd. Flow (prot)	0	3047	0	0	3498	1210	1662	3292	1553	0	3167	0
Flt Permitted		0.892			0.741		0.950				0.947	
Satd. Flow (perm)	0	2716	0	0	2591	922	1243	3292	1158	0	2995	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52				131			135		9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		574			375			144			280	
Travel Time (s)		13.0			8.5			3.3			6.4	
Confl. Peds. (#/hr)	130		121	121		130	291		211	211		291
Confl. Bikes (#/hr)			7			3			13			21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	9%	6%	2%	7%	2%	29%	5%	6%	4%	0%	4%	12%
Adj. Flow (vph)	33	465	159	74	561	14	267	385	151	4	238	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	657	0	0	635	14	267	385	151	0	267	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			8			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.04	1.04	1.04	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6		6			8	4		
Minimum Split (s)	27.0	27.0		24.0	24.0	24.0	25.0	33.0	33.0	21.0	21.0	
Total Split (s)	47.0	47.0		47.0	47.0	47.0	26.0	50.0	50.0	24.0	24.0	
Total Split (%)	47.0%	47.0%		47.0%	47.0%	47.0%	26.0%	50.0%	50.0%	24.0%	24.0%	
Maximum Green (s)	41.0	41.0		41.0	41.0	41.0	19.0	43.0	43.0	18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5	2.5	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0	6.0	7.0	7.0	7.0		6.0	
Lead/Lag										Lag	Lag	
Lead-Lag Optimize?										Yes	Yes	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		4.0	4.0	4.0	4.0	
Flash Dont Walk (s)	14.0	14.0		10.0	10.0	10.0		22.0	22.0	10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0	0	0	
Act Effct Green (s)		41.0			41.0	41.0	19.0	43.0	43.0		18.0	

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

Lane Group	Ø9	Ø13
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Minimum Split (s)	3.0	3.0
Total Split (s)	3.0	3.0
Total Split (%)	3%	3%
Maximum Green (s)	1.0	1.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Efft Green (s)		

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.41			0.41	0.41	0.19	0.43	0.43		0.18	
v/c Ratio		0.57			0.60	0.03	0.85	0.27	0.26		0.49	
Control Delay		34.7			26.0	0.1	64.1	20.2	6.5		39.1	
Queue Delay		0.0			0.0	0.0	6.7	0.5	0.0		0.0	
Total Delay		34.7			26.0	0.1	70.8	20.7	6.5		39.1	
LOS		C			C	A	E	C	A		D	
Approach Delay		34.7			25.4			34.7			39.1	
Approach LOS		C			C			C			D	
Queue Length 50th (ft)		226			163	0	177	71	8		78	
Queue Length 95th (ft)		285			222	0	m#263	m89	m19		119	
Internal Link Dist (ft)		494			295			64			200	
Turn Bay Length (ft)												
Base Capacity (vph)		1144			1062	455	315	1415	574		546	
Starvation Cap Reductn		0			0	0	25	625	0		0	
Spillback Cap Reductn		0			0	0	0	0	0		0	
Storage Cap Reductn		0			0	0	0	0	0		0	
Reduced v/c Ratio		0.57			0.60	0.03	0.92	0.49	0.26		0.49	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 52 (52%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 32.6

Intersection LOS: C

Intersection Capacity Utilization 91.2%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

 Ø2 (R)	 Ø4	 Ø3
47 s	24 s	26 s
 Ø6 (R)	 Ø1	 Ø8
47 s	50 s	

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

Lane Group	Ø9	Ø13
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑					↑	↑↑↑	↑
Traffic Volume (vph)	0	501	116	91	250	0	0	0	0	162	707	50
Future Volume (vph)	0	501	116	91	250	0	0	0	0	162	707	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	10	9	12	12	12	12	12	12	13	12	12
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.86	0.86	1.00
Ped Bike Factor			0.75		0.97					0.64	0.99	0.67
Frt			0.850									0.850
Flt Protected					0.987					0.950	0.999	
Satd. Flow (prot)	0	3271	1384	0	3420	0	0	0	0	1573	4756	1495
Flt Permitted					0.659					0.950	0.999	
Satd. Flow (perm)	0	3271	1032	0	2224	0	0	0	0	1001	4722	1004
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104									55
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			576			255			113	
Travel Time (s)		12.7			13.1			5.8			2.6	
Confl. Peds. (#/hr)	203		115	115		203	348		330	330		348
Confl. Bikes (#/hr)			3			6						11
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	5%	2%	5%	0%	0%	0%	0%	2%	3%	8%
Adj. Flow (vph)	0	522	121	95	260	0	0	0	0	169	736	52
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	0	522	121	0	355	0	0	0	0	152	753	52
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			0			13			13	
Link Offset(ft)		0			-22			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.09	1.14	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Prot	NA	Perm
Protected Phases		6			2					7	4	
Permitted Phases			6	2								4
Minimum Split (s)		20.0	20.0	24.0	24.0					11.5	32.5	32.5
Total Split (s)		43.5	43.5	43.5	43.5					22.5	53.5	53.5
Total Split (%)		43.5%	43.5%	43.5%	43.5%					22.5%	53.5%	53.5%
Maximum Green (s)		37.5	37.5	37.5	37.5					16.0	47.0	47.0
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.5	2.5	2.5
Lost Time Adjust (s)		0.0	0.0		0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0					6.5	6.5	6.5
Lead/Lag		Lag	Lag	Lag	Lag					Lag		
Lead-Lag Optimize?		Yes	Yes	Yes	Yes					Yes		
Walk Time (s)		4.0	4.0	4.0	4.0						7.0	7.0
Flash Dont Walk (s)		10.0	10.0	14.0	14.0						19.0	19.0
Pedestrian Calls (#/hr)		0	0	0	0						0	0
Act Effct Green (s)		37.5	37.5		37.5					16.0	47.0	47.0

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø5	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Lane Width (ft)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	5	8
Permitted Phases			
Minimum Split (s)	3.0	3.0	31.0
Total Split (s)	3.0	3.0	31.0
Total Split (%)	3%	3%	31%
Maximum Green (s)	1.0	1.0	27.0
Yellow Time (s)	2.0	2.0	4.0
All-Red Time (s)	0.0	0.0	0.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Walk Time (s)			7.0
Flash Dont Walk (s)			20.0
Pedestrian Calls (#/hr)			0
Act Effct Green (s)			

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.38	0.38		0.38					0.16	0.47	0.47
v/c Ratio		0.43	0.27		0.43					0.61	0.45	0.10
Control Delay		24.6	7.5		29.1					42.7	13.1	1.4
Queue Delay		0.0	0.0		0.0					0.0	0.7	0.0
Total Delay		24.6	7.5		29.1					42.7	13.8	1.4
LOS		C	A		C					D	B	A
Approach Delay		21.4			29.1						17.7	
Approach LOS		C			C						B	
Queue Length 50th (ft)		128	7		105					113	94	2
Queue Length 95th (ft)		175	45		149					m176	114	m3
Internal Link Dist (ft)		479			496			175			33	
Turn Bay Length (ft)												
Base Capacity (vph)		1226	452		834					251	1666	501
Starvation Cap Reductn		0	0		0					0	549	0
Spillback Cap Reductn		0	0		0					0	0	0
Storage Cap Reductn		0	0		0					0	0	0
Reduced v/c Ratio		0.43	0.27		0.43					0.61	0.67	0.10

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 16 (16%), Referenced to phase 1:Ped and 5:Ped, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 21.0

Intersection LOS: C

Intersection Capacity Utilization 65.9%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2074: 9th St NW & New York Ave NW/K St NW

			
3 s	43.5 s		53.5 s
			
3 s	43.5 s	31 s	22.5 s

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø5	Ø8
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	612	335	1	798	29	0	0	0	26	618	56
Future Volume (vph)	33	612	335	1	798	29	0	0	0	26	618	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		1.00			0.99						0.96	
Fr _t			0.850		0.995						0.988	
Fl _t Protected		0.997									0.998	
Satd. Flow (prot)	0	3293	1478	0	3248	0	0	0	0	0	3276	0
Fl _t Permitted		0.804			0.955						0.998	
Satd. Flow (perm)	0	2647	1478	0	3101	0	0	0	0	0	3228	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			356		4						12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		334			574			169			292	
Travel Time (s)		7.6			13.0			3.8			6.6	
Confl. Peds. (#/hr)	335		164	164		335	282		381	381		282
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	35	651	356	1	849	31	0	0	0	28	657	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	686	356	0	881	0	0	0	0	0	745	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	custom	Perm	NA					Perm	NA	
Protected Phases		7 8	7		4						2	
Permitted Phases	7 8			4						2		
Minimum Split (s)			11.0	28.0	28.0					21.0	21.0	
Total Split (s)			15.0	44.0	44.0					53.0	53.0	
Total Split (%)			15.0%	44.0%	44.0%					53.0%	53.0%	
Maximum Green (s)			9.0	38.0	38.0					47.0	47.0	
Yellow Time (s)			4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)			0.0		0.0						0.0	
Total Lost Time (s)			6.0		6.0						6.0	
Lead/Lag			Lead							Lag	Lag	
Lead-Lag Optimize?			Yes							Yes	Yes	
Walk Time (s)				10.0	10.0					4.0	4.0	
Flash Dont Walk (s)				12.0	12.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		38.0	9.0		38.0						47.0	
Actuated g/C Ratio		0.38	0.09		0.38						0.47	
v/c Ratio		0.68	0.78		0.75						0.49	

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

Lane Group	Ø1	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	1	8
Permitted Phases		
Minimum Split (s)	3.0	29.0
Total Split (s)	3.0	29.0
Total Split (%)	3%	29%
Maximum Green (s)	1.0	23.0
Yellow Time (s)	2.0	4.0
All-Red Time (s)	0.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)		10.0
Flash Dont Walk (s)		13.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		30.2	18.0		47.8						19.3	
Queue Delay		0.0	0.0		0.0						0.0	
Total Delay		30.2	18.0		47.8						19.3	
LOS		C	B		D						B	
Approach Delay		26.0			47.8						19.3	
Approach LOS		C			D						B	
Queue Length 50th (ft)		189	0		318						163	
Queue Length 95th (ft)		256	#122		m382						215	
Internal Link Dist (ft)		254			494			89			212	
Turn Bay Length (ft)												
Base Capacity (vph)		1005	456		1180						1523	
Starvation Cap Reductn		0	0		0						0	
Spillback Cap Reductn		0	0		0						0	
Storage Cap Reductn		0	0		0						0	
Reduced v/c Ratio		0.68	0.78		0.75						0.49	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 1 (1%), Referenced to phase 4:WBTL and 7:EBTL, Start of Green

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 31.3

Intersection LOS: C

Intersection Capacity Utilization 86.7%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

 Ø4 (R)	 Ø2
44 s	3 s 53 s
 Ø7 (R)	 Ø8
15 s	29 s

Lane Group	Ø1	Ø8
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

15: 7th St NW & K St NW

06/28/2017

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	13	247	531	125	80	377	
Future Volume (Veh/h)	13	247	531	125	80	377	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Hourly flow rate (vph)	13	252	542	128	82	385	
Pedestrians	239		150				
Lane Width (ft)	12.0		12.0				
Walking Speed (ft/s)	3.5		3.5				
Percent Blockage	23		14				
Right turn flare (veh)							
Median type			None			None	
Median storage veh							
Upstream signal (ft)			151			144	
pX, platoon unblocked	0.94						
vC, conflicting volume	1352	438			909		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1239	438			909		
tC, single (s)	7.0	7.0			4.1		
tC, 2 stage (s)							
tF (s)	3.6	3.3			2.2		
p0 queue free %	85	42			86		
cM capacity (veh/h)	85	435			585		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	265	155	155	155	205	210	257
Volume Left	13	0	0	0	0	82	0
Volume Right	252	0	0	0	128	0	0
cSH	362	1700	1700	1700	1700	585	1700
Volume to Capacity	0.73	0.09	0.09	0.09	0.12	0.14	0.15
Queue Length 95th (ft)	140	0	0	0	0	12	0
Control Delay (s)	37.8	0.0	0.0	0.0	0.0	5.9	0.0
Lane LOS	E					A	
Approach Delay (s)	37.8	0.0				2.6	
Approach LOS	E						
Intersection Summary							
Average Delay			8.0				
Intersection Capacity Utilization			52.1%		ICU Level of Service		A
Analysis Period (min)			15				

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	1123	72	1	435	388	19	694	51	14	206	25
Future Volume (vph)	112	1123	72	1	435	388	19	694	51	14	206	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12	10	10	10	9	9	9
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.98			0.82			0.96			0.95	
Frt		0.992			0.929			0.990			0.985	
Flt Protected		0.996						0.999			0.997	
Satd. Flow (prot)	0	3221	0	0	2666	0	0	3061	0	0	2777	0
Flt Permitted		0.608			0.954			0.940			0.767	
Satd. Flow (perm)	0	1966	0	0	2543	0	0	2858	0	0	2126	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					237			6			10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		576			341			401			151	
Travel Time (s)		13.1			7.8			9.1			3.4	
Confl. Peds. (#/hr)	459		340	340		459	705		697	697		705
Confl. Bikes (#/hr)			18			5			29			12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	3%	3%	0%	5%	1%	0%	6%	2%	23%	9%	8%
Parking (#/hr)		0										
Adj. Flow (vph)	118	1182	76	1	458	408	20	731	54	15	217	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1376	0	0	867	0	0	805	0	0	258	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.07	1.00	1.00	1.00	1.00	1.09	1.09	1.09	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4			4		
Minimum Split (s)	10.0	28.0		28.0	28.0		29.0	29.0		29.0	29.0	
Total Split (s)	28.0	76.0		48.0	48.0		34.0	34.0		34.0	34.0	
Total Split (%)	25.5%	69.1%		43.6%	43.6%		30.9%	30.9%		30.9%	30.9%	
Maximum Green (s)	23.0	70.0		42.0	42.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0		15.0	15.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		70.0			42.0			28.0			28.0	
Actuated g/C Ratio		0.64			0.38			0.25			0.25	
v/c Ratio		1.92			0.78			1.10			0.47	
Control Delay		446.8			26.9			103.3			60.8	
Queue Delay		1.8			0.2			1.3			0.0	
Total Delay		448.6			27.1			104.5			60.8	
LOS		F			C			F			E	
Approach Delay		448.6			27.1			104.5			60.8	
Approach LOS		F			C			F			E	
Queue Length 50th (ft)		~787			208			~339			90	
Queue Length 95th (ft)		m#776			293			#465			m123	
Internal Link Dist (ft)		496			261			321			71	
Turn Bay Length (ft)												
Base Capacity (vph)		716			1117			731			548	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		162			26			127			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		2.48			0.79			1.33			0.47	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 1.92

Intersection Signal Delay: 224.0

Intersection LOS: F

Intersection Capacity Utilization 116.4%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2061: 7th St NW & K St NW/Massachusetts Ave NW



Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1342	79	2	729	224	488	717	111	0	241	69
Future Volume (vph)	10	1342	79	2	729	224	488	717	111	0	241	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	11	11	11	12	11	11	11
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.98				0.46	0.66		0.62		0.88	
Frt		0.992				0.850			0.850		0.967	
Flt Protected							0.950					
Satd. Flow (prot)	0	3345	0	0	3505	1487	1728	3323	1615	0	2758	0
Flt Permitted		0.948			0.912		0.950					
Satd. Flow (perm)	0	3169	0	0	3197	684	1132	3323	1008	0	2758	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				119			50		26	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		574			375			144			280	
Travel Time (s)		13.0			8.5			3.3			6.4	
Confl. Peds. (#/hr)	767		278	278		767	859		479	479		859
Confl. Bikes (#/hr)			5			22			47			10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	70%	1%	3%	0%	3%	5%	1%	5%	0%	0%	8%	6%
Adj. Flow (vph)	10	1398	82	2	759	233	508	747	116	0	251	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1490	0	0	761	233	508	747	116	0	323	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			8			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.04	1.04	1.04	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm		NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6		6			8			
Minimum Split (s)	27.0	27.0		24.0	24.0	24.0	25.0	33.0	33.0		21.0	
Total Split (s)	54.0	54.0		54.0	54.0	54.0	27.0	53.0	53.0		26.0	
Total Split (%)	49.1%	49.1%		49.1%	49.1%	49.1%	24.5%	48.2%	48.2%		23.6%	
Maximum Green (s)	48.0	48.0		48.0	48.0	48.0	20.0	46.0	46.0		20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5		4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5	2.5		2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	
Total Lost Time (s)		4.5			4.5	4.5	5.5	5.5	5.5		4.5	
Lead/Lag												Lag
Lead-Lag Optimize?												Yes
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		4.0	4.0		4.0	
Flash Dont Walk (s)	14.0	14.0		10.0	10.0	10.0		22.0	22.0		10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0		0	
Act Effct Green (s)		49.5			49.5	49.5	21.5	47.5	47.5		21.5	

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

Lane Group	Ø9	Ø13
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Minimum Split (s)	3.0	3.0
Total Split (s)	3.0	3.0
Total Split (%)	3%	3%
Maximum Green (s)	1.0	1.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Efect Green (s)		

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.45			0.45	0.45	0.20	0.43	0.43		0.20	
v/c Ratio		1.04			0.53	0.62	1.51	0.52	0.25		0.58	
Control Delay		66.1			23.5	19.4	268.1	24.1	11.2		41.5	
Queue Delay		23.0			0.0	0.0	2.4	52.8	0.0		0.0	
Total Delay		89.2			23.5	19.4	270.6	76.9	11.2		41.5	
LOS		F			C	B	F	E	B		D	
Approach Delay		89.2			22.6			143.1			41.5	
Approach LOS		F			C			F			D	
Queue Length 50th (ft)		~600			198	58	~511	254	29		100	
Queue Length 95th (ft)		#740			257	155	m#538	m258	m37		149	
Internal Link Dist (ft)		494			295			64			200	
Turn Bay Length (ft)												
Base Capacity (vph)		1429			1438	373	337	1434	463		559	
Starvation Cap Reductn		90			0	0	63	824	0		0	
Spillback Cap Reductn		0			0	0	0	0	0		0	
Storage Cap Reductn		0			0	0	0	0	0		0	
Reduced v/c Ratio		1.11			0.53	0.62	1.85	1.22	0.25		0.58	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 30 (27%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 130

Control Type: Pretimed

Maximum v/c Ratio: 1.51

Intersection Signal Delay: 87.3

Intersection LOS: F

Intersection Capacity Utilization 99.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

														
Ø2 (R)						Ø4						Ø3		
54 s						3 s	26 s					27 s		
														
Ø6 (R)						Ø1						Ø8		
54 s						3 s	53 s							

Lane Group	Ø9	Ø13
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑					↑	↑↑↑	↑
Traffic Volume (vph)	0	929	121	81	398	0	0	0	0	377	733	41
Future Volume (vph)	0	929	121	81	398	0	0	0	0	377	733	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	10	9	12	12	12	12	12	12	13	12	12
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.86	0.86	1.00
Ped Bike Factor			0.49							0.64	0.95	0.58
Frt			0.850									0.850
Flt Protected					0.992					0.950	0.994	
Satd. Flow (prot)	0	3240	1425	0	3389	0	0	0	0	1573	4697	1615
Flt Permitted					0.521					0.950	0.994	
Satd. Flow (perm)	0	3240	696	0	1780	0	0	0	0	1000	4447	930
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94									50
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		585			576			255			113	
Travel Time (s)		13.3			13.1			5.8			2.6	
Confl. Peds. (#/hr)	635		565	565		635	711		668	668		711
Confl. Bikes (#/hr)			27			6						3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	2%	4%	0%
Adj. Flow (vph)	0	978	127	85	419	0	0	0	0	397	772	43
Shared Lane Traffic (%)										29%		
Lane Group Flow (vph)	0	978	127	0	504	0	0	0	0	282	887	43
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			0			13			13	
Link Offset(ft)		0			-22			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.09	1.14	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Prot	NA	Perm
Protected Phases		6			2					7	4	
Permitted Phases			6	2								4
Minimum Split (s)		20.0	20.0	24.0	24.0					11.5	32.5	32.5
Total Split (s)		35.5	35.5	35.5	35.5					40.5	71.5	71.5
Total Split (%)		32.3%	32.3%	32.3%	32.3%					36.8%	65.0%	65.0%
Maximum Green (s)		29.5	29.5	29.5	29.5					34.0	65.0	65.0
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.5	2.5	2.5
Lost Time Adjust (s)		-1.5	-1.5		-1.5					-1.5	-1.5	-1.5
Total Lost Time (s)		4.5	4.5		4.5					5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lag	Lag					Lag		
Lead-Lag Optimize?		Yes	Yes	Yes	Yes					Yes		
Walk Time (s)		4.0	4.0	4.0	4.0						7.0	7.0
Flash Dont Walk (s)		10.0	10.0	14.0	14.0						19.0	19.0
Pedestrian Calls (#/hr)		0	0	0	0						0	0
Act Effct Green (s)		31.0	31.0		31.0					35.5	66.5	66.5

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø5	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Lane Width (ft)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	5	8
Permitted Phases			
Minimum Split (s)	3.0	3.0	31.0
Total Split (s)	3.0	3.0	31.0
Total Split (%)	3%	3%	28%
Maximum Green (s)	1.0	1.0	27.0
Yellow Time (s)	2.0	2.0	4.0
All-Red Time (s)	0.0	0.0	0.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Walk Time (s)			7.0
Flash Dont Walk (s)			20.0
Pedestrian Calls (#/hr)			0
Act Effct Green (s)			

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.28	0.28		0.28					0.32	0.60	0.60
v/c Ratio		1.07	0.48		1.29dl					0.56	0.39	0.07
Control Delay		89.2	17.6		88.5					35.8	13.7	2.4
Queue Delay		0.0	0.0		0.0					11.0	1.7	0.0
Total Delay		89.2	17.6		88.5					46.8	15.5	2.4
LOS		F	B		F					D	B	A
Approach Delay		81.0			88.5						22.3	
Approach LOS		F			F						C	
Queue Length 50th (ft)		~404	18		~176					189	110	0
Queue Length 95th (ft)		#533	79		m#290					293	136	12
Internal Link Dist (ft)		505			496			175			33	
Turn Bay Length (ft)												
Base Capacity (vph)		913	263		501					507	2261	582
Starvation Cap Reductn		0	0		0					194	1151	0
Spillback Cap Reductn		0	0		0					0	0	0
Storage Cap Reductn		0	0		0					0	0	0
Reduced v/c Ratio		1.07	0.48		1.01					0.90	0.80	0.07

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 1:Ped and 5:Ped, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 57.1

Intersection LOS: E

Intersection Capacity Utilization 74.0%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2074: 9th St NW & New York Ave NW/K St NW

					
3 s	35.5 s		71.5 s		
					
3 s	35.5 s		31 s		40.5 s

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø5	Ø8
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1358	396	1	1144	141	0	0	0	73	831	40
Future Volume (vph)	2	1358	396	1	1144	141	0	0	0	73	831	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor					0.97						0.96	
Frt			0.850		0.984						0.994	
Flt Protected											0.996	
Satd. Flow (prot)	0	3269	1478	0	3168	0	0	0	0	0	3297	0
Flt Permitted		0.900			0.872						0.996	
Satd. Flow (perm)	0	2942	1478	0	2762	0	0	0	0	0	3209	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			245		16						6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		334			574			169			292	
Travel Time (s)		7.6			13.0			3.8			6.6	
Confl. Peds. (#/hr)	209		292	292		209	293		270	270		293
Confl. Bikes (#/hr)			44			34						10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	50%	3%	2%	0%	1%	3%	0%	0%	0%	7%	3%	0%
Adj. Flow (vph)	2	1400	408	1	1179	145	0	0	0	75	857	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1402	408	0	1325	0	0	0	0	0	973	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	custom	Perm	NA					Perm	NA	
Protected Phases		7 8	7		4						2	
Permitted Phases	7 8			4						2		
Minimum Split (s)			11.0	28.0	28.0					21.0	21.0	
Total Split (s)			15.0	44.0	44.0					53.0	53.0	
Total Split (%)			15.0%	44.0%	44.0%					53.0%	53.0%	
Maximum Green (s)			9.0	38.0	38.0					47.0	47.0	
Yellow Time (s)			4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)			-1.5		-1.5						-1.5	
Total Lost Time (s)			4.5		4.5						4.5	
Lead/Lag			Lag							Lag	Lag	
Lead-Lag Optimize?			Yes							Yes	Yes	
Walk Time (s)				10.0	10.0					4.0	4.0	
Flash Dont Walk (s)				12.0	12.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		39.5	10.5		39.5						48.5	

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

Lane Group	Ø1	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	1	8
Permitted Phases		
Minimum Split (s)	3.0	29.0
Total Split (s)	3.0	29.0
Total Split (%)	3%	29%
Maximum Green (s)	1.0	23.0
Yellow Time (s)	2.0	4.0
All-Red Time (s)	0.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)		10.0
Flash Dont Walk (s)		13.0
Pedestrian Calls (#/hr)		0
Act Efft Green (s)		

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.40	0.10		0.40						0.48	
v/c Ratio		1.21	1.09		1.20						0.62	
Control Delay		130.6	91.7		129.9						21.1	
Queue Delay		0.0	0.0		0.0						0.0	
Total Delay		130.6	91.7		129.9						21.1	
LOS		F	F		F						C	
Approach Delay		121.8			129.9						21.1	
Approach LOS		F			F						C	
Queue Length 50th (ft)		~576	~143		~543						230	
Queue Length 95th (ft)		#712	#331		#680						297	
Internal Link Dist (ft)		254			494			89			212	
Turn Bay Length (ft)												
Base Capacity (vph)		1162	374		1100						1559	
Starvation Cap Reductn		0	0		0						0	
Spillback Cap Reductn		0	0		0						0	
Storage Cap Reductn		0	0		0						0	
Reduced v/c Ratio		1.21	1.09		1.20						0.62	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 3 (3%), Referenced to phase 4:WBTL and 7:EBTL, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 100.6

Intersection LOS: F

Intersection Capacity Utilization 108.1%

ICU Level of Service G

Analysis Period (min) 15

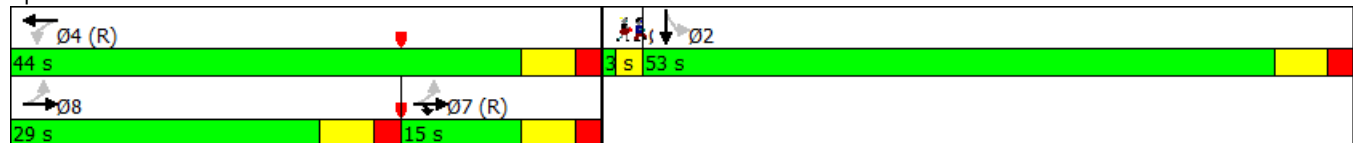
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW



Lane Group	Ø1	Ø8
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

15: 7th St NW & K St NW

06/28/2017

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	1	185	1131	62	77	244	
Future Volume (Veh/h)	1	185	1131	62	77	244	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Hourly flow rate (vph)	1	197	1203	66	82	260	
Pedestrians	685		394			1	
Lane Width (ft)	12.0		10.0			9.0	
Walking Speed (ft/s)	3.5		3.5			3.5	
Percent Blockage	65		31			0	
Right turn flare (veh)							
Median type			None			None	
Median storage (veh)							
Upstream signal (ft)			151			144	
pX, platoon unblocked	0.92						
vC, conflicting volume	2609	1020			1954		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2577	1020			1954		
tC, single (s)	6.8	7.0			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	5	0			22		
cM capacity (veh/h)	1	81			105		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	198	344	344	344	238	169	173
Volume Left	1	0	0	0	0	82	0
Volume Right	197	0	0	0	66	0	0
cSH	58	1700	1700	1700	1700	105	1700
Volume to Capacity	3.39	0.20	0.20	0.20	0.14	0.78	0.10
Queue Length 95th (ft)	Err	0	0	0	0	107	0
Control Delay (s)	Err	0.0	0.0	0.0	0.0	99.6	0.0
Lane LOS	F					F	
Approach Delay (s)	Err	0.0				49.1	
Approach LOS	F						
Intersection Summary							
Average Delay			1103.7				
Intersection Capacity Utilization			48.3%		ICU Level of Service		A
Analysis Period (min)			15				

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	373	440	40	12	259	131	37	369	26	98	215	95
Future Volume (vph)	373	440	40	12	259	131	37	369	26	98	215	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12	10	10	10	9	9	9
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.93			0.91			0.96			0.87	
Frt		0.993			0.951			0.991			0.965	
Flt Protected		0.979			0.998			0.996			0.988	
Satd. Flow (prot)	0	3095	0	0	2943	0	0	3164	0	0	2667	0
Flt Permitted		0.611			0.916			0.874			0.678	
Satd. Flow (perm)	0	1824	0	0	2696	0	0	2730	0	0	1762	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			25			7			40	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		576			341			389			151	
Travel Time (s)		13.1			7.8			8.8			3.4	
Confl. Peds. (#/hr)	204		155	155		204	553		329	329		553
Confl. Bikes (#/hr)			14			8			16			18
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	9%	4%	3%	6%	5%	2%	3%	4%	9%	5%	3%
Parking (#/hr)		0										
Adj. Flow (vph)	389	458	42	13	270	136	39	384	27	102	224	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	889	0	0	419	0	0	450	0	0	425	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.07	1.00	1.00	1.00	1.00	1.09	1.09	1.09	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4			4		
Minimum Split (s)	10.0	28.0		28.0	28.0		29.0	29.0		29.0	29.0	
Total Split (s)	23.0	65.0		42.0	42.0		35.0	35.0		35.0	35.0	
Total Split (%)	23.0%	65.0%		42.0%	42.0%		35.0%	35.0%		35.0%	35.0%	
Maximum Green (s)	18.0	59.0		36.0	36.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0		15.0	15.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		59.0			36.0			29.0			29.0	
Actuated g/C Ratio		0.59			0.36			0.29			0.29	
v/c Ratio		1.66			0.42			0.57			0.79	
Control Delay		323.3			24.3			32.9			29.4	
Queue Delay		0.0			0.0			1.0			0.0	
Total Delay		323.3			24.3			34.0			29.4	
LOS		F			C			C			C	
Approach Delay		323.3			24.3			34.0			29.4	
Approach LOS		F			C			C			C	
Queue Length 50th (ft)		~440			98			125			70	
Queue Length 95th (ft)		#534			142			177			#205	
Internal Link Dist (ft)		496			261			309			71	
Turn Bay Length (ft)												
Base Capacity (vph)		537			986			796			539	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			1			151			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.66			0.43			0.70			0.79	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 61 (61%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 1.66

Intersection Signal Delay: 149.0

Intersection LOS: F

Intersection Capacity Utilization 101.3%

ICU Level of Service G

Analysis Period (min) 15

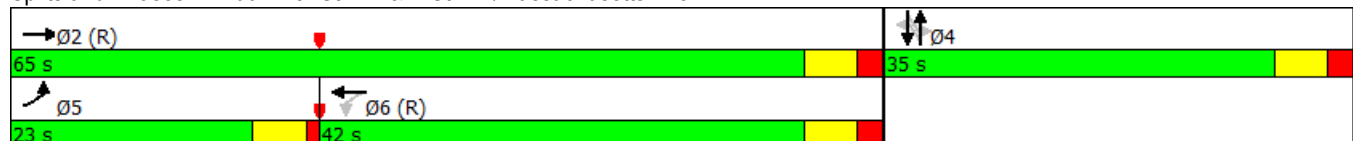
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2061: 7th St NW & K St NW/Massachusetts Ave NW



Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	472	162	75	685	108	345	489	171	4	242	25
Future Volume (vph)	34	472	162	75	685	108	345	489	171	4	242	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	11	11	11	12	11	11	11
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	1.00	0.95	0.95	0.95
Ped Bike Factor		0.94			0.99	0.57	0.67		0.67		0.95	
Frt		0.964				0.850			0.850		0.986	
Flt Protected		0.997			0.995		0.950				0.999	
Satd. Flow (prot)	0	3021	0	0	3505	1210	1662	3292	1553	0	3132	0
Flt Permitted		0.871			0.737		0.950				0.945	
Satd. Flow (perm)	0	2626	0	0	2580	691	1112	3292	1047	0	2956	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52				131			112		9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		574			375			144			280	
Travel Time (s)		13.0			8.5			3.3			6.4	
Confl. Peds. (#/hr)	517		145	145		517	578		326	326		578
Confl. Bikes (#/hr)			7			17			21			22
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	9%	6%	2%	7%	2%	29%	5%	6%	4%	0%	4%	12%
Adj. Flow (vph)	35	487	167	77	706	111	356	504	176	4	249	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	689	0	0	783	111	356	504	176	0	279	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			8			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.04	1.04	1.04	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6		6			8	4		
Minimum Split (s)	27.0	27.0		24.0	24.0	24.0	25.0	33.0	33.0	21.0	21.0	
Total Split (s)	47.0	47.0		47.0	47.0	47.0	26.0	50.0	50.0	24.0	24.0	
Total Split (%)	47.0%	47.0%		47.0%	47.0%	47.0%	26.0%	50.0%	50.0%	24.0%	24.0%	
Maximum Green (s)	41.0	41.0		41.0	41.0	41.0	19.0	43.0	43.0	18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5	2.5	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0	6.0	7.0	7.0	7.0		6.0	
Lead/Lag										Lag	Lag	
Lead-Lag Optimize?										Yes	Yes	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		4.0	4.0	4.0	4.0	
Flash Dont Walk (s)	14.0	14.0		10.0	10.0	10.0		22.0	22.0	10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0	0	0	
Act Effct Green (s)		41.0			41.0	41.0	19.0	43.0	43.0		18.0	

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

Lane Group	Ø9	Ø13
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Minimum Split (s)	3.0	3.0
Total Split (s)	3.0	3.0
Total Split (%)	3%	3%
Maximum Green (s)	1.0	1.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Efft Green (s)		

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.41			0.41	0.41	0.19	0.43	0.43		0.18	
v/c Ratio		0.62			0.74	0.31	1.13	0.36	0.34		0.52	
Control Delay		33.7			30.2	4.8	125.5	25.1	13.8		39.7	
Queue Delay		0.0			0.0	0.0	1.0	0.9	0.6		0.0	
Total Delay		33.7			30.2	4.8	126.5	26.0	14.4		39.7	
LOS		C			C	A	F	C	B		D	
Approach Delay		33.7			27.1			58.6			39.7	
Approach LOS		C			C			E			D	
Queue Length 50th (ft)		238			217	0	~271	106	25		82	
Queue Length 95th (ft)		m292			292	26	m#336	m115	m47		125	
Internal Link Dist (ft)		494			295			64			200	
Turn Bay Length (ft)												
Base Capacity (vph)		1107			1057	360	315	1415	514		539	
Starvation Cap Reductn		0			0	0	25	618	124		0	
Spillback Cap Reductn		0			0	0	0	0	0		0	
Storage Cap Reductn		0			0	0	0	0	0		0	
Reduced v/c Ratio		0.62			0.74	0.31	1.23	0.63	0.45		0.52	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 52 (52%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 41.1

Intersection LOS: D

Intersection Capacity Utilization 96.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

 Ø2 (R)	 Ø4	 Ø3
47 s	24 s	26 s
 Ø6 (R)	 Ø1 Ø8	
47 s	50 s	

Lane Group	Ø9	Ø13
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑					↑	↑↑↑	↑
Traffic Volume (vph)	0	681	121	130	261	0	0	0	0	171	836	53
Future Volume (vph)	0	681	121	130	261	0	0	0	0	171	836	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	10	9	12	12	12	12	12	12	13	12	12
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.86	0.86	1.00
Ped Bike Factor			0.57		0.97					0.60	0.99	0.64
Frt			0.850									0.850
Flt Protected					0.984					0.950	0.999	
Satd. Flow (prot)	0	3271	1384	0	3415	0	0	0	0	1573	4755	1495
Flt Permitted					0.561					0.950	0.999	
Satd. Flow (perm)	0	3271	784	0	1882	0	0	0	0	947	4723	951
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104									55
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			576			255			113	
Travel Time (s)		12.7			13.1			5.8			2.6	
Confl. Peds. (#/hr)	308		442	442		308	496		421	421		496
Confl. Bikes (#/hr)			3			10						23
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	5%	2%	5%	0%	0%	0%	0%	2%	3%	8%
Adj. Flow (vph)	0	709	126	135	272	0	0	0	0	178	871	55
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	0	709	126	0	407	0	0	0	0	160	889	55
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			0			13			13	
Link Offset(ft)		0			-22			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.09	1.14	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Prot	NA	Perm
Protected Phases		6			2					7	4	
Permitted Phases			6	2								4
Minimum Split (s)		20.0	20.0	24.0	24.0					11.5	32.5	32.5
Total Split (s)		43.5	43.5	43.5	43.5					22.5	53.5	53.5
Total Split (%)		43.5%	43.5%	43.5%	43.5%					22.5%	53.5%	53.5%
Maximum Green (s)		37.5	37.5	37.5	37.5					16.0	47.0	47.0
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.5	2.5	2.5
Lost Time Adjust (s)		0.0	0.0		0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0					6.5	6.5	6.5
Lead/Lag		Lag	Lag	Lag	Lag					Lag		
Lead-Lag Optimize?		Yes	Yes	Yes	Yes					Yes		
Walk Time (s)		4.0	4.0	4.0	4.0						7.0	7.0
Flash Dont Walk (s)		10.0	10.0	14.0	14.0						19.0	19.0
Pedestrian Calls (#/hr)		0	0	0	0						0	0
Act Effct Green (s)		37.5	37.5		37.5					16.0	47.0	47.0

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø5	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Lane Width (ft)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	5	8
Permitted Phases			
Minimum Split (s)	3.0	3.0	31.0
Total Split (s)	3.0	3.0	31.0
Total Split (%)	3%	3%	31%
Maximum Green (s)	1.0	1.0	27.0
Yellow Time (s)	2.0	2.0	4.0
All-Red Time (s)	0.0	0.0	0.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Walk Time (s)			7.0
Flash Dont Walk (s)			20.0
Pedestrian Calls (#/hr)			0
Act Effct Green (s)			

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.38	0.38		0.38					0.16	0.47	0.47
v/c Ratio		0.58	0.35		0.58					0.64	0.53	0.12
Control Delay		27.3	9.3		34.4					42.8	14.3	1.3
Queue Delay		0.0	0.0		0.0					0.0	1.3	0.0
Total Delay		27.3	9.3		34.4					42.8	15.6	1.3
LOS		C	A		C					D	B	A
Approach Delay		24.5			34.4						18.9	
Approach LOS		C			C						B	
Queue Length 50th (ft)		186	9		136					116	107	2
Queue Length 95th (ft)		246	53		m186					m182	m131	m2
Internal Link Dist (ft)		479			496			175			33	
Turn Bay Length (ft)												
Base Capacity (vph)		1226	359		705					251	1666	476
Starvation Cap Reductn		0	0		0					0	534	0
Spillback Cap Reductn		0	0		0					0	0	0
Storage Cap Reductn		0	0		0					0	0	0
Reduced v/c Ratio		0.58	0.35		0.58					0.64	0.79	0.12

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 16 (16%), Referenced to phase 1:Ped and 5:Ped, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 23.6

Intersection LOS: C

Intersection Capacity Utilization 70.9%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2074: 9th St NW & New York Ave NW/K St NW

			
3 s	43.5 s		53.5 s
			
3 s	43.5 s	31 s	22.5 s

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø5	Ø8
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	640	383	1	947	108	0	0	0	27	713	61
Future Volume (vph)	35	640	383	1	947	108	0	0	0	27	713	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor					0.96						0.96	
Frt			0.850		0.985						0.989	
Flt Protected		0.997									0.998	
Satd. Flow (prot)	0	3293	1478	0	3133	0	0	0	0	0	3280	0
Flt Permitted		0.694			0.955						0.998	
Satd. Flow (perm)	0	2292	1478	0	2992	0	0	0	0	0	3232	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			380		14						11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		334			574			169			292	
Travel Time (s)		7.6			13.0			3.8			6.6	
Confl. Peds. (#/hr)	404		175	175		404	324		474	474		324
Confl. Bikes (#/hr)			13			29						16
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	37	681	407	1	1007	115	0	0	0	29	759	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	718	407	0	1123	0	0	0	0	0	853	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	custom	Perm	NA					Perm	NA	
Protected Phases		7 8	7		4						2	
Permitted Phases	7 8			4						2		
Minimum Split (s)			11.0	28.0	28.0					21.0	21.0	
Total Split (s)			15.0	44.0	44.0					53.0	53.0	
Total Split (%)			15.0%	44.0%	44.0%					53.0%	53.0%	
Maximum Green (s)			9.0	38.0	38.0					47.0	47.0	
Yellow Time (s)			4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)			0.0		0.0						0.0	
Total Lost Time (s)			6.0		6.0						6.0	
Lead/Lag			Lead							Lag	Lag	
Lead-Lag Optimize?			Yes							Yes	Yes	
Walk Time (s)				10.0	10.0					4.0	4.0	
Flash Dont Walk (s)				12.0	12.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		38.0	9.0		38.0						47.0	
Actuated g/C Ratio		0.38	0.09		0.38						0.47	

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

Lane Group	Ø1	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	1	8
Permitted Phases		
Minimum Split (s)	3.0	29.0
Total Split (s)	3.0	29.0
Total Split (%)	3%	29%
Maximum Green (s)	1.0	23.0
Yellow Time (s)	2.0	4.0
All-Red Time (s)	0.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)		10.0
Flash Dont Walk (s)		13.0
Pedestrian Calls (#/hr)		0
Act Effect Green (s)		
Actuated g/C Ratio		

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.83	0.85		0.98						0.56	
Control Delay		37.6	24.4		62.5						20.5	
Queue Delay		0.0	0.0		0.0						0.0	
Total Delay		37.6	24.4		62.5						20.5	
LOS		D	C		E						C	
Approach Delay		32.8			62.5						20.5	
Approach LOS		C			E						C	
Queue Length 50th (ft)		214	16		406						196	
Queue Length 95th (ft)		#302	#169		m#463						255	
Internal Link Dist (ft)		254			494			89			212	
Turn Bay Length (ft)												
Base Capacity (vph)		870	478		1145						1524	
Starvation Cap Reductn		0	0		0						0	
Spillback Cap Reductn		0	0		0						0	
Storage Cap Reductn		0	0		0						0	
Reduced v/c Ratio		0.83	0.85		0.98						0.56	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 1 (1%), Referenced to phase 4:WBTL and 7:EBTL, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 40.2

Intersection LOS: D

Intersection Capacity Utilization 99.9%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

 Ø4 (R)	 Ø2
44 s	3 s 53 s
 Ø7 (R)	 Ø8
15 s	29 s

Lane Group	Ø1	Ø8
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

15: 7th St NW & K St NW

06/28/2017

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	14	267	738	134	84	394	
Future Volume (Veh/h)	14	267	738	134	84	394	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Hourly flow rate (vph)	14	272	753	137	86	402	
Pedestrians	323		157				
Lane Width (ft)	12.0		12.0				
Walking Speed (ft/s)	3.5		3.5				
Percent Blockage	31		15				
Right turn flare (veh)							
Median type			None			None	
Median storage (veh)							
Upstream signal (ft)			151			144	
pX, platoon unblocked	0.93						
vC, conflicting volume	1674	580			1213		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1577	580			1213		
tC, single (s)	7.0	7.0			4.1		
tC, 2 stage (s)							
tF (s)	3.6	3.3			2.2		
p0 queue free %	66	14			79		
cM capacity (veh/h)	41	315			403		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	286	215	215	215	245	220	268
Volume Left	14	0	0	0	0	86	0
Volume Right	272	0	0	0	137	0	0
cSH	237	1700	1700	1700	1700	403	1700
Volume to Capacity	1.21	0.13	0.13	0.13	0.14	0.21	0.16
Queue Length 95th (ft)	346	0	0	0	0	20	0
Control Delay (s)	168.6	0.0	0.0	0.0	0.0	8.7	0.0
Lane LOS	F					A	
Approach Delay (s)	168.6	0.0				3.9	
Approach LOS	F						
Intersection Summary							
Average Delay		30.1					
Intersection Capacity Utilization		54.9%		ICU Level of Service		A	
Analysis Period (min)		15					

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1128	77	1	459	396	30	698	53	16	207	121
Future Volume (vph)	130	1128	77	1	459	396	30	698	53	16	207	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12	10	10	10	9	9	9
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.98			0.81			0.96			0.82	
Frt		0.991			0.931			0.990			0.947	
Flt Protected		0.995						0.998			0.998	
Satd. Flow (prot)	0	3209	0	0	2645	0	0	3056	0	0	2304	0
Flt Permitted		0.564			0.954			0.921			0.747	
Satd. Flow (perm)	0	1819	0	0	2523	0	0	2790	0	0	1718	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					206			7			87	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		576			341			401			151	
Travel Time (s)		13.1			7.8			9.1			3.4	
Confl. Peds. (#/hr)	540		365	365		540	940		738	738		940
Confl. Bikes (#/hr)			18			5			33			12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	3%	3%	0%	5%	1%	0%	6%	2%	23%	9%	8%
Parking (#/hr)		0										
Adj. Flow (vph)	137	1187	81	1	483	417	32	735	56	17	218	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1405	0	0	901	0	0	823	0	0	362	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.07	1.00	1.00	1.00	1.00	1.09	1.09	1.09	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4			4		
Minimum Split (s)	10.0	28.0		28.0	28.0		29.0	29.0		29.0	29.0	
Total Split (s)	28.0	76.0		48.0	48.0		34.0	34.0		34.0	34.0	
Total Split (%)	25.5%	69.1%		43.6%	43.6%		30.9%	30.9%		30.9%	30.9%	
Maximum Green (s)	23.0	70.0		42.0	42.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0		15.0	15.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		70.0			42.0			28.0			28.0	
Actuated g/C Ratio		0.64			0.38			0.25			0.25	
v/c Ratio		2.16			0.83			1.15			0.72	
Control Delay		552.4			31.1			121.2			50.5	
Queue Delay		2.1			0.4			1.3			0.4	
Total Delay		554.6			31.4			122.5			50.9	
LOS		F			C			F			D	
Approach Delay		554.6			31.4			122.5			50.9	
Approach LOS		F			C			F			D	
Queue Length 50th (ft)		~863			237			~360			106	
Queue Length 95th (ft)		m#846			328			#487			m140	
Internal Link Dist (ft)		496			261			321			71	
Turn Bay Length (ft)												
Base Capacity (vph)		650			1090			715			502	
Starvation Cap Reductn		0			0			0			16	
Spillback Cap Reductn		160			23			121			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		2.87			0.84			1.39			0.74	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 2.16

Intersection Signal Delay: 265.5

Intersection LOS: F

Intersection Capacity Utilization 126.9%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2061: 7th St NW & K St NW/Massachusetts Ave NW



Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1347	145	19	731	224	495	718	124	0	253	70
Future Volume (vph)	12	1347	145	19	731	224	495	718	124	0	253	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	11	11	11	12	11	11	11
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.97				0.46	0.66		0.62		0.88	
Frt		0.986				0.850			0.850		0.968	
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	3268	0	0	3504	1487	1728	3323	1615	0	2771	0
Flt Permitted		0.946			0.690		0.950					
Satd. Flow (perm)	0	3089	0	0	2420	680	1143	3323	1003	0	2771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				119			50		25	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		574			375			144			280	
Travel Time (s)		13.0			8.5			3.3			6.4	
Confl. Peds. (#/hr)	777		316	316		777	906		492	492		906
Confl. Bikes (#/hr)			9			23			47			10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	70%	1%	3%	0%	3%	5%	1%	5%	0%	0%	8%	6%
Adj. Flow (vph)	13	1403	151	20	761	233	516	748	129	0	264	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1567	0	0	781	233	516	748	129	0	337	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			8			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.04	1.04	1.04	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm		NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6		6			8			
Minimum Split (s)	27.0	27.0		24.0	24.0	24.0	25.0	33.0	33.0		21.0	
Total Split (s)	54.0	54.0		54.0	54.0	54.0	27.0	53.0	53.0		26.0	
Total Split (%)	49.1%	49.1%		49.1%	49.1%	49.1%	24.5%	48.2%	48.2%		23.6%	
Maximum Green (s)	48.0	48.0		48.0	48.0	48.0	20.0	46.0	46.0		20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5		4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5	2.5		2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	
Total Lost Time (s)		4.5			4.5	4.5	5.5	5.5	5.5		4.5	
Lead/Lag												Lag
Lead-Lag Optimize?												Yes
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		4.0	4.0		4.0	
Flash Dont Walk (s)	14.0	14.0		10.0	10.0	10.0		22.0	22.0		10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0		0	
Act Effct Green (s)		49.5			49.5	49.5	21.5	47.5	47.5		21.5	

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

Lane Group	Ø9	Ø13
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Minimum Split (s)	3.0	3.0
Total Split (s)	3.0	3.0
Total Split (%)	3%	3%
Maximum Green (s)	1.0	1.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Efft Green (s)		

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.45			0.45	0.45	0.20	0.43	0.43		0.20	
v/c Ratio		1.12			0.72	0.63	1.53	0.52	0.28		0.60	
Control Delay		94.5			29.2	19.6	276.0	23.5	11.7		42.3	
Queue Delay		0.2			0.0	0.0	2.5	52.8	0.0		0.0	
Total Delay		94.7			29.2	19.6	278.5	76.3	11.7		42.3	
LOS		F			C	B	F	E	B		D	
Approach Delay		94.7			27.0			145.3			42.3	
Approach LOS		F			C			F			D	
Queue Length 50th (ft)		~672			230	58	~523	251	36		106	
Queue Length 95th (ft)		#814			306	156	m#513	m246	m40		156	
Internal Link Dist (ft)		494			295			64			200	
Turn Bay Length (ft)												
Base Capacity (vph)		1397			1089	371	337	1434	461		561	
Starvation Cap Reductn		67			0	0	64	825	0		0	
Spillback Cap Reductn		0			0	0	0	0	0		0	
Storage Cap Reductn		0			0	0	0	0	0		0	
Reduced v/c Ratio		1.18			0.72	0.63	1.89	1.23	0.28		0.60	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 30 (27%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 140

Control Type: Pretimed

Maximum v/c Ratio: 1.53

Intersection Signal Delay: 91.0

Intersection LOS: F

Intersection Capacity Utilization 102.5%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

														
Ø2 (R)						Ø4						Ø3		
54 s						3 s	26 s					27 s		
														
Ø6 (R)						Ø1						Ø8		
54 s						3 s	53 s							

Lane Group	Ø9	Ø13
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑					↑	↑↑↑	↑
Traffic Volume (vph)	0	938	124	105	505	0	0	0	0	398	749	44
Future Volume (vph)	0	938	124	105	505	0	0	0	0	398	749	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	10	9	12	12	12	12	12	12	13	12	12
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.86	0.86	1.00
Ped Bike Factor			0.47							0.62	0.94	0.56
Frt			0.850									0.850
Flt Protected					0.991					0.950	0.993	
Satd. Flow (prot)	0	3240	1425	0	3386	0	0	0	0	1573	4693	1615
Flt Permitted					0.526					0.950	0.993	
Satd. Flow (perm)	0	3240	674	0	1797	0	0	0	0	976	4415	909
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			94									50
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		585			576			255			113	
Travel Time (s)		13.3			13.1			5.8			2.6	
Confl. Peds. (#/hr)	745		598	598		745	755		749	749		755
Confl. Bikes (#/hr)			37			6						20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	2%	4%	0%
Adj. Flow (vph)	0	987	131	111	532	0	0	0	0	419	788	46
Shared Lane Traffic (%)										30%		
Lane Group Flow (vph)	0	987	131	0	643	0	0	0	0	293	914	46
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			0			13			13	
Link Offset(ft)		0			-22			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.09	1.14	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Prot	NA	Perm
Protected Phases		6			2					7	4	
Permitted Phases			6	2								4
Minimum Split (s)		20.0	20.0	24.0	24.0					11.5	32.5	32.5
Total Split (s)		35.5	35.5	35.5	35.5					40.5	71.5	71.5
Total Split (%)		32.3%	32.3%	32.3%	32.3%					36.8%	65.0%	65.0%
Maximum Green (s)		29.5	29.5	29.5	29.5					34.0	65.0	65.0
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.5	2.5	2.5
Lost Time Adjust (s)		-1.5	-1.5		-1.5					-1.5	-1.5	-1.5
Total Lost Time (s)		4.5	4.5		4.5					5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lag	Lag					Lag		
Lead-Lag Optimize?		Yes	Yes	Yes	Yes					Yes		
Walk Time (s)		4.0	4.0	4.0	4.0						7.0	7.0
Flash Dont Walk (s)		10.0	10.0	14.0	14.0						19.0	19.0
Pedestrian Calls (#/hr)		0	0	0	0						0	0
Act Effct Green (s)		31.0	31.0		31.0					35.5	66.5	66.5

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø5	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Lane Width (ft)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	5	8
Permitted Phases			
Minimum Split (s)	3.0	3.0	31.0
Total Split (s)	3.0	3.0	31.0
Total Split (%)	3%	3%	28%
Maximum Green (s)	1.0	1.0	27.0
Yellow Time (s)	2.0	2.0	4.0
All-Red Time (s)	0.0	0.0	0.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Walk Time (s)			7.0
Flash Dont Walk (s)			20.0
Pedestrian Calls (#/hr)			0
Act Effect Green (s)			

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.28	0.28		0.28					0.32	0.60	0.60
v/c Ratio		1.08	0.51		1.68dl					0.58	0.41	0.08
Control Delay		92.4	19.0		174.1					36.5	14.1	2.7
Queue Delay		0.0	0.0		0.0					14.3	1.9	0.0
Total Delay		92.4	19.0		174.1					50.8	15.9	2.7
LOS		F	B		F					D	B	A
Approach Delay		83.8			174.1						23.6	
Approach LOS		F			F						C	
Queue Length 50th (ft)		~411	20		~294					198	114	0
Queue Length 95th (ft)		#541	84		m#396					305	141	14
Internal Link Dist (ft)		505			496			175			33	
Turn Bay Length (ft)												
Base Capacity (vph)		913	257		506					507	2251	569
Starvation Cap Reductn		0	0		0					193	1128	0
Spillback Cap Reductn		0	0		0					0	0	0
Storage Cap Reductn		0	0		0					0	0	0
Reduced v/c Ratio		1.08	0.51		1.27					0.93	0.81	0.08

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 1:Ped and 5:Ped, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 1.27

Intersection Signal Delay: 78.0

Intersection LOS: E

Intersection Capacity Utilization 76.3%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2074: 9th St NW & New York Ave NW/K St NW

														
3 s	35.5 s					71.5 s								
														
3 s	35.5 s					31 s						40.5 s		

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø5	Ø8
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1405	418	1	1155	141	0	0	0	101	866	48
Future Volume (vph)	2	1405	418	1	1155	141	0	0	0	101	866	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor					0.97						0.95	
Frt			0.850		0.984						0.993	
Flt Protected											0.995	
Satd. Flow (prot)	0	3269	1478	0	3161	0	0	0	0	0	3281	0
Flt Permitted		0.893			0.848						0.995	
Satd. Flow (perm)	0	2919	1478	0	2681	0	0	0	0	0	3161	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			250		15						7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		334			574			169			292	
Travel Time (s)		7.6			13.0			3.8			6.6	
Confl. Peds. (#/hr)	238		318	318		238	305		321	321		305
Confl. Bikes (#/hr)			44			39						10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	50%	3%	2%	0%	1%	3%	0%	0%	0%	7%	3%	0%
Adj. Flow (vph)	2	1448	431	1	1191	145	0	0	0	104	893	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1450	431	0	1337	0	0	0	0	0	1046	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	custom	Perm	NA					Perm	NA	
Protected Phases		7 8	7		4						2	
Permitted Phases	7 8			4						2		
Minimum Split (s)			11.0	28.0	28.0					21.0	21.0	
Total Split (s)			15.0	44.0	44.0					53.0	53.0	
Total Split (%)			15.0%	44.0%	44.0%					53.0%	53.0%	
Maximum Green (s)			9.0	38.0	38.0					47.0	47.0	
Yellow Time (s)			4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)			-1.5		-1.5						-1.5	
Total Lost Time (s)			4.5		4.5						4.5	
Lead/Lag			Lag							Lag	Lag	
Lead-Lag Optimize?			Yes							Yes	Yes	
Walk Time (s)				10.0	10.0					4.0	4.0	
Flash Dont Walk (s)				12.0	12.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		39.5	10.5		39.5						48.5	

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

Lane Group	Ø1	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	1	8
Permitted Phases		
Minimum Split (s)	3.0	29.0
Total Split (s)	3.0	29.0
Total Split (%)	3%	29%
Maximum Green (s)	1.0	23.0
Yellow Time (s)	2.0	4.0
All-Red Time (s)	0.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)		10.0
Flash Dont Walk (s)		13.0
Pedestrian Calls (#/hr)		0
Act Efect Green (s)		

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.40	0.10		0.40						0.48	
v/c Ratio		1.26	1.14		1.25						0.68	
Control Delay		152.0	109.0		149.8						22.5	
Queue Delay		0.0	0.0		0.0						0.0	
Total Delay		152.0	109.0		149.8						22.5	
LOS		F	F		F						C	
Approach Delay		142.1			149.8						22.5	
Approach LOS		F			F						C	
Queue Length 50th (ft)		~613	~168		~564						257	
Queue Length 95th (ft)		#748	#360		#701						332	
Internal Link Dist (ft)		254			494			89			212	
Turn Bay Length (ft)												
Base Capacity (vph)		1153	378		1068						1536	
Starvation Cap Reductn		0	0		0						0	
Spillback Cap Reductn		0	0		0						0	
Storage Cap Reductn		0	0		0						0	
Reduced v/c Ratio		1.26	1.14		1.25						0.68	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 3 (3%), Referenced to phase 4:WBTL and 7:EBTL, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 1.26

Intersection Signal Delay: 115.2

Intersection LOS: F

Intersection Capacity Utilization 112.1%

ICU Level of Service H

Analysis Period (min) 15

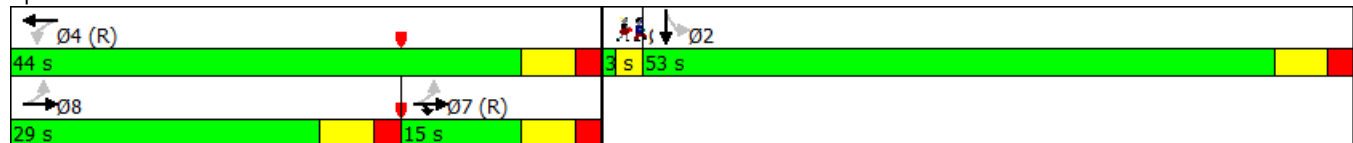
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW



Lane Group	Ø1	Ø8
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

15: 7th St NW & K St NW

06/28/2017

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	3	186	1151	72	78	340	
Future Volume (Veh/h)	3	186	1151	72	78	340	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Hourly flow rate (vph)	3	198	1224	77	83	362	
Pedestrians	689		394			1	
Lane Width (ft)	12.0		10.0			9.0	
Walking Speed (ft/s)	3.5		3.5			3.5	
Percent Blockage	66		31			0	
Right turn flare (veh)							
Median type			None			None	
Median storage (veh)							
Upstream signal (ft)			151			144	
pX, platoon unblocked	0.92						
vC, conflicting volume	2692	1034			1990		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2665	1034			1990		
tC, single (s)	6.8	7.0			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	0	0			18		
cM capacity (veh/h)	1	78			101		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	201	350	350	350	252	204	241
Volume Left	3	0	0	0	0	83	0
Volume Right	198	0	0	0	77	0	0
cSH	30	1700	1700	1700	1700	101	1700
Volume to Capacity	6.71	0.21	0.21	0.21	0.15	0.82	0.14
Queue Length 95th (ft)	Err	0	0	0	0	114	0
Control Delay (s)	Err	0.0	0.0	0.0	0.0	114.4	0.0
Lane LOS	F					F	
Approach Delay (s)	Err	0.0				52.3	
Approach LOS	F						
Intersection Summary							
Average Delay			1044.2				
Intersection Capacity Utilization			52.0%		ICU Level of Service		A
Analysis Period (min)			15				

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	389	461	41	12	283	139	49	372	34	107	218	206
Future Volume (vph)	389	461	41	12	283	139	49	372	34	107	218	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12	10	10	10	9	9	9
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.93			0.90			0.96			0.80	
Frt		0.993			0.952			0.989			0.942	
Flt Protected		0.979			0.999			0.995			0.990	
Satd. Flow (prot)	0	3083	0	0	2920	0	0	3138	0	0	2374	0
Flt Permitted		0.598			0.916			0.766			0.683	
Satd. Flow (perm)	0	1774	0	0	2671	0	0	2371	0	0	1588	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			21			8			143	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		576			341			389			151	
Travel Time (s)		13.1			7.8			8.8			3.4	
Confl. Peds. (#/hr)	257		232	232		257	799		355	355		799
Confl. Bikes (#/hr)			14			8			22			20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	9%	4%	3%	6%	5%	2%	3%	4%	9%	5%	3%
Parking (#/hr)		0										
Adj. Flow (vph)	405	480	43	13	295	145	51	388	35	111	227	215
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	928	0	0	453	0	0	474	0	0	553	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.07	1.00	1.00	1.00	1.00	1.09	1.09	1.09	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4			4		
Minimum Split (s)	10.0	28.0		28.0	28.0		29.0	29.0		29.0	29.0	
Total Split (s)	23.0	65.0		42.0	42.0		35.0	35.0		35.0	35.0	
Total Split (%)	23.0%	65.0%		42.0%	42.0%		35.0%	35.0%		35.0%	35.0%	
Maximum Green (s)	18.0	59.0		36.0	36.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0		15.0	15.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/29/2017

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		17.0			36.0			29.0			29.0	
Actuated g/C Ratio		0.17			0.36			0.29			0.29	
v/c Ratio		1.76			0.46			0.68			0.98	
Control Delay		370.1			25.3			36.8			52.3	
Queue Delay		0.0			0.0			3.1			8.0	
Total Delay		370.1			25.3			39.9			60.3	
LOS		F			C			D			E	
Approach Delay		370.1			25.3			39.9			60.3	
Approach LOS		F			C			D			E	
Queue Length 50th (ft)		~474			110			138			104	
Queue Length 95th (ft)		#571			156			196			m#266	
Internal Link Dist (ft)		496			261			309			71	
Turn Bay Length (ft)												
Base Capacity (vph)		527			975			693			562	
Starvation Cap Reductn		0			0			0			18	
Spillback Cap Reductn		0			11			129			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.76			0.47			0.84			1.02	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 61 (61%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 1.76

Intersection Signal Delay: 169.1

Intersection LOS: F

Intersection Capacity Utilization 103.4%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2061: 7th St NW & K St NW/Massachusetts Ave NW



Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	480	239	95	689	108	353	490	188	5	263	27
Future Volume (vph)	35	480	239	95	689	108	353	490	188	5	263	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	11	11	11	12	11	11	11
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	1.00	0.95	0.95	0.95
Ped Bike Factor		0.91			0.99	0.57	0.65		0.67		0.96	
Fr't		0.953				0.850			0.850		0.986	
Flt Protected		0.998			0.994		0.950				0.999	
Satd. Flow (prot)	0	2877	0	0	3497	1210	1662	3292	1553	0	3163	0
Flt Permitted		0.863			0.645		0.950				0.943	
Satd. Flow (perm)	0	2477	0	0	2250	684	1075	3292	1042	0	2977	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		92				131			86		9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		574			375			144			280	
Travel Time (s)		13.0			8.5			3.3			6.4	
Confl. Peds. (#/hr)	535		194	194		535	696		338	696		338
Confl. Bikes (#/hr)			14			17			21			22
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	9%	6%	2%	7%	2%	29%	5%	6%	4%	0%	4%	12%
Adj. Flow (vph)	36	495	246	98	710	111	364	505	194	5	271	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	777	0	0	808	111	364	505	194	0	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			8			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.04	1.04	1.04	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6		6			8	4		
Minimum Split (s)	27.0	27.0		24.0	24.0	24.0	25.0	33.0	33.0	21.0	21.0	
Total Split (s)	47.0	47.0		47.0	47.0	47.0	26.0	50.0	50.0	24.0	24.0	
Total Split (%)	47.0%	47.0%		47.0%	47.0%	47.0%	26.0%	50.0%	50.0%	24.0%	24.0%	
Maximum Green (s)	41.0	41.0		41.0	41.0	41.0	19.0	43.0	43.0	18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5	2.5	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0	6.0	7.0	7.0	7.0		6.0	
Lead/Lag										Lag	Lag	
Lead-Lag Optimize?										Yes	Yes	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		4.0	4.0	4.0	4.0	
Flash Dont Walk (s)	14.0	14.0		10.0	10.0	10.0		22.0	22.0	10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0	0	0	
Act Effct Green (s)		41.0			41.0	41.0	19.0	43.0	43.0		18.0	

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/29/2017

Lane Group	Ø9	Ø13
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Minimum Split (s)	3.0	3.0
Total Split (s)	3.0	3.0
Total Split (%)	3%	3%
Maximum Green (s)	1.0	1.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?	Yes	
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Efect Green (s)		

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.41			0.41	0.41	0.19	0.43	0.43		0.18	
v/c Ratio		0.73			0.88	0.31	1.16	0.36	0.39		0.56	
Control Delay		33.5			39.6	4.8	131.2	25.4	17.8		40.8	
Queue Delay		0.0			0.0	0.0	1.0	1.2	0.9		0.8	
Total Delay		33.5			39.6	4.8	132.1	26.6	18.6		41.5	
LOS		C			D	A	F	C	B		D	
Approach Delay		33.5			35.4			61.3			41.5	
Approach LOS		C			D			E			D	
Queue Length 50th (ft)		259			244	0	~283	107	45		91	
Queue Length 95th (ft)		m294			#364	26	m#339	m114	m61		135	
Internal Link Dist (ft)		494			295			64			200	
Turn Bay Length (ft)												
Base Capacity (vph)		1069			922	357	315	1415	497		543	
Starvation Cap Reductn		0			0	0	25	651	123		0	
Spillback Cap Reductn		2			0	0	0	0	0		70	
Storage Cap Reductn		0			0	0	0	0	0		0	
Reduced v/c Ratio		0.73			0.88	0.31	1.26	0.66	0.52		0.64	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 52 (52%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 44.5

Intersection LOS: D

Intersection Capacity Utilization 100.3%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

 Ø2 (R)	 Ø4	 Ø3
47 s	24 s	26 s
 Ø6 (R)	 Ø1 Ø8	
47 s	50 s	

Lane Group	Ø9	Ø13
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑					↑	↑↑↑	↑
Traffic Volume (vph)	0	692	128	158	380	0	0	0	0	198	865	55
Future Volume (vph)	0	692	128	158	380	0	0	0	0	198	865	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	10	9	12	12	12	12	12	12	13	12	12
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.86	0.86	1.00
Ped Bike Factor			0.55		0.97					0.56	0.99	0.63
Frt			0.850									0.850
Flt Protected					0.986					0.950	0.999	
Satd. Flow (prot)	0	3271	1384	0	3419	0	0	0	0	1573	4756	1495
Flt Permitted					0.567					0.950	0.999	
Satd. Flow (perm)	0	3271	758	0	1908	0	0	0	0	874	4716	935
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104									55
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			576			255			113	
Travel Time (s)		12.7			13.1			5.8			2.6	
Confl. Peds. (#/hr)	393		476	476		393	545		545	545		545
Confl. Bikes (#/hr)			33			11						23
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	5%	2%	5%	0%	0%	0%	0%	2%	3%	8%
Adj. Flow (vph)	0	721	133	165	396	0	0	0	0	206	901	57
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	0	721	133	0	561	0	0	0	0	185	922	57
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			0			13			13	
Link Offset(ft)		0			-22			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.09	1.14	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	Perm	NA					Prot	NA	Perm
Protected Phases		6			2					7	4	
Permitted Phases			6	2								4
Minimum Split (s)		20.0	20.0	24.0	24.0					11.5	32.5	32.5
Total Split (s)		43.5	43.5	43.5	43.5					22.5	53.5	53.5
Total Split (%)		43.5%	43.5%	43.5%	43.5%					22.5%	53.5%	53.5%
Maximum Green (s)		37.5	37.5	37.5	37.5					16.0	47.0	47.0
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.5	2.5	2.5
Lost Time Adjust (s)		0.0	0.0		0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0					6.5	6.5	6.5
Lead/Lag		Lag	Lag	Lag	Lag					Lag		
Lead-Lag Optimize?		Yes	Yes	Yes	Yes					Yes		
Walk Time (s)		4.0	4.0	4.0	4.0						7.0	7.0
Flash Dont Walk (s)		10.0	10.0	14.0	14.0						19.0	19.0
Pedestrian Calls (#/hr)		0	0	0	0						0	0
Act Effct Green (s)		37.5	37.5		37.5					16.0	47.0	47.0

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/29/2017

Lane Group	Ø1	Ø5	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Lane Width (ft)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Enter Blocked Intersection			
Lane Alignment			
Median Width(ft)			
Link Offset(ft)			
Crosswalk Width(ft)			
Two way Left Turn Lane			
Headway Factor			
Turning Speed (mph)			
Turn Type			
Protected Phases	1	5	8
Permitted Phases			
Minimum Split (s)	3.0	3.0	31.0
Total Split (s)	3.0	3.0	31.0
Total Split (%)	3%	3%	31%
Maximum Green (s)	1.0	1.0	27.0
Yellow Time (s)	2.0	2.0	4.0
All-Red Time (s)	0.0	0.0	0.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Walk Time (s)			7.0
Flash Dont Walk (s)			20.0
Pedestrian Calls (#/hr)			0
Act Effct Green (s)			

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.38	0.38		0.38					0.16	0.47	0.47
v/c Ratio		0.59	0.38		0.90dl					0.74	0.55	0.12
Control Delay		27.5	10.4		36.7					47.4	14.4	1.3
Queue Delay		0.0	0.0		0.0					0.0	1.9	0.0
Total Delay		27.5	10.4		36.7					47.4	16.3	1.3
LOS		C	B		D					D	B	A
Approach Delay		24.8			36.7						20.5	
Approach LOS		C			D						C	
Queue Length 50th (ft)		191	12		190					138	106	1
Queue Length 95th (ft)		251	59		m238					m#208	m122	m2
Internal Link Dist (ft)		479			496			175			33	
Turn Bay Length (ft)												
Base Capacity (vph)		1226	349		715					251	1664	468
Starvation Cap Reductn		0	0		0					0	550	0
Spillback Cap Reductn		0	0		0					0	0	0
Storage Cap Reductn		0	0		0					0	0	0
Reduced v/c Ratio		0.59	0.38		0.78					0.74	0.83	0.12

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 16 (16%), Referenced to phase 1:Ped and 5:Ped, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 25.4

Intersection LOS: C

Intersection Capacity Utilization 71.3%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2074: 9th St NW & New York Ave NW/K St NW

														
3 s	43.5 s					53.5 s								
3 s	43.5 s					31 s					22.5 s			

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/29/2017

Lane Group	Ø1	Ø5	Ø8
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	695	407	1	960	109	0	0	0	59	750	71
Future Volume (vph)	35	695	407	1	960	109	0	0	0	59	750	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor					0.96						0.94	
Frt			0.850		0.985						0.988	
Flt Protected		0.998									0.997	
Satd. Flow (prot)	0	3297	1478	0	3128	0	0	0	0	0	3266	0
Flt Permitted		0.691			0.955						0.997	
Satd. Flow (perm)	0	2283	1478	0	2987	0	0	0	0	0	3163	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			378		14						12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		334			574			169			292	
Travel Time (s)		7.6			13.0			3.8			6.6	
Confl. Peds. (#/hr)	457		195	195		457	333		570	570		333
Confl. Bikes (#/hr)			13			38						16
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	37	739	433	1	1021	116	0	0	0	63	798	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	776	433	0	1138	0	0	0	0	0	937	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	custom	Perm	NA					Perm	NA	
Protected Phases		7 8	7		4						2	
Permitted Phases	7 8			4						2		
Minimum Split (s)			11.0	28.0	28.0					21.0	21.0	
Total Split (s)			15.0	44.0	44.0					53.0	53.0	
Total Split (%)			15.0%	44.0%	44.0%					53.0%	53.0%	
Maximum Green (s)			9.0	38.0	38.0					47.0	47.0	
Yellow Time (s)			4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)			0.0		0.0						0.0	
Total Lost Time (s)			6.0		6.0						6.0	
Lead/Lag			Lead							Lag	Lag	
Lead-Lag Optimize?			Yes							Yes	Yes	
Walk Time (s)				10.0	10.0					4.0	4.0	
Flash Dont Walk (s)				12.0	12.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		38.0	9.0		38.0						47.0	
Actuated g/C Ratio		0.38	0.09		0.38						0.47	

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/29/2017

Lane Group	Ø1	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	1	8
Permitted Phases		
Minimum Split (s)	3.0	29.0
Total Split (s)	3.0	29.0
Total Split (%)	3%	29%
Maximum Green (s)	1.0	23.0
Yellow Time (s)	2.0	4.0
All-Red Time (s)	0.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)		10.0
Flash Dont Walk (s)		13.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.90	0.91		1.00						0.63	
Control Delay		43.8	32.7		61.5						22.0	
Queue Delay		0.0	0.0		0.0						0.0	
Total Delay		43.8	32.7		61.5						22.0	
LOS		D	C		E						C	
Approach Delay		39.8			61.5						22.0	
Approach LOS		D			E						C	
Queue Length 50th (ft)		240	34		412						225	
Queue Length 95th (ft)		#359	#211		m#457						292	
Internal Link Dist (ft)		254			494			89			212	
Turn Bay Length (ft)												
Base Capacity (vph)		867	477		1143						1492	
Starvation Cap Reductn		0	0		0						0	
Spillback Cap Reductn		0	0		0						0	
Storage Cap Reductn		0	0		0						0	
Reduced v/c Ratio		0.90	0.91		1.00						0.63	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 1 (1%), Referenced to phase 4:WBTL and 7:EBTL, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 42.3

Intersection LOS: D

Intersection Capacity Utilization 104.4%

ICU Level of Service G

Analysis Period (min) 15

Description: S

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

 Ø4 (R)	 Ø2
44 s	3 s 53 s
 Ø7 (R)	 Ø8
15 s	29 s

Lane Group	Ø1	Ø8
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

15: 7th St NW & K St NW

06/29/2017

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	18	268	764	136	84	513	
Future Volume (Veh/h)	18	268	764	136	84	513	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Hourly flow rate (vph)	18	273	780	139	86	523	
Pedestrians	326		157				
Lane Width (ft)	12.0		12.0				
Walking Speed (ft/s)	3.5		3.5				
Percent Blockage	31		15				
Right turn flare (veh)							
Median type			None			None	
Median storage (veh)							
Upstream signal (ft)			151			144	
pX, platoon unblocked	0.92						
vC, conflicting volume	1766	590			1245		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1665	590			1245		
tC, single (s)	7.0	7.0			4.1		
tC, 2 stage (s)							
tF (s)	3.6	3.3			2.2		
p0 queue free %	48	12			78		
cM capacity (veh/h)	35	309			390		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	291	223	223	223	250	260	349
Volume Left	18	0	0	0	0	86	0
Volume Right	273	0	0	0	139	0	0
cSH	208	1700	1700	1700	1700	390	1700
Volume to Capacity	1.40	0.13	0.13	0.13	0.15	0.22	0.21
Queue Length 95th (ft)	422	0	0	0	0	21	0
Control Delay (s)	250.7	0.0	0.0	0.0	0.0	8.3	0.0
Lane LOS	F					A	
Approach Delay (s)	250.7	0.0				3.6	
Approach LOS	F						
Intersection Summary							
Average Delay			41.3				
Intersection Capacity Utilization			58.9%		ICU Level of Service		B
Analysis Period (min)			15				

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1128	77	1	459	396	30	698	53	16	207	121
Future Volume (vph)	130	1128	77	1	459	396	30	698	53	16	207	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	12	12	12	10	10	10	9	9	9
Storage Length (ft)	125		0	0		0	0		100	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.88	0.98			0.81			0.96			0.82	
Frt		0.990			0.931			0.990			0.947	
Flt Protected	0.950							0.998			0.998	
Satd. Flow (prot)	1604	3006	0	0	2645	0	0	3057	0	0	2304	0
Flt Permitted	0.950				0.954			0.922			0.864	
Satd. Flow (perm)	1420	3006	0	0	2523	0	0	2792	0	0	1986	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					52			7			97	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		576			341			401			151	
Travel Time (s)		13.1			7.8			9.1			3.4	
Confl. Peds. (#/hr)	540		365	365		540	940		738	738		940
Confl. Bikes (#/hr)			18			5			33			12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	3%	3%	0%	5%	1%	0%	6%	2%	23%	9%	8%
Parking (#/hr)		0										
Adj. Flow (vph)	137	1187	81	1	483	417	32	735	56	17	218	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	1268	0	0	901	0	0	823	0	0	362	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.17	1.09	1.00	1.00	1.00	1.09	1.09	1.09	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4			4		
Minimum Split (s)	10.0	28.0		28.0	28.0		29.0	29.0		29.0	29.0	
Total Split (s)	17.0	68.0		51.0	51.0		42.0	42.0		42.0	42.0	
Total Split (%)	15.5%	61.8%		46.4%	46.4%		38.2%	38.2%		38.2%	38.2%	
Maximum Green (s)	12.0	62.0		45.0	45.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.0	6.0			6.0			6.0			6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0		15.0	15.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	12.0	62.0			45.0			36.0			36.0	
Actuated g/C Ratio	0.11	0.56			0.41			0.33			0.33	
v/c Ratio	0.79	0.75			0.85			0.90			0.51	
Control Delay	69.1	7.4			36.7			48.8			18.2	
Queue Delay	0.0	0.1			1.0			22.8			0.8	
Total Delay	69.1	7.4			37.7			71.6			19.0	
LOS	E	A			D			E			B	
Approach Delay		13.4			37.7			71.6			19.0	
Approach LOS		B			D			E			B	
Queue Length 50th (ft)	99	148			283			287			118	
Queue Length 95th (ft)	m111	m152			#377			#405			m144	
Internal Link Dist (ft)		496			261			321			71	
Turn Bay Length (ft)	125											
Base Capacity (vph)	174	1694			1062			918			715	
Starvation Cap Reductn	0	26			0			0			137	
Spillback Cap Reductn	0	0			41			123			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.79	0.76			0.88			1.04			0.63	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 20 (18%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 34.0

Intersection LOS: C

Intersection Capacity Utilization 123.2%

ICU Level of Service H

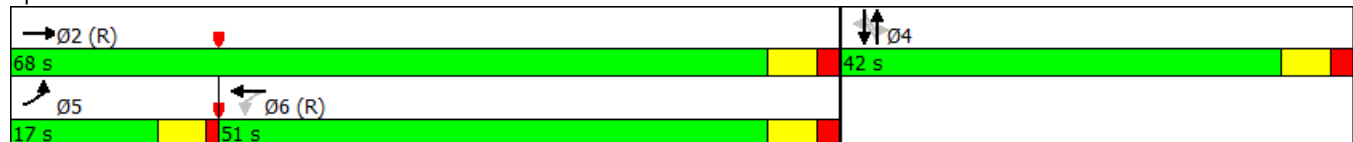
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2061: 7th St NW & K St NW/Massachusetts Ave NW



Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1347	145	19	731	224	495	718	124	0	253	70
Future Volume (vph)	12	1347	145	19	731	224	495	718	124	0	253	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	11	11	11	12	11	11	11
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.97				0.46	0.66		0.62		0.88	
Frt		0.986				0.850			0.850		0.968	
Flt Protected					0.999		0.950					
Satd. Flow (prot)	0	3268	0	0	3504	1487	1728	3323	1615	0	2771	0
Flt Permitted		0.946			0.676		0.950					
Satd. Flow (perm)	0	3089	0	0	2371	680	1143	3323	1003	0	2771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				119			50		27	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		574			375			144			280	
Travel Time (s)		13.0			8.5			3.3			6.4	
Confl. Peds. (#/hr)	777		316	316		777	906		492	492		906
Confl. Bikes (#/hr)			9			23			47			10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	70%	1%	3%	0%	3%	5%	1%	5%	0%	0%	8%	6%
Adj. Flow (vph)	13	1403	151	20	761	233	516	748	129	0	264	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1567	0	0	781	233	516	748	129	0	337	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			8			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.04	1.04	1.04	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm		NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6		6			8			
Minimum Split (s)	27.0	27.0		24.0	24.0	24.0	25.0	33.0	33.0		21.0	
Total Split (s)	53.0	53.0		53.0	53.0	53.0	33.0	54.0	54.0		21.0	
Total Split (%)	48.2%	48.2%		48.2%	48.2%	48.2%	30.0%	49.1%	49.1%		19.1%	
Maximum Green (s)	47.0	47.0		47.0	47.0	47.0	26.0	47.0	47.0		15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5		4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5	2.5		2.0	
Lost Time Adjust (s)		-1.5			-1.5	-1.5	-1.5	-1.5	-1.5		-1.5	
Total Lost Time (s)		4.5			4.5	4.5	5.5	5.5	5.5		4.5	
Lead/Lag											Lag	
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		4.0	4.0		4.0	
Flash Dont Walk (s)	14.0	14.0		10.0	10.0	10.0		22.0	22.0		10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0		0	
Act Effct Green (s)		48.5			48.5	48.5	27.5	48.5	48.5		16.5	

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

Lane Group	Ø9	Ø13
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Minimum Split (s)	3.0	3.0
Total Split (s)	3.0	3.0
Total Split (%)	3%	3%
Maximum Green (s)	1.0	1.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effect Green (s)		

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.44			0.44	0.44	0.25	0.44	0.44		0.15	
v/c Ratio		1.14			0.75	0.64	1.19	0.51	0.27		0.77	
Control Delay		104.1			31.1	20.4	132.9	17.2	9.1		54.1	
Queue Delay		0.2			0.0	0.0	1.9	2.3	0.0		0.0	
Total Delay		104.3			31.1	20.4	134.8	19.6	9.1		54.1	
LOS		F			C	C	F	B	A		D	
Approach Delay		104.3			28.7			61.3			54.1	
Approach LOS		F			C			E			D	
Queue Length 50th (ft)		~684			236	59	~434	138	20		112	
Queue Length 95th (ft)		#825			315	159	m#568	m176	m31		#176	
Internal Link Dist (ft)		494			295			64			200	
Turn Bay Length (ft)												
Base Capacity (vph)		1369			1045	366	432	1465	470		438	
Starvation Cap Reductn		54			0	0	75	558	0		0	
Spillback Cap Reductn		0			0	0	0	0	0		0	
Storage Cap Reductn		0			0	0	0	0	0		0	
Reduced v/c Ratio		1.19			0.75	0.64	1.45	0.82	0.27		0.77	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 4 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 140

Control Type: Pretimed

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 68.7

Intersection LOS: E

Intersection Capacity Utilization 102.5%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

 Ø2 (R)	 Ø4	 Ø3
53 s	21 s	33 s
 Ø6 (R)	 Ø1BØ8	
53 s	54 s	

Lane Group	Ø9	Ø13
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑↑↑	↑
Traffic Volume (vph)	0	938	124	105	505	0	0	0	0	398	749	44
Future Volume (vph)	0	938	124	105	505	0	0	0	0	398	749	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	10	9	12	12	12	12	12	12	13	12	12
Storage Length (ft)	0		0	100		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.86	0.86	1.00
Ped Bike Factor			0.47							0.55	0.94	0.56
Frt			0.850									0.850
Flt Protected				0.950						0.950	0.993	
Satd. Flow (prot)	0	3240	1425	1736	3406	0	0	0	0	1573	4693	1615
Flt Permitted				0.103						0.950	0.993	
Satd. Flow (perm)	0	3240	674	188	3406	0	0	0	0	857	4415	908
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144									99
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		585			576			255			113	
Travel Time (s)		13.3			13.1			5.8			2.6	
Confl. Peds. (#/hr)	745		598	598		745	755		749	749		755
Confl. Bikes (#/hr)			37			6						20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	4%	2%	4%	6%	0%	0%	0%	0%	2%	4%	0%
Adj. Flow (vph)	0	987	131	111	532	0	0	0	0	419	788	46
Shared Lane Traffic (%)										30%		
Lane Group Flow (vph)	0	987	131	111	532	0	0	0	0	293	914	46
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			12			13			13	
Link Offset(ft)		0			-22			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.09	1.14	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	pm+pt	NA					Prot	NA	Perm
Protected Phases		6		5	2					7	4	
Permitted Phases			6	2								4
Minimum Split (s)		20.0	20.0	10.0	24.0					11.5	32.5	32.5
Total Split (s)		40.0	40.0	11.0	47.0					28.0	59.0	59.0
Total Split (%)		36.4%	36.4%	10.0%	42.7%					25.5%	53.6%	53.6%
Maximum Green (s)		34.0	34.0	6.0	41.0					21.5	52.5	52.5
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	1.0	2.0					2.5	2.5	2.5
Lost Time Adjust (s)		-1.5	-1.5	0.0	-1.5					-1.5	-1.5	-1.5
Total Lost Time (s)		4.5	4.5	5.0	4.5					5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lead	Lag					Lag		
Lead-Lag Optimize?												
Walk Time (s)		4.0	4.0		4.0						7.0	7.0

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

Lane Group	Ø1	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	1	8
Permitted Phases		
Minimum Split (s)	3.0	31.0
Total Split (s)	4.0	31.0
Total Split (%)	4%	28%
Maximum Green (s)	2.0	27.0
Yellow Time (s)	2.0	4.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)		7.0

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		10.0	10.0		14.0						19.0	19.0
Pedestrian Calls (#/hr)		0	0		0						0	0
Act Effct Green (s)		35.5	35.5	46.0	42.5					23.0	54.0	54.0
Actuated g/C Ratio		0.32	0.32	0.42	0.39					0.21	0.49	0.49
v/c Ratio		0.94	0.42	0.68	0.40					0.89	0.53	0.09
Control Delay		54.2	8.0	48.9	31.4					72.1	23.5	0.4
Queue Delay		0.0	0.0	0.0	0.0					37.6	4.2	0.0
Total Delay		54.2	8.0	48.9	31.4					109.7	27.7	0.4
LOS		D	A	D	C					F	C	A
Approach Delay		48.8			34.4						45.8	
Approach LOS		D			C						D	
Queue Length 50th (ft)		355	0	60	133					236	153	0
Queue Length 95th (ft)		#490	41	m82	m175					#418	188	0
Internal Link Dist (ft)		505			496			175			33	
Turn Bay Length (ft)				100								
Base Capacity (vph)		1045	315	163	1315					328	1718	496
Starvation Cap Reductn		0	0	0	0					53	707	0
Spillback Cap Reductn		0	0	0	0					0	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.94	0.42	0.68	0.40					1.07	0.90	0.09

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 5 (5%), Referenced to phase 1:Ped and 5:WBL, Start of Green

Natural Cycle: 100

Control Type: Pretimed

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 44.5

Intersection LOS: D

Intersection Capacity Utilization 65.5%

ICU Level of Service C

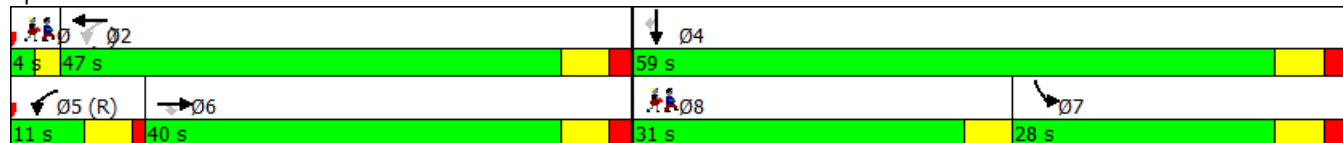
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2074: 9th St NW & New York Ave NW/K St NW



Lane Group	Ø1	Ø8
Flash Dont Walk (s)		20.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1405	418	1	1155	141	0	0	0	101	866	48
Future Volume (vph)	2	1405	418	1	1155	141	0	0	0	101	866	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor					0.97						0.95	
Frt			0.850		0.984						0.993	
Flt Protected											0.995	
Satd. Flow (prot)	0	3269	1478	0	3162	0	0	0	0	0	3281	0
Flt Permitted		0.954			0.954						0.995	
Satd. Flow (perm)	0	3119	1478	0	3017	0	0	0	0	0	3161	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			304		21						5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		334			574			169			292	
Travel Time (s)		7.6			13.0			3.8			6.6	
Confl. Peds. (#/hr)	238		318	318		238	305		321	321		305
Confl. Bikes (#/hr)			44			39						10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	50%	3%	2%	0%	1%	3%	0%	0%	0%	7%	3%	0%
Adj. Flow (vph)	2	1448	431	1	1191	145	0	0	0	104	893	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1450	431	0	1337	0	0	0	0	0	1046	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	custom	Perm	NA					Perm	NA	
Protected Phases		7 8	7		4						2	
Permitted Phases	7 8			4						2		
Minimum Split (s)			11.0	28.0	28.0					21.0	21.0	
Total Split (s)			31.0	60.0	60.0					37.0	37.0	
Total Split (%)			31.0%	60.0%	60.0%					37.0%	37.0%	
Maximum Green (s)			25.0	54.0	54.0					31.0	31.0	
Yellow Time (s)			4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)			-1.5		-1.5						-1.5	
Total Lost Time (s)			4.5		4.5						4.5	
Lead/Lag			Lag							Lag	Lag	
Lead-Lag Optimize?												
Walk Time (s)				10.0	10.0					4.0	4.0	
Flash Dont Walk (s)				12.0	12.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		55.5	26.5		55.5						32.5	

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

Lane Group	Ø1	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	1	8
Permitted Phases		
Minimum Split (s)	3.0	29.0
Total Split (s)	3.0	29.0
Total Split (%)	3%	29%
Maximum Green (s)	1.0	23.0
Yellow Time (s)	2.0	4.0
All-Red Time (s)	0.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)		10.0
Flash Dont Walk (s)		13.0
Pedestrian Calls (#/hr)		0
Act Effect Green (s)		

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/28/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.56	0.26		0.56						0.32	
v/c Ratio		0.84	0.70		0.79						1.02	
Control Delay		24.1	16.8		21.9						66.3	
Queue Delay		0.0	0.0		1.2						0.0	
Total Delay		24.1	16.8		23.1						66.3	
LOS		C	B		C						E	
Approach Delay		22.4			23.1						66.3	
Approach LOS		C			C						E	
Queue Length 50th (ft)		382	67		332						~358	
Queue Length 95th (ft)		488	184		428						#502	
Internal Link Dist (ft)		254			494			89			212	
Turn Bay Length (ft)												
Base Capacity (vph)		1731	615		1683						1030	
Starvation Cap Reductn		0	0		162						0	
Spillback Cap Reductn		0	0		0						0	
Storage Cap Reductn		0	0		0						0	
Reduced v/c Ratio		0.84	0.70		0.88						1.02	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 33.4

Intersection LOS: C

Intersection Capacity Utilization 112.1%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW



Lane Group	Ø1	Ø8
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

15: 7th St NW & K St NW

06/28/2017

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	3	186	1151	72	78	340	
Future Volume (Veh/h)	3	186	1151	72	78	340	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Hourly flow rate (vph)	3	198	1224	77	83	362	
Pedestrians	689		394			1	
Lane Width (ft)	12.0		10.0			9.0	
Walking Speed (ft/s)	3.5		3.5			3.5	
Percent Blockage	66		31			0	
Right turn flare (veh)							
Median type			None			None	
Median storage (veh)							
Upstream signal (ft)			151			144	
pX, platoon unblocked	0.91						
vC, conflicting volume	2692	1034			1990		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2662	1034			1990		
tC, single (s)	6.8	7.0			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	0	0			18		
cM capacity (veh/h)	1	78			101		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	201	350	350	350	252	204	241
Volume Left	3	0	0	0	0	83	0
Volume Right	198	0	0	0	77	0	0
cSH	30	1700	1700	1700	1700	101	1700
Volume to Capacity	6.72	0.21	0.21	0.21	0.15	0.82	0.14
Queue Length 95th (ft)	Err	0	0	0	0	114	0
Control Delay (s)	Err	0.0	0.0	0.0	0.0	114.4	0.0
Lane LOS	F					F	
Approach Delay (s)	Err	0.0				52.3	
Approach LOS	F						
Intersection Summary							
Average Delay			1044.2				
Intersection Capacity Utilization			52.0%		ICU Level of Service		A
Analysis Period (min)			15				

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	389	461	41	12	283	139	49	372	34	107	218	206
Future Volume (vph)	389	461	41	12	283	139	49	372	34	107	218	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12	10	10	10	9	9	9
Storage Length (ft)	125		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.83	0.97			0.89			0.96			0.79	
Frt		0.988			0.952			0.989			0.942	
Flt Protected	0.950				0.999			0.995			0.990	
Satd. Flow (prot)	1678	3039	0	0	2911	0	0	3136	0	0	2352	0
Flt Permitted	0.950				0.929			0.793			0.690	
Satd. Flow (perm)	1394	3039	0	0	2696	0	0	2451	0	0	1589	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					65			8			140	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		576			341			389			151	
Travel Time (s)		13.1			7.8			8.8			3.4	
Confl. Peds. (#/hr)	257		232	232		257	799		355	355		799
Confl. Bikes (#/hr)			14			8			22			20
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	9%	4%	3%	6%	5%	2%	3%	4%	9%	5%	3%
Parking (#/hr)		0										
Adj. Flow (vph)	405	480	43	13	295	145	51	388	35	111	227	215
Shared Lane Traffic (%)												
Lane Group Flow (vph)	405	523	0	0	453	0	0	474	0	0	553	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.07	1.00	1.00	1.00	1.00	1.09	1.09	1.09	1.14	1.14	1.14
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4			4		
Minimum Split (s)	11.0	28.0		28.0	28.0		29.0	29.0		29.0	29.0	
Total Split (s)	38.0	67.0		29.0	29.0		43.0	43.0		43.0	43.0	
Total Split (%)	34.5%	60.9%		26.4%	26.4%		39.1%	39.1%		39.1%	39.1%	
Maximum Green (s)	32.0	61.0		23.0	23.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0			6.0			6.0	
Lead/Lag	Lag			Lead	Lead							
Lead-Lag Optimize?												

Lanes, Volumes, Timings

2061: 7th St NW & K St NW/Massachusetts Ave NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0		15.0	15.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	32.0	61.0			23.0			37.0			37.0	
Actuated g/C Ratio	0.29	0.55			0.21			0.34			0.34	
v/c Ratio	0.83	0.31			0.74			0.57			0.88	
Control Delay	26.5	4.1			42.8			32.7			42.8	
Queue Delay	0.0	0.0			0.0			0.0			0.6	
Total Delay	26.5	4.1			42.8			32.7			43.4	
LOS	C	A			D			C			D	
Approach Delay		13.9			42.8			32.7			43.4	
Approach LOS		B			D			C			D	
Queue Length 50th (ft)	118	45			136			141			150	
Queue Length 95th (ft)	#426	58			196			196			#261	
Internal Link Dist (ft)		496			261			309			71	
Turn Bay Length (ft)	125											
Base Capacity (vph)	488	1685			615			829			627	
Starvation Cap Reductn	0	0			0			0			7	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.83	0.31			0.74			0.57			0.89	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 4 (4%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 29.8

Intersection LOS: C

Intersection Capacity Utilization 99.2%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2061: 7th St NW & K St NW/Massachusetts Ave NW



Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	480	239	95	689	108	353	490	188	5	263	27
Future Volume (vph)	35	480	239	95	689	108	353	490	188	5	263	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	11	11	11	12	11	11	11
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	1.00	0.95	0.95	0.95
Ped Bike Factor		0.91			0.99	0.56	0.65		0.67		0.95	
Frt		0.953				0.850			0.850		0.986	
Flt Protected		0.998			0.994		0.950				0.999	
Satd. Flow (prot)	0	2876	0	0	3497	1210	1662	3292	1553	0	3120	0
Flt Permitted		0.846			0.632		0.950				0.942	
Satd. Flow (perm)	0	2428	0	0	2205	684	1075	3292	1043	0	2935	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		89				131			78		9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		574			375			144			280	
Travel Time (s)		13.0			8.5			3.3			6.4	
Confl. Peds. (#/hr)	535		194	194		535	696		338	338		696
Confl. Bikes (#/hr)			14			17			21			22
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	9%	6%	2%	7%	2%	29%	5%	6%	4%	0%	4%	12%
Adj. Flow (vph)	36	495	246	98	710	111	364	505	194	5	271	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	777	0	0	808	111	364	505	194	0	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			8			11			11	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.04	1.04	1.04	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA	Perm	Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6		6			8	4		
Minimum Split (s)	27.0	27.0		24.0	24.0	24.0	25.0	33.0	33.0	21.0	21.0	
Total Split (s)	45.0	45.0		45.0	45.0	45.0	31.0	52.0	52.0	21.0	21.0	
Total Split (%)	45.0%	45.0%		45.0%	45.0%	45.0%	31.0%	52.0%	52.0%	21.0%	21.0%	
Maximum Green (s)	39.0	39.0		39.0	39.0	39.0	24.0	45.0	45.0	15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5	4.5	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.5	2.5	2.5	2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)		6.0			6.0	6.0	7.0	7.0	7.0		6.0	
Lead/Lag										Lag	Lag	
Lead-Lag Optimize?												
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		4.0	4.0	4.0	4.0	
Flash Dont Walk (s)	14.0	14.0		10.0	10.0	10.0		22.0	22.0	10.0	10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0	0	0	0	
Act Effct Green (s)		39.0			39.0	39.0	24.0	45.0	45.0		15.0	

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/29/2017

Lane Group	Ø9	Ø13
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Minimum Split (s)	3.0	3.0
Total Split (s)	3.0	3.0
Total Split (%)	3%	3%
Maximum Green (s)	1.0	1.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Efft Green (s)		

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio		0.39			0.39	0.39	0.24	0.45	0.45		0.15	
v/c Ratio		0.78			0.94	0.32	0.91	0.34	0.38		0.68	
Control Delay		15.4			49.8	5.2	66.5	18.7	13.0		47.5	
Queue Delay		0.0			0.0	0.0	48.1	1.5	0.9		0.0	
Total Delay		15.4			49.8	5.2	114.5	20.1	14.0		47.5	
LOS		B			D	A	F	C	B		D	
Approach Delay		15.4			44.4			51.3			47.5	
Approach LOS		B			D			D			D	
Queue Length 50th (ft)		62			256	0	227	106	45		94	
Queue Length 95th (ft)		m79			#386	27	#397	146	100		141	
Internal Link Dist (ft)		494			295			64			200	
Turn Bay Length (ft)												
Base Capacity (vph)		1001			859	346	398	1481	512		447	
Starvation Cap Reductn		0			0	0	83	751	141		0	
Spillback Cap Reductn		0			0	0	0	0	0		0	
Storage Cap Reductn		0			0	0	0	0	0		0	
Reduced v/c Ratio		0.78			0.94	0.32	1.16	0.69	0.52		0.68	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 3 (3%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 39.8

Intersection LOS: D

Intersection Capacity Utilization 100.3%

ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

 Ø2 (R)	 Ø4	 Ø3
45 s	3 s 21 s	31 s
 Ø6 (R)	 Ø8	
45 s	3 s 52 s	

Lanes, Volumes, Timings

2065: 7th St NW & Mt Vernon PI NW/New York Ave NW

06/29/2017

Lane Group	Ø9	Ø13
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑↑↑	↑
Traffic Volume (vph)	0	692	128	158	380	0	0	0	0	198	865	55
Future Volume (vph)	0	692	128	158	380	0	0	0	0	198	865	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	10	9	12	12	12	12	12	12	13	12	12
Storage Length (ft)	0		0	100		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.86	0.86	1.00
Ped Bike Factor			0.53							0.60	0.99	0.61
Frt			0.850									0.850
Flt Protected				0.950						0.950	0.999	
Satd. Flow (prot)	0	3271	1384	1770	3438	0	0	0	0	1573	4756	1495
Flt Permitted				0.183						0.950	0.999	
Satd. Flow (perm)	0	3271	730	341	3438	0	0	0	0	947	4715	916
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			149									99
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		559			576			255			113	
Travel Time (s)		12.7			13.1			5.8			2.6	
Confl. Peds. (#/hr)	393		476	476		393	545		545	545		545
Confl. Bikes (#/hr)			33			11						23
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	5%	2%	5%	0%	0%	0%	0%	2%	3%	8%
Adj. Flow (vph)	0	721	133	165	396	0	0	0	0	206	901	57
Shared Lane Traffic (%)										10%		
Lane Group Flow (vph)	0	721	133	165	396	0	0	0	0	185	922	57
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			12			13			13	
Link Offset(ft)		0			-22			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.09	1.14	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type		NA	Perm	pm+pt	NA					Prot	NA	Perm
Protected Phases		6		5	2					7	4	
Permitted Phases			6	2								4
Minimum Split (s)		20.0	20.0	10.0	24.0					11.5	32.5	32.5
Total Split (s)		39.0	39.0	19.2	54.0					29.3	51.8	51.8
Total Split (%)		35.5%	35.5%	17.5%	49.1%					26.6%	47.1%	47.1%
Maximum Green (s)		33.0	33.0	14.2	48.0					22.8	45.3	45.3
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	1.0	2.0					2.5	2.5	2.5
Lost Time Adjust (s)		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Lost Time (s)		6.0	6.0	5.0	6.0					6.5	6.5	6.5
Lead/Lag		Lag	Lag	Lead	Lag					Lag		
Lead-Lag Optimize?												
Walk Time (s)		4.0	4.0		4.0						7.0	7.0

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/29/2017

Lane Group	Ø1	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	1	8
Permitted Phases		
Minimum Split (s)	3.0	22.5
Total Split (s)	4.2	22.5
Total Split (%)	4%	20%
Maximum Green (s)	2.2	18.0
Yellow Time (s)	2.0	3.5
All-Red Time (s)	0.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)		7.0

Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		10.0	10.0		14.0						19.0	19.0
Pedestrian Calls (#/hr)		0	0		0						0	0
Act Effect Green (s)		33.0	33.0	53.2	48.0					22.8	45.3	45.3
Actuated g/C Ratio		0.30	0.30	0.48	0.44					0.21	0.41	0.41
v/c Ratio		0.73	0.41	0.47	0.26					0.57	0.58	0.13
Control Delay		39.9	7.8	15.1	10.4					46.9	29.4	1.5
Queue Delay		0.0	0.0	0.0	0.0					2.0	3.1	0.0
Total Delay		39.9	7.8	15.1	10.4					49.0	32.5	1.5
LOS		D	A	B	B					D	C	A
Approach Delay		34.9			11.8						33.6	
Approach LOS		C			B						C	
Queue Length 50th (ft)		240	0	49	71					137	180	0
Queue Length 95th (ft)		311	40	m57	m82					225	222	7
Internal Link Dist (ft)		479			496			175			33	
Turn Bay Length (ft)				100								
Base Capacity (vph)		981	323	349	1500					326	1582	435
Starvation Cap Reductn		0	0	0	0					55	536	0
Spillback Cap Reductn		0	0	0	0					0	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.73	0.41	0.47	0.26					0.68	0.88	0.13

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 1:Ped and 5:WBL, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 29.3

Intersection LOS: C

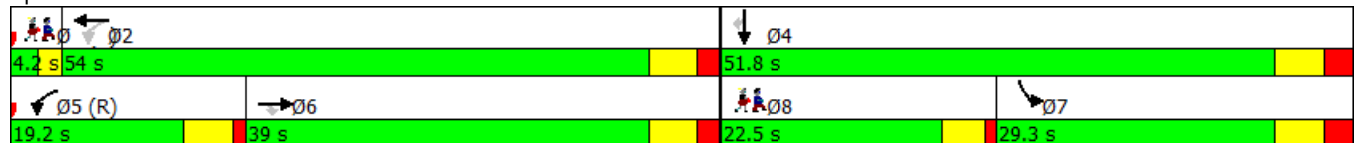
Intersection Capacity Utilization 64.1%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2074: 9th St NW & New York Ave NW/K St NW



Lanes, Volumes, Timings

2074: 9th St NW & New York Ave NW/K St NW

06/29/2017

Lane Group	Ø1	Ø8
Flash Dont Walk (s)		11.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	695	407	1	960	109	0	0	0	59	750	71
Future Volume (vph)	35	695	407	1	960	109	0	0	0	59	750	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		1.00			0.96						0.94	
Frt			0.850		0.985						0.988	
Flt Protected		0.998									0.997	
Satd. Flow (prot)	0	3297	1478	0	3129	0	0	0	0	0	3266	0
Flt Permitted		0.821			0.955						0.997	
Satd. Flow (perm)	0	2706	1478	0	2988	0	0	0	0	0	3163	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			433		18						10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		334			574			169			292	
Travel Time (s)		7.6			13.0			3.8			6.6	
Confl. Peds. (#/hr)	457		195	195		457	333		570	570		333
Confl. Bikes (#/hr)			13			38						16
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	37	739	433	1	1021	116	0	0	0	63	798	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	776	433	0	1138	0	0	0	0	0	937	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.09	1.09	1.09	1.09	1.09	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA	custom	Perm	NA					Perm	NA	
Protected Phases		7 8	7		4						2	
Permitted Phases	7 8			4						2		
Minimum Split (s)			11.0	28.0	28.0					21.0	21.0	
Total Split (s)			29.0	58.0	58.0					39.0	39.0	
Total Split (%)			29.0%	58.0%	58.0%					39.0%	39.0%	
Maximum Green (s)			23.0	52.0	52.0					33.0	33.0	
Yellow Time (s)			4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)			2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)			0.0		0.0						0.0	
Total Lost Time (s)			6.0		6.0						6.0	
Lead/Lag			Lead							Lag	Lag	
Lead-Lag Optimize?												
Walk Time (s)				10.0	10.0					4.0	4.0	
Flash Dont Walk (s)				12.0	12.0					11.0	11.0	
Pedestrian Calls (#/hr)				0	0					0	0	
Act Effct Green (s)		52.0	23.0		52.0						33.0	
Actuated g/C Ratio		0.52	0.23		0.52						0.33	

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/29/2017

Lane Group	Ø1	Ø8
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(ft)		
Link Offset(ft)		
Crosswalk Width(ft)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (mph)		
Turn Type		
Protected Phases	1	8
Permitted Phases		
Minimum Split (s)	3.0	29.0
Total Split (s)	3.0	29.0
Total Split (%)	3%	29%
Maximum Green (s)	1.0	23.0
Yellow Time (s)	2.0	4.0
All-Red Time (s)	0.0	2.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?		
Walk Time (s)		10.0
Flash Dont Walk (s)		13.0
Pedestrian Calls (#/hr)		0
Act Effct Green (s)		
Actuated g/C Ratio		

Lanes, Volumes, Timings

2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW

06/29/2017

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.55	0.64		0.73						0.89	
Control Delay		18.0	8.2		8.2						43.7	
Queue Delay		0.0	0.0		0.2						0.0	
Total Delay		18.0	8.2		8.4						43.7	
LOS		B	A		A						D	
Approach Delay		14.5			8.4						43.7	
Approach LOS		B			A						D	
Queue Length 50th (ft)		166	0		154						293	
Queue Length 95th (ft)		223	84		m182						#412	
Internal Link Dist (ft)		254			494			89			212	
Turn Bay Length (ft)												
Base Capacity (vph)		1407	673		1562						1050	
Starvation Cap Reductn		0	0		63						0	
Spillback Cap Reductn		0	0		0						0	
Storage Cap Reductn		0	0		0						0	
Reduced v/c Ratio		0.55	0.64		0.76						0.89	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 4:WBTL and 7:EBTL, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 20.7

Intersection LOS: C

Intersection Capacity Utilization 104.4%

ICU Level of Service G

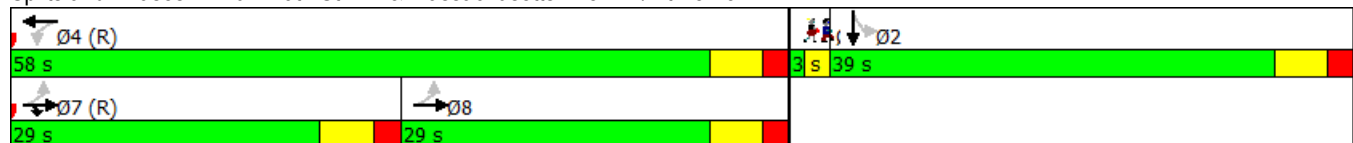
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2077: 9th St NW & Massachusetts Ave NW/Mt Vernon PI NW



Lane Group	Ø1	Ø8
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

HCM Unsignalized Intersection Capacity Analysis

15: 7th St NW & K St NW

06/29/2017

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	18	268	764	136	84	513	
Future Volume (Veh/h)	18	268	764	136	84	513	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Hourly flow rate (vph)	18	273	780	139	86	523	
Pedestrians	326		157				
Lane Width (ft)	12.0		12.0				
Walking Speed (ft/s)	3.5		3.5				
Percent Blockage	31		15				
Right turn flare (veh)							
Median type			None			None	
Median storage (veh)							
Upstream signal (ft)			151			144	
pX, platoon unblocked	0.92						
vC, conflicting volume	1766	590			1245		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1659	590			1245		
tC, single (s)	7.0	7.0			4.1		
tC, 2 stage (s)							
tF (s)	3.6	3.3			2.2		
p0 queue free %	49	12			78		
cM capacity (veh/h)	35	309			390		
Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2
Volume Total	291	223	223	223	250	260	349
Volume Left	18	0	0	0	0	86	0
Volume Right	273	0	0	0	139	0	0
cSH	208	1700	1700	1700	1700	390	1700
Volume to Capacity	1.40	0.13	0.13	0.13	0.15	0.22	0.21
Queue Length 95th (ft)	421	0	0	0	0	21	0
Control Delay (s)	249.6	0.0	0.0	0.0	0.0	8.3	0.0
Lane LOS	F					A	
Approach Delay (s)	249.6	0.0				3.6	
Approach LOS	F						
Intersection Summary							
Average Delay		41.1					
Intersection Capacity Utilization		58.9%		ICU Level of Service		B	
Analysis Period (min)		15					

To:	Haley Peckett, AICP	From:	Adam Catherine, PE, PTOE
	DDOT		Stantec
File:	2028113119	Date:	June 2, 2017

Reference: 801 K Street Trip Generation and Mode Split Estimates

I. Introduction

This memorandum documents the trip generation and mode split analysis that was conducted for a proposed 12,614 square-foot flagship retail store to be located in a portion of the existing Carnegie Library at 801 K Street in Washington, DC. The proposed retail store is located directly across Mt. Vernon Place from the Washington Convention Center and is located approximately 0.2 miles from the nearest Metrorail station (Chinatown/Gallery Place). Based on a pre-scoping meeting with the District Department of Transportation (DDOT) held on February 7, 2017, it was determined that the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, would not provide an adequate estimate of the number of trips generated. Therefore, site-specific trip generation and mode split data was collected at five existing retail brand stores that have locational and/or operational features that are similar to those of the proposed location.

II. Methodology

Stantec consulted with the retail brand to identify five existing store locations that are anticipated to have similar operations and/or similar levels of transit access as the proposed 801 K Street location. The five selected locations include:

- 815 Boylston Street, Boston, MA (12,508 SF). The Boylston Street store is a flagship location and is located 0.3 miles from the Copley T station and is directly across the street from the John B. Hynes Veterans Memorial Convention Center.
- 940 Madison Avenue, New York, NY (4,856 SF). The Upper East side store is located 0.25 miles from the 77th Street subway station and is located in a refurbished historic building. It should be noted that the flagship location on Fifth Avenue was not analyzed because of the large amount of tourist activity that occurs at that location which is not anticipated for the proposed location.
- 1607 Walnut Street, Philadelphia, PA (6,112 SF). The Walnut Street store is located within 0.25 miles of a station on SEPTA's Broad Street subway line, as well as a station on the Market Street subway line. It is also in a center-city location similar to that of the proposed location.
- 1229 Wisconsin Avenue NW, Washington, DC (6,031 SF). The Georgetown location was selected to provide data representative of an urban DC location. However, it should be noted that this location is not easily accessible from Metrorail.
- Fashion Centre at Pentagon City, Arlington, VA (4,396 SF). The Pentagon City location was selected to provide data representative of an urban location in the DC area that can be

Reference: 801 K Street Trip Generation and Mode Split

accessed via Metrorail. It should be noted that this location is the only store surveyed that is not stand-alone.

Data was collected on a typical weekday between 3:00 PM and 7:00 PM, as well as a typical Saturday between 11:00 AM and 7:00 PM. A summary of the specific dates for each location is provided below:

- Boston, New York City, and Philadelphia locations: Thursday, March 23, 2017 and Saturday, March 25, 2017.
- Georgetown location: Thursday, March 30, 2017 and Saturday, April 1, 2017.
- Pentagon City location: Wednesday, March 29, 2017 and Saturday, April 8, 2017.

Data collection consisted of a continuous count of the number of patrons entering and exiting the store, summarized in 15-minute periods. Patrons were also asked to complete a verbal survey consisting of the following two questions:

- *What mode of transportation did you use to travel to the store today?* This question was utilized to establish mode split.
- *Is the purpose of your trip today to visit the store, or are you visiting as part of a general trip to the area?* This question was utilized to identify trips that would be considered "pass-by" trips.

The mode split data was collected in a manner that would allow the data to be aggregated based on whether the trip was specific to the retail store or a pass-by trip. Furthermore, if multiple people arrived as a group, each individual was accounted for in the survey.

The survey and site-specific trip generation data was then reviewed against the specific transportation network features and transit service schedules, within the vicinity of 801 K Street, to identify PM and Saturday peak hour trip generation rates and mode splits.

III. Trip Generation Results

The results of the site surveys reveal that the relationship between the size of the store and the number of person trips is likely not a positive linear correlation (Tables 1 and 2). The Boston location, which was the only site of similar size to that of the proposed K Street location, and is a flagship store, experienced the lowest weekday and Saturday peak hour trip generation rate. Conversely, the Pentagon City location, which was the only non-stand-alone location experienced the highest trip generation rate.

This data also indicates that the trip generation rate for a store is likely influenced by the location of a store, as well as the market area. In many urbanized areas, there are multiple retail stores within an urban center, as well as in the outlying suburbs. Therefore, regardless of store size, there is a certain "market" cap on the number of customers that would utilize each store on an average day. While a flagship store may attract customers from a broader area when there is a special event, it is likely

Reference: 801 K Street Trip Generation and Mode Split

that on a typical daily basis customers would use the store that is closest to where they live or work and would not make a special trip to a flagship location for typical shopping or technical support.

Furthermore, data collection teams at several stores, including Boston, Philadelphia, and Pentagon City saw many repeat visitors throughout the data collection period that were counted each time they entered and exited the store. Repeat visitors were often observed utilizing one of the sample devices, or charging their own device, leaving, and then returning, sometimes in the same hour, to repeat the process. Pentagon City was noted to have a significant number of repeat visitors, likely due to its location in a regional shopping mall. The data collection team at Pentagon City noted that repeat patrons would enter and exit the store multiple times within the same hour, checking-in, and then leaving while they waited for their approximate time to meet with retail store staff or for their device to be repaired.

Based on the assessment of the data, a basic average trip generation rate would likely overestimate the number of person-trips that would be generated by the proposed 801 K Street location. Therefore, a weighted average rate was calculated utilizing the guidelines:

- The Pentagon City location is eliminated from the rate and pass-by trip calculation. It's location within the mall, as well as the significant amount of repeat visitor activity, would skew the trip generation rate higher than what is anticipated for the proposed location.
- A weight of 4 is applied to the Boston location and an average weighted trip generation rate is calculated. Of the four remaining locations, the Boston location is most similar to the proposed 801 K Street location. It is a flagship store of similar size, is in similar proximity to mass transit, and is located across the street from a convention center. Therefore, a weight of 4 was calculated to provide an extra point for each of the surveyed locations (excluding Pentagon City).
- The surveyed locations are in areas with other attractions and retail within close proximity. Therefore, there are likely more pass-by trips than would be experienced at the 801 K Street location. In order to account for this, Stantec calculated a trip generation rate based on new trips only. Pass-by trips would then be added to the new trips to generate a total number of trips (see Section V).

Tables 1 and 2, below, show the resulting trip generation rate for new trips. It is estimated that the 801 K Street site would generate 40.5 new person-trips per 1,000 square feet during a weekday PM peak hour and 53.0 new person-trips during a Saturday peak hour.

Reference: 801 K Street Trip Generation and Mode Split

Table 1: Weekday PM Peak Hour Trip Generation Rate and Pass-By Percentage for Surveyed Locations

Location	Peak Hour	Trips In	Trips Out	Total Trips	% Pass-By	New Trips	Square Footage	New Trip Generation Rate (per 1,000 SF)
Boston	3:15 – 4:15 PM	360	242	602	13.3%	522	12,508	41.7
NYC	4:45 – 5:45 PM	148	129	277	24.9%	208	4,856	42.9
Philadelphia	3:15 – 4:15 PM	224	214	438	43.2%	248	6,112	40.7
Georgetown	5:15 – 6:15 PM	162	174	336	40.2%	200	6,031	33.3
Weighted Average								40.5

Table 2: Saturday Peak Hour Trip Generation Rate and Pass-By Percentage for Surveyed Locations

Location	Peak Hour	Trips In	Trips Out	Total Trips	% Pass-By	New Trips	Square Footage	New Trip Generation Rate (per 1,000 SF)
Boston	2:00 – 3:00 PM	498	501	999	33.5%	664	12,508	53.1
NYC	1:15 – 2:15 PM	265	291	556	47.9%	290	4,856	59.7
Philadelphia	4:00 – 5:00 PM	355	353	708	62.0%	269	6,112	44.0
Georgetown	3:15 – 4:15 PM	310	290	600	44.6%	333	6,031	55.1
Weighted Average								53.0

Reference: 801 K Street Trip Generation and Mode Split

IV. Mode Split Results

Survey response rates varied by site from a high of 36.6% at Pentagon City, to a low of 6.8% in Boston (see Table 3). The recommended mode split for 801 K Street was developed utilizing the data collected in the site surveys as well as an assessment of the transportation and transit network in the vicinity of the proposed retail store. The following assumptions and findings were utilized in the development of the mode splits:

- The responses for Pentagon City were removed from consideration. Given the location of the Pentagon City store in a shopping mall, it likely will skew the data to show a higher auto mode than would be experienced at the 801 K Street site.
- A higher weight was given to subway/rail than walking. This accounts for the adjacent land uses near the proposed retail store as well as the likelihood that some respondents indicated they walked to the store during the survey, when in fact they likely walked from a transit station to the store. Thus, their primary trip mode would be transit.
- Metrorail service is less frequent on weekends. Therefore, the Saturday rail mode split was reduced by 20% when compared to the weekday rail mode split.

The resulting mode split data for primary trips is summarized in Tables 4 and 5.

It should be noted that many repeat visitors, as described in Section III, did not respond to the survey, and those that did were only surveyed once. Therefore, it is likely that the survey results indicate a higher percentage of vehicle and transit modes than would be realized. For example, a repeat visitor may have arrived to the area via car, but their repeat visits would likely be made on foot. However, their trip was only registered as a single vehicle trip, even though they were likely counted multiple times. Thus, when these percentages are applied to the total trip generation estimate, they will likely lead to a higher number of vehicle and transit trips than would be experienced.

Table 3: Survey Response Rate by Location

Location	Weekday	Saturday
	Number of Surveys (Response Rate)	Number of Surveys (Response Rate)
Boston	98 (8.0%)	209 (6.8%)
NYC	181 (33.2%)	119 (6.9%)
Philadelphia	155 (17.2%)	500 (23.8%)
Georgetown	174 (25.3%)	276 (14.1%)
Pentagon City	276 (36.6%)	578 (33.4%)

Reference: 801 K Street Trip Generation and Mode Split

Table 4: Weekday Mode Split by Location for Retail Generated Trips

Location	Drive Alone	Carpool	Taxi/ Uber/ Lyft	Car- share	Bus	Rail/ Subway	Walk	Bike	Delivery
Boston	16.5%	0.0%	12.9%	0.0%	0.0%	22.4%	43.5%	3.5%	0.0%
NYC	7.5%	2.3%	4.5%	0.8%	6.8%	11.3%	65.4%	0.0%	1.5%
Philadelphia	15.9%	9.1%	13.6%	0.0%	6.8%	21.6%	29.5%	3.4%	0.0%
Georgetown	24.0%	4.8%	36.5%	0.0%	5.8%	1.0%	26.0%	1.9%	0.0%
Average	16.0%	4.0%	16.9%	0.2%	4.8%	14.5%	41.1%	2.2%	0.4%
Adjusted Average	16%	4%	17%	0.5%	5%	29%	24%	4%	0.5%

Table 5: Saturday Mode Split by Location for Retail Generated Trips

Location	Drive Alone	Carpool	Taxi/ Uber/ Lyft	Car- share	Bus	Rail/ Subway	Walk	Bike	Delivery
Boston	18.7%	0.0%	15.1%	0.0%	5.0%	31.7%	26.6%	2.9%	0.0%
NYC	3.2%	4.8%	21.0%	0.0%	0.0%	41.9%	25.8%	1.6%	1.6%
Philadelphia	17.9%	18.4%	5.3%	0.0%	6.3%	8.4%	41.6%	1.6%	0.5%
Georgetown	14.4%	22.2%	22.2%	1.3%	4.6%	0.7%	30.7%	3.9%	0.0%
Average	13.6%	11.4%	15.9%	0.3%	4.0%	20.7%	31.2%	2.5%	0.5%
Adjusted Average	14%	11%	16%	0.5%	5%	23%	25%	5%	0.5%

V. Proposed 801 K Street Location Trip Generation and Mode Split Projections

The trip generation and mode split for an average weekday PM peak hour and average Saturday peak hour for 801 K Street was calculated utilizing the average trip generation rate calculated from the results in Tables 1 and 2. Because pass-by trips are not included in the trip generation rates, they were then added back in utilizing a 15% PM peak hour and 10% Saturday peak hour pass-by trip rate. The pass-by rates are approximately 50% lower than what was recorded in the surveys of existing facilities to account for the location of the proposed retail and its separation from other retail and attractions.

Finally, event trips were added into the trip generation estimate. Information provided by the retailer indicates that the average event size will be approximately 200 people. However, they were unable to predict frequency, indicating that large events would be relatively infrequent and would likely be oriented around events at the Washington Convention Center. In order to provide a conservative analysis, it was decided that event trips would be added to the total number of typical trips to

Reference: 801 K Street Trip Generation and Mode Split

create a “highest case” scenario for the traffic analysis. Therefore, 200 person-trips were added to the PM and Saturday peak hour, with the assumption that 90% would enter and 10% would exit (representing the arrival to an event).

The resulting number of person-trips were then assigned based on the recommended mode split percentages for non pass-by trips calculated from the results in Tables 4 and 5. The results of the trip generation and mode split calculations are shown in Tables 6 and 7. The modes are grouped into the following categories:

- **New vehicle trips destined for parking.** No onsite parking will be provided. Therefore, it was assumed that patrons that drive alone, carpool, or utilize carshare, would be parking off-site, either on-street or within an existing parking facility. Therefore, these trips would be accounted for in the analysis as vehicle trips within the study area, as well as pedestrian trips between nearby parking areas and the proposed retail store. However, it should be noted that patrons that indicated they carpooled were often part of a group that arrived together. Based on the survey data, an average of three people were in a carpool group. Therefore, carpool vehicle trips were estimated by dividing the number of individual carpool survey responses by the average group size (3).
- **New pass-through vehicle trips.** Taxi, Uber, Lyft, or other delivery vehicles will be accounted for as a pass-through trip. While they represent a new vehicle trip, they are assumed to enter the study area, stop at the front door of the site, and exit the study area.
- **Multi-Modal Trips.** A multi-modal trip represents a patron that would arrive by bus, Metrorail, walking, biking, or other mode. Bus and Metrorail patrons will be accounted for as pedestrians traveling to/from nearby bus stops and Metrorail stations.

Again, it should be noted that repeat visitors, as described in Section III, were counted multiple times but were only surveyed once or not at all. Therefore, it is likely that the number of vehicle and transit trips are higher than would be realized. For example, a repeat visitor may have arrived to the area via car, but their repeat visits would likely be made on foot. However, their trip was only registered as a vehicle trip. Thus, when these percentages are applied to the total trip generation estimate, they likely result in a higher number of vehicle and transit trips and a lower number of pedestrian trips than would be experienced.

Reference: 801 K Street Trip Generation and Mode Split

Table 6: Weekday PM Peak Hour Trips for 801 K Street

	Units	Total Trips	Entering (54%)	Exiting (46%)
New Person Trips	12,614 SF	512	277	235
Additional Pass-By Trips	15%	76	38	38
Event Trips	-	200	180	20
Total Trips	-	788	495	293
Drive Alone	16%	114	73	41
Carpool	4%	29	18	11
Carshare	0.5%	4	2	2
Total New Vehicle Trips to Parking*	-	125	80	45
Total Vehicle Person Trips Reflect as Pedestrians Entering Site	-	147	93	54
Taxi/Uber/Lyft	17%	121	78	43
Delivery	0.5%	3	2	1
Total New Pass-Through Vehicle Trips	-	124	80	44
Bus	5%	36	23	13
Rail/Subway	29%	206	132	74
Walk**	22%	247	148	99
Bike	4%	28	18	10
Total Multi-Modal Trips	-	517	321	196

*Total New Vehicle Trips to Parking = Drive Alone + Carpool/3

**Walk = 22% Mode Split + Pass-By Trips

Reference: 801 K Street Trip Generation and Mode Split

Table 7: Saturday Peak Hour Trips for 801 K Street

	Units	Total Trips	Entering (50%)	Exiting (50%)
New Person Trips	12,614 SF	669	335	335
Additional Pass-By Trips	10%	67	33	33
Event Trips	-	200	180	20
Total Trips	-	936	548	388
Drive Alone	14%	122	72	50
Carpool	11%	96	57	39
Carshare	0.5%	4	2	2
Total New Vehicle Trips to Parking*	-	158	94	64
Total Vehicle Person Trips Reflect as Pedestrians Entering Site	-	222	131	91
Taxi/Uber/Lyft	16%	139	82	57
Delivery	0.5%	5	3	2
Total New Vehicle Trips Stopping at Site	-	144	85	59
Bus	5%	44	26	18
Rail/Subway	23%	200	118	82
Walk**	25%	284	162	122
Bike	5%	44	26	18
Total Multi-Modal Trips	-	572	332	240

*Total New Vehicle Trips to Parking = Drive Alone + Carpool/3

**Walk = 26% Mode Split + Pass-By Trips

Reference: 801 K Street Trip Generation and Mode Split

VI. Conclusions

The results of the trip generation analysis reveal that the proposed retail store at 801 K Street would generate approximately 788 person trips on a weekday PM peak hour, and 936 new person trips on a Saturday peak hour. These trip generation estimates account for the anticipated typical trip generation as well as an average large event of 200 attendees to develop a "highest-case" analysis. The mode split analysis indicates that approximately 38% of weekday PM peak hour trips and 42% of Saturday peak hour trips would be conducted utilizing a vehicle, including driving alone, carpool, carshare, and taxi/Uber/Lyft. Given that there is no parking provided onsite, it is assumed that drive alone, carpool, and carshare trips would be generated to nearby parking facilities.

However, it should be noted that multiple store locations experienced many repeat visitors, which were counted each time they entered and exited the store. Repeat visitors were less likely to respond to the survey and those that did only responded once. Therefore, it is likely that the total number of new person trips, as well as the number of trips arriving by primary modes, such as vehicle or transit, are higher than would be realized. However, given that the proposed 801 K Street location is a flagship store and will have training classes and other small events on a relatively regular basis, it is our opinion that the trip generation and mode split estimates provided in Tables 6 and 7 are a fair and conservative estimate of the number of person trips that would be generated by the proposed retail store.

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