



August 31, 2021

Landmark Companies, LLC
21500 Biscayne Boulevard
Suite 402
Aventura, Florida 33180

Attn: Mr. Robinson Zamorano
Vice President of Construction

Re: Cross Creek – Multifamily Project
SEC 6th Avenue and Catawba Way
Traffic Compliance Letter
Aurora, Colorado

Dear Mr. Zamorano:

The purpose of this letter is to provide a trip generation comparison to identify conformance with the original Cross Creek traffic study for the portion of the Cross Creek development located within the southeast quadrant of the 6th Avenue and Catawba Way intersection in Aurora, Colorado. The *Cross Creek Traffic Impact Analysis* was completed in November 2002. The location of current proposal was previously evaluated as Area L in the original traffic study which included 75,000 square feet of office and 75,000 square feet of retail. The current proposal is anticipated to include 272 multi-family dwelling units. A triangular lot east of the multi-family area is anticipated to be developed with retail and office uses. The project team believes this will be developed with 25 percent of the overall office and retail use as evaluated in the original traffic study. Therefore, for the purposes of this analysis, 19,000 square feet of office and 19,000 square feet of retail use was evaluated in the lot east of multifamily area. This letter will compare the trips generated by the currently proposed Cross Creek – Multifamily Project to the land use in the same development area evaluated previously in the *Cross Creek Traffic Impact Analysis*.

Access to the site will be provided by one access along Catawba Way to align with 5th Avenue, and one access on the north side of 6th Parkway. The access along Catawba Way to align with 5th Avenue is proposed to allow full turning movements and is located approximately 500 feet northwest of 6th Parkway (measured center to center) and approximately 530 feet south of 6th Avenue. The secondary access along 6th Parkway is proposed to be restricted to three-quarter movements with exiting left turns prohibited and is located approximately 500 feet northeast of Catawba Way. The two project accesses should operate with stop control and R1-1 "STOP" signs are recommended along the exiting approaches. To identify the restriction to three-quarter movements at the access along 6th Parkway, a R3-2 "No Left Turn" sign should be placed underneath the stop sign while a raised channelized pork chop island should be located in the driveway throat oriented to restrict exiting left turn movements. A northbound left turn lane with 150 feet of length should be provided along 6th Parkway at the project access for entry into the driveway.

The trip generation of the proposed Cross Creek – Multifamily Project was compared to the land uses as part of the original traffic study within the same development area (Area L). Area

L was originally considered to include 75,000 square feet of general office and 75,000 square feet of shopping center. Applicable documents from original *Cross Creek Traffic Impact Analysis* are attached. Cross Creek – Multifamily Project is proposed to include 272 multifamily dwelling units, 19,000 square feet of general office, and 19,000 square feet of shopping center. A site plan for the current development is attached.

Site-generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual*¹ published by the Institute of Transportation Engineers (ITE). ITE has established trip rates in nationwide studies of similar land uses.

Trip generation was previously based on the ITE Trip Generation, 6th Edition (current edition at time of original study) equations for General Office Building (ITE Code 710) and Shopping Center (ITE Code 820) while ITE Trip Generation, 10th Edition (most current edition) equations for the Mid-Rise Multifamily Housing (ITE Code 221), General Office Building (ITE Code 710), and Shopping Center (ITE Code 820) were utilized for the current project. Trip generation calculations for the proposed use are attached. The following table summarizes the estimated trip generation for the proposed Cross Creek – Multifamily Project compared to the trips generated by the same development area in the original traffic study.

**Trip Generation Comparison:
Original Cross Creek Traffic Impact Analysis vs. Cross Creek – Multifamily Project**

Land Use	Quantity	Units	Weekday Vehicle Trips						
			Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				In	Out	Total	In	Out	Total
Original Cross Creek Traffic Study (Area L) – ITE 6 th Edition									
General Office (ITE 710)	75,000	Square Feet	826	103	14	117	19	93	112
Shopping Center (ITE 820)	75,000	Square Feet	5,666	82	53	135	249	270	519
Total Site Generated Trips			6,492	185	67	252	268	363	631
Current Proposal - ITE 10th Edition									
Mid-Rise Multifamily Housing (ITE 221)	272	Units	1,482	24	67	91	71	45	116
General Office (ITE 710)	19,000	Square Feet	186	19	3	22	4	18	22
Shopping Center (ITE 820)	19,000	Square Feet	718	11	7	18	35	37	72
Total Site Generated Trips			2,386	54	77	131	110	100	210
Net Change			-4,106	-131	10	-121	-158	-263	-421

As summarized in the trip generation table, Area L in the original traffic study was anticipated to generate approximately 6,492 weekday daily trips, with 252 of these trips occurring during the morning peak hour, and 631 trips occurring during the afternoon peak hour. The currently proposed Cross Creek – Multifamily Project is anticipated to generate 2,386 daily weekday trips with 131 trips occurring during the morning peak hour and 210 trips occurring during the afternoon peak hour. Therefore, the proposed development is anticipated to generate 4,106


¹ Institute of Transportation Engineers, *Trip Generation: An Information Report*, Tenth Edition, Washington DC, 2017.

fewer daily weekday trips with 121 fewer morning peak hour trips and 421 fewer afternoon peak hour trips than the use originally studied in the same development area. This identifies that the proposed Cross Creek – Multifamily Project is in traffic compliance with the original traffic study.

As shown in this traffic compliance letter, the currently proposed development of Cross Creek – Multifamily Project is believed to be in traffic compliance with the original *Cross Creek Traffic Impact Analysis* completed in November 2002. The project access along Catawba Way and the access along 6th Parkway both should operate with stop control and R1-1 “STOP” signs are recommended along the exiting approaches. To identify the restriction to three-quarter movements at the access along 6th Parkway, a R3-2 “No Left Turn” sign should be placed underneath the stop sign while a raised channelized pork chop island should be located in the driveway throat oriented to restrict exiting left turn movements. A northbound left turn lane with 150 feet of length should be provided along 6th Parkway at the project access for entry into the driveway. It is believed that all potential traffic impacts with the proposed project have been previously addressed within the original traffic impact study. Therefore, we believe no further traffic analysis is needed due to this proposal. If you have any questions or require anything further, please feel free to call me at (720) 943-9962.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC.



Jeffrey R. Planck, P.E.
Project Manager



Original Traffic Study Documents

**Revised
Traffic Impact Analysis**

Cross Creek

Aurora, Colorado

Prepared for

Mr. Varnell Roberts
US Home
9990 Park Meadows Drive
Lone Tree, CO 80124

Prepared by

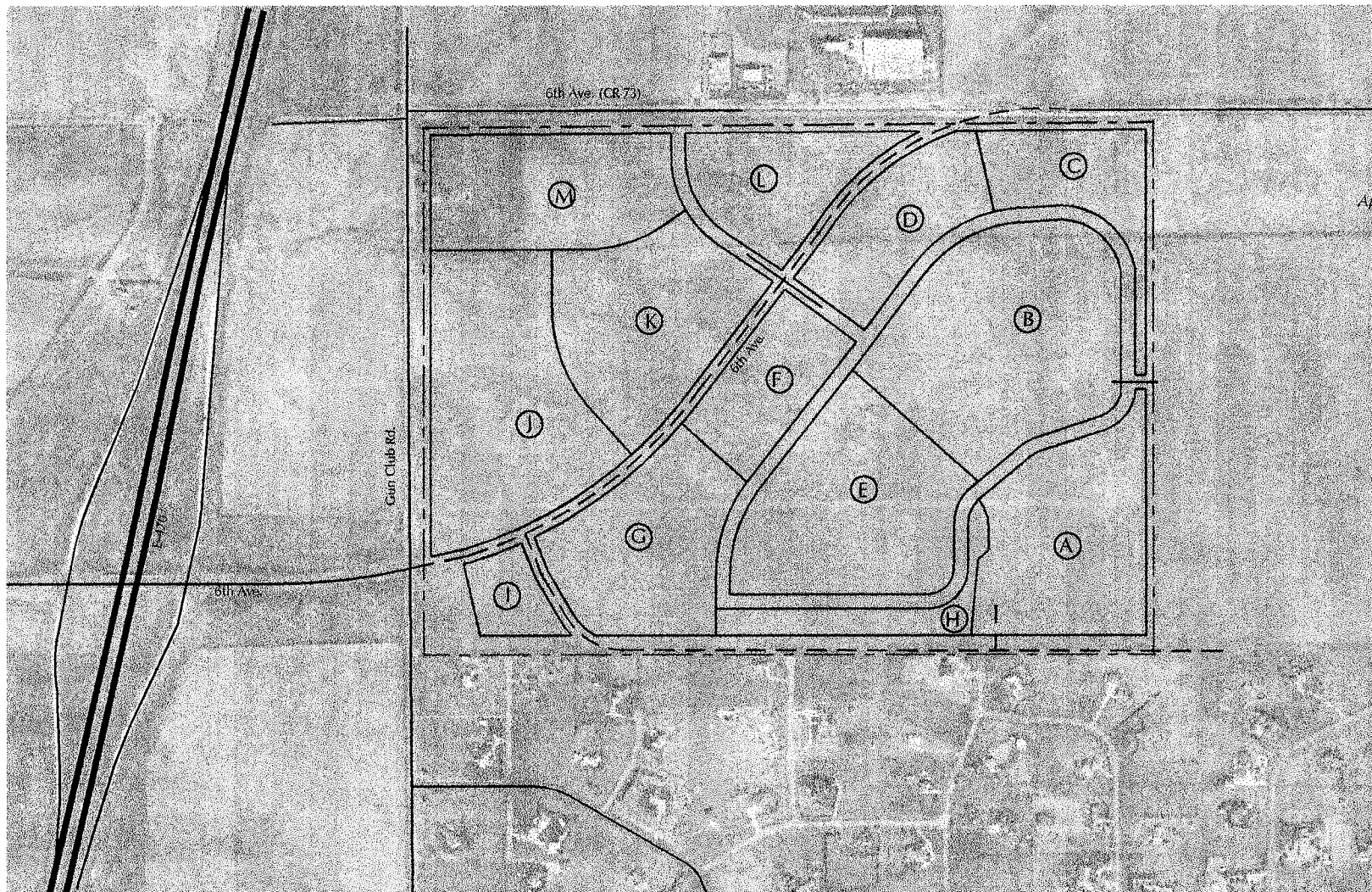
LSC Transportation Consultants, Inc.
1889 York Street
Denver, CO 80206
(303) 333-1105

November 11, 2002
(LSC #010870)

Table 1
Trip Generation Estimates
Cross Creek
Aurora, Colorado

Analysis Zone	Item	Quantity	Unit	Trip Generation Rates/Unit (1)							Trips Generated					
				Trips/Day Weekday	Trips/Hour @ Peak-Hour				Trips/Day Weekday	Trips/Hour @ Peak-Hour						
					A.M.		P.M.			A.M.		P.M.				
					In	Out	In	Out		In	Out	In	Out			
A	Single-Family Residential	(2)	75	DU	(3)	9.57	0.19	0.56	0.65	0.36	718	14	42	49	27	
B	Single-Family Residential	(2)	99	DU	(3)	9.57	0.19	0.56	0.65	0.36	947	19	55	64	36	
C	Single-Family Residential	(2)	41	DU	(3)	9.57	0.19	0.56	0.65	0.36	392	8	23	27	15	
D	Single-Family Residential	(2)	47	DU	(3)	9.57	0.19	0.56	0.65	0.36	450	9	26	31	17	
E	Single-Family Residential	(2)	89	DU	(3)	9.57	0.19	0.56	0.65	0.36	852	17	50	58	32	
F	Single-Family Residential	(2)	35	DU	(3)	9.57	0.19	0.56	0.65	0.36	335	7	20	23	13	
G	Single-Family Residential	(2)	63	DU	(3)	9.57	0.19	0.56	0.65	0.36	603	12	35	41	23	
H	Single-Family Residential	(2)	26	DU	(3)	9.57	0.19	0.56	0.65	0.36	249	5	15	17	9	
I	Single-Family Residential	(2)	15	DU	(3)	9.57	0.19	0.56	0.65	0.36	144	3	8	10	5	
K	Multi-Family	(4)	354	DU	(3)	6.63	0.08	0.43	0.42	0.20	2,347	28	152	149	71	
											7,036	121	427	467	247	
J	Commercial/Retail	(5)	115.0	KSF	(6)	64.85	0.92	0.59	2.87	3.11	7,458	106	68	330	358	
	General Office	(7)	115.0	KSF	(6)	11.01	1.37	0.19	0.25	1.24	1,266	158	22	29	143	
M	Commercial/Retail	(5)	95.0	KSF	(6)	69.43	0.99	0.64	3.07	3.32	6,596	94	61	292	315	
	General Office	(7)	95.0	KSF	(6)	11.01	1.37	0.19	0.25	1.24	1,046	130	18	24	118	
L	Commercial/Retail	(5)	75.0	KSF	(6)	75.54	1.09	0.70	3.32	3.60	5,666	82	53	249	270	
	General Office	(7)	75.0	KSF	(6)	11.01	1.37	0.19	0.25	1.24	826	103	14	19	93	
											22,857	672	235	942	1,296	

- (1) From *Trip Generation*, 6th Edition, 1997, Institute of Transportation Engineers (ITE)
 (2) ITE Land Use #210 - Single-Family Detached Housing
 (3) DU = Dwelling Units
 (4) ITE Land Use #220 - Apartment
 (5) ITE Land Use #820 - Shopping Center
 (6) KSF = Thousand Square Feet
 (7) ITE Land Use #710 - General Office Building



Approximate Scale
Scale: 1" = 800'

Figure 4

Planning Areas

November, 2002
Cross Creek (LSC #010870)

Trip Generation Calculations

Project Cross Creek Multifamily
 Subject Trip Generation for Multifamily Housing (Mid-Rise)
 Designed by TES Date August 31, 2021 Job No. 196222000
 Checked by _____ Date _____ Sheet No. 1 of 1

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Fitted Curve Equations

Land Use Code - Multifamily Housing (Mid-Rise) (221)

Independant Variable - Dwelling Units (X)

$$X = 272$$

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (Series 200 Page 74)

$$\ln(T) = 0.98 \ln(X) - 0.98$$

$$\ln(T) = 0.98 * \ln(272.0) - 0.98$$

Directional Distribution: 26% ent. 74% exit.

T = 91 Average Vehicle Trip Ends

24 entering 67 exiting

$$24 + 67 = 91$$

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (Series 200 Page 75)

$$\ln(T) = 0.96 \ln(X) - 0.63$$

$$\ln(T) = 0.96 * \ln(272.0) - 0.63$$

Directional Distribution: 61% ent. 39% exit.

T = 116 Average Vehicle Trip Ends

71 entering 45 exiting

$$71 + 45 = 116$$

Weekday (Series 200 Page 73)

$$(T) = 5.45(X) - 1.75$$

$$(T) = 5.45 * 272 - 1.75$$

Directional Distribution: 50% ent. 50% exit.

T = 1482 Average Vehicle Trip Ends

741 entering 741 exiting

$$741 + 741 = 1482$$

Peak Hour of Generator, Saturday (Series 200 Page 79)

$$(T) = 0.42(X) + 6.73$$

$$(T) = 0.42 * 272 + 6.73$$

Directional Distribution: 49% ent. 51% exit.

T = 121 Average Vehicle Trip Ends

59 entering 62 exiting

$$59 + 62 = 121$$

Project Cross Creek Multifamily
 Subject Trip Generation for Office Building
 Designed by JRP Date June 30, 2021 Job No. ####
 Checked by Date Sheet No. 1 of 1

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rates

Land Use Code - General Office Building (710)

Independant Variable - 1000 Square Feet (X)

SF = **19,000**

X = 19.000

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (700 Series Page 4)

(T) = 1.16 (X)		Directional Distribution:	86% ent.	14% exit.
(T) = 1.16 *	(19.0)	T = 22	Average Vehicle Trip Ends	
		19 entering	3	exiting
		19 + 3 =	22	

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (700 Series Page 5)

(T) = 1.15 (X)		Directional Distribution:	16% ent.	84% exit.
(T) = 1.15 *	(19.0)	T = 22	Average Vehicle Trip Ends	
		4 entering	18	exiting
		4 + 18 =	22	

Weekday (700 Series Page 3)

Average Weekday		Directional Distribution:	50% ent.	50% exit.
(T) = 9.74 (X)		T = 186	Average Vehicle Trip Ends	
(T) = 9.74 *	(19.0)	93 entering	93	exiting
		93 + 93 =	186	

Saturday, Peak Hour of Generator (700 Series Page 9)

Daily Weekday		Directional Distribution:	54% ent.	46% exit.
(T) = 0.53 (X)		T = 12	Average Vehicle Trip Ends	
(T) = 0.53 *	(19.0)	6 entering	6	exiting
		6 + 6 =	12	

Project Cross Creek Multifamily
 Subject Trip Generation for Shopping Center
 Designed by JRP Date June 30, 2021 Job No. 196222000
 Checked by _____ Date _____ Sheet No. 1 of 1

TRIP GENERATION MANUAL TECHNIQUES

ITE Trip Generation Manual 10th Edition, Average Rate Equations

Land Use Code - Shopping Center (820)

Independant Variable - 1000 Square Feet Gross Leasable Area (X)

Gross Leasable Area = **19,000** Square Feet

X = 19.000

T = Average Vehicle Trip Ends

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m. (800 Series Page 139)

Average Weekday	Directional Distribution:	62% ent.	38% exit.
T = 0.94 * (X)	T = 18	Average Vehicle Trip Ends	
T = 0.94 * 19	11 entering	7 exiting	
	11 + 7 = 18		

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m. (800 Series page 140)

Average Weekday	Directional Distribution:	48% ent.	52% exit.
T = 3.81 * (X)	T = 72	Average Vehicle Trip Ends	
T = 3.81 * 19	35 entering	37 exiting	
	35 + 37 = 72		

Weekday (800 Series page 138)

Average Weekday	Directional Distribution:	50% entering, 50% exiting
T = 37.75 * (X)	T = 718	Average Vehicle Trip Ends
T = 37.75 * 19	359 entering	359 exiting
	359 + 359 = 718	

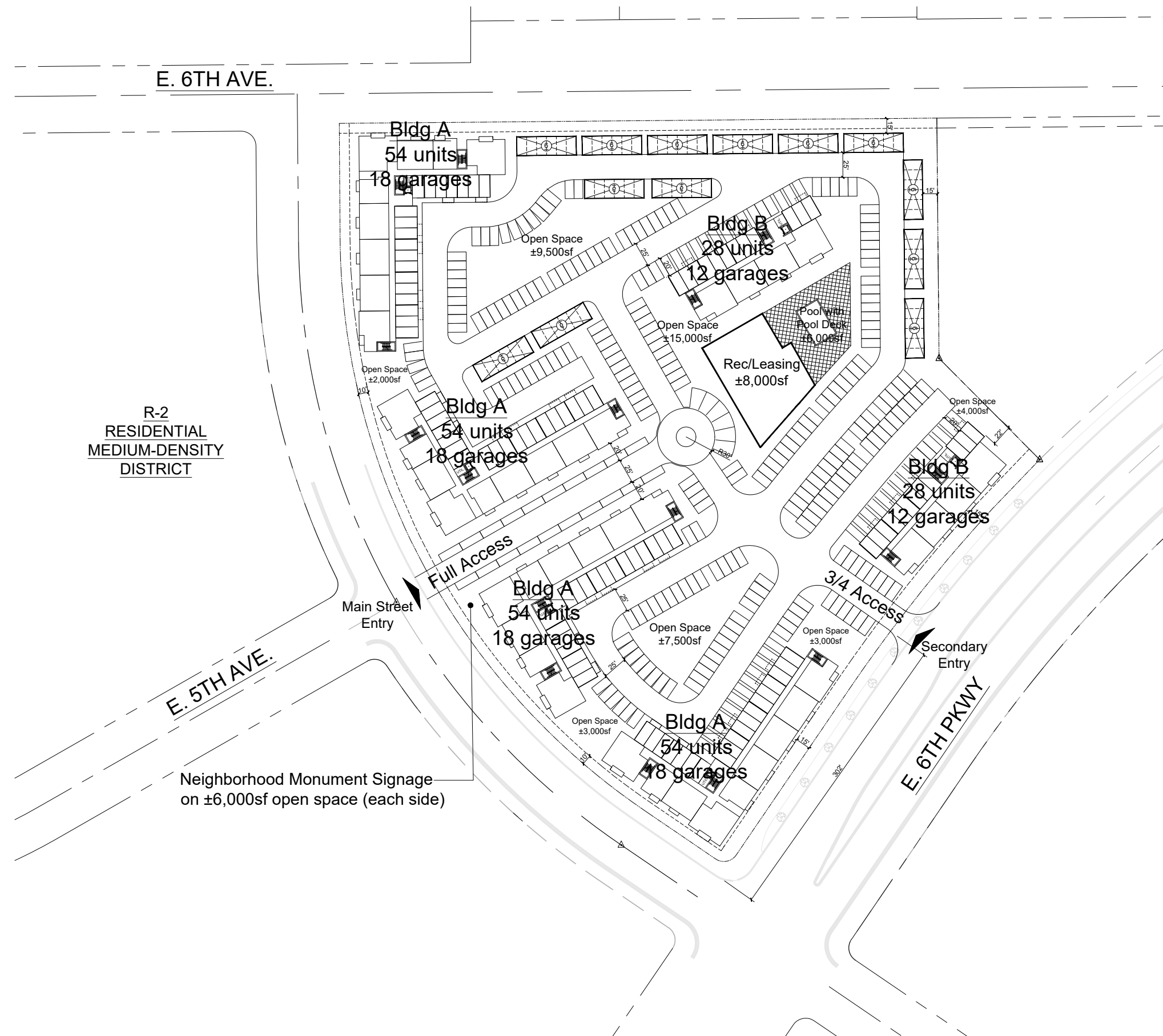
Non Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017-Page 190)

AM Peak Hour = 66% Non-Pass By	PM Peak Hour = 66% Non-Pass By
IN Out Total	
AM Peak 7 5 12	
PM Peak 23 24 48	
Daily 237 237 474	PM Peak Hour Rate Applied to Daily

Pass-By Trip Volumes (Per ITE Trip Generation Handbook, 3rd Edition September 2017 -Page 190)

AM Peak Hour = 34% Pass By	PM Peak Hour = 34% Pass By
IN Out Total	
AM Peak 4 2 7	
PM Peak 12 13 24	
Daily 122 122 244	PM Peak Hour Rate Applied to Daily

Conceptual Site Plan



R-2
RESIDENTIAL
MEDIUM-DENSITY
DISTRICT

Neighborhood Monument Signage
on ±6,000sf open space (each side)

4-Story Buildings
(4) Building Type A
(2) Building Type B

Units:
128 units - 1bd
104 units - 2bd
40 units - 3bd
272 units

Covered Parking Required:
40% of total parking shall be covered,
Garages or Carports = 175 spaces
50% of covered parking shall be attached,
Attached Garages = 88 spaces

Parking Provided:
100 spaces - Garages
78 spaces - Carports
258 spaces - Open parking
436 spaces - Total* 1.6 sp/unit
**total does not include additional 36 spaces in tandem driveways*

Open Space Required:
2.57 ac are within 330' of Club and require only 10%
OS - 0.26 acres
5.68 ac are beyond the 330' radius and require 20%
OS - 1.14 acre
1.40 acres total open space req'd = 60,984

Open Space Provided:
62,000 sf open space as noted on site
44 balconies x 80 sf = 3,520 sf
65,520 total open space > 60,984 ok