TRAFFIC IMPACT ANALYSIS

FOR

HOSPITAL CENTER BOULEVARD MULTIFAMILY

LOCATED

IN

STAFFORD COUNTY, VIRGINIA

Prepared By:
Ramey Kemp & Associates, Inc.
4343 Cox Road
Glen Allen, Virginia 23060

February 2023

RKA Project No. 22627

Prepared By: IG

Reviewed By: JW

RAMEY KEMP ASSOCIATES
Moving forward.

T 804 217 8560

4343 Cox Road
Glen Allen, VA 23060

24FEB23

Mr. Michael Zuraf, AICP
Stafford County
1300 Courthouse Road
Stafford, Virginia 22554
Phone: (540) 658-8668

Reference: **Hospital Center Boulevard Multifamily** – Traffic Impact Analysis (TIA)
U.S. 1 at Hospital Center Boulevard

Dear Mr. Zuraf,

Bonaventure is proposing to construct a mixed-use development that includes two office, retail buildings, and multifamily community in the southeast quadrant of the U.S. 1 (Jefferson Davis Highway) at Hospital Center Boulevard intersection. The development plan includes an approximate 19,200 sf office space, an approximate 9,600 s.f strip retail plaza, and 300 multifamily housing units with one full-movement driveway on Old Potomac Church Road and one right-in/right-out (RIRO) site entrance south of the U.S. 1 (Jefferson Davis Highway) and Hospital Center Boulevard intersection. If approved, the proposed community is expected to built-out by 2027.

Ramey Kemp & Associates, Inc. (RKA) has performed this Traffic Impact Analysis (TIA) based on our TIA scoping document provided to you on 13 February 2023. Figure 1 shows the site location and study intersections, and Figure 2 shows the preliminary site plan.

Figure 1: Site Location and Study Intersections

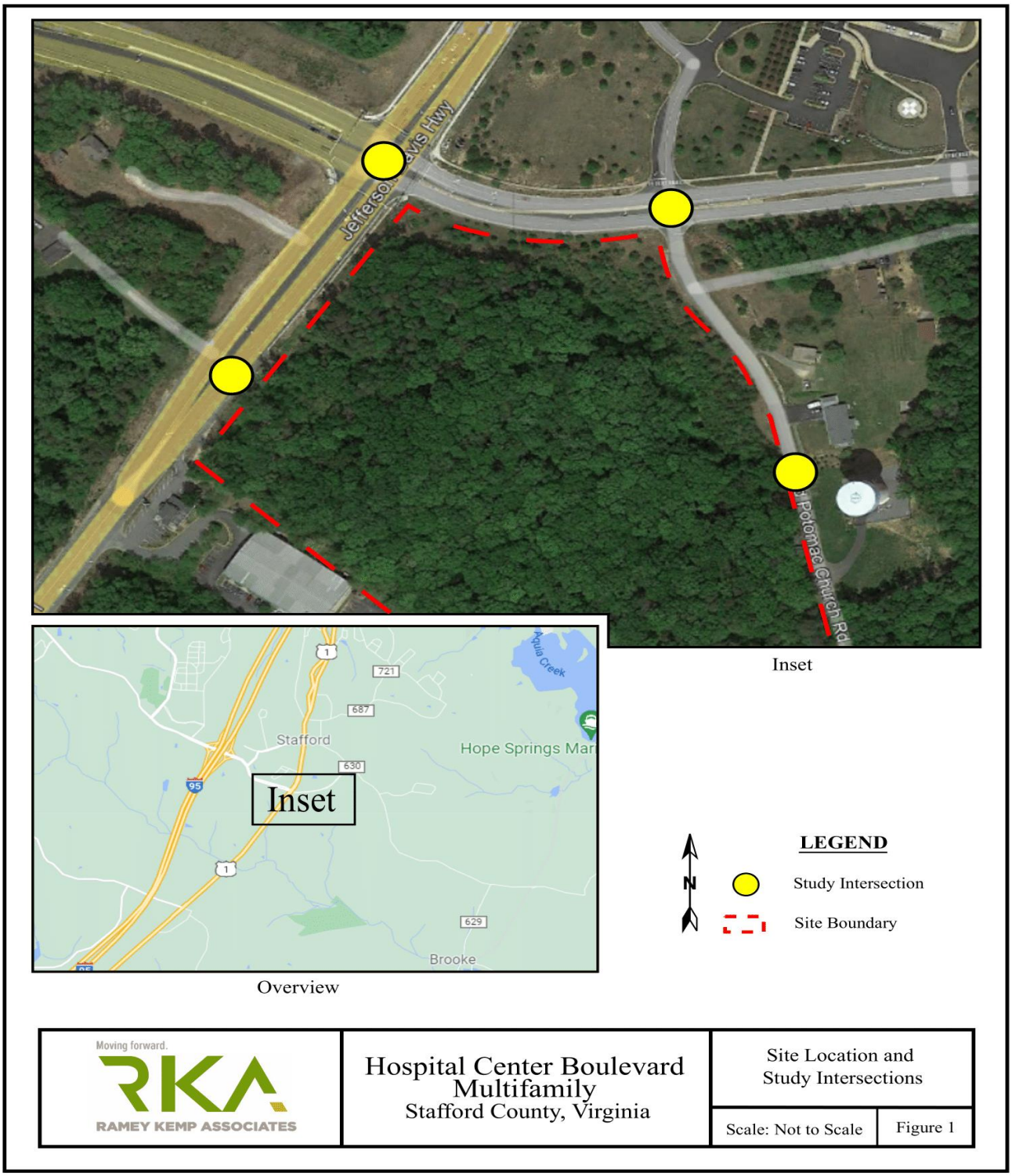
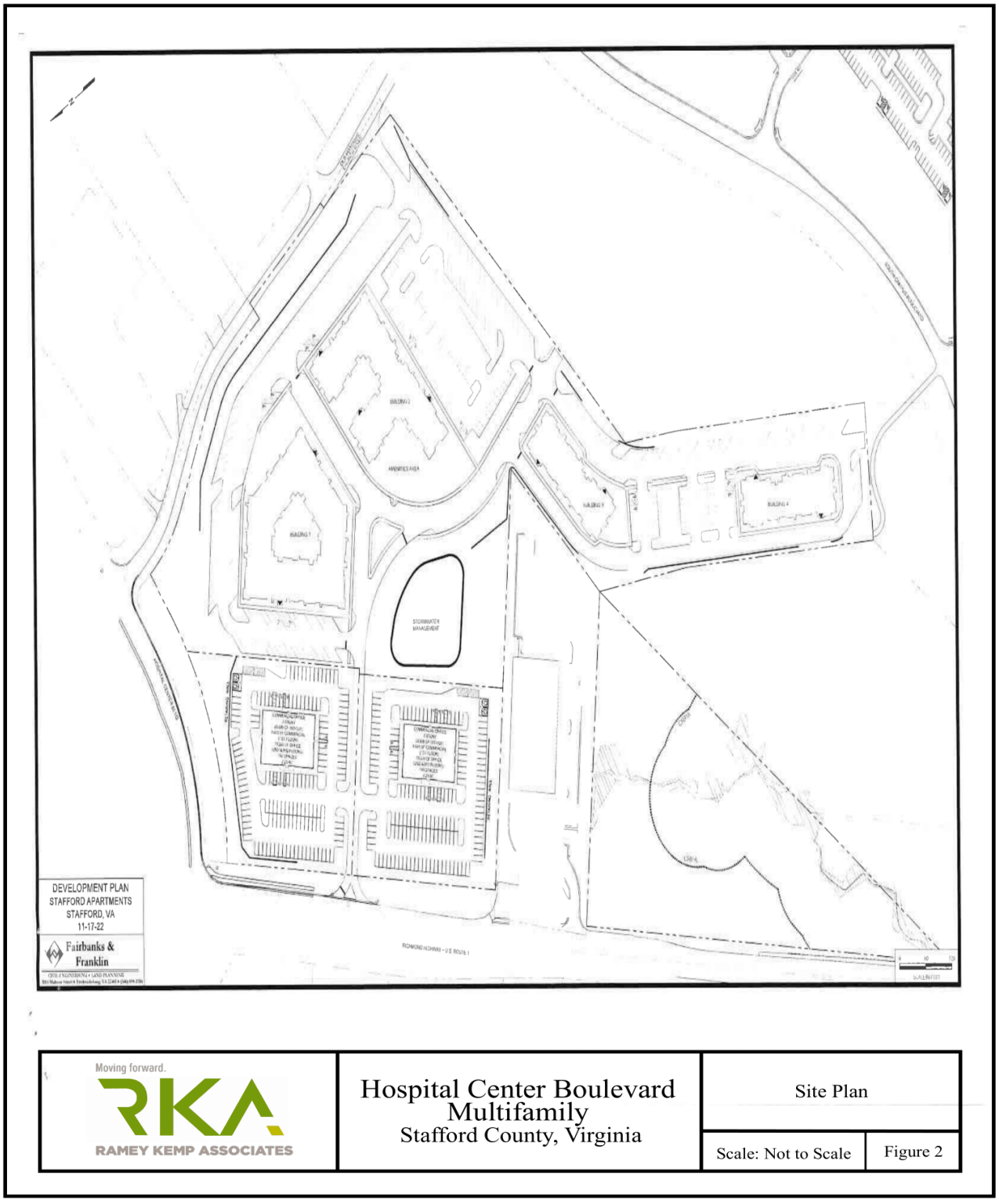


Figure 2: Preliminary Site Plan



Existing Roadway Conditions

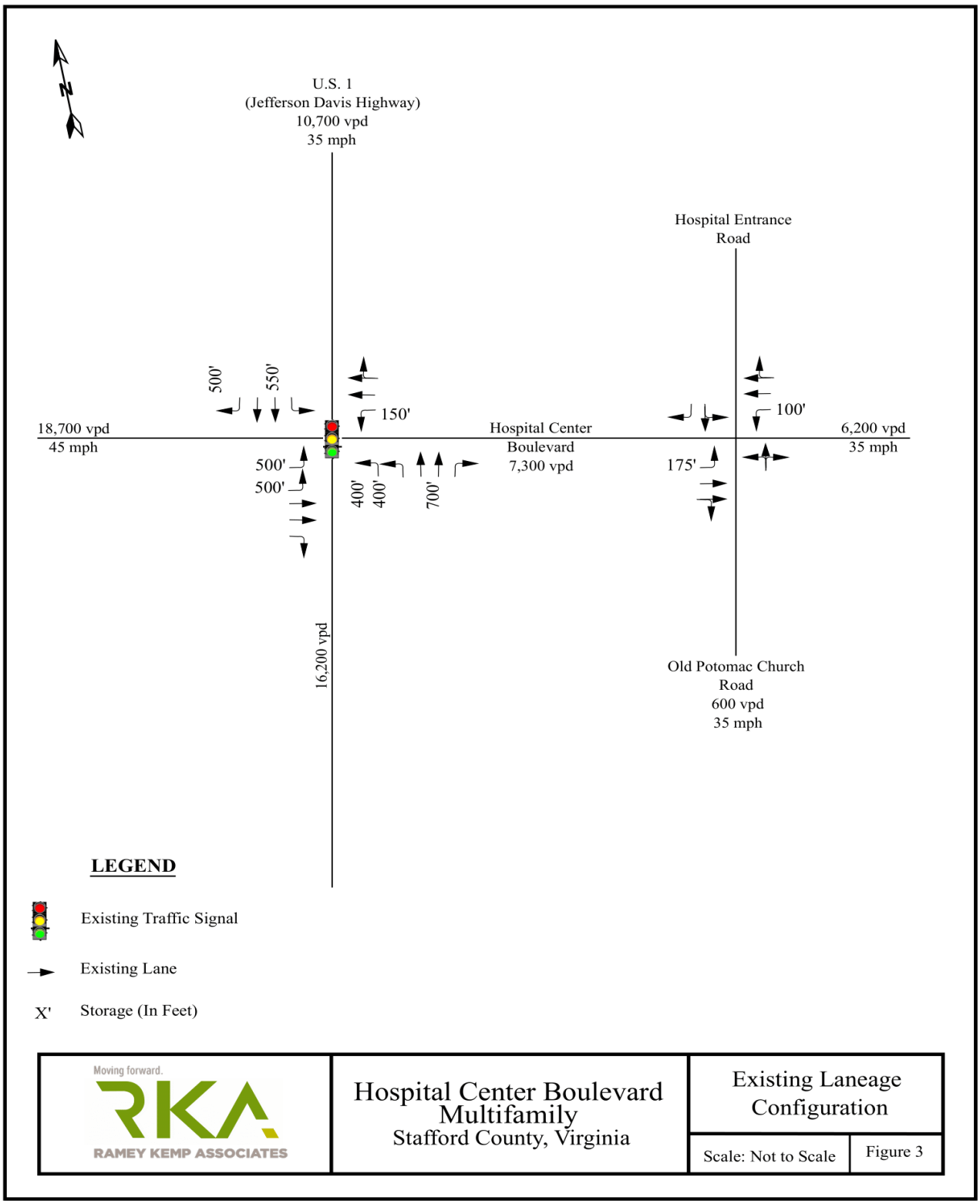
U.S. 1 (Jefferson Davis Highway) is a four-lane Principal Arterial with an average daily traffic (ADT) volume of approximately 16,200 vehicles per day (vpd), and a posted speed limit of 35 miles per hour (mph).

Hospital Center Boulevard is a four-lane Major Collector with an ADT volume of approximately 7,300 vpd, with a posted speed limit of 40 mph west of U.S. 1 and 35 mph east of U.S. 1.

Old Potomac Church Road is a two-lane private roadway with an ADT volume of approximately 600 vpd, with a statutory speed limit of 35 mph.

The existing lane configurations are shown in Figure 3.

Figure 3: Existing Lane Configurations



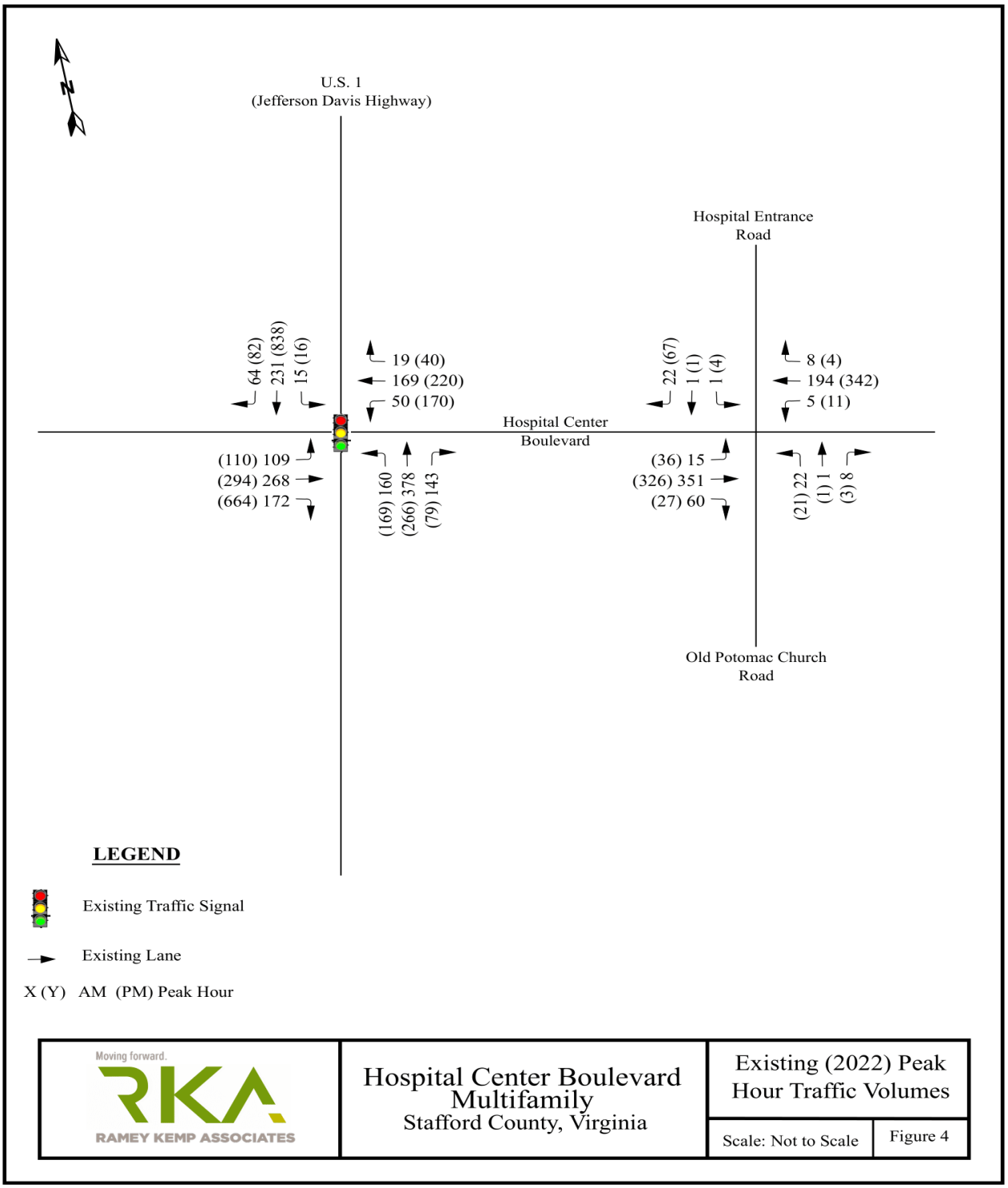
Existing Traffic Volumes

The AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) turning movement counts were conducted by Technical Traffic Services, Inc. at the following intersection during the week of January 23, 2022:

- U.S. 1 at Hospital Center Boulevard
- Hospital Center Boulevard at Old Potomac Church Road / Hospital Entrance Road

The traffic count data is enclosed and after a discussion with VDOT in December 2022 using the existing traffic count data will be acceptable and applying a growth rate of 2% the existing 2023 volumes are shown in Figure 4.

Figure 4: Existing (2023) Peak Hour Volumes



Approved Developments
Based on discussion with the County and VDOT, there are ten approved developments in the vicinity of the site that will generate a significant amount of traffic.

Figure 7a in the Burns Property TIA shows the trip potential of six of the approved developments at the following level of build-out in 2025:

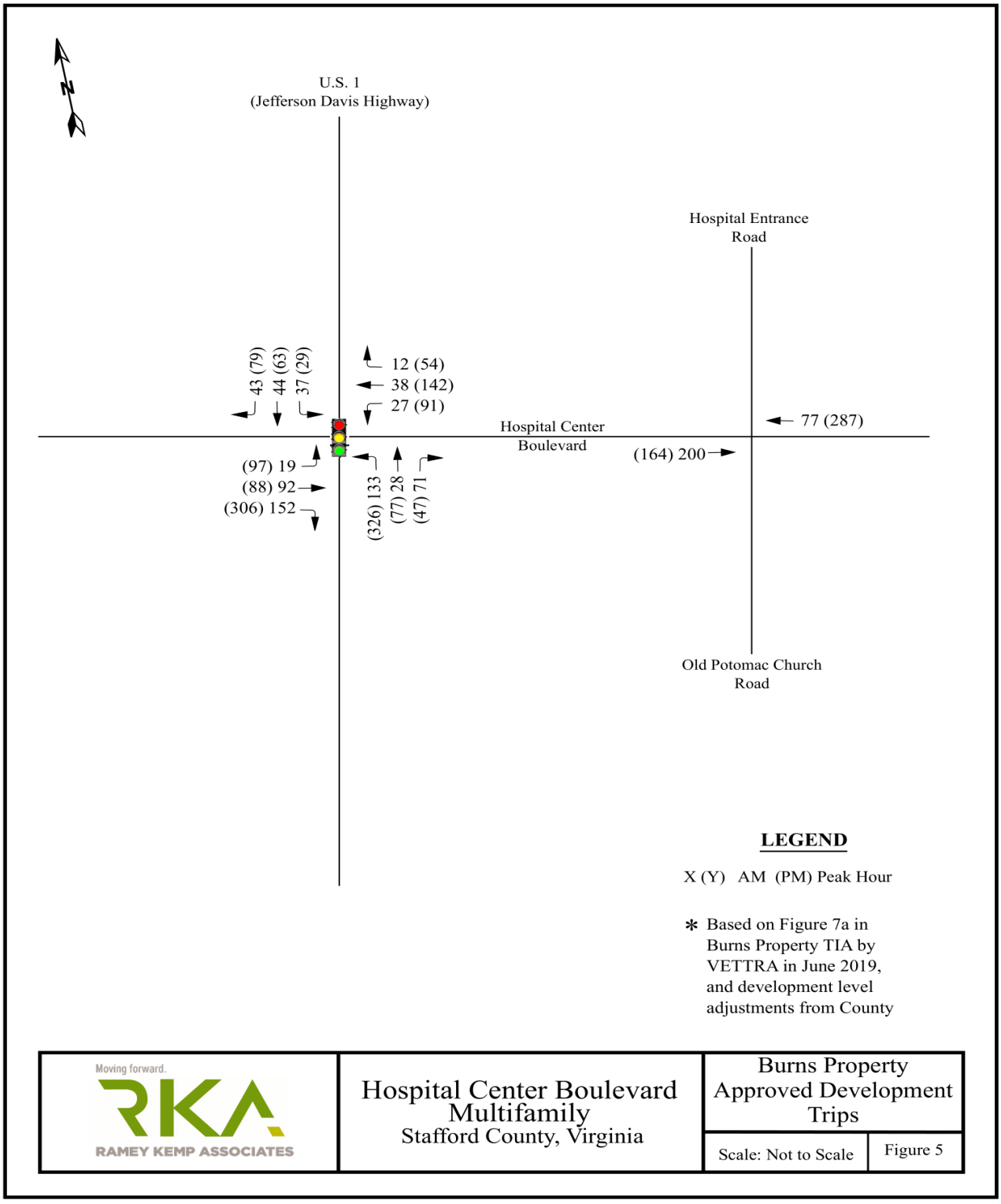
- Austin Ridge Commercial – 75% of trips
- Embrey Mill Commercial – 25% of trips.
- South Campus – 25% of trips
- Stafford Commons – 100% of trips
- Stafford Hospital – 25% of trips
- Westgate Center – 50% of trips

Based on discussion with you, and to be consistent with other TIA's, the build-out levels for three of the developments were adjusted:

- Austin Ridge Commercial – reduced to 50% of trips.
- Embrey Mill Commercial – increased to 50% of trips.
- Stafford Hospital – increased to 50% of trips.

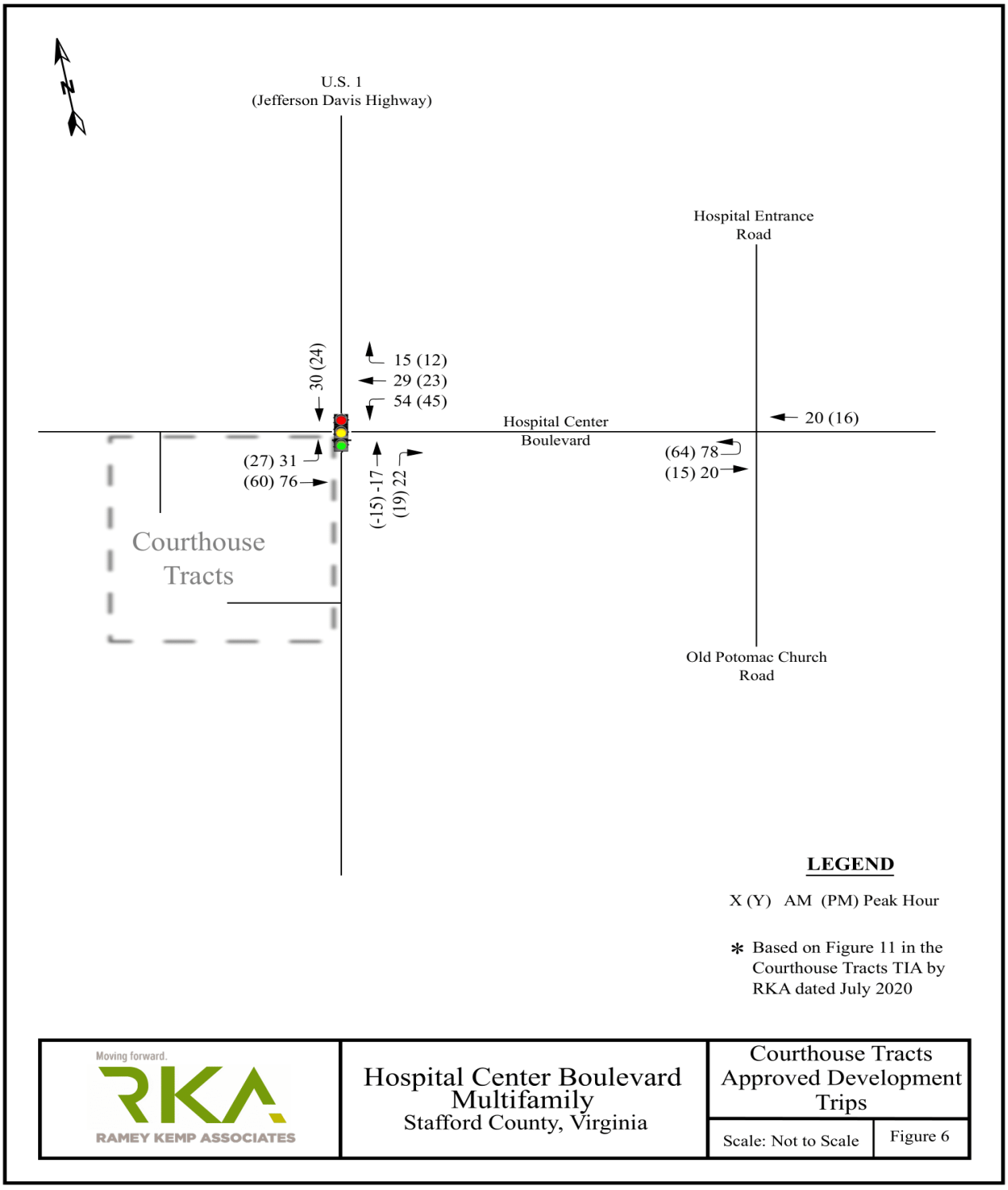
Figure 5 shows the approved development trips adjusted from the Burns Property TIA.

Figure 5: Burns Property Approved Development Trips



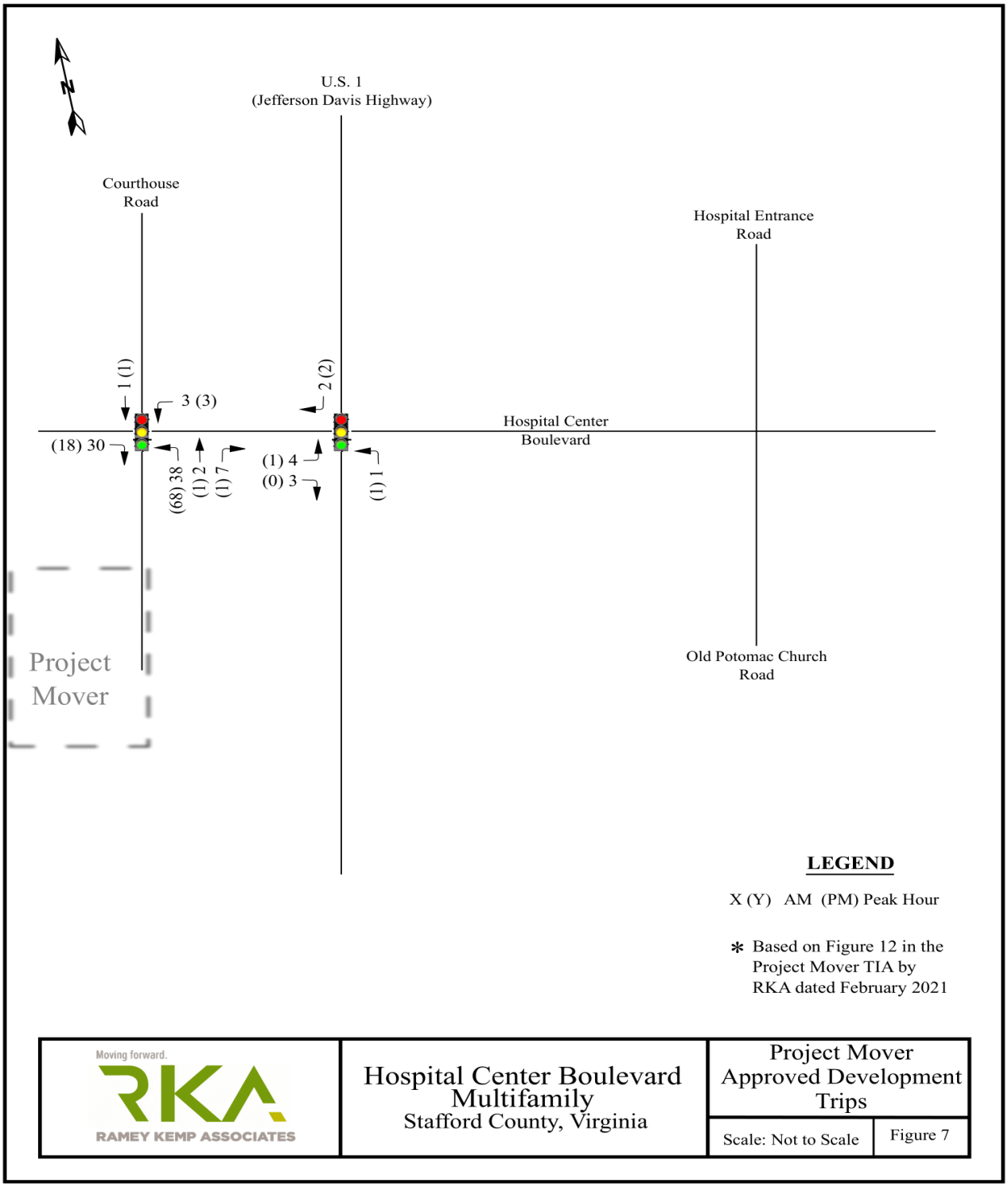
Courthouse Tracts is a commercial center located in the southwest quadrant of the U.S. 1 at Hospital Center Drive intersection and includes one convenience store with 16 fueling positions (f.p.) and one fast-food restaurant. RKA performed the TIA for this project in July 2020. Figure 6 shows the projected Courthouse Tract trips based on the RKA TIA.

Figure 6: Projected Courthouse Tract Trips



Project Mover is a 533,000 square foot (s.f.) distribution center at the end of Bradburn Place in the southeast quadrant of the I-95 at Courthouse Road interchange. RKA performed the TIA for this distribution center in February 2021. Figure 7 shows the projected Project Mover trips based on the RKA TIA.

Figure 7: Projected Project Mover Trips



Potomac Church Farms is a proposed neighborhood located at the end of Old Potomac Church Road, west of Black Hawk Drive. Potomac Church Apartments is a proposed multifamily community located in the southeast quadrant of the Old Potomac Church Road at Abberly Drive intersection. The County did not require a TIA for either community, so the trip generation potential of the approved developments was estimated using the methodologies published by the Institute of Transportation Engineers (ITE) *Trip Generation Manual – 11th Edition* as shown in Table 1.

Table 1: Potomac Church Developments – ITE Trip Generation – Weekday – 11th Edition

Land Use (ITE Land Use Code)	Size	Weekday Daily Traffic (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
		Enter	Exit	Enter	Exit	Enter	Exit
Single-Family Detached Housing (210)	212 lots	1,007	1,007	38	110	126	75
Multifamily Housing (Mid-Rise) (221)	144 units	327	327	12	41	34	23
Total		**1,334**	**1,334**	**50**	**151**	**160**	**98**

Figure 8 shows the Potomac Church residential trip distribution, Figure 9 shows the site trip assignment for both developments.

Figure 8: Potomac Church Residential Trip Distribution

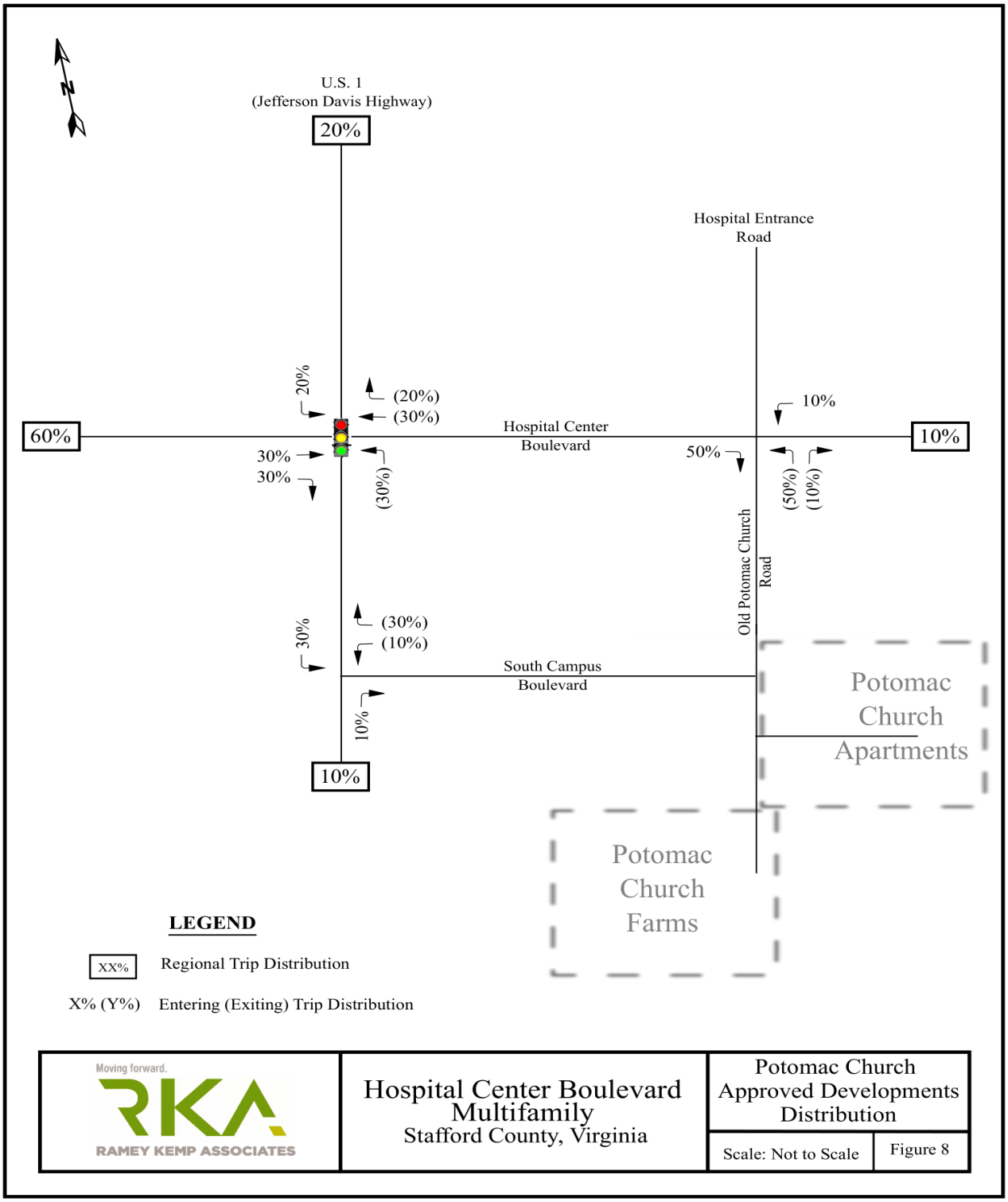
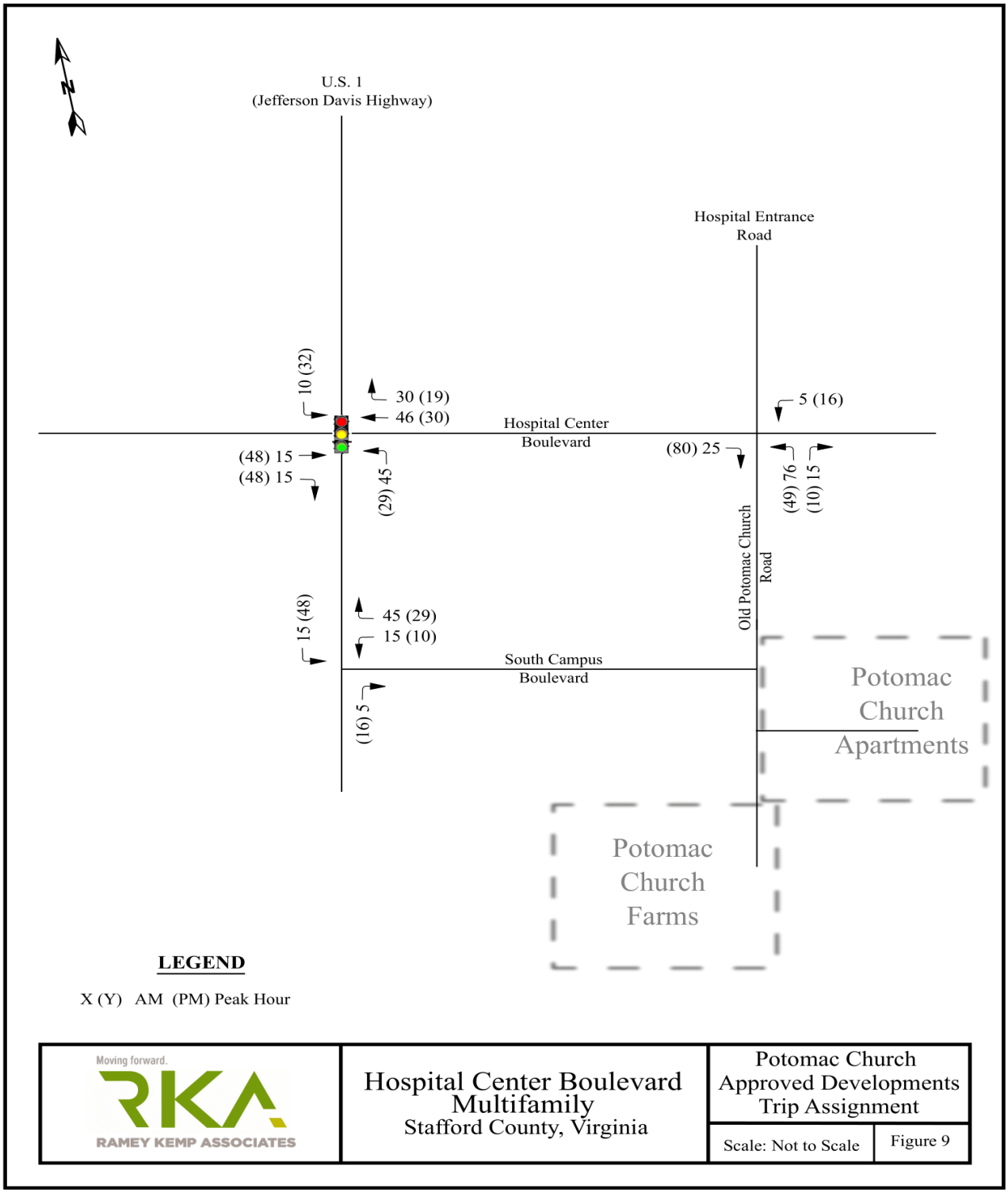


Figure 9: Potomac Church Residential Trip Assignment



Venture business Park is a proposed industrial building located in the southwest quadrant at the intersection of Courthouse Road at Hospital Center Boulevard. Specifically, south of the Wyche Court at Bradburn Place. The trip generation potential of the approved developments was estimated using the methodologies published by the Institute of Transportation Engineers (ITE) *Trip Generation Manual – 11th Edition* as shown in Table 2.

Table 2: Venture Business Park – ITE Trip Generation – Weekday – 11th Edition

Land Use (ITE Land Use Code)	Size	Weekday Daily Traffic (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
		Enter	Exit	Enter	Exit	Enter	Exit
General Light Industrial (210)	250,000 s.f.	609	609	163	22	26	174

Figure 10 shows the Venture Business Park trip distribution, Figure 11 shows the site trip assignment for both developments, and Figure 12 shows the total approved development trips.

Figure 10: Venture Business Park Trip Distribution

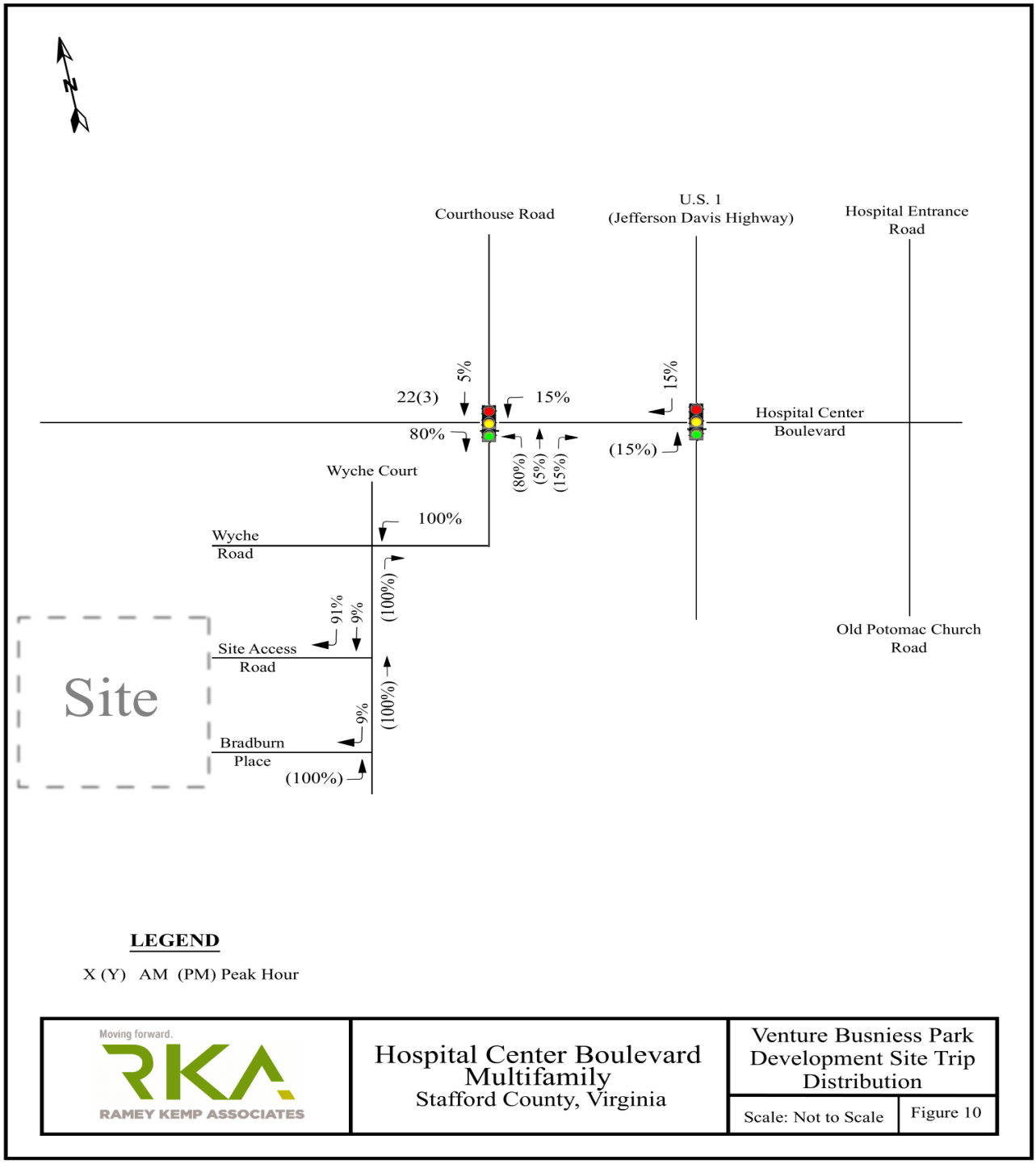


Figure 11: Venture Business Park Trip Assignment

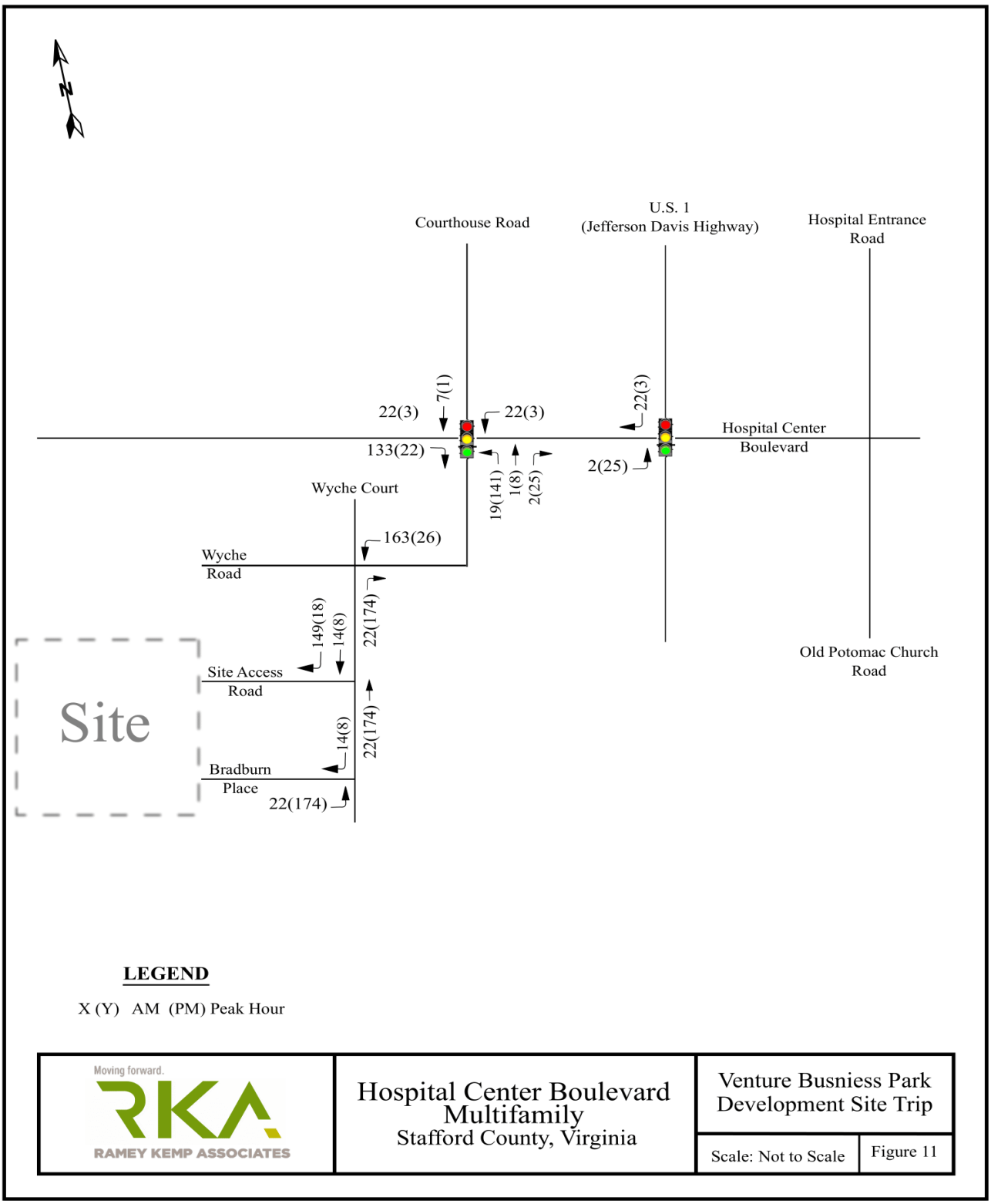
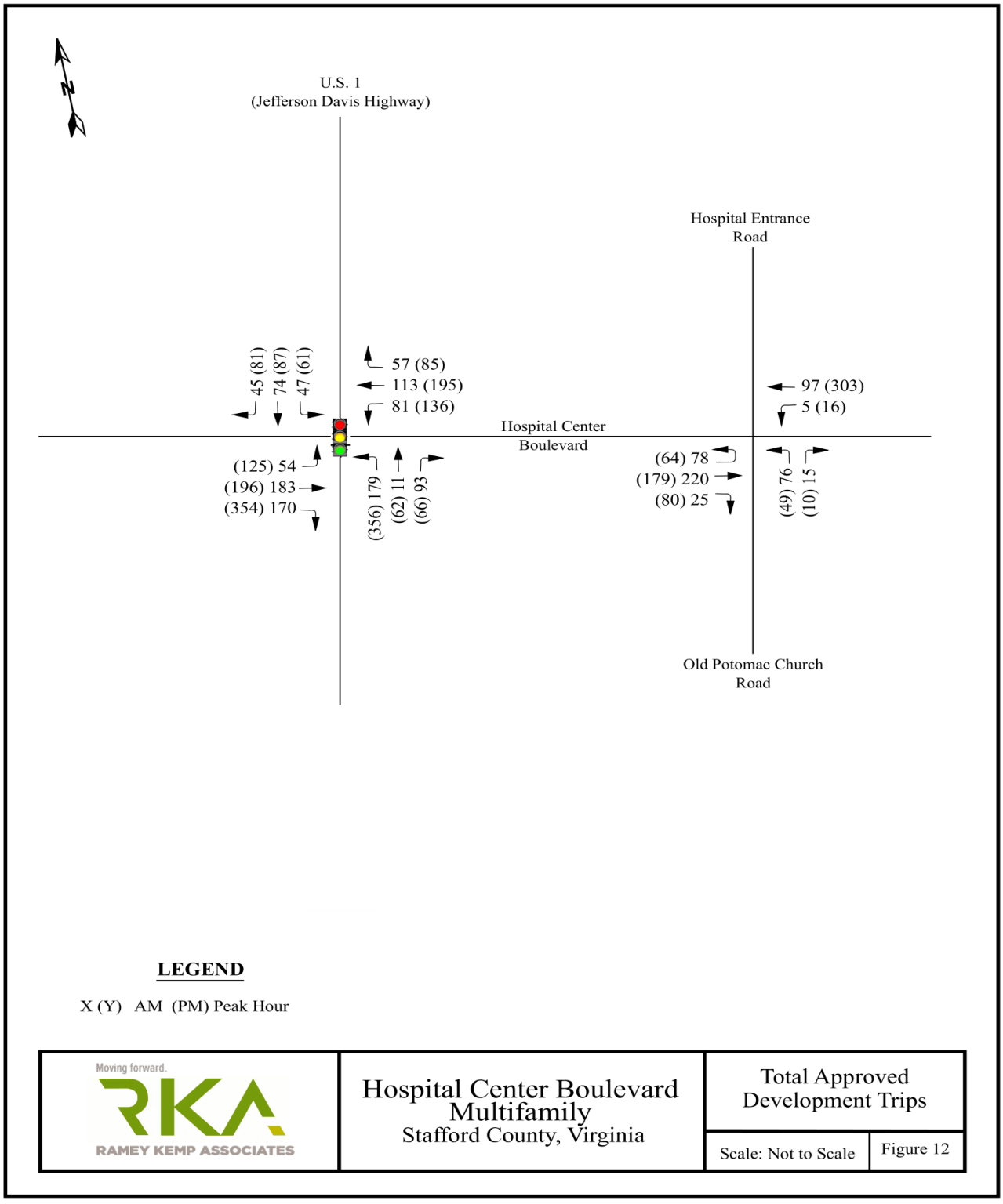


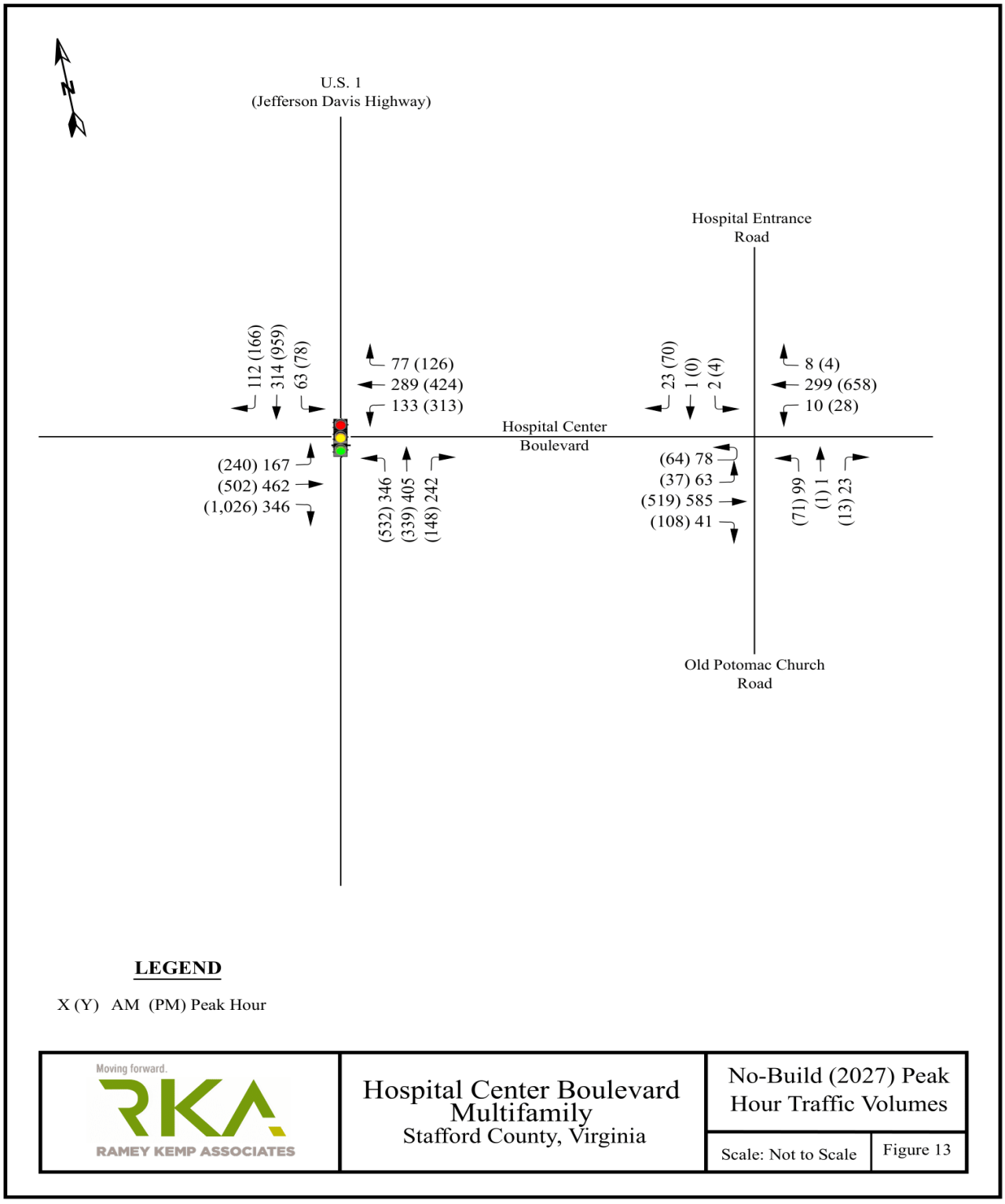
Figure 12: Total Approved Development Trips



Background Traffic Growth

The existing 2023 peak hour traffic volumes were grown by an annual rate of 2.0% for three years to estimate the projected 2027 peak hour traffic volumes. The approved development trips were then added to the grown volumes to produce the no-build 2027 peak hour traffic volumes, which are shown in Figure 13.

Figure 13: No-build 2027 peak hour traffic volumes



Trip Generation

Table 3 shows the trip generation potential of the site during a typical weekday based on the ITE *Trip Generation Manual – 11th Edition.*

Table 3: Hospital Center Blvd Multifamily – ITE Trip Generation – Weekday – 11th Edition

Land Use (ITE Land Use Code)	Size	Average Daily Traffic (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
		Enter	Exit	Enter	Exit	Enter	Exit
Multifamily Housing (Mid-Rise) (221)	300 units	693	693	27	93	71	46
General Office (710)	19,200 s.f	104	104	25	29	05	23
Strip Retail Plaza <40K (822)	9,600 s.f	261	262	14	09	31	32
Subtotal		1,508	1,059	66	131	107	101
ITE Internal Capture: 15%		-104	-104	-4	-14	-16	-15
Driveway Volumes		**1,404**	**1,405**	**62**	**117**	**91**	**86**
ITE Pass-by trips: Strip Retail Plaza – 30% AM / 40% PM		-91	-91	-4	-3	-12	-12
Net New External Trips		1,313	1,314	58	114	79	73

Residential Traffic Distribution

The following site traffic distribution was applied based on a review of the existing traffic volumes, the adjacent roadway network, and engineering judgement:

- 60% to / from the west on Hospital Center Boulevard
- 20% to / from the north on U.S. 1
- 10% to / from the south on U.S. 1
- 10% to / from the east on Hospital Center Boulevard

Figure 14 shows the residential trip distribution and Figure 15 shows the residential trip assignment.

Figure 14: Residential Trip Distribution

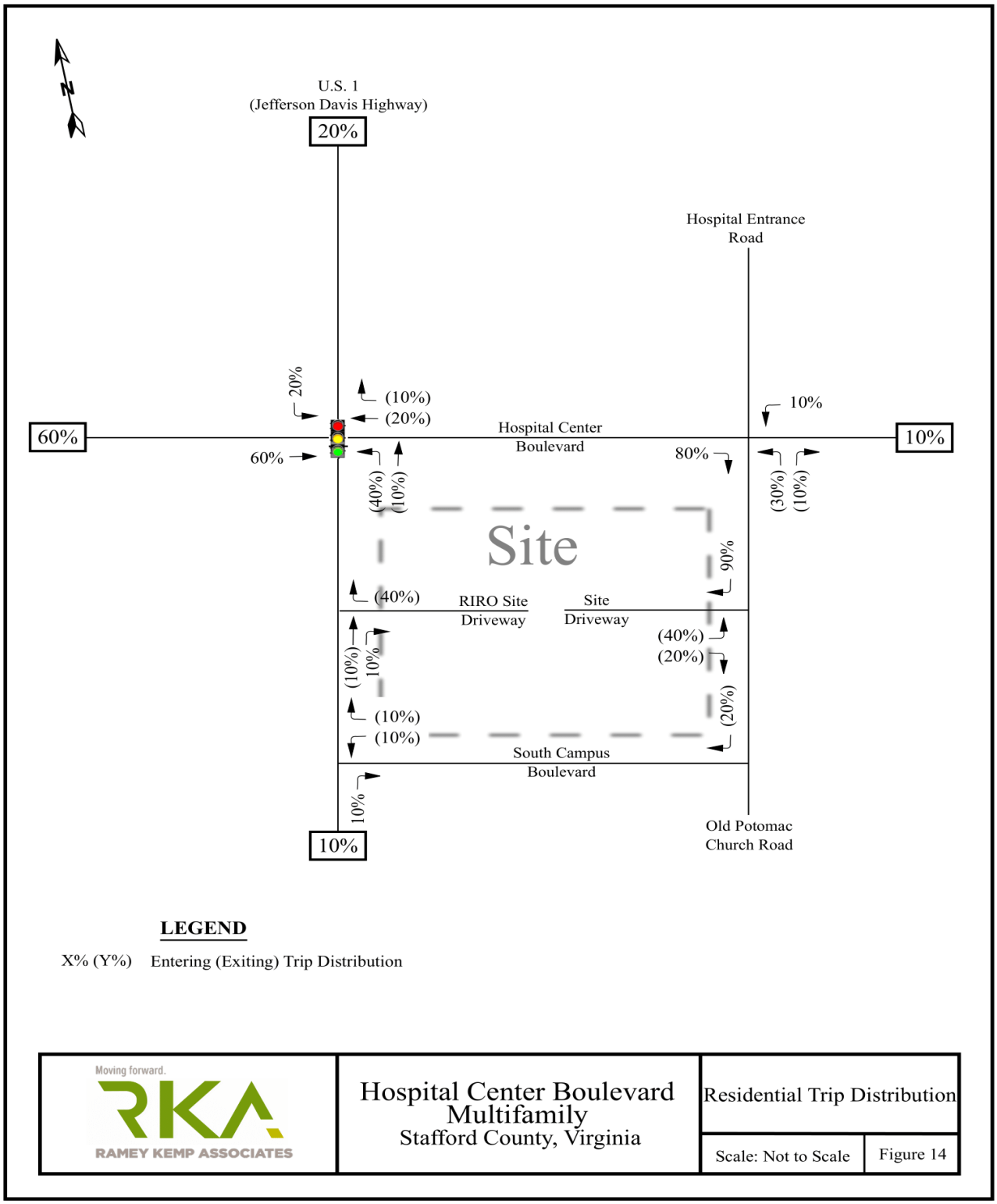
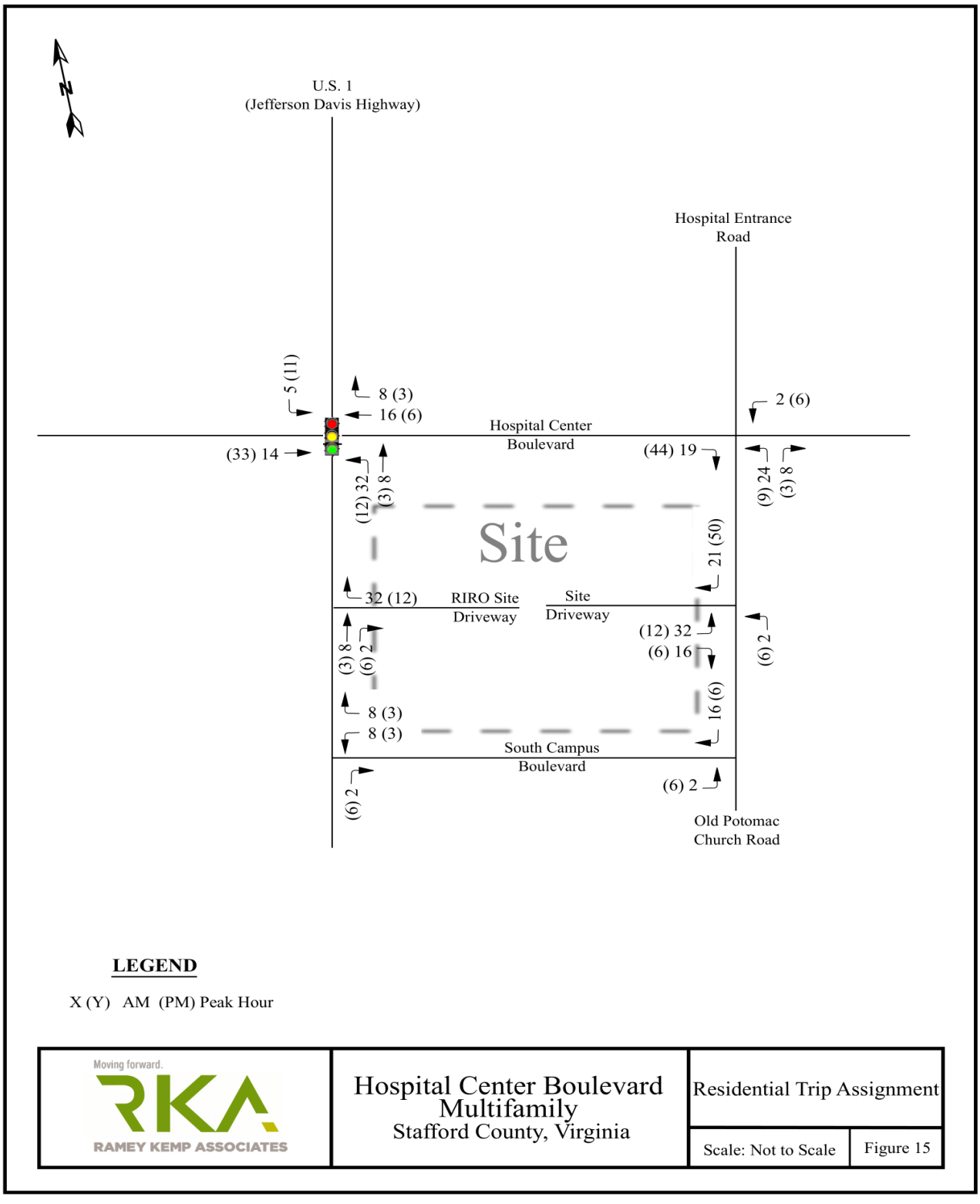


Figure 15: Residential Trip Assignment



Office Traffic Distribution

The following site traffic distribution was applied based on a review of the existing traffic volumes, the adjacent roadway network, and engineering judgement:

- 60% to / from the west on Hospital Center Boulevard
- 20% to / from the north on U.S. 1
- 10% to / from the south on U.S. 1
- 10% to / from the east on Hospital Center Boulevard

Figure 16 shows the site trip distribution and Figure 17 shows the site trip assignment.

Figure 16: Office Trip Distribution

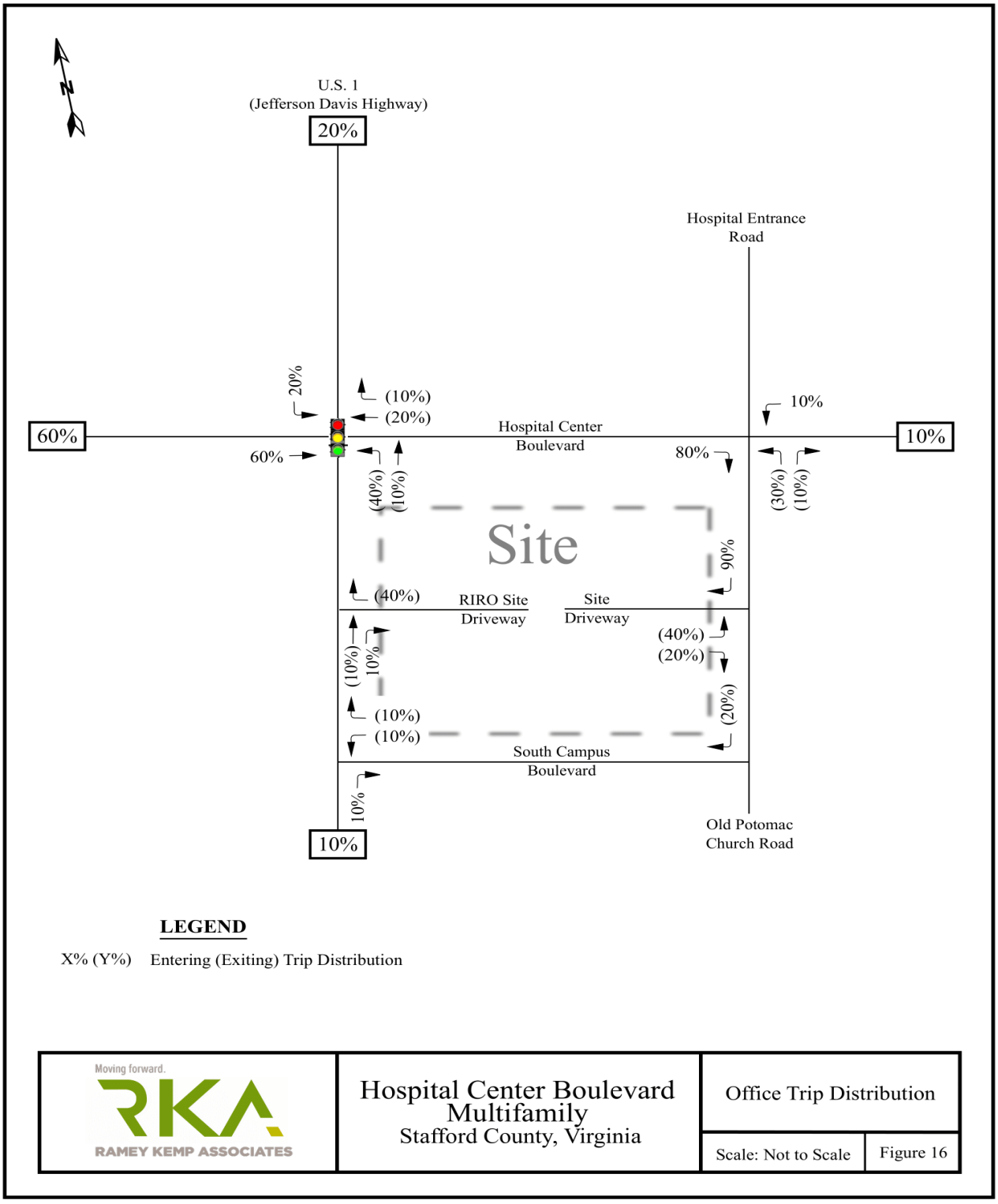
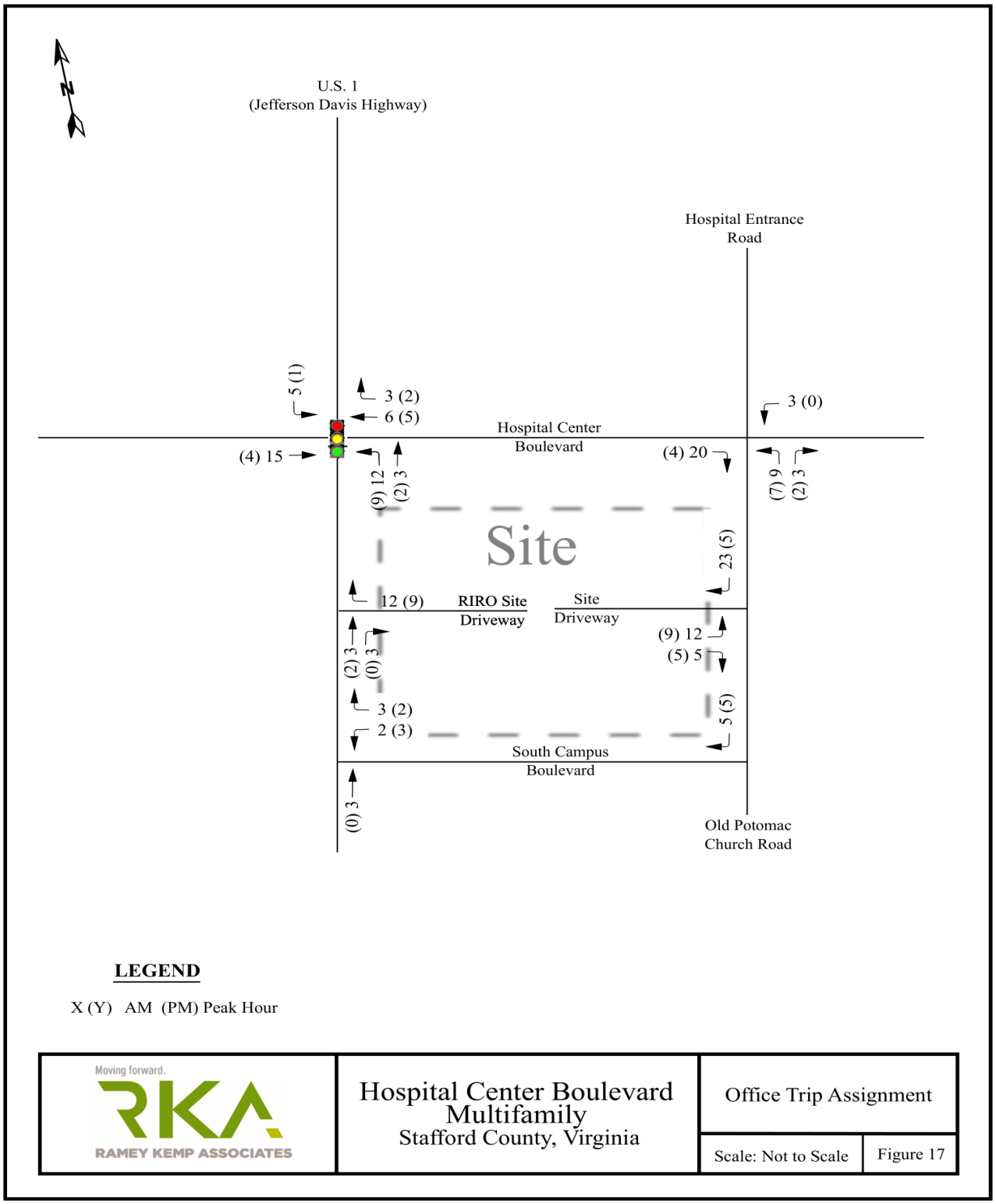


Figure 17: Office Trip Assignment



Retail Traffic Distribution

The following retail traffic distribution was applied based on a review of the existing traffic volumes, the adjacent roadway network, and engineering judgement:

- 60% to / from the west on Hospital Center Boulevard
- 20% to / from the north on U.S. 1
- 10% to / from the south on U.S. 1
- 10% to / from the east on Hospital Center Boulevard

Figure 18 shows the retail trip distribution and Figure 19 shows the site trip assignment.

Figure 18: Retail Trip Distribution

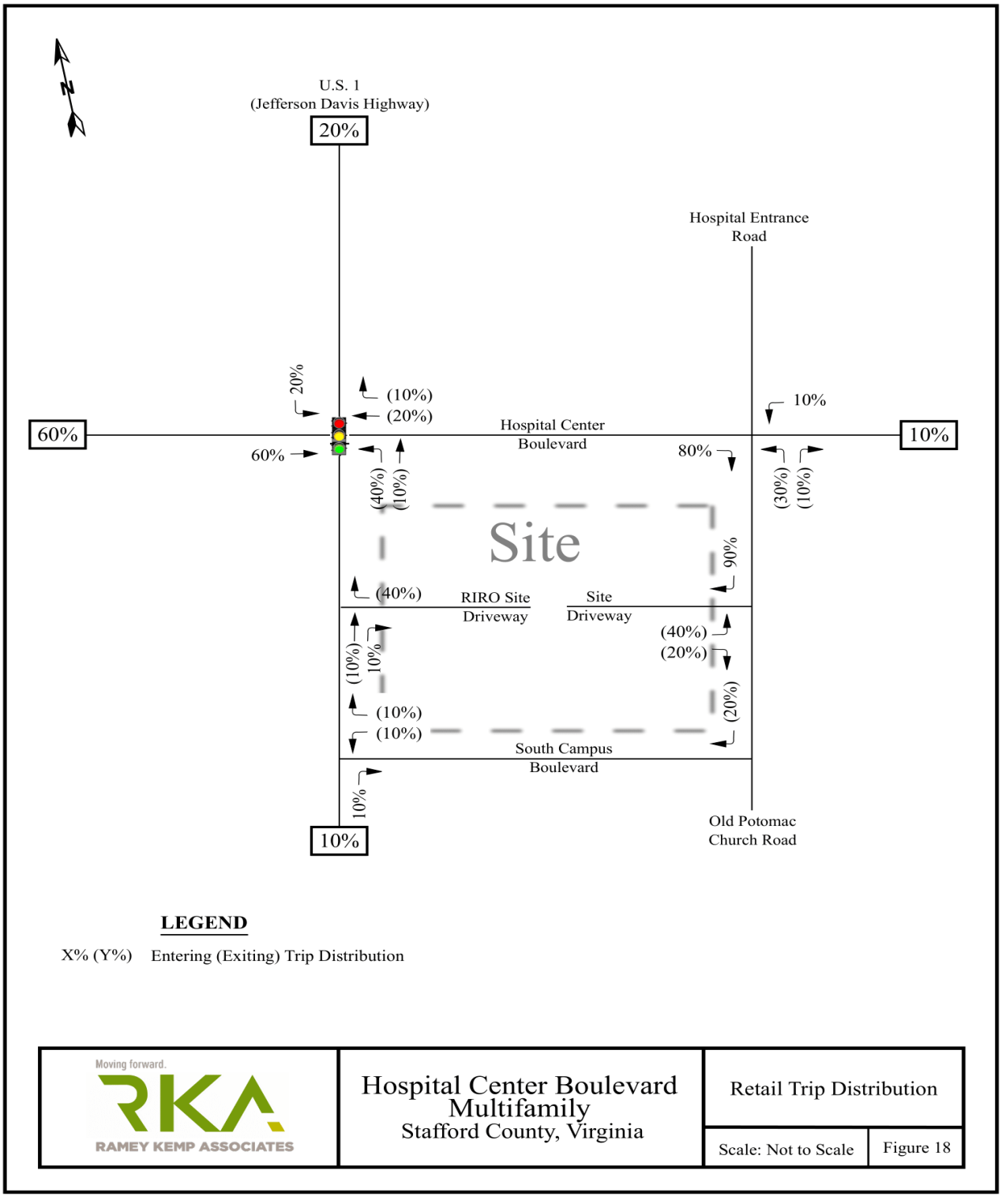
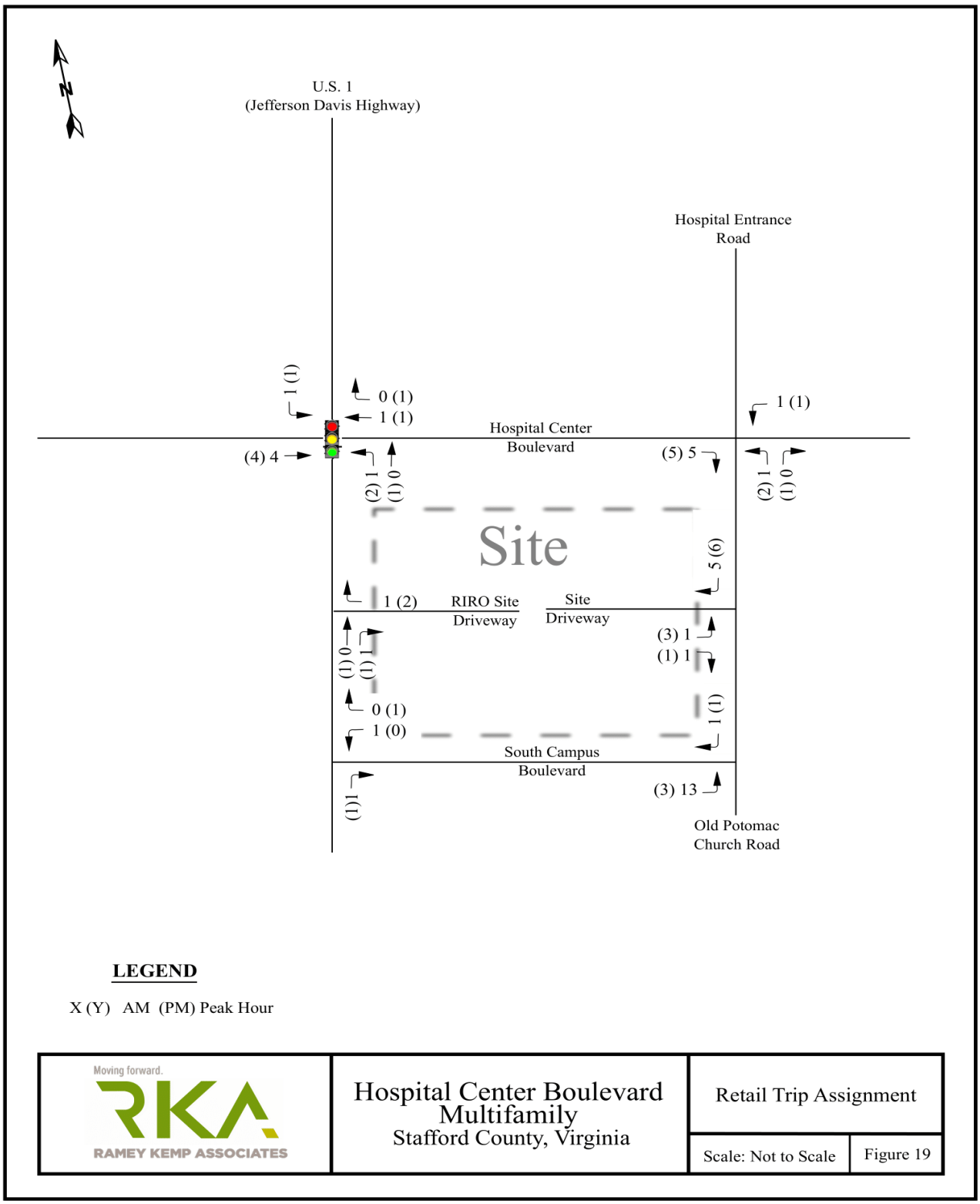


Figure 19: Retail Trip Assignment



It was assumed all pass-by trips will originate from Route 1 (Jefferson Davis Highway), Old Potomac Church Road, and Hospital Center Boulevard with the following directional distributions:

- AM Peak - 70 % northbound / 30% southbound.
- PM Peak - 70 % northbound / 30% southbound

Figure 20 shows the retail trip distribution and Figure 21 shows the retail trip assignment. Figure 22 shows the total site trips. Figure 23 shows the projected 2027 build-out peak hour traffic volumes.

Figure 20: Retail Pass-By Distribution

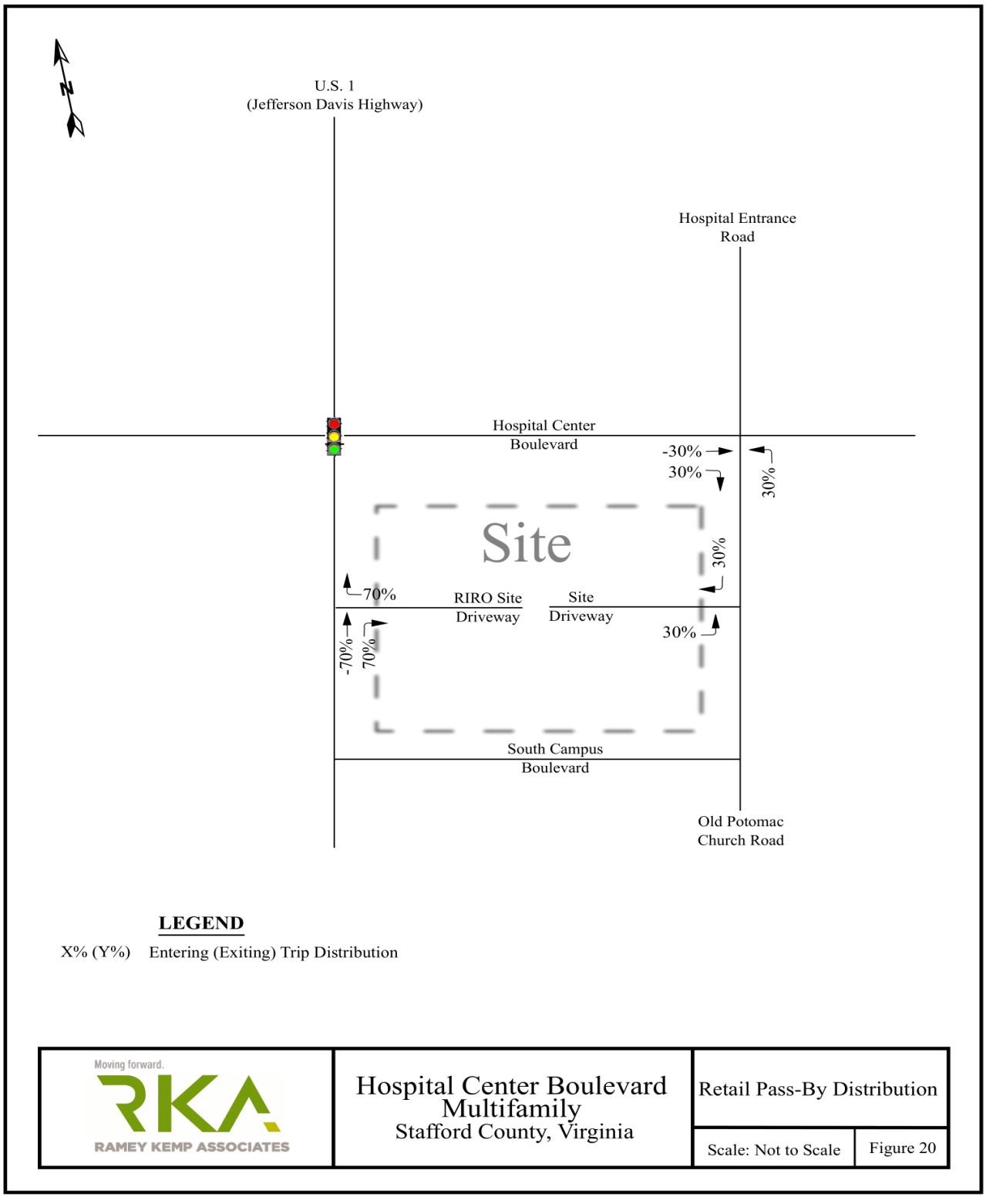


Figure 21: Retail Pass-By Assignment

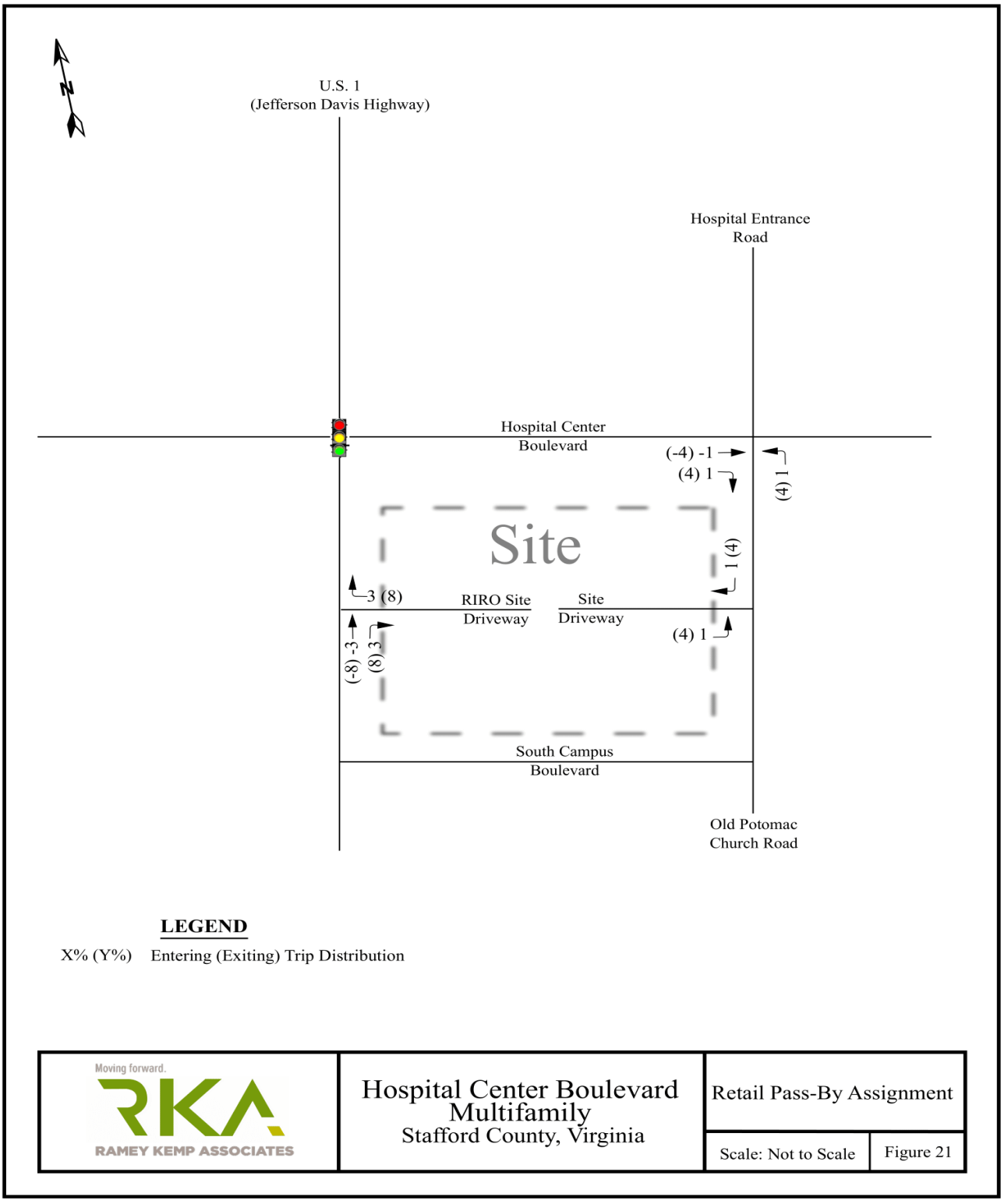


Figure 22: Total Trip Assignment

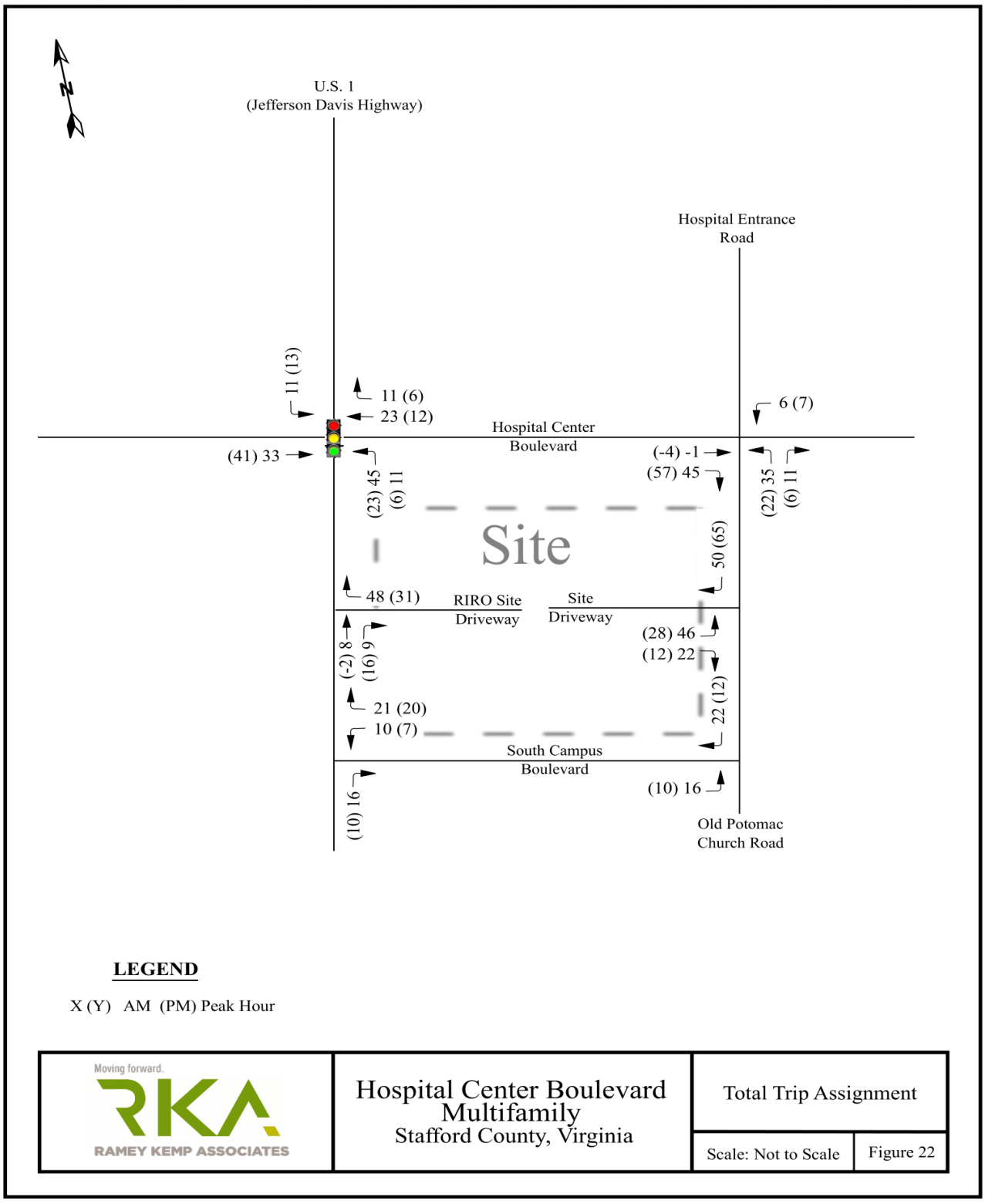
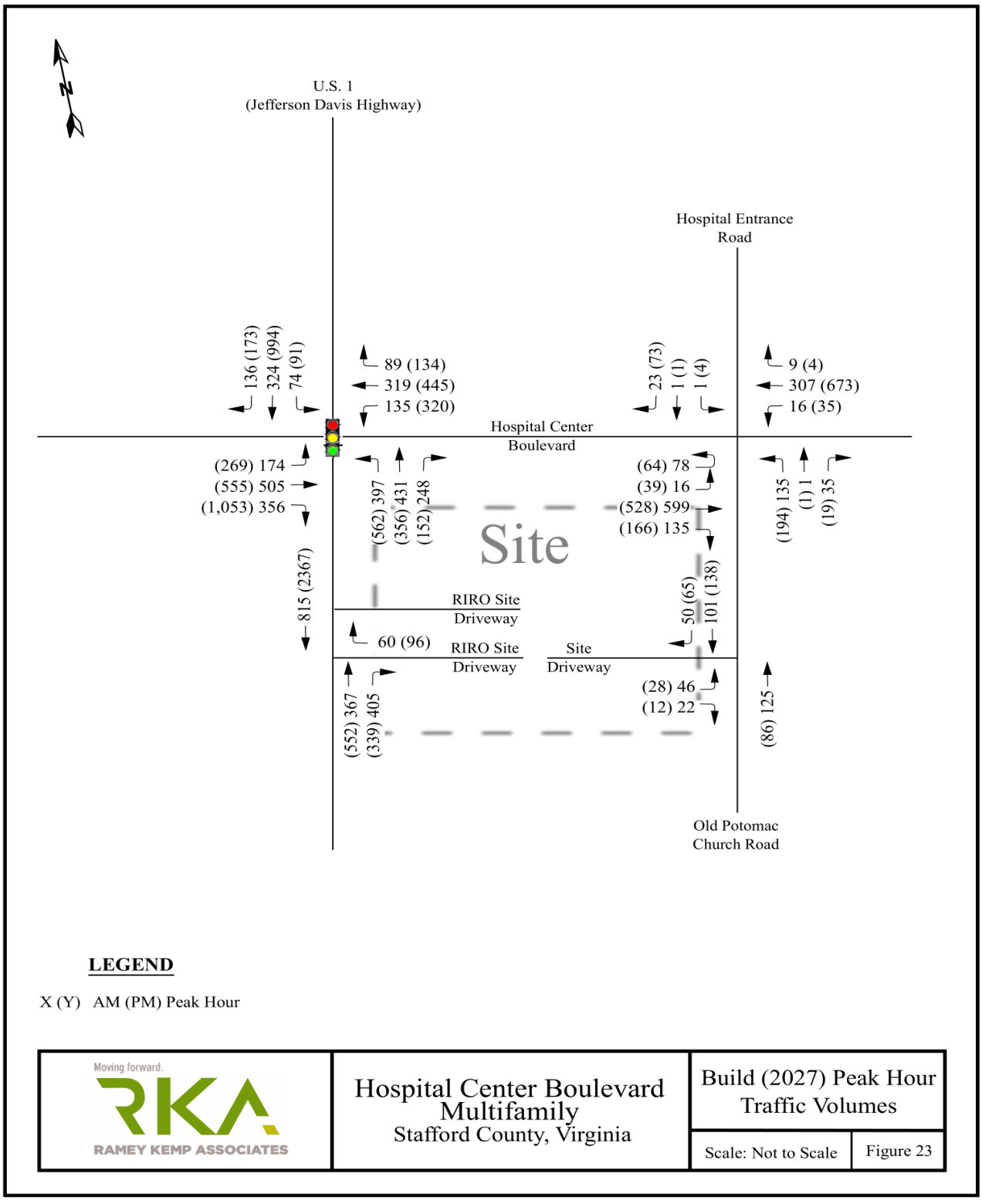


Figure 23: Projected 2027 Build Peak Hour Traffic Volumes



VDOT Turn Lane Warrant Analysis

The projected traffic volumes were compared to the turn lane warrants in the Virginia Department of Transportation (VDOT) *Access Management Design Standards for Entrances and Intersections*.

Hospital Center Boulevard at Old Potomac Church Road / Hospital Entrance Road:

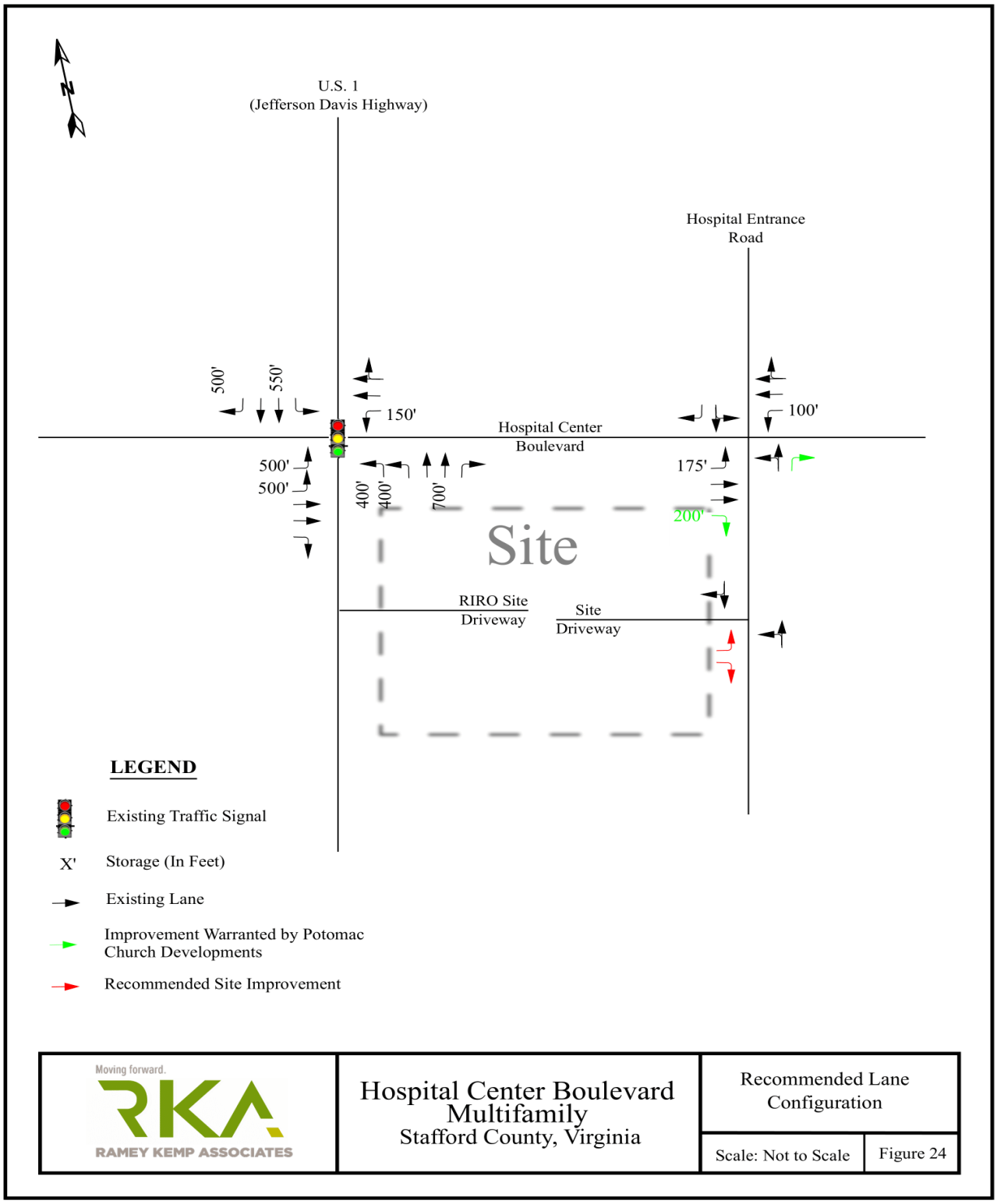
- The no-build traffic volumes warrant an eastbound right-turn taper on Hospital Center Boulevard in the AM peak hour and an eastbound right-turn lane in the PM peak hour – due to the trip potential of the Potomac Church Farms and Potomac Church Apartments
- The build traffic volumes warrant an eastbound right-turn lane on Hospital Center Boulevard for both AM peak hour and PM peak hour – due to the trip potential of the proposed site project.

Old Potomac Church Road at Site Driveway:

- The build traffic volumes do not warrant any turn lanes on Old Potomac Church Road

Figure 24 shows the recommended roadway laneage at the study intersections.

Figure 24: Recommended Lane Configuration



Traffic Capacity Analysis

Traffic capacity analysis for the study intersections was performed using Synchro 11, which is a comprehensive software package that allows the user to model signalized and unsignalized intersections to determine levels-of-service based on the thresholds specified in the Highway Capacity Manual (HCM) – 6th Edition. Synchro queues that contain a "#" symbol were reported used the maximum SimTraffic queues based on the average of ten microsimulation runs.

Table 4 summarizes the capacity analysis results for the signalized intersection of U.S. 1 at Hospital Center Boulevard, and the Synchro and SimTraffic outputs are enclosed for reference.

Table 4: Level-of-Service Summary for U.S. 1 at Hospital Center Boulevard

CONDITION	LANE GROUP	AM PEAK HOUR				PM PEAK HOUR			
		Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)	Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)
Existing (2022) Traffic Conditions	EBL	E	57.5	121	C (34.1 sec)	F	89.2	150	F (272.7 sec)
	EBT	D	50	175		F	153.7	962	
	EBR	D	44.5	68		F	977.8	1305	
	WBL	E	58.8	82		F	309.4	275	
	WBT/R	D	49	125		F	89.5	362	
	NBL	E	58.7	132		F	99.3	188	
	NBT	B	13.3	115		B	10.2	116	
	NBR	B	10	46		A	6.1	27	
	SBL	E	62.9	45		F	91.4	48	
	SBT	B	15.6	115		B	16.5	358	
	SBR	B	11.9	45		A	9.9	43	
No-Build (2027) Traffic Conditions	EBL	E	58.6	153	D (39.1 sec)	F	104.9	257	F (189.5 sec)
	EBT	D	43.3	240		F	146.4	1544	
	EBR	D	35.4	123		F	584.9	1436	
	WBL	E	62.6	173		F	196.2	257	
	WBT/R	D	38.9	174		F	82.5	479	
	NBL	E	56.3	209		E	74.8	343	
	NBT	C	25.3	163		C	25	203	
	NBR	B	19.3	97		B	12	58	
	SBL	E	66.4	103		F	96.1	817	
	SBT	C	31.9	169		E	55.8	2040	
	SBR	C	25.6	81		C	30.2	840	
No-Build (2027) Traffic Conditions ***With Eastbound and Northbound Right-turn Lanes***	EBL	E	58.6	159	D (39.1 sec)	F	104.9	232	F (189.5 sec)
	EBT	D	43.3	239		F	146.4	1574	
	EBR	D	35.4	123		F	584.9	1400	
	WBL	E	62.6	149		F	196.2	262	
	WBT/R	D	38.9	180		F	82.5	483	
	NBL	E	56.3	210		E	74.8	317	
	NBT	C	25.3	170		C	25	148	
	NBR	B	19.3	99		B	12	62	
	SBL	E	66.4	103		F	96.1	814	
	SBT	C	31.9	175		E	55.8	2046	
	SBR	C	25.6	70		C	30.2	836	

Build (2027) Traffic Conditions	EBL	E	58.6	160	D (40.0 sec)	F	104.9	224	F (187.6 sec)
	EBT	D	44.7	252		F	179.1	1587	
	EBR	C	33.6	122		F	562.2	1428	
	WBL	E	62.6	157		F	196.2	265	
	WBT/R	D	39.7	197		F	86.1	481	
	NBL	E	57.5	210		E	74.4	342	
	NBT	C	25.7	176		C	25.9	152	
	NBR	B	19.5	102		B	12.6	58	
	SBL	E	67.9	120		F	97.5	794	
	SBT	C	33.1	171		E	57.7	1991	
	SBR	C	26.7	78		C	31.1	840	
Build (2027) Traffic Conditions ***With Free-Flow Eastbound Right-turn Lane***	EBL	E	58.5	153	D (42.0 sec)	F	93.8	234	E (71.2 sec)
	EBT	D	54.8	238		F	96.7	1685	
	EBR	-	0	26		-	0	1525	
	WBL	E	62.2	154		F	107.8	261	
	WBT/R	D	45.5	183		E	58.8	477	
	NBL	E	58.6	230		F	107.2	558	
	NBT	C	21.8	181		C	27.2	618	
	NBR	B	16	109		B	10.8	85	
	SBL	E	67.9	117		F	97.5	578	
	SBT	C	28.6	172		E	55.7	1051	
	SBR	C	22.6	79		C	29.8	597	

1. SimTraffic 95th queue length used for tables

Capacity analysis indicates that the intersection currently operates at LOS C during the AM peak hour and LOS F during the PM peak hour. Under no-build conditions, the intersection is expected to operate at LOS D during the AM peak hour and LOS F during the PM peak hour due to the magnitude of the nearby approved developments.

Under build conditions, the intersection is expected to continue to operate at LOS D during the AM peak hour and LOS F during the PM peak hour.

Following are the total approach volumes for this intersection in the PM peak hour for each layer of traffic – from highest impact to lowest impact:

- Existing conditions – 2,930 vehicles
- Austin Ridge, Embrey Mill, South Campus, Stafford Commons, Stafford Hospital, Westgate Center combined – 1,399 vehicles (**47% increase**)
- Background traffic growth (2% for three years) – 241 vehicles (**8% increase)**
- Potomac Church Developments – 206 vehicles (**7% increase**)
- Courthouse Tracts – 195 vehicles (**7% increase**)
- Site trips – 68 vehicles (**2% increase**)
- Office trips – 23 vehicles (**0.7% increase**)
- Retail trips – 10 vehicles (**0.3% increase**)
- Project Mover – 4 vehicles (**0.1% increase**)

The projected eastbound right-turn volume on Hospital Center Drive is already very heavy in the PM peak hour (699 vehicles), and the approved developments are projected to add another 354 additional vehicles to this movement. The most beneficial improvement to this intersection would be converting the eastbound right-turn lane to a free-flow movement. This would improve the signal operation to LOS E in the PM peak hour, while cutting the overall average delay in half.

The residential, office, and retail trips from this project will increase the total approach volume at this intersection by just 3% in the PM peak hour, so requiring this project to pay for the free-flow conversion is not proportional to their impact.

Table 5 summarizes the capacity analysis results for the unsignalized intersection of Hospital Center Boulevard at Old Potomac Church Road / Hospital Entrance Road, and the Synchro outputs are enclosed for reference.

Table 5: Level-of-Service Summary for Hospital Center Boulevard at Old Potomac Church Road / Hospital Entrance Road

CONDITION	LANE GROUP	AM PEAK HOUR				PM PEAK HOUR			
		Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS[3] (Delay)	Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS[3] (Delay)
Existing (2023) Traffic Conditions	EBL[2]	A	7.7	16	N/A	A	8.2	32	N/A
	EBT/R	-	-	-		-	-	-	
	WBL[2]	A	8.3	10		A	8.1	14	
	WBT/R	-	-	-		-	-	46	
	NBL/T/R[1]	B	13.7	43		C	16.8	42	
	SBL/T[1]	B	13.9	14		C	16.3	19	
	SBR[1]	A	9.0	33		A	9.8	46	
No-Build (2027) Traffic Conditions	EBU/L[2]	A	9.6	50	N/A	B	13.5	90	N/A
	EBT/R	-	-	5		-	-	6	
	WBL[2]	A	9.3	22		A	9.2	167	
	WBT/R	-	-	3		-	-	523	
	NBL/T/R[1]	F	78.1	118		F	157.4	860	
	SBL/T[1]	D	27.2	10		E	49.1	482	
	SBR[1]	A	9.4	35		B	11.5	215	
No-Build (2027) Traffic Conditions ***With Eastbound and Northbound Right-turn Lanes***	EBU/L[2]	A	9.6	51	N/A	B	13.5	115	N/A
	EBT	-	-	-		-	-	-	
	EBR	-	-	1		-	-	4	
	WBL[2]	A	9.3	13		A	9.2	112	
	WBT/R	-	-	-		-	-	345	
	NBL/T[1]	F	67	83		F	130.8	712	
	NBR[1]	B	10.6	35		B	10.2	485	
	SBL/T[1]	D	27.2	10		E	49.1	431	
	SBR[1]	A	9.4	37		B	11.5	230	
Build (2025) Traffic Conditions ***With Eastbound and Northbound Right-turn Lanes***	EBU/L[2]	A	9.6	60	N/A	B	13.5	126	N/A
	EBT	-	-	3		-	-	31	
	EBR	-	-	3		-	-	8	
	WBL[2]	A	9.5	25		A	9.4	156	
	WBT/R	-	-	1		-	-	449	
	NBL/T[1]	F	118.2	119		F	214.9	592	
	NBR[1]	B	10.7	36		B	10.2	131	
	SBL/T[1]	D	28.9	13		F	52.6	457	
	SBR[1]	A	9.4	38		B	11.5	238	

1. Level of service for minor approach
2. Level of service for major street left-turn movement
3. HCM methodology does not provide lane group or overall LOS, delay, and queue lengths for major street through movements or right turns at unsignalized intersections.
4. SimTraffic 95th queue length used for table

Capacity analysis indicates that the minor street left-turn movement currently operates with short delays (less than 25 seconds) during the AM and PM peak hours. Under no-build conditions, the minor street left-turn movement is expected to operate with long delays (greater than 50 seconds) during the AM and PM peak hours. Note that the no-build traffic volumes warrant an eastbound right-turn lane on Hospital Center Boulevard and a northbound right-turn lane on Old Potomac Church Road. The approved developments on Old Potomac Church Road are projected to add 80 eastbound right turns in the PM peak hour, and this site is projected to add 57 eastbound right turns.

Under build conditions, the minor street left-turn movement is expected to operate with long delays (greater than 50 seconds) during the AM and PM peak hours with the turn lane improvements identified above. Long delays are common for side street left-turn movements at intersections with major thoroughfares. The projected traffic volumes at this intersection do not meet any of the 8-hour traffic signal warrants in the Manual on Uniform Traffic Control Devices (MUTCD).

Table 6 and Table 7 summarizes the capacity analysis results for the unsignalized intersection of Old Potomac Church Road at Site Driveway and U.S. 1 (Jefferson Davis Highway). The Synchro outputs are enclosed for reference.

Table 6: Level-of-Service Summary for Old Potomac Church Road at Site Driveway

CONDITION	LANE GROUP	AM PEAK HOUR				PM PEAK HOUR			
		Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)	Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)
Build (2025) Traffic Conditions	EBL[1] EBR[1] NBL/T[2] SBT/R	B A - -	10.2 8.9 - -	50 42 - -	N/A[3]	A A - -	9.6 8.7 - -	263 33 403 -	N/A[3]

1. Level of service for minor approach
2. Level of service for major street left-turn movement
3. HCM methodology does not provide lane group or overall LOS, delay, and queue lengths for major street through movements or right turns at unsignalized intersections.
4. SimTraffic 95th queue length used for table

Table 7: Level-of-Service Summary U.S. 1 (Jefferson Davis Highway) & RIRO Access Driveway

CONDITION	LANE GROUP	AM PEAK HOUR				PM PEAK HOUR			
		Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)	Lane LOS	Lane Delay (sec)	Queue (ft)	Overall LOS (Delay)
Build (2025) Traffic Conditions	WBL[1] WBR[1] NET/R SWL/T	- B - -	- 13.6 - -	- 51 - -	N/A[3]	- B - -	- 13.4 - -	- 48 - -	N/A[3]

1. Level of service for minor approach
2. Level of service for major street left-turn movement
3. HCM methodology does not provide lane group or overall LOS, delay, and queue lengths for major street through movements or right turns at unsignalized intersections.
4. Simtraffic 95th queue length used for table

Under build conditions, the minor street left-turn and right-turn movements is expected to operate with minimal delays (less than 15 seconds) during the AM and PM peak hours.

Recommendations
The following improvements are recommended to mitigate the trip impact of the approved developments:

U.S. 1 at Hospital Center Boulevard:
- Convert the eastbound right-turn lane on Hospital Center Boulevard to free-flow operation.

Hospital Center Boulevard at Old Potomac Church Road / Hospital Entrance Road:
- Construct an eastbound right-turn lane on Hospital Center Boulevard
- Construct a northbound right-turn lane on Old Potomac Church Road

Based on the trip generation potential of the site, the following improvements are recommended:

Old Potomac Church Road at Site Access:
- Provide one inbound lane and two outbound lanes on the site access road.

U.S. 1 at Site Access:
- Provide Right In/ Right Out single lane each, including 4' raised concrete median delineation of the NB U.S. LTL. The raised median will eliminate potential site-exiting vehicles from crossing U.S.1 through lanes to access the NB left turn lane

We appreciate your attention to this matter. Please contact me at (804) 217-8560 if you have any questions about this report.

Sincerely yours,
Ramey Kemp & Associates, Inc.

Jeff Bragdon, PE

Enclosures: Figures, Traffic count data, Synchro output, VDOT turn lane warrant diagrams

Copy to: Ms. Carolyn Oster, P.E., VDOT
Mr. Peter Hedrich, P.E., PTOE, VDOT
Mr. Andy Freeman, Bonaventure
Mr. Gray Batten, Bonaventure