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ALLIANT

DRAFT MEMORANDUM

DATE: March 27, 2020

TO: Brian Hansen, City of Bloomington

FROM: Jordan Schwarze, PE, Alliant Engineering

SUBJECT: **American Square Parking Study - Addendum**

Introduction

Alliant Engineering, Inc. has completed an addendum to the American Square Parking Study (dated February 11, 2020) due to recent updates in the proposed development plan. This addendum accounts for the changes to the proposed residential development located in the southeast quadrant of the American Boulevard/34th Avenue intersection in Bloomington, MN. At the proposed development site, Alliant also previously completed the Crowne Plaza Hotel Parking Study (dated February 22, 2019), which evaluated the possibility of reducing the parking supply onsite to accommodate future development. This addendum memorandum draws upon the prior completed studies to estimate the anticipated parking demand of the current development proposal.

Study Addendum Purpose

The purpose of this study addendum is to show that the proposed American Square parking supply is sufficient to meet the parking demand of each development component. The proposed American Square development is expected to consist of the following land uses:

- Two Appletree Square office building (existing)
- Affordable Housing Apartments (proposed)
- Market Rate Apartments (proposed)

The following goals have been established for this study addendum:

- Utilize the *ITE Parking Generation Manual, 5th Edition* (ITE PGM) to estimate the hypothetical maximum parking demand of the existing Two Appletree Square office building on a typical weekday and Saturday.
  - Evaluate the ability of the future proposed office parking supply to accommodate the office hypothetical maximum parking demand.
  - Document the ability of an adjacent parking ramp to accommodate the office parking demand during construction of the American Square development.
- Utilize the ITE PGM to estimate the hypothetical maximum parking demand of the proposed residential development components on a typical weekday and Saturday.
  - Evaluate the ability of the future proposed residential parking supply to accommodate the residential hypothetical maximum parking demand.

Existing Conditions

Based on information presented in the Crowne Plaza Hotel Parking Study, the Two Appletree Square office building exhibited the characteristics documented in **Table 1** as of February 2019.

Table 1. Existing Site Characteristics

Land Use	Capacity	Occupancy	Vacancy
Two Appletree Square[1]	119,509 SF GFA	74.4%	25.6%

SF GFA = Square Feet of Gross Floor Area
1: Office building located at 8011 34th Avenue

As illustrated in **Figure 1**, the proposed development site currently has several distinct parking facilities combining to offer 1,525 stalls. These parking facilities consist of the following:

- East Lot – 140-stall surface parking lot near the eastern limits of the proposed development site currently used by employees of the Crowne Plaza Hotel.
- South Lot – 190-stall surface parking lot near the southern limits of the proposed development site currently used by tenants of Two Appletree Square.
- Parking Ramp – Six-level parking ramp comprised of 1,195 parking stalls currently used by guests of the adjacent Crowne Plaza Hotel and tenants of the Riverview Office Tower and Two Appletree Square.
    - It should be noted that ownership of the Two Appletree Square office building leases 100 parking stalls within the Parking Ramp for tenant use.

Hypothetical Maximum Parking Demand – Two Appletree Square

While collecting parking data for the Crowne Plaza Hotel Parking Study, field technicians were unable to distinguish between vehicles associated with Two Appletree Square and vehicles associated with the adjacent Riverview Office Tower. Therefore, the ITE PGM was used to conservatively estimate the hypothetical maximum parking demand of the existing Two Appletree Square office building. The ITE PGM provides peak parking generation rates based on studies of various land uses. **Table 2** documents the ITE PGM estimated weekday and Saturday hypothetical maximum peak parking demand for the existing Two Appletree Square office building. Based on ITE PGM rates, the hypothetical maximum parking demand for the Two Appletree Square office building is estimated to be 292 vehicles on a weekday and 33 vehicles on a Saturday. Though the study area could be most accurately described as a dense multi-use setting, it should be noted that ITE PGM parking data from general urban/suburban settings was utilized in the demand estimates due to limited available data from dense multi-use urban settings.

Table 2. Peak Parking Demand Estimates – Two Appletree Square

Land Use (ITE PGM Code)[1]	Units	Size	Peak Parking Demand (Vehicles)	
			Weekday[2]	Saturday[3]
Two Appletree Square (710)	SF GFA	119,509	286 - 292	33

Source: ITE Parking Generation Manual, 5th Edition SF GFA = Square Feet of Gross Floor Area
1: General urban/suburban parking rates utilized due to limited data availability in a dense multi-use urban setting.
2: Peak parking demand based on average and fitted curve rates.
3: Peak parking demand based on average rate.

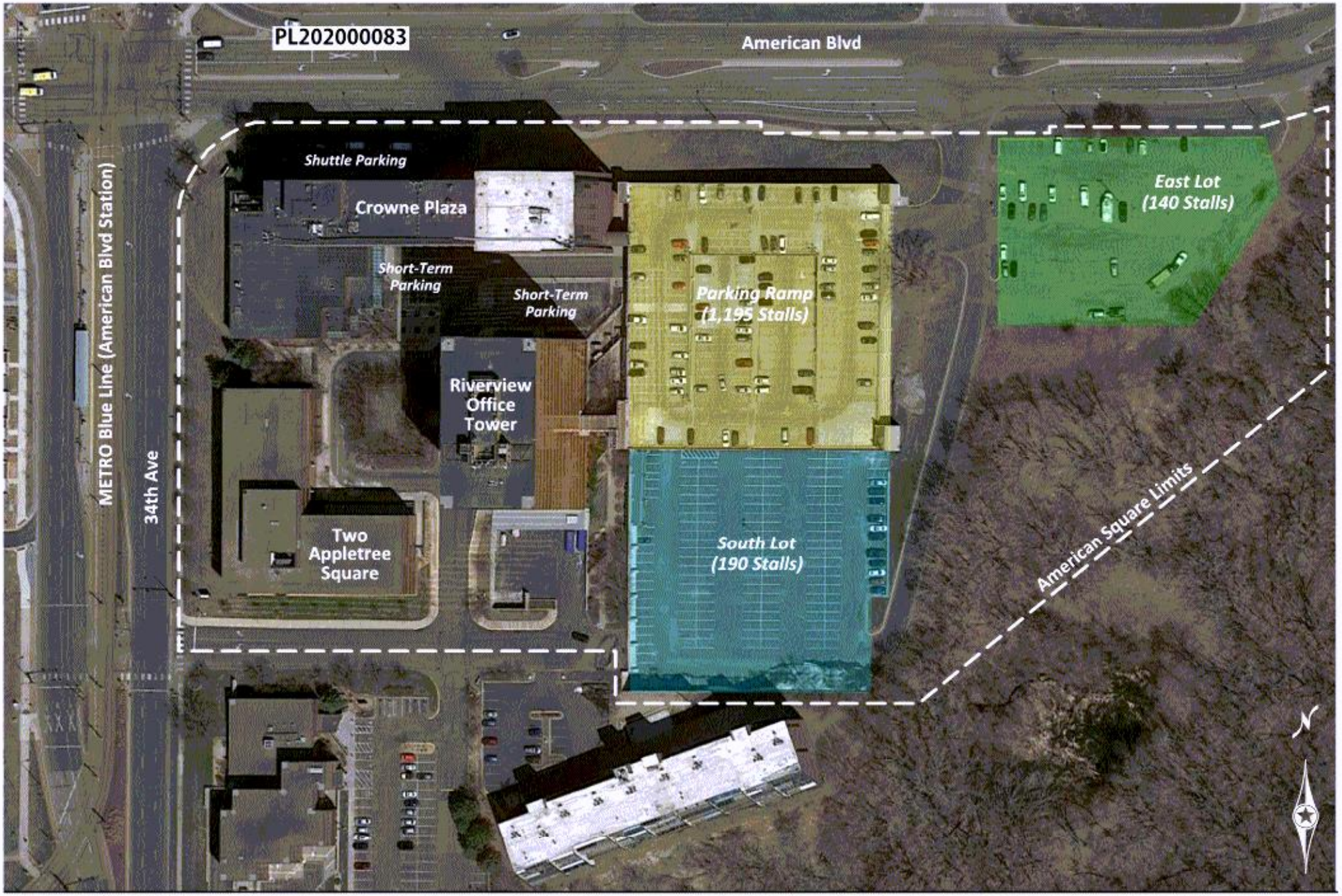

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Figure 1
Existing Site Characteristics

Parking During Proposed Development Construction – Two Appletree Square

The Crowne Plaza Hotel Parking Study and American Square Parking Study documented the ability of the adjacent Parking Ramp to accommodate all parking demand from existing site land uses (Crowne Plaza Hotel/Riverview Office Tower/Two Appletree Square). The hypothetical maximum site parking demand was estimated to be 931 vehicles based on observed peak parking rates onsite. At a parking capacity of 1,195 stalls, the existing Parking Ramp would have the ability to accommodate all parking demand from Two Appletree Square during construction of the proposed American Square development.

Proposed Conditions

The proposed American Square development (shown in **Figure 2**) consists of the following:

- Proposed 261-stall parking lot/garage (MR Parking) serving the following land use:
  - Proposed 242-unit market rate apartment building

    Note: 242 of 261 parking stalls are expected to be provided in an underground garage.
- Proposed 141-stall underground parking garage (AH Parking) exclusively serving the following land use:
  - Proposed 86-unit affordable housing apartment building
- Proposed 362-stall external parking ramp (TAS Parking) primarily serving the following land use:
  - Existing 119,509-square-foot Two Appletree Square office building

Bloomington City Code Parking Requirement

The Bloomington Zoning Code regulates the minimum off-street parking supply for various land uses. Relevant land uses in this case include Multi-Family Residence, Party Room, and Office. Code required parking for the proposed development is documented in **Table 3**. Based on the Bloomington Zoning Code, the proposed development would be required to have approximately 1,090 off-street parking stalls without consideration of a multi-use reduction. This requirement exceeds the proposed parking supply of 764 stalls. Therefore, a parking data driven approach is necessary to more accurately estimate the adequacy of the proposed parking supply.

Table 3. Bloomington City Code Parking Requirements – Proposed Conditions

Land Use	Rate[1]	Capacity	Required Parking Stalls
Multi-Family Residence	1.8 Stalls / Unit (1 Bedroom)	263 Units	473.4
	2.2 Stalls / Unit (2 Bedrooms)	59 Units	129.8
	2.6 Stalls / Unit (3 Bedrooms)	6 Units	15.6
Party Room	1 Stall / 100 SF	5,173 SF	51.7
Office	1 Stall / 285 SF GFA	119,509 SF GFA	419.3
		Total Parking Requirement	**1,090**

SF GFA = Square Feet of Gross Floor Area

1: Section 21.301.06 of the Bloomington City Code

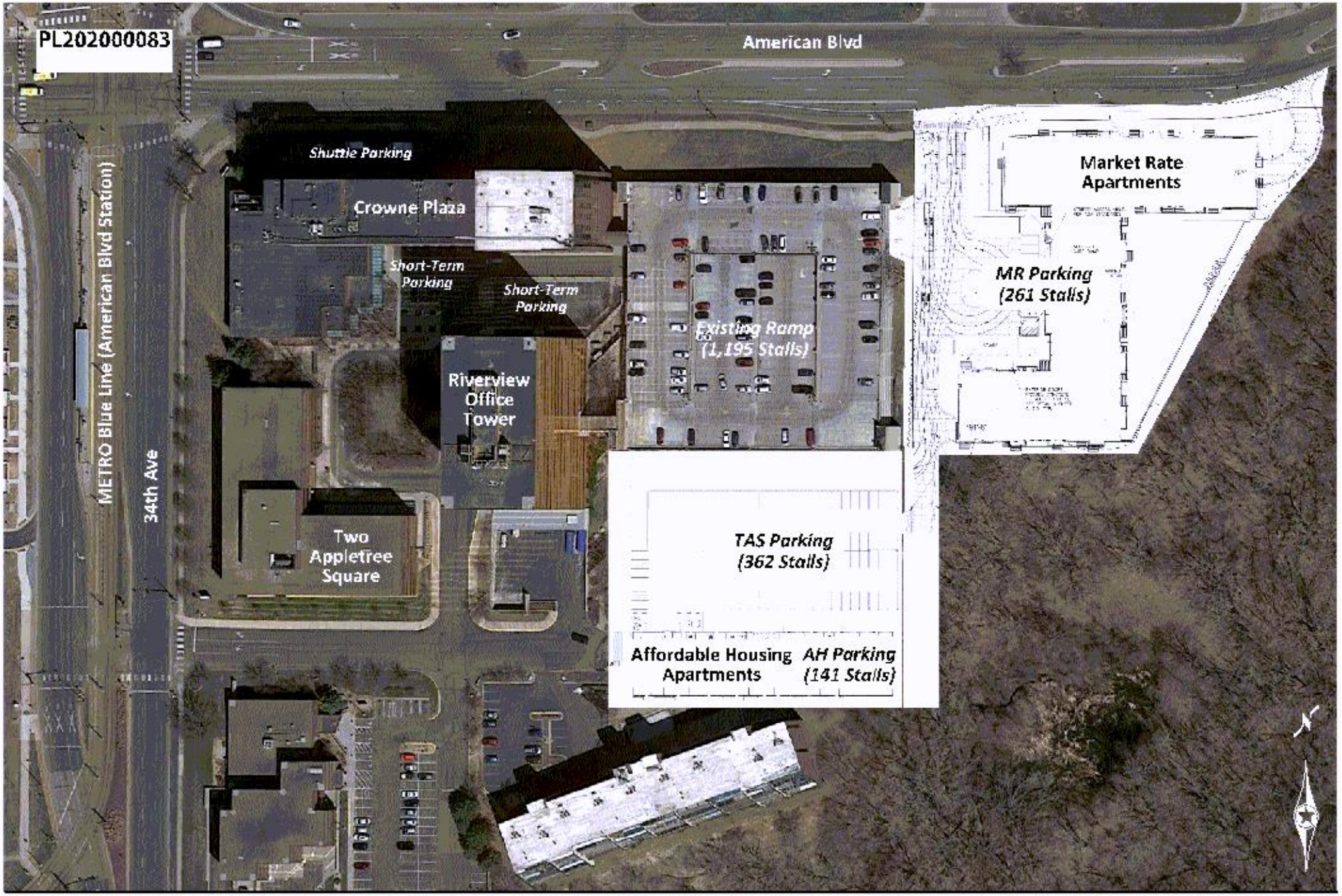

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Figure 2
Proposed Site Plan

Hypothetical Maximum Parking Demand – American Square

The ITE PGM was used to estimate the peak parking demand for each proposed land use of the American Square development. **Table 4** documents the ITE PGM estimated weekday and Saturday peak parking demand for the proposed development. Results of the parking demand estimates indicate the proposed development would be expected to generate a hypothetical maximum parking demand of 510 vehicles on a weekday and 296 vehicles on a Saturday. These estimates are well below the proposed parking supply of 764 stalls. It should also be noted that proposed individual parking facilities (MR Parking/AH Parking/TAS Parking) are each expected to exhibit at least a 20 percent parking surplus over all time periods.

While the hypothetical maximum parking demand estimates are a summation of individual land use peak demands, it should be noted that peak parking demand for the office and residential land uses do not coincide. Furthermore, a multi-use reduction for motorists utilizing more than one land use onsite (office and residential) was not applied. The hypothetical maximum parking demand estimates are likely conservative for these reasons.

Shared Parking Demand – Two Appletree Square and Affordable Housing Apartment

Since the peak parking demand for office and residential land uses do not coincide, an opportunity may exist for a shared parking facility between the Two Appletree Square office building and the affordable housing apartment building. To understand the anticipated hourly parking demand of a potential shared office/apartment parking facility, it is useful to understand how parking demand for each land use changes throughout the day. Utilizing hourly distributions of parking demand presented in the ITE PGM, an hourly parking demand model can be created to illustrate the individual peak of both the office and residential land uses. The projected shared hourly parking demand for a weekday is shown in **Table 5**, while demand for a Saturday is shown in **Table 6**. The shared hourly parking demand profile with respect to the proposed combined TAS Parking and AH Parking supply is then illustrated in **Figure 3**.

Based on the hourly parking demand estimates, the projected shared peak parking demand between the Two Appletree Square office building and the affordable housing apartment building is 317 vehicles, which is expected to occur late morning on a weekday. This projection is well below the proposed combined TAS Parking and AH Parking supply of 503 stalls, resulting in a surplus of 186 parking stalls (58.7 percent).

Table 4. Hypothetical Maximum Parking Demand – American Square

Land Use (ITE PGM Code)[1]	Units	Size	Peak Parking Demand (Vehicles)		Parking Supply	Parking Surplus	
			Weekday[2]	Saturday[3]		Weekday	Saturday
Market Rate Apartment (221)	Dwelling Units	242	163 - 172	207	261	89	54
Land Use (ITE PGM Code)[1]	Units	Size	Peak Parking Demand (Vehicles)		Parking Supply[4]	Parking Surplus	
			Weekday[2]	Saturday[3]		Weekday	Saturday
Affordable Housing (223)	Dwelling Units	86	45-46	56	141	95	85
Land Use (ITE PGM Code)[5]	Units	Size	Peak Parking Demand (Vehicles)		Parking Supply[7]	Parking Surplus	
			Weekday[2]	Saturday[6]		Weekday	Saturday
Two Appletree Square (710)	SF GFA	119,509	286 - 292	33	362	70	329
	Total Parking Demand		**510**	**296**	**764**	**254**	**468**

Source: ITE Parking Generation Manual, 5th Edition SF GFA = Square Feet of Gross Floor Area

1: Dense multi-use urban setting less than 1/2-mile from rail transit rate utilized.

2: Peak parking demand based on average and fitted curve rates.

3: Due to limited available Saturday residential parking data, a multiplier of 1.2 was applied to the weekday peak demand to estimate the Saturday peak demand.

4: Proposed parking supply in garage beneath the affordable housing apartment building.

5: General urban/suburban parking rates utilized due to limited data availability in a dense multi-use urban setting.

6: Peak parking demand based on average rate.

7: Proposed parking supply in exterior ramp adjacent to the affordable housing apartment building.

Table 5. Weekday Shared Parking Demand – Two Appletree Square and Affordable Housing Apartment

Hour Beginning	Percent of Peak Parking Demand[1]		Estimated Parking Demand by Land Use		Shared Parking Demand	Proposed Parking Supply: TAS Parking + AH Parking	Shared Parking Surplus	Percent Parking Surplus
	Two Appletree Square Office	Affordable Housing Apartment	Two Appletree Square Office	Affordable Housing Apartment				
12:00-4:00 a.m.	*5%*	**100%**	15	**46**	**61**	503	442	724.6%
5:00 a.m.	*10%*	94%	29	43	**72**		431	598.6%
6:00 a.m.	*20%*	83%	58	38	**96**		407	424.0%
7:00 a.m.	26%	71%	76	33	**109**		394	361.5%
8:00 a.m.	65%	61%	190	28	**218**		285	130.7%
9:00 a.m.	95%	55%	277	25	**302**		201	66.6%
10:00 a.m.	**100%**	54%	**292**	25	**317**		186	58.7%
11:00 a.m.	**100%**	53%	**292**	24	**316**		187	59.2%
12:00 p.m.	99%	50%	289	23	**312**		191	61.2%
1:00 p.m.	99%	49%	289	23	**312**		191	61.2%
2:00 p.m.	97%	49%	283	23	**306**		197	64.4%
3:00 p.m.	94%	50%	274	23	**297**		206	69.4%
4:00 p.m.	90%	58%	263	27	**290**		213	73.4%
5:00 p.m.	*70%*	64%	204	29	**233**		270	115.9%
6:00 p.m.	*40%*	67%	117	31	**148**		355	239.9%
7:00 p.m.	*15%*	70%	44	32	**76**		427	561.8%
8:00 p.m.	*10%*	76%	29	35	**64**		439	685.9%
9:00 p.m.	*10%*	83%	29	38	**67**		436	650.7%
10:00 p.m.	*5%*	90%	15	41	**56**		447	798.2%
11:00 p.m.	*5%*	93%	15	43	**58**		445	767.2%

Interpolated data

1: ITE Parking Generation Manual, 5th Edition

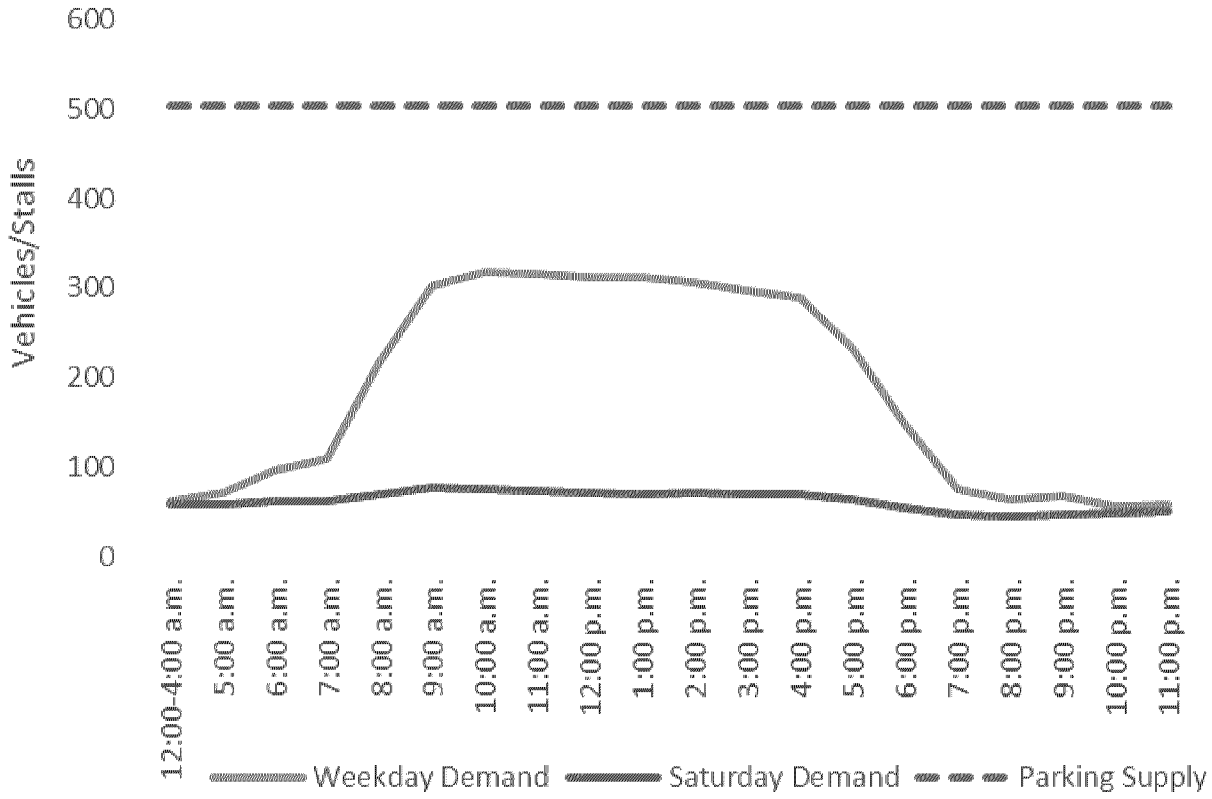
Table 6. Saturday Shared Parking Demand – Two Appletree Square and Affordable Housing Apartment

Hour Beginning	Percent of Peak Parking Demand[1]		Estimated Parking Demand by Land Use		Shared Parking Demand	Proposed Parking Supply: TAS Parking + AH Parking	Shared Parking Surplus	Percent Parking Surplus
	Two Appletree Square Office	Affordable Housing Apartment	Two Appletree Square Office	Affordable Housing Apartment				
12:00-4:00 a.m.	*5%*	**100%**	2	**56**	**58**	503	445	767.2%
5:00 a.m.	*10%*	99%	3	55	**58**		445	767.2%
6:00 a.m.	*20%*	97%	7	54	**61**		442	724.6%
7:00 a.m.	26%	95%	9	53	**62**		441	711.3%
8:00 a.m.	65%	88%	21	49	**70**		433	618.6%
9:00 a.m.	95%	83%	31	46	**77**		426	553.2%
10:00 a.m.	**100%**	75%	**33**	42	**75**		428	570.7%
11:00 a.m.	**100%**	71%	**33**	40	**73**		430	589.0%
12:00 p.m.	99%	68%	33	38	**71**		432	608.5%
1:00 p.m.	99%	66%	33	37	**70**		433	618.6%
2:00 p.m.	97%	70%	32	39	**71**		432	608.5%
3:00 p.m.	94%	69%	31	39	**70**		433	618.6%
4:00 p.m.	90%	72%	30	40	**70**		433	618.6%
5:00 p.m.	*70%*	74%	23	41	**64**		439	685.9%
6:00 p.m.	*40%*	74%	13	41	**54**		449	831.5%
7:00 p.m.	*15%*	73%	5	41	**46**		457	993.5%
8:00 p.m.	*10%*	75%	3	42	**45**		458	1017.8%
9:00 p.m.	*10%*	78%	3	44	**47**		456	970.2%
10:00 p.m.	*5%*	82%	2	46	**48**		455	947.9%
11:00 p.m.	*5%*	88%	2	49	**51**		452	886.3%

Interpolated data

1: ITE Parking Generation Manual, 5th Edition

Figure 3. Shared Parking Demand vs. Proposed Parking Supply – TAS[1] and AH[2]



1: TAS = Two Appletree Square office building
2: AH = Affordable Housing apartment building

Summary and Conclusions

The following summary and conclusions are offered for consideration:

- The hypothetical maximum parking demand for the existing Two Appletree Square office building is estimated to be 292 vehicles based on rates presented in the *ITE Parking Generation Manual, 5th Edition* (ITE PGM).
  - During construction of the proposed American Square development, an adjacent parking ramp with a capacity 1,195 stalls would have the ability to accommodate all parking demand from Two Appletree Square based on previous study observations and analysis.
- The Bloomington Zoning Code parking requirement for the proposed American Square development is approximately 1,090 off-street parking stalls.
  - This requirement exceeds the proposed parking supply of 764 stalls.
- The ITE PGM was used to estimate the peak parking demand for each proposed land use of the American Square development. Based on rates presented in the ITE PGM, the proposed development would be expected to generate a hypothetical maximum parking demand of 510 vehicles on a weekday and 296 vehicles on a Saturday.
  - These estimates are well below the proposed parking supply of 764 stalls. It should also be noted that proposed individual parking facilities (Market Rate Parking/Affordable Housing Parking/Two Appletree Square Parking) are each expected to exhibit at least a 20 percent parking surplus over all time periods.
    - While the hypothetical maximum parking demand estimates are a summation of individual land use peak demands, it should be noted that peak parking demand for the office and residential land uses do not coincide. Furthermore, a multi-use reduction for motorists utilizing more than one land use onsite (office and residential) was not applied. The hypothetical maximum parking demand estimates are likely conservative for these reasons.
- Since the peak parking demand for office and residential land uses do not coincide, an opportunity may exist for a shared parking facility between the Two Appletree Square office building and the affordable housing apartment building. Hourly distributions of parking demand per land use presented in the ITE PGM were utilized to create an estimate of the shared parking demand between the Two Appletree Square office building and the affordable housing apartment building. Based on the hourly parking demand estimates, the projected shared peak parking demand between the Two Appletree Square office building and the affordable housing apartment building is 317 vehicles, which is expected to occur late morning on a weekday.
  - This estimate is well below the proposed combined Two Appletree Square Parking and Affordable Housing Parking supply of 503 stalls, resulting in a surplus of 186 parking stalls (58.7 percent).
- While the parking supply for the proposed American Square development may not meet Bloomington Zoning Code requirements, the parking supply is adequate when estimating parking demand using ITE PGM rates for proposed land uses.
  - No parking demand mitigation or alternative parking supplies are expected to be necessary. No impacts to surrounding properties or roadways are anticipated.