Memo

Carl Walker

Date: October 2, 2014

To: Lori Mullins
Email: lmullin@cityofeastlansing.com
From: Bill Surna
Project #: S1-2014-121
Regarding: Shared Parking Analysis - Park District – Buildings A & B

As requested we have prepared a shared parking analysis for the proposed Buildings A & B in the Park District Development. Analyses will be presented for the combination of the two buildings and with the two buildings not combined.

The analysis uses our shared parking demand model which is based on the methodology developed by the Urban Land Institute. For this analysis we modified the base parking demand ratios to match the parking demand ratios in the City of East Lansing's zoning code. The methodology then applies: time of day, day of week, and monthly factors to estimate the peak demand over a 12 month period.

In addition, the model provides for adjustments to account for captive market and driving ratios for a particular location. These adjustments are used to account for allow for local conditions and the likelihood of driving to a specific location. For example, the driving ratio for a land use in suburban location is much higher than for a similar land use in a dense urban location. The downtown area near the proposed development is highly pedestrian in nature. Parking demand ratios representing conditions in a suburban location would be inappropriate for the proposed development site.

Modifications for Local Conditions - East Lansing, MI

Table 1 presents the base parking demand ratios that were used within the shared parking demand model. The base ratios reflect the parking requirements in the City of East Lansing zoning ordinance. The ratios used in the model for the residential units have been weighted for the proposed mix of residential units for the combined Building A&B analysis.

Table 1 – Base Demand Ratios

Land Use	Weekday Visitor / Customer Ratio	Weekend Visitor / Customer Ratio	Weekday Employee / Resident Ratio	Weekend Employee / Resident Ratio
Retail	3.20	3.20	0.80	0.80
Fine / Casual Dining	17.00	17.00	3.00	3.00
Coffe Shop	17.00	17.00	3.00	3.00
Hotel	0.80	0.80	0.20	0.20
Residential	0.14	0.14	1.37	1.37
Bank - Branch	2.17	2.17	1.16	1.16

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The captive market ratios and driving ratios used in the shared parking model are shown in Table 2. The assumed captive ratios are applied to account for vehicles that already parked within the development. For example, an assumed 5% captive ratio for visitors to retail means that 5% of the customers to the retail establishment are already in the development for other reasons. In this case they would be residents of the apartments. The driving ratios reflect the assumed percentage of people who drive and park at the development.

Table 2 – Captive Market and Driving Ratios

Land Use	Captive Ratio Visitors	Driving Ratio Visitors	Captive Ratio Employees Residents	Driving Ratio Employees Residents
Retail	5%	70%	5%	70%
Fine / Casual Dining	5%	70%	5%	70%
Coffe Shop	5%	70%	5%	70%
Hotel	0%	90%	5%	70%
Residential	0%	70%	0%	70%
Bank - Branch	0%	70%	5%	70%

As previously noted the shared model also accounts for monthly variations in parking demand depending on the land use. Table 3 presents the monthly adjustments used in this analysis for visitors and for employees/residents. The shaded values in the chart indicate adjustments that have been modified based on a five year average of the City's monthly parking transaction revenue.

Table 3 – Monthly Adjustments

Monthly Adjustment Factors for Visitor Parking

Land Use	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Late Dec
Retail	93%	86%	91%	96%	93%	77%	75%	95%	97%	100%	87%	89%	80%
Fine / Casual Dining	93%	86%	91%	96%	93%	77%	75%	95%	97%	100%	87%	89%	95%
Coffee Shop	93%	86%	91%	96%	93%	77%	75%	95%	97%	100%	87%	89%	95%
Hotel - Business	71%	85%	91%	90%	92%	100%	98%	92%	93%	93%	81%	67%	50%
Residential	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Office and Bank	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	80%

Monthly Adjustment Factors for Employee/Resident Parking

Land Use	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Late Dec
Retail	93%	86%	91%	96%	93%	77%	75%	95%	97%	100%	87%	89%	90%
Fine / Casual Dining	93%	86%	91%	96%	93%	77%	75%	95%	97%	100%	87%	89%	100%
Coffee Shop	93%	86%	91%	96%	93%	77%	75%	95%	97%	100%	87%	89%	100%
Hotel - Business	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Residential	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Office and Bank	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	80%

Shading indicates standard adjustment factors modified to reflect 5 year average of East Lansing parking revenue

Parking Demand

Table 4 presents the land uses in Buildings A & B that were used in the shared parking model.

Table 4 – Proposed Land Uses

	Building A		Building B		Totals	
Retail	14,104	s.f.	11,020	s.f.	25,124	s.f.
Bank	3,564	s.f.			3,564	s.f.
Restaurant	6,846	s.f.			6,846	s.f.
Coffee Shop	1,188	s.f.			1,188	s.f.
Hotel	121	rooms			121	rooms
Residential - Rentals						
Studio	6	units			6	units
1 Bedroom	12	units	3	units	15	units
2 Bedroom	78	units	33	units	111	units
3 Bedroom	6	units	6	units	12	units

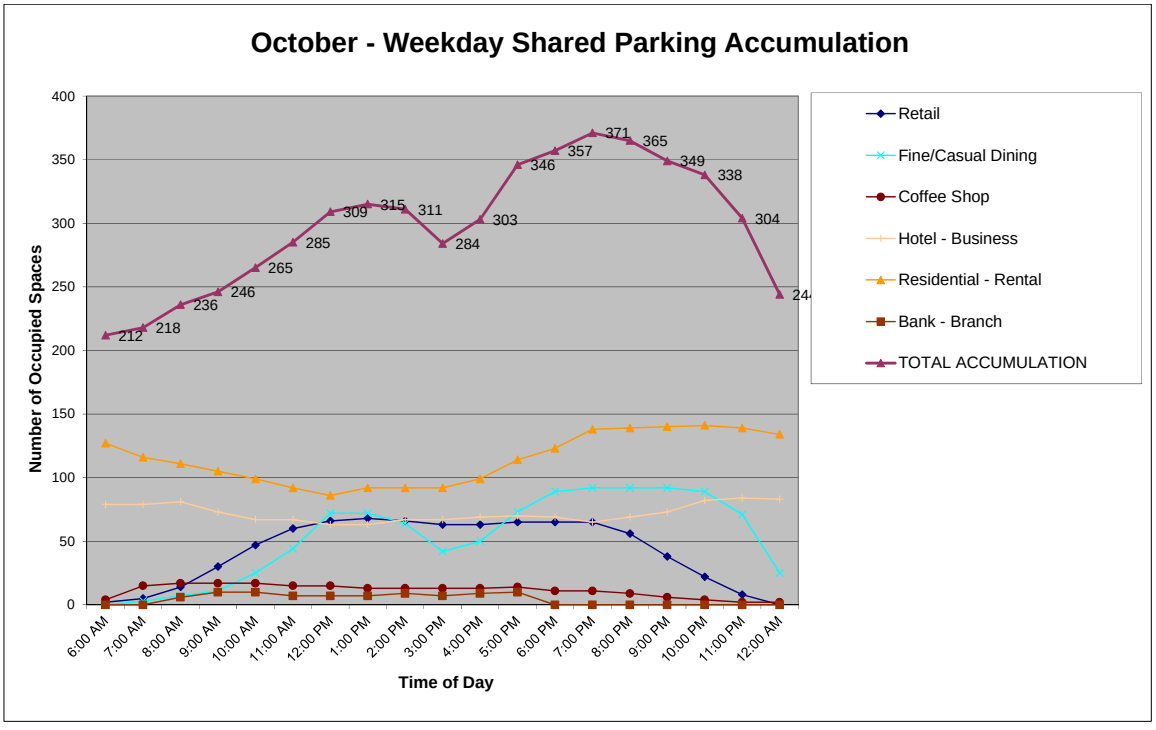
Shared Parking – Buildings A&B Combined

Table 5 presents the results of the shared parking demand model for a 12 month period (including extra analysis periods for Late December) for Buildings A&B combined. The model estimates the overall peak demand at about 371 spaces occurring at about 7:00 pm on a weekday in October. The graph shows the estimated parking accumulation by each land use as well as the total accumulation. The analysis assumes that all of the parking spaces will be shared among user groups and no spaces will be reserved for specific individuals or groups.

Table 5 – Shared Parking Model Results (A&B)

Peak Accumulation	Day/Month	Peak Hour of Accumulation
347	Weekday - January	7:00:00 PM
339	Weekend - January	7:00:00 PM
344	Weekday - February	7:00:00 PM
337	Weekend - February	7:00:00 PM
355	Weekday - March	7:00:00 PM
350	Weekend - March	7:00:00 PM
364	Weekday - April	7:00:00 PM
356	Weekend - April	7:00:00 PM
361	Weekday - May	7:00:00 PM
353	Weekend - May	7:00:00 PM
338	Weekday - June	7:00:00 PM
333	Weekend - June	7:00:00 PM
334	Weekday - July	7:00:00 PM
330	Weekend - July	7:00:00 PM
364	Weekday - August	7:00:00 PM
357	Weekend - August	7:00:00 PM
367	Weekday - September	7:00:00 PM
360	Weekend - September	7:00:00 PM
371	Weekday - October	7:00:00 PM
364	Weekend - October	7:00:00 PM
343	Weekday - November	7:00:00 PM
336	Weekend - November	7:00:00 PM
336	Weekday - December	7:00:00 PM
331	Weekend - December	7:00:00 PM
311	Weekday - Late December (25-31)	7:00:00 PM
316	Weekend - Late December (25-31)	7:00:00 PM
371	**Weekday - October**	**7:00:00 PM**
433		
62		

Peak Month
Peak Base Demand
Shared Parking Reduction



Parking Adequacy – Buildings A&B Combined

Table 6 compares the estimated peak demand from the shared parking model with the parking supply. The parking supply includes the proposed parking spaces located below Building A plus the available excess capacity in the existing municipal parking system previously identified by City staff. Based on the shared model assumptions and results it appears that the parking supply can accommodate the peak demand period. The calculation does not include an operating cushion of spaces. Typically we recommend a 10% operating cushion of spaces to: make it easier to locate the last few available spaces, account for mis-parked vehicles, etc. However, if the 283 space proposed structure is operated as a completely valet parking operation the operating cushion would only apply to municipal spaces.

Table 6 – Parking Adequacy – Buildings A&B Combined

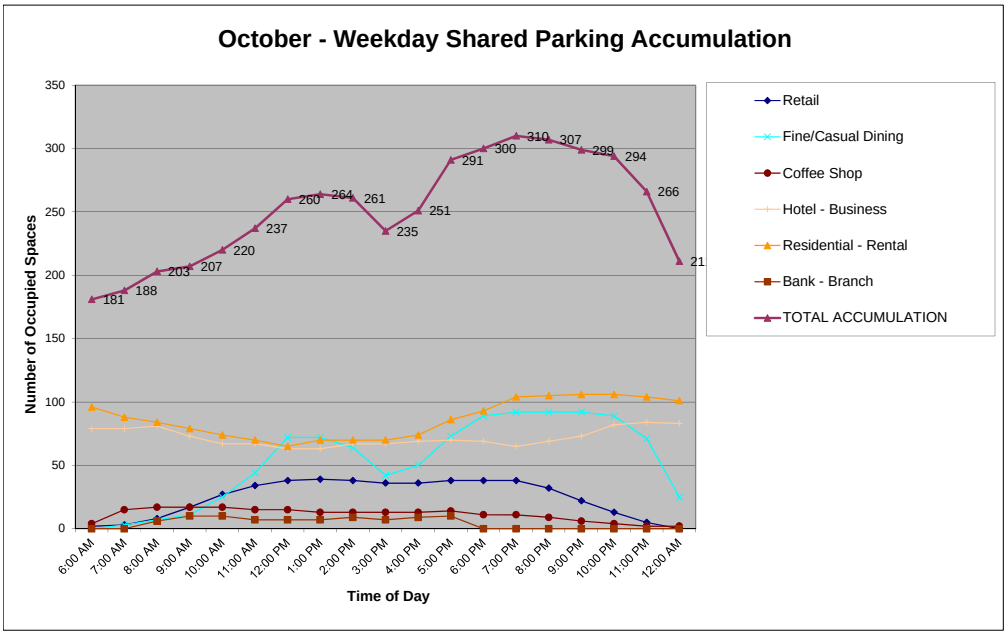
Proposed Building A Parking		283	Spaces
"Surplus" Municipal Permit Spaces		100	Spaces
"Surplus" Municipal Transient Spaces		60	Spaces
Supply subtotal		443	
Shared Demand Estimated Peak	-	371	Spaces
Surplus or Deficit (-)		**72**	**Spaces**

Shared Parking – Building A Standalone

Table 7 summarizes the results of the shared parking model for Building A as a standalone development. The analysis assumes that all of the parking spaces will be shared among user groups and no spaces will be reserved for specific individuals or groups. The model estimates a peak accumulation of about 310 vehicles occurring on weekday in October. Based on the model results it appears that the proposed 283 spaces below the building will not be sufficient to entirely meet the estimated peak period demand. However, the "surplus" of spaces used in the combined building analysis above might be considered as part of the potential supply.

Table 7 – Shared Model Results - Building A Standalone

	Peak Accumulation	Day/Month	Peak Hour of Accumulation
	287	Weekday - January	7:00:00 PM
	285	Weekend - January	8:00:00 PM
	286	Weekday - February	7:00:00 PM
	286	Weekend - February	8:00:00 PM
	296	Weekday - March	7:00:00 PM
	296	Weekend - March	8:00:00 PM
	303	Weekday - April	7:00:00 PM
	302	Weekend - April	8:00:00 PM
	301	Weekday - May	7:00:00 PM
	300	Weekend - May	8:00:00 PM
	283	Weekday - June	7:00:00 PM
	284	Weekend - June	8:00:00 PM
	279	Weekday - July	7:00:00 PM
	280	Weekend - July	7:00:00 PM
	304	Weekday - August	7:00:00 PM
	302	Weekend - August	7:00:00 PM
	306	Weekday - September	7:00:00 PM
	305	Weekend - September	8:00:00 PM
	310	Weekday - October	7:00:00 PM
	308	Weekend - October	7:00:00 PM
	285	Weekday - November	7:00:00 PM
	284	Weekend - November	8:00:00 PM
	277	Weekday - December	7:00:00 PM
	277	Weekend - December	7:00:00 PM
	262	Weekday - Late December (25-31)	7:00:00 PM
	267	Weekend - Late December (25-31)	7:00:00 PM
Peak Month	**310**	**Weekday - October**	**7:00:00 PM**
Peak Base Demand	369		
Shared Parking Reduction	**59**		



Shared Parking – Building B Standalone

Table 8 similarly presents the summary results of the shared parking model for Building B as a standalone development. The model estimates a peak demand of about 77 parking spaces also occurring on a weekday in October. There are no parking spaces proposed to be directly associated with Building B.

Table 8 - Shared Model Results - Building A Standalone

	Peak Accumulation	Day/Month	Peak Hour of Accumulation
	75	Weekday - January	7:00:00 PM
	70	Weekend - January	7:00:00 PM
	73	Weekday - February	7:00:00 PM
	68	Weekend - February	7:00:00 PM
	74	Weekday - March	7:00:00 PM
	69	Weekend - March	7:00:00 PM
	76	Weekday - April	7:00:00 PM
	70	Weekend - April	7:00:00 PM
	75	Weekday - May	7:00:00 PM
	70	Weekend - May	7:00:00 PM
	70	Weekday - June	7:00:00 PM
	66	Weekend - June	7:00:00 PM
	70	Weekday - July	7:00:00 PM
	66	Weekend - July	7:00:00 PM
	76	Weekday - August	7:00:00 PM
	70	Weekend - August	7:00:00 PM
	76	Weekday - September	7:00:00 PM
	71	Weekend - September	7:00:00 PM
	77	Weekday - October	7:00:00 PM
	71	Weekend - October	7:00:00 PM
	73	Weekday - November	7:00:00 PM
	68	Weekend - November	7:00:00 PM
	74	Weekday - December	7:00:00 PM
	69	Weekend - December	7:00:00 PM
	64	Weekday - Late December (25-31)	7:00:00 PM
	64	Weekend - Late December (25-31)	7:00:00 PM
Peak Month	**77**	**Weekday - October**	**7:00:00 PM**
Peak Base Demand	79		
Shared Parking Reduction	**2**