

## Final Memo

To: Daniel Rowe  
From: Blair Howe, Michael George  
Date: August 15, 2014

**RE: Right Sized Parking - Parking Costs and Operating Expense Estimates**

### INTRODUCTION

The purpose of this assignment is to verify the construction cost and operating expense inputs used in the Right Size Parking (RSP) calculator. Ultimately these inputs are used to determine the revenue required to cover the cost of constructing parking as part of a multifamily project, and to provide an adequate return investment without subsidy from the residential portion of the project. The focus of the work is on the three place types used in the RSP calculator, suburban, urban, and Central Business District (CBD). This memo represents an update to the methodology used in the initial RSP calculator launch in February 2013.

### METHODOLOGY

To determine the monthly parking revenue required to cover the cost of providing parking, Kidder Mathews estimated construction costs, annual operating costs, and reserves. These estimates were then input into the *Victoria Transport Policy Institute Parking Costs, Pricing and Revenue Calculator*<sup>1</sup> to arrive at the required parking revenue estimate. A more detailed description of the inputs used is presented in Appendix A.

### CONSTRUCTION COST, O&M, AND LAND VALUE ESTIMATES

#### Construction Costs

Hard and soft development cost estimates are based on Marshall & Swift Valuation Service data as of 2014 and are specific to the Greater Seattle area. The estimates are exclusive of land cost and are detailed in Appendix B.

#### Operating and Maintenance Costs

Estimating the cost to operate a parking facility associated with an apartment building is not a simple task. Most apartment building owners and managers do not separately track the costs associated with operating parking. Input from Kidder Mathews Property Management and Apartment Investment Brokers was used to estimate the allocation of the overall apartment building Operating and Maintenance (O&M) costs to parking. Detailed O&M cost assumptions are presented in Appendix C.

#### Land Values

While not captured in the VTPI calculator, economic forces often dictate the type of parking solution that is likely to occur in a particular location. Economics generally suggest that, when land is less expensive than the cost of constructing structured parking, surface parking is the best choice. The same dynamic applies to the decision to locate a parking structure above or below ground.

### FINDINGS

As shown in rightmost column in the following table, Kidder Mathews estimates that \$242 per stall in monthly parking revenue is needed to generate returns high enough to justify a suburban 2-story

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<sup>1</sup> [www.vtpi.org/parking.xls](http://www.vtpi.org/parking.xls)

parking structure, parking revenue of \$275 per stall per month is needed to justify an urban 3-story parking structure, and \$344 per stall per month in parking revenue is needed to generate returns high enough to justify underground parking in a CBD environment.

## Parking Revenue Required to Support Parking

Type of Facility	Key Kidder Mathews Inputs and Results					
	Land Cost Per SF	Construction Cost Per Space	Annual O&M Costs	Annual Reserves	KM Breakeven Monthly Revenue	KM Monthly Revenue for Expected Profit*
Suburban, 2-Level Structure	\$13	\$24,650	\$500	\$548	\$220	<b>\$242</b>
Urban, 3-Level Structure	\$60	\$24,650	\$582	\$548	\$250	<b>\$275</b>
CBD, Underground	\$200	\$32,105	\$639	\$713	\$313	<b>\$344**</b>

\*Assumes 10% annual return on investment. \*\*Based on 6 story structure, with 2 floors of below grade parking.

## ADDITIONAL ASSUMPTIONS

### Land Allocation

The analysis assumes that above grade structured parking is built adjacent to the residential portion of the project; therefore the cost of the land under the parking facility and associated property taxes are allocated entirely to the parking facility.

In the CBD underground scenario, 25% of the total land cost is allocated to the parking portion of the project, and then split between two levels of underground parking. The property taxes on the allocated land itself and on the parking improvement value are included in the annual O&M cost calculation. To add perspective, using Kidder Mathews estimates on the CBD underground scenario, and allocating none of the land cost or associated property taxes to the parking portion of the project would decrease the required monthly parking revenue needed to generate an adequate return from \$344 per month to \$290 per month.

### Reserves

An argument could be made to exclude reserves from the estimate; however, because lenders and investors commonly make an allocation for reserves in their investment analyses, we choose to include them in our estimate. As shown in the table above reserves can be a significant annual cost. To add perspective, if reserves are removed from the CBD underground scenario in the table above the required monthly revenue to generate an adequate return would decrease from \$344 per month to \$276 per month.

### Nature of the Assignment

*The information supplied herein is from sources we deem reliable. It is provided without any representation, warranty or guarantee, expressed or implied as to its accuracy. Prospective Owner, Buyer or Tenant should conduct an independent investigation and verification of all matters deemed to be material, including, but not limited to, statements of value, income, and expenses. CONSULT YOUR ATTORNEY, ACCOUNTANT, OR OTHER PROFESSIONAL ADVISOR.*

## Appendix A:

### VTPI Parking Costs, Pricing and Revenue Calculator Inputs\*

Facility Costs	Suburban	Urban	CBD	Notes
Land Costs (per acre)	\$574,895	\$2,599,840	\$8,712,000	This is land acquisition costs.
Surface Spaces Acre	125	125	125	This is the number of parking spaces per acre of surface area (including landscaping and access lanes).
Interest Rate	4.5%	4.5%	4.5%	Interest rate for long-term capital investments.
Years of Payments	40	40	40	Years of payments.
Average Days of Use Per Month	30	30	30	Typical number of days that parking space can be rented each month.

CBD = Central Business District

Type of Facility	Structured		Annualized Land Cost Per Space	Construction Costs Per Space	Annualized Construction Costs	Total Capital Costs	Annual O & M Costs	Annual Resrves	Total Annual			
	Parking Stories	Land Costs, Per Acre							Land Costs, Per Space	Cost	Monthly Cost	Daily Cost
Suburban, Surface		\$574,895	\$4,599	\$250	\$2,470	\$134	\$7,069	\$280	\$123	\$787	\$66	\$2.19
Suburban, 2-Level Structure	2	\$574,895	\$2,300	\$125	\$24,650	\$1,340	\$26,950	\$500	\$548	\$2,513	\$209	\$6.98
Urban, Surface		\$2,599,840	\$20,799	\$1,130	\$2,470	\$134	\$23,269	\$443	\$123	\$1,830	\$153	\$5.08
Urban, 3-Level Structure	3	\$2,599,840	\$6,933	\$377	\$24,650	\$1,340	\$31,583	\$582	\$548	\$2,846	\$237	\$7.91
CBD, Surface		\$8,712,000	\$69,696	\$3,787	\$2,470	\$134	\$72,166	\$931	\$123	\$4,976	\$415	\$13.82
CBD, Underground**	-2	\$8,712,000	\$8,712	\$473	\$32,105	\$1,745	\$40,817	\$639	\$713	\$3,570	\$298	\$9.92

Pricing	Suburban	Urban	CBD	Notes
Average Days of Use Per Month	30	30	30	Typical number of days that parking space can be rented each month.
Monthly Load Factor (percent)	95%	95%	95%	Portion of parking spaces that are actually leased or rented at any time.
Annual Profit	10%	10%	10%	Expected profits on investments.

Type of Facility	Pricing System	Annualized Facility			Breakeven	Breakeven	Monthly	Daily Revenue
		Costs	Annual Pricing Costs	Total Annual Costs	Monthly Revenue	Daily Revenue	Revenue For Exected Profit	for Expected Profit
Suburban, Surface	Pass	\$787	\$0	\$787	\$69	\$2.30	\$76	\$2.53
Suburban, 2-Level Structure	Pass, Pay-And-Display	\$2,513	\$0	\$2,513	\$220	\$7.35	\$242	\$8.08
Urban, Surface	Pass, Pay-And-Display	\$1,830	\$0	\$1,830	\$161	\$5.35	\$177	\$5.89
Urban, 3-Level Structure	Pass, Pay-And-Display	\$2,846	\$0	\$2,846	\$250	\$8.32	\$275	\$9.15
CBD, Surface	Pass, Pay-And-Display	\$4,976	\$0	\$4,976	\$436	\$14.55	\$480	\$16.00
CBD, Underground**	Pass, Pay-And-Display	\$3,570	\$0	\$3,570	\$313	\$10.44	\$344	\$11.48

\*Cells highlighted in gray were adjusted to reflect Kidder Mathew's estimates. \*\*CBD, underground assumes 25% of the land costs are allocated to two levels of below grade parking.

## **Appendix B:**

### **Construction Cost Assumptions**

## Surface Parking

Project Description: Surface Parking Lot

Method: Marshall & Swift Calculator Method.

Building Information:

Parking Spaces	100		
Average Space Area	350 sf		
Gross Parking Area	35,000 sf		
Footprint			
Width	90 feet		
Length	389 feet		
Perimeter	958 feet		
Lot Footprint	35,000 sf		
Floors	1		
Average Story Height	0 feet		
Construction - Type	NA		
Construction - Quality	Good		Section 14, Page 34
Year Built	2014		
Chronologic Age	0		
Effective Age	0		
Economic Life Expectancy	NA		
Remaining Economic Life	NA		

Base Cost of Units:	Units	Cost	Total	
Parking Structure	100	\$1,740.00		Section 66, Page 3
		<u>\$0.00</u>		
Adjusted Base Cost		\$1,740.00	\$174,000	

Adjustments:

Floor Area to Perimeter	1.000			Section 14, Page 38
Story Height	1.000			Section 14, Page 34
Current	1.020			Section 99, Page 3
Location	1.210			Section 99, Page 10
Gross Adjustment			1.23	

Adjusted Base Replacement Cost    \$2,147.51    \$214,751

Other Costs:

Developers Fee and Overhead / Other	15.00%	\$32,213	Estimated
Total Other Costs			\$32,213

Results:

Total Project Cost Exclusive of Land:    \$246,963    \$7.06 /gsf

Cost per Parking Space    \$2,470

*\*All section and page numbers refer to Marshall&Swift lookup tables.*

## Structured - 2 & 3 Level

Project Description: Two level above ground parking garage.

Method: Marshall & Swift Calculator method.

### Building Information:

Parking Spaces	100	
Average Space Area	350 sf	
Gross Parking Area	35,000 sf	
Footprint		
Width	90 feet	
Length	194 feet	
Perimeter	569 feet	
Building Footprint	17,500 sf	
Floors	2	
Average Story Height	10 feet	
Construction - Type	Class A	
Construction - Quality	Average	Section 14, Page 34
Year Built	2014	
Chronologic Age	0	
Effective Age	0	
Economic Life Expectancy	45	
Remaining Economic Life	45	

Base Cost of Units:	Units	Cost	Total	
Parking Structure	35,000	\$52.88		Section 14, Page 34
Sprinklers		<u>\$2.50</u>		Section 14, Page 37
Adjusted Base Cost		\$55.38	\$1,938,300	

### Adjustments:

Floor Area to Perimeter	0.896		Section 14, Page 38
Story Height	1.000		Section 14, Page 34
Current	1.020		Section 99, Page 3
Location	1.210		Section 99, Page 10
Gross Adjustment	<u>1.11</u>		

Adjusted Base Replacement Cost \$61.24 \$2,143,456

### Other Costs:

Developers Fee and Overhead / Other	15.00%	\$321,518	Estimated
Total Other Costs			\$321,518

### Results:

Total Project Cost Exclusive of Land:	\$2,464,974	\$70.43 /gsf
Cost per Parking Space	\$24,650	

*\*All section and page numbers refer to Marshall&Swift lookup tables.*

## Apartment - Two Levels Below Building

Address: Two Levels Below Apartment Building, King County

Method: Marshall & Swift Calculator Method.

### Building Information:

Parking Spaces	100
Average Space Area	350 sf
Gross Parking Area	35,000 sf
Footprint	
Width	90 feet
Length	194 feet
Perimeter	569 feet
Floors	2
Average Story Height	10 feet
Construction - Type	Class A-B
Construction - Quality	NA
Year Built	2014
Chronologic Age	0
Effective Age	0
Economic Life Expectancy	45
Remaining Economic Life	45

Section 97, Page 13

Base Cost of Units:	Units	Cost	Total	
Parking Structure - Level 1	17,500	\$50.62	\$885,850	Section 11, Page 194
Parking Structure - Level 2	17,500	\$88.00	\$1,540,000	Estimated
Sprinklers		<u>\$2.50</u>	<u>\$87,500</u>	
Adjusted Base Cost	35,000		\$2,513,350	
			\$71.81 /sf	

### Adjustments:

Floor Area to Perimeter	0.900			Section 11, Page 36
Story Height	1.000			Section 11, Page 19
Current	1.020			Section 99, Page 3
Location	1.210			Section 99, Page 10
Gross Adjustment		<u>1.11</u>		

Adjusted Base Replacement Cost \$159.53 \$2,791,779

### Other Costs:

Developers Fee and Overhead / Other	15.00%	\$418,767	Estimated
Total Other Costs		\$418,767	

### Results:

Total Project Cost Exclusive of Land: \$3,210,546 \$91.73 /gsf

Cost per Parking Space \$32,105

*\*All section and page numbers refer to Marshall&Swift lookup tables.*

**Appendix C:  
Annual O&M Costs and Reserve Assumptions**

**Global Assumptions**

Parking Spaces 100

	Suburban				Urban				CBD				
	Surface		Structured		Surface		Structured		Surface		Below Ground		
	/space		/space	/space		/space		/space	/space		/space		
Wages & Benefits	\$2,000	\$20	\$2,000	\$20	\$2,000	\$20	\$2,000	\$20	\$2,000	\$20	\$2,000	\$20	Mgr estimate
Management Costs	\$2,250	\$23	\$2,250	\$23	\$2,250	\$23	\$2,250	\$23	\$2,250	\$23	\$2,250	\$23	5% of mgmt time.
Security Cost	\$1,600	\$16	\$1,600	\$16	\$1,600	\$16	\$1,600	\$16	\$1,600	\$16	\$1,600	\$16	Drive by with 1 stop. Includes camera. Range \$1,600 to \$2,050/year.
Utilities	\$1,900	\$19	\$1,900	\$19	\$1,900	\$19	\$1,900	\$19	\$1,900	\$19	\$1,900	\$19	See detail below.
Insurance	\$1,000	\$10	\$1,000	\$10	\$1,000	\$10	\$1,000	\$10	\$1,000	\$10	\$1,000	\$10	\$1,000/yr
Supplies	\$1,000	\$10	\$1,000	\$10	\$1,000	\$10	\$1,000	\$10	\$1,000	\$10	\$1,000	\$10	\$1,000/yr
Repairs & Maintenance	\$11,200	\$112	\$11,200	\$112	\$11,200	\$112	\$11,200	\$112	\$11,200	\$112	\$11,200	\$112	See detail below.
Elevator/ Equipment Maint.	\$0	\$0	\$1,150	\$12	\$0	\$0	\$1,150	\$12	\$0	\$0	\$1,150	\$12	2 Elevators.
Other Expenses			\$1,000	\$10			\$1,000	\$10			\$1,000	\$10	Sprinkler testing \$1,000 per year.
Annual Cost	\$20,950		\$23,100		\$20,950		\$23,100		\$20,950		\$23,100		
Annual Cost Per Stall		\$210		\$231		\$210		\$231		\$210		\$231	
RE Taxes													
Land	\$4,600	\$46	\$2,300	\$23	\$20,909	\$209	\$10,454	\$105	\$69,696	\$697	\$8,712	\$87	25% on 2 levels structured. 100% surface.
Improvements	\$2,470	\$25	\$24,650	\$246	\$2,470	\$25	\$24,650	\$246	\$2,470	\$25	\$32,105	\$321	Improvement value taxes 100% of parking improvements only.
Annual Cost Per Stall		\$280		\$500		\$443		\$582		\$931		\$639	
Reserves	\$12,348	\$123	\$54,777	\$548	\$12,348	\$123	\$54,777	\$548	\$12,348	\$123	\$71,345	\$713	Surface 20 year life. Structured 45 year life.
Total	\$40,368		\$104,827		\$56,677		\$112,981		\$105,464		\$135,263		

	\$/yr		\$/yr		\$/yr
Repairs and Maint.		Repairs and Maint.		Repairs and Maint.	
Sweeping/Cleaning	\$2,500	Sweeping/Cleaning	\$2,500	Sweeping/Cleaning	\$2,500
Landscaping	\$6,000	Landscaping	\$6,000	Landscaping	\$6,000
Electrical Repairs	\$1,500	Electrical Repairs	\$1,500	Electrical Repairs	\$1,500
Painting	\$1,000	Painting	\$1,000	Painting	\$1,000
Pest Control	\$200	Pest Control	\$200	Pest Control	\$200
	\$11,200		\$11,200		\$11,200
Utilities Detail		Utilities Detail		Utilities Detail	
Water/Sewer/Stormwater	\$1,000	Water/Sewer/Stormwater	\$1,000	Water/Sewer/Stormwater	\$1,000
Trash Removal	\$300	Trash Removal	\$300	Trash Removal	\$300
Electricity	\$600	Electricity	\$600	Electricity	\$600
	\$1,900		\$1,900		\$1,900