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To: Daniel Rowe, King County Metro Transit

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Subject: King County Metro Multi-family Parking Data Collection Summary

BACKGROUND

In order to understand the time-of-day variation of parking demand at residential properties, the project team evaluated seven locations throughout King County. The data collection consisted of a nighttime assessment of parking occupancy and supply supplemented with video recording of vehicles entering and leaving the site over the course of 24 hours. The video was reviewed to determine changes in overall parking occupancy at 15-minute intervals. Results are presented below.

RESULTS

- Nighttime peak occupancy on average was 65% of the total supply as shown in **Table 1**

- Lowest occupancy during the day was on average 41% of the peak nighttime occupancy and 27% of total parking supply.

- As shown in **Figure 1**, Time-of-day variation patterns were fairly consistent between the sites, with an average of 84% of the nighttime vehicles still onsite at 7am, with a sharp drop in occupancy from 7am until 10am. Peak commute time users would utilize the spaces available by 7am.

- Occupancy began to increase around 4pm, reaching 52% of nighttime occupancy by 5pm. Later arrivals to the facilities would most likely utilize spaces available from between 10am and 6pm. For these users, the space availability would be capped by the amount available at 6pm.

- A consistent trough of low demand was identified from between 10am and 4pm. On average, the number of spaces occupied was less than 50% of the nighttime occupancy and less than 30% of total supply.

- The table to the right details the average availability expected for various time periods

Time Period	Percent of Total Spaces Occupied	Percent of Total Spaces Available
All Day	65%	35%
7am - 6pm	55%	45%
10am - 8pm	48%	52%

COMPARISON TO MODEL ESTIMATES

A model developed to estimate daytime and nighttime occupancy was consistent with actual results measured for both periods at the seven sites. The model estimated on average 11% more spaces occupied during the nighttime period and an average of 17% more spaces during the daytime period compared to actual results. The difference would be 6% for the daytime period if the outlier site 6 were removed.

Table 1. Data Collection and Model Comparison Results

Site	Parking Supply	Nighttime Occupancy	Nighttime Percent	Lowest Daytime Occupancy	Lowest Occupancy Percent of Nighttime	7am Occupancy	5pm Occupancy	Daily Supply Peak	Parcel-data Supply	RSP Nighttime Demand	Lowest Occupancy	Daily Supply Peak	Difference to Nighttime Demand	Difference in Daily Peak Supply
					Data Collection						**Model Estimates**		**Model Comparison**	
1	383	245	64%	108	44%	218	123	275	392	237	119	273	-5%	1%
2	299	204	68%	98	48%	169	125	201	305	253	95	210	22%	-4%
3	109	75	69%	36	48%	65	45	73	110	76	Site was not part of daytime demand model			
4	310	199	64%	67	34%	164	89	243	331	266	113	218	25%	11%
5	500	227	45%	76	33%	216	101	424	490	264	127	363	19%	17%
6	148	111	75%	54	49%	96	73	94	143	132	87	56	23%	68%
7	404	269	67%	90	33%	218	125	314	404	230	109	295	-14%	6%
Average			**65%**		**41%**								**11%**	**17%**

Figure 1. Time-of-day Variation in Parking Demand at Study Sites

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7am - 84% of nighttime occupancy. 55% of total supply

5pm - 52% of nighttime occupancy. 35% of total supply

Average Percent of Nighttime Occupancy   Average Percent of Total Supply