

MEMORANDUM

TO: Patrick Dorris, University of Pennsylvania Health System

FROM: James Markham, Pennoni Associates

DATE: December 1, 2015

SUBJECT: Penn Medicine – Evaluation of Parking Demand

A parking evaluation was performed at two existing University of Pennsylvania Health Systems (UPHS) medical facilities located in Radnor and Berwyn, Pennsylvania. The sites are outpatient care centers and the parking observations were utilized to calculate the peak parking demand rates for the two sites and provide a basis of comparison to information within the ITE publication Parking Generation, 4th Edition and the existing Radnor Township off-street parking ordinances. The evaluation will inform the development of a parking standard for outpatient care centers within Radnor Township.

Parking Inventory

On Tuesday, November 10, 2015 Pennoni conducted a parking inventory at Penn Medicine facilities located at 250 King of Prussia Road in Radnor PA and at 1001 Chesterbrook Blvd. in Berwyn PA. The number of occupied parking spaces on each site was recorded every 15 minutes from 8:00 AM to 7:00 PM. The parking observations were summarized and the average and peak period parking occupancies were determined. **TABLE 1** presents average and peak period parking occupancy. The complete parking observation summary is attached to this memorandum.

TABLE 1
 Peak Period Parking Occupancy

Location	Period	On-Site Spaces	Occupied On-Site Spaces
Penn Medicine Valley Forge Berwyn, PA	AM Peak (10-11AM)	389	195
	PM Peak (2-3 PM)		182
Penn Medicine Radnor, Radnor, PA	AM Peak (10-11AM)	409	374
	PM Peak (2 -3 PM)		358

According to information provided by UPHS there are approximately 160 staff at the Radnor facility that park in off-site lots. These will be included in the calculation of the existing parking demand rates.

Calculated Parking Demand Rates

The parking demand rates of the two sites were calculated based on the gross square footage of the buildings. Based on information provided by UPHS, the Penn Medicine Radnor site is approximately 171,000 square feet and the Penn Medicine Valley Forge site is approximately 88,350 GSF. **TABLE 2** presents peak period parking rates for the two sites.

TABLE 2
Peak Period Parking Demand Rates

Location	Size (GSF)	Period	Occupied Spaces*	% Occupancy	Demand Rate (Spaces/1,000 SF GFA)
Penn Medicine Valley Forge Berwyn, PA	88,350	AM Peak (10-11AM)	195	50%	2.21
		PM Peak (2-3 PM)	182	47%	2.07
Penn Medicine Radnor, Radnor, PA	171,000	AM Peak (10-11AM)	534	91%	3.12
		PM Peak (2-3 PM)	518	88%	3.03

* Includes 160 off-site spaces at Penn Medicine Radnor site

Estimated Parking Demand (ITE Parking Generation)

The ITE publication Parking Generation (4th Edition, 2010) is a resource which provides a means of estimating parking demand based on studies and observations of existing land uses. The publication provides statistical information regarding parking demand data, including a range of parking rates observed. The ITE publication includes a land use titled "Medical/Dental Office Building", and defines the use as "a facility that provides diagnoses and outpatient care on a routine basis, but is unable to provide prolonged in-house medical and surgical care". This description is similar to the UPHS outpatient care centers. The parking demand rates within Parking Generation are expressed in vehicles per 1,000 square feet of gross floor area. (GFA). The parking demand rates within the ITE publication Parking Generation are:

Land Use	Statistic	Demand Rate
720 : Medical-Dental Office Building	Average Peak Period	3.20 vehicles per 1,000 sq. ft. GFA
	85th Percentile	4.27 vehicles per 1,000 sq. ft. GFA
	33 rd Percentile	2.68 vehicles per 1,000 sq. ft. GFA

The ITE database included both urban and suburban sites and had an average parking supply ratio of 4 parking spaces per 1,000 square feet of gross floor area.

Radnor Township Off-Street Parking Requirements

The Radnor Township ordinances do not specifically identify a minimum standard for off-street parking for outpatient care centers or medical-dental office buildings. The Radnor Township ordinances have a minimum standard that states “Building or use other than specified above: at least one space for each 300 square feet of floor area or lot area devoted to such use, whichever is larger, except when authorized as a special exception, consistent with standards set forth herein for comparable buildings or uses.”

Radnor Township does have a minimum off-street parking standard for an office building which can be equated to the land use General Office Building (Land Use 710) in the ITE publication Parking Generation which is defined as a facility that “houses multiple tenants; it is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building or buildings may contain a mixture of tenants including professional services, insurance companies, investment brokers and tenant services, such as a bank or savings and loan institution, a restaurant or cafeteria and service retail facilities.” The Radnor Township minimum standard for an office building is “one space for each 200 square feet of floor area for the first 50,000 square feet, plus one space for each 300 square feet of floor area over 50,000 square feet”.

The traffic characteristics associated with a general office building typically differs from that of an outpatient care center or medical-dental office building. Traffic associated with a general office building tends to coincide with the roadway peak periods and off-street parking at a general office building will typically maintain a steady level of occupancy over the course of a day. Traffic associated with an outpatient care center or medical-dental office building will occur throughout the day with peaks occurring outside of the roadway peak periods and off-street parking experiencing higher rates of turnover than a general office.

The minimum parking standards for each of the identified uses from the “Code of the Township of Radnor” is summarized below:

Land Use	Minimum Parking Standard
Office Building	1 st 50,000 square feet = 1 space / 200 square feet (5.0 spaces / 1,000 square feet) > 50,000 square feet 1 space / 300 square feet (3.33 spaces / 1,000square feet)
For Land Use Not Specified in Ordinances	1 space / 300 square feet (3.33 spaces / 1,000 square feet)

Conclusion

The parking inventories that were conducted on Tuesday November 10, 2015 indicate that both existing Penn Medicine facilities evaluated exhibited peak period parking demands less than 3.2 vehicles per square foot. The Penn Medicine Valley Forge site exhibited a peak demand of 2.21

vehicles per 1,000 square feet of GFA and the Penn Medicine Radnor site exhibited a peak demand of 3.12 vehicles per 1,000 square feet of GFA. The Penn Medicine Valley Forge site is newer than the Penn Medicine Radnor site which contributes to the lower parking generation rate. It is anticipated that as the practices at the Penn Medicine Valley Forge mature, the demand rate will potentially grow.

The ITE publication Parking Generation (4th Edition) provides parking demand rates for a land use that is similar to that of the UPHS outpatient care centers in "Medical/Dental Office Building" The rates provided by the ITE publication range from 2.68 to 4.27 vehicles per 1,000 square feet of GFA with an average peak demand rate of 3.2 vehicles per 1,000 square feet of GFA.

Radnor Township ordinances do not include a land use within the parking standards directly apply to an outpatient care center or medical-dental office. For an unspecified land use the required parking rate for an outpatient care center in Radnor Township would be 3.3 spaces per 1,000 square feet of GFA. The ordinances do include a parking standard for a general office building of one space for each 200 square feet of floor area for the first 50,000 square feet, plus one space for each 300 square feet of floor area over 50,000 square feet. For sites whose off-site parking is being evaluated using the Radnor Township requirement for a general office building, less than 4 spaces per 1,000 per square foot is required if the GFA exceeds 125,000 square feet. For a site with approximately 240,000 square feet of gross floor area, 3.68 spaces per 1,000 square feet are required.

The proposed UPHS outpatient care center currently under consideration in Radnor Township will have a proportionately greater number of large treatment rooms (such as radiation oncology, chemotherapy, and ambulatory ORs) than the existing sites that were evaluated. The proposed UPHS outpatient care center will therefore have fewer treatment/exam rooms per square foot of GFA and is expected to generate less daily visits per square foot of GFA than the evaluated sites.

Based on the information obtained through the parking evaluation and the information reviewed within the Radnor Township Ordinance and the ITE publication Parking Generation (4th Edition), a parking demand rate/parking standard of 4.0 vehicles per 1,000 square feet of GFA would satisfy the requirements of an outpatient care center in Radnor Township. The 4.0 vehicles per 1,000 square feet of GFA exceeds existing Radnor Township requirements, meets the average peak hour parking demand identified in the ITE publication Parking Generation (4th Edition) for a similar use, and would exceed the parking demand observed at both of the existing sites.

Penn Medicine Radnor, PA
Parking Inventory
November 10, 2015 8:00 AM - 7:00 PM

Penn Medicine Radnor, Radnor, PA

On-Site Parking Spaces = 409
 Off-Site Employee Spaces = 236 (per info provided)
 Exam/Treatment Rooms = 142
 Square Footage = 171,000

Time	Occupied Spaces	Unoccupied Spaces	% Full	Total Spaces
8:00am	196	213	48%	409
8:15am	220	189	54%	409
8:30am	283	126	69%	409
8:45am	288	121	70%	409
9:00am	316	93	77%	409
9:15am	342	67	84%	409
9:30am	344	65	84%	409
9:45am	354	55	87%	409
10:00am	372	37	91%	409
10:15am	374	35	91%	409
10:30am	374	35	91%	409
10:45am	373	36	91%	409
11:00am	367	42	90%	409
11:15am	370	39	90%	409
11:30am	374	35	91%	409
11:45am	361	48	88%	409
12:00pm	346	63	85%	409
12:15pm	321	88	78%	409
12:30pm	310	99	76%	409
12:45pm	311	98	76%	409
1:00pm	320	89	78%	409
1:15pm	328	81	80%	409
1:30pm	341	68	83%	409
1:45pm	337	72	82%	409
2:00pm	358	51	88%	409
2:15pm	351	58	86%	409
2:30pm	346	63	85%	409
2:45pm	350	59	86%	409
3:00pm	354	55	87%	409
3:15pm	336	73	82%	409
3:30pm	329	80	80%	409
3:45pm	310	99	76%	409
4:00pm	296	113	72%	409
4:15pm	256	153	63%	409
4:30pm	225	184	55%	409
4:45pm	195	214	48%	409
5:00pm	166	243	41%	409
5:15pm	128	281	31%	409
5:30pm	124	285	30%	409
5:45pm	102	307	25%	409
6:00pm	95	314	23%	409
6:15pm	92	317	22%	409
6:30pm	86	323	21%	409
6:45pm	76	333	19%	409

	<u>Occupied On-Site</u>	<u>Available Spaces</u>	<u>Occ. %</u>	<u># Spaces</u>	<u>Occupied Off-Site</u>	<u>GSF (x1000 SF)</u>	<u>Rate*</u>
AM Peak	374	35	91%	409	160	171.00	3.12
PM Peak	358	51	88%	409	160	171.00	3.03

*Parking Demand vs. 1000 SF GFA

Penn Medicine Berwyn, PA
 Parking Inventory
 November 10, 2015 8:00 AM - 7:00 PM

Penn Medicine Valley Forge, Berwyn, PA

On-Site Parking Spaces = 389

Exam/Treatment Rooms = 94

Square Footage = 88,350 (estimated)

Time	Occupied Spaces	Unoccupied Spaces	% Full	Total Spaces
8:00am	110	279	28%	389
8:15am	128	261	33%	389
8:30am	140	249	36%	389
8:45am	148	241	38%	389
9:00am	162	227	42%	389
9:15am	158	231	41%	389
9:30am	168	221	43%	389
9:45am	185	204	48%	389
10:00am	188	201	48%	389
10:15am	187	202	48%	389
10:30am	193	196	50%	389
10:45am	190	199	49%	389
11:00am	195	194	50%	389
11:15am	193	196	50%	389
11:30am	191	198	49%	389
11:45am	181	208	47%	389
12:00pm	169	220	43%	389
12:15pm	158	231	41%	389
12:30pm	164	225	42%	389
12:45pm	166	223	43%	389
1:00pm	174	215	45%	389
1:15pm	173	216	44%	389
1:30pm	182	207	47%	389
1:45pm	177	212	46%	389
2:00pm	174	215	45%	389
2:15pm	174	215	45%	389
2:30pm	183	206	47%	389
2:45pm	175	214	45%	389
3:00pm	180	209	46%	389
3:15pm	170	219	44%	389
3:30pm	159	230	41%	389
3:45pm	161	228	41%	389
4:00pm	147	242	38%	389
4:15pm	139	250	36%	389
4:30pm	126	263	32%	389
4:45pm	108	281	28%	389
5:00pm	91	298	23%	389
5:15pm	71	318	18%	389
5:30pm	57	332	15%	389
5:45pm	49	340	13%	389
6:00pm	50	339	13%	389
6:15pm	44	345	11%	389
6:30pm	39	350	10%	389
6:45pm	35	354	9%	389
7:00pm	32	357	8%	389

	Occupied Spaces	Available Spaces	Occ. %	# Spaces	GSF (x1000 SF)	Rate*
AM Peak	195	194	50%	389	88.35	2.21
PM Peak	183	206	47%	389	88.35	2.07

*Parking Demand vs. 1000 SF GFA