RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

RAMEY KEMP & ASSOCIATES, INC.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
Phone - 919-872-5115 Fax - 919-878-5416
www.rameykemp.com

October 24, 2014

Mr. Bill Judge, P.E.
City of Durham – Transportation Division
101 City Hall Plaza
Durham, North Carolina 27701

Subject: Parking Demand Study – Southside East Residential Development
Durham, North Carolina

Dear Mr. Judge:

This letter presents the findings of a parking demand study prepared for the next phases of the Southside East residential development located northeast of the intersection of South Roxboro Street and East Piedmont Avenue in Durham, NC. The next phases of Southside East are proposed to consist of a maximum of 165 apartment units, with a mix of subsidized, partially subsidized, and market rate units. The purpose of the parking demand study is to determine the number of parking spaces that will be necessary to accommodate the peak parking demand for the site's land uses at full build out.

The City of Durham's Unified Development Ordinance section 10.3 specifies a parking rate of 2 parking spaces for every 1 apartment unit. This rate may be much higher than what is needed for this portion of the Southside East development. In order to determine the number of necessary parking spaces, a literature review was performed, along with a data collection effort at similar developments.

Literature Review

In order to better predict an accurate parking ratio for the proposed Southside East development, a literature review was performed. The review sought to find peer-reviewed articles stating a parking rate appropriate for an affordable housing development. Two sources were found. The first is the ITE *Parking Generation* Manual and the second is a report published for the City of San Diego on affordable housing parking ratios entitled *San Diego Affordable Housing Parking Study*.

The first source identified was the ITE *Parking Generation* manual. *Parking Generation* is the industry standard for parking generation rates. In *Parking Generation*, a rate of 1.2 spaces is specified for every 1 apartment unit in a low/mid-rise apartment development in an urban setting. This parking rate applies to market-rate housing units, not affordable housing, and therefore may be an overestimate of the appropriate parking rate for an affordable housing development. Please see the attached *Parking Generation* excerpt referring to apartment unit parking generation.

The second source identified was published by the City of San Diego. The study, entitled *San Diego Affordable Housing Parking Study*, was performed by Wilbur Smith engineers and submitted to the City of San Diego in December of 2011. The study looked at 138 affordable housing developments in order to establish a parking generation rate for affordable housing. The study found a parking rate of 0.6, 1.1, and 1.4 spaces per unit for 1, 2, and 3 bedrooms respectively, in an urban area. The Southside East development is proposed to be a mix of 1 bedroom (approximately 26%), 2 bedroom (approximately 66%), and 3 bedroom (approximately 8%) apartments. Please see the attached excerpt from *San Diego Affordable Housing Parking Study.*

Data Collection and Evaluation

Data collection was performed at existing affordable housing properties in Raleigh, NC in October of 2014. The sites studied were chosen due to their similarity to the proposed Southside East development. Both sites have a mix of subsidized and market rate units (similar to Southside East). Both sites are larger than Southside East, offering a more reliable sample. Both sample sites are located in a suburban location, which should provide for a slight overestimate of the parking rate.

The first site is called Madison Glen and is located southwest of the intersection of Lynn Road and Ray Road in Raleigh, NC. Per the apartment community representative, Madison Glen consists of 116 apartment units, 46 of which are tax credit units and 70 of which are market rate units. The units are a mix of 1, 2, and 3 bedroom apartments, with a total of 237 bedrooms. The maximum number of cars parked at Madison Glen at the peak parking period was 133 parked cars. This results in a parking ratio of 1.1 spaces per apartment unit, or 0.56 spaces per bedroom.

The second site is called the Overlooke at Simms Creek and is located southeast of the intersection of Simms Creek Road and Capital Boulevard in Raleigh, NC. Per the apartment community representative, the Overlooke at Simms Creek has 264 units, approximately half of which are tax credit units and half of which are market rate units. The units are a mix of 1, 2, and 3 bedroom apartments, with a total of 500 bedrooms. The maximum number of cars parked at the Overlooke during the peak parking period was 323 parked cars. This results in a parking ratio of 1.2 spaces per apartment unit, or 0.65 spaces per bedroom.

Refer to attached for parking utilization throughout the day at each of the above developments.

Conclusion

A parking study was prepared to determine a parking generation rate for the next phases of the Southside East development. In order to obtain the parking rate, a literature review and data collection effort was performed. The results of the literature review and data collection show the following:

Data Source		Parking Ratio	Parking Ratio
Literature Review	ITE *Parking Generation*	1.2 spaces per unit	N/A
	San Diego Study	1.0 spaces per unit	0.56 spaces per bedroom
Data Collection	Madison Glen	1.1 spaces per unit	0.56 spaces per bedroom
	Overlooke at Simms Creek	1.2 spaces per unit	0.65 spaces per bedroom

The maximum rates shown above are 1.2 spaces per unit and 0.65 spaces per bedroom. If applied to the proposed Southside East development, this results in 198 spaces (based on a per-unit rate).

It should be noted that due to Southside East being in an urban area, individual car ownership may be lower than in a more suburban location. There are multiple transit lines which operate in the immediate area including DATA bus routes # 5 and # 8. The location of the proposed development is about a half a mile from downtown Durham (a 15 minute walk), and there are retail centers in the immediate area including grocery stores, which allow walking or travel without the use of a car. The development is also located approximately a half mile from the American Tobacco Trail greenway, offering options for pedestrian and bicycle activity.

Please let us know if you have any questions regarding this information.

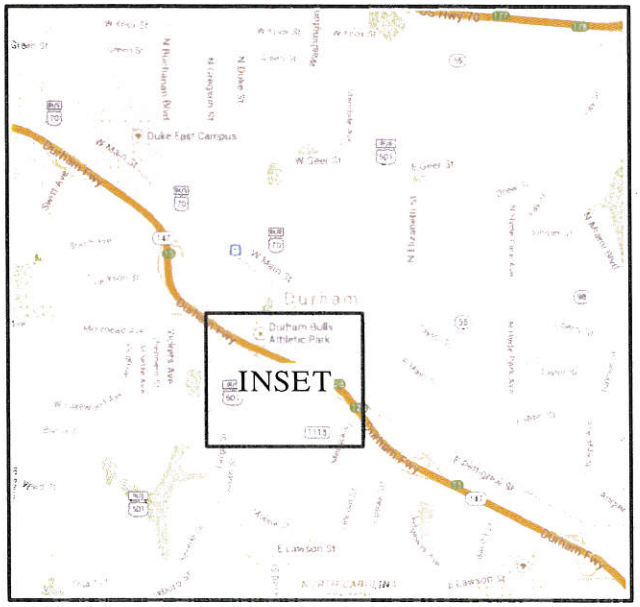
Sincerely,

NORTH CAROLINA PROFESSIONAL SEAL 028926 ENGINEER RYNAL G. STEPHENSON

10-24-14

Rynal Stephenson, P.E.
Regional Manager
Ramey Kemp & Associates, Inc.
NC Corporate License # C-0910

Attachments: Site Location Map
Parking Demand Data Collection Results for Similar Locations
ITE *Parking Generation* Manual Data
San Diego Affordable Housing Parking Study Excerpt



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Rolling Hills Development

Durham, North Carolina

Site Location Map

Parking Demand Data Collection at Similar Affordable Housing Developments

Madison Glen		
Date	Time	# Parked Cars
Oct 7th	9 - 10 pm	122
Oct 8th	6 - 7 am	**133**
	8 - 9 am	92
	9 - 10 am	80
	10 - 11 am	75
	11 - 12 pm	68
	2 - 3 pm	65
	3 - 4 pm	75
	4 - 5 pm	72
	5 - 6 pm	84
	8 - 9 pm	113

Total Apartment Units
116

Total Bedrooms
237

Overlooke at Simms Creek		
Date	Time	# Parked Cars
Oct 7th	9 - 10 pm	278
Oct 8th	6 - 7 am	**323**
	7 - 8 am	228
	8 - 9 am	182
	9 - 10 am	177
	11 - 12 pm	162
	1 - 2 pm	160
	2 - 3 pm	167
	3 - 4 pm	158
	4 - 5 pm	189
	7 - 8 pm	278
	9 - 10 pm	290

Total Apartment Units
264

Total Bedrooms
500

4th Edition

Parking Generation

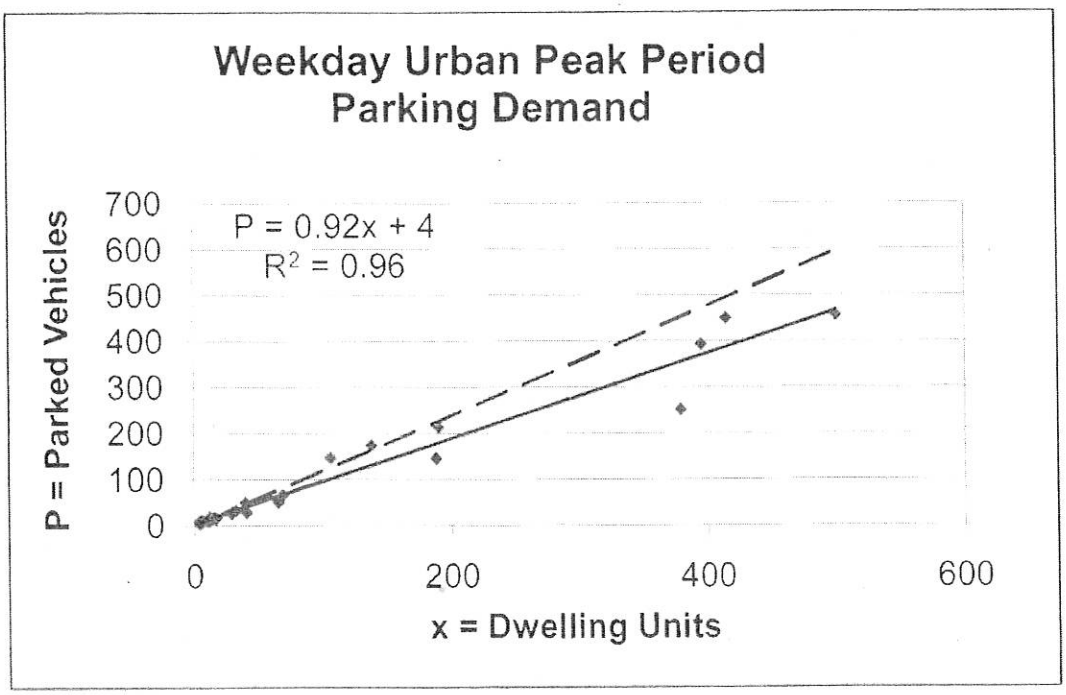
ite

Institute of Transportation Engineers

Land Use: 221
Low/Mid-Rise Apartment

Average Peak Period Parking Demand vs. Dwelling Units
On a: Weekday
Location: Urban

Statistic	Peak Period Demand
Peak Period	10:00 p.m.–5:00 a.m.
Number of Study Sites	40
Average Size of Study Sites	70 dwelling units
Average Peak Period Parking Demand	1.20 vehicles per dwelling unit
Standard Deviation	0.42
Coefficient of Variation	35%
95% Confidence Interval	1.07–1.33 vehicles per dwelling unit
Range	0.66–2.50 vehicles per dwelling unit
85th Percentile	1.61 vehicles per dwelling unit
33rd Percentile	0.93 vehicles per dwelling unit



◆ Actual Data Points ——— Fitted Curve - - - - Average Rate

San Diego Affordable Housing Parking Study

December 2011

Submitted to
City of San Diego

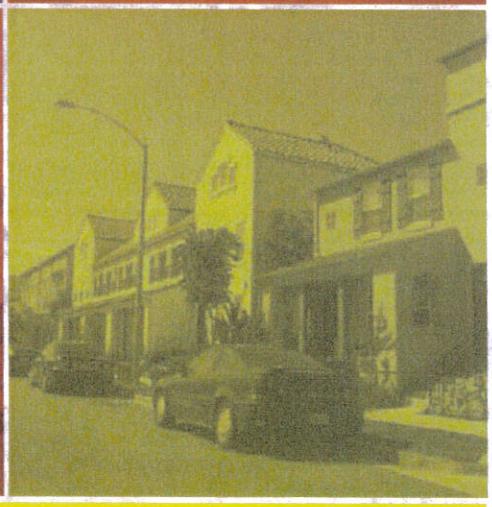
Submitted by
Wilbur Smith Associates

In association with
AECOM

Michael R. Kodama Planning Consultants

Richard Willson, PhD

National Data and Surveying Services



WilburSmith
ASSOCIATES

Executive Summary

Type of project		A. Total units	B. Studio Low/Med/ High	C. 1 BR Low/Med/ High	D. 2 BR Low/Med/ High	E. 3 BR Low/Med/ High	F. Subtotal for units (sum B3 – E3)	G. Visitor parking (G2*A1)	H. Staff parking (H2*A1)	I. Subtotal w/ staff + visitor (F3+G3+H3)	J. Total requirement with vacancy factor adjustment (I3*J2) Vacancy adj./no vacancy adj.
Family Housing	1. Units										
	2. Rate		N/A	1.0/0.6/ 0.33	1.3/1.1/0.5	1.75/1.4/0. 75		0.15	0.05		1.1/1.0
	3. Spaces										
Living Unit/ SRO	1. Units										
	2. Rate		0.5/0.3/0.1	N/A	N/A	N/A		0.15	0.05		1.1/1.0
	3. Spaces										
Senior Housing	1. Units										
	2. Rate		0.5/0.3/ 0.1	0.75/0.6/ 0.15	1.0/0.85/0.2	N/A		0.15	0.05		1.1/1.0
	3. Spaces										
Studio – 1 bed-room	1. Units										
	2. Rate		0.5/0.2/ 0.1	0.75/0.5/ 0.1	N/A	N/A		0.15	0.05		1.1/1.0
	3. Spaces										
Special Needs	1. Units										
	2. Rate		0.5/0.2/ 0.1	0.75/0.5/ 0.1	N/A	N/A		0.15	0.10		1.1/1.0
	3. Spaces										

Notes on Model & Parking Requirements:

1. Requirements should be developed based on the four housing types outlined in this table.
2. Requirements are based on mean (average) vehicle availability.
3. Requirements should be based on walkability/transit indices (Suburban, urban and core designations have been simplified to low, medium and high, respectively).
4. 10% base vacancy factor is adjustable if using unassigned parking. Unassigned parking is the preferred method.
5. Visitor parking = 0.15 spaces/unit, or zero for dense urban areas, or unassigned lots.
6. Staff Parking should be considered on a case by case basis, with 0.1 for staff intensive developments.
7. Parking management tools and travel demand management strategies should be considered for appropriate developments to supplement minimum requirements.