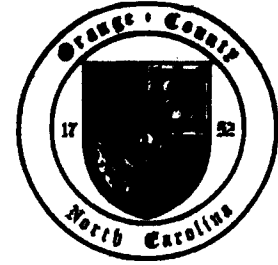


25

MARGARET W. BROWN, CHAIR  
 ALICE M. GORDON, VICE CHAIR  
 MOSES CAREY, JR.  
 STEPHEN H. HALKIOTIS  
 BARRY JACOBS

ORANGE COUNTY BOARD OF COMMISSIONERS  
 POST OFFICE BOX 8181  
 200 SOUTH CAMERON STREET  
 HILLSBOROUGH, NORTH CAROLINA 27278



## MEMORANDUM

**TO:** *The Orange County Board of Commissioners*  
*The Honorable Mike Nelson, Mayor, Town of Carrboro and Board of Aldermen*  
*The Honorable Kevin Foy, Mayor, Town of Chapel Hill and Chapel Hill Town Council*  
*The Honorable Valerie Foushee, Chair, Chapel Hill-Carrboro Board of Education and Board Members*  
*The Honorable Joe Phelps, Mayor, Town of Hillsborough and Board of Commissioners*  
*The Honorable Brenda Stephens, Chair, Orange County Board of Education and Board Members*

**FROM:** *Margaret Brown, Chair, Orange County Board of Commissioners*

**DATE:** *December 16, 2002*

**SUBJECT:** *Schools Adequate Public Facilities Memorandum of Understanding and Ordinance*

**COPIES:** *Schools and Land Use Councils Members, School Facilities Task Force Members, School Superintendents, County and Town Managers, Attorneys, Planning Directors*

---

On December 10, 2002 the Board of County Commissioners (BOCC) unanimously recommended approval and forwarding of the Schools Adequate Public Facilities Memorandum of Understanding (MOU) and model Ordinance (Schools APFO) to the respective local governments and school boards. There have been a few minor addendums, which are explained herein. The three-year process of developing these documents has been an important and progressive collaboration of many parties to create a policy and ordinance that will help maintain the high quality of education that serves as a linchpin to the quality of life in Orange County.

### Amendments

Over the past eight months, these two documents were amended from the earlier drafts of the Schools and Land Use Councils (SLUC) (November 14, 2001 approval and February 8, 2002 transmittal) and the School Facilities Task Force (SFTF). The amendments, drafted to address comments from various public hearings, are summarized below from further review and recommendation.

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**MEMORANDUM**  
**December 16, 2002**  
**Page 2**

Some addendums affect both district MOU's and some are specific to the district.

1. Permit a more extensive review process when evaluating updated SAPFO elements each year (both district MOU's).
2. Additional emphasis on CIP development (Chapel Hill/Carrboro School District only).
3. 'Suspension' of adequacy test (for Certificate of Adequate Public Schools [CAPS]) at Orange County Middle School level until new Middle School opens (CIP planned for 2005-06) (Orange County School District only).

This third item was recommended to avoid a 'defacto' moratorium upon SAPFO outset.

**Transmittal of Documents**

Accompanying this memorandum are the following documents:

1. **Schools Adequate Public Facilities Memorandum of Understanding and Model Ordinance**

*Approved by SLUC on 11/14/01*

*Transmitted by SLUC on 2/08/02*

*Revised by County Attorney on 11/27/02, 12/9/02 and 12/10/02*

**[Attachment A - base MOU and Ordinance]**

*Amended by addendum (attachments A1 and A2 below) by BOCC on 12/10/02*

**[Attachment A1 - applies to the Chapel Hill/Carrboro School District Area]**

**[Attachment A2 - applies to the Orange County School District Area]**

2. **Decision Matrix of Memorandum of Understanding (MOU) Elements**

*Approved by SLUC and SFTF*

**[Attachment B - applies to both districts]**

*(Attachment B includes a series of internal attachments)*

The MOU includes all of the general understandings used in the proposed implementing model ordinance (Schools APFO). There are three base and four annual elements of the MOU that need to be accepted prior to ordinance adoption to provide the technical basis and resulting methodology for the Schools APFO system. These elements are listed in Section 1b and 1c of the MOU.

**Adoption and Implementation**

There are only minor changes to the Schools Adequate Public Facilities MOU and model ordinance documents. The approval process is likely to only include an additional public hearing and adoption meeting for the actual ordinance by local governments (but local governments may process these new addendums accordingly). The MOU minor changes and implementing ordinance can be evaluated in one process, since it is anticipated that the MOU could be approved with the chosen seven elements (in Section 1b and 1c) prior to or together with the adoption of the ordinance. It is suggested that the time for implementing the ordinance be February 15, 2003. This time frame would allow time for the necessary preliminary work and approvals.

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**MEMORANDUM**  
**December 16, 2002**  
**Page 3**

Craig Benedict, Orange County Planning and Inspections Director (and one of the Attorneys/Planners/School Representatives work group team members that included your attorney and planning director or other representative), is available to meet with you or your board to answer questions as the public hearing and adoption process continues. He can also explain the ongoing preliminary work necessary for implementation.

**Conclusion**

The preparation of the Schools Adequate Public Facilities MOU and model Ordinance represents a major effort of many elected officials, contributing boards, committees, and work groups. There have been many benefits already from improved data standardization, collection, and reporting and from cooperative planning and discussion among all the parties. The proposed ordinance can help us ensure that our school construction keeps pace with our rapid growth, so that our children can be educated in facilities that truly meet their needs. Excellent schools are essential elements of our quality of life here in Orange County.

Thank you very much for your consideration of the Memorandum of Understanding and Schools Adequate Public Facilities Ordinance.

Please respond with any concerns or questions to me at (919) 929-6460 or Craig Benedict, Orange County Planning Director at (919) 245-2592.



28  
**List of Attachments from**

**Decision Matrix of Memorandum of Understanding (MOU) Elements**

- Attachment A1.      BUILDING CAPACITY                      MOU Section 1b**  
**Chapel Hill Carrboro – Capacity School Year ending 2002**
  
- Attachment A2.      BUILDING CAPACITY                      MOU Section 1b**  
**Orange County - Capacity School Year ending 2002**
  
- Attachment B1.      CIP    2002-2012                                      MOU Section 1c (i)**  
**Education Capital Projects Summary – (see heading)**
  
- Attachment B1. a.      Preliminary Chapel Hill/Carrboro Student Projections showing school openings projected (see 3-D boxes between “Elementary” and “Middle” tables and after “High”).**
  
- Attachment B1. b.      Preliminary Orange County Student Projections showing school openings projected for various years (see 3-D boxes – one between “Middle” and “High” tables and the second on bottom of “High” table).**
  
- Attachment C.      STUDENT GROWTH RATE                      MOU Section 1c (ii)**  
**See Calculate growth rate percentage from average of 5 models for 10 year period derived from student membership projections for each school level.**
  
- Attachment C1. a.      STUDENT PROJECTIONS                      Section 1c (iii)**  
**Average - 5 projections created from Fall 2002 membership data from Chapel Hill/Carrboro (see line identified as “Average” on each table).**
  
- Attachment C1. b.      STUDENT PROJECTIONS                      Section 1c (iii) Average - 5 projections created from Fall 2002 membership data from Orange County (see line identified as “Average” on each table).**
  
- Attachment D.      STUDENT PROJECTION METHODOLOGY                      MOU Section 1c (iii)**  
**Use 3, 5, 10 Cohort and Tischler Linear and Orange County Planning Linear Wave Projection Types.**
  
- Attachment E. a.      STUDENT GENERATION RATE                      MOU Section 1c (iv)**  
**Public School Students Per Housing Unit in CHC District – SY00-01**
  
- Attachment E. b.      STUDENT GENERATION RATE                      MOU Section 1c (iv)**  
**Public School Students Per Housing Unit in Orange County District – SY00-01**



**ATTACHMENT B**

**Decision Matrix of Memorandum of  
Understanding (MOU) Elements**





Report for 4b

30

1

0007

Student Capacity by School District (School Year Ending 2002)  
Permanent Structures Only, No Mobile Units (Including Projects Under Construction)

CHCCS

Elementary	Square Feet	Capacity	Membership (1)
Carboro	80,832	563	492
Ephesus	88,952	472	550
Estas Hills	88,299	548	556
Glenwood	80,784	445	371
FP Graham	63,541	570	587
McDougle	98,000	596	689
Soroggs	90,980	609	572
Seawell	52,869	488	676
<b>Total CHCCS Elementary</b>	<b>540,237</b>	<b>4,302</b>	<b>4,472</b>
<b>Middle</b>			
Cubbreth	104,798	670	644
McDougle	138,221	732	634
Phillips	109,488	708	749
Smith	128,764	732	521
<b>Total CHCCS Middle School</b>	<b>479,281</b>	<b>2,840</b>	<b>2,548</b>
<b>High</b>			
Chapel Hill	241,111	1,520	1,560
East Chapel Hill	258,985	1,515	1,395
<b>Total CHCCS High School</b>	<b>500,096</b>	<b>3,035</b>	<b>2,955</b>
<b>Total All Levels</b>	<b>1,519,614</b>	<b>10,177</b>	<b>9,975</b>

OCS

Elementary	Square Feet	Capacity	Membership (1)
Cameron Park	70,812	598	456
Central	52,492	483	283
Effand Cheeks	64,318	529	411
Grady Brown	74,018	575	459
Hillsborough	51,106	414	393
New Hope	100,164	621	457
Pathways	85,282	600	427
<b>Total OCS Elementary</b>	<b>498,188</b>	<b>3,820</b>	<b>2,898</b>
<b>Middle</b>			
A.L. Starback	136,000	740	744
C.W. Stanford	107,620	728	789
<b>Total OCS Middle School</b>	<b>243,620</b>	<b>1,468</b>	<b>1,533</b>
<b>High</b>			
Orange	213,509	1,518	1,723
<b>Total OCS High School</b>	<b>213,509</b>	<b>1,518</b>	<b>1,723</b>
<b>Total All Levels</b>	<b>955,317</b>	<b>6,804</b>	<b>6,152</b>

(1) 3rd Month Membership

*Kelvin Redden*

*Chapel Hill-Carboro City Schools*

certify that the above capacity and membership numbers for the School District are correct.

4/29/02  
(Date)



# Report for 4b 0008

## Student Capacity by School District (School Year Ending 2002) Permanent Structures Only, No Mobile Units (Including Projects Under Construction)

### CHCCS

	Square Feet	Capacity	Membership <sup>(1)</sup>
Elementary			
Carboro	80,832	563	492
Ephesus	68,952	472	550
Estes Hills	58,299	548	555
Glenwood	50,784	445	371
FP Graham	63,841	570	557
McDougle	98,000	596	669
Scroggs	90,960	609	572
Seawell	52,889	498	676
<b>Total CHCCS Elementary</b>	<b>548,237</b>	<b>4,302</b>	<b>4,472</b>
Middle			
Culbreth	104,798	670	644
McDougle	138,221	732	634
Phillips	108,488	708	749
Smith	128,764	732	621
<b>Total CHCCS Middle School</b>	<b>479,271</b>	<b>2,840</b>	<b>2,648</b>
High			
Chapel Hill	241,111	1,520	1,560
East Chapel Hill	258,985	1,515	1,395
<b>Total CHCCS High School</b>	<b>500,096</b>	<b>3,035</b>	<b>2,955</b>
<b>Total All Levels</b>	<b>1,519,914</b>	<b>10,177</b>	<b>9,975</b>

### OCS

	Square Feet	Capacity	Membership <sup>(1)</sup>
Elementary			
Cameron Park	70,812	698	466
Central	52,492	483	293
Eliand Cheeks	64,316	529	411
Grady Brown	74,016	575	459
Hillsborough	61,106	414	393
New Hope	100,164	621	457
Pathways	85,282	600	427
<b>Total OCS Elementary</b>	<b>498,188</b>	<b>3,820</b>	<b>2,898</b>
Middle			
A.L. Stanback	136,000	740	744
C.W. Stanford	107,620	726	769
<b>Total OCS Middle School</b>	<b>243,620</b>	<b>1,466</b>	<b>1,513</b>
High			
Orange	213,509	1,518	1,723
<b>Total OCS High School</b>	<b>213,509</b>	<b>1,518</b>	<b>1,723</b>
<b>Total All Levels</b>	<b>955,317</b>	<b>6,804</b>	<b>6,132</b>

<sup>(1)</sup> 3rd Month Membership

*Lancey Brainerd*  
*Principal*

certify that the above capacity and membership numbers for the School District are correct.

4/30/02  
(Date)



**Education Capital Projects Summary**

	Project Funds 6/30/02	2003-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Chapel Hill Carrboro City Schools	26,003,245	6,366,623	5,725,966	12,886,982	13,182,019	6,586,327	7,966,303	8,063,937	4,842,243	5,001,866	5,299,844	181,978,475
Orange County Schools	38,944,636	3,836,902	5,960,113	11,128,433	4,511,840	1,207,774	1,723,269	1,987,920	2,671,241	1,651,099	3,570,674	77,123,900
<b>Total Project Costs</b>	<b>63,947,881</b>	<b>10,203,525</b>	<b>11,716,080</b>	<b>24,015,415</b>	<b>17,693,859</b>	<b>7,794,101</b>	<b>9,722,672</b>	<b>10,051,857</b>	<b>7,413,484</b>	<b>6,742,965</b>	<b>8,870,518</b>	<b>179,202,375</b>

**Education Capital Projects Funding**

	Project Funds 6/30/02	2003-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total
Total Pay-As-You-Go Funds	29,346,113	6,963,525	8,466,000	8,748,416	4,468,889	8,344,101	6,822,672	6,381,857	7,413,484	6,742,965	8,870,518	86,799,606
<b>Bond Funds</b>												
1997 Bonds	15,755,983	0	0	0	0	0	0	0	0	0	0	15,755,983
2001 Bonds	11,988,322	1,800,000	6,260,000	10,625,000	13,225,000	2,480,000	0	0	0	0	0	48,188,322
2/3 Net Debt Bonds	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Bond Funds</b>	<b>27,744,305</b>	<b>1,800,000</b>	<b>6,260,000</b>	<b>10,625,000</b>	<b>13,225,000</b>	<b>2,480,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>61,944,305</b>
Alternative Financing	13,886,000	1,800,000	0	3,700,000	0	0	3,700,000	3,700,000	0	0	0	26,416,000
Grant Funds	0	0	0	0	0	0	0	0	0	0	0	0
Fees	0	0	0	0	0	0	0	0	0	0	0	0
Other	2,192,462	0	0	860,000	0	0	0	0	0	0	0	3,142,462
<b>Total Project Funding</b>	<b>63,947,881</b>	<b>10,203,525</b>	<b>11,716,080</b>	<b>24,015,415</b>	<b>17,693,859</b>	<b>7,794,101</b>	<b>9,722,672</b>	<b>10,051,857</b>	<b>7,413,484</b>	<b>6,742,965</b>	<b>8,870,518</b>	<b>179,202,375</b>

Taken from Orange County Budget  
which was adopted June 27, 2002

**Attachment B1.**



Preliminary Chapel Hill/Carrboro Student Projections <sup>(1)</sup>



Elementary	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending													
Actual	4,444	4,474	4,555										
Tischler <sup>(2)</sup>				4,678	4,801	4,924	5,047	5,170	5,293	5,416	5,539	5,662	5,785
OC Planning				4,760	4,923	5,080	5,231	5,377	5,517	5,626	5,736	5,845	5,928
10 Year Growth				4,735	4,915	5,050	5,186	5,364	5,418	5,472	5,527	5,582	5,638
5 Year Growth				4,810	5,061	5,264	5,459	5,682	5,739	5,796	5,854	5,913	5,972
3 Year Growth				4,745	4,935	5,090	5,233	5,414	5,468	5,523	5,578	5,634	5,634
Average				4,746	4,927	5,082	5,231	5,401	5,487	5,567	5,647	5,727	5,791
Capacity - 100% Level of Service	4,302	4,302	4,302	4,924	4,921	4,921	5,521	5,521	5,521	5,521	5,521	5,521	5,521
105% Level of Service	4,517	4,517	4,517	5,167	5,167	5,167	5,797	5,797	5,797	5,797	5,797	5,797	5,797
Actual - % Level of Service	103.3%	104.0%	105.9%										
Average - % Level of Service				96.4%	100.1%		94.8%	97.8%	99.4%	100.8%	102.3%	103.7%	104.9%

Middle	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending													
Actual	2,326	2,540	2,604										
Tischler <sup>(2)</sup>				2,745	2,885	3,026	3,166	3,307	3,448	3,588	3,729	3,870	4,010
OC Planning				2,711	2,780	2,845	2,905	2,961	3,012	3,085	3,157	3,230	3,304
10 Year Growth				2,677	2,644	2,710	2,807	2,861	2,991	3,120	3,295	3,328	3,361
5 Year Growth				2,679	2,662	2,755	2,889	2,991	3,204	3,404	3,630	3,667	3,703
3 Year Growth				2,685	2,651	2,712	2,815	2,881	3,034	3,170	3,349	3,383	3,417
Average				2,699	2,724	2,810	2,916	3,000	3,138	3,273	3,432	3,496	3,559
Capacity - 100% Level of Service	2,108	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840
105% Level of Service	2,256	3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039
Actual - % Level of Service	110.3%	89.4%	91.7%										
Average - % Level of Service				95.0%	95.9%	98.9%	102.7%	105.6%	110.5%	115.3%	120.8%	123.1%	

High	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending													
Actual	2,815	2,963	3,184										
Tischler <sup>(2)</sup>				3,423	3,662	3,900	4,139	4,378	4,617	4,856	5,094	5,333	5,572
OC Planning				3,202	3,285	3,364	3,437	3,506	3,569	3,627	3,685	3,743	3,826
10 Year Growth				3,285	3,497	3,608	3,660	3,738	3,786	3,879	3,942	4,161	4,319
5 Year Growth				3,278	3,493	3,611	3,665	3,759	3,838	3,976	4,104	4,426	4,673
3 Year Growth				3,327	3,594	3,741	3,813	3,904	3,940	4,048	4,130	4,371	4,557
Average				3,303	3,506	3,645	3,743	3,857	3,950	4,077	4,191	4,407	4,589
Capacity - 100% Level of Service	3,035	3,035	3,035	3,035	3,035	4,035	4,035	4,035	4,035	4,035	4,035	4,035	4,035
105% Level of Service	3,339	3,339	3,339	3,339	3,339	4,439	4,439	4,439	4,439	4,439	4,439	4,439	4,439
Actual - % Level of Service	92.8%	97.6%	104.9%										
Average - % Level of Service				108.8%	90.3%	92.8%	95.6%	97.9%	101.0%	103.9%	109.2%		

high school #3 opens with 1,000 additional seats

Attachment B1.a.

indicates first year that district surpasses the current Schools APFO recommended Level of Service

indicates year that highest level of service is reached before new seats are available

<sup>(1)</sup> It is important to note that this reflects the 20th day of membership for school year ending 2003 and does not reflect the date of membership as outlined in by the Schools Adequate Public Facilities Ordinance (which is November 15, 2002). Staff will be working to update membership numbers at that time and will bring forward a set of "official membership numbers as of November 15, 2002.

<sup>(2)</sup> The Tischler Model provides for the "Linear Method" of projections for both CHCCS and OCS. Original projections used in prior years projection models included the "Linear Extrapolation Method" for CHCCS.





# Preliminary OCS Student Projections (1)

Updated 10/11/02 to reflect revised OC Planning Projections

34

Elementary	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Actual	3,078	2,893	2,862										
Tischler (2)				2,873	2,885	2,896	2,908	2,919	2,931	2,942	2,954	2,965	2,976
OC Planning				2,939	3,020	3,104	3,177	3,252	3,330	3,395	3,461	3,529	3,598
10 Year Growth				2,863	2,887	2,869	2,919	2,950	2,979	3,009	3,039	3,069	3,100
5 Year Growth				2,840	2,842	2,816	2,855	2,884	2,913	2,942	2,971	3,001	3,031
3 Year Growth				2,832	2,823	2,780	2,807	2,825	2,854	2,882	2,911	2,940	2,969
Average				2,869	2,891	2,893	2,933	2,966	3,001	3,034	3,067	3,101	3,135
Capacity - 100% Level of Service	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820
105% Level of Service	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011
Actual - % Level of Service	80.6%	75.7%	74.9%	75.1%	75.7%	75.7%	76.8%	77.6%	78.6%	79.4%	80.3%	81.2%	82.1%
Average - % Level of Service													

Middle	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Actual	1,504	1,527	1,629										
Tischler (2)				1,701	1,772	1,844	1,916	1,987	2,059	2,131	2,202	2,274	2,346
OC Planning				1,632	1,663	1,695	1,742	1,790	1,840	1,892	1,945	2,000	2,056
10 Year Growth				1,638	1,548	1,513	1,480	1,487	1,455	1,490	1,507	1,522	1,537
5 Year Growth				1,615	1,503	1,438	1,393	1,381	1,342	1,365	1,380	1,393	1,407
3 Year Growth				1,636	1,543	1,488	1,447	1,433	1,376	1,389	1,393	1,407	1,421
Average				1,644	1,606	1,596	1,596	1,616	1,614	1,653	1,685	1,719	1,753
Capacity - 100% Level of Service	1,466	1,466	1,466	1,466	1,466	2,166	2,166	2,166	2,166	2,166	2,166	2,166	2,166
105% Level of Service	1,569	1,569	1,569	1,569	1,569	2,318	2,318	2,318	2,318	2,318	2,318	2,318	2,318
Actual - % Level of Service	102.6%	104.2%	111.1%	109.5%	73.7%	73.7%	73.7%	74.6%	74.5%	76.3%	77.8%	79.4%	81.0%
Average - % Level of Service													

middle school #3 opens with 700 additional seats

Attachment B1.b.

High	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Actual	1,672	1,753	1,866										
Tischler (2)				1,941	2,015	2,090	2,165	2,239	2,314	2,388	2,463	2,538	2,612
OC Planning				1,931	1,969	2,008	2,048	2,090	2,132	2,191	2,251	2,313	2,377
10 Year Growth				1,879	1,941	1,957	1,919	1,893	1,876	1,784	1,776	1,793	1,777
5 Year Growth				1,866	1,911	1,909	1,842	1,796	1,748	1,639	1,612	1,611	1,599
3 Year Growth				1,920	2,024	2,061	2,020	1,995	1,958	1,844	1,817	1,798	1,788
Average				1,907	1,972	2,005	1,999	2,003	2,006	1,969	1,984	2,011	2,023
Capacity - 100% Level of Service	1,518	1,518	2,518	2,518	2,518	2,518	2,518	2,518	2,518	2,518	2,518	2,518	2,518
105% Level of Service	1,670	1,670	2,770	2,770	2,770	2,770	2,770	2,770	2,770	2,770	2,770	2,770	2,770
Actual - % Level of Service	110.1%		74.1%	75.8%	78.3%	79.6%	79.4%	79.5%	79.7%	78.2%	78.8%	79.8%	80.3%
Average - % Level of Service													

cedar ridge high opens

indicates first year that district surpasses the current Schools APFO recommended Level of Service  
indicates year that highest level of service is reached before new seats are available

(1) It is important to note that this reflects the 20th day of membership for school year ending 2003 and does not reflect the date of membership as outlined in by the Schools Adequate Public Facilities Ordinance (which is November 15, 2002). Staff will be working to update membership numbers at that time and will bring forward a set of "official" membership numbers as of November 15, 2002.

(2) The Tischler Model provides for the "Linear Method" of projections for both CHCCS and OCS. Original projections used in prior years projection models included the "Linear Extrapolation Method" for CHCCS.



## Chapel Hill/Carrboro Student Projections

Elementary											
School Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Ending (actual)	4,555	4,746	4,927	5,082	5,231	5,401	5,487	5,567	5,647	5,727	5,791
Average		4.19%	3.81%	3.15%	2.93%	3.25%	1.59%	1.46%	1.44%	1.42%	1.12%
% Increase											

Middle											
School Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Ending (actual)	2,604	2,699	2,724	2,810	2,916	3,000	3,138	3,273	3,432	3,496	3,559
Average		3.65%	0.93%	3.16%	3.77%	2.88%	4.60%	4.30%	4.86%	1.86%	1.80%
% Increase											

High School											
School Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Ending (actual)	3,184	3,303	3,506	3,645	3,743	3,857	3,950	4,077	4,191	4,407	4,589
Average		3.74%	6.15%	3.96%	2.69%	3.05%	2.41%	3.22%	2.80%	5.15%	4.13%
% Increase											

## Orange County Student Projections

Elementary											
School Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Ending (actual)	2,862	2,869	2,891	2,893	2,933	2,966	3,001	3,034	3,067	3,101	3,135
Average		0.24%	0.77%	0.07%	1.38%	1.13%	1.18%	1.10%	1.09%	1.11%	1.10%
% Increase											

Middle											
School Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Ending (actual)	1,629	1,644	1,606	1,596	1,596	1,616	1,614	1,653	1,685	1,719	1,753
Average		0.92%	-2.31%	-0.62%	0.00%	1.25%	-0.12%	2.42%	1.94%	2.02%	1.98%
% Increase											

High School											
School Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Ending (actual)	1,866	1,907	1,972	2,005	1,999	2,003	2,006	1,969	1,984	2,011	2,023
Average		2.20%	3.41%	1.67%	-0.30%	0.20%	0.15%	-1.84%	0.76%	1.36%	0.60%
% Increase											



Preliminary Chapel Hill/Carrboro Student Projections <sup>(1)</sup>

Elementary	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending Actual	4,444	4,474	4,555										
Tischler <sup>(2)</sup>				4,678	4,801	4,924	5,047	5,170	5,293	5,416	5,539	5,662	5,785
OC Planning				4,760	4,923	5,080	5,231	5,377	5,517	5,628	5,738	5,845	5,928
10 Year Growth				4,735	4,915	5,050	5,186	5,364	5,418	5,472	5,527	5,582	5,638
5 Year Growth				4,810	5,061	5,264	5,458	5,662	5,739	5,796	5,854	5,913	5,972
3 Year Growth				4,745	4,935	5,090	5,233	5,414	5,468	5,523	5,578	5,634	5,694
Average				4,746	4,927	5,082	5,231	5,401	5,487	5,567	5,647	5,727	5,791
Capacity - 100% Level of Service	4,302	4,302	4,302	4,924	4,921	4,921	5,524	5,521	5,521	5,521	5,521	5,521	5,521
105% Level of Service	4,517	4,517	4,517	5,167	5,167	5,167	5,797	5,797	5,797	5,797	5,797	5,797	5,797
Actual - % Level of Service	103.3%	104.0%	105.9%	96.4%	100.1%	94.8%	97.8%	99.4%	100.8%	102.3%	103.7%	104.9%	
Average - % Level of Service				96.4%	100.1%	94.8%	97.8%	99.4%	100.8%	102.3%	103.7%	104.9%	

Attachment C1.a.

Middle	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending Actual	2,328	2,540	2,604										
Tischler <sup>(2)</sup>				2,745	2,885	3,026	3,166	3,307	3,448	3,588	3,729	3,870	4,010
OC Planning				2,711	2,780	2,845	2,905	2,961	3,012	3,065	3,157	3,230	3,304
10 Year Growth				2,677	2,844	2,710	2,807	2,861	2,991	3,120	3,295	3,328	3,361
5 Year Growth				2,679	2,662	2,755	2,889	2,961	3,204	3,404	3,630	3,667	3,703
3 Year Growth				2,685	2,651	2,712	2,815	2,881	3,034	3,170	3,349	3,383	3,417
Average				2,688	2,724	2,810	2,916	3,000	3,138	3,273	3,432	3,496	3,559
Capacity - 100% Level of Service	2,108	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840	2,840
105% Level of Service	2,256	3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039	3,039
Actual - % Level of Service	110.3%	89.4%	91.7%	95.0%	95.9%	98.9%	102.7%	105.6%	110.5%	115.3%	120.8%	123.1%	
Average - % Level of Service				95.0%	95.9%	98.9%	102.7%	105.6%	110.5%	115.3%	120.8%	123.1%	

Attachment C1.a.

High	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending Actual	2,815	2,963	3,184										
Tischler <sup>(2)</sup>				3,423	3,662	3,900	4,139	4,378	4,617	4,856	5,094	5,333	5,572
OC Planning				3,202	3,285	3,364	3,437	3,506	3,569	3,627	3,685	3,743	3,826
10 Year Growth				3,285	3,497	3,608	3,660	3,738	3,786	3,879	3,942	4,161	4,319
5 Year Growth				3,278	3,493	3,611	3,665	3,759	3,838	3,976	4,104	4,428	4,673
3 Year Growth				3,327	3,594	3,741	3,813	3,904	3,940	4,048	4,130	4,371	4,557
Average				3,303	3,506	3,645	3,743	3,857	3,950	4,077	4,191	4,407	4,589
Capacity - 100% Level of Service	3,035	3,035	3,035	3,035	3,035	4,035	4,035	4,035	4,035	4,035	4,035	4,035	4,035
105% Level of Service	3,339	3,339	3,339	3,339	3,339	4,439	4,439	4,439	4,439	4,439	4,439	4,439	4,439
Actual - % Level of Service	92.8%	97.6%	104.9%	108.8%	90.3%	92.8%	92.8%	95.6%	97.9%	101.0%	103.9%	109.2%	
Average - % Level of Service				108.8%	90.3%	92.8%	92.8%	95.6%	97.9%	101.0%	103.9%	109.2%	

high school #3 opens with 1,000 additional seats

indicates first year that district surpasses the current Schools APFO recommended Level of Service  
indicates year that highest level of service is reached before new seats are available

<sup>(1)</sup> It is important to note that this reflects the 20th day of membership for school year ending 2003 and does not reflect the date of membership as outlined in by the Schools Adequate Public Facilities Ordinance (which is November 15, 2002). Staff will be working to update membership numbers at that time and will bring forward a set of "official membership numbers as of November 15, 2002.

<sup>(2)</sup> The Tischler Model provides for the "Linear Method" of projections for both CHCCS and OCS. Original projections used in prior years projection models included the "Linear Extrapolation Method" for CHCCS.



Preliminary OCS Student Projections (1)

Updated 10/11/02 to reflect revised OC Planning Projections

Elementary	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending	3,078	2,893	2,862										
Actual													
Tischler (2)				2,873	2,895	2,896	2,908	2,919	2,931	2,942	2,954	2,965	2,976
OC Planning				2,939	3,020	3,104	3,177	3,252	3,330	3,395	3,461	3,528	3,598
10 Year Growth				2,863	2,887	2,869	2,919	2,950	2,979	3,009	3,039	3,069	3,100
5 Year Growth				2,840	2,842	2,816	2,855	2,884	2,913	2,942	2,971	3,001	3,031
3 Year Growth				2,832	2,823	2,780	2,807	2,825	2,854	2,882	2,911	2,940	2,969
Average				2,869	2,891	2,893	2,933	2,966	3,001	3,034	3,067	3,101	3,135
Capacity - 100% Level of Service	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820
105% Level of Service	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011	4,011
Actual - % Level of Service	80.6%	75.7%	74.9%										
Average - % Level of Service				75.1%	75.7%	75.7%	76.8%	77.6%	78.6%	79.4%	80.3%	81.2%	82.1%

Attachment C1.b.

Middle	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending	1,504	1,527	1,629										
Actual													
Tischler (2)				1,701	1,772	1,844	1,916	1,987	2,059	2,131	2,202	2,274	2,346
OC Planning				1,832	1,863	1,865	1,742	1,780	1,840	1,892	1,945	2,000	2,056
10 Year Growth				1,638	1,548	1,513	1,490	1,487	1,455	1,490	1,507	1,522	1,537
5 Year Growth				1,615	1,503	1,438	1,393	1,381	1,342	1,365	1,380	1,393	1,407
3 Year Growth				1,636	1,543	1,468	1,447	1,433	1,376	1,388	1,393	1,407	1,421
Average				1,644	1,606	1,596	1,596	1,616	1,614	1,653	1,685	1,719	1,753
Capacity - 100% Level of Service	1,466	1,466	1,466	1,466	1,466	1,466	1,466	1,466	1,466	1,466	1,466	1,466	1,466
105% Level of Service	1,569	1,569	1,569	1,569	1,569	1,569	1,569	1,569	1,569	1,569	1,569	1,569	1,569
Actual - % Level of Service	102.6%	104.2%	111.1%										
Average - % Level of Service				109.5%	73.7%	73.7%	73.7%	74.6%	74.5%	76.3%	77.8%	79.4%	81.0%

Attachment C1.b.

middle school #3 opens with 700 additional seats

High	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
School Year Ending	1,672	1,753	1,866										
Actual													
Tischler (2)				1,941	2,015	2,090	2,165	2,239	2,314	2,388	2,463	2,538	2,612
OC Planning				1,931	1,969	2,008	2,048	2,090	2,132	2,191	2,251	2,313	2,377
10 Year Growth				1,879	1,941	1,957	1,919	1,893	1,876	1,784	1,776	1,793	1,777
5 Year Growth				1,866	1,911	1,909	1,842	1,796	1,748	1,639	1,612	1,611	1,589
3 Year Growth				1,920	2,024	2,061	2,020	1,995	1,958	1,844	1,817	1,798	1,758
Average				1,907	1,972	2,005	1,969	2,003	2,006	1,969	1,984	2,011	2,023
Capacity - 100% Level of Service	1,518	1,518	2,518	2,518	2,518	2,518	2,518	2,518	2,518	2,518	2,518	2,518	2,518
105% Level of Service	1,670	1,670	2,770	2,770	2,770	2,770	2,770	2,770	2,770	2,770	2,770	2,770	2,770
Actual - % Level of Service	110.1%		74.1%										
Average - % Level of Service				75.8%	78.3%	78.6%	79.4%	79.5%	79.7%	78.2%	78.5%	79.8%	80.3%

Cedar ridge high opens

indicates first year that district surpasses the current Schools APFO recommended Level of Service  
indicates year that highest level of service is reached before new seats are available

(1) It is important to note that this reflects the 20th day of membership for school year ending 2003 and does not reflect the date of membership as outlined in by the Schools Adequate Public Facilities Ordinance (which is November 15, 2002). Staff will be working to update membership numbers at that time and will bring forward a set of "official" membership numbers as of November 15, 2002.

(2) The Tischler Model provides for the "Linear Method" of projections for both CHCCS and OCS. Original projections used in prior years projection models included the "Linear Extrapolation Method" for CHCCS.





**Attachment D.****STUDENT PROJECTION METHODOLOGY****MOU Section 1c (iii)****Use 3, 5, 10 Cohort and Tischler Linear and Orange County Planning Linear Wave Projection Types.****Description:**

Five student membership projection methodologies are being used to create an average amongst all models.

The three 3, 5, and 10 year "Cohort Survival" projection methods use a 3, 5 or 10 year average of how many students within a specific grade level (i.e. cohort) either graduate (i.e. survive) or are added by other means (migration) into the next grade year. This is represented as a percentage or multiplier (99% or .99 means less than what was in the previous grade will survive to the next grade) that is used in a calculation to project all grade levels as they move from one grade to the next in ensuing years.

The Tischler linear student projection method uses student membership by school level over the previous ten years and calculates future memberships using a "straight line formula as follows:

$$y = ((c * b) * x) + b$$

y = Projected Population;  
 c = Historical Annual Change;  
 b = Base Year;  
 x = Projection Years

The Orange County Planning Department model includes local area knowledge of constraints (i.e. build-out) to district growth projections or the absence of short term constraints.

It is a modified mathematical linear projection with percent variation among school levels, which reflects progressive waves of membership at different levels.



**STUDENT GENERATION RATE MOU Section 1c (iv)**  
**Use Tischler and Assoc. Student Generation Rates Report from 2001. Rates differ**  
**between districts.**

**Excerpt from "School Impact Fees" for Orange County North Carolina dated February 12, 2002, Pages 10 and 11 , as prepared by Tischler & Associates, Inc. Bethesda, Maryland Attachment E. a.**

<b>Chapel Hill and Carrboro City Schools</b>				
<b>Public School Students Per Housing Unit in CHC District - SY00-01</b>				
	<b>Elementary</b>	<b>Middle</b>	<b>High School</b>	<b>All Grades</b>
<b>Single Family Detached</b>	<b>0.168</b>	<b>0.095</b>	<b>0.123</b>	<b>0.386</b>
<b>All Other Residential</b>	<b>0.094</b>	<b>0.042</b>	<b>0.043</b>	<b>0.179</b>
<b>All Hsg Types (blended)</b>	<b>0.134</b>	<b>0.070</b>	<b>0.086</b>	<b>0.290</b>

**Attachment E. b.**

<b>Orange County Schools</b>				
<b>Public School Students Per Housing Unit in CHC District - SY00-01</b>				
	<b>Elementary</b>	<b>Middle</b>	<b>High School</b>	<b>All Grades</b>
<b>Single Family Detached</b>	<b>0.150</b>	<b>0.075</b>	<b>0.084</b>	<b>0.309</b>
<b>All Other Residential</b>	<b>0.084</b>	<b>0.033</b>	<b>0.030</b>	<b>0.147</b>
<b>All Hsg Types (blended)</b>	<b>0.140</b>	<b>0.068</b>	<b>0.076</b>	<b>0.284</b>

**Note:**     **Single Family includes detached and multi-wide mobile homes**  
               **Other includes multi-family attached and singlewide mobile homes**