
Pender County Schools

2013-14 IPSAC Land Use Study

OPERATIONS RESEARCH AND EDUCATION LABORATORY
INSTITUTE FOR TRANSPORTATION RESEARCH AND EDUCATION
CENTENNIAL CAMPUS @ NORTH CAROLINA STATE UNIVERSITY
MAY 5, 2014



2013-14 IPSAC Land Use Study

Integrated Planning for School and Community (IPSAC)

A data-focused membership and utilization forecast and optimization study for Pender County Schools.

- *Membership Forecasting*
- *Land Use Studies*
- *Out-of-Capacity Analysis*
- *School Site Optimization*
- *Attendance Boundary Optimization*

About ITRE and OREd

The **Institute for Transportation Research and Education (ITRE)** is an inter-institutional research center serves all 16 statewide University of North Carolina systems and partners.

ITRE conducts surface, water, and air transportation research, while providing professional training and technical assistance.

The **Operations Research and Education Laboratory (OREd)** assists K-12 school systems by providing decision management tools for issues pertaining to student assignment and long-range school planning.

OREd uses GIS analysis, mathematical modeling, and decision science applications to guide school districts to planning solutions that are driven by data and supported by district policy.

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OPERATIONS RESEARCH AND EDUCATION LABORATORY

INSTITUTE FOR TRANSPORTATION RESEARCH AND EDUCATION

- Alamance-Burlington School System – 02, 03, 06, 07, 08, 09, 10, 11, 12, 13
- Asheboro City Schools – 04, 05, 06, 07
- Berkeley County Schools (SC) – 09, 10, 11, 12
- Bladen County Schools – 04
- Buncombe County Schools – 98, 99
- Brunswick County Schools – 03, 04
- Carteret County Schools – 09
- Chapel Hill-Carrboro Schools – 95, 96, 97, 98, 99, 00, 01, 02, 05, 06, 07, 12
- Chatham County Schools – 03, 05, 06, 07, 08, 09, 10, 11, 12, 13
- Craven County Schools – 96, 97, 98, 99, 00, 01, 02, 04, 05, 06, 07, 08, 12
- Cumberland County Schools – 08, 09
- Cleveland County Schools – 08
- Currituck County Schools – 09
- Duplin County Schools – 09
- Durham Public Schools – 08, 09, 10, 11, 12
- Edgecombe County Public Schools – 09
- Elizabeth City-Pasquotank County Schools – 07
- Franklin County Schools – 08, 11, 12
- Iredell-Statesville Schools – 98, 99, 00, 01, 02, 03, 04
- Jones County Schools – 09
- Johnston County Schools – 95, 96, 97, 98, 99, 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13
- Gaston County Schools – 98, 99, 00, 01, 02, 03, 04
- Granville County Schools – 02, 03, 04, 05, 06, 07, 08, 09, 10
- Guilford County Schools – 94, 95, 96, 97, 98, 09, 10, 11, 13, 14
- Harnett County Schools – 98, 99, 00, 01, 02, 03, 06, 07, 08, 09, 10, 11, 12, 13
- Haywood County Schools – 99
- Hoke County Schools – 99, 08, 09, 11, 12
- Lee County Schools – 08, 09
- Lenoir County School – 09
- Moore County Schools – 04, 06, 07, 08, 12, 13
- Mooresville Graded Schools – 99, 00, 01, 04
- Nash-Rocky Mount Schools – 04, 05, 06, 07, 08, 09, 10, 11, 12
- New Hanover County Schools – 95, 96, 97, 98, 99, 00
- Onslow County Schools – 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13
- Orange County Schools – 95, 09, 10, 11, 13
- Pamlico County Schools – 09
- Pender County Schools – 09, 13
- Randolph County Schools – 05, 06, 07, 08, 09
- Richmond County Schools – 00, 08
- Robeson County Schools – 08
- Rock Hill Schools (SC) – 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13
- Rowan County Schools – 09
- Pitt County Schools – 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13
- Stafford County Public Schools (VA) – 12
- Stanly County Schools – 12
- Stokes County Schools – 05, 06, 08
- Tupelo Public Schools (MS) – 07
- Union County Schools – 99, 00, 01, 02, 03, 04, 05, 06, 07
- Vance County Schools – 09
- Wayne County Schools – 95
- Wake County Public School System – 97, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13



2013-14 IPSAC Land Use Study

- Data and Trends
- Community Interviews
- GIS Analysis
- Membership Forecast
- Out-of-Capacity Table

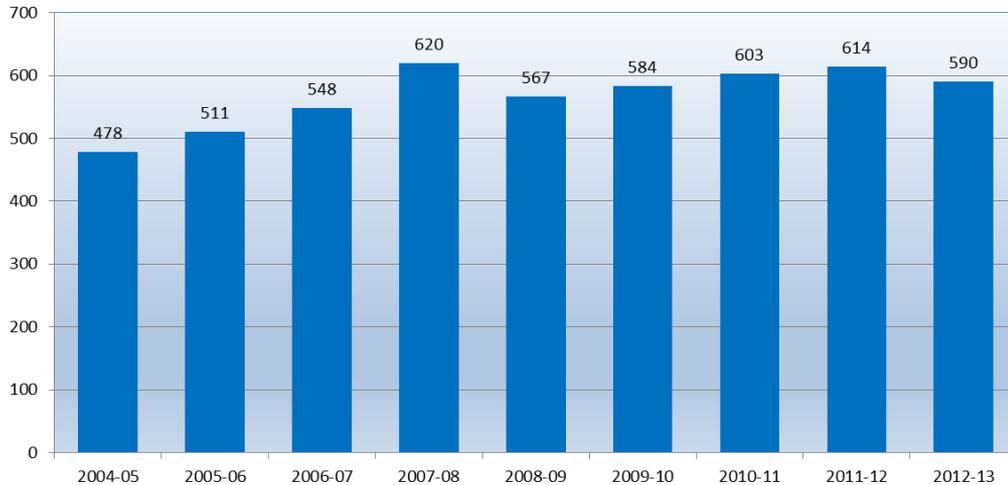
Data and Trends

Indicator	Pender County	North Carolina
Estimated Percent Population Increase 2010-2012	3.9%	1.5%
Net In-Migration Population Increase 2010-2012	2.4%	1.5%
Unemployment Rate December 2013	8.0%	8.9%
Median Household Income CENSUS 2010	\$44,238	\$45,570
Projected Population Increase 2010-2020	16.6%	11.3%

Sources: NC OSBM, State Demographics Unit, NC Dept. of Commerce

Data and Trends

Resident Live Births - Pender County



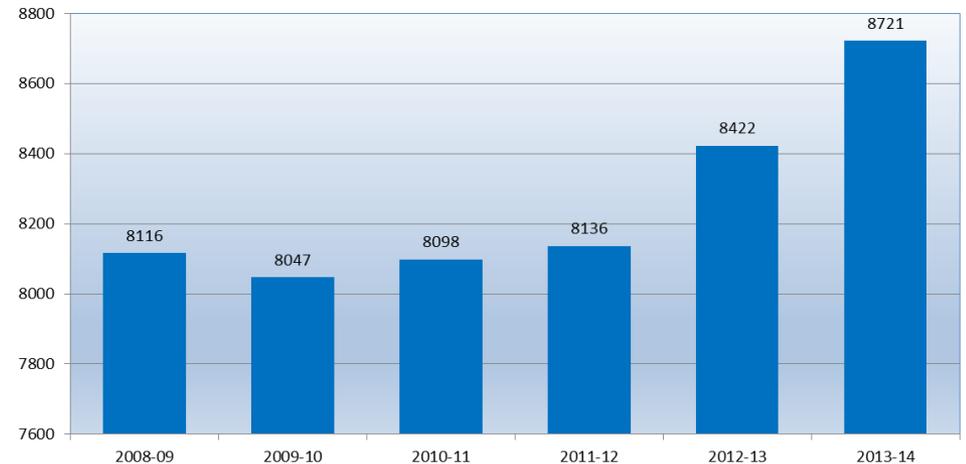
County Resident Live Births:

- Upward RLB trend leveling off 2008 - 2012
- +14 RLB/year since 2004

PCS Month-1 ADM:

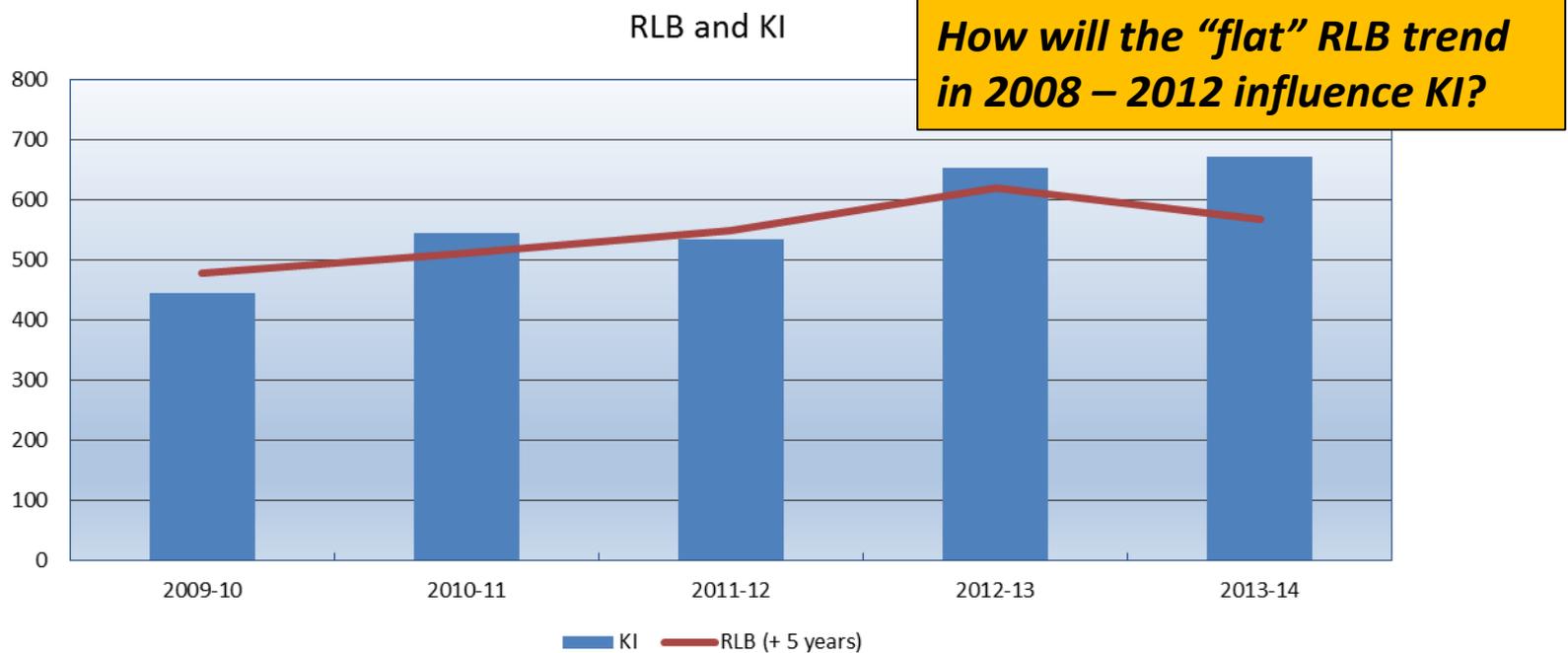
- Strong upward trend since 2009-10
- +120 K-12/year since 2008-09
- +300 K-12/year for last two years

Month-1 K-12 Average Daily Membership



Data and Trends

RLB can give insight on number of future Kindergartners.



Community Interviews

- Met with County/Municipal Planners February 25-26, 2014
- Windshield survey of school facilities and residential developments February 25-26 and April 4, 2014
- Refer to *Pender County Schools – IPSAC Land Use Study Report* for more detailed information (*draft date: April 11, 2014*)

Other Resources

- County/Municipal Planning departments
- Pender County Comprehensive Land Use Plan
- PCS Long Range Plan



PENDER COUNTY
School District

925 Penderlee Hwy Burgaw, NC 28425
Phone: (910) 259-2187 Fax: (910) 259-0133

**SCHOOL ENROLLMENT
LONG RANGE PLAN**

March 11, 2013

DRAFT

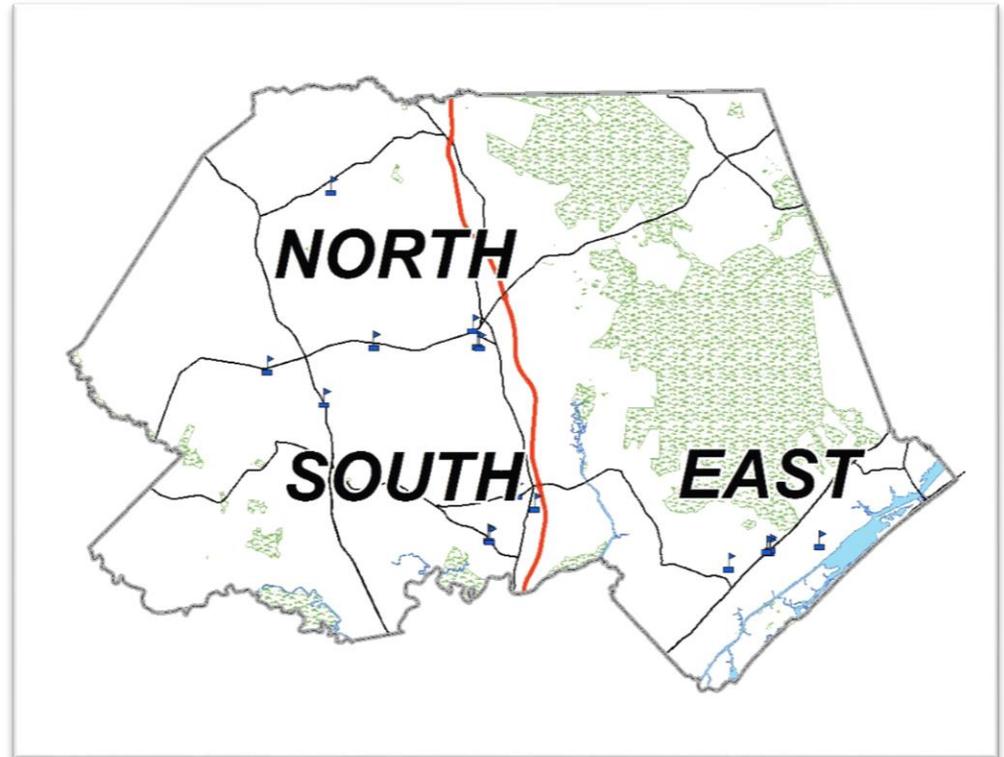
Pender County Schools...the future in progress.

Community Interviews

- Planners seeing increased activity in both commercial/business and residential inquiries
- Current permit activity at or below sustainable levels, unlike pre-recession activity. Most activity is in-fill of existing subdivisions.
- County generally considered as pro-growth
- Pender County continues to attract retirees (especially on Topsail Island) but demographics appear to be shifting to younger families
- Proximity to Camp Lejeune, Wilmington, and the quality of life (and schools) in general are attractions to Pender County
- ***Consensus that Pender County is on the cusp of a resurgence in development and likely to experience an increase in activity within 1-2 years***

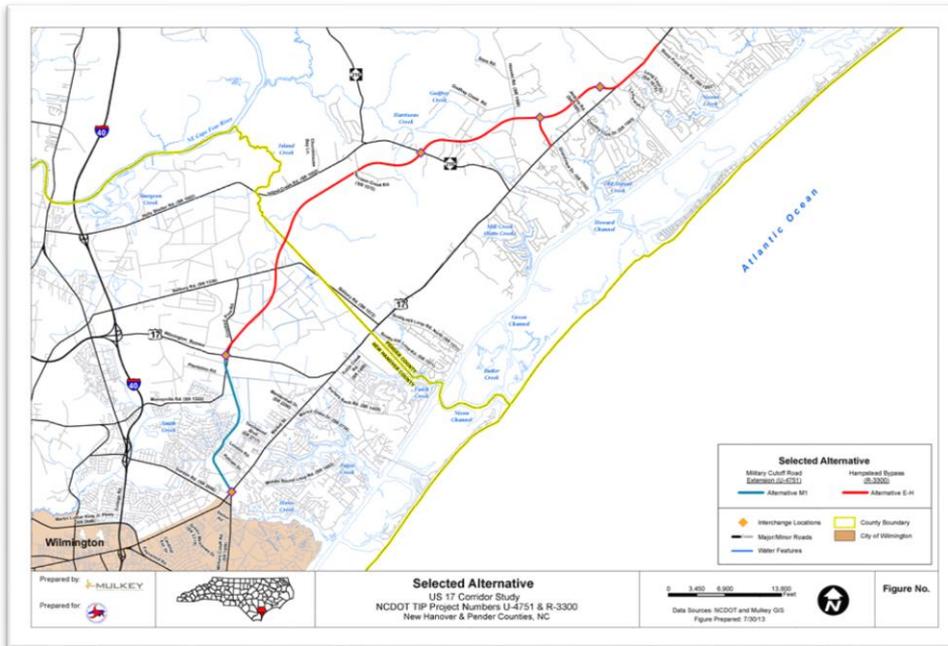
Community Interviews

- Increased permit activity in County and Surf City, impacting Eastern areas
- At least two projects that will likely increase future residential and commercial/industrial development in Southern and Eastern areas



Community Interviews

- Hampstead Bypass



- Recently expanded water and wastewater capacity in Surf City
- Water and wastewater treatment at Pender Commerce Park



GIS Analysis

GIS Analysis can validate and quantify perceptions of future growth and articulate growth potential in terms of school attendance zones. It can provide insight to help answer the questions:

What is the forecasted membership for each school?

Which schools will be impacted by growth?



GIS Analysis

Residential Geo-database

- Identify residential type: SF, MF, TH, CONDO, MHP
- Identify subdivisions/neighborhoods
- Calculate developed/available lots
- Calculate ***Student Generation Ratio*** (SGR)



GIS Analysis



Avendale

- GIS: 160 SF/MF lots
- GIS: 91 developed
- W/S: some activity
- SGR = 0.22 stdnt/lot

GIS Analysis

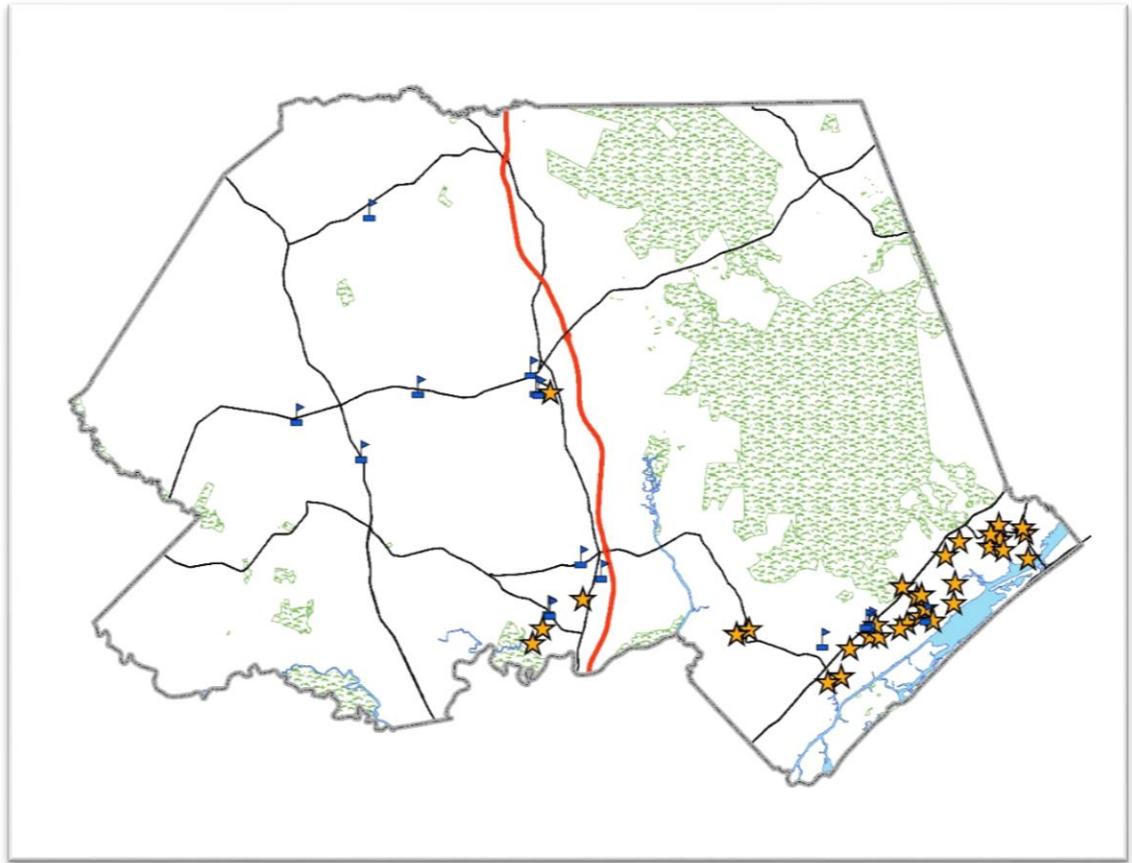


The Walk at Sloop Point

- 45 SF lots total
- GIS: 13 developed
- W/S: significant activity

GIS Analysis

- 23,500 residential parcels in 400+ developments/neighborhoods
- Target areas for W/S survey and planners' data ★
- Quantify potential impact to PCS:
 - # units/lots
 - SGR
- District-wide SF SGR = **0.42 stdnt/lot**



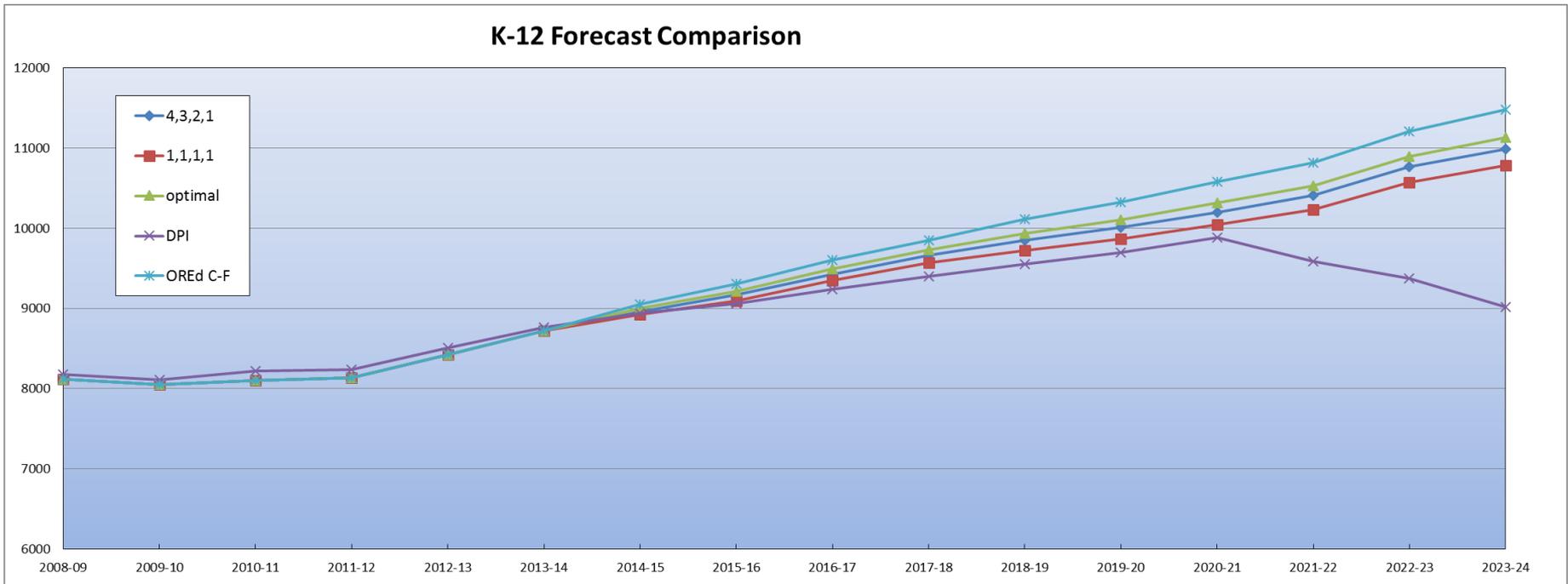
Membership Forecast

Membership forecasts are based on:

- Historical membership data – How do students advance through the K-12 system?
- Land Use data – Where are the growth potentials?

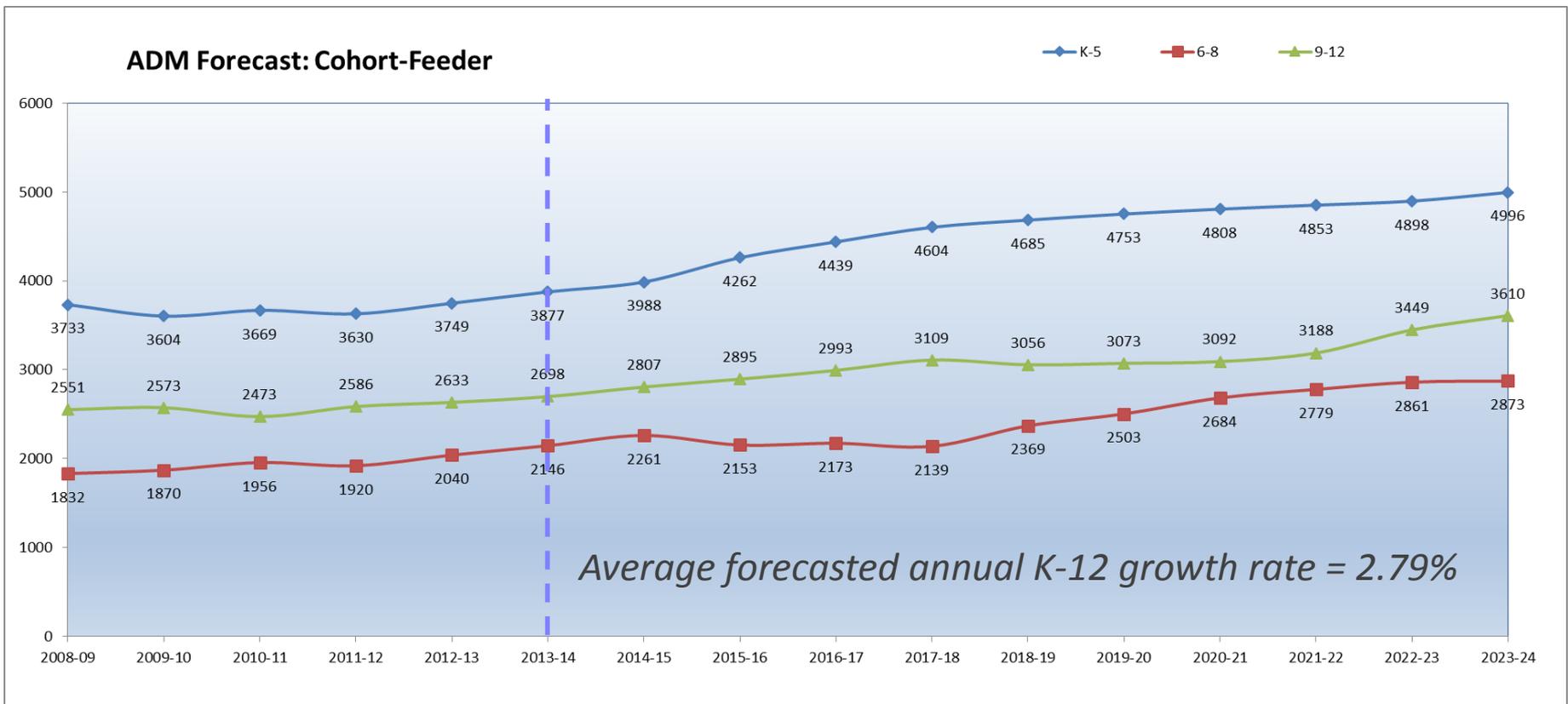
Membership Forecast

Comparison of K-12 Forecast Models



Membership Forecast

OREd Cohort-Feeder Forecast Model – Month-1 ADM



Out-of-Capacity Table



The Out-of-Capacity Table (OOC) represents the culmination of analysis of demographic trends, residential growth potential, and school capacity.



2013-14 Pender County Schools Out-of-Capacity Table – By Level

Pender County Schools Out-of-Capacity Table - By Level **DRAFT**

1. Month-1 ADM data supplied by NC DPI. 2013-14 Pre-K counts supplied by PCS.
2. Cohort-Feeder Forecast Model - Draft 20140411. Annual K-12 growth rate: 2.79%.

	Capacities			Pre-K	Month-1	Forecasted Month-1 ADM									
	2013-14	2014-15	2015-16	2013-14	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Elementary Schools (K-5)															
BURGAW ELEM	683	683	683	59	509	501	521	529	535	534	535	540	545	550	560
CAPE FEAR ELEM	516	516	516		507	498	520	548	579	601	622	629	635	641	654
NORTH TOPSAIL ELEM	511	511	511	36	610	662	739	799	862	871	922	933	940	948	966
MALPASS CORNER ELEM	667	667	667	36	462	458	478	491	491	490	490	495	500	504	514
PENDERLEA ELEM (K-8)	532	532	532		584	596	621	616	621	638	648	663	667	663	673
ROCKY POINT ELEM	484	484	484	79	521	558	589	613	625	633	639	646	651	657	668
TOPSAIL ELEM	506	506	506		526	547	594	609	633	657	657	664	670	676	689
SOUTH TOPSAIL ELEM	512	512	512		569	587	629	651	668	688	685	693	700	706	720
Totals	4411	4411	4411	210	4288	4409	4692	4855	5014	5112	5197	5263	5308	5346	5444
Middle Schools (6-8)															
BURGAW MID	322	322	322		242	262	246	246	227	252	260	267	266	266	268
CAPE FEAR MID	483	483	483		540	573	552	536	523	547	576	623	659	691	694
TOPSAIL MID	745	745	745		941	967	908	953	963	1105	1168	1284	1346	1403	1409
WEST PENDER MID	307	307	307		224	248	227	231	225	249	265	265	264	263	265
Totals	1857	1857	1857	0	1947	2051	1933	1967	1938	2153	2269	2439	2534	2623	2635
High Schools (9-12)															
HEIDE TRASK HIGH (incl. STAR)	815	815	815		714	759	804	869	887	891	875	861	859	907	951
PENDER HIGH	795	795	795	32	616	607	608	613	656	638	638	638	647	695	704
TOPSAIL HIGH	1400	1400	1400		1175	1247	1289	1319	1373	1333	1367	1400	1489	1655	1762
Totals	3010	3010	3010	32	2505	2614	2702	2800	2916	2863	2880	2899	2995	3256	3417
Special/Alternative															
PENDER EARLY COLLEGE					225	225	225	225	225	225	225	225	225	225	225
System Total	9278	9278	9278	242	8965	9298	9552	9848	10094	10353	10571	10826	11063	11450	11721

Capacity Legend

< 95%

95% - 100%

100% - 105%

> 105%

2013-14 Pender County Schools Out-of-Capacity Table – By Area

Pender County Schools Out-of-Capacity Table - By Area **DRAFT**

1. Month-1 ADM data supplied by NC DPI. 2013-14 Pre-K counts supplied by PCS.

2. Cohort-Feeder Forecast Model - Draft 20140411. Annual K-12 growth rate: 2.79%.

	Capacities			Pre-K	Month-1	Forecasted Month-1 ADM									
	2013-14	2014-15	2015-16	2013-14	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Northern Area															
BURGAW ELEM	683	683	683	59	509	501	521	529	535	534	535	540	545	550	560
MALPASS CORNER ELEM	667	667	667	36	462	458	478	491	491	490	490	495	500	504	514
PENDERLEA ELEM (K-8)	532	532	532		584	596	621	616	621	638	648	663	667	663	673
BURGAW MID	322	322	322		242	262	246	246	227	252	260	267	266	266	268
PENDER HIGH	795	795	795	32	616	607	608	613	656	638	638	638	647	695	704
Totals	2999	2999	2999	127	2413	2426	2474	2495	2530	2552	2570	2604	2625	2679	2719
Southern Area															
CAPE FEAR ELEM	516	516	516		507	498	520	548	579	601	622	629	635	641	654
ROCKY POINT ELEM	484	484	484	79	521	558	589	613	625	633	639	646	651	657	668
CAPE FEAR MID	483	483	483		540	573	552	536	523	547	576	623	659	691	694
WEST PENDER MID	307	307	307		224	248	227	231	225	249	265	265	264	263	265
HEIDE TRASK HIGH (incl. STAR)	815	815	815		714	759	804	869	887	891	875	861	859	907	951
Totals	2605	2605	2605	79	2506	2637	2692	2796	2839	2922	2976	3023	3068	3159	3232
Eastern Area															
NORTH TOPSAIL ELEM	511	511	511	36	610	662	739	799	862	871	922	933	940	948	966
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TOPSAIL MID	745	745	745		941	967	908	953	963	1105	1168	1284	1346	1403	1409
TOPSAIL HIGH	1400	1400	1400		1175	1247	1289	1319	1373	1333	1367	1400	1489	1655	1762
Totals	3674	3674	3674	36	3821	4011	4160	4331	4500	4654	4800	4974	5145	5387	5545
Special/Alternative															
PENDER EARLY COLLEGE					225	225	225	225	225	225	225	225	225	225	225
System Total	9278	9278	9278	242	8965	9298	9552	9848	10094	10353	10571	10826	11063	11450	11721

Capacity Legend

< 95%

95% - 100%

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