

# Norfolk Public Schools

## Outcomes & Portfolio Study

January 17, 2024



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**STRATEGIES**  
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# AGENDA

- Statistical analyses of outcomes & facility factors
- Framework for future FMP options based on the study
- Community Engagement proposal
- Immediate Next Steps

# Statistical analyses

Outcomes & facility factors



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# Focus of the study

Consider potential relationships between facility conditions, enrollments & outcomes

- Retained experienced K12 data scientist & statistician
  - Dr. Kevin Barlow
    - Assistant Professor of Statistics: University of Mary Hardin-Baylor
    - K-16 experience: 32 years
      - Last K-12 position: Assistant Superintendent, Arlington ISD (TX)
- Key Academic Outcome Data: State Mean-Centered Scores (SMCS)
  - Comparison of SOL scores compared to the mean SOL scores for each test type statewide
  - Accounts for any differences in the test over time by comparing individual school & subgroup scores to that same year's mean score statewide

# Key Finding #1:

Statewide school accreditation appears influenced by school size

- No evidence that small enrollments increase the probability of being accredited. With High Schools there may be a ceiling effect at an enrollment of 2250 or more.

Virginia Elementary Schools (2022-2023)			
Enrollment	Accredited*	Total	Percent Accredited
<=500	494	557	88.7%
>500 and <=750	395	427	92.5%
>750	129	133	97.0%
Total	1018	1117	91.1%

# Key Finding #1:

Statewide school accreditation appears influenced by school size

- No evidence that small enrollments increase the probability of being accredited. With High Schools there may be a ceiling effect at an enrollment of 2250 or more.

Virginia Middle Schools (2022-2023)			
Enrollment	Accredited*	Total	Percent Accredited
$\leq 750$	117	149	78.5%
$> 750$ and $\leq 1000$	65	81	80.2%
$> 1000$	73	82	89.0%
Total	255	312	81.7%

# Key Finding #1:

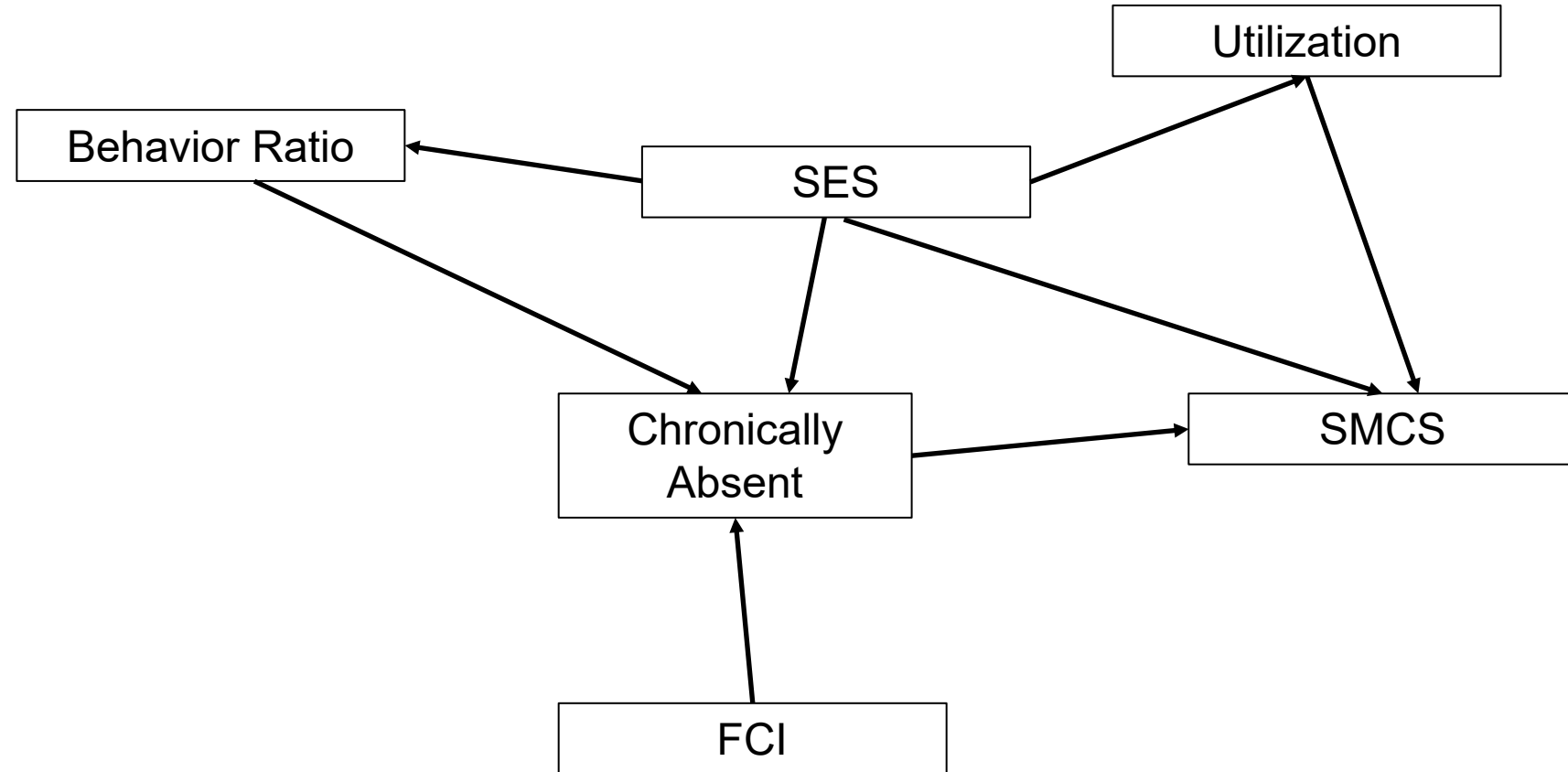
Statewide school accreditation appears influenced by school size

- No evidence that small enrollments increase the probability of being accredited. With High Schools there may be a ceiling effect at an enrollment of 2250 or more.

Virginia High Schools (2022-2023)			
Enrollment	Accredited*	Total	Percent Accredited
$\leq 1250$	145	162	89.5%
$> 1250$ and $\leq 2250$	111	114	97.4%
$> 2250$	28	31	90.3%
Total	284	307	92.5%

# Path Analysis

Looking at the connections & direction of effects between variables



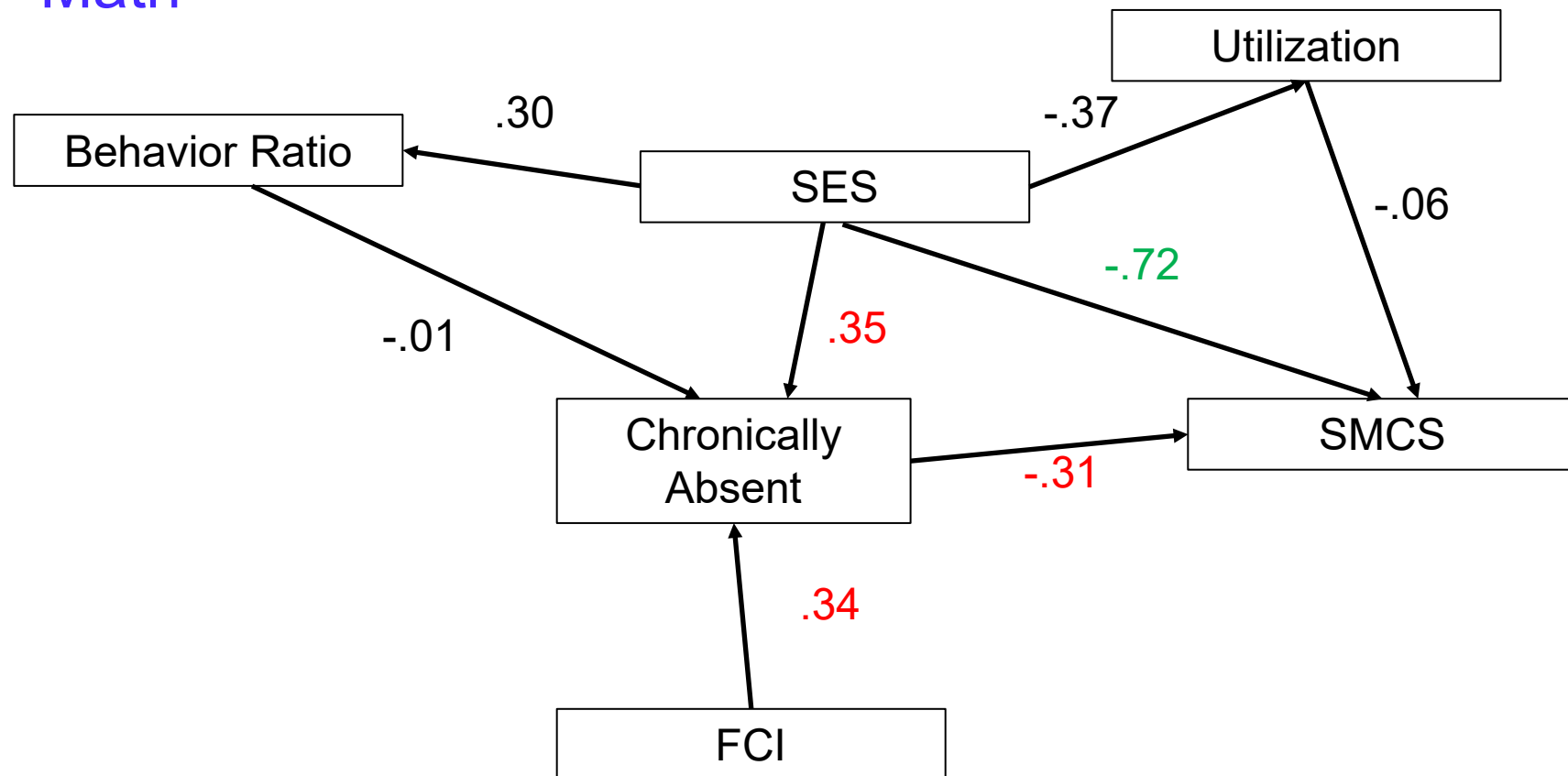


# Key Finding #2:

School conditions correlate to outcomes; portables do not

## Math

- SES has the largest negative correlation to State Mean-Centered Test Scores (SMCS) at  $-.72$
- Building Conditions (FCI) and SES have similar impact on Chronic Absenteeism, which in turn negatively impacts SMCS
- Building Utilization by itself does not strongly impact SMCS

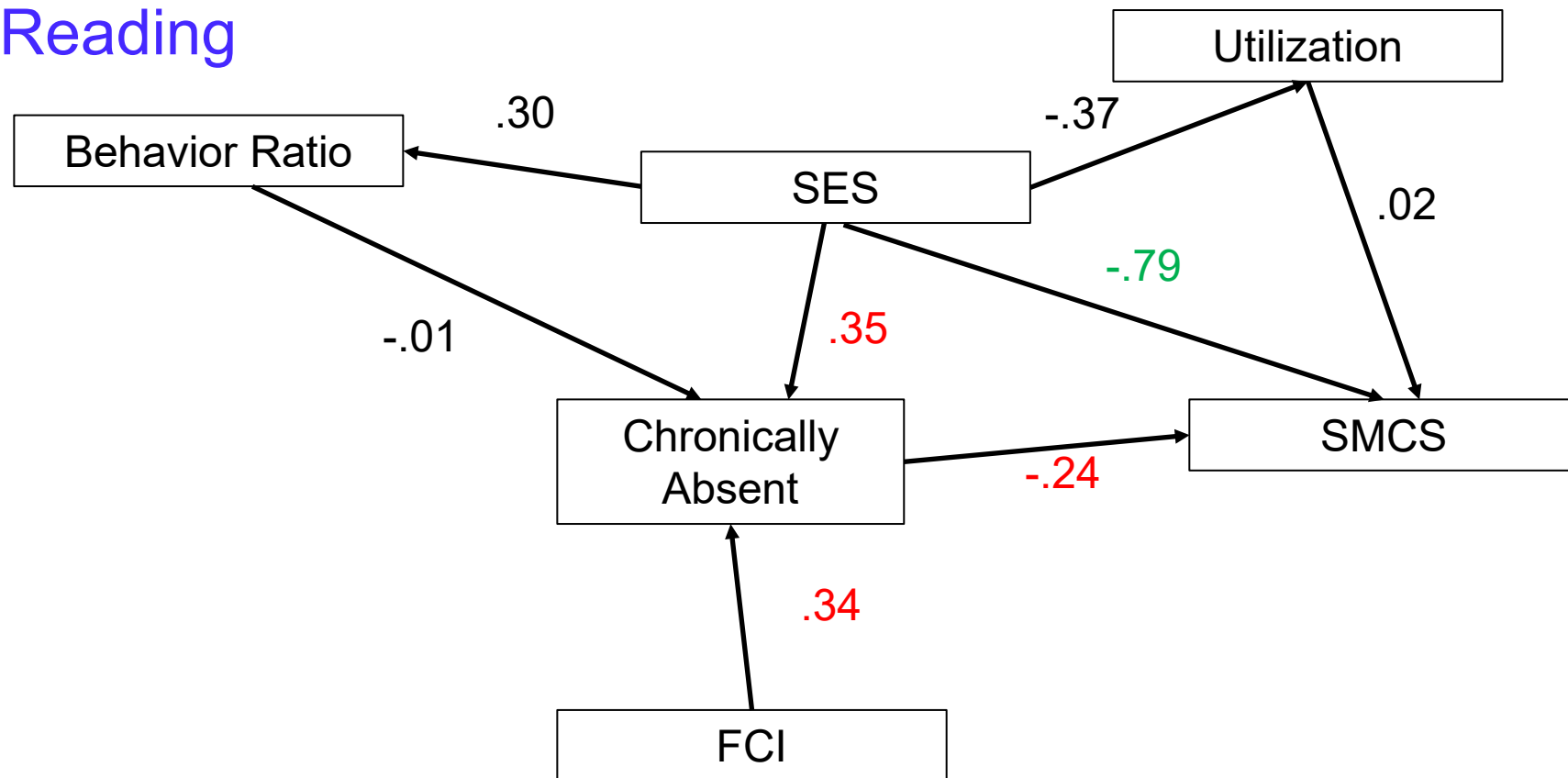


# Key Finding #2:

School conditions correlate to outcomes; portables do not

- SES has more of an impact on reading scores than math
- Building Conditions (FCI) and SES have similar impact on Chronic Absenteeism, with a negative impact on SMCS albeit less for reading than for math
- Building Utilization by itself does not strongly impact SMCS

## Reading

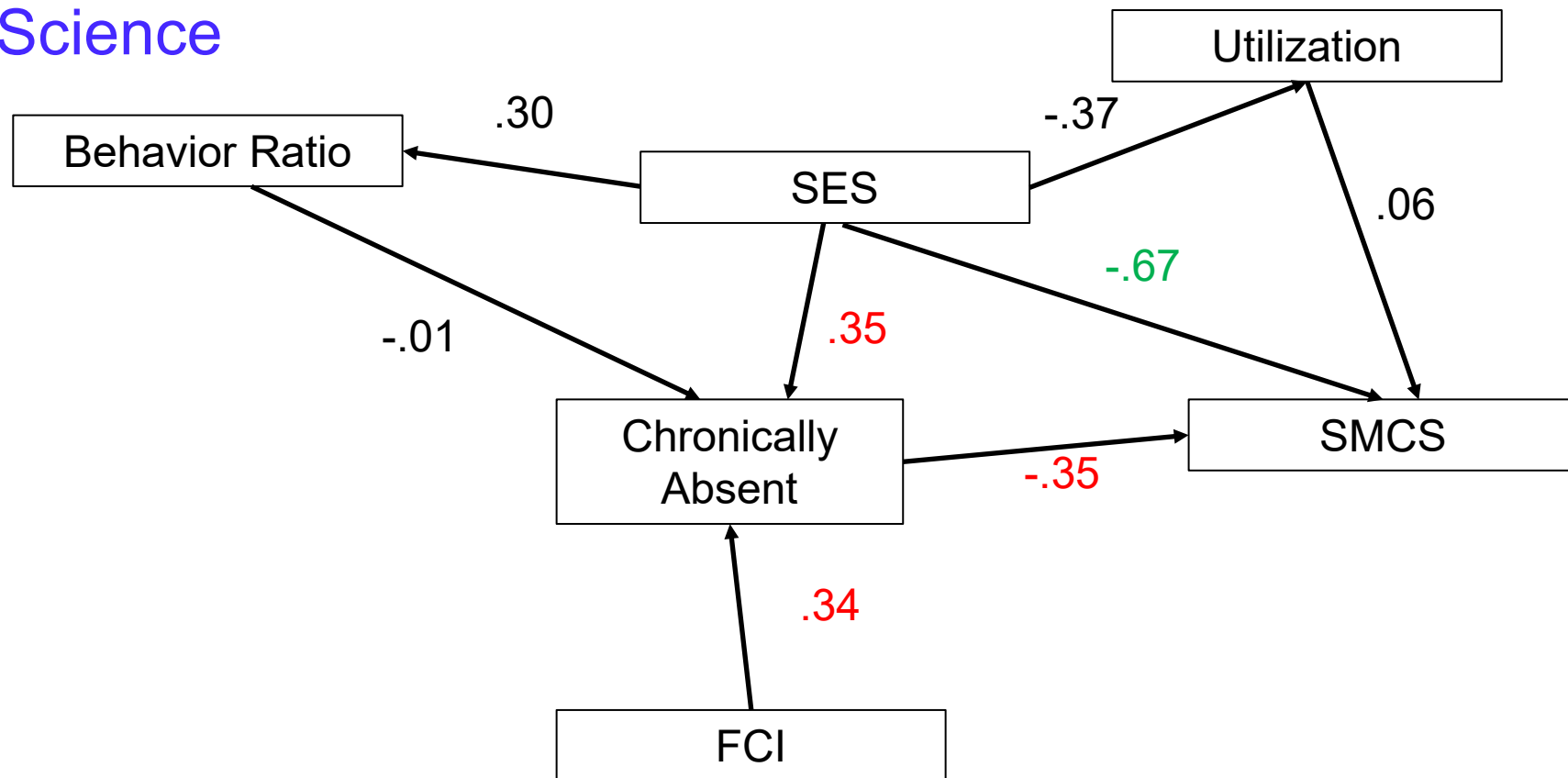


# Key Finding #2:

School conditions correlate to outcomes; portables do not

- SES has a similar impact on SMCS as math, albeit slightly less
- Building Conditions (FCI) and SES have similar impact on Chronic Absenteeism, which in turn negatively impacts SMCS
- Building Utilization by itself does not strongly impact SMCS

## Science



# Key Finding #3

## Larger schools seem to benefit students from all ethnicities

- Scores were ranked by ethnicity & school size for all schools statewide 2014-2023 to see where each subgroup had their highest and lowest average scores by enrollment size
- The table below shows the average ranks across all SOLs b/t 2014-2023 by school size for each grade level; highest ranked scores are in red (lower numbers = higher rank)

		<100	100-149	150-199	200-249	250-299	300-349	350-399	400-449	450-499	500-549	550-599	600-649	650-699	700-749	750-799	800-849	850-899	900-949	950-999	1000-1049	1050-1099	1100-1149	1150-1199	1200-1249	1250-1299	1300-1349	1350-1399	1400-1449	1450-1499	1500-1549	1550-1599	1600-1649	1650-1699	1700-1749	1750-1799	1800-1849	1850-1899	1900-1949	1950-1999	2000+
ES	Asian	23	23	25	21	20	20	18	18	17	15	16	14	11	10	9	8	8	9	7	5	10	8	15	9			8							2	18		19		14	
	Black	22	24	19	23	21	19	21	20	18	15	16	14	12	11	9	8	8	8	6	5	11	15	16	13		21	5						3	17		24		12		
	Hispanic	21	25	24	21	19	16	15	14	17	14	16	12	13	11	10	11	10	10	7	6	8	7	20	22		20	3						13	24		17		19		
	White	17	15	20	21	19	15	21	22	22	18	18	13	14	12	12	11	10	13	9	4	12	9	21	18		28	8						3	24		3		17		
MS	Asian	27		15	27	23	26	25	24	20	22	19	19	16	14	16	12	15	15	15	12	10	12	16	4	14	10	10	14	19	10	5	11	7			19		3		
	Black	28	29	15	26	26	25	20	21	22	24	25	23	22	22	16	16	16	17	16	14	7	15	13	3	15	7	6	16	16	12	2	13	3		22		15			
	Hispanic	28	15	18	18	14	17	15	19	16	18	21	16	22	23	15	16	16	17	22	13	11	20	21	2	15	9	10	23	25	12	11	16	4		23		19			
	White	31	1	12	25	23	25	25	20	20	22	24	20	25	23	17	18	18	16	15	13	8	9	18	3	18	8	7	18	24	15	10	13	5		11		7			
HS	Asian	31	25	26	25	22	29	7	24	29	22	23	20	21	20	17	17	16	13	16	22	13	17	11	16	24	15	19	17	15	15	12	12	11	10	11	15	7	18	12	16
	Black	30	25	8	17	25	16	20	26	27	21	25	23	22	23	22	15	20	19	20	30	25	16	26	23	26	31	27	18	22	16	12	13	10	14	13	18	10	20	14	8
	Hispanic	35	33	22	29	27	19	15	21	20	23	20	17	17	13	20	17	24	23	23	26	18	19	18	24	17	23	22	15	23	14	19	14	10	10	11	20	4	27	21	19
	White	29	27	8	31	31	23	23	25	23	23	27	23	20	22	19	17	24	22	19	27	26	26	9	19	32	20	28	21	25	14	15	11	11	6	11	17	6	22	10	10
ES_MS	Asian			5	6	7	2	7	6	5	3	3	3	6	3	4	5	4	3	4						2						2									
	Black	12	11	6	9	9	9	7	10	7	5	8	8	9	9	7	5	6	3	3						5		2					2								
	Hispanic	17	10	11	8	8	7	5	7	7	6	9	9	9	7	10	7	7	5	6						3		5					3								
	White	10	5	9	9	9	12	10	9	8	6	8	7	7	12	15	11	12	11	10						4		4						4							

# Key Finding #3

Larger schools seem to benefit students from all ethnicities

- NPS-only data (below) shows similar overall trends as state-wide data though less pronounced

		<100	100-149	150-199	200-249	250-299	300-349	350-399	400-449	450-499	500-549	550-599	600-649	650-699	700-749	750-799	800-849	850-899	900-949	950-999	1000-1049	1050-1099	1100-1149	1150-1199	1200-1249	1250-1299	1300-1349	1350-1399	1400-1449	1450-1499	1500-1549	1550-1599	1600-1649	1650-1699	1700-1749	1750-1799	1800-1849	1850-1899	1900-1949	1950-1999	2000+	
ES	Asian	2		5		2	2	3	2	3	2	3	4	4	2	2																										
	Black	2		7	7	6	7	4	5	3	4	4	7	6	4	3																										
	Hispanic	1		8	8	5	6	3	4	3	5	4	5	5	5	7																										
	White	2		5	6	4	5	3	4	3	5	5	7	5	6	6																										
MS	Asian													3	2	2	3	3	3				2				2															
	Black									5	5	5	5	2	3	2	2	3	4				3				2															
	Hispanic									5	5	4	3	3	3	2	3	3	4	4				2			2															
	White										5	2	1	3	3	3	3	3	4	5				1			3															
HS	Asian																4	3	3	3																2		2		2		
	Black																3	4	3	4															2		3		2			
	Hispanic																3	4	4	4															2		3		3			
	White																2	4	4	4	4														1		3		3			
ES_MS	Asian									2	1		1			1	2	1	1																							
	Black									1	1		2			2	2	2	2																							
	Hispanic									2	1		2			2	2	2	2																							
	White									1	1		2			3	2	2	2																							

# Key Finding #3

Larger schools seem to benefit students from all ethnicities

Multi-Year\* Ranks for all Virginia Schools  
All Ethnicities^

Campus	Correlation Range	Statistical Significance	
		Negative	Positive
3-5	0.06 - 0.74		50%
6-8	-0.3 - 0.88		85%
9-12	0.06 - 0.73		80%
Partial	0.14 - 0.75		45%

\*2013-2023  
^White, Black, Hispanic, Asian

# Key Finding #3

Larger schools seem to benefit students from all ethnicities

Multi-Year\* Ranks for all Virginia Schools  
Black Students Only

Campus	Correlation Range	Statistical Significance	
		Negative	Positive
3-5	0.3 - 0.45		50%
6-8	0.42 - 0.78		100%
9-12	0.06 - 0.59		60%
Partial	0.24 - 0.71		60%

\*2013-2023

# Key Finding #3

Larger schools seem to benefit students from all ethnicities

Multi-Year\* Ranks for all Virginia Schools  
Hispanic Students Only

Campus	Correlation Range	Statistical Significance	
		Negative	Positive
3-5	0.06 - 0.25		0%
6-8	-0.3 - 0.6		40%
9-12	0.14 - 0.65		60%
Partial	0.16 - 0.63		20%

\*2013-2023



# Key Finding #3

Larger schools seem to benefit students from all ethnicities

Multi-Year\* Ranks for all Virginia Schools  
White Students Only

Campus	Correlation Range	Statistical Significance	
		Negative	Positive
3-5	0.26 - 0.41		50%
6-8	0.36 - 0.56		100%
9-12	0.34 - 0.67		100%
Partial	0.14 - 0.64		40%

\*2013-2023

# Key Finding #3

Larger schools seem to benefit students from all ethnicities

Multi-Year\* Ranks for all Virginia Schools  
Asian Students Only

Campus	Correlation Range	Statistical Significance	
		Negative	Positive
3-5	0.41 - 0.74		100%
6-8	0.59 - 0.88		100%
9-12	0.44 - 0.73		100%
Partial	0.4 - 0.75		60%

\*2013-2023

# Smallest Schools

The smallest schools statewide contain a high percentage of specialized programs (<100) and/or are predominately in rural areas (100-150)



**Norfolk Public Schools**  
 cornerstone of a proudly diverse community

1		#2013	36
<100		# 2023	17
District	School	Min	Max
Accomack County	Tangier Combined	KG	12
Amherst County	Temperance Elementary	PK	5
Arlington County	Innovation Elementary	PK	5
Department of Juvenile Justice	Yvonne B. Miller High School	6	12
Fairfax County	Kent Gardens Elementary	PK	6
Fairfax County	Key Middle	7	8
Highland County	Highland Elementary	PK	5
Loudoun County	Lincoln Elementary	PK	5
Loudoun County	W.O. Robey High	9	12
Richmond City	Amelia Street Special Education	PK	12
Richmond City	Richmond Career Education and Employment Charter School	9	12
Scott County	Dungannon Elementary School	3	7
Scott County	Fort Blackmore Primary	PK	2
Virginia School for the Deaf and Blind-Staunton	Virginia School for the Deaf and Blind Elementary	PK	5
Virginia School for the Deaf and Blind-Staunton	Virginia School for the Deaf and Blind High	9	12
Virginia School for the Deaf and Blind-Staunton	Virginia School for the Deaf and Blind Middle	6	8
York County	York River Academy	9	12

2		#2013	4
100-149		# 2023	31
District	School	Min	Max
Augusta County	Craigsville Elementary	PK	5
Bath County	Millboro Elementary	PK	7
Bedford County	Big Island Elementary	PK	5
Botetourt County	Eagle Rock Elementary	PK	5
Buchanan County	Council High	8	12
Buena Vista City	Parry McCluer Middle	6	7
Carroll County	Fancy Gap Elementary	PK	5
Carroll County	Gladesboro Elementary	PK	5
Dickenson County	Ervinton Elementary	PK	5
Fairfax County	Mountain View High	9	12
Floyd County	Indian Valley Elementary	KG	7
Grayson County	Grayson Highlands	PK	7
Greensville County	Belfield Elementary	5	5
Highland County	Highland High	6	12
Lee County	Elydale Middle	5	7
Lee County	St. Charles Elementary	PK	4
Loudoun County	Aldie Elementary	PK	5
Loudoun County	Hillsboro Charter Academy	KG	5
Loudoun County	Middleburg Community Charter	KG	5
Norfolk City	Walter Herron Taylor Elementary	PK	5
Patrick County	Woolwine Elementary	PK	7
Pittsylvania County	Mount Airy Elementary	PK	5
Rockbridge County	Mountain View Elementary	PK	5
Rockingham County	Fulks Run Elementary	PK	5
Russell County	Belfast Elementary	KG	5
Russell County	Swords Creek Elementary	PK	7
Scott County	Hilton Elementary	KG	6
Smyth County	Rich Valley Elementary	PK	5
Smyth County	Sugar Grove Elementary	PK	5
Staunton City	Staunton High	9	12
Tazewell County	Abb's Valley-Boissevain Elementary	PK	5



# Divisions similar to NPS

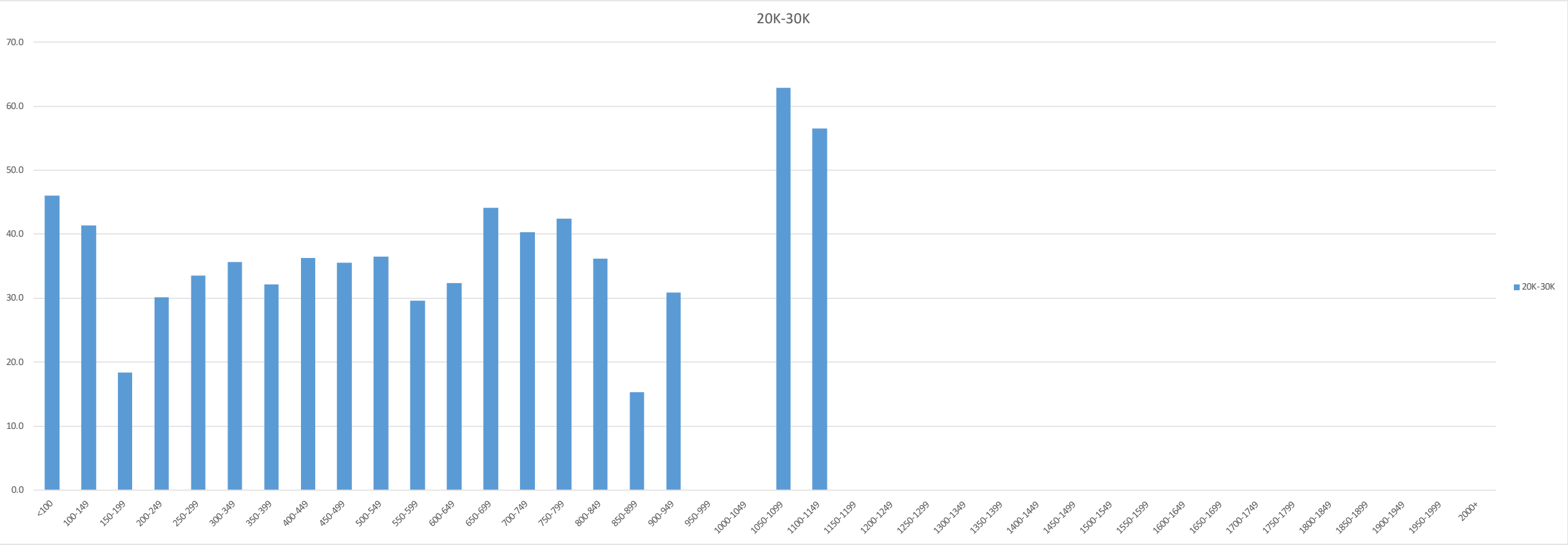
20k-30k enrollment

- We looked at SOL scores for Divisions 20-30k enrollment to ensure that the trends found statewide were not skewed by the largest & smallest Divisions in the state
- NPS is ~27K
- Stafford
- Arlington
- Newport News
- Spotsylvania
- Richmond
- Hampton



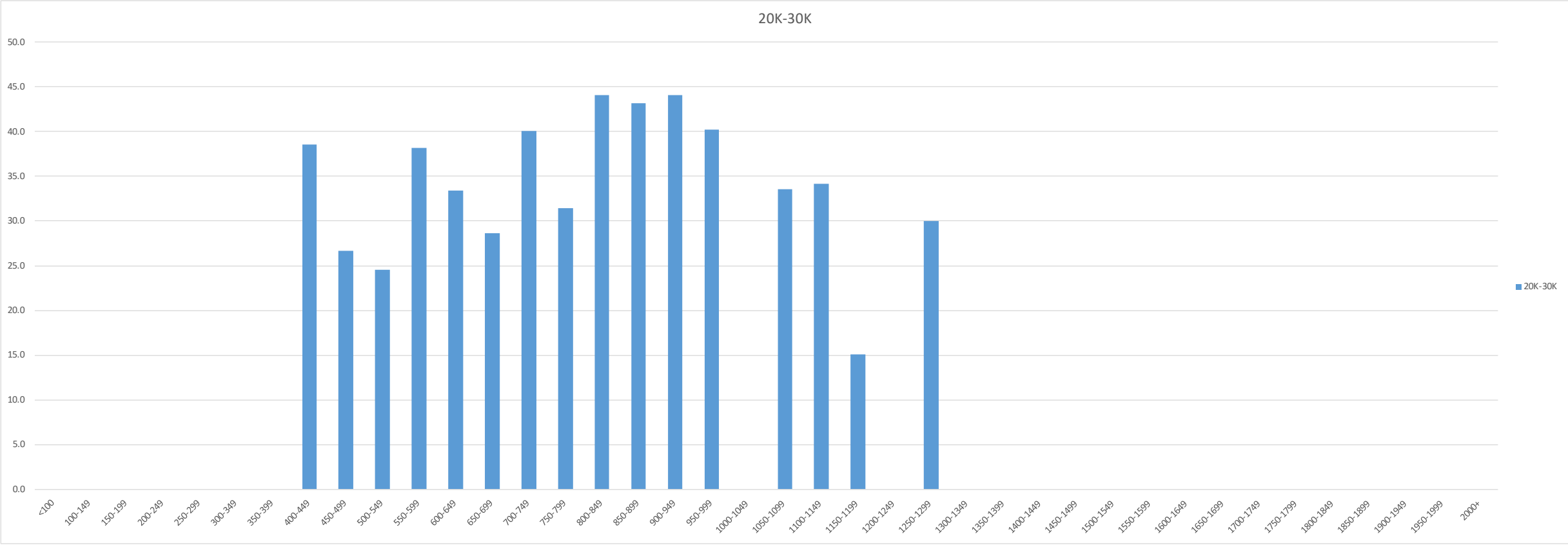
# Key Finding #4 | ES, District Size & Enrollment

- VA LEAs 20K-30K enrollment appear to show a slightly positive trend between enrollment and SOL passage rates



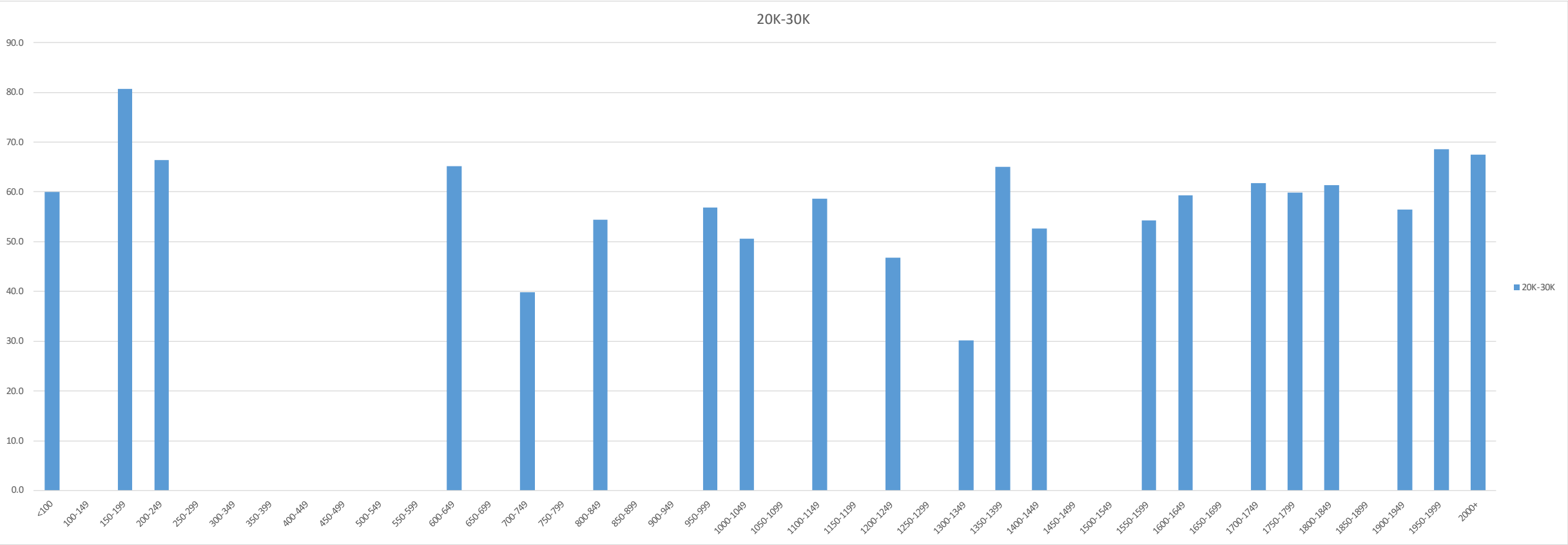
# Key Finding #4 | MS, District Size & Enrollment

- VA LEAs 20K-30K enrollment appear to show a slightly positive pattern between enrollment and SOL passage rates up to ~1K enrollment



# Key Finding #4 | HS, District Size & Enrollment

- VA LEAs 20K-30K enrollment do not appear to show a discernable trend between enrollment and SOL scores



# Additional Findings

## Chronic Absenteeism, Behavior Instance, SOL Scores

- The ratio (percent) of behavior incidences for NPS in 2021/2022 was 31.4% which is close to the median of all Virginia Divisions.
- The chronic absenteeism for NPS in 2021/2022 was 24.3%, the 51% percentile statewide.
- NPS SOL scores are in the bottom 11-19% percentile statewide for reading, math and science



# Additional Findings

NPS has more grade configurations than another other Division in VA other than Fairfax, the 2<sup>nd</sup> lowest student/school ratio of all Divisions at/above 15k enrollment, & average SOL passage rates for Divisions at/above 15K

Division Name	Enrollment	# schools	Total Configs	students / school	AVG SOL Pass Rate
Fairfax County Public Schools	180,130	193	13	933	71
Prince William County Public Schools	91,180	94	7	970	70
Loudoun County Public Schools	82,083	91	5	902	69
Virginia Beach City Public Schools	65,550	82	8	799	69
Chesterfield County Public Schools	63,962	64	6	999	62
Henrico County Public Schools	50,389	67	6	752	60
Chesapeake City Public Schools	40,821	45	7	907	71
Stafford County Public Schools	31,160	30	5	1,039	69
Arlington County Public Schools	27,582	35	5	788	72
<b>Norfolk City Public Schools</b>	<b>27,330</b>	<b>42</b>	<b>10</b>	<b>651</b>	<b>68</b>
Newport News City Public Schools	26,562	37	7	718	67
Spotsylvania County Public Schools	24,260	29	3	837	68
Richmond City Public Schools	21,706	43	7	505	63
Hampton City Public Schools	19,796	29	6	683	68
Hanover County Public Schools	17,066	23	5	742	70
Alexandria City Public Schools	16,089	17	7	946	68
Suffolk City Public Schools	14,490	19	3	763	67

# Implications for Facilities Planning

Improve facility conditions & create stable enrollments at all grade levels

- Utilizing ten years of data:
  - In NPS, FCI appears to impact Chronic Absenteeism at similar rate as does SES which in turn impacts SOL scores
  - Across the state, larger enrollments at a minimum do not correlate with a decrease in SOL passage rates and in some cases positively trend towards improved SOL scores
    - There appears to be some exceptions to this trend for some students in the lowest enrollment bands (<150); we hypothesize this is may be influenced by these smallest schools hosting specialized programs, supports & interventions
    - There appears to be a gap in outcomes between this lowest enrollment band and ~500-600 where performance increases statewide for all ethnicities
    - The percent of school accreditation increases statewide for ES >500, MS >750 and HS between 1,250-2,250

# Future FMP Updates

Framework informed by the facility & outcome study



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# Future FMP Updates

Framework informed by the facility & outcome study

- **Get as many students as possible in facilities with low FCIs**
  - *Increased capital funding by the city, or*
  - *Decrease # high-FCI buildings, or*
  - *Both*
- **Determine an enrollment size for each grade level that affords the human and programmatic investments desired for all students**
  - *Maintain mixed ES, MS, HS and ES-MS ratios, or*
  - *Move to more traditional ES & MS, or*
  - *Move to more ES-MS*

# Future FMP Updates

## Rough Order of Magnitude Potential Strategies

	Current	Same with reductions	K-8 Model
Capacity	27.7k	23.8K	20.5K
PK-8 Enrollment	19k		
Utilization	69%	81%	94%
# schools	40	33	24
AVG enroll	479	581	799
\$DEFs	\$495.0 M	\$272.4 M	
\$Reno			\$405.0 M
\$Rebuild			\$387.0 M
TOTAL	\$495.0 M	\$272.4 M	\$792.0 M

# Community Engagement

Proposal for the next FMP update



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# Community Engagement

Proposal for the next FMP update: 1.5 year community engagement process

## Winter-Fall '24

### Create Framework for Portfolio Change

- Draft Planning Framework for Portfolio Change
- **Board Presentation:** Draft Framework for Portfolio Change
- **Community Meetings** 1 (5, 1 @ each HS)
- **Survey** 1
- Exec. Team: Draft Recommended Framework for Portfolio Change
- **Steering Committee** Meeting 1: Review Data & Framework
- **Board Presentation:** Recommended Framework for Portfolio Change

## Fall '24 – Spring '25

### Draft Options

- **Focus Groups** 1 (12: Identified based on populations most likely to be involved in portfolio change)
- **Community Meetings** 2 (5, 1 @ each HS)
- **Survey** 2
- **Steering Committee** Meeting 2: Consider Options for Portfolio Change
- Exec. Team: Draft Options for Portfolio Change
- CS Internal: Draft Boundary & Feeder Options to support Portfolio Options
- **Board Meeting:** Consider Options for Portfolio Change
- **Focus Groups** 2 (12: Identified based on populations most likely to be involved in portfolio change)
- **Community Meetings** 3 (5, 1 @ each HS)

## Spring – Summer '25

### Draft Recommendations

- **Steering Committee** Meeting 2: Consider Recommendations for Portfolio Change
- Exec. Team: Draft Recommendations for Portfolio Change
- CS Internal: Draft Boundary & Feeder Recommendations to support Portfolio Recommendations
- **Board Meeting:** Consider Recommendations for Portfolio Change
- Final Report & Board Presentation

# Immediate next steps

Facility Plans based on current needs



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# Immediate Next Steps

Facility plans based on current needs

- Close Madison, return to the city: move program to Easton for <\$500k
- Close Coronado, return to the city