



District Strategic Plan

High-Quality Instruction Targets

Follow-up to November 14, 2017, School Board Workshop

January 23, 2018

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Executive Summary

Options for Recalibrating the 2017/18 and 2018/19 High-Quality Instruction Objectives/Targets:

A. Combination of Targets: Consistent with the original 2016/17 Strategic Plan, reestablish a “Desired (Trend)” and “Stretch (Ghosh)” target utilizing objective forecasting methods.

OR

B. Calculated Single Targets: Calculate midpoint between the combination of targets identified.

OR

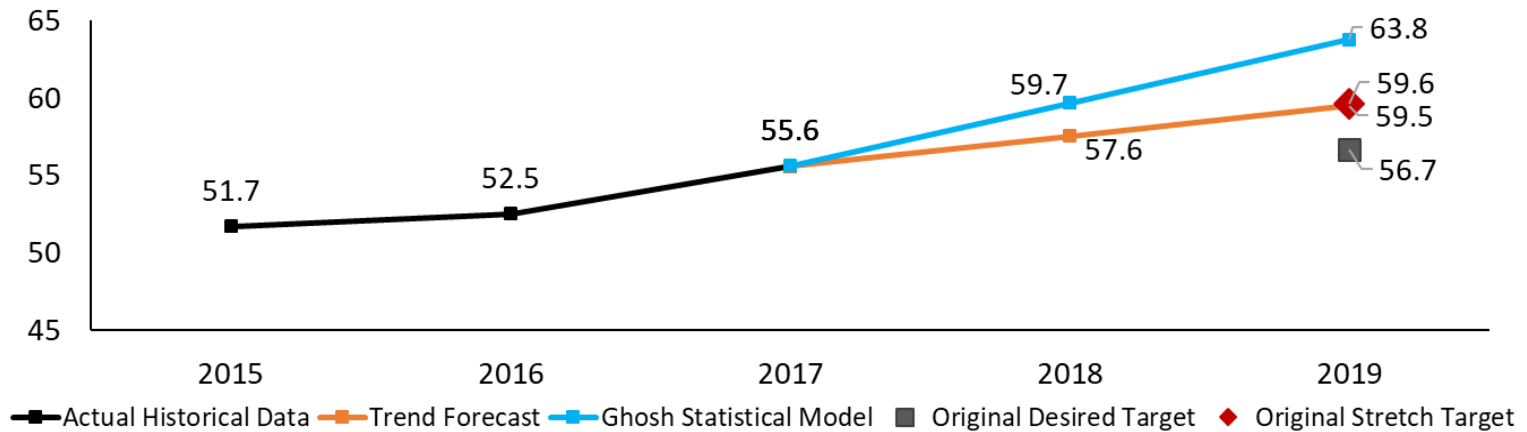
C. Negotiated Targets: Incorporate input from various forecasting methods to establish targets.



Objective Models Provide “Ranges” or Midpoint for a “Single Target”

Literacy and Early Learning – English Language Arts (ELA) – Grades 3-5

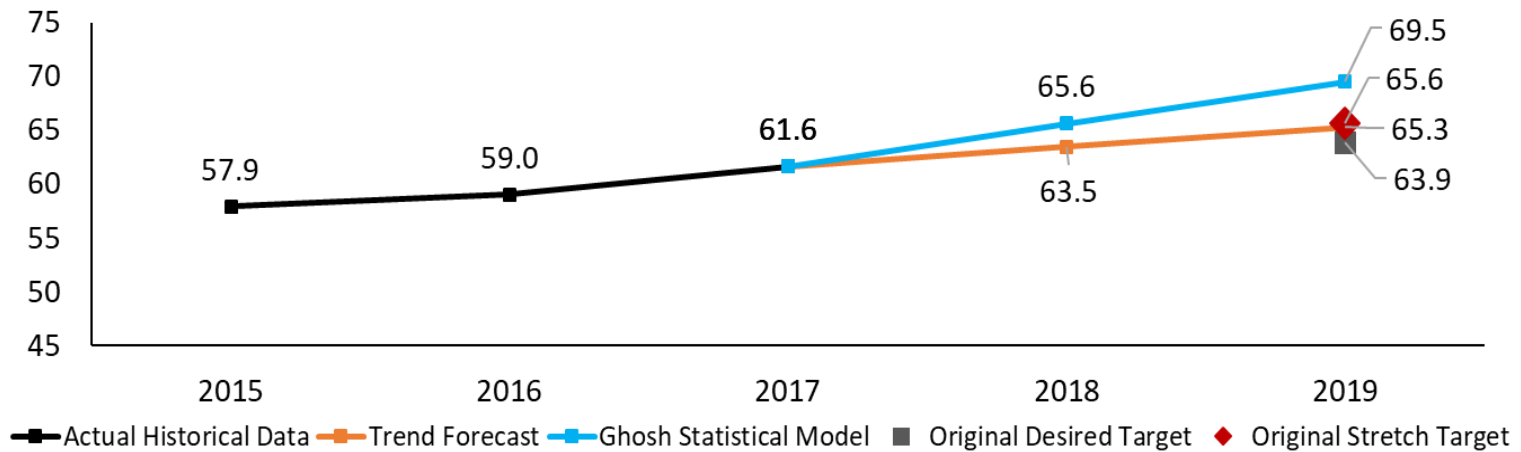
Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast (Desired)	51.7	52.5	55.6	1.95	57.6	59.5	3.9
Ghosh Statistical Model (Stretch)				90% CI (Confidence Interval)	59.7	63.8	8.2
Midpoint between Trend Forecast & Ghosh Model					58.6	61.7	6.1
Original Strategic Plan Desired Target						56.7	1.1
Original Strategic Plan Stretch Target						59.6	4.0



Objective Models Provide “Ranges” or Midpoint for a “Single Target” (Continued)

Literacy and Early Learning – Math – Grades 3-5

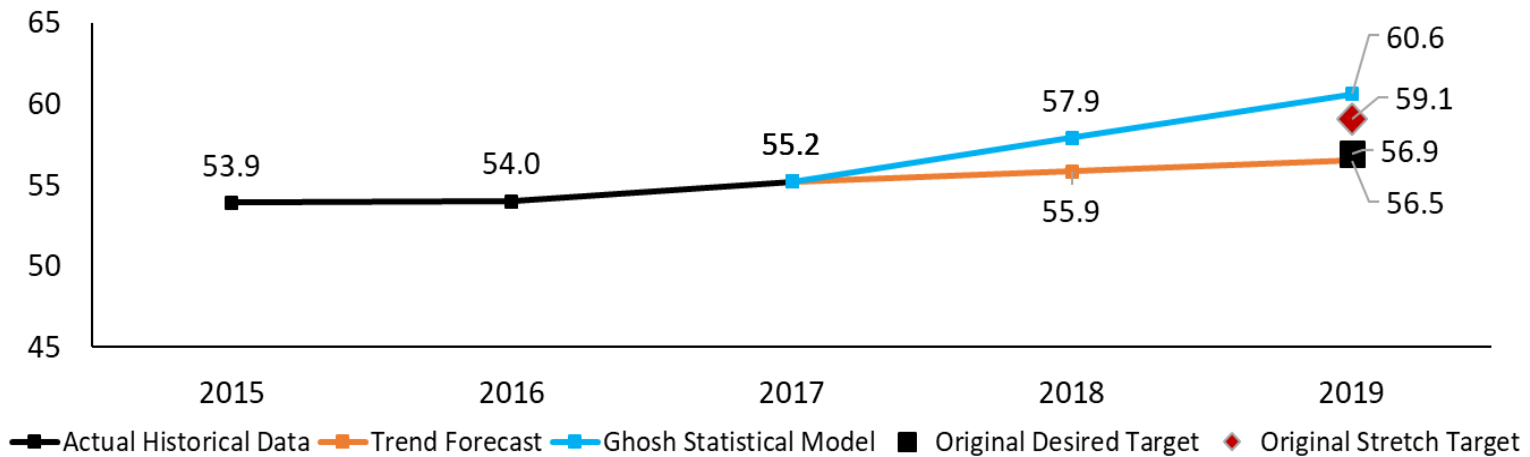
Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast (Desired)	57.9	59.0	61.6	1.85	63.5	65.3	3.7
Ghosh Statistical Model (Stretch)				90% CI	65.6	69.5	7.9
Midpoint between Trend Forecast & Ghosh Model					64.5	67.4	5.8
Original Strategic Plan Desired Target						63.9	2.3
Original Strategic Plan Stretch Target						65.6	4.0



Objective Models Provide “Ranges” or Midpoint for a “Single Target” (Continued)

Reimagining Middle Grades Learning – ELA – Grades 6-8

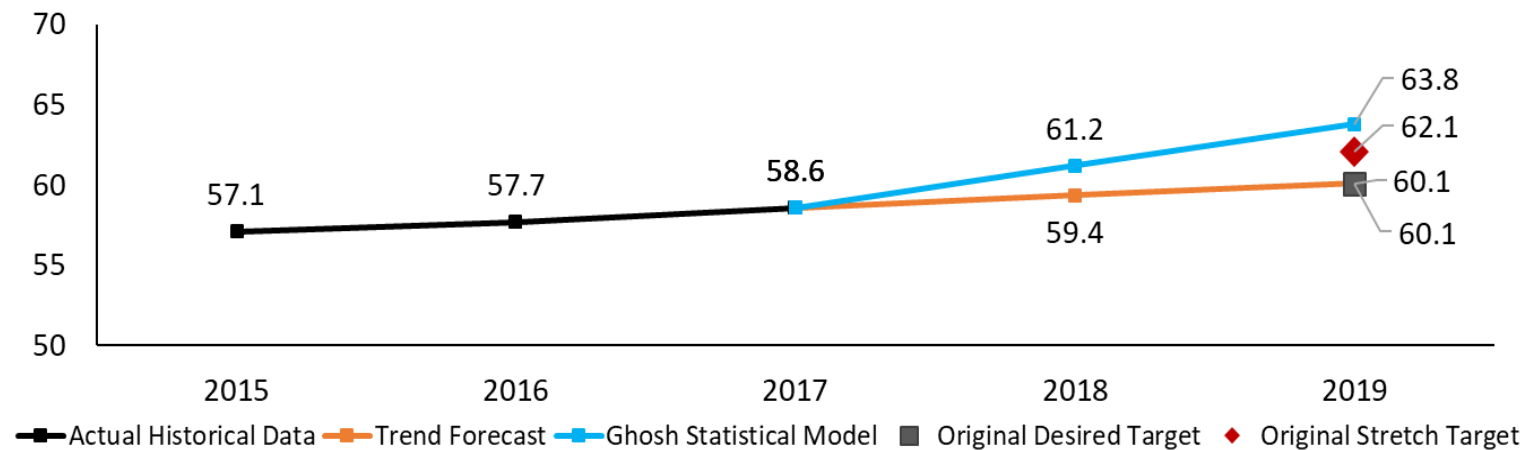
Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast (Desired)	53.9	54.0	55.2	.65	55.9	56.5	1.3
Ghosh Statistical Model (Stretch)				90% CI	57.9	60.6	5.4
Midpoint between Trend Forecast & Ghosh Model					56.9	58.6	3.4
Original Strategic Plan Desired Target						56.9	1.7
Original Strategic Plan Stretch Target						59.1	3.9



Objective Models Provide “Ranges” or Midpoint for a “Single Target” (Continued)

Reimagining Middle Grades Learning – Math – Grades 6-8

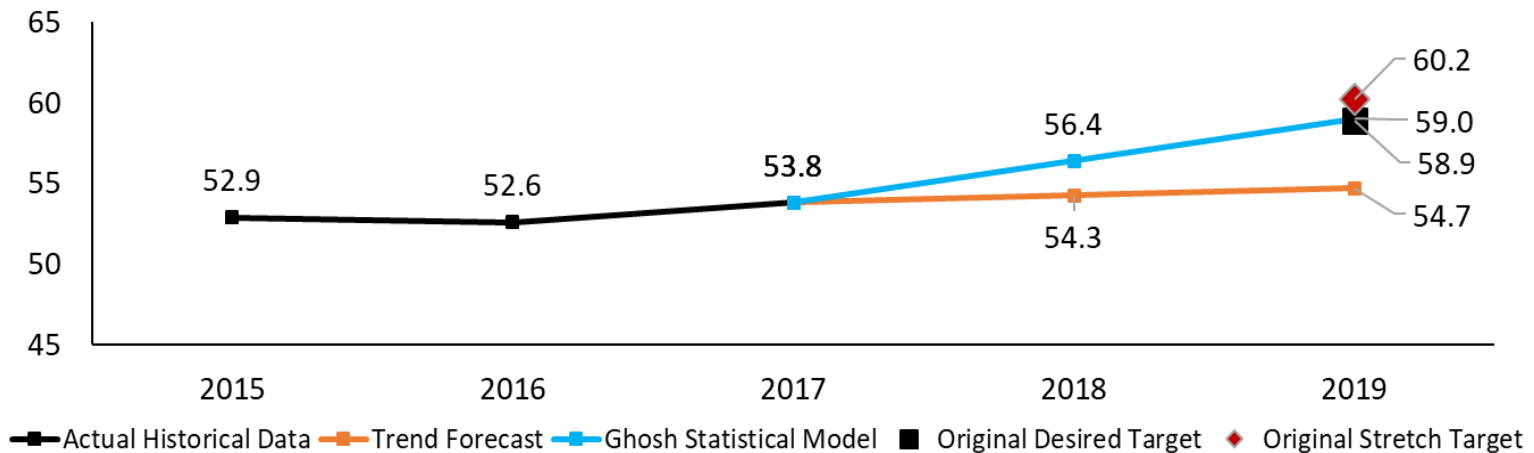
Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast (Desired)	57.1	57.7	58.6	.75	59.4	60.1	1.5
Ghosh Statistical Model (Stretch)				90% CI	61.2	63.8	5.2
Midpoint between Trend Forecast & Ghosh Model					60.3	62.0	3.4
Original Strategic Plan Desired Target						60.1	1.5
Original Strategic Plan Stretch Target						62.1	3.5



Objective Models Provide “Ranges” or Midpoint for a “Single Target” (Continued)

College and Career Readiness – ELA – Grades 9-10

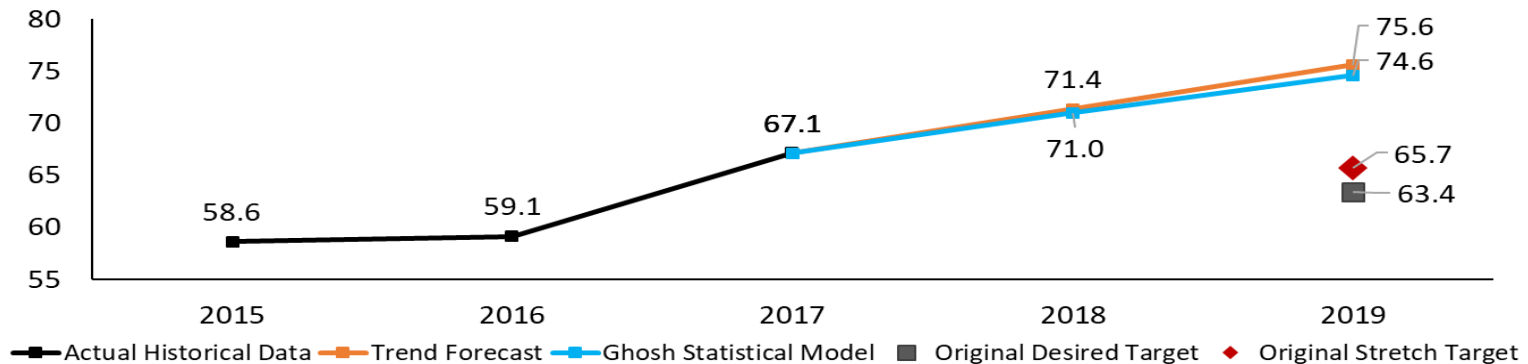
Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast (Desired)	52.9	52.6	53.8	.45	54.3	54.7	0.9
Ghosh Statistical Model (Stretch)				90% CI	56.4	59.0	5.2
Midpoint between Trend Forecast & Ghosh Model					55.3	56.9	3.1
Original Strategic Plan Desired Target						58.9	5.1
Original Strategic Plan Stretch Target						60.2	6.4



Objective Models Provide “Ranges” or Midpoint for a “Single Target” (Continued)

College and Career Readiness – Algebra 1

Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast (Desired)	58.6	59.1	67.1*	4.25	71.4	75.6	8.5
Ghosh Statistical Model (Stretch)				90% CI	71.0	74.6	7.5
Midpoint between Trend Forecast & Ghosh Model					71.2	75.1	8.0
Original Strategic Plan Desired Target						63.4	-3.7
Original Strategic Plan Stretch Target						65.7	-1.4



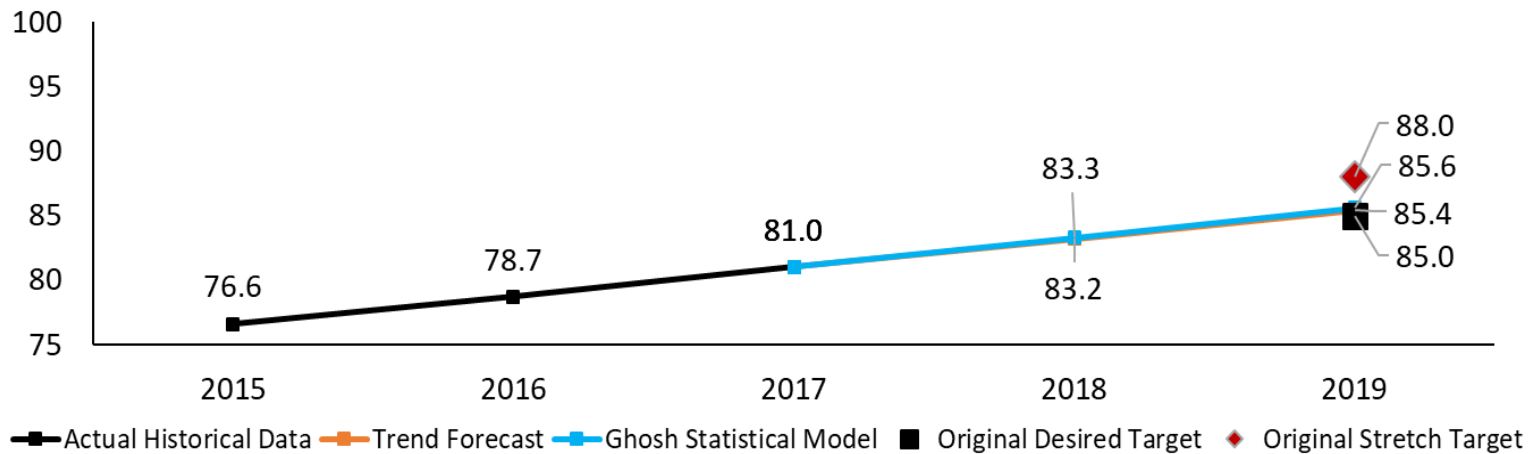
* Large increase from 2016 to 2017 should be viewed with caution; increase was state-wide suggesting possible systemic variation in scoring not specific to Broward. Continued monitoring in 2018 and beyond will be necessary to determine appropriateness for use in target setting.



Objective Models Provide “Ranges” or Midpoint for a “Single Target” (Continued)

College and Career Readiness – Graduation Rates

Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast (Desired)	76.6	78.7	81.0	2.2	83.2	85.4	4.4
Ghosh Statistical Model (Stretch)				90% CI	83.3	85.6	4.6
Midpoint between Trend Forecast & Ghosh Model					83.25	85.5	4.5
Original Strategic Plan Desired Target						85.0	4.0
Original Strategic Plan Stretch Target						88.0	7.0



Appendices

- 1. Synopsis of Computational Methods**
- 2. Assessment of Computational Methods**
- 3. Comparison of Methods:**
 - a. Literacy and Early Learning – Table – ELA/Math
 - b. Literacy and Early Learning – Graph – ELA/Math
 - c. Reimagining Middle Grades Learning – Table – ELA/Math
 - d. Reimagining Middle Grades Learning – Graph – ELA/Math
 - e. College and Career Readiness – Table – ELA/Algebra 1
 - f. College and Career Readiness – Graph – ELA/Algebra 1
 - h. College and Career Readiness – Table – Graduation Rates
 - i. College and Career Readiness – Graph – Graduation Rates
- 4. Original Strategic Plan Desired and Stretch Goals**



Synopsis of Computational Methods

Method	Sample Formula to Develop Forecasting Factor	Impact	Notes
Bottom Up	Various methods used to calculate school-level targets.	Each school specifies own target; school-developed targets aggregated to the District-level.	Decentralized target-setting approach.
Percent Over Prior Average	$[(2017/2016)-1] = \underline{x}\%$ increase for both 2018 and 2019.	Results in large increments at aggregate level; can result in targets lower than prior year at school-level.	Forecast model assumes status quo progress. Sensitive to large changes.
Trend Forecast	Regression analysis based on trend line of three previous years; projected out for both 2018 and 2019.	Results in flat to negative projections for many schools.	Forecast model assumes status quo progress.
Ghosh Statistical Model	Variables involve: school size, starting (baseline) performance confidence intervals, random variation, and specific actions.	Provides positive, aggressive targets at school and aggregate levels; sensitive to probabilistic distribution.	Target-setting model assumes systemic action to impact results.



Assessment of Computational Methods

Method	Description	Level of Objectivity	Level of Subject Matter Expert Input	Level of Buy-in
Bottom Up (Flexible)	Schools determine own growth targets then aggregated up to District target	Low/ Moderate	High	High
Percent Over Prior Average (Calculated)	Calculates increase over multiple periods (e.g., of prior two years)	Moderate/ High	Low	Moderate
Trend Forecast (Calculated)	Projected growth based on trend line of multiple prior years	Moderate	Low	Moderate
Ghosh Statistical Model (Statistical)	Probabilistic model accounting for prior performance, population, and random variability	High	Moderate/ High	High



Comparison of Methods

Literacy and Early Learning – Table

Literacy and Early Learning – ELA

Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast	51.7	52.5	55.6	1.95	57.6	59.5	3.9
% Over Prior Average				5.9%	58.9	62.4	6.8
Ghosh Statistical Model				90% CI	59.7	63.8	8.2
Florida's Historical Trend	53	53	56				

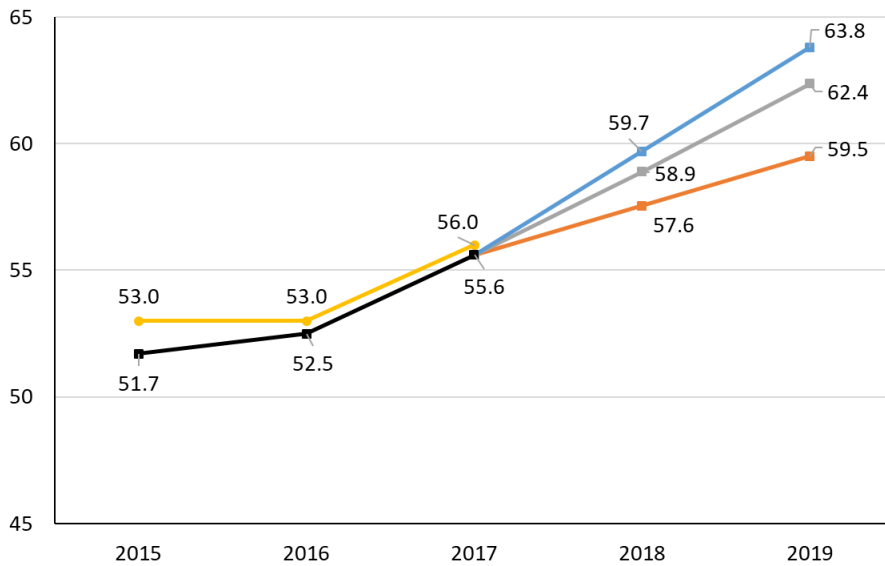
Literacy and Early Learning – Math

Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast	57.9	59.0	61.6	1.85	63.5	65.3	3.7
% Over Prior Average				4.4%	64.3	67.1	5.5
Ghosh Statistical Model				90% CI	65.6	69.5	7.9
Florida's Historical Trend	57	58	61				

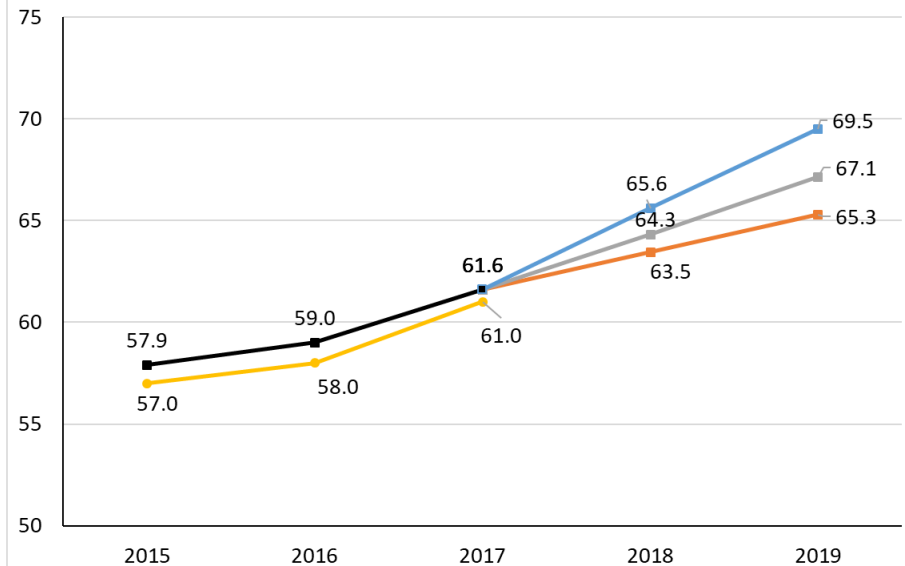


Comparison of Methods Literacy and Early Learning – Graph

Comparison of Targets - Four Computational Methods
Early Literacy ELA



Comparison of Targets - Four Computational Methods
Early Literacy Math



- Actual Historical Data
- Percent Over Prior Average
- Florida's Historical Trend

- Trend Forecast
- Ghosh Statistical Model (Principal's Choice)



Comparison of Methods

Reimagining Middle Grades Learning – Table

Reimagining Middle Grades Learning – ELA

Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast	53.9	54.0	55.2	.65	55.9	56.5	1.3
% Over Prior Average				2.2%	56.4	57.7	2.5
Ghosh Statistical Model				90% CI	57.9	60.6	5.4
Florida's Historical Trend	52	52	53				

Reimagining Middle Grades Learning – Math

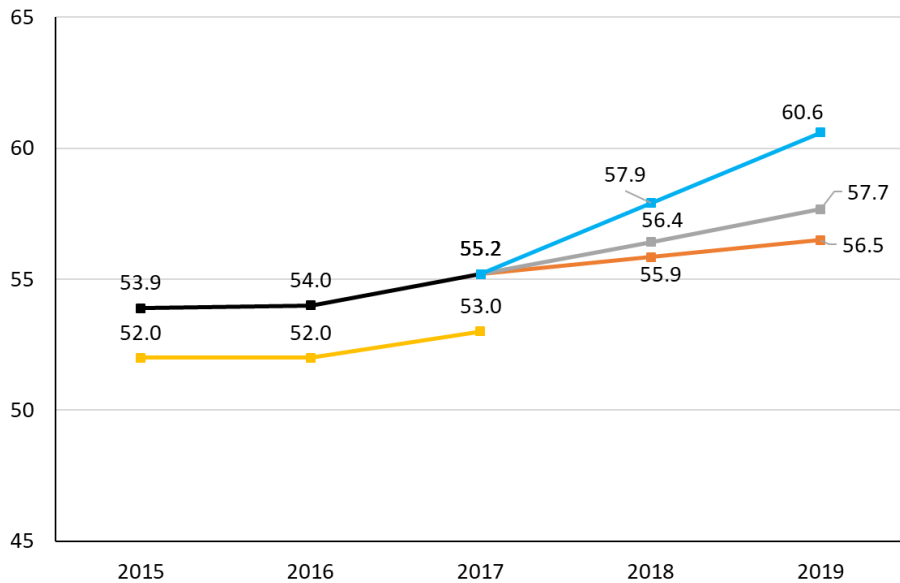
Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast	57.1	57.7	58.6	.75	59.4	60.1	1.5
% Over Prior Average				1.6%	59.5	60.4	1.8
Ghosh Statistical Model				90% CI	61.2	63.8	5.2
Florida's Historical Trend	55	56	57				



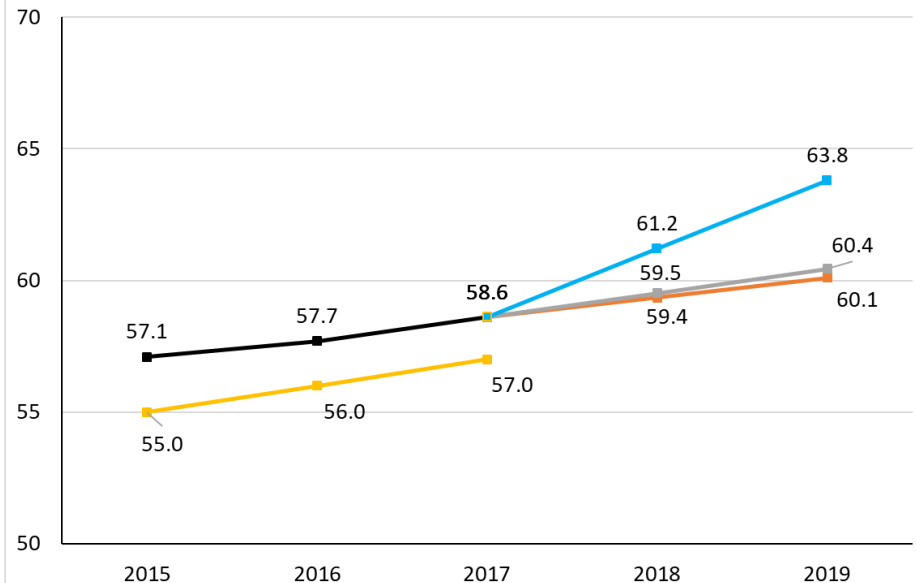
Comparison of Methods

Reimagining Middle Grades Learning – Graph

Comparison of Targets - Four Computational Methods
Reimagining Middle Grades Learning - ELA



Comparison of Targets - Four Computational Methods
Reimagining Middle Grades Learning - Math



- Actual Historical Data
- Percent Over Prior Average
- Florida's Historical Trend

- Trend Forecast
- Ghosh Statistical Model (Principal's Choice)



Comparison of Methods

College and Career Readiness – Table

College and Career Readiness – ELA

Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast	52.9	52.6	53.8	.45	54.3	54.7	0.9
% Over Prior Average				2.3%	55.0	56.3	2.5
Ghosh Statistical Model				90% CI	56.4	59.0	5.2
Florida's Historical Trend	52	50	51				

College and Career Readiness – Algebra 1

Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast	58.6	59.1	67.1*	4.25	71.4	75.6	8.5
% Over Prior Average				13.5%	76.2	86.5	19.4
Ghosh Statistical Model				90% CI	71.0	74.6	7.5
Florida's Historical Trend	56	54	60				

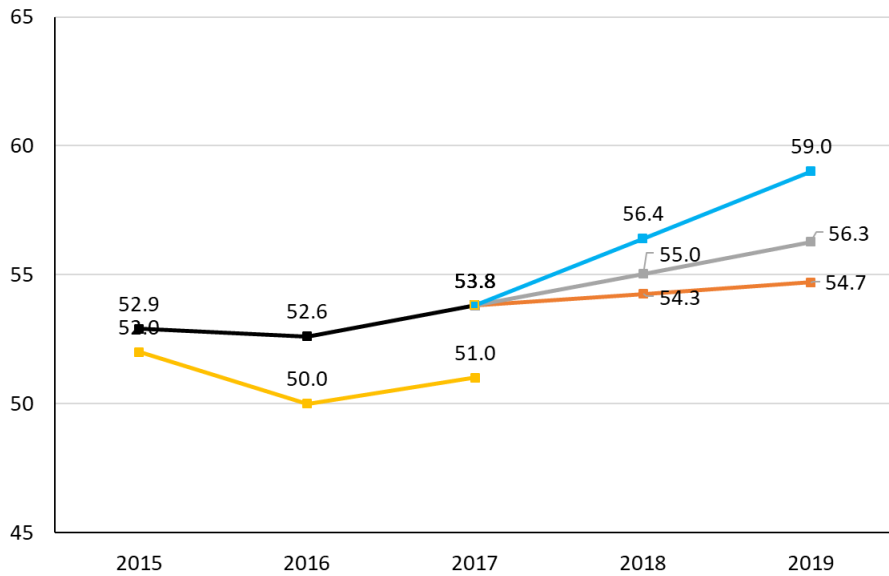
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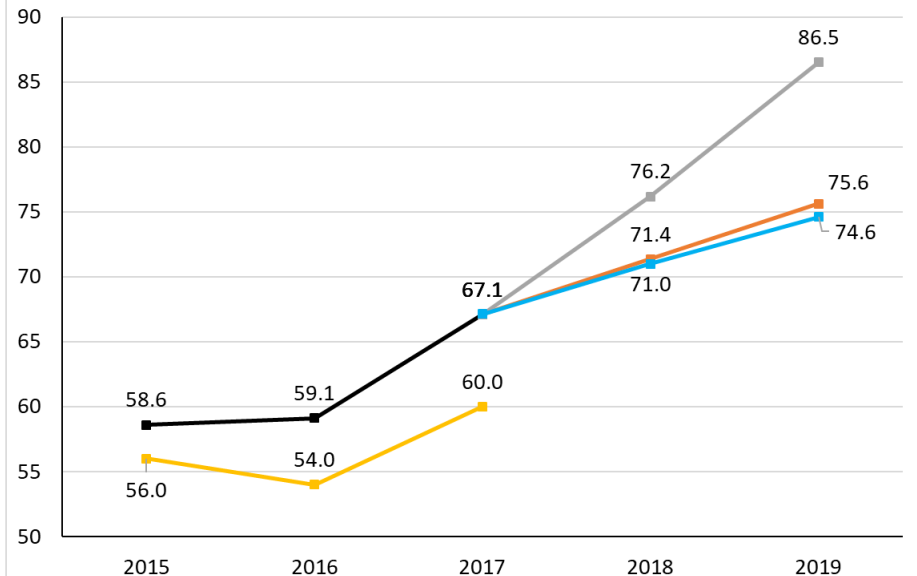
Comparison of Methods

College and Career Readiness – Graph

Comparison of Targets - Four Computational Methods
College and Career Readiness - ELA



Comparison of Targets - Four Computational Methods
College and Career Readiness - Algebra 1



- Actual Historical Data
- Percent Over Prior Average
- Florida's Historical Trend

- Trend Forecast
- Ghosh Statistical Model (Principal's Choice)



Comparison of Methods

College and Career Readiness – Table

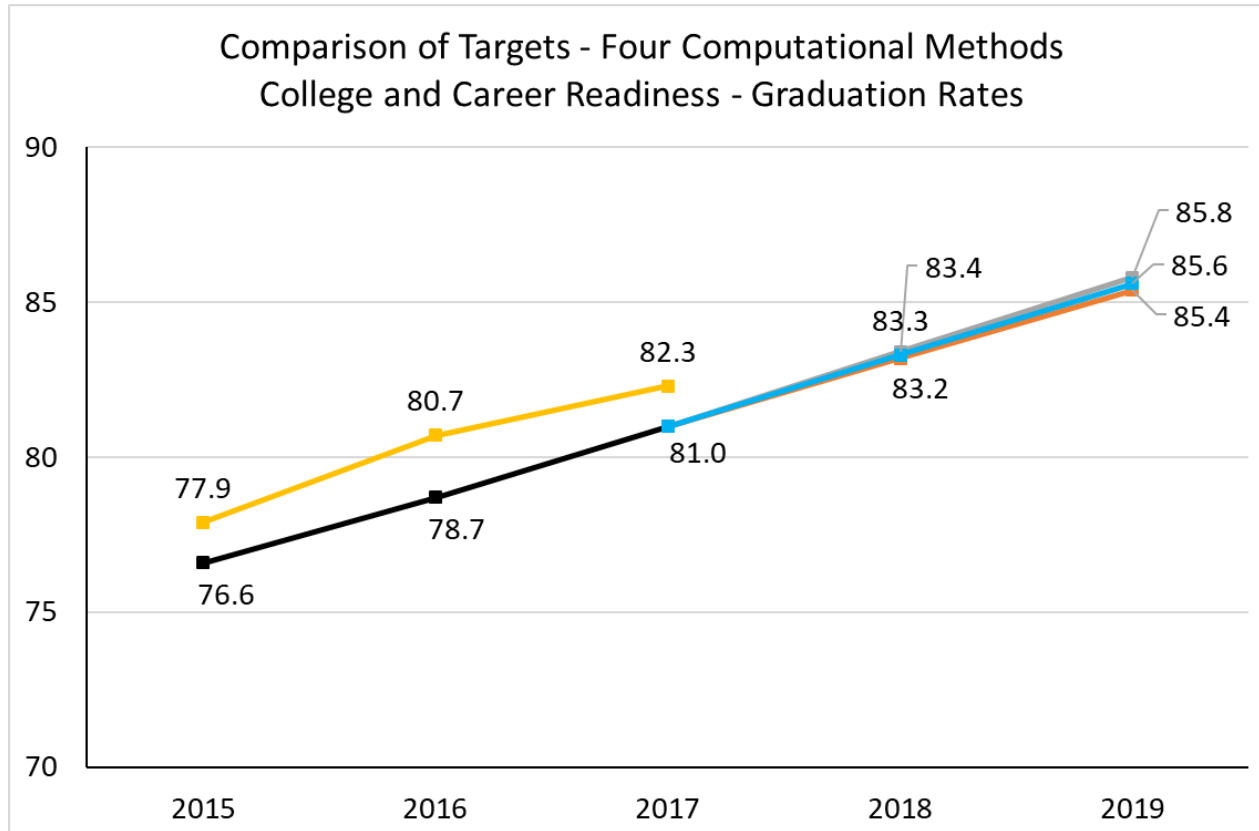
College and Career Readiness – Graduation Rates

Model	2015	2016	2017	Factor	2018	2019	Δ '19 – '17
Trend Forecast	76.6	78.7	81.0	2.2	83.2	85.4	4.4
% Over Prior Average				2.9%	83.4	85.8	4.8
Ghosh Statistical Model				90% CI	83.3	85.6	4.6
Florida's Historical Trend	77.9	80.7	82.3				



Comparison of Methods

College and Career Readiness – Graph



- Actual Historical Data
- Trend Forecast
- Percent Over Prior Average
- Ghosh Statistical Model (Principal's Choice)
- Florida's Historical Trend



Original Strategic Plan Desired and Stretch Goals

ELEMENTARY SCHOOLS	State Average	District Baseline	2019 Desired Target	2019 Stretch Target
Reading	53.0	51.7	56.7	59.6
Math	57.0	57.9	63.9	65.6
MIDDLE SCHOOLS	State Average	District Baseline	2019 Desired Target	2019 Stretch Target
Reading	52.0	53.9	56.9	59.1
Math	55.0	57.1	60.1	62.1
HIGH SCHOOLS	State Average	District Baseline	2019 Desired Target	2019 Stretch Target
Reading	52.0	52.9	58.9	60.2
Algebra 1	56.0	58.6	63.4	65.7
Graduation Rate	77.8	76.6	85.0	88.0



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