

Kiel Area School District

District-wide Capacity Study

DRAFT



CAPACITY STUDY

August 2022

BRAYARCHITECTS

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acknowledgments

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introduction

Bray Architects was asked to provide an analysis of the educational capacity of the Kiel Area School District's existing schools to support the ongoing master planning efforts of the District.

SCHOOLS IN DISTRICT	GRADES SERVED	YEAR BUILT + MAJOR ADDITIONS / RENOVATIONS
Zielanis Elementary	4K - 4th Grade	1962, 1993, 2000
Kiel Middle School	5th Grade - 8th Grade	1928, 1951, 1952, 1956, 1957, 1989, 1993, 1999, 2013
Kiel High School	9th Grade - 12th Grade	1968, 1970, 1999, 2013, 2020

OBJECTIVES / GOALS

This analysis aims to provide an optimal building capacity for each school that will allow facility decisions to be made with a clear understanding of how each existing school can accommodate potential student enrollment growth / decline and when the District should consider facilities solutions to increase / decrease capacity at given schools or grade levels.

As you will see later in the report, determining the capacity of a school is a complex effort that relies upon a number of factors, including:

- Generally accepted practices;
- Bray's experience as a leader since 1962 in K-12 planning and design; and
- Input from the District's educational leadership team regarding how the schools are currently utilized and how they are envisioned to be utilized in the future.

ADDITIONAL CONSIDERATIONS

This analysis aims to establish the optimal building capacity for each school based on classroom and other traditional learning environments. It does not evaluate the following factors that can impact capacity today or in the years to come.

- Special education – the number of students receiving special education services or the approach to main streaming as many of those students as possible into the traditional classroom setting
- Curricular shifts – the change in curriculum and / or how the current curriculum is delivered
- Non-classroom academic spaces – the size, quantity and configuration of essential, but non-traditional classroom learning and support environments, such as the cafeteria / kitchen, locker rooms, student services (guidance, social work, etc.), and support spaces for band, choir and / or orchestra.

ENROLLMENT CAPACITY

This analysis is aimed at identifying the Enrollment Capacity of each school. Enrollment Capacity, as defined by the National Center for Education Statistics publication Facilities Information Management, is "the maximum number of students that a school building can satisfactorily accommodate at one time for the particular educational program and curriculum offered."

THE METHODOLOGY

We will utilize a methodology based on class size and utilization rate to evaluate the educational capacity of each school.

This approach is impacted by many factors that are controlled by curricular delivery goals, optimal class sizes, and building operations. Because of these factors, the capacities identified in the report are not valid forever and should be re-evaluated when changes are made to each school's operations that would affect these capacity calculations.

methodology

METHODOLOGY - CLASS SIZE AND UTILIZATION RATE

This approach evaluates the number of classrooms and learning spaces at each school and then applies a class size target to each classroom and learning space. For example, if an elementary school has 20 classrooms and the class size target is 24 students per classroom, the capacity is $20 \times 24 = 480$. At the middle school and high school levels, a utilization rate is applied to each classroom to determine capacity.

This methodology is generally accepted as a reliable way to determine school capacities, but does rely on two key assumptions / variables – the class size targeted and at the middle school and high schools the utilization rate. If either of these are changed, even by only a few students or by proposing utilization one less class period per day, the capacity can be changed significantly.

CLASS SIZE TARGET

In partnership with Bray Architects, the District has established the following class size targets for calculating the enrollment capacity:

ELEMENTARY SCHOOL

GRADE/SUBJECT	TARGETED CLASS SIZE RANGE	NOTES
4-Year Old Kindergarten	18 - 22 Students	
5-Year-Old Kindergarten	18 - 22 Students	
1st Grade	18 - 22 Students	
2nd Grade	18 - 22 Students	
3rd Grade	18 - 22 Students	
4th Grade	18 - 22 Students	

methodology

MIDDLE SCHOOL

GRADE/SUBJECT	TARGETED CLASS SIZE RANGE	NOTES
Classrooms	20 - 27 Students	
F&CS	25 - 30 Students	
Business Ed.	25 - 30 Students	
Music	30 - 35 Students	
Tech. Ed.	25 - 30 Students	
Art	25 - 30 Students	
Science	20 - 27 Students	
Gymnasium	25 - 30 Students	Class size is per gym station.
Fitness	25 - 30 Students	

HIGH SCHOOL

GRADE/SUBJECT	TARGETED CLASS SIZE	NOTES
Classrooms	18 - 26 Students	
F&CS	18 - 26 Students	
Business Ed.	18 - 26 Students	
Music	40 - 60 Students	
Tech. Ed.	18 - 26 Students	
Art	18 - 26 Students	
Science	18 - 26 Students	
Gymnasium	25 - 30 Students	Class size is per gym station.
Fitness	18 - 26 Students	

* Class size targets are established for the purpose of calculating building capacity. **They should not be construed as a District objective for class size or a benchmark to which the District should be evaluated moving forward.**

methodology

APPLICATION OF A UTILIZATION RATE

After the quantity of classrooms and number of students per classroom is calculated, a utilization rate will be applied to the middle school and high school calculations.

A utilization rate will not be applied to the elementary school as the classrooms are not able to be utilized by other students when students are in art, special education, music, physical education, or other similar program.

The target utilization rate percentages are per *Calculating School Capacity: Local, State & National Perspectives*. Identified utilization rates are based on class schedules and information provided by the District.

SCHOOL TYPE	TARGET UTILIZATION RATE PER WI AVERAGE ¹	IDENTIFIED UTILIZATION RATE	NOTES
Elementary	95%-100%	100% and 200%*	95% comes from not every seat in every room being utilized
Middle School	70%-100%	80% and 50%	Core Classes = 8 of 10 periods = 80%, Electives = 50%
High School	70%-85%	80% and 50%	Core Classes = 8 of 10 periods = 80%, Electives = 50%

1. The target utilization rate percentages are per *Calculating School Capacity: Local, State & National Perspectives* presentation.

* A utilization rate of 200% was applied to 4K classrooms identified by the District as serving 1/2 day AM and PM students.

methodology capacity ranges

SUMMARY

Based on the methodology, class size and utilization rate, the capacity for each school is summarized below. The detail on how these capacities were calculated is included on the following pages.

MINIMUM

SCHOOLS IN DISTRICT	CAPACITY RANGE MINIMUM	2021-2022 ENROLLMENT	OVER (UNDER) CAPACITY
Zielanis Elementary	432	465	33
Kiel Middle School	496	347	(149)
Kiel High School	432	378	(54)
Total	1,360	1,190	(170)

MAXIMUM

SCHOOLS IN DISTRICT	CAPACITY RANGE MAXIMUM	2021-2022 ENROLLMENT	OVER (UNDER) CAPACITY
Zielanis Elementary	528	465	(63)
Kiel Middle School	637	347	(290)
Kiel High School	619	378	(241)
Total	1,784	1,190	(594)

zielanis elementary capacity analysis

ROOM NUMBER	GRADE LEVEL / SUBJECT	TARGETED CLASS SIZE	TARGETED CLASS SIZE	UTILIZATION RATE	ACTUAL CAPACITY	ACTUAL CAPACITY
		MIN.	MAX.		MIN.	MAX.
113	4-Year-Old Kindergarten	18	22	200.0%	36	44
117	4-Year-Old Kindergarten	18	22	200.0%	36	44
300	5-Year-Old Kindergarten	18	22	100.0%	18	22
302	5-Year-Old Kindergarten	18	22	100.0%	18	22
304	5-Year-Old Kindergarten	18	22	100.0%	18	22
306	5-Year-Old Kindergarten	18	22	100.0%	18	22
200	1st Grade	18	22	100.0%	18	22
202	1st Grade	18	22	100.0%	18	22
204	1st Grade	18	22	100.0%	18	22
207	1st Grade	18	22	100.0%	18	22
206	2nd Grade	18	22	100.0%	18	22
208	2nd Grade	18	22	100.0%	18	22
209	2nd Grade	18	22	100.0%	18	22
211	2nd Grade	18	22	100.0%	18	22
405	3rd Grade	18	22	100.0%	18	22
407	3rd Grade	18	22	100.0%	18	22
406	3rd Grade	18	22	100.0%	18	22
408	3rd Grade	18	22	100.0%	18	22
400	4th Grade	18	22	100.0%	18	22
402	4th Grade	18	22	100.0%	18	22
403	4th Grade	18	22	100.0%	18	22
404	4th Grade	18	22	100.0%	18	22
Total Building Capacity					432	528

kiel middle school capacity analysis

ROOM NUMBER	GRADE LEVEL / SUBJECT	TARGETED CLASS SIZE	TARGETED CLASS SIZE	UTILIZATION RATE	ACTUAL CAPACITY	ACTUAL CAPACITY
		MIN.	MAX.		MIN.	MAX.
106	7th Social Studies	20	27	80.0%	16	21
108	7th Math	20	27	80.0%	16	21
110	7th Agriculture	20	27	80.0%	16	21
209	7th ELA	20	27	80.0%	16	21
213	7th/8th Spanish	20	27	80.0%	16	21
215	6th ELA	20	27	80.0%	16	21
216	6th Math	20	27	80.0%	16	21
301	8th SS	20	27	80.0%	16	21
303	8th ELA	20	27	80.0%	16	21
305	8th Math	20	27	80.0%	16	21
310	5th ELA	20	27	80.0%	16	21
311	5th-8th Speech/Lang.	20	27	80.0%	16	21
313	5th-8th STEM	20	27	80.0%	16	21
315	5th Math	20	27	80.0%	16	21
317	5th SS	20	27	80.0%	16	21
306	5th-8th STEM	20	27	80.0%	16	21
302	Classroom	20	27	80.0%	16	21
214	6th Science	20	27	80.0%	16	21
308	5th Science	20	27	80.0%	16	21
204	7th Science	20	27	80.0%	16	21
208	8th Science	20	27	80.0%	16	21
101A	Art Room	25	30	50.0%	12	15
101B	Art Room	25	30	50.0%	12	15
xxx	Athletic Room	25	30	50.0%	12	15
411	Band Room	30	35	50.0%	15	17
103A	F&CE	20	27	50.0%	10	13
103B	F&CE	25	30	50.0%	12	15
103C	F&CE	25	30	50.0%	12	15
501	Gymnasium	25	30	50.0%	12	15
212	Multi-Purpose	18	24	50.0%	9	12
104	Music	30	35	50.0%	15	17
404	Music	30	35	50.0%	15	17
504	Tech Ed.	25	30	50.0%	12	15
509	Tech Ed.	25	30	50.0%	12	15
Total Building Capacity					496	637

kiel high school capacity analysis

ROOM NUMBER	GRADE LEVEL / SUBJECT	TARGETED CLASS SIZE	TARGETED CLASS SIZE	UTILIZATION RATE	ACTUAL CAPACITY	ACTUAL CAPACITY
		MIN.	MAX.		MIN.	MAX.
143	Social Studies	18	26	80.0%	14	20
144	Social Studies	18	26	80.0%	14	20
145	Social Studies	18	26	80.0%	14	20
148	FACE	18	26	80.0%	14	20
149	FACE	18	26	80.0%	14	20
159	Math	18	26	80.0%	14	20
166	Math	18	26	80.0%	14	20
191	Spanish	18	26	80.0%	14	20
194	Agriculture	18	26	80.0%	14	20
208	Business	18	26	80.0%	14	20
209	Comp. Lab	18	26	80.0%	14	20
212	Comp. Lab	18	26	80.0%	14	20
214	Spanish	18	26	80.0%	14	20
218	English	18	26	80.0%	14	20
219	English	18	26	80.0%	14	20
220	English	18	26	80.0%	14	20
402	Science Lab	18	26	80.0%	14	20
403	Science Lab	18	26	80.0%	14	20
404	Science Lab	18	26	80.0%	14	20
405	Science Lab	18	26	80.0%	14	20
154	Lab	18	26	80.0%	14	20
xxx	Classroom	18	26	80.0%	14	20
151	F&CS	18	26	50.0%	9	13
192	Printing	18	26	50.0%	9	13
195	Agriculture	18	26	50.0%	9	13
196	Metals	18	26	50.0%	9	13
197	Wood Shop	18	26	50.0%	9	13
198	Art	18	26	50.0%	9	13
400	Vocal	40	60	50.0%	20	30
401	Band	40	60	50.0%	20	30
406	Technology	18	26	50.0%	9	13
xxx	Fitness	18	26	50.0%	9	13
xxx	Gymnasium	25	30	50.0%	12	15
Total Building Capacity					432	619

enrollment history

School	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Zielanis Elementary	537	532	507	479	457	457	445	437	382	465
Kiel Middle School	414	417	382	358	344	345	342	353	305	347
Kiel High School	443	435	454	455	444	440	409	383	341	378
Total	1,394	1,384	1,343	1,292	1,245	1,242	1,196	1,173	1,028	1,190
Between the Lakes Virtual Academy & Kiel eSchool	-	-	-	-	-	-	-	-	132	290
Total Grade Level & eSchool Enrollment	1,394	1,384	1,343	1,292	1,245	1,242	1,196	1,173	1,160	1,480

enrollment 2021-2022

School	SPED 3YR	SPED 4YR	4K	5K	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	Total School Enrollment
Zielanis Elementary	5	5	73	62	69	75	95	81	-	-	-	-	-	-	-	-	465
Kiel Middle School	-	-	-	-	-	-	-	-	77	83	98	89	-	-	-	-	347
Kiel High School	-	-	-	-	-	-	-	-	-	-	-	-	108	96	86	88	378
Total	5	5	73	62	69	75	95	81	77	83	98	89	108	96	86	88	1,190
Between the Lakes Virtual Academy & Kiel eSchool	-	-	2	14	12	19	10	16	18	24	15	22	22	37	39	40	290
Total Grade Level & eSchool Enrollment	5	5	75	76	81	94	105	97	95	107	113	111	130	133	125	128	1,480

zielanis elementary education capacity analysis | first floor

Color Key

- 4-Year-Old Kindergarten
- 2nd Grade
- Kindergarten
- 3rd Grade
- 1st grade
- 4th Grade



kiel middle school education capacity analysis | lower level



Color Key

- Language Arts
- Foreign Language
- Social Studies
- Other
- Math
- Flex Classroom
- Science

kiel middle school education capacity analysis | second floor



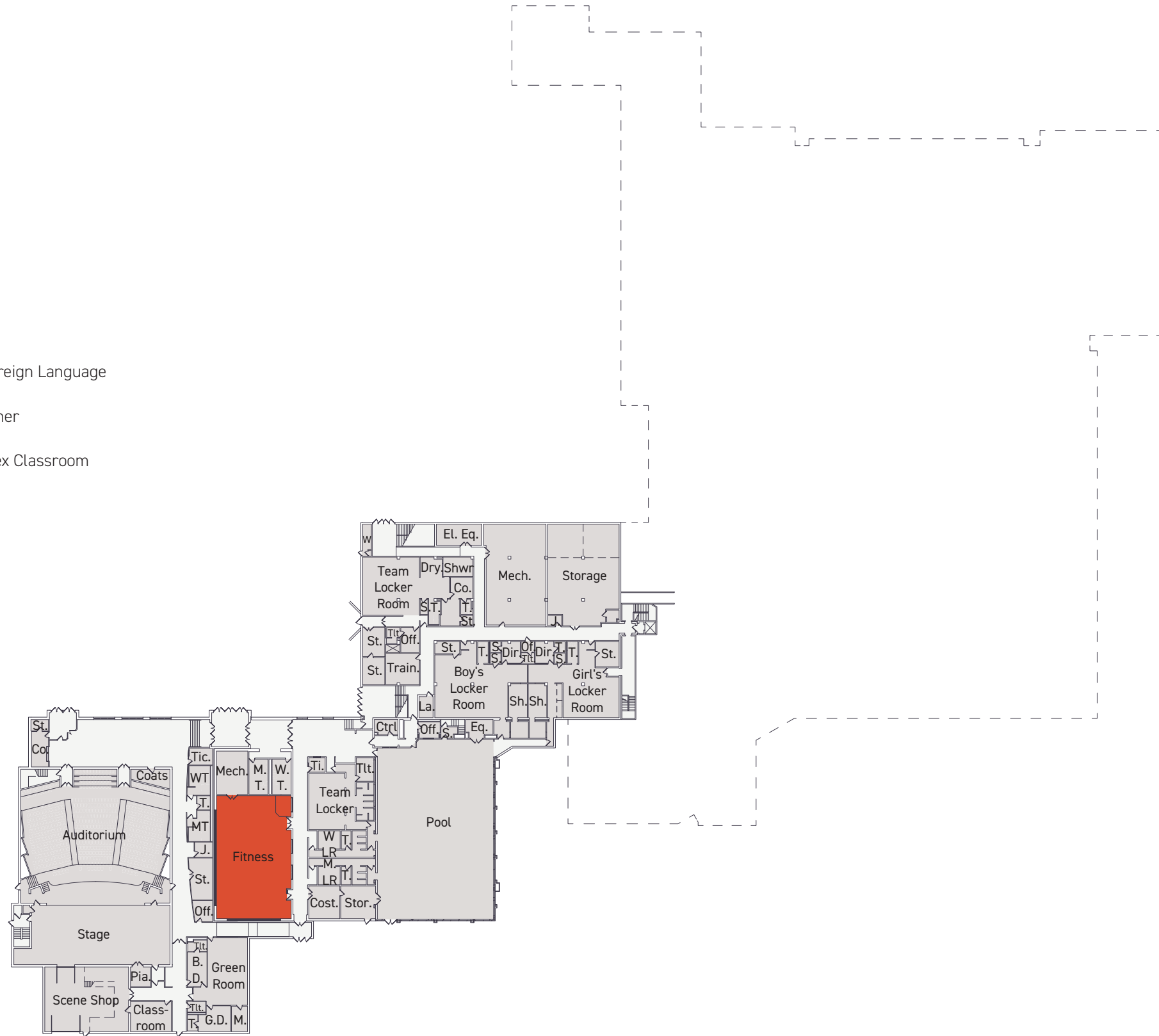
Color Key

- Language Arts
- Foreign Language
- Social Studies
- Other
- Math
- Flex Classroom
- Science

kiel high school education capacity analysis | lower level

Color Key

- Language Arts
- Foreign Language
- Social Studies
- Other
- Math
- Flex Classroom
- Science



kiel high school education capacity analysis | first and second floor

Color Key

- Language Arts
- Foreign Language
- Social Studies
- Other
- Math
- Flex Classroom
- Science

