5.0 CAPACITY AND UTILIZATION

This section examines and compares the capacity and utilization rates of Rapid City Area Schools' facilities over the ten years for the master plan.

The *functional capacity* of an educational facility is defined as the number of students the facility can accommodate. More specifically, a school's capacity is the number of students which can be accommodated given the specific educational programs, the class schedules, the student-teacher ratios, and the size of the rooms. The *utilization rate* of a facility is calculated by dividing the current or projected enrollment of the educational facility by the capacity. The utilization rate is used to determine if the facility has excess space or if it is lacking sufficient space for the given enrollment.

FUNCTIONAL CAPACITY

The *functional capacity* used by MGT is calculated using the *Instructional Space Model*. This model counts the number of the various types of instructional rooms and multiplies that number by the maximum students-per-room or the *loading* factor to identify the gross capacity for the school. The gross capacity is then multiplied by a scheduling factor, which takes into account the realities of how the space is used. Typically, not all classrooms are scheduled for every period at a middle school or high school. For example, high school students move from room to room and enroll in a variety of courses. As a result, some rooms will sit empty or will be less than fully occupied at any given time. Teacher preparation periods will also contribute to rooms not being used for instruction at a particular time. Therefore, MGT uses a 70% scheduling factor at high schools to reduce the gross capacity of the building to reflect the unused rooms. Middle schools are assigned an 80% scheduling factor. An elementary school has a much more static and consistent daily use so MGT uses a 90% scheduling factor for elementary schools.

Exhibit 5-1 on the following page lists the loading factors and scheduling factors used to calculate the functional capacities.

EXHIBIT 5-1
RAPID CITY AREA SCHOOLS
FUNCTIONAL CAPACITY LOADING FACTORS

INSTRUCTIONAL SPACE MODEL GUIDELINES	
Room Type	**Loading Factor (Students/Room)**
Pre-Kindergarten	18
General classroom grades K-2	25
General classroom grades 3-12	30
Science (6-12)	28
Vocational (6-12)	25
Music (6-12)	40
P.E. (6-12)	25
Art (6-12)	25
Computer Lab	0
K-5 Special Education self-contained	10
6-12 Special Education self-contained	12
K-5 Resource (pull-out)	0
6-12 Resource (pull-out)	0
Utilization Factor	
Elementary Schools	90%
Middle Schools	80%
High Schools	70%

Exhibit 5-2 shows how the model is used to calculate the capacity of a theoretical school.

EXHIBIT 5-2
RAPID CITY AREA SCHOOLS
EXAMPLE OF CAPACITY CALCULATION

ROOM TYPE	NUMBER OF CLASSROOMS X	STUDENTS/CLASS ROOM	=CAPACITY
General Classroom (3-12)	47	30	1,410
Science Lab Classes (6-12)	9	28	252
Computer Lab	2	0	0
Art (6-12)	3	25	75
Music (6-12)	4	40	160
Vocational (6-12)	5	25	125
PE (6-12)	5	25	125
Special Ed - Self Contained (6-12)	2	12	24
Resource (pull-out) (6-12)	0	0	0
Portable Room Count	5	0	0
		Gross Capacity (w/o scheduling factor) =	2,171
		x High School scheduling factor of	70%
		High School Capacity =	**1,520**

Exhibit 5-3 lists the capacities for the Rapid City schools as calculated using the Instructional Space Model. As the exhibit shows, the elementary schools have a total, district-wide capacity of 6,948 with an average per school capacity of 463. The middle schools have a total, district wide capacity of 3,726 with an average-per-school capacity of 745, and the high schools have a total, district-wide capacity of 4,423 with an average per school capacity of 1,474.

EXHIBIT 5-3
RAPID CITY AREA SCHOOLS
FUNCTIONAL CAPACITIES

SCHOOLS	K-5 CAPACITY
Elementary Schools	
Black Hawk ES	387
Canyon Lake ES\Kibben Kuster	302
Corral Drive ES	446
General Beadle ES	540
Grandview ES	513
Horace Mann ES	392
Knollwood ES	549
Meadowbrook ES	603
Pinedale ES	446
Rapid Valley ES	567
Robbinsdale ES	509
South Canyon ES	315
South Park ES	374
Valley View ES	617
Wilson ES	392
ELEMENTARY TOTAL	**6,948**
Middle Schools	
East MS	881
North MS	763
South MS	708
Southwest MS	710
West MS	664
MIDDLE SCHOOL TOTAL	**3,726**
High Schools	
Central HS	2,048
Rapid City HS	757
Stevens HS	1,617
HIGH SCHOOL TOTAL	**4,423**
DISTRICT TOTAL	**15,097**

Source: MGT of America, Inc., 2016.

UTILIZATION RATES

The effective management of school facilities requires a school's capacity and enrollment to be aligned. When capacity exceeds enrollment (underutilization), operational costs are higher than necessary and facilities may need to be repurposed or the facilities may need to be removed from inventory. When enrollment exceeds capacity (overutilization), the school may be overcrowded and may require capital expenditures or redistricting (adjustment to attendance boundaries) to alleviate the crowding.

Exhibit 5-4 shows the corresponding utilization rates calculated using the *functional capacities* and the current and projected enrollment at each school.

EXHIBIT 5-4
RAPID CITY AREA SCHOOLS
CURRENT AND PROJECTED UTILIZATION RATES

UTILIZATION	DESCRIPTION
> 110	Inadequate
100 – 109.9	Approaching Inadequate
85 - 99.9	Adequate
70 - 84.99	Approaching Inefficient
< 70	Inefficient

SCHOOLS	CURRENT ENROLLMENT (2015) PK-12	PROJECTED ENROLLMENT (2025) K-12	CAPACITY K-12	CURRENT UTILIZATION	PROJECTED UTILIZATION
Elementary Schools					
Black Hawk ES	458	554	387	118%	143%
Canyon Lake ES\Kibben Kuster	363	440	302	120%	146%
Corral Drive ES	484	531	446	109%	119%
General Beadle ES	490	610	540	91%	113%
Grandview ES	464	491	513	90%	96%
Horace Mann ES	322	395	392	82%	101%
Knollwood ES	484	572	549	88%	104%
Meadowbrook ES	538	614	603	89%	102%
Pinedale ES	435	482	446	98%	108%
Rapid Valley ES	563	616	567	99%	109%
Robbinsdale ES	477	583	509	94%	115%
South Canyon ES	264	292	315	84%	93%
South Park ES	353	394	374	95%	106%
Valley View ES	653	736	617	106%	119%
Wilson ES	372	435	392	95%	111%
ELEMENTARY TOTAL/AVE.	**6,720**	**7,745**	**6,948**	**97%**	**111%**

EXHIBIT 5-2 (CONTINUED)
RAPID CITY AREA SCHOOLS
CURRENT AND PROJECTED UTILIZATION RATES

SCHOOLS	CURRENT (2015) PK-12	PROJECTED (2025) K-12	CAPACITY K-12	CURRENT UTILIZATION	PROJECTED UTILIZATION
Middle Schools					
East MS	653	838	881	74%	95%
North MS	522	570	763	68%	75%
South MS	664	679	708	94%	96%
Southwest MS	686	846	710	97%	119%
West MS	670	683	664	101%	103%
MIDDLE SCHOOL TOTAL/AVE.	**3,195**	**3,617**	**3,726**	**86%**	**97%**
High Schools					
Central HS	1,902	1,913	2,048	93%	93%
Rapid City HS	386	564	757	51%	74%
Stevens HS	1,537	1,699	1,617	95%	105%
HIGH SCHOOL TOTAL/AVE.	**3,825**	**4,176**	**4,423**	**86%**	**94%**
DISTRICT TOTAL/AVE.	**13,740**	**15,538**	**15,097**	**91%**	**103%**

Source: MGT of America, Inc., 2016.

CAPACITY AND UTILIZATION CONCLUSIONS

ELEMENTARY SCHOOLS

The functional capacity for the elementary schools varies from a low of 302 to a high of 617. The district's elementary schools are being utilized at an "adequate" rate on a district-wide basis of 97%. The projected district-wide utilization for 2024-25 will grow to 111% with all but two schools over 100% utilization.

The district should examine the specific situation for the schools that are projected to have "inadequate" or "approaching inadequate" utilization rates to determine if action is required, and whether the approach will require capital improvements or redistricting. Specific recommendations will be presented in **Section 7.0** of the Master Plan.

MIDDLE SCHOOLS

The functional capacity the middle schools varies from a low of 664 to a high of 881. The district's middle schools are presently being utilized at an "adequate" rate of 86% overall, and the overall utilization is projected to increase to 97% by 2024-25.

The district is projected to have adequate capacity at the middle school level for the next ten years.

HIGH SCHOOLS

The functional capacity for the high schools varies from a low of 757 to a high of 2,048. The district's high schools are currently being utilized at an "adequate" rate of 86%, however, this rate is projected to increase to 94% by 2024-25.

The district is projected to have adequate capacity at the high school level for the next ten years.