



MEMORANDUM

To: Brett Larsen
Poudre School District

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From: Kate Doiron
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Project No.: F2434.01.001

Re: Final School Capacity Analysis

The goal of this task is to analyze existing Poudre School District (District) school facilities to produce updated Maximum Short-Term Capacity, Room Index Capacity, and National Standard Capacity designations for each school in the District. The National Standard Capacities will then be used in subsequent tasks (Task 5 – School Programming Analysis and Task 6 – Attendance Boundary Analysis) to ensure schools will meet utilization targets in the future. FLO received current capacity numbers and school floor plans in GIS format (“Floorplans_Rooms_All_Schools”) detailing each room for each school in the District, with additional attributes for room type, room sub-type, and capacity indicators. Using this data, FLO completed a draft assessment of “maximum, teaching station, and functional capacities” for each school, including a map series with symbology for each room designation, and a capacity calculation table. Following submission of a draft memo, FLO and the District met for a work session on March 1, 2023, to review the capacity designations and the assumptions for which rooms would fall into each type of capacity. Capacity definitions and assumptions were then revised for this final memo, including an updated final map series, capacity table, and GIS floor plan file.

Definitions

The District reviewed and revised the capacity definitions to include three new definitions. This memo uses the following terminology to distinguish between different types of school capacity. Each capacity size encompasses the next size down (Figure 1).

Figure 1. School Capacity Definition Relative Sizes



Room Index Capacity

This number serves as a systemic and uniformly determined reference point for capacity calculations. Room Index Capacity is calculated in different ways according to building type. At the elementary level, the index capacity is determined by placing 25 students in all classrooms (except the gym, art, and music rooms, and computer labs). At the secondary level, this number is determined by filling classrooms in a building with 30 students. Please see the “Factors to Consider When Calculating Building Capacities” section for further explanation. The Room Index Capacity is used in the calculations to determine all other building capacity types.

- Example: An elementary School has 25 classrooms that would be filled with 25 students each, which results in a Room Index Capacity of 625 students. If 2 modular buildings with 2 classrooms each were added to its school grounds, the Room Index Capacity would change to 725.
- Example: A middle school has 45 classrooms that would be filled with 30 students each, for a Room Index Capacity of 1350.
- Example: A high school has 85 classrooms that would be filled with 30 students each for a Room Index Capacity of 2,550 students. Adding one modular building with 2 classrooms would change the Room Index Capacity to 2610.

Maximum Short-Term Capacity

The total number of students that can safely be in a building as determined by index capacity (elementary school [ES]: 25, middle school [MS]: 30, high school [HS]: 30) and, for larger spaces within the building (like Gyms), by the determination of the fire marshal. This capacity number is used in temporary situations only and should only be for short periods of time. This is not a functional educational setting and teaching and learning would be minimized or completely negated in such a scenario. An example of this capacity state is when buildings are used as evacuation sites for natural disasters, or when a building system (HVAC system, electrical system) fails at a school and students need to be moved for the period of that day while repairs are made.

- Example: An elementary school has 25 home room classrooms that are designated for 25 students each. This gives that school a Room Index Capacity of 625 students. Large spaces in that building have capacities designated by fire code. The gym might have a capacity of 200, a flex room at 100, and a media center of 85. These would combine to produce a Maximum Short-Term Capacity of 1010.
- Example: A high school has a Room Index Capacity of 2550. Adding a gym capacity of 2000, a media center of 250, and a theater capacity of 600, brings the Maximum Short-Term Capacity to 5400.

National Standard Capacity

This capacity considers national norms for school building capacities. It starts with the Room Index Capacity figure, then uses a percentage calculator that is designed to account for how most schools are designed and operated. teaching schedules, Things like planning time, bell schedules, types of alternative teaching spaces (like those used for intervention and special education), unique programming needs, and shared spaces are figured into the percentage multiplier. The percentages used in this calculation are used nationally in public school planning.

- 80 percent at an elementary school

- 75 percent at a middle school
- 85 percent at a high school
- 80 percent at K-12 and 6-12 schools

As buildings approach their National Standard Capacity number, district staff should be reviewing school attendance boundary configurations, district program placement, modular classroom availability, and school of choice statistics. Appropriate recommendations for changes will be made by the supervising assistant superintendent.

Underutilized Building

When a school approaches an enrollment that is 50 percent of its Room Index Capacity number, district staff should be reviewing school attendance boundary configurations, district program placement, modular classroom placement, district enrollment projections, and school of choice statistics. When a school reaches an enrollment threshold that defines it as Underutilized, it may be considered for repurposing by consolidation or adding additional programming. The 50 percent threshold is designed to initiate the discussion on utilization, not mandate specific actions. Every school scenario is unique and the “Factors to Consider...” section below should be referenced as a part of these conversations. If determined appropriate, recommendations for changes will be made by the supervising assistant superintendent.

Special provisions will be made for geographically isolated schools when determining the underutilized threshold, so that young students are not required to ride buses for extended periods of time to reach their school. The mountain elementary schools are the only existing schools that meet this special geographic isolation provision.

Capacity Analysis

Maximum Short-Term Capacity

In consultation with the District, FLO first determined maximum short-term capacity rooms for each of the schools. This was completed through a series of assessments for different room types and sub-types and other data contained within the floorplan file. Comparing to where the floorplan file (“Floorplans_Rooms_All_Schools”) “Capacity_New” column currently equals “Yes,” FLO agreed that maximum short-term capacity should include the room types denoted as Education, Athletics, Performing Arts, Annex, and Modular. We further agreed that where “Capacity_New” currently equals “No” or is blank, maximum short-term capacity should not include the room types denoted as Hallway, Storage, Restroom, Admin, Facilities, and Other. Looking at other measures, FLO also agreed that where “Capacity_New” currently equals “No” or is blank, maximum short-term capacity should not include the following:

- Athletics with room sub-types of: Office, Locker, Locker Room (etc.), Weight Room, Changing, Concessions, Fitness Center, Fitness Studio, Laundry, Training or any Athletics rooms under 700 square feet
- Modular with room sub-type Data/Comm
- Performing Arts with room sub-types of: Outdoor Platform, Props Shop, Scene Shop, Admin or any Performing Arts rooms under 700 square feet

- Education with a room sub-type of “Flex” and a lunch space attribute of “Eating Space” (unless it is a gym/eating space) **or** a room sub-type of IS, Greenhouse, Office, Conference, Work Room **or** any Education room under 700 square feet

This left 84 total rooms district-wide where the current designation for capacity was “No” or blank and which FLO proposed be included in the maximum short-term capacity for their respective schools. Each of the below proposals were for rooms that are greater than 700 square feet. The District agreed that each of these rooms should be included in the maximum short-term capacity.

- Room sub-type is Music (one room at Dunn Elementary School)
- Room sub-type is Stage or Auditorium (nine rooms at seven schools)
- Room sub-type is Gym and school type is elementary school (19 rooms at 19 schools)
- Room type is Athletics and room sub-type is blank (one room at Poudre High School)
- Room type is Education and room sub-type is blank (two rooms at Fossil Ridge High School)
- Room type is Education and room sub-type is Media Center or Media (49 rooms at 45 schools)
- Room type is Education and room sub-type is Classroom, Student Activities, or Learning Services (three rooms at three schools)

Maximum Short-Term Capacity for each school was calculated as follows:

- Elementary Schools – 25 students per teaching station and fire marshal code capacity for any larger rooms (e.g., Gyms, Auditoria) where the data was available.
- Middle Schools and High Schools – 30 students per teaching station and fire marshal code capacity for any larger rooms (e.g., Gyms, Auditoria) where the data was available.

Further review by the District on a room-by-room basis resulted in further changes to the rooms considered under the Maximum Short-Term Capacity.

Room Index Capacity

Room Index Capacity for elementary schools only includes the homeroom classrooms, at 25 students per classroom. For middle and high schools, the District identified which teaching stations, in addition to classrooms, should be included in this capacity calculation. Further review by the District on a room-by-room basis resulted in further changes to the rooms considered under the Room Index Capacity. Modular classrooms are included in capacities for all types of schools.

National Standard Capacity

The National Standard Capacity applies a multiplier (80 percent for ES, 75 percent for MS, 85 percent for HS, 80 percent for MS/HS, and 80 percent for K-12) to the Room Index Capacity. For the purposes of this memo, all schools are assigned these multipliers to determine their National Standard Capacity. These capacities may be further adjusted up or down to account for potential program movement, optimal program sizes, or realistic utilizations in more densely populated areas of the district for their use in Task 6 (Attendance Boundary Analysis).

Capacity Factors to Consider

While reviewing the FLO analysis and the capacity considerations as a whole, the District developed a series of factors to consider when developing capacities at various levels. These factors are listed below.

1. **Teaching Spaces.** A teaching space is an environment existing for the purpose of instruction, being over 700 square feet in measured area, and containing front of classroom technology designed to display curricular content. Every school building contains teaching spaces that have been repurposed in other ways but will retain the designation as a Teaching Space for the purpose of capacity calculations.
2. **Design Capacity.** This is the function the school and individual classrooms were originally designed to serve. Over the years, the function of most of our schools has evolved. For example, most PSD elementary schools were designed to be K-6, but now they serve K-5 or PreK-5.
3. **Permanent Additions.** Permanent additions to schools over the years have adjusted the capacity of schools and the number of students the building can serve.
4. **Modular Classrooms.** Some schools have temporary modular classrooms on site, which can temporarily increase the building capacity. These rooms will be included in the capacity calculations for sites that have them. Capacity of each modular building matches that of classrooms at the given grade level in the school to which they are placed.
5. **Program Placements.** Certain classrooms in our schools are designated to serve special programs like extensive-need Integrated Services or Early Childhood. When special programs occupy a space in the school, the room and building capacity decreases because those rooms cannot be populated with the same density of students as general education classrooms due to required student-to-teacher ratios and/or unique needs of those populations.
6. **Student Count.** For the purpose of calculating capacities in PSD, 14 students per classroom in Early Childhood, 25 students per classroom at the elementary level, and 30 students per classroom at the secondary level will be used. Although those student numbers represent national standards for calculating capacity, principals and School Accountability Committees can opt to lower or raise that number depending on the needs of their school and the size of the classroom.
7. **Center-Based Teaching Space Designation.** Some rooms at each site are designated as teaching spaces but do not operate at the recommended 14, 25, or 30 students per classroom based on the grade level designation. Extensive Integrative Services programs (Autism, SIED, ILS) must operate with different adult-to-student ratios than general education classrooms and therefore will have a capacity of 10 students for the purpose of determining building capacity.
8. **Intervention Teaching Spaces.** Most schools were designed and built before formal intervention classrooms were commonplace in PSD. Many buildings shift full-size classrooms to become intervention teaching spaces, and thus remove the room from use as a homeroom or subject area classroom.
9. **Uncommon factors.** Sometimes capacities change because of things that are out of the control of the school or district. These uncommon factors should be taken into account when determining and evaluating building capacities.

10. **Student Based Budgeting (SBB) Allocations.** Schools obtain their budget for both staffing and operational expenditures based on the pupil count and the factors associated with the type of pupils that attend a school. Schools with the exact same student count will not receive the same funding because student demographics will never match exactly. On top of SBB, schools that qualify for Title funds receive additional funding to support students with higher needs. One can assume that a school with Title funding support is more solvent at a lower student count than a school without a Title designation. There is a school size index that provides additional funding for smaller schools.
11. **Room Types.** Room types are treated differently based on grade level. An earlier example that elementary schools only count their homeroom classes in determining school capacity is an example of this - encore/elective classes in spaces like gyms, media centers, art and music rooms, and computer labs are not a part of this calculation. At the secondary level, classes are regularly scheduled into encore/elective classrooms in the same way they are scheduled in core classrooms, and these encore/elective classrooms will be counted toward a building's capacity at 30 students/room. A grid explaining these types and if they count into capacity is below (Figure 1).

Figure 1. Room types included in Room Index Capacity for Middle Schools and High Schools

Room Type	Middle School (Yes/No)	High School (Yes/No)
Art Rooms	Count one room at a MS	Count all rooms at HS
Computer Labs	Yes	Yes
CTE Business Rooms	Yes	Yes
CTE Metals	One class uses 2 rooms	One class uses 2 rooms
CTE Robotics	Yes	Yes
CTE Woods	One class uses 2 rooms	One class uses 2 rooms
Gym (main)	Yes	Yes
Gym (aux)	No	Yes
Gym (wrestling)	No	No
Flex Rooms	No	Yes
Weight Rooms	No	Yes
Lecture Halls	No	Yes
Media Center	No	No
Auditorium/Stage	Yes	Yes
Black Box/Mini Theatre	No	Yes
Band Room	Yes	Yes
Choir Room	Yes	Yes
Orchestra Room	Yes	Yes

Attachments

Attachment 1: Final PSD School Capacity Map Series

The school capacity map series shows the floor plan for each school, separated into several maps for basement, first, and second floors as needed. The school's name is at the top of the page and an indicator for the first or second floor view. All rooms shown in gray on the map are non-capacity rooms.

Rooms with a black outline are rooms that are considered part of a school's Maximum Short-Term Capacity. Rooms with black hashed lines are considered part of a school's Room Index Capacity.

Attachment 2: Final School Capacity Table

The school capacity table mirrors the final map series, where any rooms with a black outline are considered part of the Maximum Short-Term Capacity and any rooms with the black hashed lines are included in the Room Index Capacity. National Standard Capacity is not shown on the maps but is included in the table as a percentage of the Room Index Capacity. The current capacity numbers are shown alongside these new capacity numbers for reference.

Attachment 3: Updated GIS Floor Plan File

FLO preserved all capacity edits in a new copy of the "Floorplans_Rooms_All_Schools" GIS file. Five new fields were added to the file, four containing whether a room is included in one of two capacity types, and what the capacity of that room is. One additional field contains some edits to the Room Sub-Type field that FLO made as a result of District discussions.

New Fields:

- MaxShortTermCapacity_Room (Y/N): Defines whether a room is included in the Maximum Short-Term Capacity
- MaxShortTermCapacity (Integer): Details the capacity number for that room
- RoomIndexCapacity_Room (Y/N): Defines whether a room is included in the Maximum Functional Capacity
- RoomIndexCapacity (Integer): Details the capacity number for that room
- FLO_Room_Sub_Type (Text): Contains updates to the original Room Sub-Type field