

# **DPS SchoolChoice: How it All Works**

Winter 2018

**Purpose of this Presentation: To give families a more detailed understanding of how the choice system works, including:**

- *Historical context*
- *Overview of the choice system*
- *Key inputs to the system*
- *Sample of how the matching works*

# Historical Context

*Prior to 2011-12, families had to complete different applications for different schools on different timelines. Some students were accepted into 10 schools, other students were not accepted anywhere.*

*In January 2012, unified SchoolChoice was implemented to simplify the enrollment process for families and ensure equitable access to all schools.*

# What is the “System”?

- Based on the 2012 Nobel Prize of Economics-winning principles of applied game theory by Dr. Al Roth
- Implemented first in New York City over 10 years ago.
- All public schools in Denver: district, charter, or magnet all participate in the same system. Denver is the only district in the country with all schools participating.
- **511: 5** Choice selections, **1** timeline, **1** application

# Philosophy of the System

- Seeks to maximize the number of students getting their most preferred option, subject to space.
- Balances students preferences with a set of admissions priorities for schools, such as:
  - Neighborhood preference / boundary
  - Siblings
  - Other considerations (children of full-time school-site staff members, qualification status, socioeconomic diversity, etc.)

# Types of Boundaries

## Guarantees

Colorado statute requires that DPS guarantee students a seat at a given school (boundary) or set of schools (enrollment zone) for kinder through 12<sup>th</sup> grade.

## Boundary

A geographic area where the students residing within it are guaranteed enrollment at a school.

Examples include: North HS, Edison ES

## Enrollment Zone

Geographic area where the students residing within it are guaranteed a seat at one of several schools, but not at any one particular school within that zone.

Examples include Lake MS Zone, West MS Zone

# Types of Schools in Choice

## Boundary

A geographic area where the students residing within it are guaranteed enrollment at a school.

Examples include: North HS, Beach Court ES  
There are roughly 100 boundary schools in DPS.

## Enrollment Zone

A geographic area where the students residing within it are guaranteed a seat at one of several schools, but not guaranteed a seat at any one particular school within that zone.

Examples include West MS Zone, Stapleton ES Zone  
There are 14 enrollment zone schools in DPS with over 70 schools.

## Non-Boundary Schools

Schools that do not serve either a boundary or a zone. Some of these schools have qualification requirements, like Denver Schools of the Arts. There are roughly 70 non-boundary schools in DPS, of which roughly 20 primarily serve off-track students.

# Rounds of Choice

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
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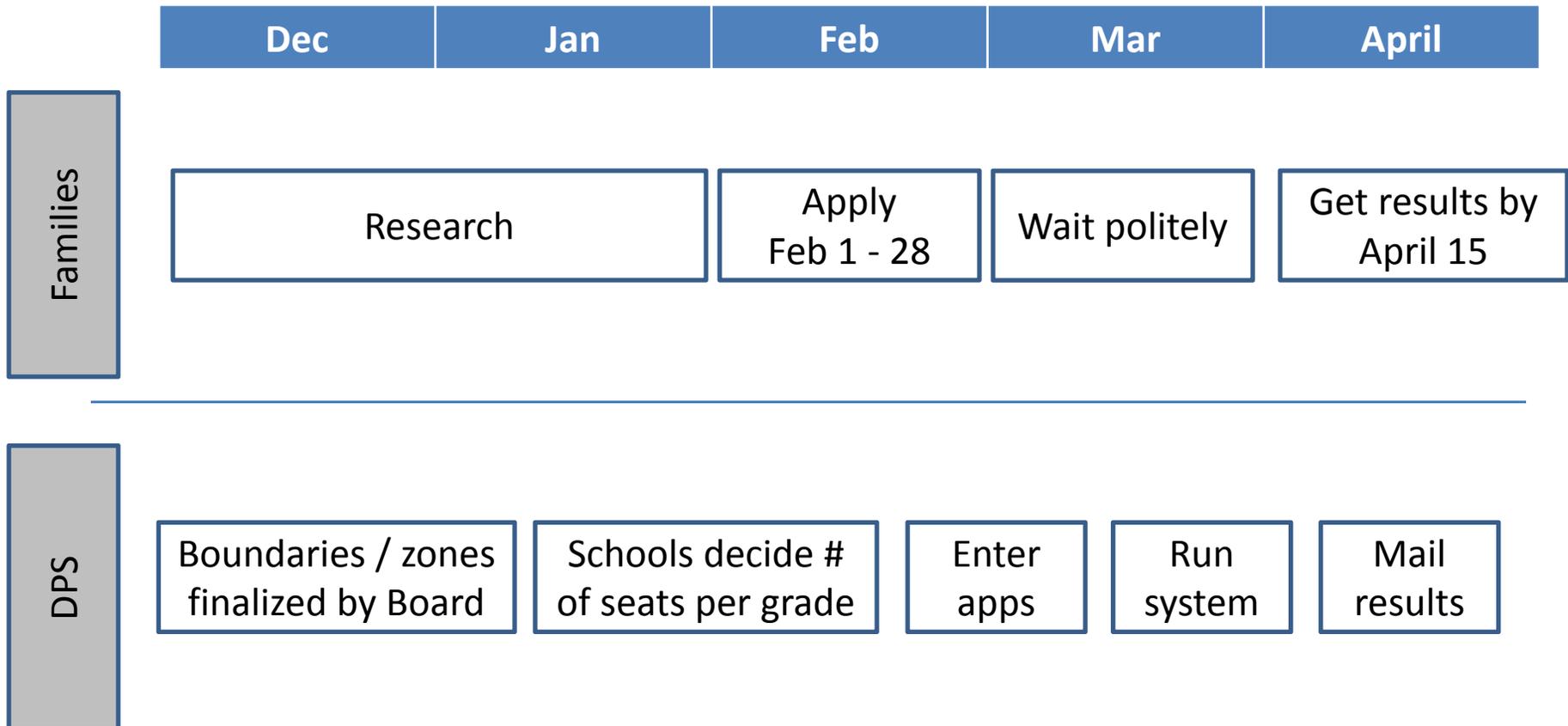
Round 1

- Transition grades
- Anyone wanting to change schools

Round 2

- Opens after Round 1 results are released
- Families who did not participate in Round 1
- Families who want to change their mind

# Timeline of Round 1 Activities



# Who participates in Choice?

- Majority of applications are for students who are transitioning from one school to another. Often this occurs going into kindergarten, 6<sup>th</sup> grade, and 9<sup>th</sup> grade.
- Some schools have different transition grades (for instance, Montessori programs transition after 6<sup>th</sup> grade)
- DPS has the highest participation rates in the United States.
- In every middle school enrollment zone, participation rates exceed 90% due to high outreach by schools and the Office of Choice & Enrollment.

# Key Components of the System

## School Capacity: # of seats

- # of students by grade
- Factors in the number of students already at the school in the preceding grade

## School Priority Structure

- Boundary
- Enrollment Zone
- Non-boundary

## Student Profile

- Age / grade
- Address
- Siblings
- Up to 5 preferences
- Random lottery number between 1 and 999,999
- Other factors like language, FRL

# What determines each component of the System?

School  
Capacity:  
# of seats

- Determined by the school leader in January-February

School  
Priority  
Structure

- Determined by board policy and principal / CSC agreement

Student  
Profile

- Determined by information in Infinite Campus and the Choice application

# System Components

## Capacity: # of seats

- # of students desired by grade
- Factors in the number of students already at the school in the preceding grade

## Priority Structure

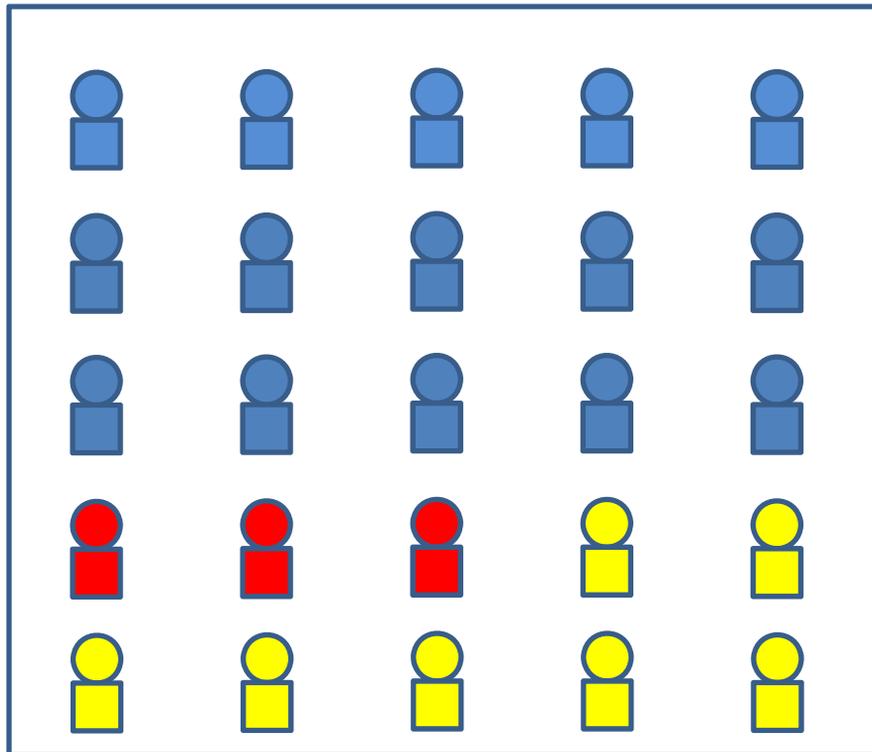
- Boundary
- Enrollment Zone
- Non-boundary

## Student Profile

- Age
- Address
- Siblings
- Random lottery number between 1 and 999,999

# How is capacity set? Entry Grades

## Kindergarten classroom (or 6<sup>th</sup> or 9<sup>th</sup> grades)



- School leaders determine based on building and classroom space
- DPS Choice & Enrollment Services uses 3 years of historical data to help inform sizes



Students who reside in the boundary

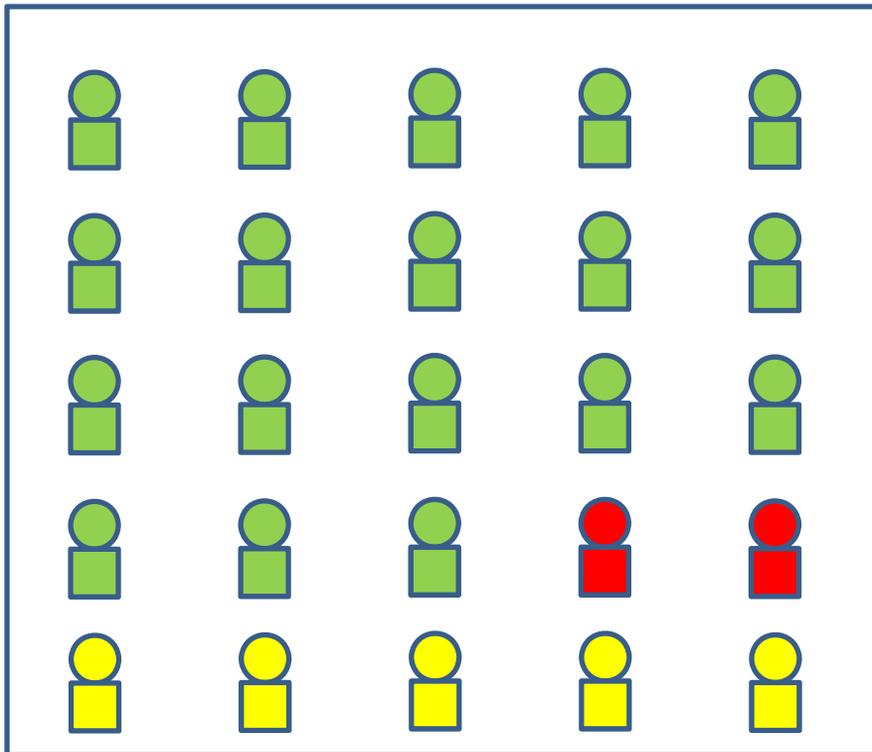


Students who move-in new to the boundary between Mar 1 and Oct 1



Seats entered into the choice system

# How is capacity set? Re-enrolling Grades (most grades other than K, 6, 9)



- School leaders determine based on building and classroom space
- DPS Choice & Enrollment Services uses 3 years of historical data to help inform sizes



Students already attending the school who will reenroll



Students who move-in new to the boundary between Mar 1 and Oct 1



Choice seats. Note there are generally much fewer seats offered in returning grades

# System Components

## Capacity: # of seats

- # of students desired by grade
- Factors in the number of students already at the school in the preceding grade

## Priority Structure

- Boundary
- Enrollment Zone
- Non-boundary

## Student Profile

- Age
- Address
- Siblings
- Random lottery number between 1 and 999,999

# How do you decide who gets in?

If there are more students applying to a school than there are seats at a school, the choice system has to **prioritize** students to determine who is assigned.

There are three types of school set-ups for choice, each of which has a standard set of system **priorities**.

1. Boundary schools
2. Shared Enrollment Zone schools
3. Non-boundary schools, including qualification schools

# System Priorities: Boundary schools

While some schools have a variation, most boundary schools follow a standard set of priorities.

#1 (Guarantee)	Students residing in the boundary
#2	Children of full-time staff members at that school
#3	Students with a sibling currently attending the school
#4	Denver residents
#5	Non-Denver residents

# System Priorities: Enrollment Zone schools

While some schools have a variation, most zone schools follow a standard set of priorities. Note that no students have a guaranteed seat at a particular zone school.

- |    |  |
|----|--|
| #1 | Children of full-time staff members at that school     |
| #2 | Students with a sibling currently attending the school |
| #3 | Zone residents   |
| #4 | Denver residents                                       |
| #5 | Non-Denver residents                                   |

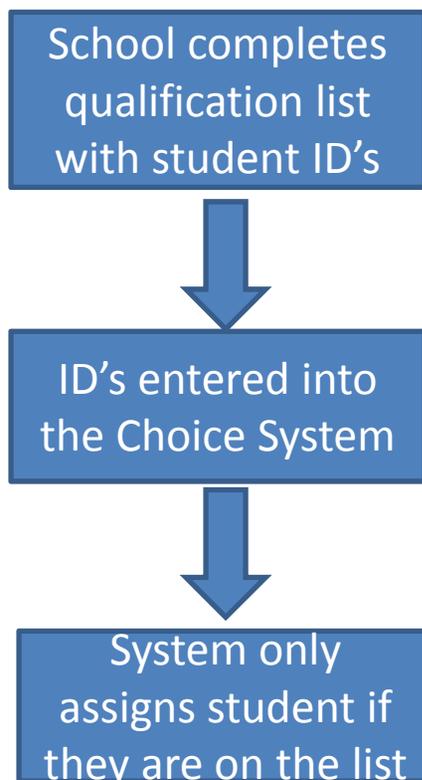
# System Priorities: Non-boundary schools

While some schools have a variation, most choice schools follow a standard set of priorities. Note that no students are guaranteed assignment at a non-boundary school.

#1	Children of full-time staff members at that school
#2	Students with a sibling currently attending the school
#3	Neighborhood preference (if applicable)
#4	Denver residents
#5	Non-Denver residents

# System Priorities: Qualification schools

Denver Public Schools has very few schools where an application / audition is required for enrollment, such as Denver School for the Arts or Polaris. Students must complete this step to be included on a qualification list that is then entered into the system.



Priorities for Students on Qualification List	
#1	Children of full-time staff at the school
#2	Students with a sibling at the school
#3	Neighborhood preference (if applicable)
#4	Denver residents
#5	Non-Denver residents

# How do I know what the priorities are for each school?

They are published on the DPS Choice website each January.

School Name	2016-17 Grade Levels	Boundary	Enrollment Zone	Non-boundary
<b>Elementary Schools</b>				
Academy 360	EC-5			Charter
Amesse	EC-5	X		
Archuleta	K-5	X		Advanced Kinder, Gifted Magnet
Asbury	K-5	X		
Ashley	EC-5	X		
Barnum	EC-5	X		
Beach Court	EC-5	X		
Bradley International	EC-5	X		
Bromwell	EC-5	X		
Brown International	EC-5	X		
Carson	EC-5	X		Gifted Magnet
Castro	K-5	X		
Centennial	EC-5	X		
Cheltenham	EC-5	X		
CMS Community	EC-5	X		
Cole Arts & Science Academy	EC-5	X		

<http://schoolchoice.dpsk12.org/school-admission-priorities/>

# System Components

## Capacity: # of seats

- # of students desired by grade
- Factors in the number of students already at the school in the preceding grade

## Priority Structure

- Boundary
- Enrollment Zone
- Choice
- Qualification

## Student Profile

- Age
- Address
- Siblings
- Random lottery number between 1 and 999,999

# Student Profile

Gathered from the application as well as existing student information in Infinite Campus. Among the data points used for where a student is guaranteed a seat and also where they are prioritized for other schools:

- School Preferences, in order
- Age / Grade
- Primary Address if in a split household
- Current school
- Siblings
- If parent/guardian is FTE
- Random lottery number
- Language preference
- Socioeconomic status
- Qualification status
- Center-based program IEP

# Ready for Launch

By March, the system is now loaded with the following information

Capacity:  
# of seats

Priorities

Student  
Profile

# How Do Students Get Assigned to Schools?

## SchoolChoice Assignment Tool Simulation

# How Do Students Get Assigned to Schools?

The system is dynamic and is doing two things at once:

1. Filling the available seats at each school according to the priority rules for those seats
2. Maximizing the # of students assigned to their most-preferred school

# Part 1: School-Based View of the System



# School Profile & Applicant Pool

## Scenario:

- Broncos Elementary has 25 kindergarten seats and 50 applicants
- Broncos Elementary serves a boundary

## Applicants:

- 15 neighborhood students
- 5 choice-in students with siblings at the school
- 20 Denver residents
- 10 Non-Denver residents



# School Priority Structure

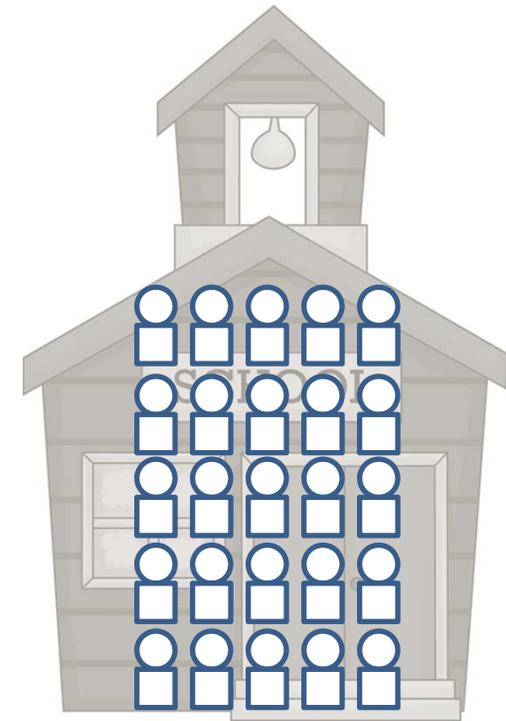
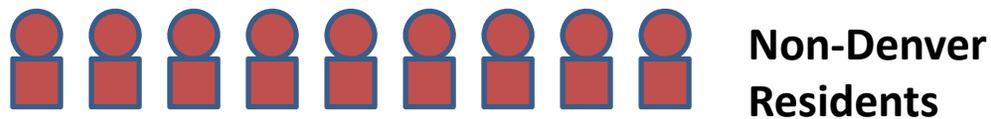
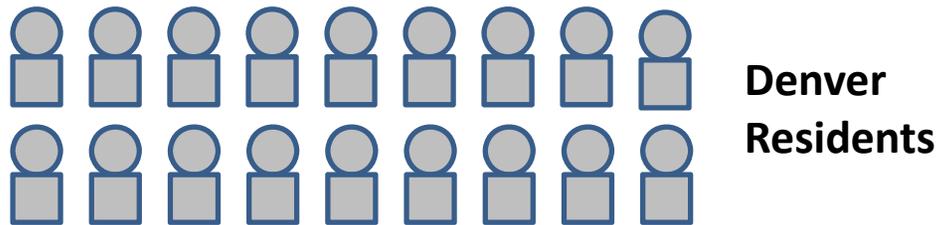
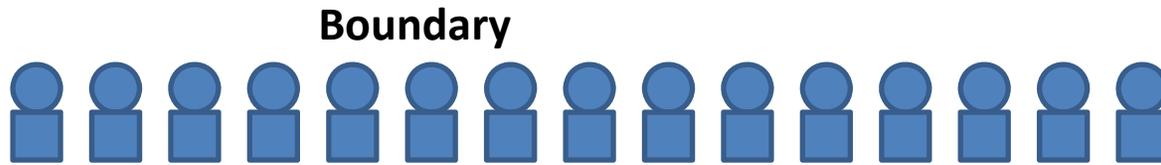
Since there are more applicants than there are seats at Broncos Elementary, the choice system has to prioritize students to determine who gets assigned.

School Priorities in Choice System:

1. Boundary students
2. Siblings of currently attending students
3. Children of full-time school staff
4. Denver residents
5. Non-Denver residents



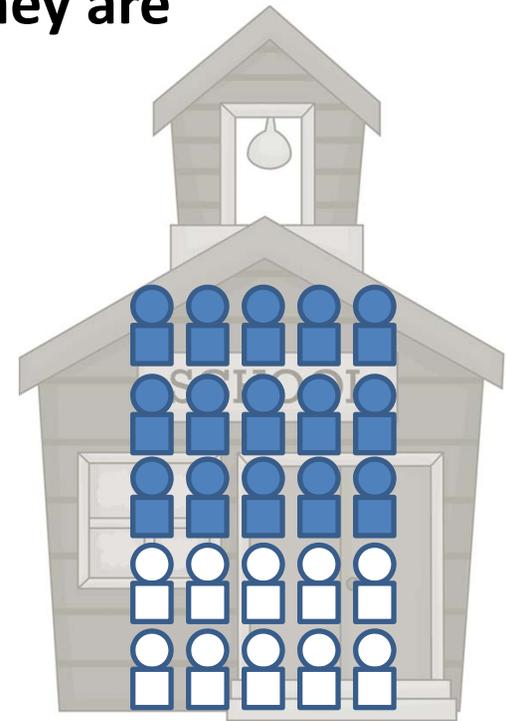
# Students are assigned to the highest applicable priority based on their student profile.



25 seats open

# System now assigns students based on their priority

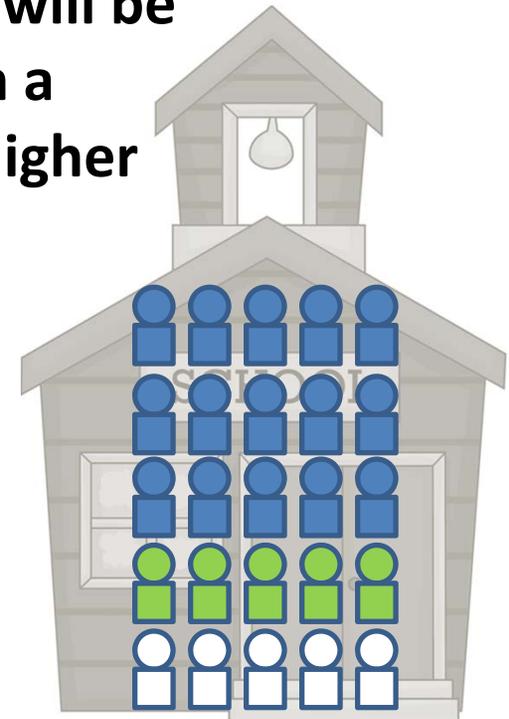
Since the first priority in the system for Broncos Elementary is to assign boundary students, they are each assigned



**15 of the 25 kindergarten seats are now full**

# System now assigns students based on their priority

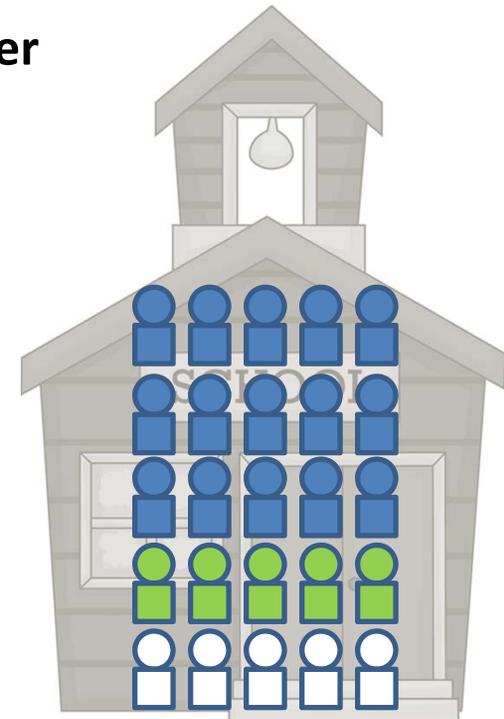
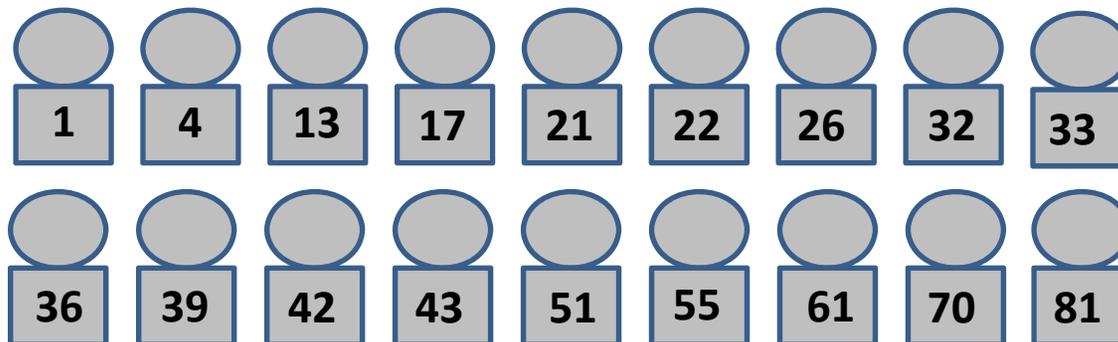
The next priority in the system for Broncos Elementary School is for siblings of current students who will be returning next year. Note that if you are both a boundary student and a sibling, you get the higher priority, which would be a boundary student.



All 5 siblings are assigned and now 20 of the 25 seats are full

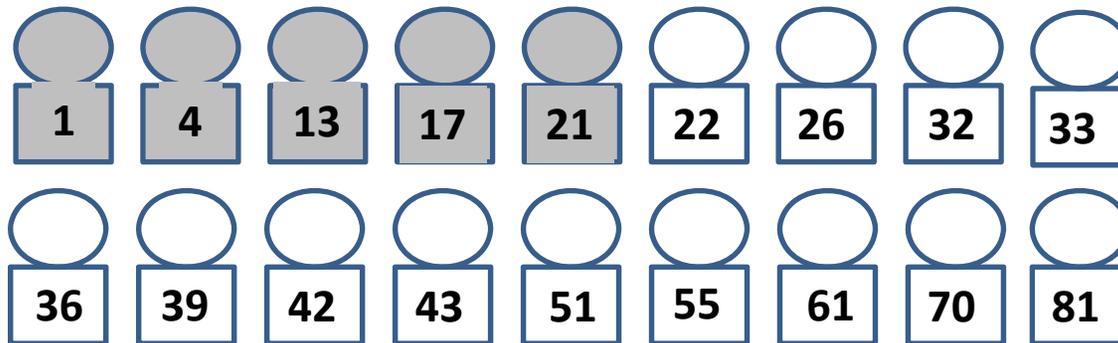
# System now assigns students based on their priority

The next system priority is for Denver residents. There are 20 Denver resident applicants, but only 5 seats remaining. The system now looks at the lottery number of each student to determine assignment.



# System now assigns students based on their priority

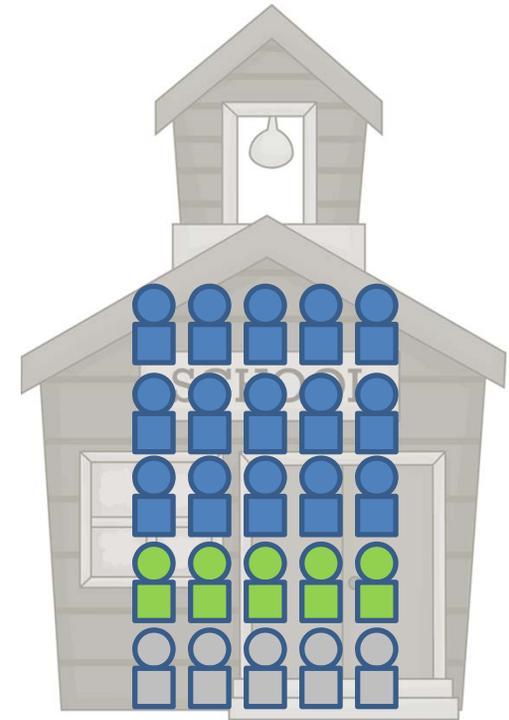
The system continues assigning students within this group starting with the lowest lottery number until all seats are full. The remaining students are then put on the waitlist in the order of their lottery number.



Assigned



Waitlisted



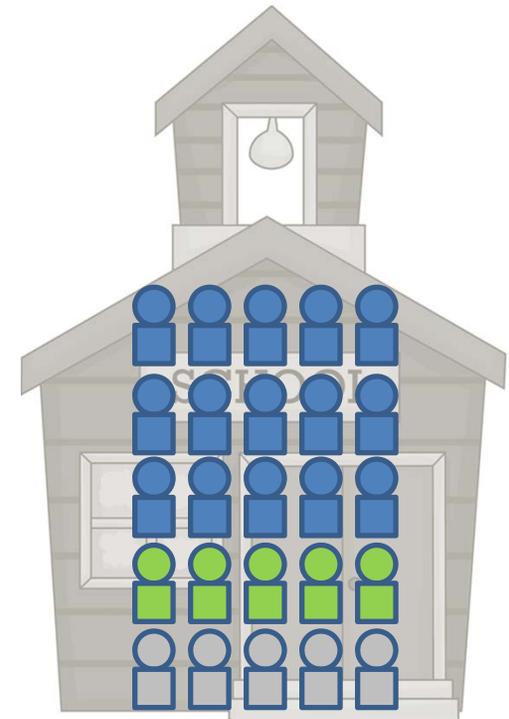
All seats are now full and remaining students are waitlisted

# System now assigns students based on their priority

Students from the remaining priority groups are also waitlisted in the order of their lottery number within their waitlist



Non-Denver Residents



## Part 2: Student-Based View of the System



# Student Profile



Name: Peyton Elway

Submitted application online because he's a cool kid

Currently an 8<sup>th</sup> grader at Rockies Middle School

Going into 9<sup>th</sup> grade next year

Lives in the Buchanan High School Boundary

Does not have any siblings

System randomly assigned lottery # 456,789  
(remember, numbers are between 1 and 999,999)

# Student Choices



1<sup>st</sup> Choice: Fillmore High

2<sup>nd</sup> Choice: Van Buren High

3<sup>rd</sup> Choice: Polk High

4<sup>th</sup> Choice: Pierce High

5<sup>th</sup> Choice: Buchanan High

# System Priorities are assigned for Each Choice



1<sup>st</sup> Choice: Fillmore High – Denver resident

2<sup>nd</sup> Choice: Van Buren High – Denver resident

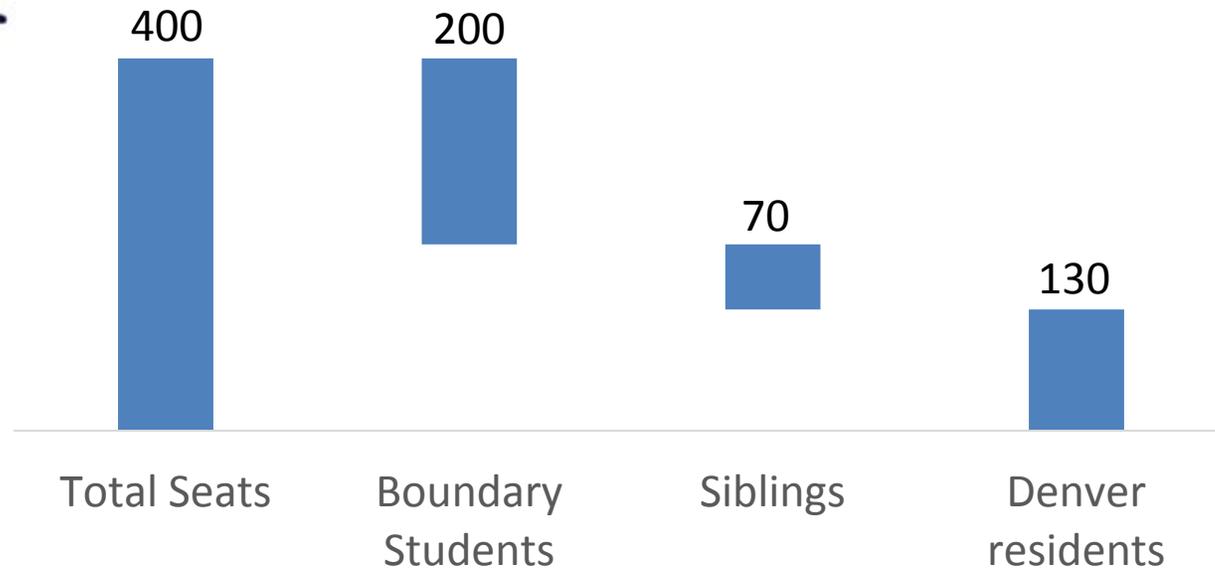
3<sup>rd</sup> Choice: Polk High – Denver resident

4<sup>th</sup> Choice: Pierce High – Denver resident

5<sup>th</sup> Choice: Buchanan High – Boundary resident

# Algorithm run: School #1

## Fillmore High: Denver resident priority



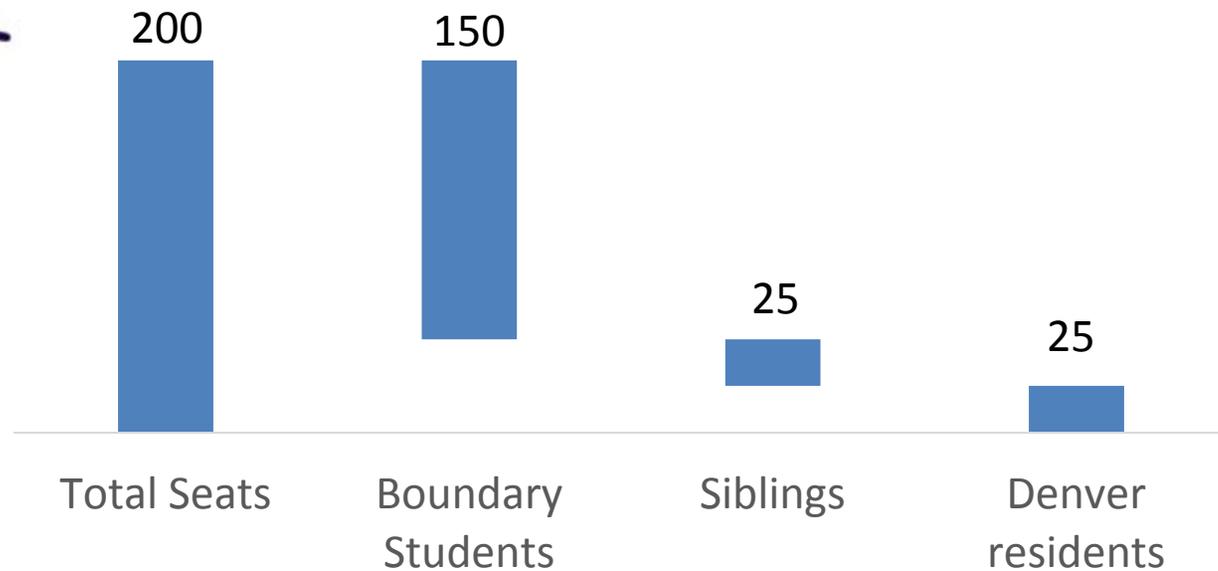
200 Denver residents applied for 130 seats.

Peyton has the 135<sup>th</sup> best lottery number within this group.

**Peyton has been waitlisted at #5 for Fillmore High.**

# Algorithm run: School #2

## Van Buren High: Denver resident priority



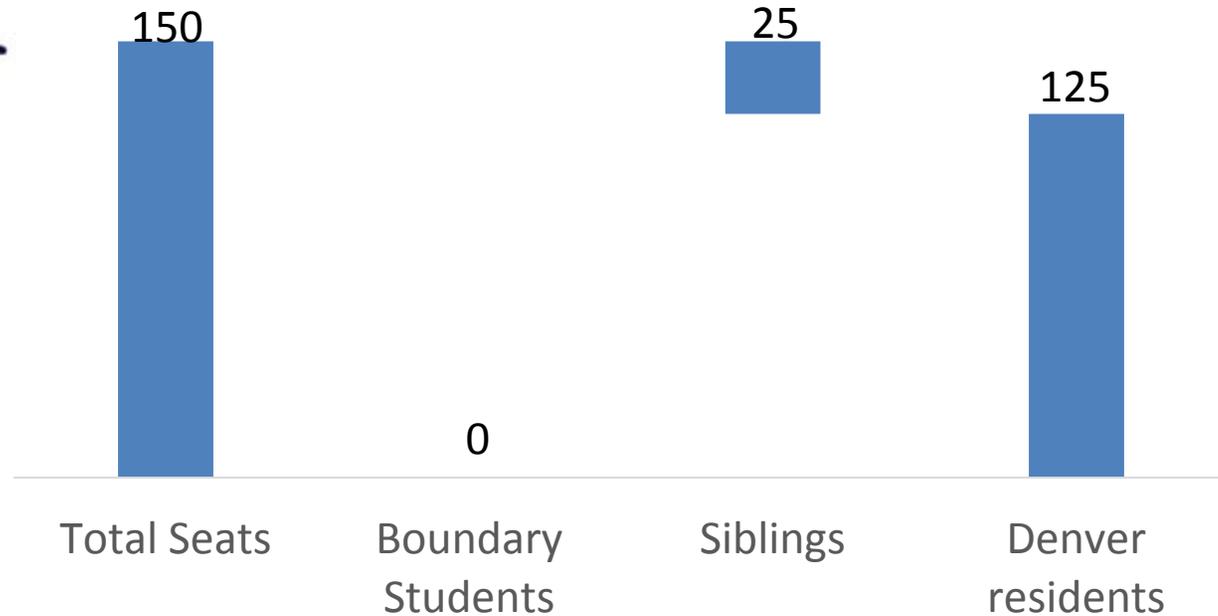
150 Denver residents applied for 25 seats.

Peyton has the 80<sup>th</sup> best lottery number within this group.

**Peyton has been waitlisted at #55 for Van Buren High.**

# Algorithm run: School #3

## Polk High: Denver resident priority



200 Denver residents applied for 125 seats.

Peyton has the 60<sup>th</sup> best lottery number within this group.

**Peyton has been assigned to Polk High!!!**

## Algorithm run: School #4 and #5 and forfeiting a seat at your boundary school



Since Peyton was assigned to his 3<sup>rd</sup> choice, his choice records for choices #4 and #5 were inactivated.

Since Peyton was assigned to a higher choice than his boundary high school, he has now forfeited his seat at his boundary school.

If Peyton were to change his mind and want to attend his boundary high school, he would have to submit a round 2 choice form. In round 2, boundary preferences no longer apply, it is based on first-come first-serve.

# Summary of Student Choice Outcome



**1<sup>st</sup> Choice: Fillmore High – waitlist #5**

**2<sup>nd</sup> Choice: Van Buren High – waitlist #55**

**3<sup>rd</sup> Choice: Polk High - ASSIGNED**

**4<sup>th</sup> Choice: Pierce High - inactivated**

**5<sup>th</sup> Choice: Buchanan High -inactivated**

# Dynamic Nature of the System



**This presentation showed the two major components of the system separately.**

**When the system is run, it is seeking to balance filling seats according to the priorities of the school while also seeking to maximize the number of students getting their most-preferred option.**

# Questions?

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