

Bell Time Study

October 2021 - February 2022

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c e s o • Rethink Possible

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Introduction

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Bell Time Study Process

Interview Stakeholders

Audit Current Configuration

Identify & Prioritize Desired Changes

Preliminary Routing to Identify Timing Conflicts

Present Options for Optimizing



Bell Time Study Process

Interview Stakeholders

A. Meet with Austin District Leadership

1. Multiple meetings over the last several months.

B. Meet with Bus Contractor Staff

1. Multiple phone calls, remote meetings, and 1 in-person meeting.

C. Meet with Pacelli Catholic School Leadership

1. Met with Principal & Assistant Principal regarding possible changes by video conference 11/12/21.



Bell Time Study Process

Audit Current Configuration

A. Understand how the current configuration works

1. How full/empty are the current buses?
2. How tightly timed is the system? Frequency of late arrival/departures?
3. How complicated is the current system for students/families/school and bus contracting staff?

B. Identify inaccuracies in current data

1. Are the mapped boundaries in the transportation software accurate?
2. Is the address table from student data correct?



Statistics/Demographics & General Information

133 Square Mile Area

Regular Buildings Transported:

- Austin High School / Austin ALC (9-12)
- Pacelli Catholic School (K-12)
- Ellis Middle School (7-8)
- IJ Holton Intermediate School (5-6)
- Banfield Elementary (1-4)
- Neveln Elementary (1-4)
- Southgate Elementary (1-4)
- Sumner Elementary (1-4)
- Woodson Kindergarten Center (K)



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- Sumner Elementary (1-4)
- **Woodson Kindergarten Center (K)**



Statistics/Demographics & General Information

5117 Students Total*

	Enrolled	Eligible
Austin High School / Austin ALC (9-12)	1467	993
Pacelli Catholic School (K-12)	250	200
Ellis Middle School (7-8)	829	710
IJ Holton Intermediate School (5-6)	737	639
Banfield Elementary (1-4)	435	161
Neveln Elementary (1-4)	277	91
Southgate Elementary (1-4)	513	327
Sumner Elementary (1-4)	246	125
Woodson Kindergarten Center (K)	363	359

*December 1, 2021



Statistics/Demographics & General Information

30% of eligible AM
riders do not ride

5117 Students Total

3605 Eligible Riders

33% of eligible PM
riders do not ride

2518 Scheduled Riders AM

2401 Scheduled Riders PM

1087 Eligible but do not ride

1204 Eligible but do not ride

- 138 more than 50 minutes
- 62 more than 60 minutes
- 26 more than 70 minutes
- 8 more than 80 minutes

- 100 more than 50 minutes
- 46 more than 60 minutes
- 31 more than 70 minutes
- 18 more than 80 minutes

Longest ride time 90 minutes

Longest ride time 113 minutes



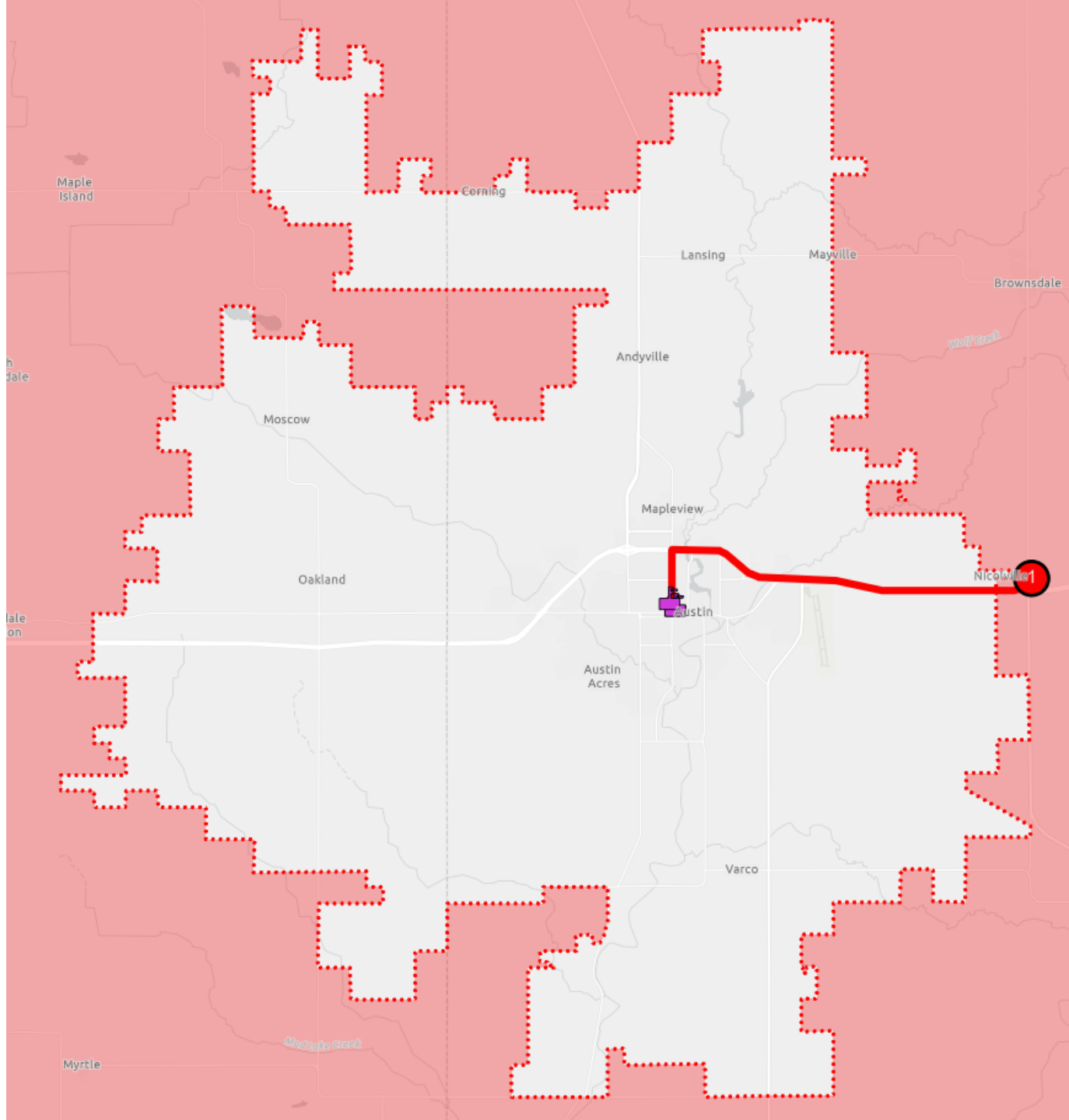
Statistics/Demographics & General Information

5117 Students Total*

	Enrolled	Eligible	Actual	
Austin High School / Austin ALC (9-12)	1467	993	569/554	57%
Pacelli Catholic School (K-12)	250	200	69/66	35%
Ellis Middle School (7-8)	829	710	535/398	75%
IJ Holton Intermediate School (5-6)	737	639	516/510	81%
Banfield Elementary (1-4)	435	161	124/105	77%
Neveln Elementary (1-4)	277	91	55/53	60%
Southgate Elementary (1-4)	513	327	211/229	70%
Sumner Elementary (1-4)	246	125	91/107	86%
Woodson Kindergarten Center (K)	363	359	308/284	86%

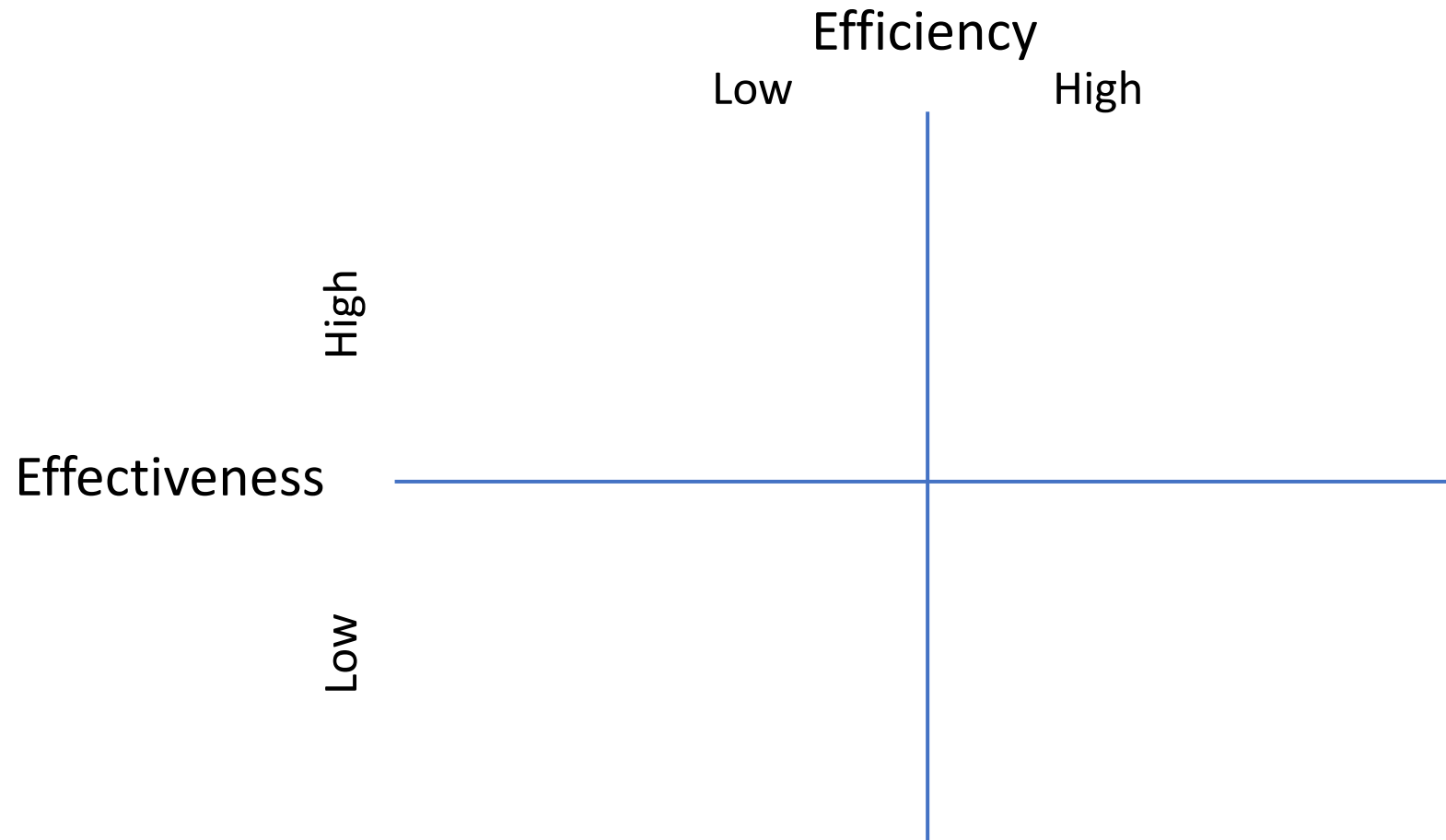
*December 1, 2021





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Audit Current Configuration



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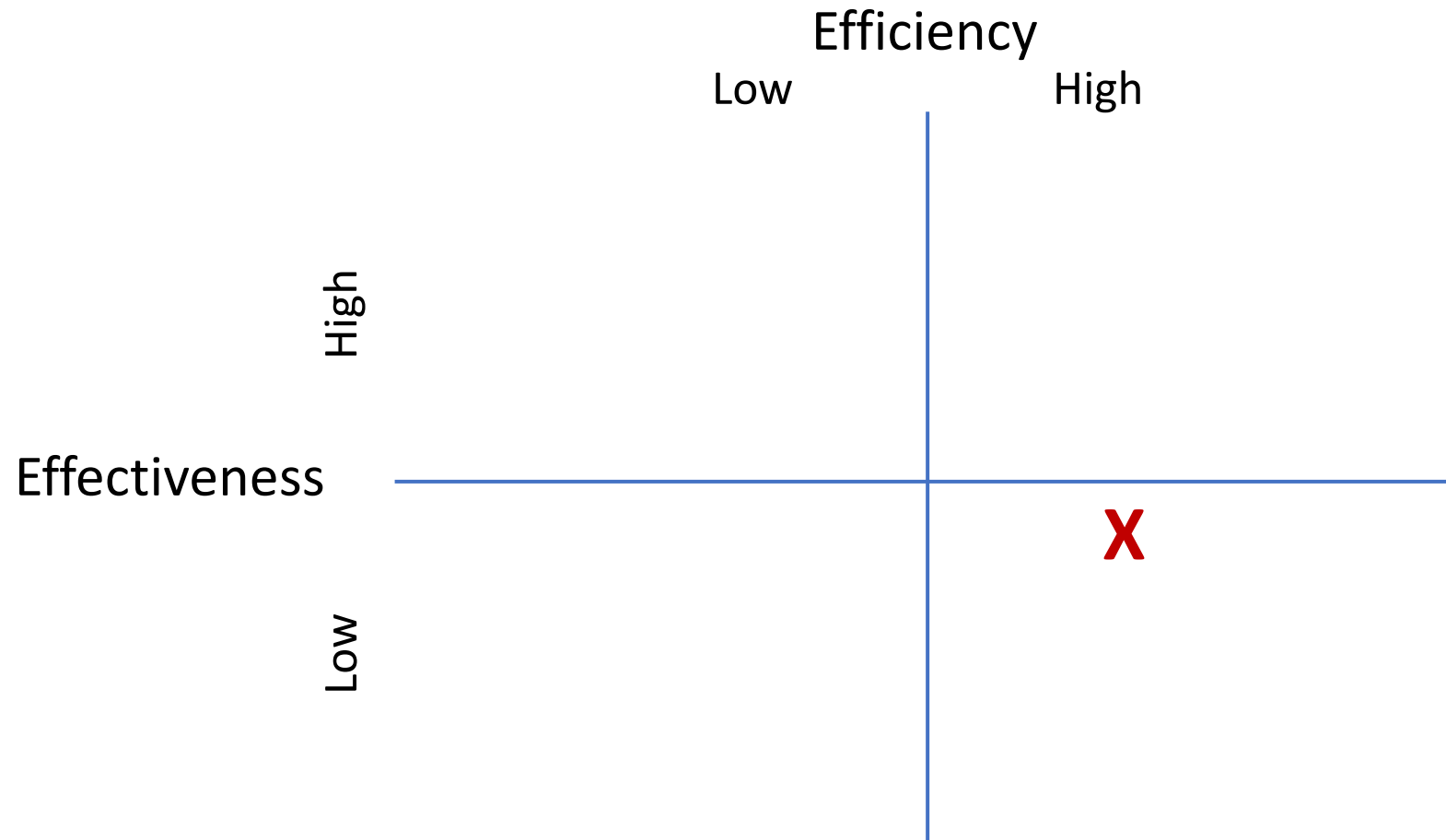
Audit Current Configuration

Efficiency: The ratio of the useful work performed in a process to the total energy expended

Effectiveness: The degree to which something is successful in producing a desired result



Audit Current Configuration



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Audit Current Configuration

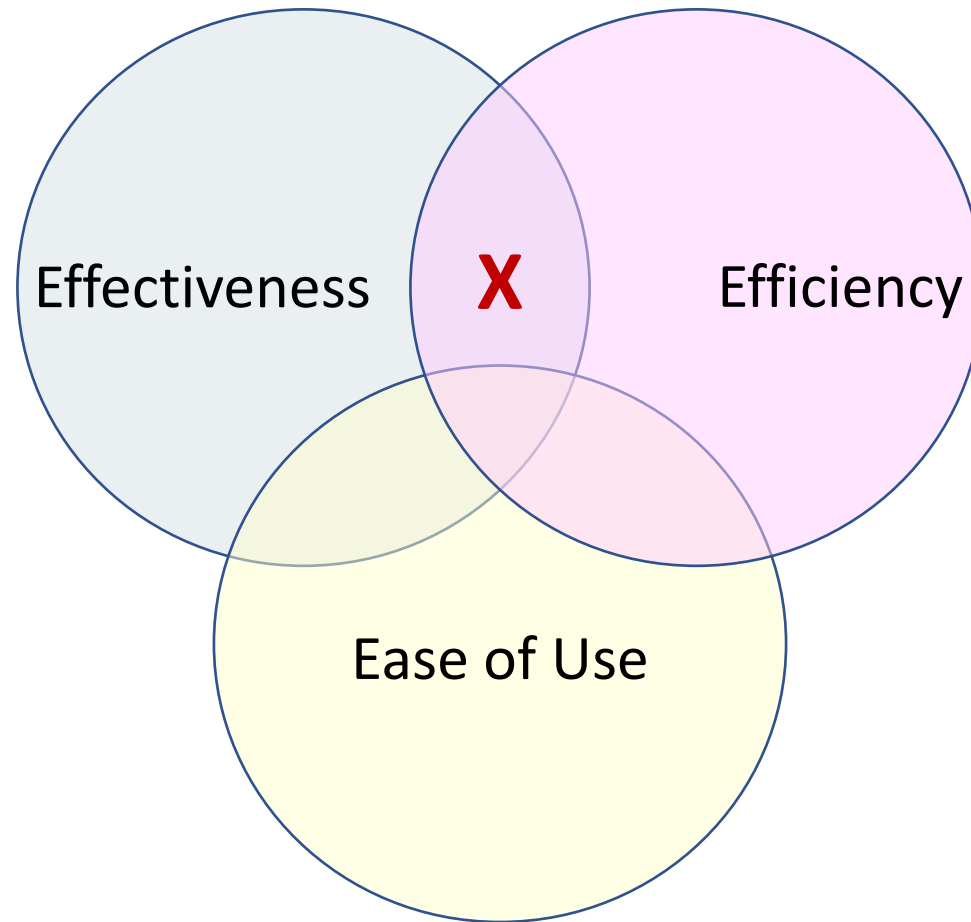
Efficiency: The ratio of the useful work performed in a process to the total energy expended

Effectiveness: The degree to which something is successful in producing a desired result

Ease of Use: The usability of a product or service. How natural it is to operate or navigate something.



Audit Current Configuration



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Bell Time Study Process

Identify & Prioritize Desired Changes

From District Leaders

- Route for all eligible students
- Preserve length of day at all district buildings, extend it to match secondary schools at IJ Holton Intermediate
- Limit ride time for all students
- Eliminate/Reduce transfers as much as possible
- Limit elementary bell time difference as much as possible
- Limit grade level spread per bus as much as possible
- Limit the spread between bell times as much as possible

From Bus Contractor

- Limit number of buses needed to transport all eligible students to 24
- Preserve a balance of use for vehicles (by age) for in town and out of town routes
- Shorten rides to reduce student conduct issues
- Reduce traffic congestion in school areas at arrival & dismissal times



Bell Time Study Process

Preliminary Routing to Identify Timing Conflicts

3605 students to transport

		# of Buses (45 pass)	# of Buses (50 pass)	# of Buses (55 pass)	# of Buses (60 pass)	# of Buses (65 pass)
	Students Per Tier	80.11	72.10	65.55	60.08	55.46
Two Tiers	1802.5	40.06	36.05	32.77	30.04	27.73
2.5 Tiers	1442	32.04	28.84	26.22	24.03	22.18
Three Tiers	1202	26.70	24.03	21.85	20.03	18.49
3.5 Tiers	1030	22.89	20.60	18.73	17.17	15.85
Four Tiers	901	20.03	18.025	16.39	15.02	13.87



Bell Time Study Process

Preliminary Routing to Identify Timing Conflicts

Minimum Number of Buses per Tier

	School Trans Pop	Total in Tier	Minimum # Buses	
IJ Holton Inermed	639		12	
Southgate	327		5	22
Banfield	161		3	
Neveln	91	1218	2	
HS/ALC	993		18	
Pacelli Catholic	200	1193	4	22
Ellis Middle	710		13	
Sumner	125		3	22
Woodson	359	1194	6	



Bell Time Study Process

Present Options for Optimizing

Scenario 1 – Plan A

HS in Tier 1

HS/ALC/Pacelli – 7:15a to 2:15p

IJ Holton in Tier 2

IJ Holton – 8:10a to 3:10p

Banfield – 8:20a to 2:50p

Neveln – 8:20a to 2:50p

Southgate – 8:20a to 2:50p

Ellis in Tier 3

Ellis – 9:05a to 4:05p

Sumner – 9:15a to 3:45p

Woodson – 9:25a to 3:25p

Scenario 1 – Plan B

HS in Tier 1

HS/ALC/Pacelli – 7:15a to 2:15p

Ellis in Tier 2

Ellis – 8:10a to 3:10p

Sumner – 8:20a to 2:50p

Woodson – 8:30a to 2:30p

IJ Holton in Tier 3

IJ Holton – 9:05a to 4:05p

Banfield – 9:15a to 3:45p

Neveln – 9:15a to 3:45p

Southgate – 9:15a to 3:45p



Bell Time Study Process

Present Options for Optimizing

Scenario 2 – Plan A

IJ Holton in Tier 1

IJ Holton – 7:15a to 2:15p

Banfield – 7:25a to 1:55p

Neveln – 7:25a to 1:55p

Southgate – 7:25a to 1:55p

HS in Tier 2

HS/ALC/Pacelli – 8:10a to 3:10p

Ellis in Tier 3

Ellis – 9:05a to 4:05p

Sumner – 9:15a to 3:45p

Woodson – 9:25a to 3:25p

Scenario 2 – Plan B

Ellis in Tier 1

Ellis – 7:15a to 2:15p

Sumner – 7:25a to 1:55p

Woodson – 7:35a to 1:35p

HS in Tier 2

HS/ALC/Pacelli – 8:10a to 3:10p

IJ Holton in Tier 3

IJ Holton – 9:05a to 4:05p

Banfield – 9:15a to 3:45p

Neveln – 9:15a to 3:45p

Southgate – 9:15a to 3:45p



Bell Time Study Process

Present Options for Optimizing

Scenario 1 – Plan A

HS in Tier 1

HS/ALC/Pacelli – 7:15a to 2:15p

IJ Holton in Tier 2

IJ Holton – 8:10a to 3:10p

Banfield – 8:20a to 2:50p

Neveln – 8:20a to 2:50p

Southgate – 8:20a to 2:50p

Ellis in Tier 3

Ellis – 9:05a to 4:05p

Sumner – 9:15a to 3:45p

Woodson – 9:25a to 3:25p

Scenario 1 – Plan B

HS in Tier 1

HS/ALC/Pacelli – 7:15a to 2:15p

Ellis in Tier 2

Ellis – 8:10a to 3:10p

Sumner – 8:20a to 2:50p

Woodson – 8:30a to 2:30p

IJ Holton in Tier 3

IJ Holton – 9:05a to 4:05p

Banfield – 9:15a to 3:45p

Neveln – 9:15a to 3:45p

Southgate – 9:15a to 3:45p

Scenario 2 – Plan A

IJ Holton in Tier 1

IJ Holton – 7:15a to 2:15p

Banfield – 7:25a to 1:55p

Neveln – 7:25a to 1:55p

Southgate – 7:25a to 1:55p

HS in Tier 2

HS/ALC/Pacelli – 8:10a to 3:10p

Ellis in Tier 3

Ellis – 9:05a to 4:05p

Sumner – 9:15a to 3:45p

Woodson – 9:25a to 3:25p

Scenario 2 – Plan B

Ellis in Tier 1

Ellis – 7:15a to 2:15p

Sumner – 7:25a to 1:55p

Woodson – 7:35a to 1:35p

HS in Tier 2

HS/ALC/Pacelli – 8:10a to 3:10p

IJ Holton in Tier 3

IJ Holton – 9:05a to 4:05p

Banfield – 9:15a to 3:45p

Neveln – 9:15a to 3:45p

Southgate – 9:15a to 3:45p



Bell Time Study Process

Present Options for Optimizing

Scenario 3

All Elem & Woodson in Tier 1

Banfield – 7:00a to 1:30p
Neveln – 7:00a to 1:30p
Southgate – 7:00a to 1:30p
Sumner – 7:00a to 1:30p
Woodson – 7:20a to 1:10p

HS in Tier 2

HS/ALC/Pacelli – 8:05a to 3:05p

Ellis & IJ in Tier 3

Ellis – 9:05a to 4:05p
IJ Holton – 9:05a to 4:05p

Scenario 4

All Elem & Woodson in Tier 1

Banfield – 7:10a to 1:40p
Neveln – 7:10a to 1:40p
Southgate – 7:10a to 1:40p
Sumner – 7:10a to 1:40p
Woodson – 7:30a to 1:20p

HS in Tier 2

HS/ALC/Pacelli – 8:10a to 3:10p

Ellis & IJ in Tier 3

Ellis – 9:10a to 4:10p
IJ Holton – 9:10a to 4:10p



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5117 Students Total*

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*December 1, 2021



Statistics/Demographics & General Information

5117 Students Total*

	Enrolled	Eligible	Actual
Austin High School / Austin ALC (9-12)	1467	993	75% 745
Pacelli Catholic School (K-12)	250	200	50% 100
Ellis Middle School (7-8)	829	710	90% 639
IJ Holton Intermediate School (5-6)	737	639	90% 575
Banfield Elementary (1-4)	435	161	90% 145
Neveln Elementary (1-4)	277	91	90% 82
Southgate Elementary (1-4)	513	327	90% 294
Sumner Elementary (1-4)	246	125	90% 112
Woodson Kindergarten Center (K)	363	359	90% 323

*December 1, 2021



Bell Time Study Process

Present Options for Optimizing

Scenarios 3 & 4

Population

All Elem & Woodson in Tier 1

Eligible Actual % Est % Est Actual

Banfield –	161	124	77%	90%	145
Neveln –	91	55	60%	90%	82
Southgate –	327	229	70%	90%	294
Sumner –	125	107	86%	90%	112
Woodson –	359	308	86%	90%	323
HS/ALC –	993	569	57%	75%	745
Pacelli –	200	69	35%	50%	100
Ellis –	710	535	75%	90%	639
IJ Holton –	639	516	81%	90%	575

19 Buses minimum

19 Buses minimum

22 Buses minimum



Bell Time Study Process

Present Options for Optimizing

Scenarios 3 & 4

Population

All Elem & Woodson in Tier 1	AM Arrive	AM Bell	PM Bell	PM Depart
Banfield –	6:55-7a	7:10a	1:40p	1:50p
Neveln –	6:55-7a	7:10a	1:40p	1:50p
Southgate –	6:55-7a	7:10a	1:40p	1:50p
Sumner –	6:55-7a	7:10a	1:40p	1:50p
Woodson –	7:15-7:20a	7:30a	1:20p	1:30p
HS/ALC –	7:55-8a	8:10a	3:10p	3:20p
Pacelli –	7:55-8a	8:10a	3:10p	3:20p
Ellis –	8:55-9a	9:10a	4:10p	4:20p
IJ Holton –	8:55-9a	9:10a	4:10p	4:20p



Bell Time Study Process

***Any Change to a
Single Time
Will Result in Changes to
All Times**

Present Options for Optimizing
Scenario 5

All Elem & Woodson in Tier 1

Banfield – 7:15a to 1:45p

Neveln – 7:15a to 1:45p

Southgate – 7:15a to 1:45p

Sumner – 7:15a to 1:45p

Woodson – 7:25a to 1:15p

HS in Tier 2

HS/ALC/Pacelli – 8:10a to 3:10p

Ellis & IJ in Tier 3

Ellis – 9:10a to 4:10p

IJ Holton – 9:10a to 4:10p



Bell Time Study Process

***Any Change to a
Single Time
Will Result in Changes to
All Times**

Present Options for Optimizing

Scenario 5		Population			
All Elem & Woodson in Tier 1		AM Arrive	AM Bell	PM Bell	PM Depart
Banfield –		7a-7:05a	7:15a	1:45p	1:55p
Neveln –		7a-7:05a	7:15a	1:45p	1:55p
Southgate –		7a-7:05a	7:15a	1:45p	1:55p
Sumner –		7a-7:05a	7:15a	1:45p	1:55p
Woodson –		7:10-7:15a	7:25a	1:15p	1:25p
HS/ALC –		7:55-8a	8:10a	3:10p	3:20p
Pacelli –		7:55-8a	8:10a	3:10p	3:20p
Ellis –		8:55-9a	9:10a	4:10p	4:20p
IJ Holton –		8:55-9a	9:10a	4:10p	4:20p



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Identify & Prioritize Desired Changes

From District Leaders

Route for all eligible students

Preserve length of day at all district buildings, extend it to match secondary schools at IJ Holton Intermediate

Limit ride time for all students

Eliminate/Reduce transfers as much as possible

Limit elementary bell time difference as much as possible

Limit grade level spread per bus as much as possible

Limit the spread between bell times as much as possible

From Bus Contractor

Limit number of buses needed to transport all eligible students to 24

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