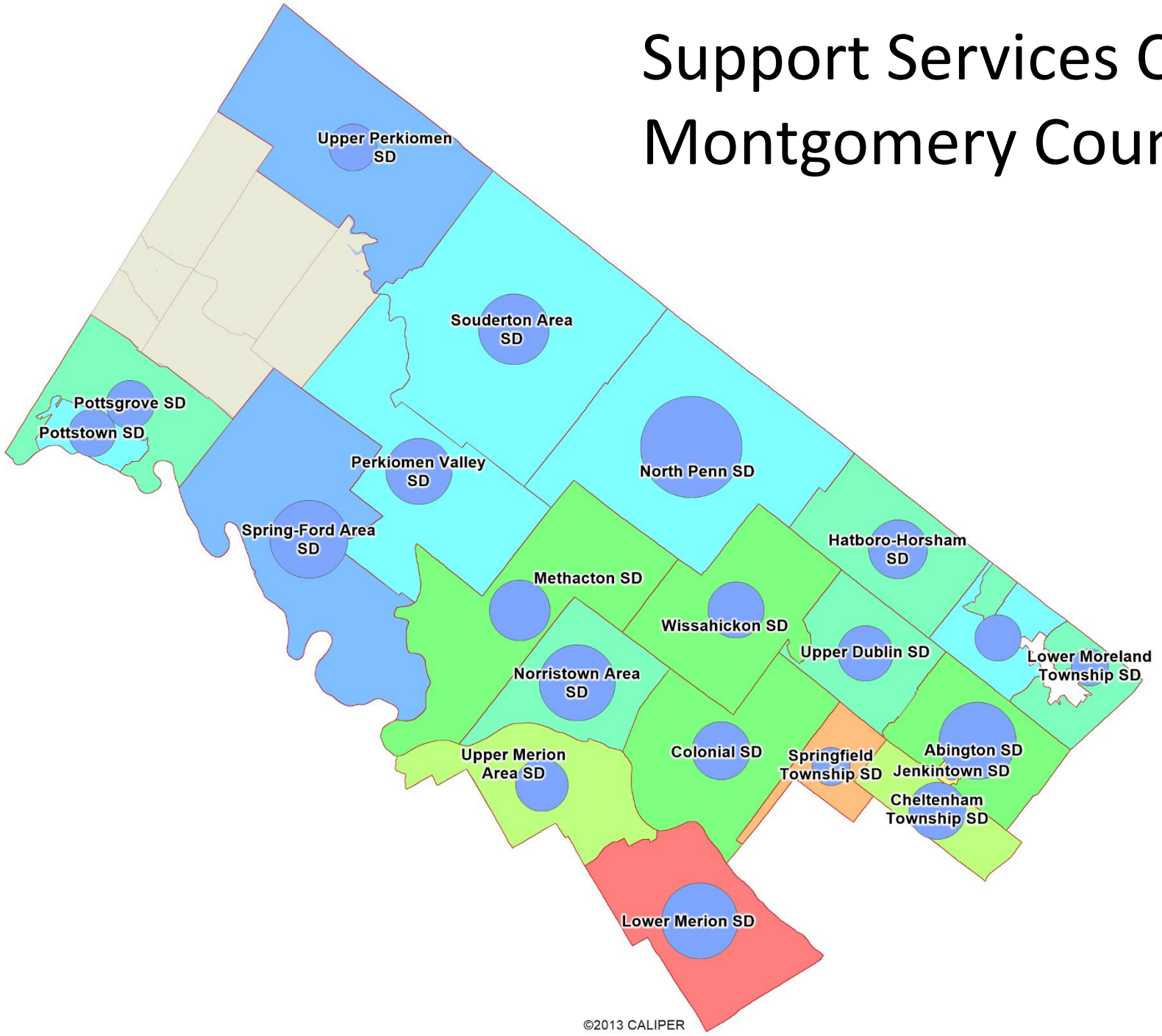
Transportation Improvement Plan
Methacton School District

Bob Schoch

March 9, 2016

Support Services Costs
Montgomery County Schools



Support Services 2000
- 4400.00 and below (2)
- 4400.00 to 5000.00 (5)
- 5000.00 to 5400.00 (5)
- 5400.00 to 6000.00 (4)
- 6000.00 to 6400.00 (2)
- 6400.00 to 7000.00 (1)
- 7000.00 to 8000.00 (1)
- 8000.00 and above (1)
- Other (1)

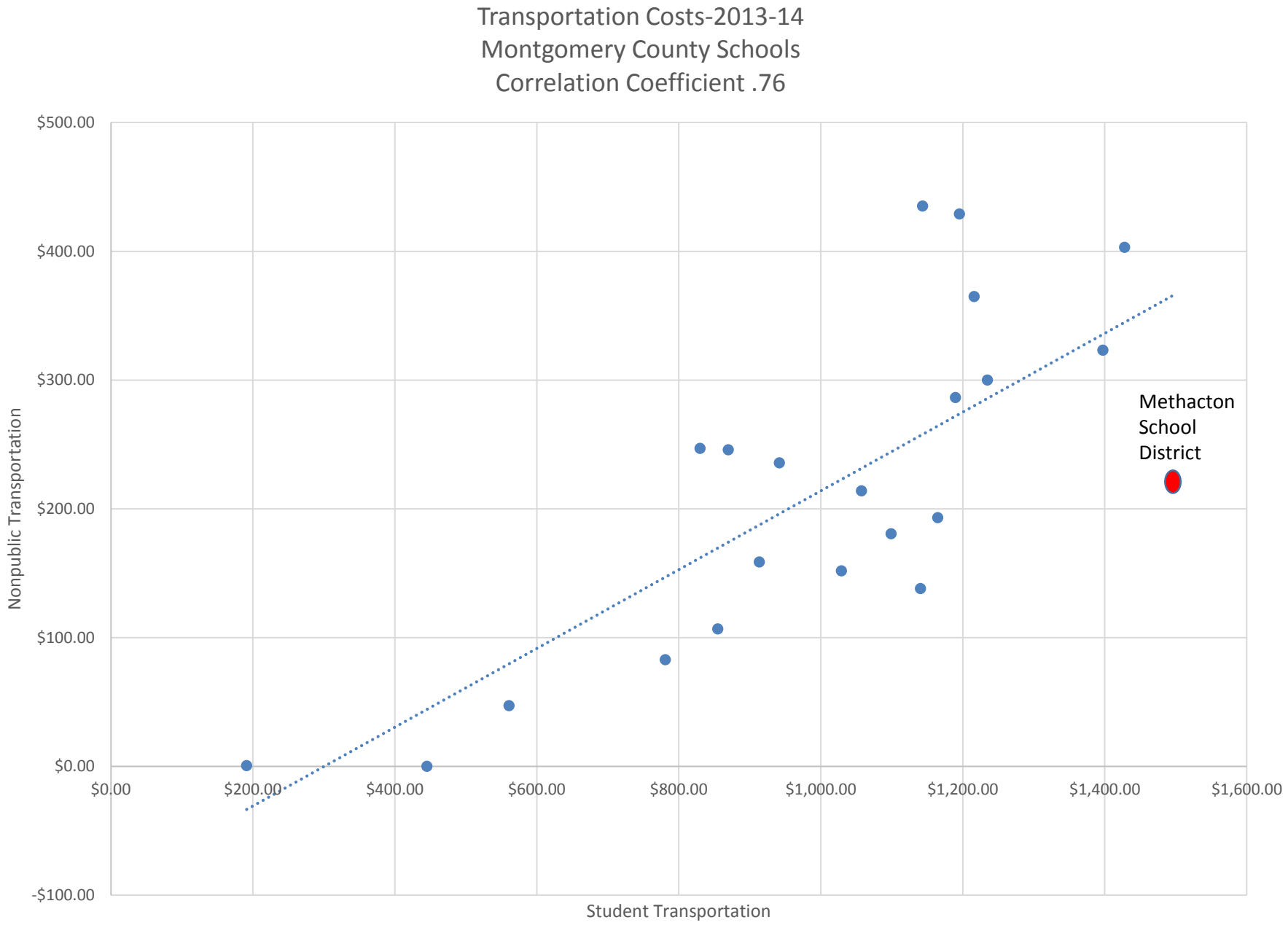
2012-13 Adjusted ADM

15000
7500
3750

2012-13 Adjusted ADM

0 2.5 5 7.5

Miles


Transportation Costs-2013-14
Montgomery County Schools
Correlation Coefficient .76
$500.00
$400.00
$300.00
$200.00
$100.00
$0.00
-$100.00
Nonpublic Transportation
$0.00
$200.00
$400.00
$600.00
$800.00
$1,000.00
$1,200.00
$1,400.00
$1,600.00
Student Transportation
Methacton
School
District

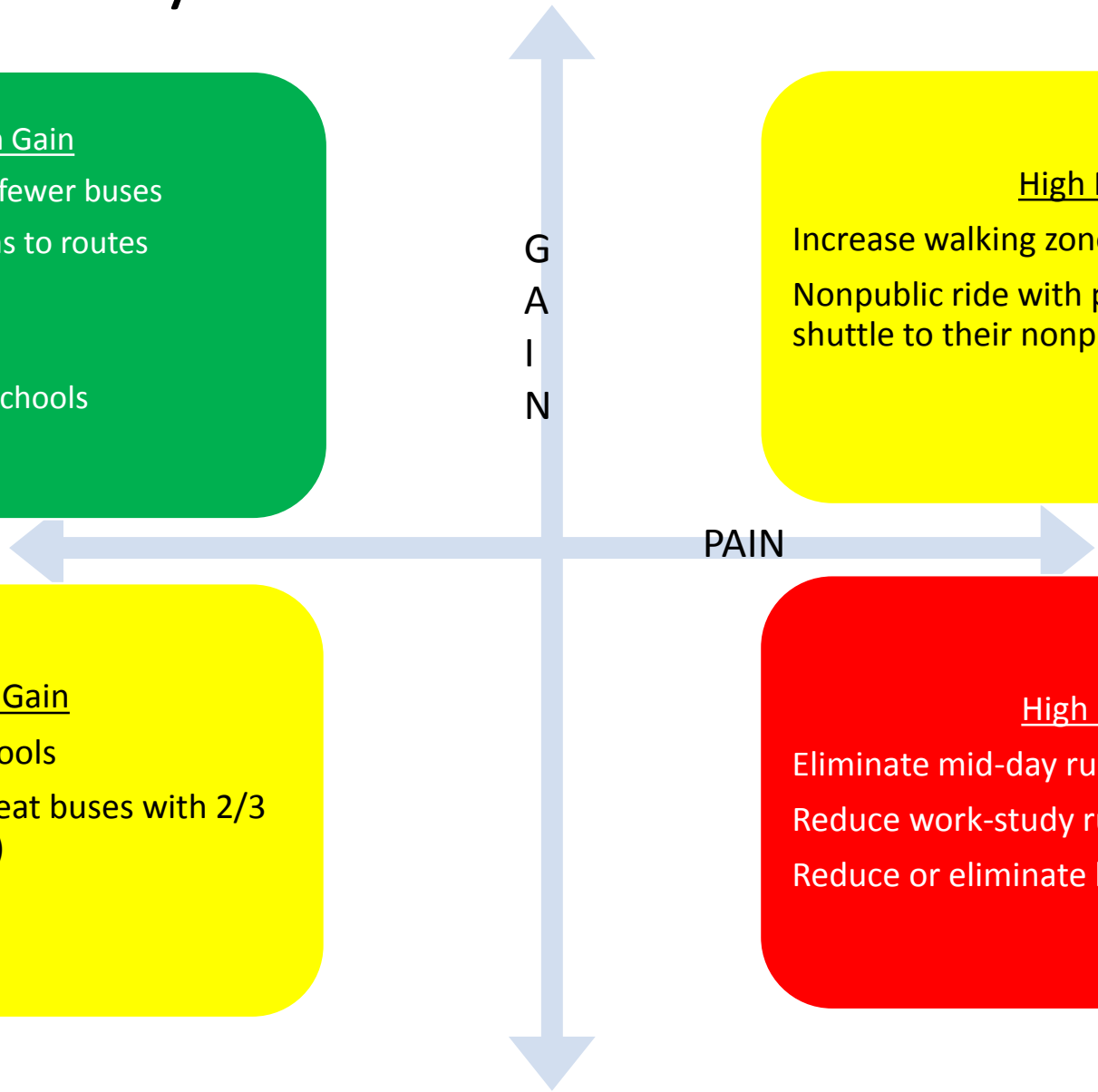
Improvement Plan

- Improve processes through collaboration
  - Cross-functional flowcharts
  - Matching narrative
- Advanced transportation routing using transportation software
  - Efficient use of capacity and time available
  - Optimal packaging of bus runs for each school to bus routes (morning or afternoon)
  - Combine more nonpublic schools onto each bus
- Review policies/guidelines and practices that govern transportation cost and level of service offered
- Estimate potential savings of all cost reduction strategies

Future Considerations

- Advanced transportation routing using transportation software
  - Continued refinement
  - Nonpublic-negotiate revised bell times allowing more combination
- Review all walking zones

Pain Gain Analysis



Low Pain/ High Gain

Combine nonpublic schools on fewer buses

Improve assignment of bus runs to routes

Utilize capacity fully

Equalize ride time

Adjust bell times of nonpublic schools

High Pain/ High Gain

Increase walking zones

Nonpublic ride with public to transfer points then shuttle to their nonpublic school

Low Pain/ Low Gain

Adjust bell times of public schools

Right size the fleet (more 84 seat buses with 2/3 seat configuration, more vans)

High Pain/ Low Gain

Eliminate mid-day runs

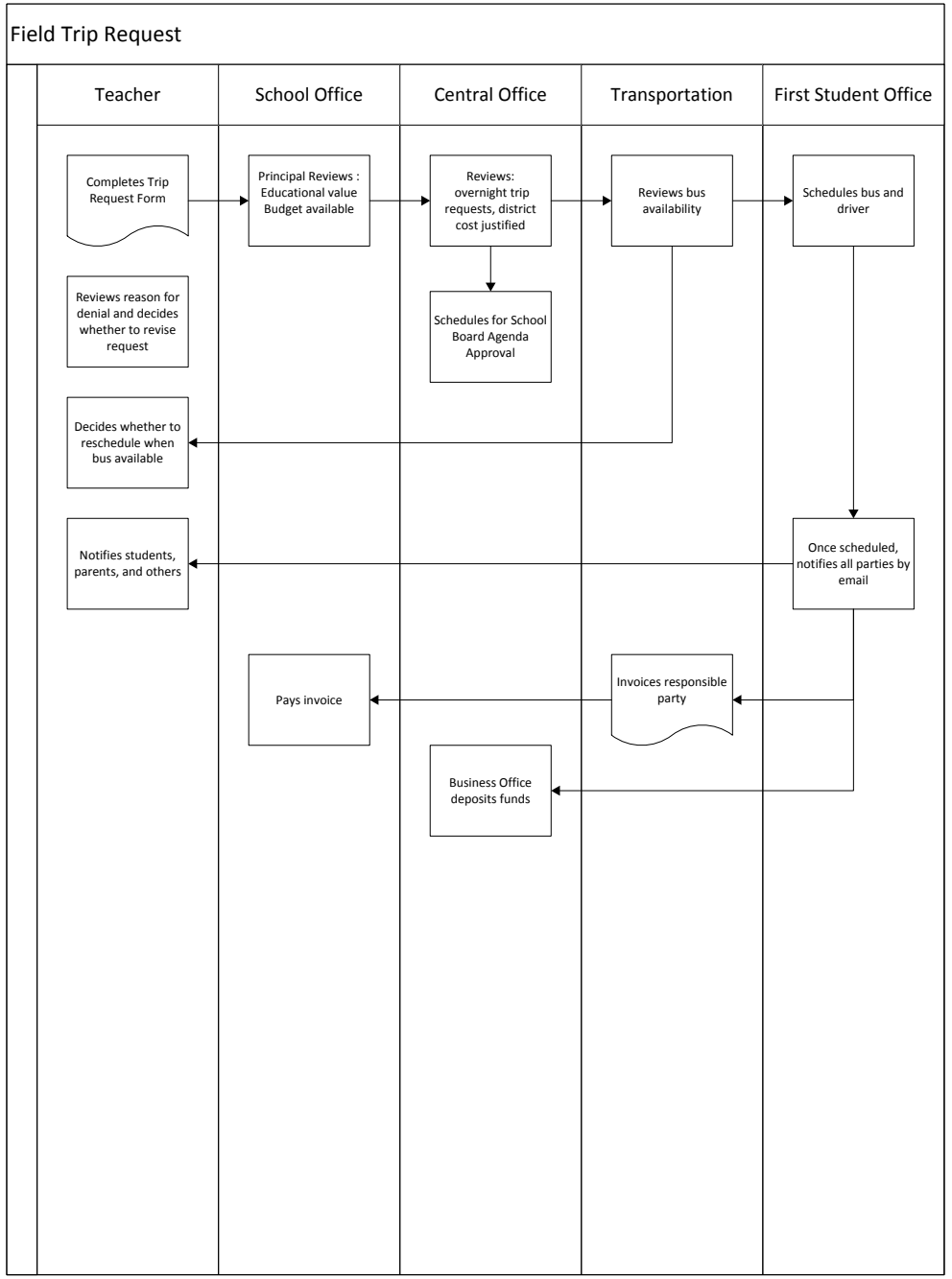
Reduce work-study runs

Reduce or eliminate late runs

Process Improvement

Processes and Procedures Documented in Narrative and Matching Flowchart

- New Student Added to Transportation System
- Trip Request
- Late Arrival to School or Home
- Athletic Event-Scheduling and Cancellation
- Bus Routing
  - Bus Stop Location
  - Calculating Buses Required for Each School
  - Assignment of Bus Runs to Routes
  - Efficiency Evaluation
  - Administration/School Board Approval
- Work Study Bus Runs-Scheduling
- Rider Discipline
- Annual Report to PDE
- Contract Administration-Transportation
- Notifying Riders/Parents of Bus Assignment
- Bus Stop or Route Change Request
- Ordering Diesel Fuel
- Bus Evacuation Drills

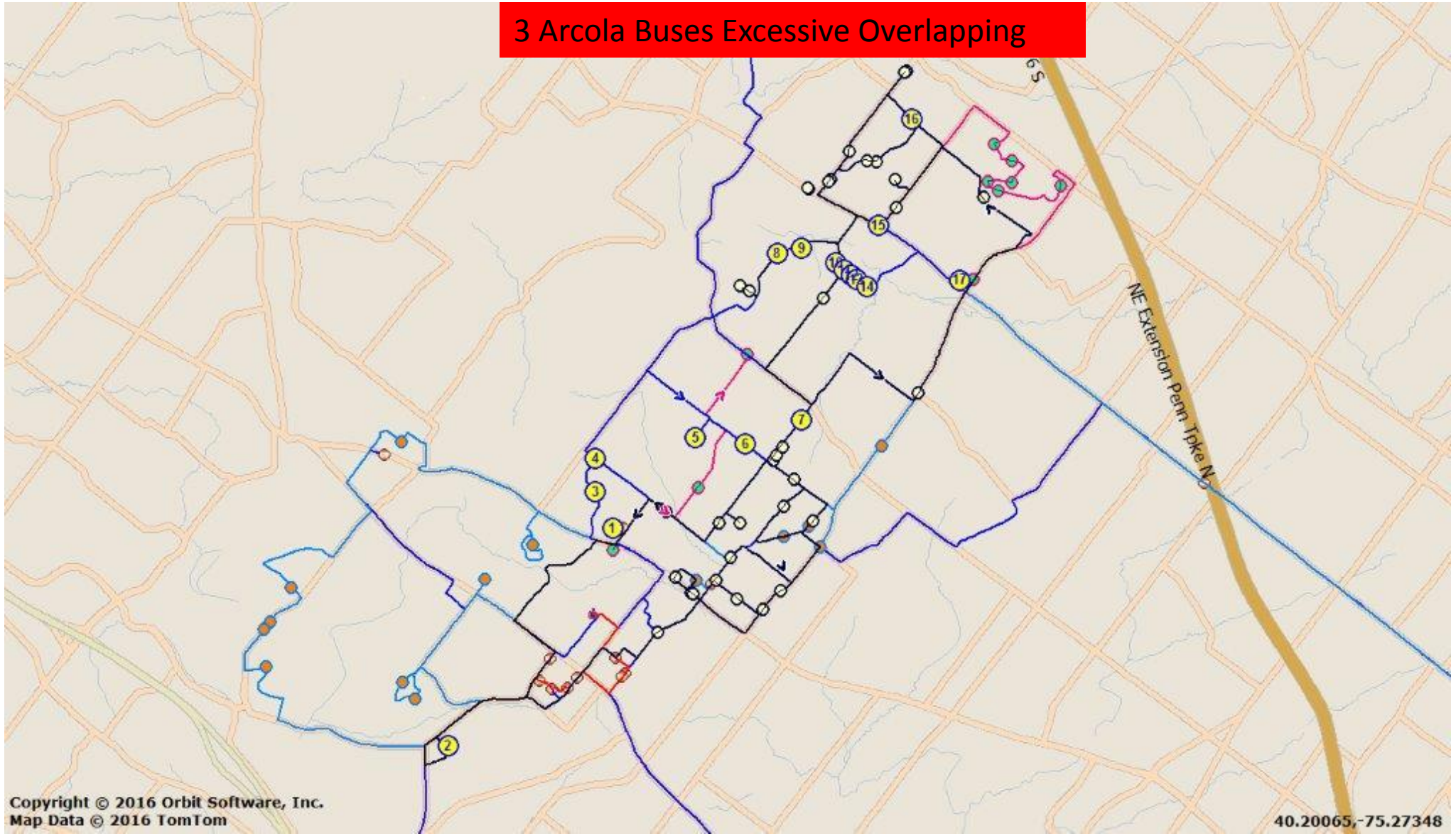


Cost of Current Bus Contract with First Student

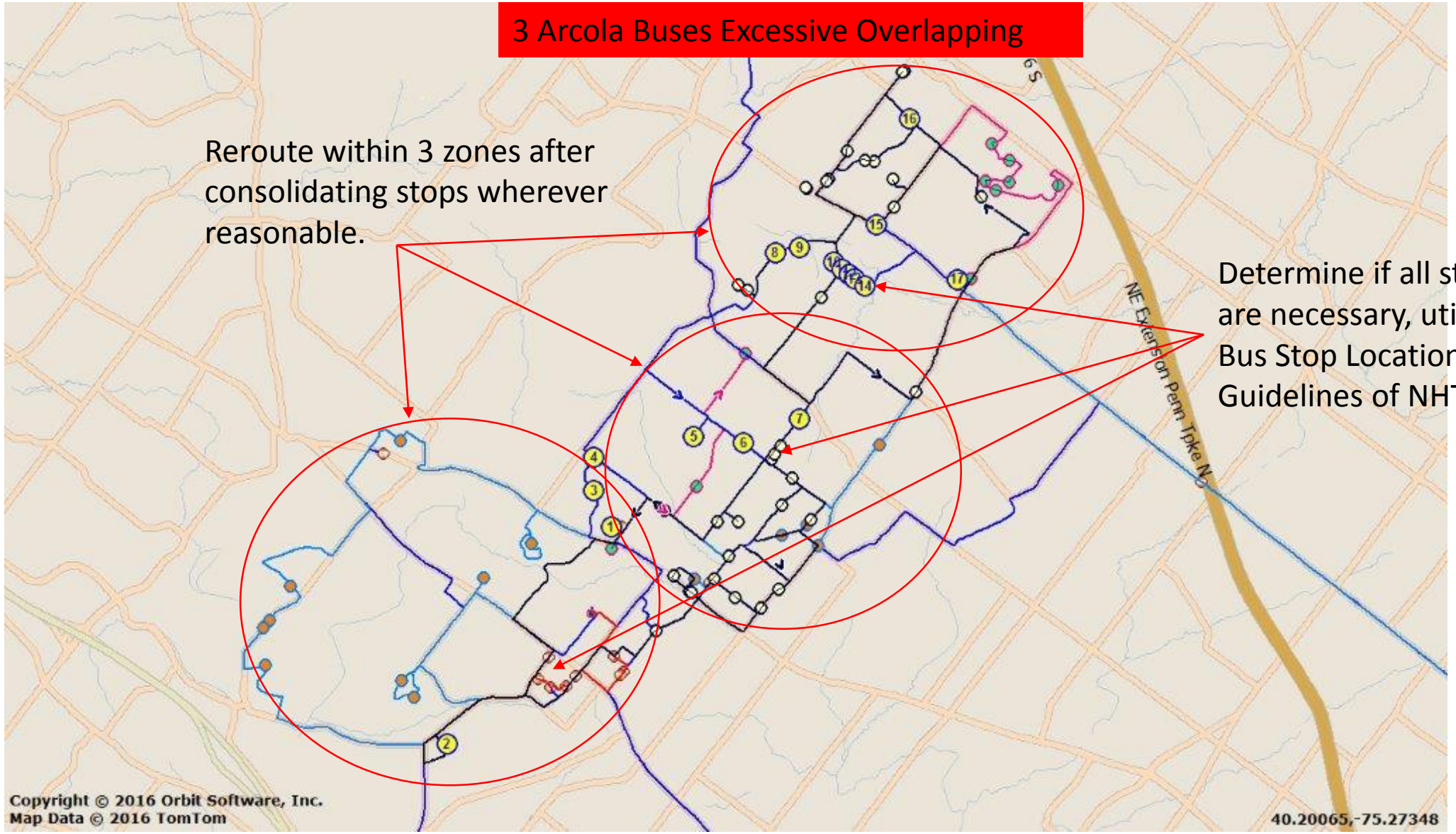
- Daily rates-$225 to $305/day depending on seating capacity
- Extra runs (mid-day Kindergarten, Work Study Runs for Special Education Students)-$56.38/day

- Potential cost savings for 2016-17
  - Reducing 4 buses due to more efficient routing and better use of seating capacity
  - Reduce 2 buses due to better assignment of runs to routes
  - Reduce 1 or 2 buses by combining more nonpublic schools on same bus
  - Total-7 buses at $45,000 each equals $315,000.

Reroute Overlapping Bus Routes for Efficiency



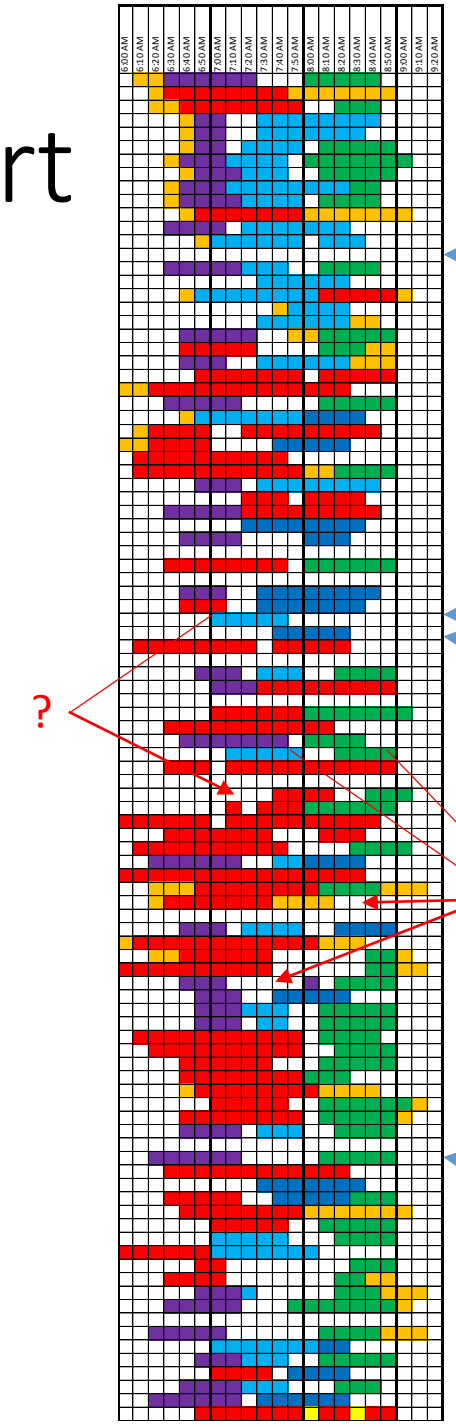
Reroute Overlapping Bus Routes for Efficiency



Morning timeline chart

Improving assignment of runs to routes

- Each row represents a bus.
- Each column represents 10 minutes between 6:30 a.m. and 9:30 a.m.
- Each color represents a school
  - Purple-High School
  - Light Blue-Arcola
  - Dark Blue-Skyview
  - Green-Elementary School
  - Yellow-deadhead time from bus garage to first stop and last school dropoff back to bus garage
  - White-layover time between school dropoff and first stop for next school



No morning run

High school and elementary school with 50 minute layover

Only Arcola in morning

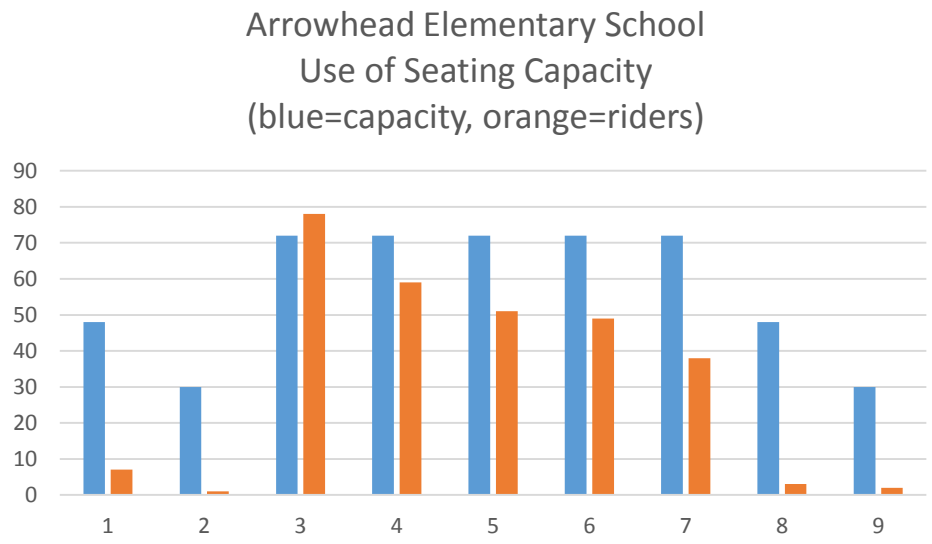
Only Skyview in morning

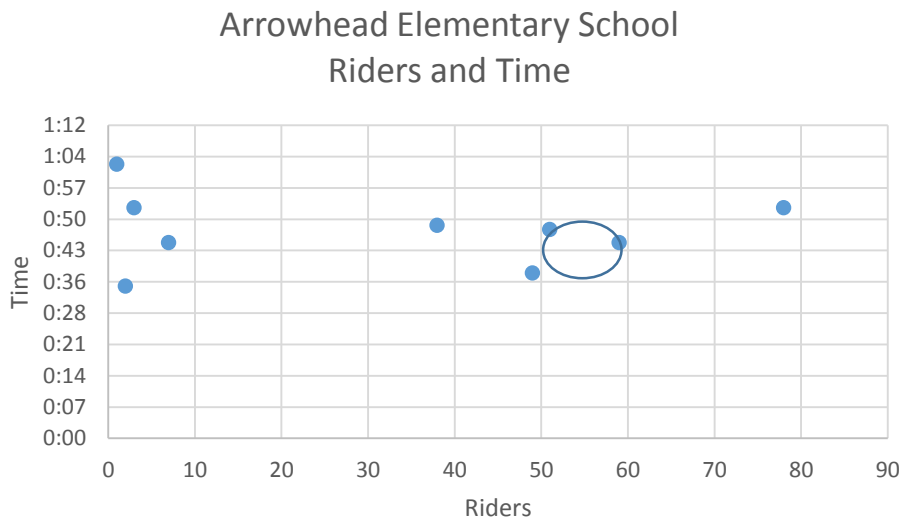
?

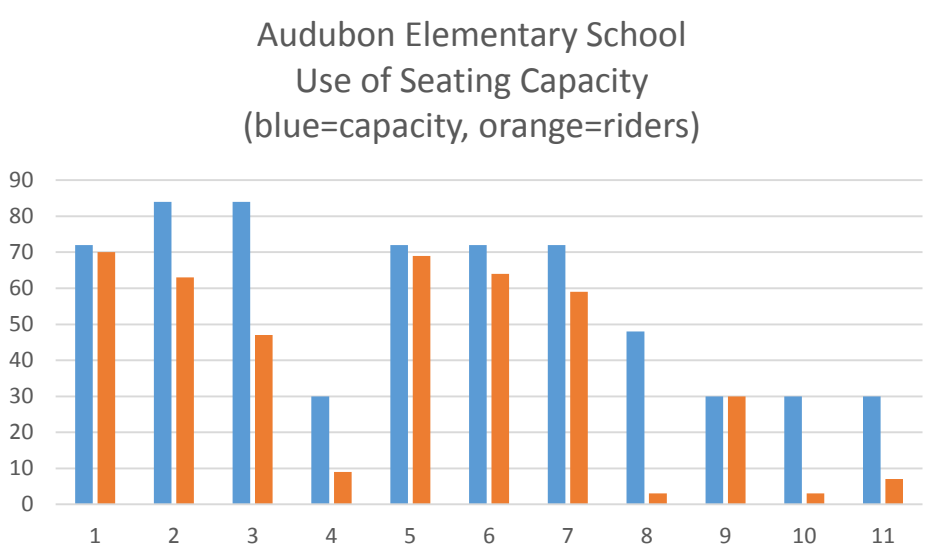
?

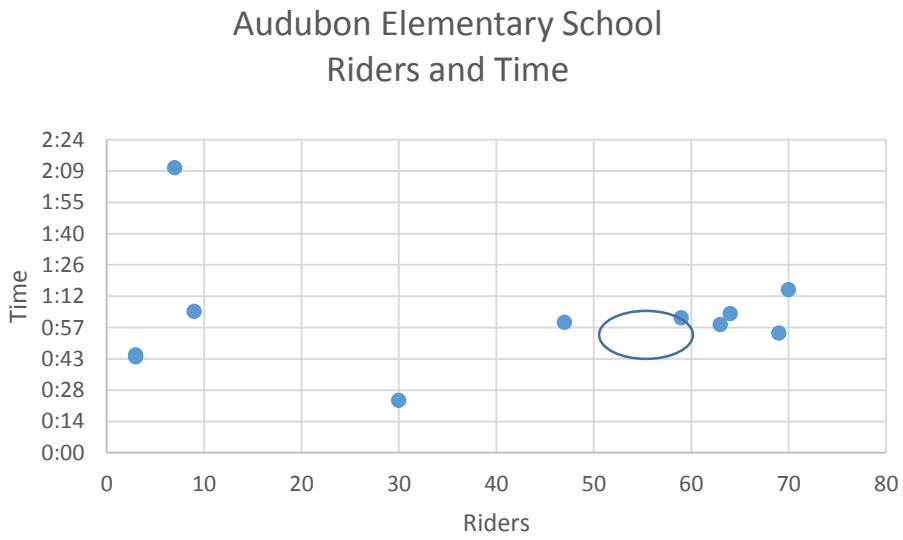
60 minute layover, any district run to fill time?

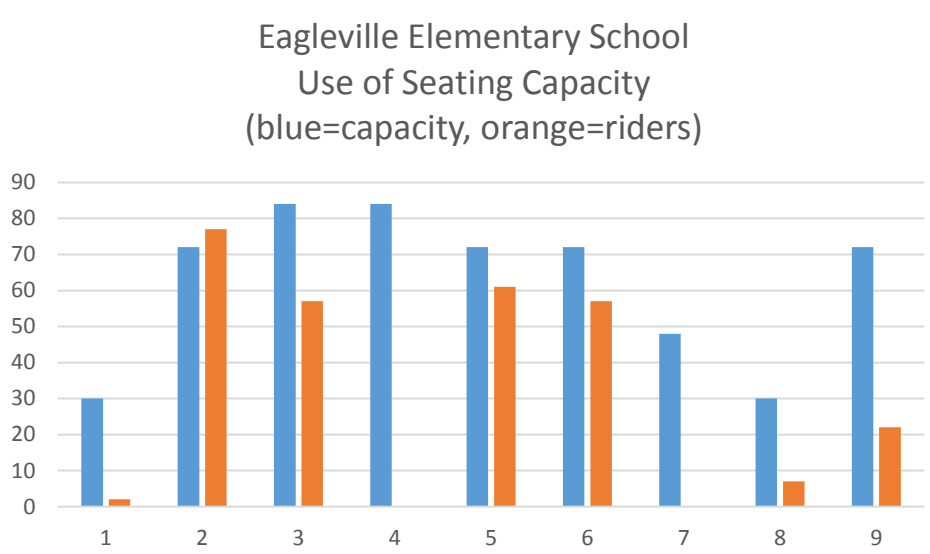
Excess layover times, any nonpublic runs possible?

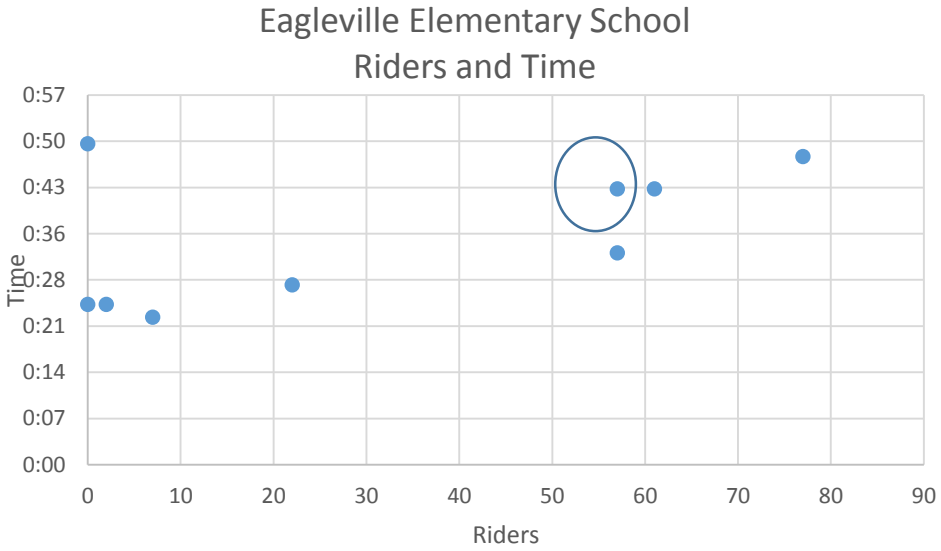

Arrowhead Elementary School
Use of Seating Capacity
(blue=capacity, orange=riders)
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9

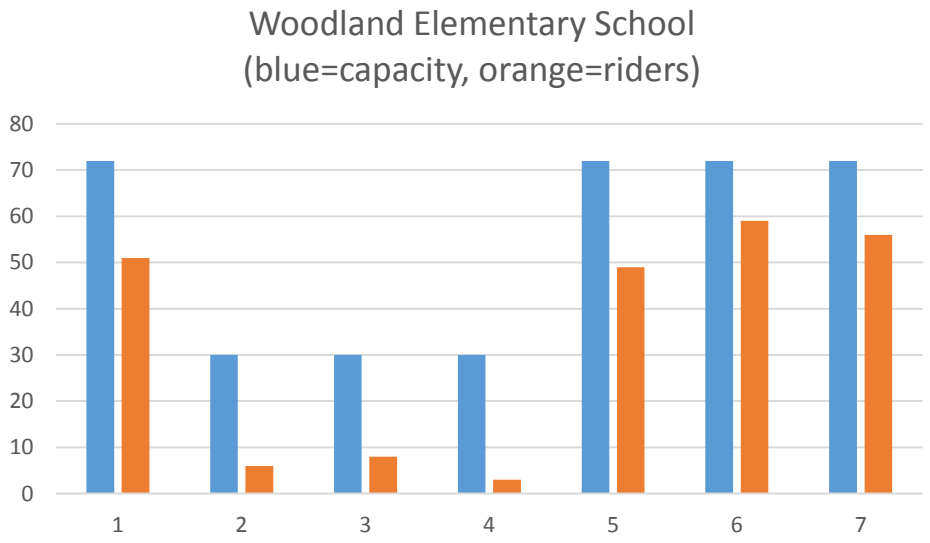

Arrowhead Elementary School
Riders and Time
Time
1:12
1:04
0:57
0:50
0:43
0:36
0:28
0:21
0:14
0:07
0:00
0
10
20
30
40
50
60
70
80
90
Riders

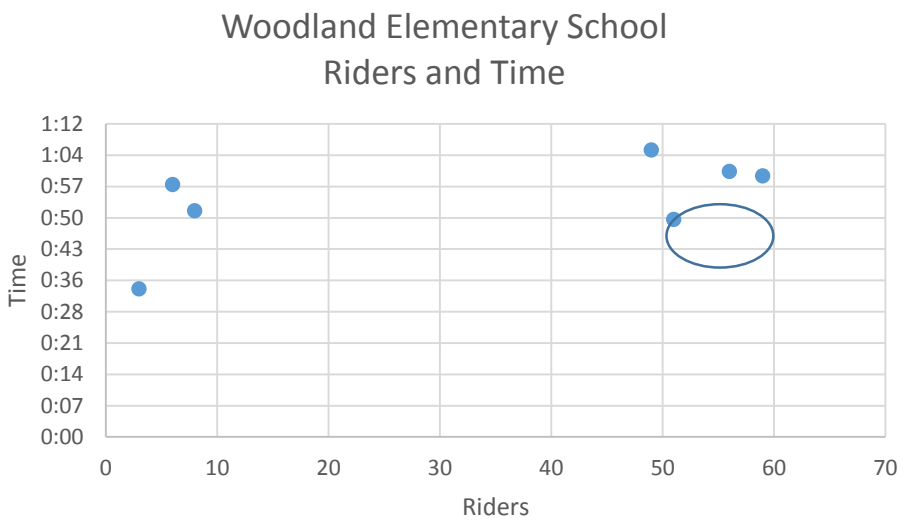

Audubon Elementary School
Use of Seating Capacity
(blue=capacity, orange=riders)
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
11

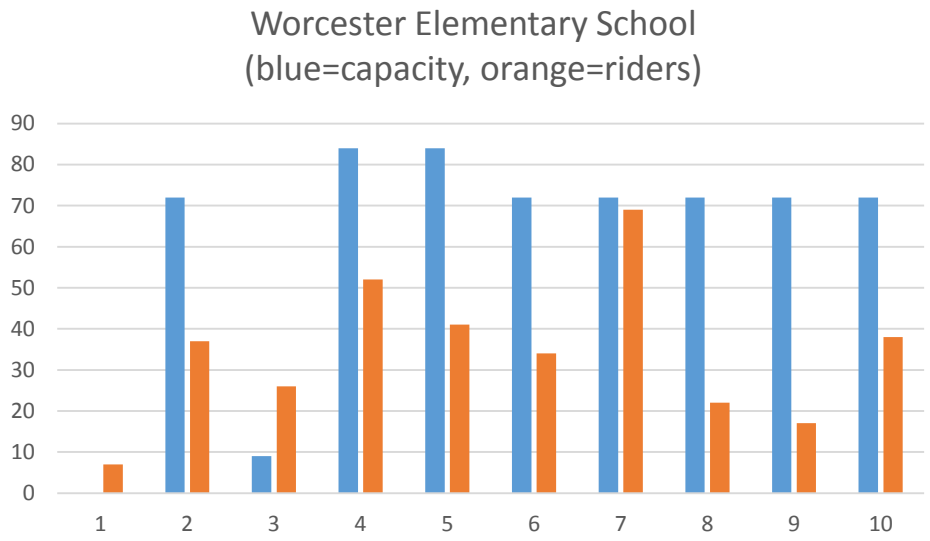

Audubon Elementary School
Riders and Time
Time
2:24
2:09
1:55
1:40
1:26
1:12
0:57
0:43
0:28
0:14
0:00
0
10
20
30
40
50
60
70
80
Riders

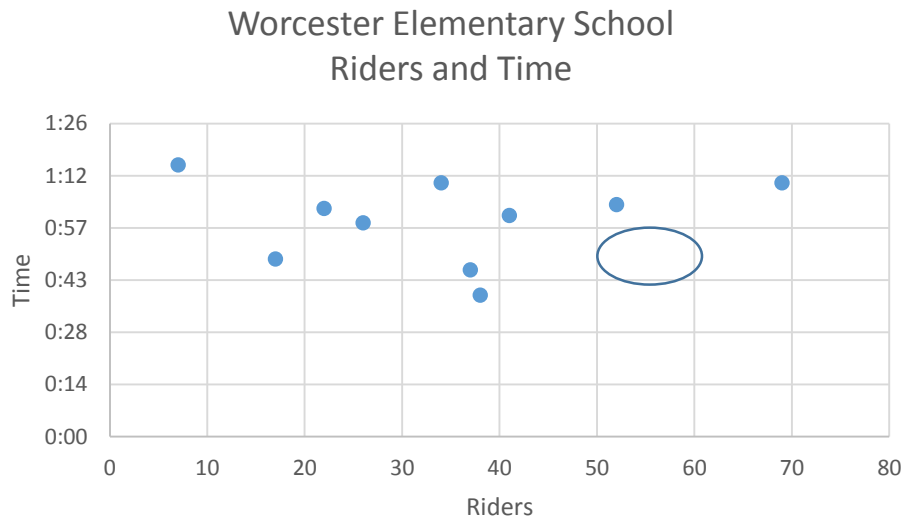

Eagleville Elementary School
Use of Seating Capacity
(blue=capacity, orange=riders)
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9

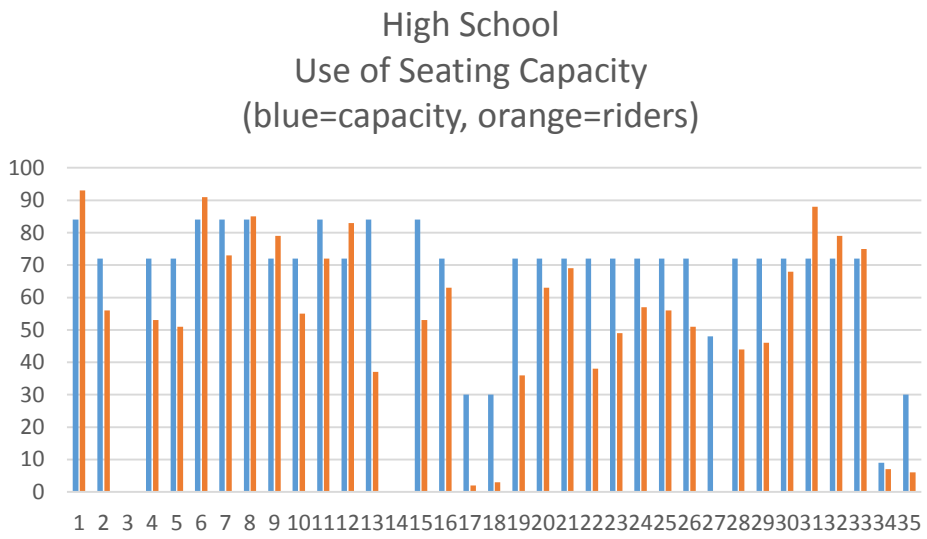

Eagleville Elementary School
Riders and Time
Time
0:57
0:50
0:43
0:36
0:28
0:21
0:14
0:07
0:00
0
10
20
30
40
50
60
70
80
90
Riders

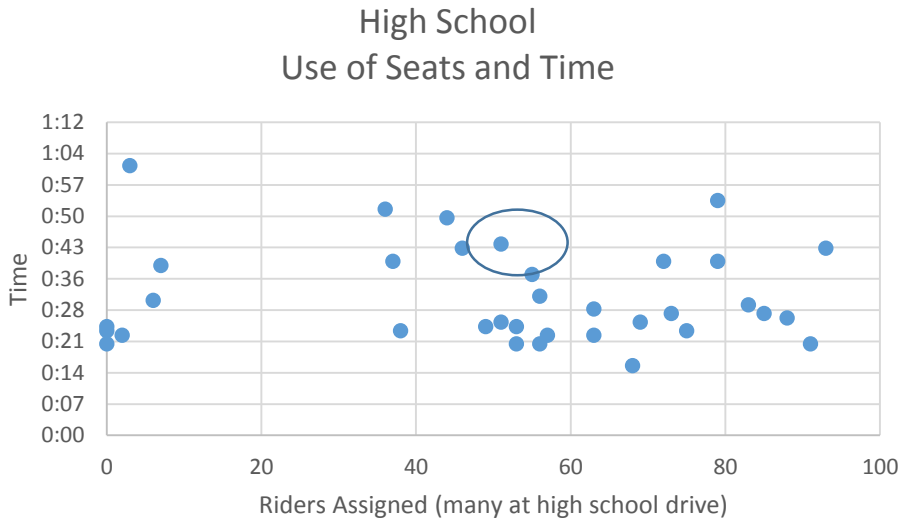

Woodland Elementary School
(blue=capacity, orange=riders)
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7


Woodland Elementary School
Riders and Time
Time
1:12
1:04
0:57
0:50
0:43
0:36
0:28
0:21
0:14
0:07
0:00
0
10
20
30
40
50
60
70
Riders


Worcester Elementary School
(blue=capacity, orange=riders)
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10


Worcester Elementary School
Riders and Time
Time
1:26
1:12
0:57
0:43
0:28
0:14
0:00
0
10
20
30
40
50
60
70
80
Riders


High School
Use of Seating Capacity
(blue=capacity, orange=riders)
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

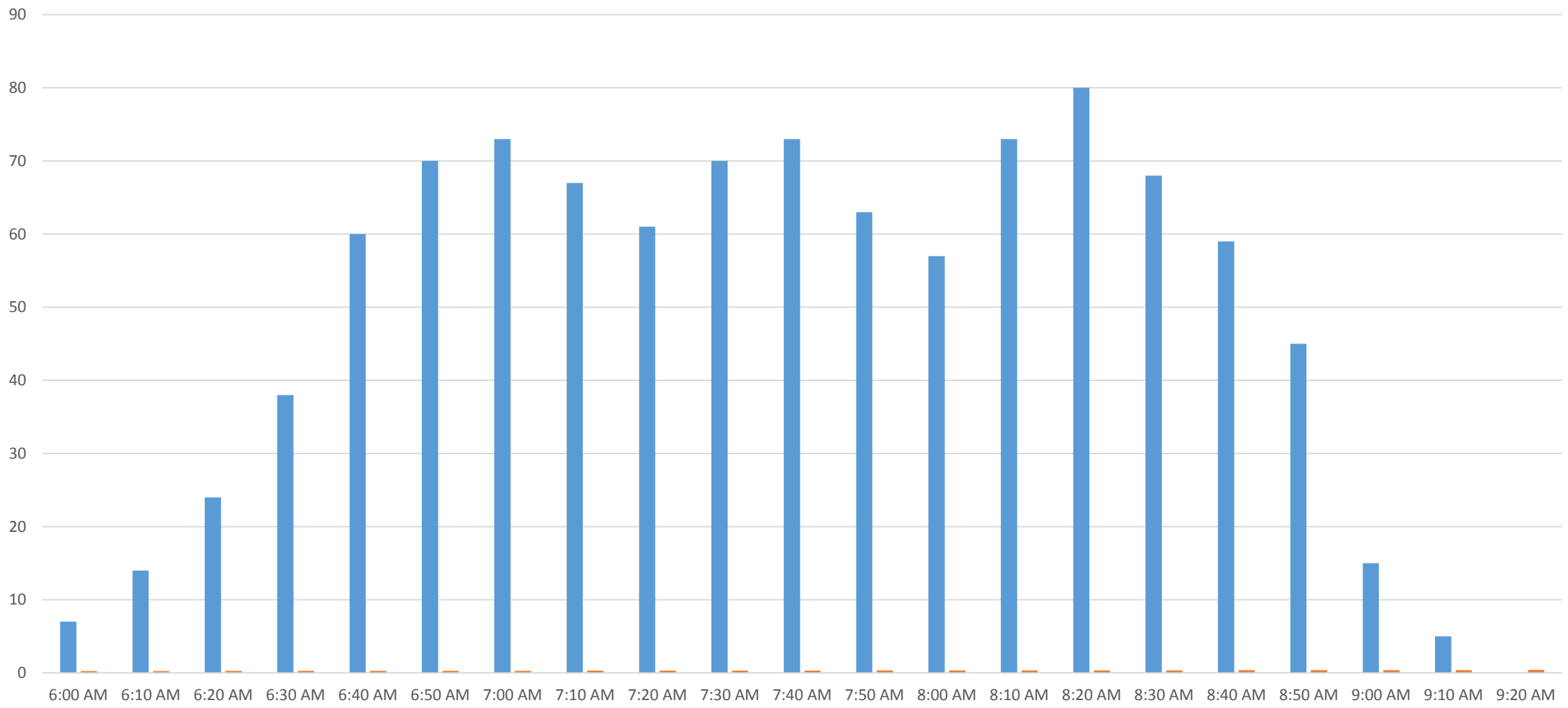

High School
Use of Seats and Time
Time
1:12
1:04
0:57
0:50
0:43
0:36
0:28
0:21
0:14
0:07
0:00
0
20
40
60
80
100
Riders Assigned (many at high school drive)

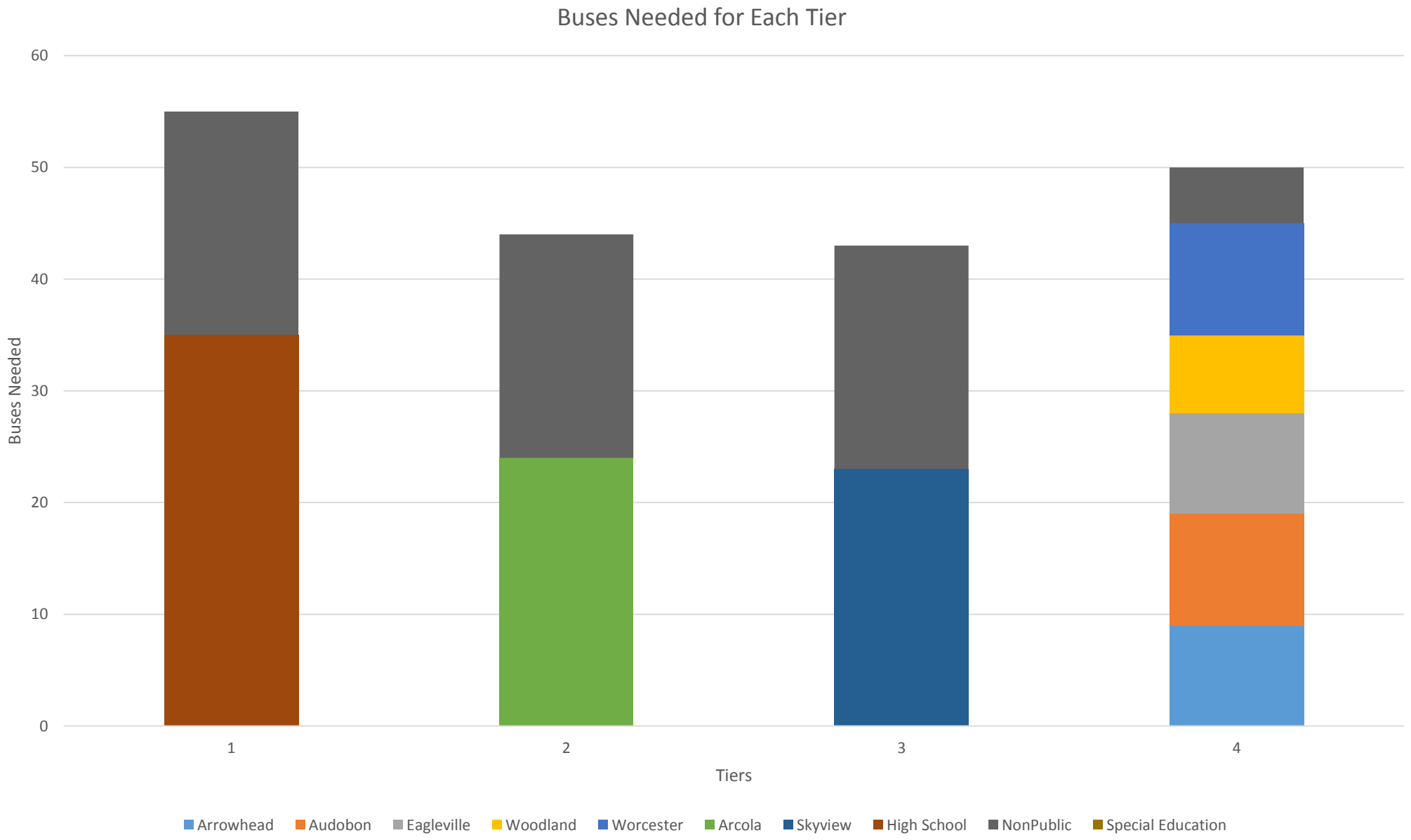
Summary-Use of Seating Capacity

School	Seating Capacity (2.5 elementary 2.0 secondary)	Riders	% Utilization	Excess Capacity	Target-buses to reduce
Arrowhead	398.4	288	72%	110	2
Audobon	472	424	90%	48	1
Eagleville	421.6	283	67%	139	2
Woodland	302.4	232	77%	70	1
Worcester	526.4	343	65%	183	3
Arcola	1062.62	797	75%	266	4
Skyview	860.28	725	56%	135	2
High School	1505.49	1781	79%	-276	0

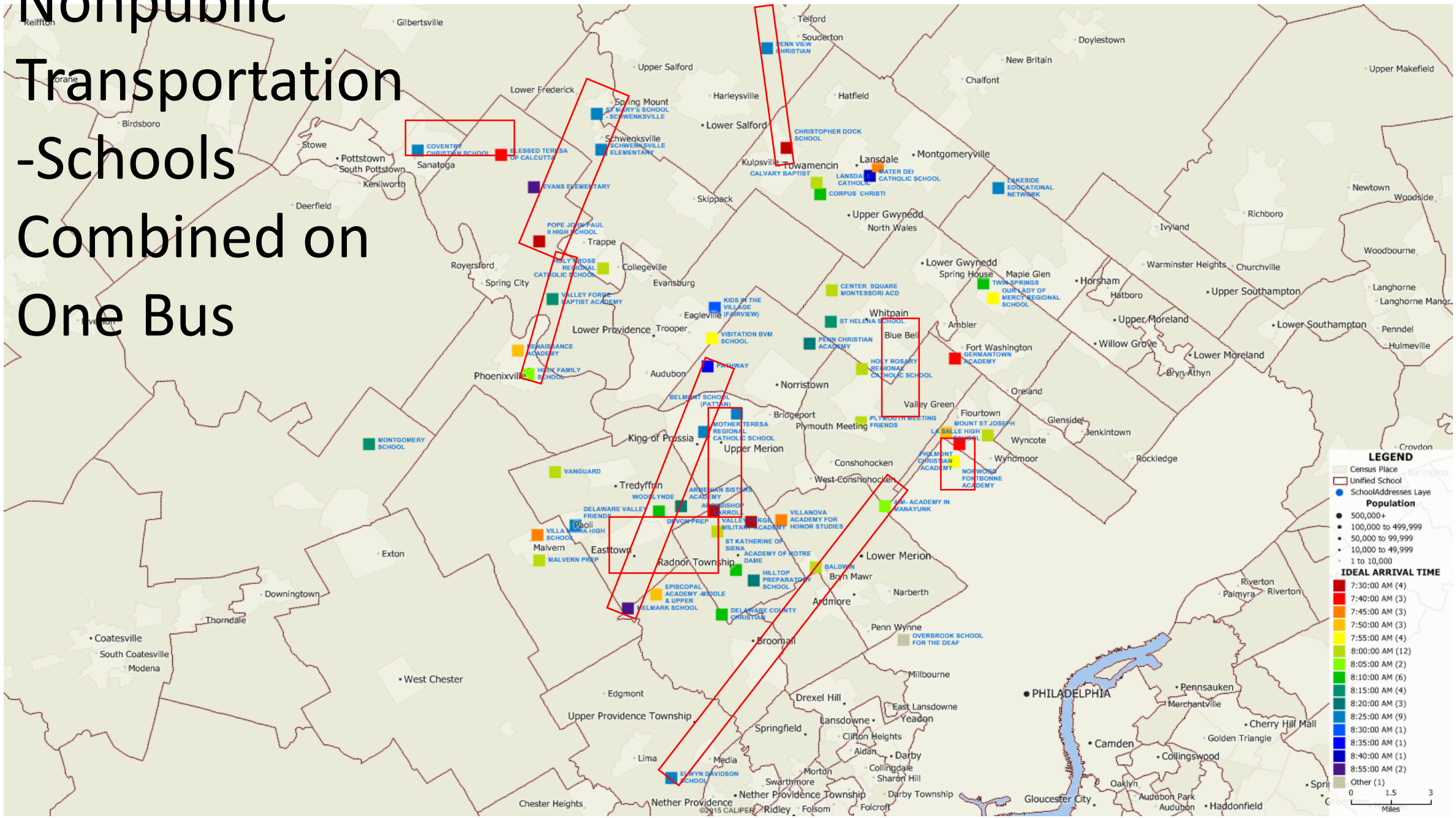
Note: Eliminating a bus run saves only labor and fuel. Labor savings benefits contractor but not the District without a contract revision. To eliminate a bus saving $42,000+ requires eliminating a bus run in each tier.

Number of Buses Used In Morning




Buses Needed for Each Tier
60
50
40
30
20
10
0
Buses Needed
1
2
3
4
Tiers
Arrowhead
Audobon
Eagleville
Woodland
Worcester
Arcola
Skyview
High School
NonPublic
Special Education

Nonpublic Transportation -Schools Combined on One Bus



Sample Implementation Schedule

- March 2016
  - Verify accuracy of all data in BusBoss transportation software
  - Streamline all processes
  - Communicate improvement plan to transportation department and administration
- April/May 2016
  - Review bus stops for possible consolidation
  - Reroute buses using the new target numbers for each school
  - Test new bus routes
  - Conduct ridership study at high school to determine percent of students who ride buses
- June 2016
  - Combine more nonpublic schools onto same buses
- July 2016
  - Assign bus routes to drivers
  - Drivers take trial run
  - School board approves bus routes
- August 2016
  - Notify riders/parents
  - Last week-assign 2 individuals to assist with phone calls (develop approved answers to frequently asked questions)

Sample Implementation Schedule

- Fall 2016
  - Recap implementation of improvements for 2016-17
  - Verify accuracy of all map, travel speed, and time data in BusBoss transportation software
  - Refines selected processes-routing
  - Persuade nonpublic schools to coordinate bell times to facilitate more schools served by same buses
  - Review walking zones
  - Conduct ridership study at high school to determine percent of students who ride buses (between sports seasons to get maximum riders)
- January/February 2017
  - Review additional bus stops for possible consolidation
  - Conduct ridership study at high school to determine percent of students who ride buses
- June 2017
  - Combine more nonpublic schools onto same buses
- July 2017
  - Assign bus routes to drivers
  - Drivers take trial run
  - School board approves bus routes
- August 2017
  - Notify riders/parents
  - Last week-assign 2 individuals to assist with phone calls (develop approved answers to frequently asked questions)

School Board and Administrative Guidelines Needed

- Bus stop location guidelines
- Transporting nonpublic and public riders on same bus from neighborhoods to transfer point
- Maximum ride time-in district for public schools, out of district for nonpublic schools
- Seating capacity-2.5 riders/seat for elementary, 2.0 riders/seat for secondary compared to manufacturer’s rating of 3.0 riders/seat