

# Transportation Efficiency Study



## Table of Contents

OVERVIEW .....	3
Efficiency Routing Concepts.....	4
Trip Efficiency .....	4
Route Efficiency.....	10
Five Year Student Enrollment Estimate .....	11
New York Non-Allowable Pupil Decimal Changes .....	11



## Executive Summary

Transfinder Professional Services was contracted to assist with exploring routing efficiency based on East Islip Union Free School District's student and trip data from the 2024-2025 school year. The district is exploring reducing Walk-to-School around elementary and middle schools.

In this study, only current trip data is being analyzed. This study does not seek to measure community impact, or the specific needs of any individual trip. Instead, the following can be used as an indicator of where or how transportation could be impacted if changes to routing practices occurred and can help guide further investigation.

### OVERVIEW

The potential efficiency routes outlined in this study were selected with the understanding that EIUFSD is looking to become more efficient while addressing ridership and student safety.

This report includes the following:

- A baseline summary of current ridership data, which could be used for future comparisons.
- Considerations for routing policy enhancements including smaller student Walk-to-School Zones.
- An overview of trip pairing to determine conflicts which could increase late bus service.
- Impact analysis of Non-Allowable Pupil Decimal funding based on smaller Walk-to-School zones.
- A summary of findings outlining the results of the analysis.



## Efficiency Routing Concepts

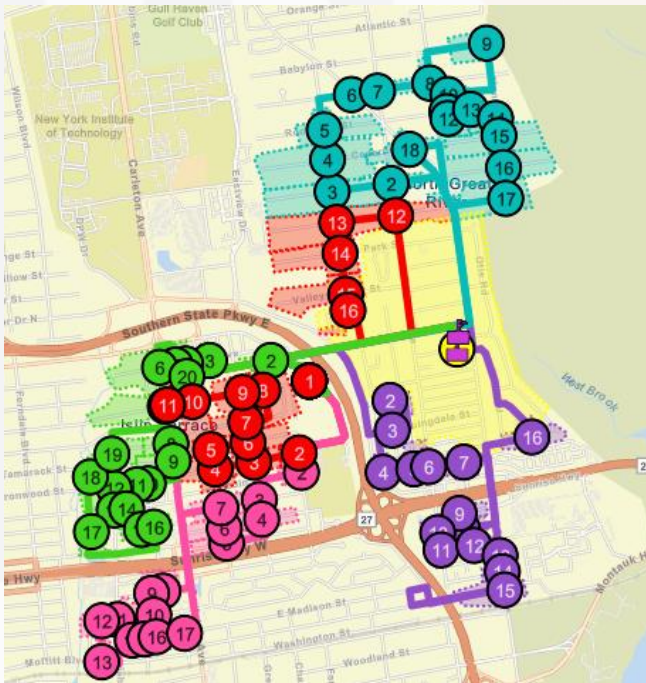
This section explores some key routing efficiency concepts and how they may be able to be applied to your current trip data. Please note that changes to trips based on the examples that follow can only be made in conjunction with your district transportation professionals, who have the local knowledge to know whether these changes would be feasible and safe.

### Trip Efficiency

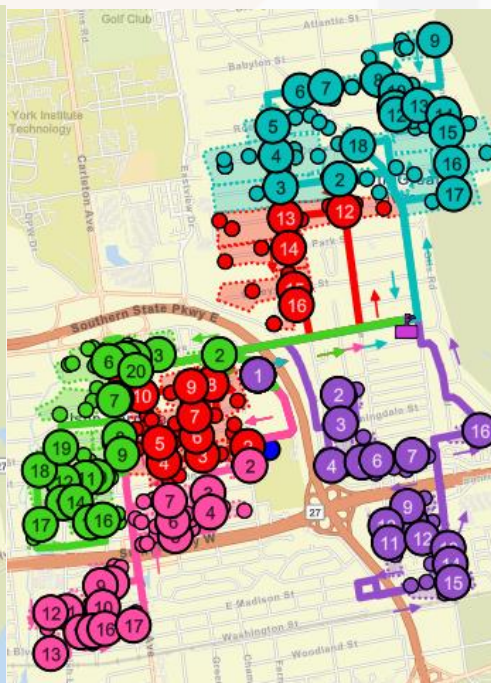
The following maps compare current trips by school with new walk zone efficiency trips. This walk to school zone remained constant at 0.5 miles.

#### Connetquot

Current



Efficiency



There were no changes in the trips since the walk zone did not change.

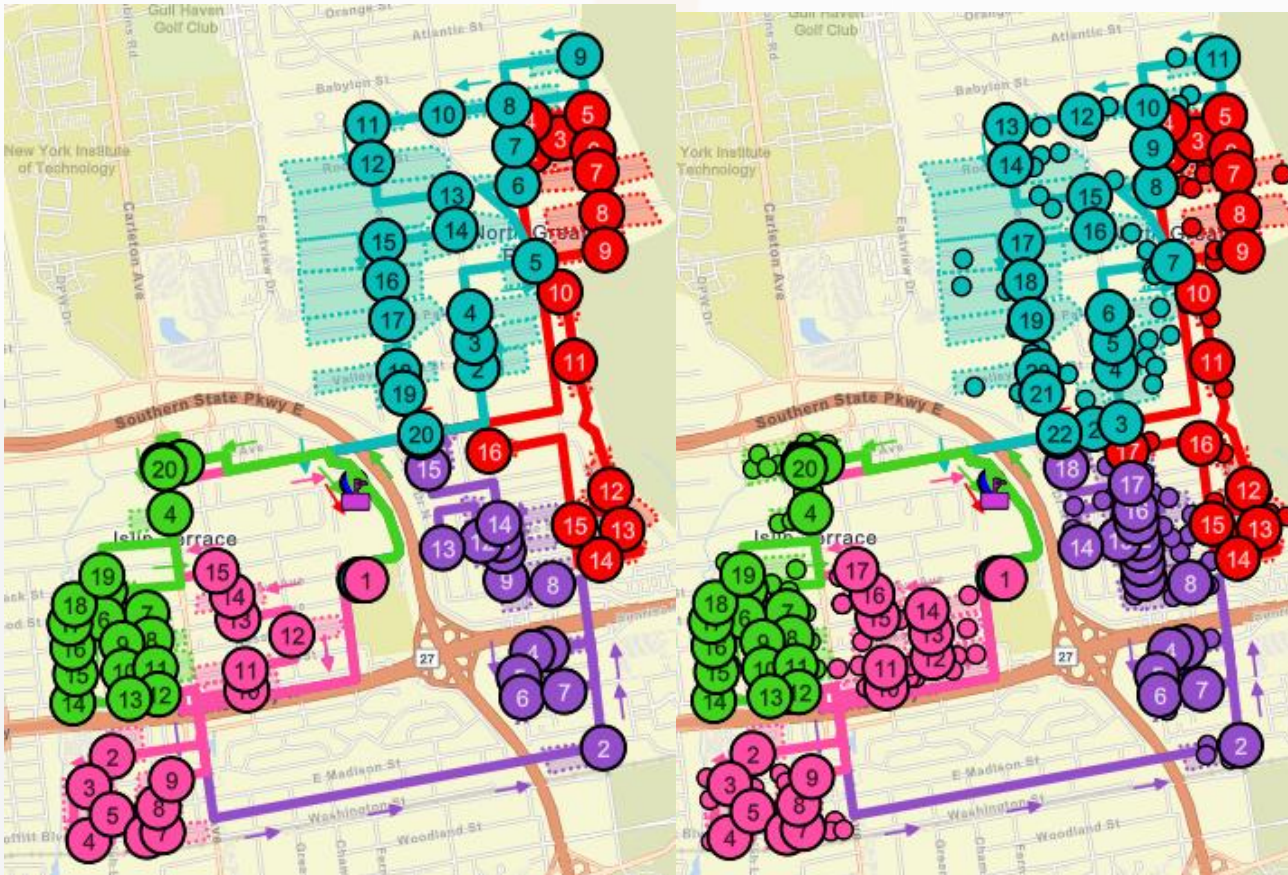


## Ruth C Kinney

The walk to school zone went to 0.5-miles for all students.

Current

Efficiency



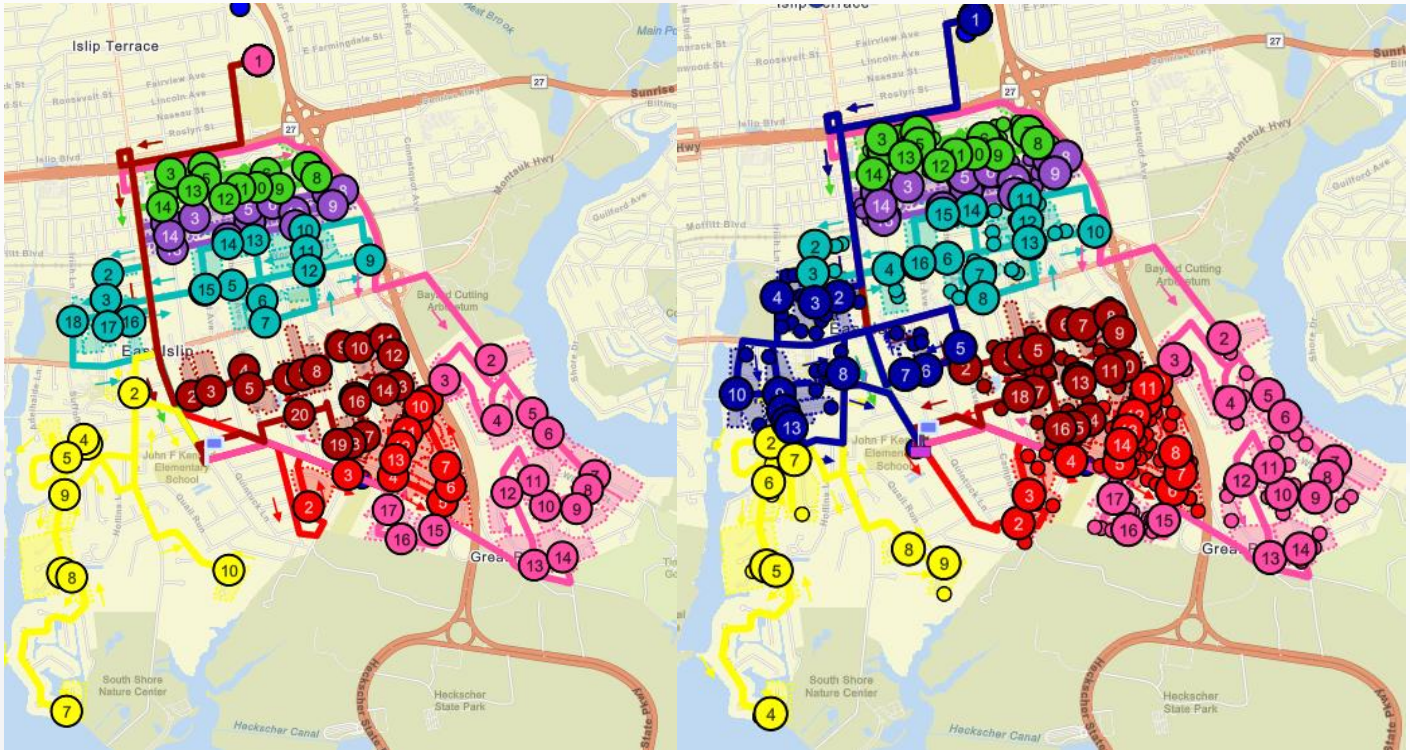
Stops were added for newly eligible students but the trip structure remained constant for this school.

## John F Kennedy

Like JFK, all grade levels are now 0.5-mile walk to school.

Current

Efficiency



A new trip and new stops were added for new eligible riders and trip paths were modified slightly to accommodate the new stops.

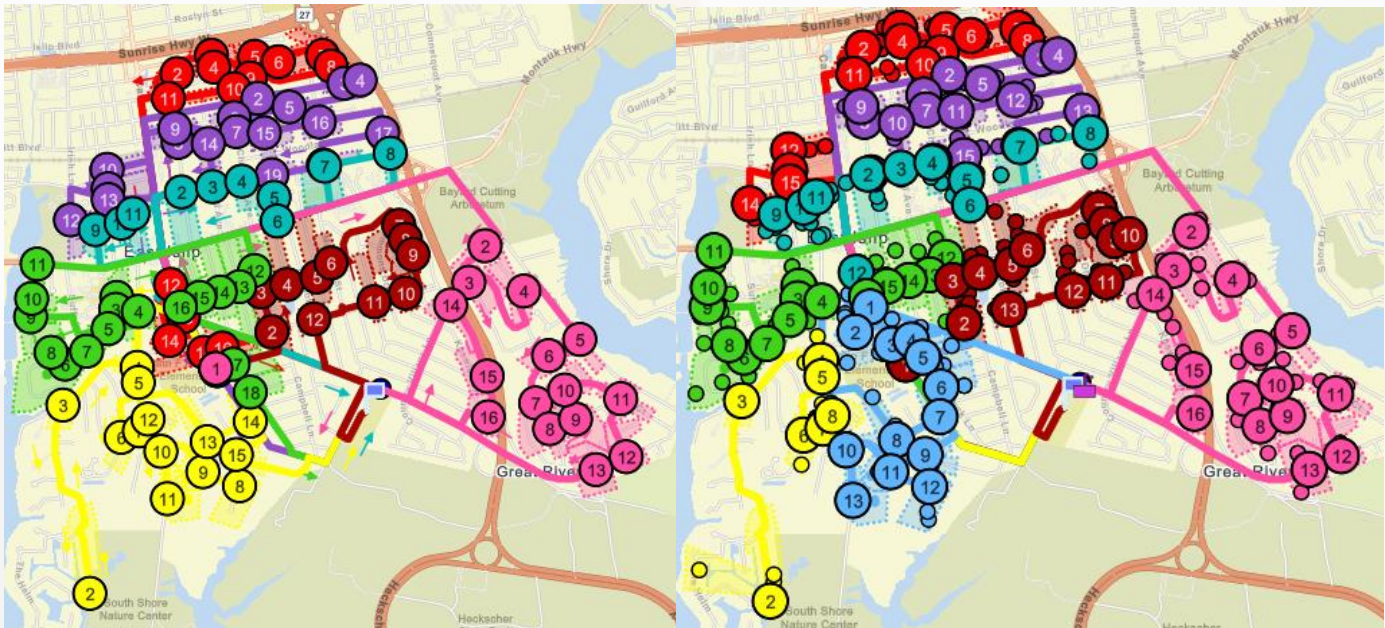


## Timber Point

The 0.5-mile walk zone at this school remained constant at this school.

Current

Efficiency



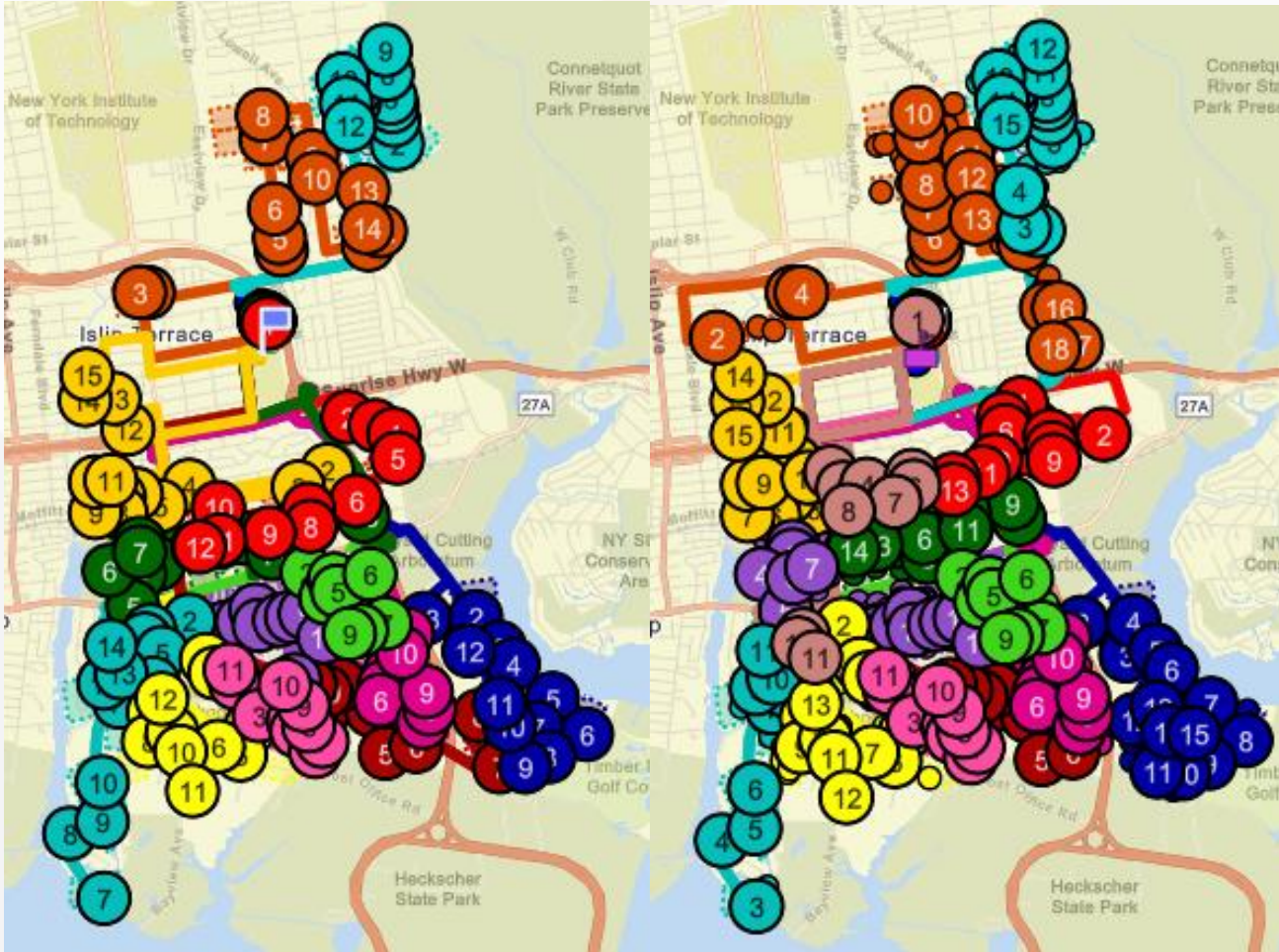
A new trip was added to handle timing issues to allow students to arrive in a timely manner.

## East Islip MS

All students now have a 1.0 mile walk to school boundary.

Current

Efficiency



One new trip was added at this grade level to accommodate the additional students.

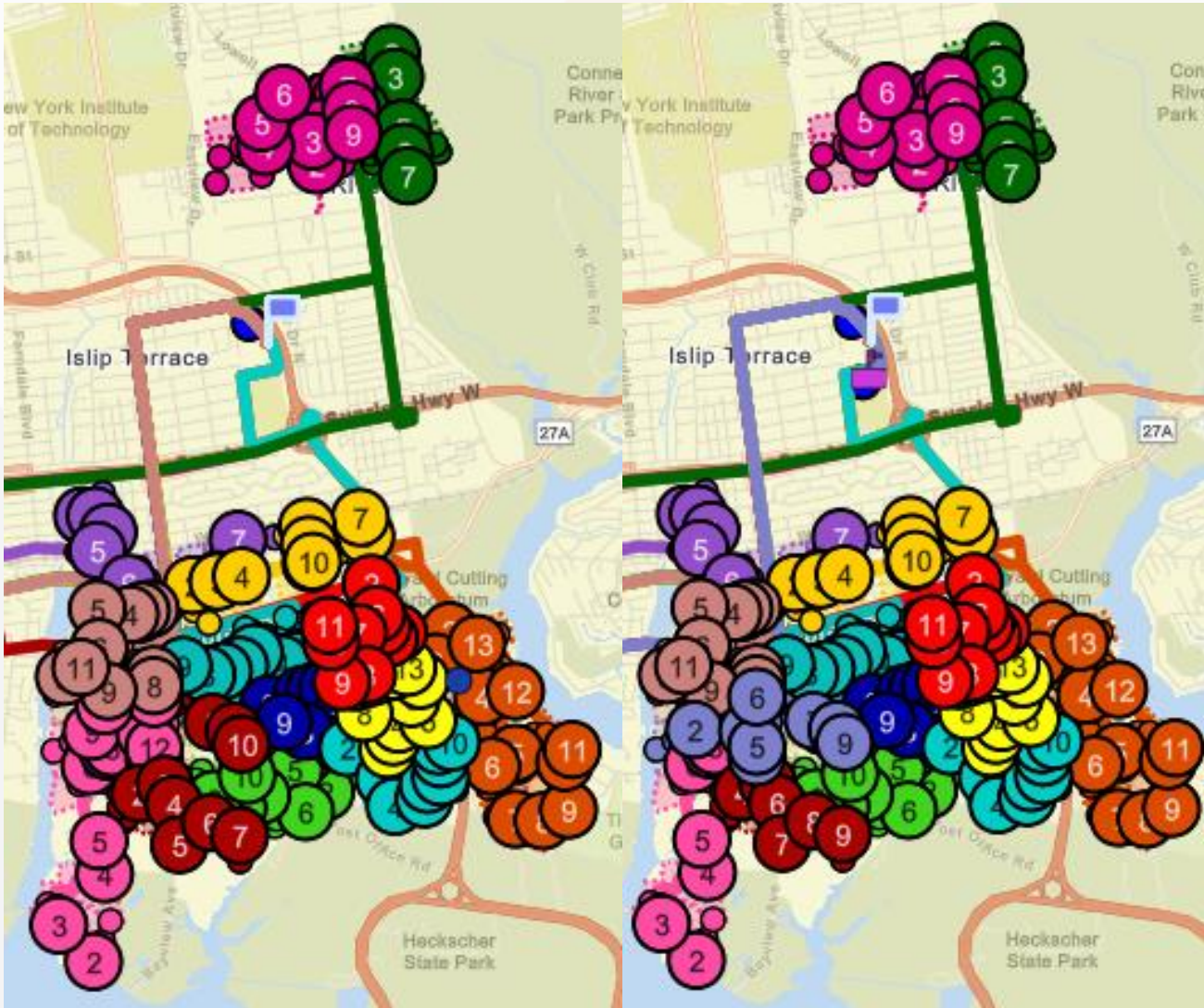


## East Islip High School

Students at the High School level maintain the current 1.5 miles walk to school.

Current

Efficiency



An additional trip was added to this campus.



## Five Year Student Enrollment Estimate

Transfinder Professional Service estimated potential transportation needs based on a standard cohort survival method for students to provide insight into the survivability of this model over time.

	KF	1	2	3	4	5	6	7	8	9	10	11	12	Totals
2020-21	157	174	172	123	103	125	294	277	292	277	291	262	338	2547
2021-22	235	236	235	230	275	232	259	296	282	300	268	294	278	3142
2022-23	240	242	235	250	237	279	234	267	307	299	281	271	299	3142
2023-24	224	244	237	252	249	237	284	234	270	331	287	282	291	3131
2024-25	252	232	249	247	248	252	239	287	241	274	314	294	290	3129
2025-26	257	244	246	253	252	261	254	240	290	248	277	321	289	3143
2026-27	251	256	244	248	258	257	270	256	243	296	262	284	331	3125
2027-28	262	264	256	236	255	263	262	277	260	247	305	283	291	3170
2028-29	267	256	264	229	228	264	268	267	284	266	254	311	318	3158
2029-30	272	265	256	277	202	212	280	273	277	298	276	265	326	3153

## New York Non-Allowable Pupil Decimal Changes

Reducing the walk zones for ineligible students under New York school transportation funding guidelines changes the non-allowable pupil decimal ratio. This type of change in the non-allowable pupil decimal ratio diminishes transportation funding for the district in the future.

Student demographics and funding eligibility change year by year. In order to determine the impact of the potential reduction in walk to school zones, the non-allowable pupil decimal ratio was calculated for current and then modified school walk zones. The non-allowable pupil decimal for current routes without any changes is 0.1019 with eligible students calculated in accordance with district parameters. If the walk to school zones are reduced, the new non-allowable pupil decimal is 0.1312. The walk zone change generates a difference of 0.0293 in the pupil decimal ratio based on current routes and eligible students. This increase in the non-allowable pupil decimal will reduce district funding yearly. The current reduction for reduced walk zones is expected to be \$118,913.

District	\$2,980,250		District	\$2,980,250
Private	\$1,078,207		Private	\$1,078,207
Total	\$4,058,457		Total	\$4,058,457
Current NAPD	0.1019		Expected NAPD	0.1312
Current Reimbursement Reduction	\$413,556		Expected Reimbursement Reduction	\$532,469



## Summary of Findings

EIUSD is exploring routing efficiency while considering reduced walk to school zones.

The gap between the bell tiers drives the number of buses needed if all buses are to arrive in a timely manner.

One additional bus was added due to reducing the number of ineligible students with walk zone changes. However, a second bus may need to be added since the differing walk to school policies at various campuses undoubtedly has more parents transporting both ineligible and eligible siblings together.

There are additional efficiencies that could be realized with expanded walk to stop policies.

Overall, routing follows best practices with few errors detected during this study.

Reducing the walk to school zones increases the Non-Allowable Pupil Decimal percentage significantly.

**This report has been developed by Transfinder Professional Services.**



### **Additional Transfinder Professional Services available:**

We provide implementation services for the full suite of our solutions, including our fleet maintenance, field trip, and AVL software for seamless GPS integration with our routing system.

### **ROUTE ANALYSIS FOR GREATER EFFICIENCIES & COST SAVINGS**

Increasing routing and scheduling efficiencies has a cumulative and positive impact on your transportation budget. We analyze your data, current routes, and bus runs, and recommend incremental changes that yield significant savings. These may include adjusting bell time windows; student ride times; bus capacity based on actual ridership; walk-to-stop distances and routing parameters, and non-required services.

### **DEMOGRAPHIC ANALYSIS FOR BOUNDARY PLANNING**

When your district experiences growth or consolidation, we help you evaluate your student population demographically and geographically based on available local knowledge and historical data. We also will plot and plan for future growth over the next five years. By analyzing your existing or changing school placements, we will then enable your Administrators and Board Members to make policy shifts that have positive effects on the community now and in the future.

### **MANAGEMENT TRAINING**

Several of our Professional Services staff have managed transportation departments and can provide management training for directors throughout the country. We assess your day-to-day operational challenges and provide customized management training to ensure your success.

### **TRANSPORTATION CONSOLIDATION STUDIES**

Economic challenges are causing school districts to evaluate consolidating services, including transportation. Our Professional Services staff has worked with school districts in several states on opportunities for consolidation that ensures local control, while leveraging centralized routing and scheduling expertise. Our studies enable participating school districts to achieve economies of scale through careful analysis, collaborations, and agreements.

