



# What Optimizing Transportation Routes Means for Your School District and Students



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## Introduction

**How can school districts continue to meet the needs of their students, even as budgets continue to drop around the country?**

Virtually anyone who has spent any time in US schools lately know that this is probably the most pressing question in front of administrators. Even parents have noticed, with a USA Today poll noting that a lack of financial support is now the #1 worry among parents with children in schools.

Reactions among school districts have been increasingly extreme as well, with more districts having to discuss radical actions such as cutting back classes to four days a week. Massive cuts to budgets are also common, with some schools looking at eliminating all non-special ed. bus service entirely, despite the potential impact on students.

It's especially unfortunate that so many schools are looking at cutting their buses because there's an **inexpensive and highly effective fix available** that can help virtually any struggling school significantly reduce its transportation budget: route optimization software.

Rather than cutting bus budgets dramatically from the top down, route optimization allows cost-cutting through better use of resources. One software investment can preserve a school's existing bus system while helping the district provide better services to the community.



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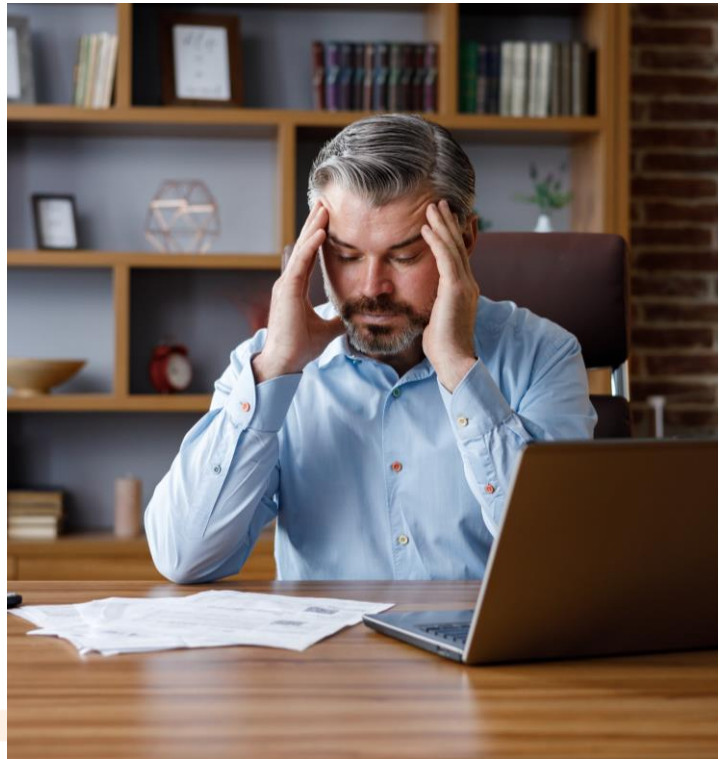
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# The Problems Facing School Districts Without Bus Optimization

Many districts fail to realize how much money they're losing on a daily basis from unoptimized routes, especially if they're using outdated maps or still plotting out routes by hand. In even a small town, **the number of potential routes for busses is nearly infinite**. Someone creating routes by hand is rarely, if ever, going to achieve a truly optimal solution.

However, beyond the raw route calculations, districts with outdated maps and routing techniques are also creating other problems for themselves:

- Maps can take months to create by hand, effectively creating an all-summer job for someone who probably could be using their time more productively. It's little wonder some schools continue using outdated routes rather than revise their maps.
- Changes to the routing due to enrollment changes are usually made on an adhoc basis, creating routes that are even less optimized.
- The process of adding and changing routes is often complex enough that recent student transfers may not even be able to take the bus at first, if approval requires a lengthy process.



- Bus drivers may be hit with large changes to their routes practically overnight, with administrators merely hoping they'll be able to remember and adapt when their load changes from day to day.
- "Lost" students being left on the bus or getting off at the wrong stop can cause panic among parents, high costs to the district, and bad publicity.
- New roads added to the local street system may be overlooked entirely, even if they could help reduce drive times.

When times were good and school budgets higher, schools could afford to lose a bit of money on bus transportation. Now, when every penny matters, these small problems overall add up into huge cost drains.



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# What Options Are Available For Improving School Bus Services?

The options available to schools in this situation are regrettably few. As unfortunate as it is to say, a person creating bus routes by hand will never be able to out-optimize a computer except by pure luck. These sorts of computational problems involving millions of alternatives are exactly what computers are best at figuring out, and humans are worst at. **A hand-created map virtually guarantees buses will be driving too long**, and making too many stops. It may even require more buses than are necessary.

**There are potential Do-It-Yourself solutions**, like making use of Google Maps or a personal GPS system to work out routes. This can help, but such systems are still not designed to deal with balancing multiple routes at once. DIY maps created with existing free map programs still won't be as well-designed as those created by a system that natively can handle dozens of routes simultaneously.

**Outsourcing is another option**, one school districts have been employing since the 1990s. While this initially provided cost savings to many districts, as time has gone on, those savings are drying up. While a full look into the causes of this trend are beyond the scope of a simple whitepaper, the short version is that once a school has sold off its bus fleet, it's not going to have the money to purchase a new one. The contractors know this, and the result is ongoing cost hikes to a captive market that quickly erase the initial savings.

**Finally, there are outsourced contractors** who offer route optimization services specifically, but this is a solution that offers few true benefits to a school district. It adds an extra layer of bureaucracy to a sector arguably already choked with paperwork, and creates a system where the district has to call in the consultant whenever they want to change their routes. Like with outsourced buses, this only leads to increased costs and inefficiency as time goes on.



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## In-House Route Optimization Software Brings the Greatest Savings

It's not an overstatement to say that the cost savings associated with bus route optimization can be dramatic. Depending on how poorly-optimized the original bus plans were, a district can look at cutting fifty percent or more of their transportation budget, *without decreasing service quality*.

In one case, a consulting firm found that their district could save over \$300 per student, per day through simple in-house optimization strategies.

Optimization software also allows ongoing operations to be conducted more quickly and efficiently. When the software is tied to the student enrollment database, **the district gets an at-a-glance overview of every student and the route they take**. New students can be added onto routes within minutes, with new maps and routing delivered to the drivers accordingly. A logistical nightmare can be reduced to a single Windows application that virtually any staff member can operate and update as needed, with no extra expertise required.

## GPS and RFID Add Security and Efficiency

The other reason that a budget-smart school district should look into in-house routing software is that it opens up new avenues for further improving their transportation services, while making use of cheap, well-established technologies in buses.

A combination of in-bus GPS tracking and RFID scanners onboard gives a district total operating knowledge of their bus fleet, throughout every day's driving:

- The location of every bus is tracked, with only a few seconds between updates. Should a bus deviate from its course, or suffer a breakdown, the school will know about it mere moments later.



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- Scanning students' RFID-enabled badges upon embarking and disembarking means a district can, at all times, know exactly where their students are. Alarms will alert the bus driver if a student is making an unscheduled stop.
- In case of accident or breakdown, help can be dispatched much more quickly and with exact knowledge of the bus's location.
- The dashboard GPS gives the driver turn-by-turn instructions for the route, ensuring routing changes won't be forgotten.
- Should parents be concerned about a delay, this tracking system means a district can give them more information, and more reliable ETAs, with less time spent on the phone.
- Additional information collected by the system, such as gas mileage data, can be used to identify minor maintenance problems before they become major breakdowns.
- Drivers can be monitored closely for legal compliance, such as observing speed limits and railroad crossings, with absolute proof in hand should they be found disregarding the law.

The key point here is that these are all ongoing savings. Once the initial system is installed, upkeep is nearly nonexistent besides ensuring the onboard systems continue to function properly. There's no third party involved, and no external bills to pay.



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## BusBoss – The Simple Solution for Any School District

There are several solutions on the market for a school district looking for bus route optimization. Why choose BusBoss? Because it's simultaneously the most powerful and the easiest to use in-house routing system on the market. From appending student records, to creating hypothetical maps for future expansions, everything in BusBoss is handled through a single screen. The Windows interface walks users through any process, and should trouble occur, our tech support staff will be ready and waiting to provide any help needed.

Custom solutions are available as well, since every district has its own special needs. In every case, the district receives software tailored to its specific challenges, rather than a one-size-fits-all plan. We offer a [free software demo](#) for any district interested in seeing the service for themselves, as well as a guided online product demonstration with live consultation suitable for group attendance, such as school board members. School budgets aren't going to be increasing drastically any time soon, and most schools need all the cost savings they can get. The BusBoss routing system will pay for itself within months, creating savings that will continue for years.

[Contact us today](#) to find out just how easy it is to put BusBoss to work for your school district!



**Learn More About BusBoss Products**



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