EDUCATION LOGISTICS, INC. (EDULOG)
RESPONSE TO REQUEST FOR PROPOSALS
SCHOOL BUS ROUTING SOFTWARE
RFP 2024-003
ISSUED BY THE BOONE COUNTY SCHOOLS

For questions regarding this response or to request a demonstration/presentation, please contact:
Pete Salinas, Director of National Accounts
Mobile Phone: (406) 360-0205
psalinas@EDULOG.com

Submitted by Carter Young, Sales Support Manager

Education Logistics, Inc. (EDULOG**)**
3000 Palmer Street
Missoula, MT 59808
(406) 728.0893

www.EDULOG.com

February 22, 2024

Smarter Transportation.

TRANSMITTAL LETTER

February 22, 2024

Mr. Donny Grant
Purchasing Administrator
Boone County Board of Education

RE: RFP 2024-003 Addendum 1 (School Bus Routing Software)

Dear Mr. Grant:

On behalf of Education Logistics, Inc. (EDULOG) I am pleased to present this submittal to the Boone County Schools (BCS) for an enterprise student transportation management system that would upgrade the BCS's currently-licensed and operational EDULOG route management system to the latest version of EDULOG Athena.

EDULOG's response is unique among the responses BCS will review during this RFP process. And while the BCS has issued an RFP for transportation software, the need BCS describes in its RFP documents is for a *solution*, not just *tools*. Any vendor can provide adequate tools, but EDULOG is the only respondent who can provide a solution to the transportation challenges faced by the BCS.

How is EDULOG unique?

- T**he system functions and capabilities requested by this RFP are already in place!** EDULOG will certainly enhance the BCS's current EDULOG route management system with the new and advanced features of EDULOG Athena. Because what we are proposing is an upgrade to an existing system, there will be no need for the district to learn new system processes and terminology; risk project management failure caused by the introduction of new and untested products/services; expend critical resources trying to maintain and use disparate systems until some future "cut-over" date; or face the humiliating public scrutiny of having a system failure at the start of the new school year (see the recent example of the Jefferson County Public Schools of Louisville, KY).

- **EDULOG has unparalleled experience in the school transportation industry.** We have over 40 years of working with and learning from our clients, which is longer than any other major software vendor (some of whom have grown by acquisition, others who have simply tried to port solutions designed for other transportation scenarios to school transportation with mixed results). EDULOG systems are relied upon to manage some of the largest and most complex student transportation operations in existence: New York City, Minneapolis, Memphis, Broward County (Fort Lauderdale,

FL), Atlanta, the entire state of North Carolina, and First Student, the largest school busing service provider in North America.

- EDULOG is the only transportation management software in the K-12 market that was built from the ground up with core transportation department needs (routing, dispatch, optimization, etc.) at its heart, and which incorporates best-in-class practices for enterprise resource planning, community engagement, contract management, and other functions, so that large transportation departments can be an active agent of improvement and positive change in their districts. With Athena, transportation departments can go beyond merely coping, reacting, and responding, to being proactive and successfully initiating change.

- **EDULOG is the only solution that braids together the industry's best optimization technology,** custom-built to solve school transportation challenges, with a full suite of school transportation management and planning software tools. Other vendors have management and planning tools and yet other vendors claim to be able to provide optimization services. EDULOG is the only company that has made optimization a building block of its transportation management and planning software – this not only allows EDULOG clients to make optimization an everyday part of their transportation management process, but also provides EDULOG clients an unparalleled ability to check and validate the feasibility of optimization solution prior to putting real schoolchildren on buses. EDULOG approaches optimization in transportation like wellness and physical fitness—small but important and frequent activities that make and keep an overall operation strong and healthy. This is in stark contrast to others in the industry who approach optimization like surgery—even the "best" optimization, if applied to a transportation system like a titanium knee to an aging body, does not strengthen and reinforce the whole system and can even introduce new instabilities.

- **Optimization is in EDULOG's very DNA.** Unlike any other vendors in this space, EDULOG started from an optimization-first approach to solving school transportation problems, and has maintained that approach to this day, only getting even better as technology advances in processing and computing power. **EDULOG's optimization technology is the only optimization technology in this space built *specifically* to solve *school transportation challenges*.** We have learned from other industries, but we always start and end with the unique challenges present in school transportation.

- **EDULOG is a people company, not just a software vendor**. EDULOG has the experience and knowledge to go beyond simple analysis and provide effective recommendations that result in verifiable and permanent improvements. Many EDULOG team members have been assisting school districts for more than 20 years, and we collectively have nearly 700 years of experience with school transportation operations. But we go beyond merely sitting in an office and talking to clients on the phone: many projects embed EDULOG staff at customer sites for weeks at a time, and several of the company's

employees have actually been assigned to work side-by-side with client transportation staff for months, and in some cases, years. We've been with our clients during the preparation of a new school year's transportation plan and those first hectic weeks when recently-enrolled students need busing right away. And we've also been there when new school boundaries require major changes to bus routes during the winter break, or when a bond measure fails and the number of buses in service needs to be drastically reduced to meet the shrinking budget.

Quite simply, EDULOG is the best partner bringing the best solutions to large, complex K-12 transportation systems like the BCS's. This fact has been emphasized by recent RFP awards. After evaluating all of the available systems, the Chicago Public Schools, the Houston Independent School District, the Dallas Independent School District, and the Duval County Schools (Jacksonville, FL) all selected EDULOG to replace their legacy transportation management systems.

Conclusion

Questions regarding this response, or inquiries about an on-site or remote presentation, may be addressed to Mr. Pete Salinas, director of national accounts for EDULOG. Mr. Salinas' mobile phone number is (406) 360-0205. Electronic messages may be sent to: psalinas@EDULOG.com. Facsimile messages may be sent to: (406) 728-8754. Our legal name is Education Logistics, Inc. and our mailing and delivery address is: 3000 Palmer Street, Missoula, MT 59808. Our office telephone number is (406) 728-0893. Our company is incorporated in the state of Montana. Mr. Salinas will be the initial contact for arranging of a presentation.

We acknowledge the reading of the answers to submitted questions posted to Ionwave. Thank you for providing edulog with this opportunity, and we look forward to a continuing successful relationship with the Boone County Schools.

Sincerely,

Carter Young, Sales Support Manager

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EDULOG ADVANTAGES AND BENEFITS

The Boone County Schools's (BCS) vision for what is essentially an enterprise transportation management solution aligns perfectly with EDULOG's (Education Logistics, Inc.) concept and development of our Athena system—**which is offered in this proposal as an upgrade to the district's current EDULOG route management software system.**

Imagine that you had everything that you needed for safe, efficient, economical student transportation management right in front of you? And imagine that this is all backed by more than 40 years of experience and the innovation that only a deep understanding of advanced design and artificial intelligence (AI) technologies can provide? Well, your imagination can now be realized thanks to EDULOG's history-making investment in a completely new way of looking at, and managing, student transportation: EDULOG Athena.

Compared to EDULOG's Athena system, no other solution on the market can provide the BCS with the quality of data needed to meet today's transparency demands. We believe that the Boone County Schools will greatly benefit from an EDULOG demonstration/presentation of the products and services it can provide to meet the challenges of: communicating with parents and schools and creating a new transportation plan to accommodate changing circumstances. Absolutely no other vendor can match our experience or the capabilities of the EDULOG Athena system—seeing is believing!

Since 1978, Education Logistics, Inc. (EDULOG) has been the innovation leader for school transportation management systems. EDULOG introduced to the market such software capabilities as GIS route building, multi-user networking, automated SIS downloads, optimization, GPS integration, student ridership management, school and parent information portals, web browser access, financial and accounting and many others, and is still driving innovations with these and yet newer features today.

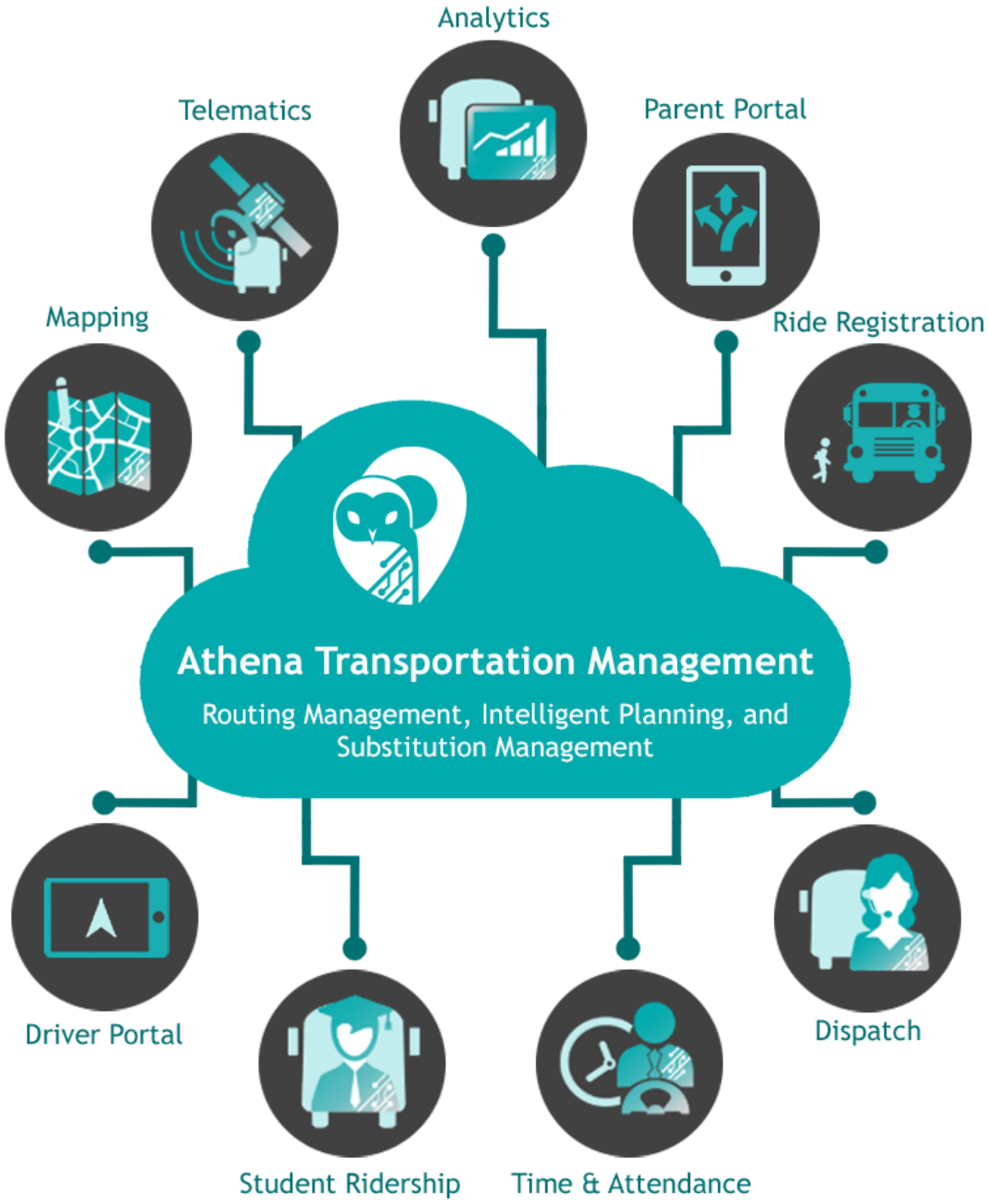
EDULOG continues its tradition of innovation with the release of Athena, EDULOG's next generation student transportation management system. Athena is a cloud-based solution designed according to EDULOG's vision regarding:

i) the recognition of the increased breadth of routing operation functions in a district and

ii) the objective of EDULOG to develop the solution to this new realization that the routing operation is itself an enterprise operation within the school district. School bus routing needs an enterprise outlook for its obligation to the district and the public at large. We should also emphasize that EDULOG is gratified that the BCS appears to share the same understanding of the mission of the transportation operation.

Athena is the most cutting-edge and capable system ever produced for K-12 transportation management and planning. For an illustration of EDULOG's solution package for an enterprise trans-

portation management solution, please see below (not all systems in the graphic below are currently proposed to the BCS):



In order to create this incredible system, EDULOG returned to the drawing board, rebuilding its entire transportation management system from the ground up. Designing a new system from scratch is not an easy task, and that's why no one other than EDULOG has done so. **It has been clear for years now that large school district transportation operations are no longer required only to transport students to school safely and effectively—they need an EDULOG enterprise solution.** As school district operations generally become more sophisticated and integrated and more public-facing, so must

transportation. Being able to do a job on the one hand, and being able to plan, work with stakeholders, report out, and be accountable on the other require very different skills and tools. For example, a district can have completely mastered getting a student to and from school more or less on time, but still struggle with the task of communicating timely and accurate information about that student's transportation and how it compares to plan.

EDULOG is the only software on the market that was built from the ground up with core transportation department needs (GPS tracking, routing, optimization, student ridership management, etc.) at its heart, and then incorporated best-in-class practices from other industries for enterprise resource planning, asset tracking, community engagement and other functions, so that the BCS transportation department can be an active agent of improvement and positive change. With Athena, you can go beyond merely coping and reacting and responding, to being proactive, planning, and initiating change.

So, how has EDULOG been able to accomplish what no other company can? First, EDULOG's engineering staff has extensive experience in the fields of defense, medicine, and applied research (all domains with research and development teams and budgets dwarfing anything available to the entire school transportation industry). This experience with Big Data, AI, machine learning, and related technical fields has been instrumental in developing the Athena framework and the incorporation of new software techniques and designs inherently impossible to graft on to legacy systems.

Because Athena has been designed from scratch, EDULOG has brought its 40+ years of experience and reflection in school transportation to the development of models using business intelligence that truly solve the most difficult problems in the domain: user permission management, scheduling frequency, integration of optimization, multi-dimensional display of large amount of data, etc.

Next, EDULOG has been engaged in student transportation projects beyond North America; places where school busing is a new concept and the mentality of "this is how things have always been done" doesn't exist. What we've learned from this experience—and have incorporated into the fundamentals of Athena—is that a truly modern student transportation management system needs to incorporate more than just routing and scheduling. Not only does the system need to accept, process, and communicate information from a variety of devices if the requisite software is licensed and implemented (mobile phones, tablets, GPS, student ID systems), it also must be responsive and inclusive to all stakeholders and users—parents especially, but also data analysts, school administrators and teachers, bus drivers and aides, and of course transportation department routers/dispatchers/planners.

None of this is possible without effective and intelligent data modeling—again, something that cannot be "added on" to legacy systems. Because Athena has been designed from scratch, EDULOG has brought its 40+ years of experience and reflection in school transportation to the development of models using business intelligence that truly solve the most difficult problems in the domain: user permission management, scheduling frequency, effective dates, integration of optimization, multi-dimensional display of large amount of data, etc.

ATHENA: A GAME-CHANGING SOLUTION

With EDULOG Athena, you can plan and manage all daily and long-term busing activities with intuitive, easy-to-use workspaces customized for each user and role. Athena gives you the tools to quickly and correctly act upon changing circumstances and know with certainty what buses are doing at all times.

The Athena system has been designed from the start for multi-user collaboration in teams and comprehensive user management. Administrators, directors, routers, clerks, etc. can all interact with the same data within the same system.

Athena gives you solutions that make routing simple.

- **Integration -** Athena integrates with many third-party systems, such as all major student information systems, pulling and populating your transportation rosters, eligibility, and more based on your district's daily records; GPS/AVL systems; financial systems, etc.
- **Efficient User Interface –** It's easy to select and assign multiple students to stops, quickly assign stops to runs, and do it all right from the map. Performing your most common routing tasks is fast, easy, and intuitive.
- **Better, Faster, Stronger –** Enhanced management processes for mapping, automated student scheduling, routing optimization available as a routine routing operation, integrated GPS tracking, etc.

Athena offers everything that you need for safe, efficient, economical student transportation management, without the need to open separate applications or use non-integrated software from two or more vendors. It is all backed by more than 40 years of experience and the innovation that only EDULOG can provide. Everything you need is in one place from the most experienced and knowledgeable vendor in the industry. Unlike other companies who may respond to this RFP, we only do K-12 transportation management. Students are not packages out for delivery, and everything we do is focused on the safe and efficient busing of children.

We would now like to discuss some Athena benefits and advantages we believe are of relevance to the Boone County Schools. These are only a few Athena capabilities and unique benefits selected for an illustration of how they can make a direct difference for the BCS. We look forward to a live presentation when we can demonstrate other exceptional features of Athena which address BCS's requirements.

MANAGING STUDENT ASSIGNMENTS AND CHANGES USING FREQUENCIES—DIFFERENT DAYS, DIFFERENT SCHEDULES

Unlike competing routing systems that still operate on the principle that assignments and schedules remain fixed for the entire school year, EDULOG designed Athena from the ground up with the realization that student, school, and route situations can change at any moment, either because of something planned months in advance or a totally unexpected circumstance. EDULOG also understands the complexities of today's family dynamics and educational opportunities: students don't necessarily have the same residence from week to week, they may go to one school on Monday

and need busing to a different campus on Friday, and hybrid learning plans (in-school instruction only during certain days) can frequently change.

The fundamental reasons why EDULOG has focused so much work on the area of managing different day, different destination routing, scheduling, and assignments are:

- **Parents' needs.** Parents want to make requests to transport their children in a more flexible than the same fixed way five days a week. For example: alternative pickup and drop-off locations on different days of the week—and also for specific time periods, e.g. starting next week for four weeks, or starting in three days for the rest of the year, etc. Managing the current state of the routes (for dispatching) while planning for what the routes should be in order to meet parents' requests is the crux is what makes Athena so different from other systems.
- **Parents' expectations.** Parents have become more and more engaged in defining what service should be provided to their children, expecting from school transportation the same level of quality and service as airline travel (flight services, reservations, communication facilities, etc.) or ride-sharing (user-friendly apps, convenience, reliance on real-time data, etc.) Why is school bus service so behind? Parents do not accept this as readily as in the past. EDULOG manages the needs of any student for any time in the future (with start and end dates).

Athena is the only system that manages these school transportation complexities in a way that makes sense: have all of an individual student's busing information stored in a rich, yet effective and efficient data structure that can display, plan, and manage a student's trips for today, next week, and three months from now—with each trip potentially quite different from one another in regards to times, locations, schools, bus routes, etc. In addition, Athena stores the history of all student assignments, routes, and schedules.

Only Athena automates the many complex, but necessary, tasks to meet these challenges because it is the only system that makes use of frequencies (different possibilities for each day of the week), calendaring, effective dates, and parental transportation requests.

AN EDULOG EXCLUSIVE: EFFECTIVE DATES

Effective Dates is not a new concept in school bus routing. The need for it has been understood forever, but only now does EDULOG have a viable solution.

With Athena effective dates, users can plan and manage future schedule and route changes for students, stops, runs, routes, and buses; revert back to a previous schedule and route after a certain date; and implement different routes and schedules for early outs, severe weather days, street construction, etc. The future plans contain the same types of information as the current day's plan.

With Athena effective dates, users can plan and manage future schedule and route changes for students, stops, runs, routes, and buses; revert back to a previous schedule and route after a certain date; and implement different routes and schedules for early outs, severe weather days, street construction, etc.

Athena effective dates have a user-defined, specific date range for when that plan will actually take place. The planning takes into account various future conditions:

- Student Needs
- School needs (e.g., in-service days when no transportation is needed)
- Route changes (e.g., a planned overload on runs can be solved in advance)
- Vehicle availability (e.g., planned maintenance)
- Street network changes (e.g., planned street closure)

PLANNING FOR FUTURE ROUTES WITH EFFECTIVE DATES

As part of the system support for planning functions, Athena allows users to set simulation environments to plan future routes with actual data.

This capability allows the user to address anticipated operational disruption (road construction, or a special event that will disrupt traffic during some known date), and create, ahead of time, routes to put in place at the right time. On a smaller scale, Athena also allows the user to plan for the transportation of a difficult request that may disrupt many routes—in advance of when the plan is needed.

ATHENA MAPPING: A NEW STANDARD OF EXCELLENCE

Not only does EDULOG Athena give you seamless integration with governmental map sources (from ArcGIS), we also incorporate Google Maps and point addressing. EDULOG Athena maps combine best-in-class technologies in a hybrid approach: street networking for travel connectivity, restrictions, speeds, boundaries, etc.; point data for the precise location of addresses, schools, bus stops; and visual overlays (from Google and other sources) for elements including photographic overhead and street view display, traffic and weather information, walking paths, and geographic hazards. More specifically, the addressing of student locations, stop locations, schools, waypoints, and other locations of interest are exact (latitude/longitude) point locations when that information is available. **During our presentation, we will show the BCS how easily and accurately the Athena geocode can be edited; the comparison with other vendors' methods will be striking.**

With Athena, EDULOG has achieved the goal that has been elusive in the industry of computerized school bus routing until now: transportation users can focus on routing and get out of the business of maintaining, updating, or correcting maps and adjusting travel speeds—among other burdensome mapping tasks.

PROVEN, EASY-TO-USE OPTIMIZATION

Only Athena has the optimization functions for all four categories/situations found in route planning: stop locations, run sequences, route couplings, and school bell time changes. EDULOG's world-renowned optimization capabilities are embedded in the route management system and accessible at any time from the main screen. Do you need to ask a quick "what-if" question? The results appear almost immediately. **The benefit of the Athena "sandbox" is that it's a place where the user has all the available and needed tools to play with the data and see what's possible**.

High-level mathematical modeling knowledge and expertise is crucial to developing usable optimization processes (and EDULOG has plenty of both!), **but what is even more important to optimization is only what EDULOG can provide: 40+ years of fine-tuning the methodology through actual use in real-world school district operations.**

COMPANY BACKGROUND AND EXPERIENCE

Education Logistics, Inc. is a privately held corporation incorporated in the state of Montana, with principal offices at 3000 Palmer Street, Missoula, MT 59808. The chairman of the board and owner of the company is Dr. Hien Nguyen of 3000 Palmer Street, Missoula, MT 59808. The secretary/treasurer of the company is Udloc Nguyen of 3000 Palmer Street, Missoula, MT 59808. The president of the company is Jason Corbally of 3000 Palmer Street, Missoula, MT 59808. The firm is 100 percent minority owned.

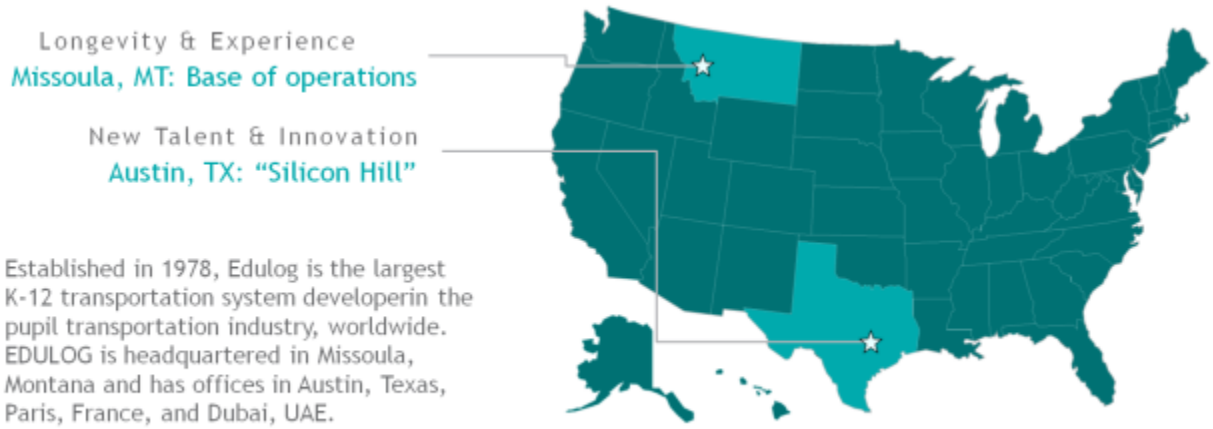
The main office that will be responsible for the actual services is our headquarters at 3000 Palmer Street, Missoula, MT 59808. Other offices/locations are in: Athens, GA; Raleigh, NC; Butte, MT; Seattle, WA; Rennes, France; Ho Chi Minh City, Vietnam.

The company's Federal Identification Number is 81-0389667.

Education Logistics, Inc. has been doing business under the current name and structure since 1981. The company was founded in 1978.

COMPANY INTRODUCTION

Education Logistics, Inc. (EDULOG) is owned and directed by its founder, Dr. Hien Nguyen, and today employs or contracts with more than 165 professionals throughout North America, Europe, and Asia.



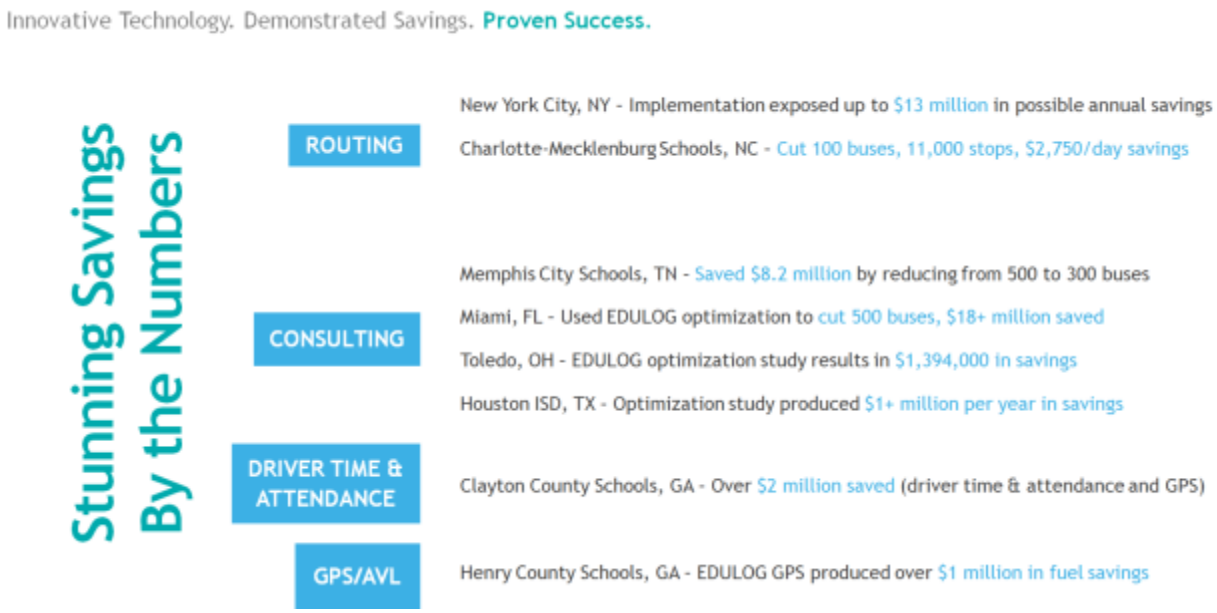
After completing his M. B.A. and Ph.D. in Mathematics at the Massachusetts Institute of Technology, Dr. Nguyen applied his knowledge to develop the Operations Research (OR) curriculum and program at the University of Montana. During this time, his focus on OR resulted in a consulting project for pupil transportation that developed efficient bus routes and schedules through the creation of a mathematically sound way to optimize the myriad potential alternatives.

These efficiencies produced impressive savings for the districts involved with the project, and after three years of refining the optimization process, Dr. Nguyen introduced the commercial application of optimization to student transportation. In 1978, he founded the first pupil transportation consulting

and technology company, EDULOG. The new company combined the groundbreaking research into optimization and the application of GIS (Geographic Information System) technology into a computerized system for successful management of school bus routes and schedules.

During the 1980s, as the EDULOG system was implemented throughout North America, the system was further expanded to include applications for school attendance boundary planning/redistricting, statistical forecasting for student enrollments, and enhanced optimization routines. In 1988, EDULOG's superior solutions for managing school transportation were further validated when the state of North Carolina awarded EDULOG a contract for the first pupil transportation management system to be used by every school district under state control.

With the advent of more powerful PCs in the 1990s, EDULOG developed a modernized version of his routing and scheduling and optimization software that ran on Windows-based workstations, and the company increased its client base from 80 school districts in 1989 to more than 650 by 1999. During this time, the company continued to leverage new technology by creating the first web-based software for pupil transportation.



In the years following 2000, EDULOG's proven capabilities at optimizing school busing resulted in the company winning competitive RFP contracts from the New York City Department of Education and the Minneapolis Public Schools, thus adding to EDULOG's portfolio of the largest school bus operators. It was also during this decade that EDULOG began developing applications for the emerging GPS/AVL student transportation market—and created the first integration of GPS/AVL with routing operations management. The result of this effort is the most comprehensive planning and monitoring system for the world's school buses, with the number of clients that have been served by EDULOG now exceeding 1,200.

EDULOG's current focus is on integrating mobile devices to enhance connectivity and situational awareness between buses and transportation departments. In particular, artificial intelligence developments in the areas of natural language processing and visual/geospatial machine learning

are being used to create state-of-the-art data modeling and computation techniques that will solve problems confronting the pupil transportation industry.

The integration of advanced technology with the human experience formed through decades of service represents EDULOG's core: no other firm has as broad a range of products for school transportation management (routing and scheduling, GPS, student passenger management, electronic vehicle inspection, driver time and attendance tracking, web, GIS, planning, SaaS (Software as a Service), accounting, fleet maintenance, field trip management) or can offer total solution services that guarantee a client's success. This integration is scalable, flexible, and proven.

Often imitated, never equaled: that's another benchmark of EDULOG. We've seen competitors come and go while listening to them compare what they do to what we've already accomplished. While others try to catch up by copying original ideas, EDULOG is developing the newest, most powerful, and useful solutions (such as fully integrated bus and student passenger management using GPS/GIS/wireless technology).

Our Beginnings

1977—First school bus routing and scheduling software system implemented by Dr. Hien Nguyen, Professor of Mathematics, University of Montana
1978—Company formed
1981—Company incorporated
The company is privately owned and has never had any debt

Our People

EDULOG senior management has an average of 15 years of experience in pupil transportation
165 total employees worldwide

- EDULOG's engineering staff alone is larger than the total number of employees for many of our competitors

Our Clients

More than 1200 clients have been served throughout North America and Europe
Total students for all clients exceeds 13 Million
Total transported students exceeds 6 million

- Total statewide implementation of the EDULOG system in North Carolina—widely acknowledged to have the most efficient transportation system and most effective funding formulas of any U.S. state

Our Optimization Success

The Ontario Ministry of Education tested all of the leading routing and scheduling systems:

- The EDULOG system not only produced the best results in the least amount of time—in many cases it was the only system that could complete the assignment
- Much of the efficiency of the North Carolina districts is directly attributable to the power and flexibility of the EDULOG optimization software

Our Customer Support

Even in the busiest times, first call resolution is completed within 15 minutes
The longest support hours in the industry
Every new client is assigned a dedicated project manager

Our History of Firsts

Geographic information system for school transportation management and boundary planning

Multi-user system allowing operators to perform the same function, at the same time, on multiple workstations

Total solution service approach with guaranteed results

Post-implementation consulting services

Transportation software system implemented under a statewide contract

System to connect separate transportation depots across a wide area network to a centralized database

Internet-based transportation applications

Ability to use maps from a variety of sources (Google, ESRI, Navteq, MapQuest, etc.)

Computerized run, route, and stop location optimization

Optimization programs to simulate future transportation operations and boundary configurations and weigh the value of various alternatives

International users' conference

Application service provider (ASP) software hosting

Integration of GPS technologies with routing software

Real time student and driver tracking integrated with routing and scheduling data

Mobile data terminals integrated with routing functions for two-way communication between dispatch/operations and buses

- EDULOG remains the only firm to provide continuing remote services for total system operations—the company as employee for a client

Nothing Succeeds Like Success

Talk to our clients to learn more about their savings and satisfaction with EDULOG.

TEAM COMPOSITION AND EDULOG MANAGEMENT RÉSUMÉS

ANDY LEIBENGUTH: VICE PRESIDENT, ADVISORY SERVICES

https://www.linkedin.com/in/andy-leibenguth-79a1b328/

EDULOG Implementation and Consulting Specialist – 2000 – 2005
Portland Public Schools Routing Manager – 2005-2007
Portland Public Schools Assistant Transportation Director – 2007-2009
Portland Public Schools Transportation Director – 2009-2012
EDULOG Senior Transportation Consultant 2012-Current

Andy is probably the most experienced and skilled project manager of student transportation management systems in North America—with an extensive history of leading EDULOG teams in the successful deployment and further support of some of the largest and most complex projects in the history of computerized school bus management; including with the New York City Department of Education for more than a decade. In addition to having demonstrated excellence in EDULOG implementation project management and strategic consulting, Andy has significant expertise in resolving transportation challenges with innovative and practical solutions, optimizing for operational efficiency, and ensuring safe and efficient transportation services.

Andy's team oversees EDULOG's statewide solution in North Carolina and has worked for more than a decade with Derek Graham, who was the statewide student transportation director in North Carolina for 21 years and has now been with EDULOG in his second career for six years. Mr. Graham will also most certainly be involved in assisting the BCS. In addition to project management leadership, Andy has performed many optimization studies which have resulted in tangible operational efficiencies for EDULOG clients including the Chicago Public Schools and the Minneapolis Public Schools.

EDULOG Senior Transportation Consultant Work Highlights

- Successfully managed and led transportation projects for major school districts across the United States.
- Directing implementations and secured awards for EDULOG through competitive RFP processes to replace legacy systems in Dallas, Chicago, and Jacksonville (Duval County, FL).
- Currently leading the implementation of transportation solutions for one of the nation's largest districts, Montgomery County Public Schools, MD in collaboration with Samsara.
- Managing EDULOG's statewide solution in North Carolina, collaborating closely with Derek Graham, former statewide transportation director for North Carolina. In this role, Andy provides valuable insights for transportation optimization initiatives and directs the current implementation of the state's multi-district pilot project for Smart Bus technology.
- Conducting consultation services, including bell time studies, for school districts including the New York City Office of Pupil Transportation, Chicago Public Schools, and Minneapolis Public Schools.

Portland Public Schools Transportation Director Work Highlights

- Administered and supervised safe, economical, and timely transportation for students.
- Oversaw preparation and implementation of bus schedules and routes to maximize service efficiencies.
- Managed staff work schedules and developed specifications for transportation-related contract services and purchases.
- Prepared and administered annual budgets, analyzing data and recommending budgetary allocation.
- Ensured compliance with district, state, and federal laws and policies related to transportation.
- Collaborated with other district departments, including risk management, security services, special education, and school administrators, to provide high-quality transportation services.
- Led investigations and promptly addressed customer complaints and systems failures, recommending improvement procedures.

Education
Bachelor of Science in Business Administration, University of Montana, 1997

Skills

- Student Transportation Consultation
- EDULOG Implementation
- Development of Appropriate and Effective Organizational and Operational Practices
- Report Creation
- Presentations to School District Administrators
- Management of Contract Services
- Development of Key Performance Indicators (KPIs)
- Route Optimization
- Budget Management
- Leadership and Team Management
- Compliance and Safety
- Bell Time Studies

DEREK GRAHAM: SENIOR TRANSPORTATION CONSULTANT

https://www.linkedin.com/in/derekscottgraham/

Derek served 21 years as state director for pupil transportation in North Carolina. In that role, he led a team with responsibilities for efficiency-based funding allocations, information systems, and the inspection, maintenance, and purchase/replacement of public school buses.

Prior to the state director position, Derek was the TIMS project manager, responsible for the statewide implementation of the Transportation Information Management System (TIMS), a North Carolina version of EDULOG's Route Management System. That implementation, coupled with the efficiency incentives, reduced the number of buses operated in North Carolina's public schools by more than 1,000 while maintaining current service levels. He was also responsible for the generation of statewide service indicators, compiling data from all North Carolina school districts and calculating key performance measures of service (e.g. ride times, earliest pickup times, etc.).

On a national level, Derek served eight years on the board of directors of the National Association of State Directors of Pupil Transportation Services, including 2 years as president. In that role, he was a founding member of the American School Bus Council. He has conducted research projects for the National Highway Traffic Safety Administration (NHTSA) and spoken at numerous state, regional, and national conferences on the topics of routing, efficiency, stop arm violation prevention and more.

Employment Experience

Consultant, Education Logistics, Inc., Missoula, MT. March, 2017 - Present
Provides consulting services for EDULOG and its clients dealing with routing efficiency, funding allocations, and information systems as well as school bus inspection, maintenance, and replacement.

Consultant, ToXcel, LLC, Gainesville, VA. October, 2017 - Present
Participates on research project teams focusing on school transportation initiatives including occupant protection systems (seat belts) on school buses and national school bus crash data.

Consultant, Tatweer Transportation Company (TTC), Riyadh, Saudi Arabia
Advisor to the CEO January, 2015 –
Provide project review and technical assistance for the CEO of TTC, a government-owned company responsible for the transportation of students.

North Carolina Department of Public Instruction
Section Chief, Transportation Services August 1995 – February 2017

Responsible for the overall administration of transportation in North Carolina Public Schools. Budget responsibilities include execution of the state funding formula to allocate $400 million to 115 Local Education Agencies (LEAs) and management of vehicle replacements for 14,000 LEA-owned school buses with an average annual budget of $50 million. Responsible for state-level physical inspection of school buses and systems support for the Transportation Information Management System (TIMS) and the Business Systems Information Portal (BSIP—a statewide system of fleet maintenance using SAP). Serves as primary agency contact for policy, law, rules, and regulations related to transportation of students to and from school.

Software Support Manager February 1993 – August 1995

Managed training and help desk support for school district systems supported at the state level: Transportation Information Management System (TIMS), Student Information Management System (SIMS), Budget Management System (BUD), Human Resource Management System (HRMS) and the Uniform Education Reporting System (UERS).

TIMS Project Manager February 1988 – February 1993

Responsible for the implementation of the Transportation Information Management System (TIMS) in LEAs across the state. Implementation success led to a legislative mandate that all LEAs implement TIMS by September 1992. Managed a multi-agency project team to digitize source maps and successfully implement the system on time and within budget. Team members included staff from the Institute for Transportation Research and Education (ITRE).

Institute for Transportation Research and Education (ITRE), UNC General Administration
Research Assistant and Assistant Director January 1984 – February 1988

Participant in early research dealing with computer-assisted routing and scheduling of school buses. Responsible for transition from research success to design and acquisition of a statewide license for a system to optimize and manage school transportation in the state. Also managed the Geographic Information Systems program for a year or so.

North Carolina State University
Instructor, Department of Mathematics January, 1984 – May, 1985
Taught evening classes including algebra and trigonometry, calculus

Associations and Boards

National Association of State Directors of Pupil Transportation Services (NASDPTS)
Board Member 8 years; President 2007-2008

North Carolina Operation Lifesaver
Board Member 10 years

North Carolina Geographic Information Coordinating Council
Agency Representative 23 years

North Carolina Pupil Transportation Association
Member 30 years

National Association for Pupil Transportation (NAPT)
Member 25 years

Southeastern States Pupil Transportation Conference
President 2001, 2012; Board Member 9 years

North Carolina Urban and Regional Information Systems Association
Member, President, 1997-98

School Bus Fleet Magazine
Editorial Advisory Board 15 years

American School Bus Council
Founding Member, 2007

National Congress on School Transportation
Steering Committee, Vice-Chair 5 years; Delegation Chair, 1995-2017

Awards

North Carolina Child Passenger Safety
Bill Hall Lifetime Achievement Award

North Carolina Pupil Transportation Association
Hall of Fame

School Bus Fleet Magazine
Administrator of the Year

Selected Project Activity and Reports

Contributor, "Safety Restraints on School Buses", NC Child Fatality Task Force
http://www.ncbussafety.org/documents/Seatbelts%20on%20Buses_CFTF_May2008.pdf

Project Manager, "A Cooperative Program to Reduce Incidents of Vehicles Passing Stopped School Buses in a Coastal Region of North Carolina", Funded by the National Highway Traffic Safety Administration (NHTSA)
http://www.ncbussafety.org/Stoparm/documents/NHTSAFinalReport.PDF

Technical and Industry Presentations
Conference and association presentations include a wide range of topics including school bus safety, passenger restraints, school transportation funding, geographic information systems in school transportation, rail crossing safety, school transportation optimization and efficiency, stop arm violation reduction, safe motor coach transportation for students, and occupant protection on school buses.

National Highway Traffic Safety Administration "Thinking Outside the Bus"
California Association of School Transportation Officials
Florida Association for Pupil Transportation
Georgia Association for Pupil Transportation
Government Technology Conference
Lifesavers Conference
National Association for Pupil Transportation (NAPT)
National Association of School Business Officials
National Association of State Directors of Pupil Transportation Services
National School Transportation Association
North Carolina Association of District Attorneys
North Carolina Association of School Business Officials
North Carolina Passenger Safety Association
North Carolina Pupil Transportation Association
North Carolina Urban and Regional Information Systems Association
Oregon Pupil Transportation Association
School Transportation Leadership Conference
School Transportation News Conference and Expo
Southeast Operation Lifesaver
Southeastern States Pupil Transportation Conference
Tennessee Association for Pupil Transportation
Transporting Students with Disabilities
Transportation Research Board (TRB)
Virginia Association for Pupil Transportation
Washington Association for Pupil Transportation

Articles and Publications

Published articles in trade magazines dealing with various aspects of school bus safety, motor coach safety, and technology.

Southeastern Education Network (SEEN) - multiple
School Bus Fleet Magazine - multiple

Technical Horizons in Education
School Transportation News

Other

School Bus Fleet Magazine "Administrator of the Year" 2006
North Carolina Order of the Long Leaf Pine award for service 2017
North Carolina Child Passenger Safety Lifetime Achievement Award 2017

HIEN NGUYEN: CHAIRMAN OF THE BOARD/FOUNDER

- École Polytechnique, Paris, France. Diplome d'Ingenieur, 1971
- Massachusetts Institute of Technology, Cambridge, Mass. Ph.D. in Mathematics, 1975
- Sloan School of Management (MIT), Cambridge, Mass. M.B.A., 1975

After completing his MBA and Ph.D. in Mathematics, Dr. Hien Nguyen began applying his knowledge by developing the Operations Research (OR) curriculum and program during his tenure at the University of Montana. His methods were so effective that the program continues to be a mainstay of the University's curriculum. During this time, his focus on OR resulted in a consulting project that involved creating a mathematically sound way to optimize pupil transportation by developing efficient bus routes and schedules. These efficiencies ultimately lead to impressive savings for the districts involved with the project. After three years of refinement, Dr. Nguyen realized his true goal, the commercial application of optimized student transportation. In 1978, he founded the first pupil transportation consulting and technology company, EDULOG, based on this groundbreaking research.

In the 1980s, Dr. Nguyen's algorithms evolved into new systems that greatly enhanced enrollment projections, school boundaries, and school distribution. His inventions applied mathematical principles to real world problems, creating better educational opportunities within limited school budgets. With the advent of the PC in the 1990s, Dr. Nguyen developed a modernized version of his software that ran on Windows-based workstations. Under his stewardship, the company continued to leverage new technology by creating the first web-based applications for pupil transportation.

Dr. Nguyen then shifted his company's focus to developments in the emerging GPS/AVL student transportation market. The result is the most comprehensive planning and monitoring system for the world's school buses. Continuing EDULOG's history of cutting edge innovations, Dr. Nguyen's renewed focus is integrating mobile devices that foster connectivity and real insight between buses and transportation departments. Dr. Nguyen's vision of efficiency continues to guide the future of EDULOG into expanding world markets.

JASON CORBALLY: PRESIDENT

https://www.linkedin.com/in/jasoncorbally

Jason Corbally leads the company toward new milestones, working closely with school districts, government, and industry to improve existing products and develop new ones, making EDULOG the industry leader in transportation management systems. Jason started at EDULOG in 2004 while attending the University of Montana and has paved the way for new partnerships, launching EDULOG's innovative technology into the international arena. Selected as one of Missoula's top "20 under 40"

young business professionals, Jason also serves as a committee chair on Governor Steve Bullock's Main Street Montana Project and on the Montana High Tech Business Alliance Advisory Board. A native of Butte, Montana, he and his wife are the parents of Peyton and Liam.

SAM BULL: CHIEF EXECUTIVE OFFICER

https://www.linkedin.com/in/sam-bull-79955a24/

Sam joined EDULOG in the fall of 2018 after serving for many years as an outside adviser. Sam was previously a member at Foster Pepper in Seattle where he represented national and regional technology companies, not-for-profit entities, banks, mortgage companies, broker-dealers, hospitals, and government entities. Sam received a B.A. in Economics from Harvard University and a J.D. from Columbia University.

SHAWNA KNUDSON: VICE PRESIDENT OF OPERATIONS

https://www.linkedin.com/in/shawna-knudson-9744a82/

During her 25+ years at EDULOG, Shawna has focused on customer service and problem solving; skills that have been instrumental in the account and project management realm. Her recent focus on large-scale implementations and intricate GPS projects has given her the experience necessary to help all of her clients, regardless of the size of the district. When not at EDULOG, she enjoys winemaking, dirt road travels, and spending time at the lake.

NIKKI MUSTARD: DIRECTOR OF ADMINISTRATION

https://www.linkedin.com/in/nikki-mustard-628634114/

Nikki has nearly 25 years of experience managing staff and overseeing company expenses, and serves as the planning director for our annual EDULOG conference. While she's a Montana native, Nikki was bitten by the travel bug and also serves as the business manager for a California vineyard, giving her ample time to enjoy wine country. Nikki's primary passion, though, is her family. When not working she enjoys spending time with her husband, 20 year old boys and extensive extended family.

ANDREA BRUNSON: TRAINING LEAD AND ELEARNING SPECIALIST

Andrea is a key member of EDULOG's customer success team, enabling clients to extract as much value as possible from their EDULOG suite of products. Andrea develops course work for EDULOG's Learning Management System, EDULOG University, and trains EDULOG staff and clients on EDULOG's software solutions. She spends most of her time working with Athena and GPS products. Most of the EDULOG team know Andrea as a dynamite trainer and client success cheerleader. She has a contagious enthusiasm and drive to share knowledge. Andrea approaches everything she does with 110% effort and is a fierce advocate for her clients and team members.

Prior to joining EDULOG, Andrea's entire professional career has been in Training and Development. She has more than 18 years of experience in a broad range of training functions, such as training facilitation, training scheduling, training curriculum development, video demo and eLearning creation, and training department management.

Andrea holds a bachelor's degree in social sciences from the University of Washington. She also spent time at the University of Montana studying fine art.

In her free time, Andrea finds enjoyment in the great outdoors by time spent camping, fishing, and hiking. She also continues to create art; primarily through photography and oil painting.

RECENT STAFF PROJECT MANAGEMENT/SYSTEM IMPLEMENTATION EXPERIENCE

Shawna Knudson

Cleveland Metropolitan School District, OH – Currently in project
Scope: GPS Deployment, Tablet Deployment, Parent Portal Deployment
Role: Executive Project Manager responsible for:
- Negotiating timelines
- Providing consultative guidance
- Resolving blockers
- Negotiating change orders

Number of equivalent full time months worked on the project: 4

East Allen County Schools, IN – June 2020
Scope: GPS Deployment, Tablet Deployment, Parent Portal Deployment
Role: Project Manager
Project Initiation and establishing a shared vision
Project Planning (from execution to delivery)
- Creating project stages
- Negotiating and appropriate schedule for deliverables
  - Defining milestones
  - Highlighting project dependencies
  - Delegating work
  - Identifying and mitigating risk
  - Maintaining project records
  - Establishing and executing a communication plan

Project execution and escalation
Project Monitoring
Number of equivalent full time months worked on the project: 2

Edina Public Schools, MN – Nov 2018
Scope: GPS Deployment, Parent Portal Deployment
Role: Project Manager, responsible for:
Project Initiation and establishing a shared vision
Project Planning (from execution to delivery)
- Creating project stages
- Negotiating and appropriate schedule for deliverables
  - Defining milestones
  - Highlighting project dependencies
  - Delegating work
  - Identifying and mitigating risk

Maintaining project records
Establishing and executing a communication plan
Project execution and escalation
Project Monitoring
Number of equivalent full time months worked on the project: 1

Glynn County Schools, GA – Current
Scope: Samsara Deployment, Student Ridership, Parent Portal – Pilot*
Role: Project Manager, responsible for:
Project Initiation and establishing a shared vision
Project Planning (from execution to delivery)
Creating project stages
Negotiating and appropriate schedule for deliverables
Defining milestones
Highlighting project dependencies
Delegating work
Identifying and mitigating risk
Maintaining project records
Establishing and executing a communication plan
Project execution and escalation
Project Monitoring
* The pilot was successful and the district will be moving to outfit their entire fleet for student ridership
Number of equivalent full time months worked on the project: .5

Boone County Schools, TX – 8/1/2020
Scope: GPS Deployment, Parent Portal Deployment
Role: Project Manager, responsible for:
Project Initiation and establishing a shared vision
Project Planning (from execution to delivery)
Creating project stages
Negotiating and appropriate schedule for deliverables
Defining milestones
Highlighting project dependencies
Delegating work
Identifying and mitigating risk
Maintaining project records
Establishing and executing a communication plan
Project execution and escalation
Project Monitoring
Number of equivalent full time months worked on the project: .75

Memphis-Shelby County Schools, TN – Feb 2019
Scope: GPS Deployment
Role: Role: Project Manager, responsible for:
Project Initiation and establishing a shared vision
Project Planning (from execution to delivery)
Creating project stages
Negotiating and appropriate schedule for deliverables
Defining milestones
Highlighting project dependencies

Delegating work
Identifying and mitigating risk
Maintaining project records
Establishing and executing a communication plan
Project execution and escalation
Project Monitoring
Number of equivalent full time months worked on the project: 4

Toledo Public Schools, OH – 2019
Scope: GPS Deployment, Parent Portal Deployment
Role: Project Manager, responsible for:
Project Initiation and establishing a shared vision
Project Planning (from execution to delivery)
Creating project stages
Negotiating and appropriate schedule for deliverables
Defining milestones
Highlighting project dependencies
Delegating work
Identifying and mitigating risk
Maintaining project records
Establishing and executing a communication plan
Project execution and escalation
Project Monitoring

Warren County Schools, VA – 2021
Scope: GPS Deployment, Parent Portal Deployment
Role: Role: Project Manager, responsible for:
Project Initiation and establishing a shared vision
Project Planning (from execution to delivery)
Creating project stages
Negotiating and appropriate schedule for deliverables
Defining milestones
Highlighting project dependencies
Delegating work
Identifying and mitigating risk
Maintaining project records
Establishing and executing a communication plan
Project execution and escalation
Project Monitoring
Number of equivalent full time months worked on the project: 3

Derek Graham

Mr. Graham, based in Raleigh, North Carolina, works with school districts in the deployment of the EDULOG Parent Portal mobile app. He meets regularly with school district staff to plan a successful community deployment. He helps districts select and plan for an approach tailored to their success, utilizing on-line training sessions, videos, instructional info-graphic documents and a variety of correspondence materials. He has consulted with numerous school districts including these representative projects:

Clarke County School District, GA – June 2020 start date, ongoing consulting and communication
Scope: GPS deployment, Parent Portal Deployment, Student Ridership
Role: Parent Portal Consultant responsible for:
Presenting implementation timelines
Providing consultative guidance
Providing guidance on communications approach
Ensuring data quality
Integrating Samsara Student Ridership Scans
Number of equivalent full time months worked on the project: 0.5

DeKalb County School District, GA – March 2020 start date, ongoing consulting and communication
Scope: GPS Deployment, Tablet Deployment, Parent Portal Deployment, Student Ridership
Role: Parent Portal Consultant responsible for:
Presenting implementation timelines
Providing guidance on communications approach
Ensuring data quality
Planning for Student Ridership Scans
Integrating with tablet deployment
Integrating with GPS deployment
Number of equivalent full time months worked on the project: 4.0

Columbia County School District, GA – 2020-2021
Scope: GPS deployment, Parent Portal Deployment
Role: Parent Portal Consultant responsible for:
Presenting implementation timelines
Providing consultative guidance
Providing guidance on communications approach
Ensuring data quality
Number of equivalent full time months worked on the project: 1.0

New Hanover County Schools, NC – 2020-2021
Scope: Parent Portal Deployment
Role: Parent Portal Consultant responsible for:
Presenting implementation timelines
Providing consultative guidance
Providing guidance on communications approach
Ensuring data quality
Number of equivalent full time months worked on the project: 0.5

EXAMPLES OF EDULOG'S EXPERTISE/PREVIOUS PROJECT DESCRIPTIONS

Please refer to the following project descriptions and past case studies for further information regarding EDULOG's qualifications.

DESCRIPTIONS OF PREVIOUS PROJECTS

Minneapolis Public Schools, Minneapolis, Minnesota

The following text was created in 2015.

Buses: 436
Total Student Population: 36,422

Site Description

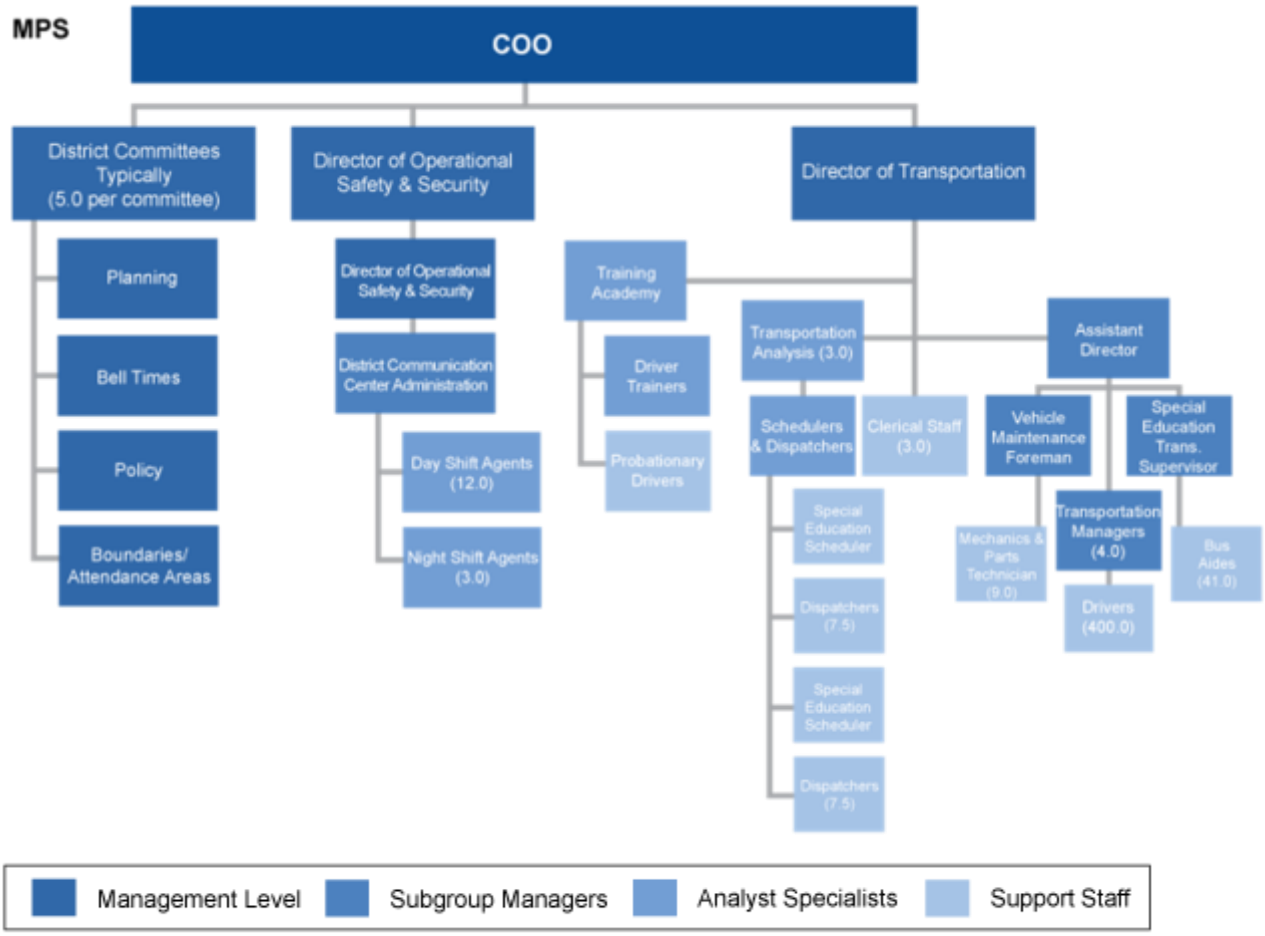
Located on the banks of the upper Mississippi River, Minneapolis is an important center for technology, engineering, and agriculture. As a city, it is known for its openness and acceptance of cultural and ethnic diversity, and its school system stresses year-long learning, placing each student in the right school, and partnerships with all sectors of the community to enhance educational achievement.

The school transportation operation of Minneapolis Public Schools (MPS) is notable for being one of the first to embrace route management and GPS technologies (with EDULOG systems) and for having a mobile command center which can operate all technology systems in the event of a serious emergency that disables the usual power and telecommunications network.

Statistics

- Total Student Population: 36,422
- Number of Transported Students: 30,000
- Number of Regular Education Buses: 220
- Number of Special Needs Buses: 216
- Number of Schools: 71

Organization

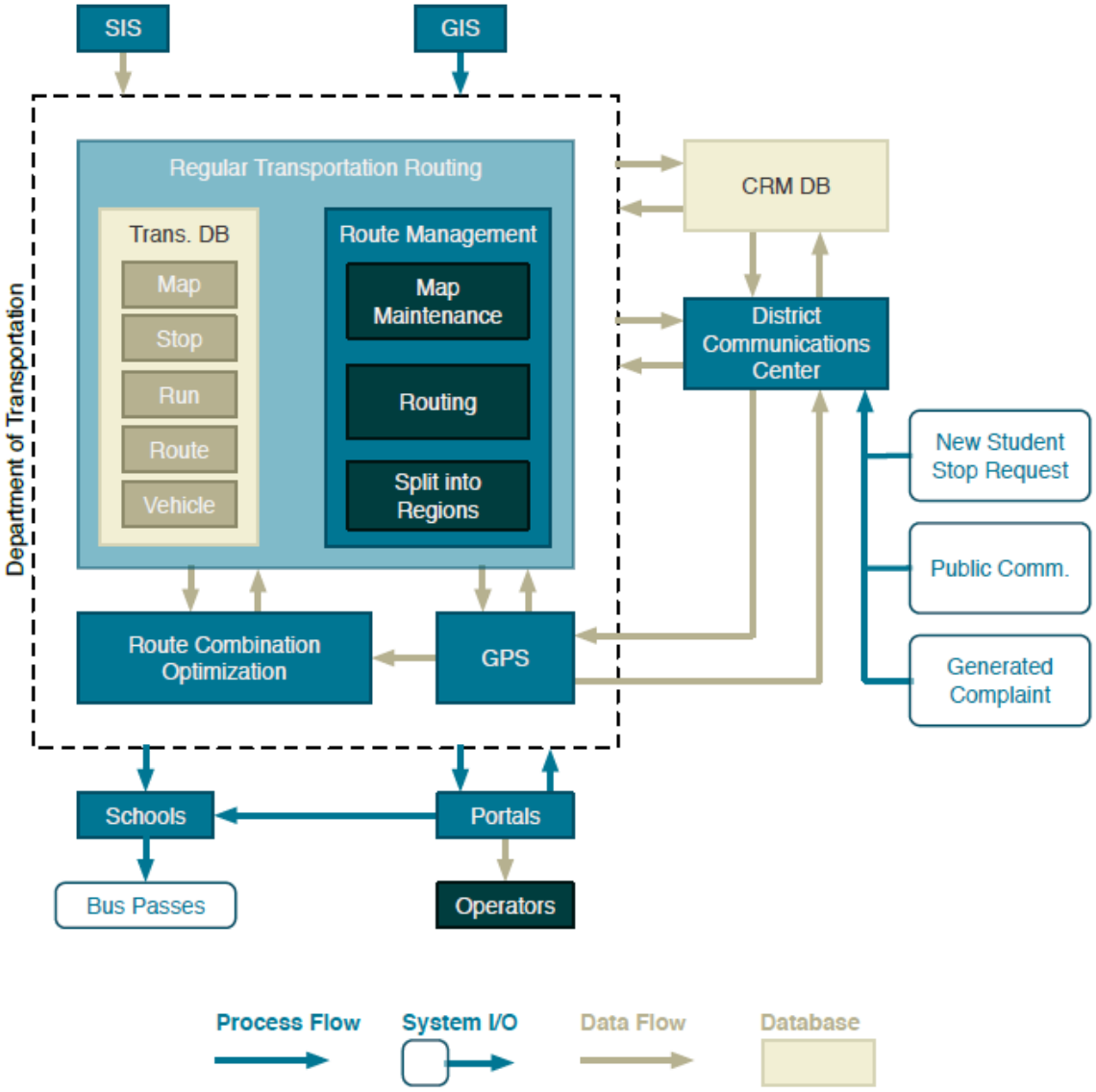


The organization of the Minneapolis Public Schools' transportation operation reflects the deep commitment that the school district has made to integrating technology into all phases of the department. For example, the transportation analysts who manage and direct the route management and GPS systems are at a responsibility level equal to that of a senior transportation administrator (the assistant director).

The training academy is another notable feature of the MPS organization, and it is the source for the professionalism and commitment to service provided by its graduates. All drivers, whether MPS employs them, or they work for the operators, must graduate from the training academy.

In contrast to other school districts, MPS also places a great emphasis on there being a formal connection between the transportation department and: 1) the district's communication center, 2) district planning and advisory committees. The planning and advisory committees are staffed by district employees who research and evaluate the effect of changing school attendance boundaries, moving special programs to new locations or instituting new programs, and how demographic changes in the city affect the school district and the services that it provides. This collaborative structure provides for superb planning and information broadcasting (both within the district and to the community) when there are changes to: policies, school attendance boundaries or school times (which affect the transportation plan), and bus routes/schedules/stops.

Operational Model
Routing



MPS Routing Operational Flow

MPS both owns its own fleet and uses multiple busing operators: the district prefers to operate its special needs routes with vehicles it owns and have regular education transportation using operator-owned buses. All routing and scheduling decisions are made by the MPS transportation department using the EDULOG route management software as the foundation for the transportation plan creation/editing/maintenance.

The street and road network of Minneapolis has been stable for many years, but any map editing that needs to be performed is done directly in the EDULOG route management system's map databases.

The transportation department performs student downloads from the district's SIS (student information system) twice per year. However, the experience of the transportation department has been that the completeness and accuracy of the downloaded student information is not adequate for the purpose of managing student transportation, and therefore the transportation department uses the route management system to enter/edit/correct the vast majority of student data.

Routing management responsibilities at MPS are divided both horizontally (by geographic region) and vertically (according to strategic and operational procedures). In the vertical realm, there are the daily management functions of maintaining the transportation plan and ensuring that all students, stops, routes, and vehicles are tracked and accounted for. Strategic planning tasks involve analyzing and implementing policies and procedures, optimization, school bell time analysis, boundary planning, and fleet configuration/sizing. For both the operational and strategic functions, the routing management software is used.

The MPS communications center serves as the main conduit for transportation information between the district and the community. Unlike other districts that encourage or allow parents or schools to call bus operators directly with changes, requests, questions, or complaints, MPS has decided that the best level of service is provided by having one central portal where all procedures, information, and staff accountability is standardized. Information from the main route management system is interfaced to a CRM used by the communications center. This CRM includes data regarding students, operators, schools, routing/GPS information, and drivers.

MPS is very skilled at optimization, and makes extensive use of GPS data collected from the EDULOG system to "fine tune" the planned stops, runs, routes, and schedules. GPS data is also provided electronically to the schools and to the communications center for real-time dissemination of busing information. MPS also has a live ticker on their main website that identifies any buses that are running late.

Portals to provide information to schools and bus operators are primarily one-way: from the transportation department to the recipient. MPS has total control over the operators: the district owns all the technology on the buses, it requires all communication to come through the district, and the transportation department does the dispatching for all vehicles (both district-owned and operator-owned). The schools distribute bus passes from information supplied through the portal.

New York City Department of Education, New York, New York

The following text was created in 2015.

Buses: Regular Buses: 2,036, Special Needs Buses: 4,000
Total Student Population: 1,038,001

Site Description

The school transportation operation in New York City is the largest in North America when measured by the number of vehicles used each day. Managing this extensive transportation system is an intensive project with unusual complexities: there are more than 130 languages spoken in the city, and nearly half of the population speaks a language other than English at home; numerous regulations affect the method of transportation for special needs students and the accounting of this transportation; street networks are among the most congested in the world, with many turn and

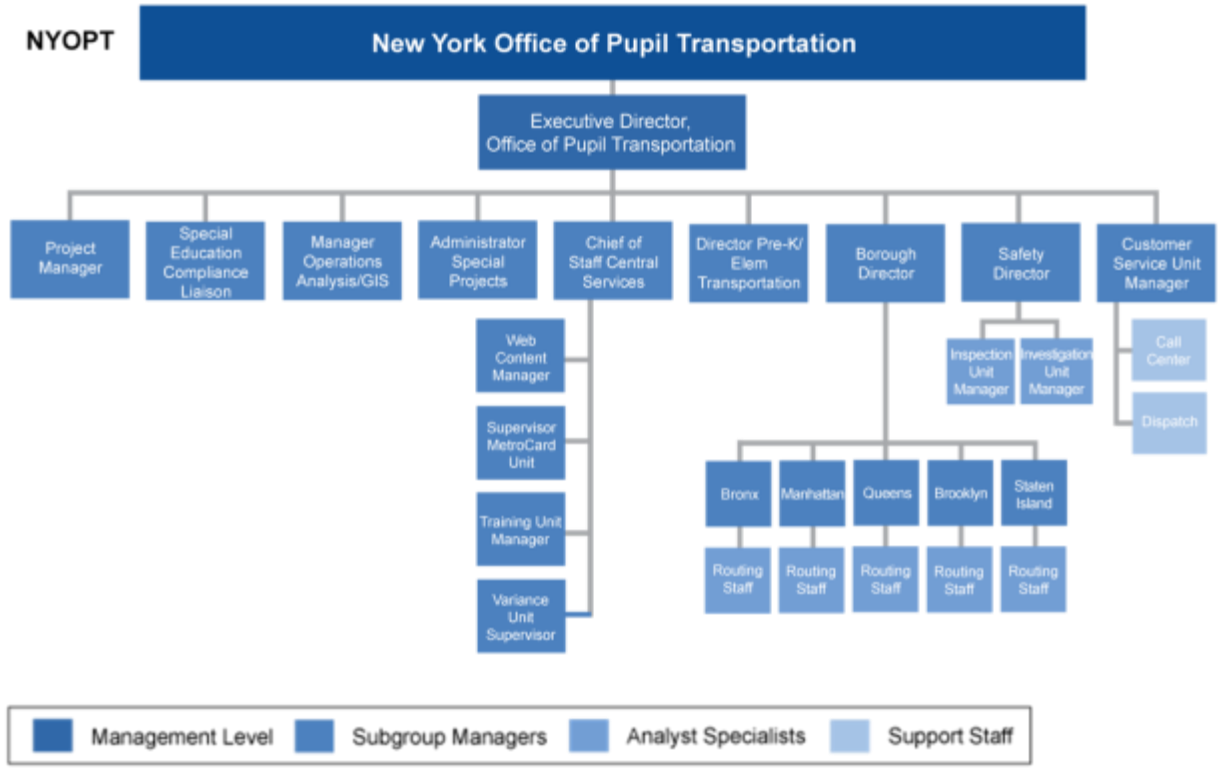
travel restrictions and serious gridlock during commuting hours; and multiple school of choice options must be accounted for in addition to transportation to zoned schools (schools attended by students residing in a particular neighborhood or zone).

Despite these challenges, the New York City Department of Education (NYCDOE) provides safe and efficient transportation throughout the city's five boroughs to more than 600,000 students each day.

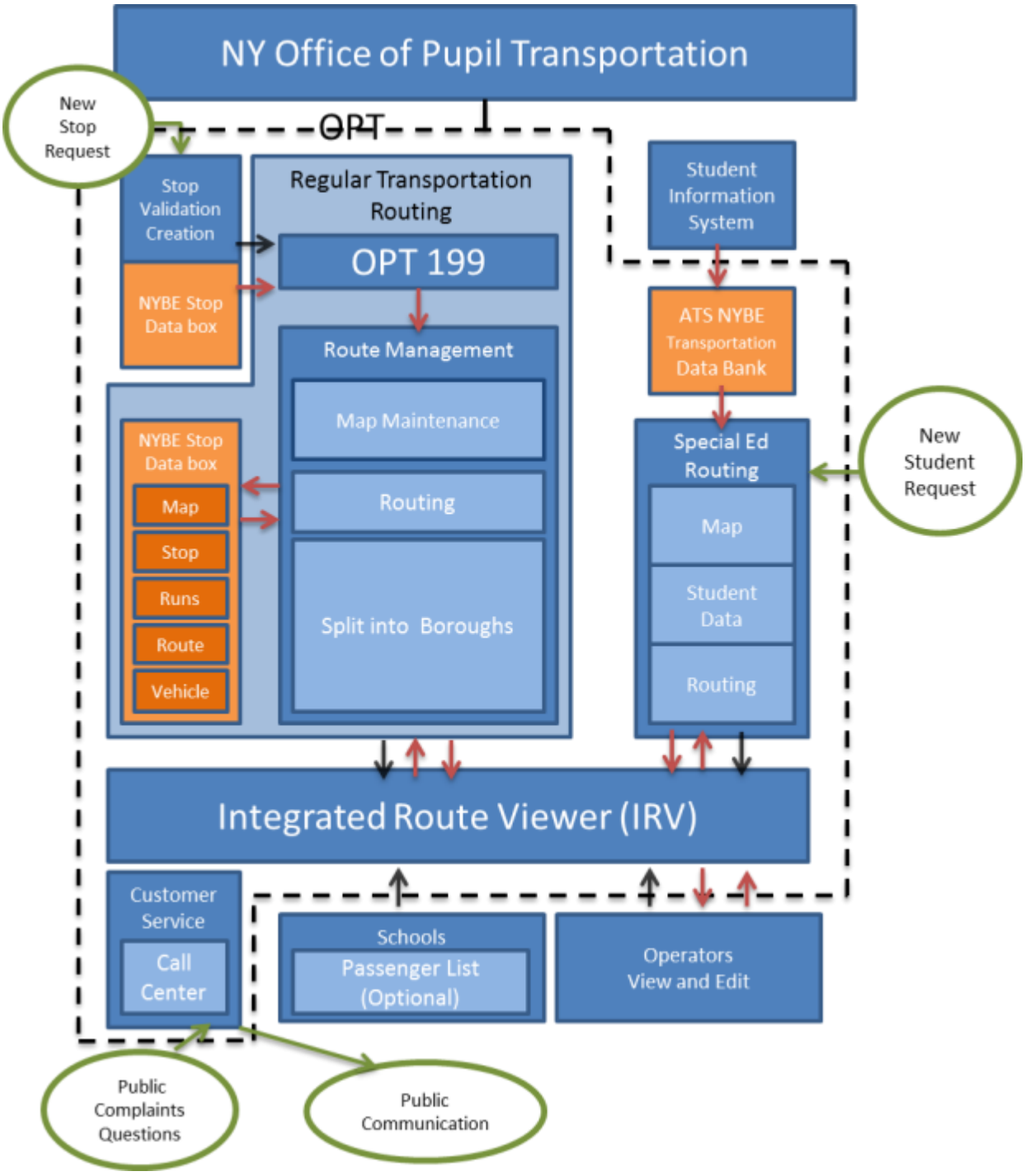
Statistics

- Total Student Population: 1,038,001
- Schools: 1,665
- Students Transported Daily: 600,000+
- Field Trips per Year: 160,000
- Regular Buses: 2,036
- Special Needs Buses: 4,000

Organization



Operational Model



NY-OPT Operational Flow

In New York City, student transportation management is divided into two categories with two different staffs and systems: regular education and special needs education. From there, responsibility for transportation management is further divided among the five boroughs of the city. The Office of Pupil Transportation (OPT) is the agency within NYCDOE responsible for student transportation.

Electronic information for special needs students is downloaded from the main SIS (student information system) to the NYCDOE transportation databank, and from there is it is passed to the special needs routing system. Individual student information is not used with the regular transportation routing system—instead, optimization is performed very well by using the total number of students at each bus stop.

New York City has very little change to its geography and street network from year to year, but any map editing that is needed is performed in the EDULOG route management system.

Public interaction with the student transportation plan (such as requesting a pick-up/drop-off, changing a stop location, or entering a student into the plan) is done through a very sophisticated call center run by the Office of Pupil Transportation. Agents gather the public input for processing and validation through the OPT Stop Data Box and Transportation Data Bank and then this information is sent electronically to the appropriate routing system (regular education or special needs).

Information (map, stops, runs, routes, vehicles) from the EDULOG route management system is two-way interfaced with the OPT's Integrated Route Viewer (IRV). The IRV is an electronic system that provides transportation information to various users/applications—and which also passes information such as change requests from operators and schools back to the route management systems.

Bus operators access IRV to view their routes and operators are provided limited editing functions, such as correcting the bus stop times, which are then sent back to the EDULOG route management database.

Schools also access IRV to view their routes. As an option, some schools supplement the data with their student information in order to have ridership data and passenger manifests. IRV is also accessed by the call center to communicate with the public and resolve transportation-related complaints and questions. The NYCDOE student transportation call center, which is the largest of its type in North America, is staffed (depending upon the season) by as many as 30 agents. The call center is instrumental in providing quality service to the community, and is especially valuable for ensuring operator contract adherence: complaints against operators are documented at the call center and then sent to the borough managers for further evaluation and operator correction of the problem(s).

NYCDOE has just recently begun to implement a GPS system, and it is thus far not integrated with the other functions of the OPT systems.

EDULOG CASE STUDY: EAST ALLEN COUNTY SCHOOLS, IN

Transporting Students in the Era of COVID-19

As school districts operate amid COVID-19 concerns, transportation departments around the country are being challenged to provide students with safe, reliable access to learning opportunities. How did the East Allen County Schools (EACS) rise to the challenge? EDULOG and our partner Samsara played a critical role in helping the EACS adjust routes, simplify vehicle inspections, and get drivers up to speed.

Please refer to the following page.

EDULOG

edulog.com/free-trial

CLIENT CASE STUDY

How East Allen County Schools improves route performance

7,000
STUDENTS

132
DAILY ROUTES

66%
SAVED IN HARDWARE COSTS

"We were able to optimize our route plans and move from hard-wired telematics devices to a driver-friendly, tablet-based solution. This solution helps us transport students safely and efficiently."

ROGER MILLER,
Transportation Manager at East Allen County Schools

PROBLEM

On days with driver shortages, East Allen County Schools (EACS) has to quickly adjust their route plans, find substitute drivers, and update parents. Without real-time GPS tracking and on-board route directions, it was challenging for drivers to execute unfamiliar routes and for dispatchers to monitor route progress.

HOW THEY SOLVED IT

EACS turned to Edulog and Samsara to simplify driver tools, improve route performance, and streamline parent communication. EACS replaced its hardwired telematics and custom tablets with Samsara Vehicle Gateways (VGs) and Samsung Android tablets. Routes plans are created and optimized with Edulog software. Drivers use the Samsara Driver App to view routes and conduct vehicle inspections, while staying connected with the high-speed WiFi hotspots that are built into every VG.

RESULTS

"For our district, the concept of installing apps on our own devices **gives us expansion and communication avenues for our drivers like never before**," said Roger Miller, Transportation Manager at EACS. "The use of off-the-shelf devices allowed EACS to deploy tablets at **one-third the cost of other tablet hardware**, while making it possible to **train drivers in just two hours**. With on-board driving directions, drivers complete unexpected runs quicker, resulting in better performance for students and parents."

Edulog Client Case Study: East Allen County Schools, Indiana

EDULOG CASE STUDY: AGUA FRIA UNION HIGH SCHOOL DISTRICT, AZ

How EDULOG Helped Implement Opt-In Transportation

To mitigate the impact of COVID-19 on the Agua Fria Union High School District, a new A/B schedule was planned to be implemented. Concerns arose over how to communicate with parents in the community about these changes. The transportation department needed to know who planned to ride the bus in order to create effective routes according to the latest allowable bus capacities at that time.

Please refer to the following page.

EDULOG

edulog.com/talk-to-us

CLIENT CASE STUDY

How Agua Fria Union High School District Implemented Opt-In Transportation

7,900+
STUDENTS

50+
SCHOOL BUSES

95%
PARENT APP USAGE

"Not only do parents feel informed, it saves our department time. Now we can proactively notify our parents and students of the school bus location and any changes to their planned transportation."

AVERY SPONSLER,
Route Coordinator at Agua Fria Union High School District

PROBLEM

To mitigate the impact of COVID-19 on the Agua Fria Union High School District, a new A/B schedule was planned to be implemented. Concerns arose over how to communicate with parents in the community about these changes. Transportation needed to know who planned to ride the bus in order to create effective routes according to the latest allowable bus capacities at that time.

HOW THEY SOLVED IT

Edulog introduced a new service, Ride Registration, to help the district secure their actual ridership numbers. The community was already familiar with the Edulog Parent Portal app which streamlined the introduction of the Ride Registration service. By using the app, parents were able to confirm that their students needed bus service directly with the transportation department. 95% of parents requested transportation using the new service. Once a student was assigned to a bus route, parents were notified by the app. Edulog Advisory Services led the district through the data-gathering process and implementation.

RESULTS

"The data from Ride Registration was imported directly into our Edulog Routing and Planning software," said Avery Sponsler, Route Coordinator at Agua Fria. "With limited capacity, new CDC Guidelines, and reduced ridership, Ride Registration helped us pinpoint exactly where our services were most needed and allowed us to run and maintain efficient routes with everything that is going on."

Edulog Client Case Study: Agua Fria Union High School District, Arizona

EDULOG SOFTWARE AND THE STATEWIDE SYSTEM IN NORTH CAROLINA

As is well-known in the industry, EDULOG is the only school bus routing software that has been successfully implemented on a statewide basis. Quick initial success in North Carolina led to state law requiring EDULOG system implementation and a relationship with the company that has lasted more than 30 years.

EDULOG's statewide software implementation experience began in the mid-1980s in partnership with the North Carolina Department of Public Instruction (NCDPI). The state sought to reduce fuel consumption by reducing route mileage, which in turn would reduce student travel times. NCDPI selected EDULOG as its software partner.

The EDULOG implementation in North Carolina is known as TIMS (Transportation Information Management System). Student data is imported from PowerSchool, which is the student information system used by all public school districts in North Carolina. Data can also be sent from EDULOG to PowerSchool so that school-based staff can have information on school bus stop locations, arrival times, and bus numbers for each student.

Data Analysis

The` statewide implementation allows state officials to have consistent data to analyze efficiency and service. The EDULOG data is used to populate key performance (service) indicators for each district in North Carolina in order to help districts identify areas for improvement and to track their own progress over time. The 2017-2018 Service Indicators for North Carolina school districts can be viewed here:
http://www.ncbussafety.org/serviceindicatorreports/timsreport2018.pdf

A sample of the North Carolina Student Ride Times indicator is shown below; with the average ride time (in minutes) for students in each district (LEA) is shown, along with the average distance of students from home to school in that district. The + and—indicates an increase or decrease from the previous year.

TIMS Service Indicators, 2015-2016: **Student Ride Times, AM**

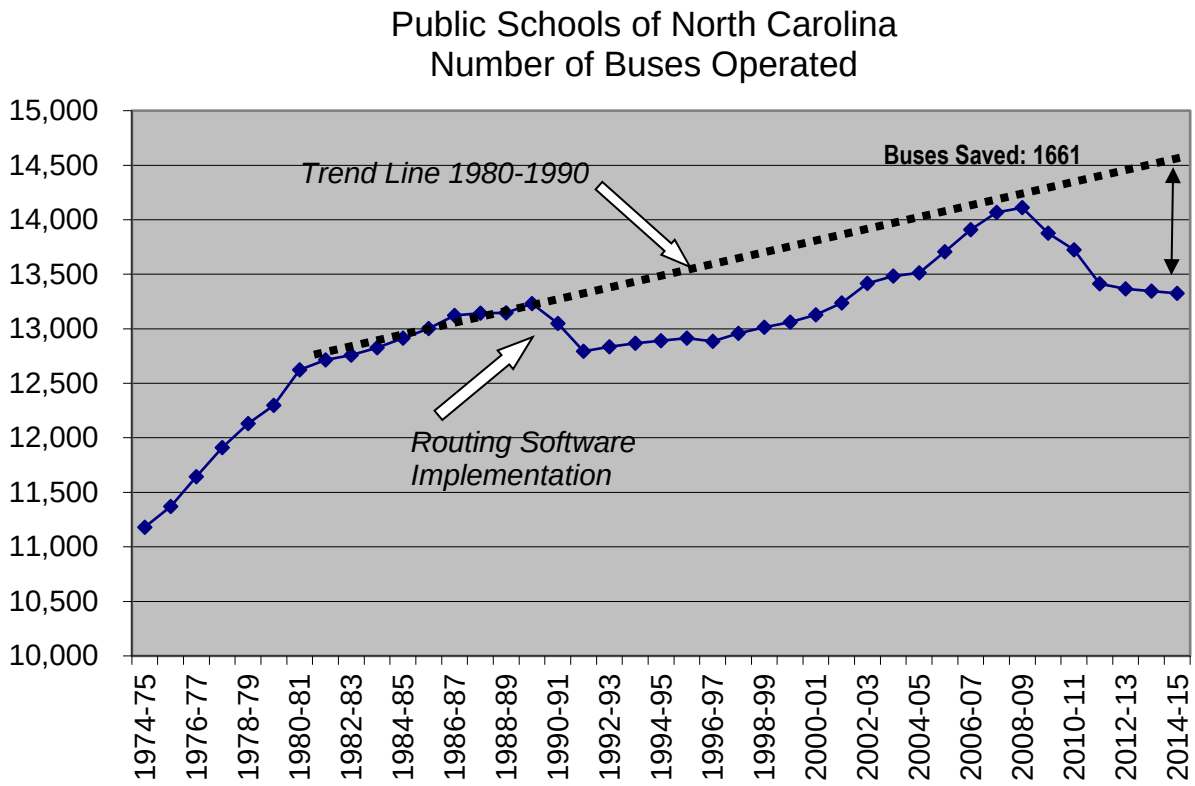
LEA	Avg Ride Time	Average Distance to School: Riders Only	Average Distance to School: All Stu.	LEA	Avg Ride Time	Average Distance to School: Riders Only	Average Distance to School: All Stu.	LEA	Avg Ride Time	Average Distance to School: Riders Only	Average Distance to School: All Stu.
Alamance-Burlington	24+	3.47-	3.56-	Edgecombe	31+	5.38-	5.27-	Chapel Hill-Carrboro	17+	2.55-	2.39-
Alexander	35-	5.07-	5.33+	W-S/Forsyth	20+	3.69+	3.83+	Pamlico	37+	7.6+	7.34-
Alleghany	36-	4.74-	4.97=	Franklin	35-	5.75=	5.78+	Pasquotank	31-	4.31+	4.22-
Anson	37-	5.72+	5.92+	Gaston	26+	2.86+	3.07+	Pender	28+	5.45-	5.54-
Ashe	50-	7.8+	7.56=	Gates	38+	7.31+	7.27+	Perquimans	40+	6.92+	6.86+
Avery	54+	5.96-	5.83+	Graham	24-	5.98-	5.6=	Person	30-	5.3+	5.42-
Beaufort	23-	6.25+	6.21+	Granville	28=	5.93-	5.92+	Pitt	20+	3.88-	4.23=
Bertie	29-	9.3+	9.37+	Greene	34+	7.70+	7.4+	Polk	43+	6.55+	6.27+
Bladen	37-	7.3-	7.36-	Guilford	22-	3.86-	3.85-	Randolph	39+	4.79-	4.7-

More than 13,000 buses, over 800,000 student riders, and all of the associated bus stops, runs, and routes comprise some Big Data. Through a variety of reports, spreadsheets, and databases the state generates over a dozen different indicators.

Efficiency Results

Since the inception of an efficiency-based transportation funding formula, the state of North Carolina has placed a strong emphasis on efficiency. The chart below shows the number of school buses operated statewide in North Carolina compared with a new trend line that emerged during the 1980s. In 1990, state law required the use of the EDULOG software effective September 1992, coincident with the implementation of an efficiency-based transportation funding formula.

The gap between the prior trend line and the actual buses operated depicted in this graph is significant, with the most recent calculation showing 1,661 buses saved.



EDULOG CASE STUDY: CLEVELAND METROPOLITAN SCHOOL DISTRICT, OH

The Cleveland Metropolitan School District, a long-time EDULOG client for route management and GPS, has recently implemented EDULOG's Parent Portal application.

Please refer to the following page.

EDULOG

edulog.com/talk-to-us

CLIENT CASE STUDY

How Cleveland Metropolitan School District improved service to parents

39,000+
STUDENTS

10,000+
TRANSPORTED DAILY

290
SCHOOL BUSES

"Thanks to Edulog's technology and support, the introduction of the parent app to Cleveland has been a resounding success."

ALAN PEREZ,
Applications Manager at Cleveland Metropolitan School District

PROBLEM

Introducing new communication tools and technologies requires a detailed and considerate approach to service and professionalism. Sound justifications for the value of the new app must be shared with the community and all of the stakeholders at the district. A detailed pre-rollout project plan must include effective recommendations to best manage parental and district expectations.

HOW THEY SOLVED IT

It is vital to partner with a vendor that understands the needs and benefits for each and every stakeholder at the district and in the community. "Edulog's knowledge and experience in communicating with parents, stakeholders, and district administrators, and also understanding the needs of each group, was reflected in the plans that the company prepared for the transportation department to present to the district and the community," says Alan Perez, Applications Manager for the district.

RESULTS

"The Cleveland Metropolitan School District has worked with Edulog for many years and Edulog's integrated systems (routing, GPS, Parent Portal) have been vital to the smooth and efficient operations of our transportation department," Perez says. "The company helped us develop a very good process for communication between the district and parents, with Edulog's assistance the expectations of the community and the political stakeholders have been well-managed, and the technology works wonderfully."

Edulog Client Case Study: Cleveland Metropolitan School District, Ohio

EDULOG REFERENCES

As a result of competitive RFPs involving all the major vendors of student transportation management systems, EDULOG was awarded contracts in the past 12 months to replace legacy systems at the Houston Independent School District, Chicago Public Schools, the Dallas Independent School District, and the Duval County Schools (Jacksonville, FL).

MEMPHIS-SHELBY COUNTY SCHOOLS, TN

Especially for a school district which can compare the EDULOG system with the Tyler/Versatrans system. The system in place is EDULOG route management integrated with EDULOG GPS/AVL.

160 South Hollywood Street
Memphis, TN 38112
Stephen Wherry
Deputy Chief of Business Operations
901-416-6077
wherrys@scsk12.org
EDULOG service since 2014 and continuing to this day.
Current Annual Support and Service Value: $191,612.00

UNION COUNTY PUBLIC SCHOOLS, NC

Especially for a school district which recently awarded EDULOG and Samsara a contract for a major implementation of a GPS/AVL/Student Ridership Management/On-Vehicle Tablet system to replace a Synovia system which had been in place for at the district for years. These systems will be integrated with the district's existing EDULOG route management system (known as TIMS in North Carolina).

400 North Church Street
Monroe, NC 28112
Scott Denton
Transportation Director
704-296-3015
gregory.denton@ucps.k12.nc.us
EDULOG service through the North Carolina Institute for Transportation Research and Education since 1989 and continuing to this day.
First Year Project Value: $828,029.99

DURHAM PUBLIC SCHOOLS, NC

Especially for a school district which recently awarded EDULOG a contract as a result of a competitive RFP (Tyler was one of the respondents) for a major implementation of a GPS/AVL/Student Ridership Management/On-Vehicle Tablet system to replace a Synovia system which had been in

place at the district for years. These systems will be integrated with the district's existing EDULOG route management system (known as TIMS in North Carolina).
511 Cleveland Street
Durham, NC 27701
Joe Harris
Transportation Director
(919) 560-3822
joe.harris-jr@dpsnc.net
First Year Project Value: $412,854.00

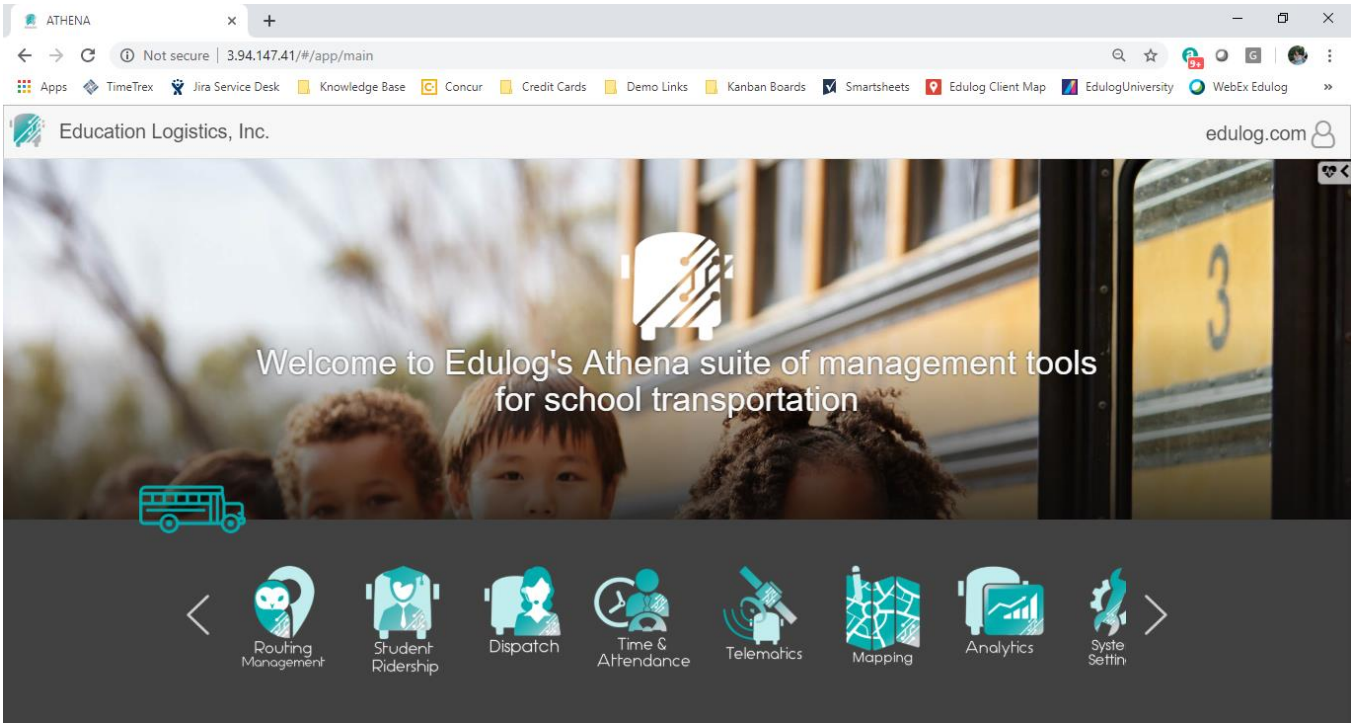
CLEVELAND METROPOLITAN SCHOOL DISTRICT, OH

Especially for a large urban school district with a complicated routing plan.
1111 Superior Ave East
Cleveland, OH 44114
Alan Perez
Enterprise Applications Specialist
216-838-0964
alan.perez@clevelandmetroschools.org
Project Date: 1999 and continuing to this day
Project Type: EDULOG Route Management System with GPS/AVL and Parent Portal App.

The Cleveland Metropolitan School District, a long-time EDULOG client for route management and GPS, implemented EDULOG's Parent Portal application in 2018. **Also see case study in a previous section of this proposal.**

THE EDULOG ATHENA ROUTE MANAGEMENT SYSTEM

THE EDULOG SOLUTION: ATHENA FOR ALL ASPECTS OF SCHOOL TRANSPORTATION MANAGEMENT



The Athena Portal allows access to the entire module collection in the Athena Transportation Management Suite. District and transportation administrators are able to manage comprehensive user permissions so that access to specific modules can be opened or restricted as they see fit.

With the release of the EDULOG Athena suite for school transportation management, school districts will be provided with an enterprise solution that will meet the needs of all school transportation operators, schools, and parents. Athena is the result of the largest investment in system research and development the industry has known. And this revolutionary new approach and solution for school transportation is only made possible by EDULOG's considerable—and unmatched—expertise in operations research, machine-based learning, artificial intelligence, and advanced geospatial recognition technologies.

EDULOG has invested more than $3 million annually to rebuild the entire EDULOG enterprise transportation management suite with the latest technology. Staffed with experts in machine-based learning and artificial intelligence, EDULOG's team will build upon past successes and once again revolutionize the pupil transportation industry.

The unprecedented features and benefits of Athena include:

- **Comprehensive user management capabilities:** the same system can be used by all types of users with specific permissions for both data (the whole fleet, one or more schools, one or more depots, one or more vehicles, one or more students) and function (access, view, print, change) for each of the subsystems with full security and administrative control and integration support for the latest technologies.
- **Full support of transportation planning with effective dates and calendar support:** districts can manage future schedule and route changes for students, stops, runs, routes, and buses; revert back to a previous schedule and route after a certain date; implement different routes and schedules for early outs, snow days, and street construction.
- **Total seamless integration of optimization and routing:** EDULOG's world-renowned optimization capabilities (stop location, run building, route coupling, school bell times) are embedded in the route management system and accessible at any time from the main screen. Do you need to ask a quick "what-if" question? The results appear almost immediately on the screen.
- **EDULOG's routing is the most efficient in terms of real dollars.** Our routing system can be integrated with transportation cost calculations and accounting at the user level to provide the biggest bang for your buck.
- **Integration with public transit:** the system can be configured to include metro bus and/or train routes, schedules, and stops to track and manage students who ride public transportation.
- **Business intelligence for advanced reporting and data analysis** using the latest techniques and processes of online analytical processing, data mining, complex event processing, and predictive analytics. This EDULOG capability will allow districts to make sense out of their "*big data*," easily create and analyze key performance indicators (KPIs), and produce meaningful, detailed reports taken from all facets of their transportation operation.
- **New mapping technology for ease of implementation and maintenance:** an object-relational geodatabase; the ability to use point data in addition to segment and layer data; and full compatibility with all leading GIS systems, including ESRI ArcGIS.

THE ATHENA PORTAL—YOUR GATEWAY TO A NEW WORLD OF EXCELLENCE

Imagine that you had everything that you needed for safe, efficient, economical student transportation management right in front of you, without the need to open separate applications? And imagine that this is all backed by more than 40 years of experience and the innovation that only a deep understanding of advanced design and artificial intelligence (AI) technologies can provide? Well, your imagination can now be realized thanks to EDULOG's history-making investment in a completely new way of looking at, and managing, student transportation.

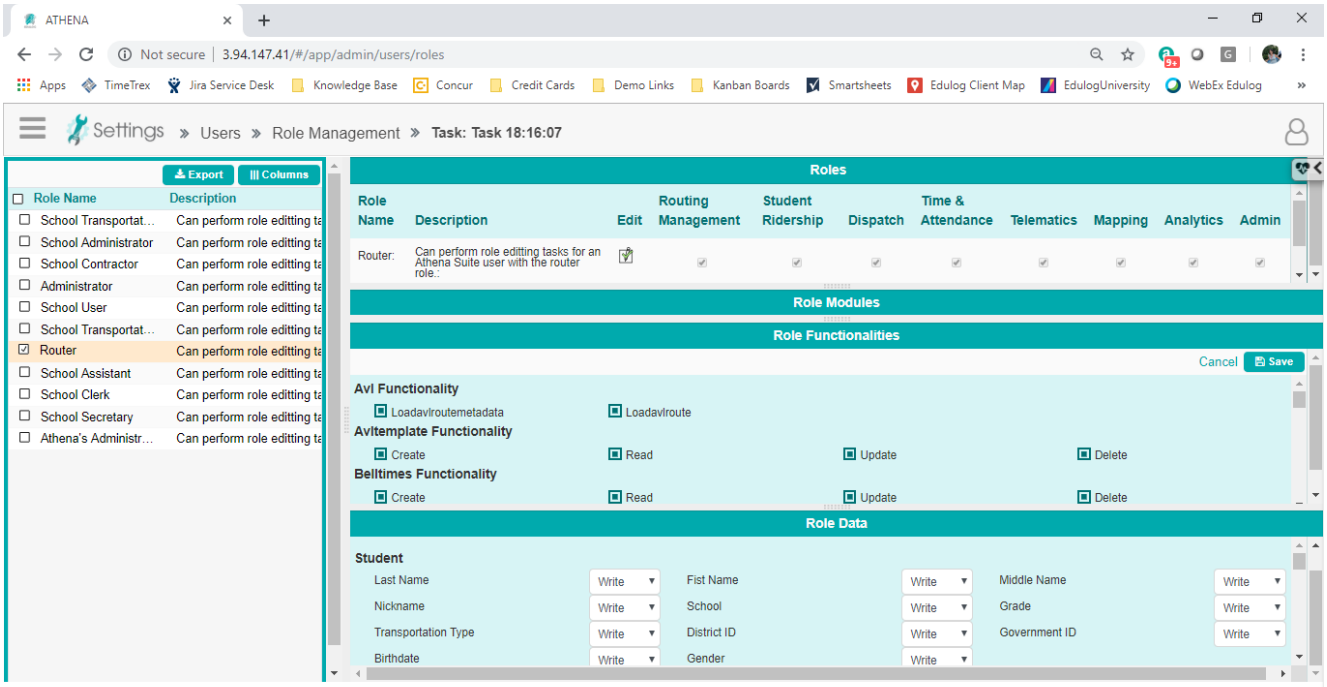
A bus driver needs to change his planned run because a road is closed. You look at the GPS data for the path the driver took to avoid the obstacle and then move the actual driver directions on the screen to revise the planned run—it only takes a few mouse clicks.

- **Routing Management:** Plan, manage, and act upon all daily and long-term busing activities with intuitive, easy to use workspaces customized for each user and role. GPS data is available in the system, so users can quickly act upon changing circumstances and know with certainty what buses are doing at all times. In addition, EDULOG's world class intelligent optimization is available at any time for quick "what-if" simulations and immediate cost savings. EDULOG's new transportation request module solves the problem confronting all competing routing and scheduling systems: how do I automate the collection of new or changed transportation requests, systemize their review and approval, automatically assign the student to the correct fit, and then broadcast that information to all concerned?
- **Analytics:** EDULOG's advanced business intelligence will be applied in this module to assist the district with the easy creation of custom charts, dashboards, and reports. This is also the area where required state reports are processed by the system. The system also allows access to your data for use with your own reporting studios.

ATHENA'S ADVANTAGES COMPARED TO OTHER SYSTEMS

- Portal Page – With the new EDULOG portal page, users will be able to see and access all of their EDULOG products at one location. After a user has logged-in, only those functions a user has access permission to will be displayed. The portal page is customized for each school district.
- User management – **true, complete, secure, and granular user management** is a major component of Athena. There are three main categories that can be set up for user roles (classifications of users: router, dispatcher, school principal, school secretary, bus driver, etc.).
  - Module – users will only have access to the modules they need to perform their job.
  - Functionality – administrators will have the ability to limit users from performing certain operations within the system **(they can look but not change data, they can change data, they can add a stop to a run but not create a new run, etc.)**.
  - Data – User roles may be grouped so that users only see data that is relevant to their position.
- User Dashboards – Each user role will come with standard dashboards that will assist users with performing their daily work. For example, **one dashboard will show tasks that need to be done**

for the day when a user first logs into the system in the morning. Dashboards for administrators would be different from those for routers, which would different from those of dispatchers.



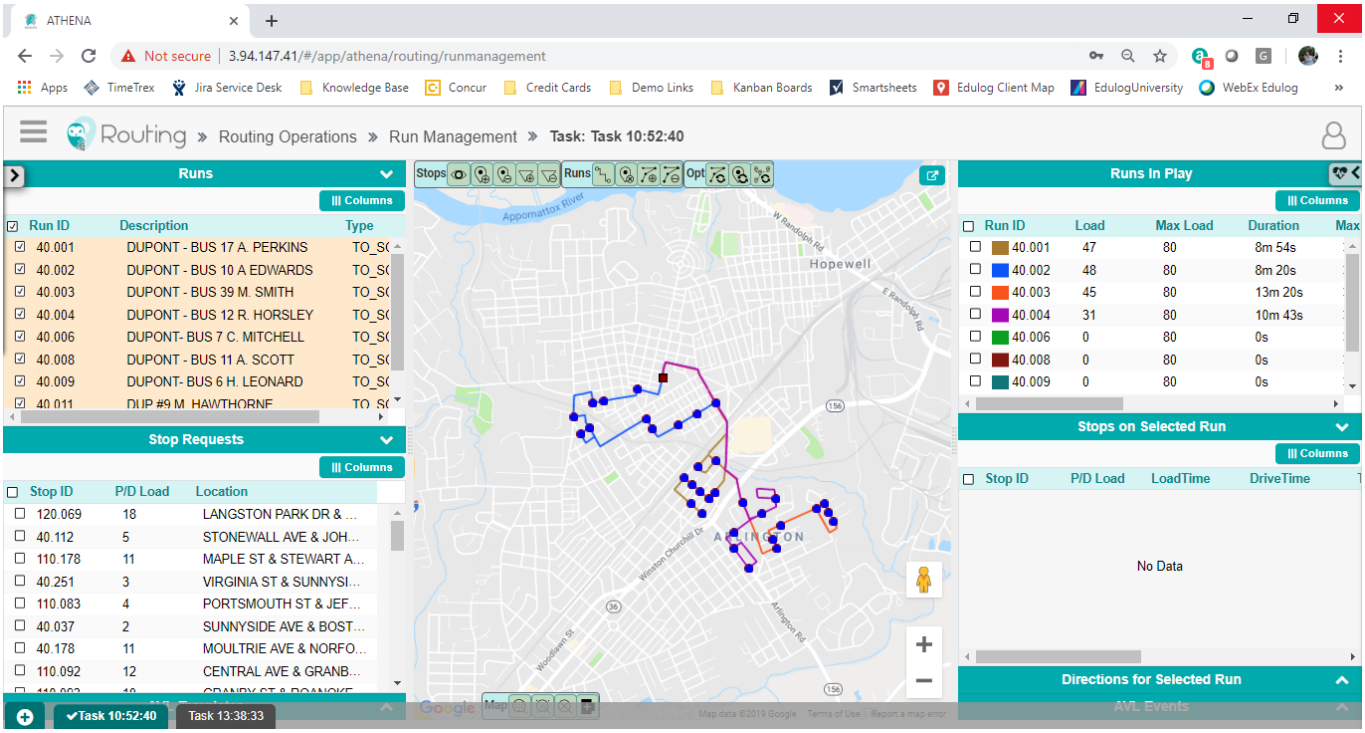
- The Athena Transportation Management Suite allows for multi-user collaboration and comprehensive user management. Administrators, directors, routers, clerks, etc. can all interact with the same data within the same system. There are three main categories that can be set up for user roles: access to modules, functionality per user, and access to data. These settings ensure that every role is properly defined and each user will have the appropriate level of access to the system.
- Context Loading – Athena is designed to present users with data and actions that make sense from the perspective of best practices workflow. When performing operations, **Athena anticipates what the user is trying to accomplish, and then automatically loads the relevant data based on the context** (for example: all stop services and trips for the school bell times I've selected). The goal of Context Loading is to make the system intuitive and easy to learn.
- Tasks – users can organize their work into different tasks so they can multitask while using the system. Users may have several tasks open at the same time, and they may enter other parts of the system and **then come back to their task without losing any data or previous work**.
- Simulation/Sandbox - Tasks can be used to simulate what-if scenarios to assist with optimizing bus runs, and small to medium (up to one school) optimization scenarios can be created and reviewed. The benefit of the Athena "sandbox" is that **it's a place where the user has all the available and needed tools to**

With Athena, you are building an itinerary for a new student when you are interrupted by a phone call from your supervisor, who asks you to look up stop information and a passenger list for a bus driver. You can look up this information without interfering with your itinerary build by creating a task so that you can keep all of your work intact while fulfilling the urgent need of the bus driver. Tasks are an integral part of all Athena route management operations.

play with the data and see what's possible. If the results are undesirable, the user can simply delete the task, and start over from scratch—or go on to a new task.

- Point Data Mapping – Point Data Mapping solves the long-standing GIS problem of how to exactly locate an address along a street or highway. Instead of approximating locations using segment-based addressing**, point data mapping will place an address exactly where the house is located on the street**. This GIS enhancement will increase the accuracy of system-calculated distances (for example, how far is it really from my house to the school, what is the actual mileage between stops on a rural road, etc.).
- Optimization – Full optimization, which EDULOG is the best at in all of the world, can be run directly from the main Athena workspace; there is no need to launch a separate application or move away from what is already on the screen—thus significantly enhancing productivity. Even better, **optimized solutions can be posted right away to the routing production environment.**
- Data Filtering/Display/Export – When working with the data in Athena, users have the ability to export any of the filtered data or worklists on the fly; **there is no need to launch a report writer to view the lists of data you want** (all unassigned stops, all current stops without students, all bus runs with more than 50 passengers, etc.).
- Bulk Editing – Make a selection of multiple schools, students, stops, runs or any other data item and then apply the same action to each of the selected elements (give all the selected buses a head count load of 50, change all runs starting at 8:05 to 8:20, etc.). **Bulk Editing greatly speeds up workflow, reduces errors, and makes route planning even easier than it was before**. Bulk Editing is also a fundamental feature of Transportation Request approvals (so that you can temporarily move all students from a flooded school to another site).
- Data Upkeep Panel – Users will have a dashboard-style tally displaying what tasks need to be completed and/ or data that needs entering or editing. The panel will **display running totals of KPIs to give the team an idea of how well they are keeping up with transportation needs and goals**. The Data Upkeep Panel is refreshed often during the day.
- Multi-Screen Layout – Athena is organized into panels and sections, with the workflow going from top to bottom and left to right. Each panel and section (which can be individually sized) can also be displayed in a new browser window or a separate monitor. **Users are given total flexibility in how they want to organize their workspace**, which greatly increases productivity and enhances the intuitive nature of EDULOG route management.

EDULOG's best in the world optimization can be run right from the main workspace—just select your stops and runs and hit the button. Within moments you will have a fully-optimized solution ready to use the next day.



- Tasks can be used to simulate what-if scenarios to assist with optimizing bus runs. The benefit of the Athena "sandbox" is that it's a place where the user has all the available and needed tools to play with the data and see what's possible. If the results are undesirable, the user can simply delete the task, and start over from scratch—or go on to a new task. If the results are acceptable, they can be placed into production immediately, or they can be stored for further refinement at a later time.

We would now like to provide the BCS with a further presentation of EDULOG functions and capabilities that we believe are particularly relevant to the needs of the BCS.

ATHENA EFFECTIVE DATES FOR MANAGING FUTURE PLANS

Change is a constant factor in school transportation management, but until now, the software systems for school bus route management were not designed to handle transportation change requests or plan for future events and needs. Yes, it was possible to simulate summer school routes that differed from the current production environment, or plan next year's routes and schedules in advance, but it was not possible to create a plan for next Thursday which differed from today's plan, and which could be put in place automatically next Thursday and then automatically revert back to the previous plan next Friday.

In addition, many systems have only the most rudimentary means for systematically processing transportation requests that are an everyday occurrence: a family moves into the district and needs busing for the two children; a student is transferring from a neighborhood school to a magnet school and now needs to ride a different bus; a family will be moving across the city in two weeks and needs transportation for their special needs child on the day after their move. And then there are cases such as Amelia being the only student at an out of the way stop, and she'll be in the hospital for the next five school days for surgery. Wouldn't you want a system that alerted you to this situation, changed the bus run to save four miles and 12 minutes during the week Amelia is not in school, and then automatically return to busing Amelia when she's back at home?

With EDULOG Effective Dates, users can plan and manage future schedule and route changes for students, stops, runs, routes, and buses; revert back to a previous schedule and route after a certain date; and implement different routes and schedules for early outs, severe weather days, and street construction.

But with EDULOG's Effective Dates and Transportation Request functions, all of the above situations, and more, can be efficiently managed so that you have a true transportation planning system with full calendar support. Users can plan and manage future schedule and route changes for students, stops, runs, routes, and buses; revert back to a previous schedule and route after a certain date; and implement different routes and schedules for early outs, severe weather days, and street construction.

With EDULOG, you can process projected needs and develop future solutions that will become active at the right time. These future plans are saved and managed without interfering with current data that reflects on what is happening on the road today (passenger loads, times, stop locations, and driver directions). The future plans, which can be different for every day (or a user-selected combination of days, weeks, or months), contain the same types of information as the current day's plan.

There are also no limitations on the number of future plans that can be created, saved, or activated—thus making "what-if" simulations readily accessible for comparison and review. The EDULOG system has, as fundamental design element, the incorporation of real-world information into the plans. Planned data in EDULOG accurately represents actual on-the-road performance of the buses—whether in the past, the present, or the future. Because of EDULOG's understanding of, and experience with, complete and accurate data ingestion, our system is the only one that can meet the critical need for correct integration with GPS/AVL and student ridership data.

The system also provides school districts with an effective and automated way to process transportation requests received from parents. The EDULOG system provides immediate information about available transportation services, and allows for the easy modification of bus plans to accommodate changing requirements (such as adding students to a stop or run in the future). Confirmation of such changes is then broadcast to all involved (routers, dispatchers, parents, schools, etc.).

What makes the EDULOG system not only unique, but also so valuable, is that it supports all phases of transportation administration: planning, managing, reporting, decision-making, forecasting, feedback assessment, and constant improvement through business intelligence. This integration of all functions is absolutely crucial to ensure that the BCS's obligation to parents is met: that it provides parents and caretakers with accurate busing information each and every school day.

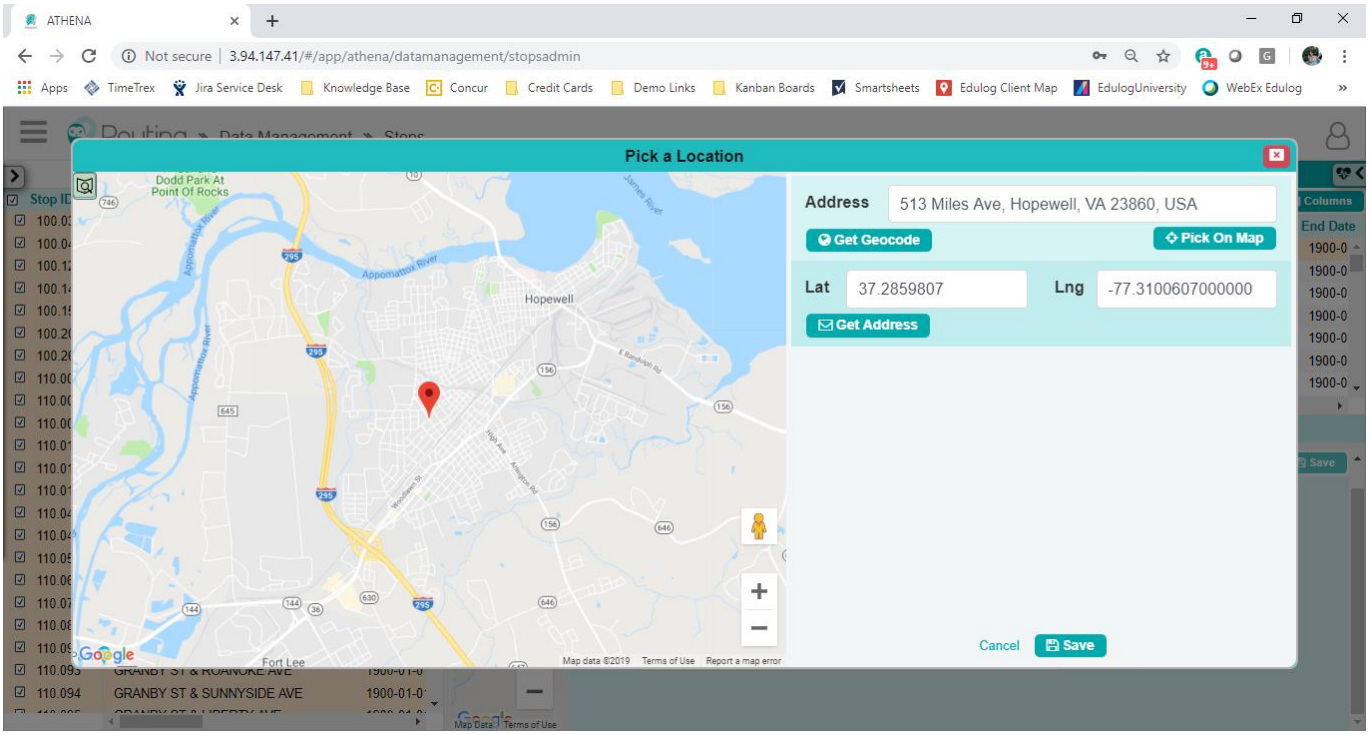
EDULOG'S NEW GIS

With EDULOG's new GIS functions and capabilities, EDULOG has greatly increased mapping interoperability between EDULOG and other systems while continuing to enhance the accuracy and ease-of-use of our software and data.

the EDULOG system can accurately compute school bus travel times according to time of day and traffic conditions—without requiring the user to micromanage the street network segment by segment. This is a capability that only EDULOG offers, and one which provides users with the accuracy and flexibility required to effectively manage routing and parent notification functions.

Because our geospatial database conforms to the latest industry standard structures for object-relational geodatabases, EDULOG's mapping system allows for seamless imports and exports from all the leading GIS programs (including ESRI ArcGIS) in the correct projection. Multiple users can edit the map at the same time, and safeguards are built-in to the system to protect mapping information (boundary layers, speed limits, landmark locations) from being overwritten.

Our new geographic system fully supports and realizes the benefits of point addressing (X,Y coordinates; latitude and longitude). This capability is especially important in increasing the accuracy and compatibility with AVL data gathered from GPS devices. It also drastically reduces the time and effort needed to create the map data to support the route management system, thus simplifying system implementation and maintenance.



If the address of an active stop is incorrect or requires adjustment, the appropriate location can be set with only a few clicks by dropping a pin on a map or by inputting the latitude and longitudes of the correct location. Google Street View can be launched from the map to visually verify the stop location.

One especially noteworthy benefit of our GIS capabilities is that the EDULOG system can accurately compute school bus travel times according to time of day and traffic conditions—without requiring the user to micromanage the street network segment by segment. This is a capability that only EDULOG offers, and one which provides users with the accuracy and flexibility required to effectively manage route management and parent notification functions and develop meaningful key performance indicators (KPIs).

EDULOG GIS gives you full compatibility with all mapping systems used by government agencies, advanced tools to accurately display and measure geographic points (driveway entrances, buildings on a satellite map, etc.), and intelligence to correctly interpret traffic patterns and conditions.

ATHENA USER MANAGEMENT

EDULOG is expanding system accesses and permissions far beyond the traditional role/group model of managing read/write access to data and functions.

The new EDULOG model is based on the classifications of user roles, tenants, and user groups.

User roles define access rights to functionality (e.g. can I create a student record, can I assign a stop to a run, etc.) and also general data separation (e.g. individual school users have access only to their school, bus operators/garages have access to only their data, etc.). **Typical user roles include router, dispatcher, school clerk, principal, transportation department assistant, etc.**

Tenants are one client/one system implementation, intended for very complex situations such as the management of every school district in a state, whereby the state is the tenant and has access to every school district's functions and data, but the individual school districts have no ability to access the state's (tenant) data—and thus cannot view the data of any other district.

User groups are defined in addition to user roles, and are a more complete way to separate data. In the case of state-wide implementation, the state would be the tenant, and each district would be a user group. This concept of user group can be applied at the district level to separate bus regions or bus contractors.

Scenarios where the distinctions in user roles and user groups would apply include the following:

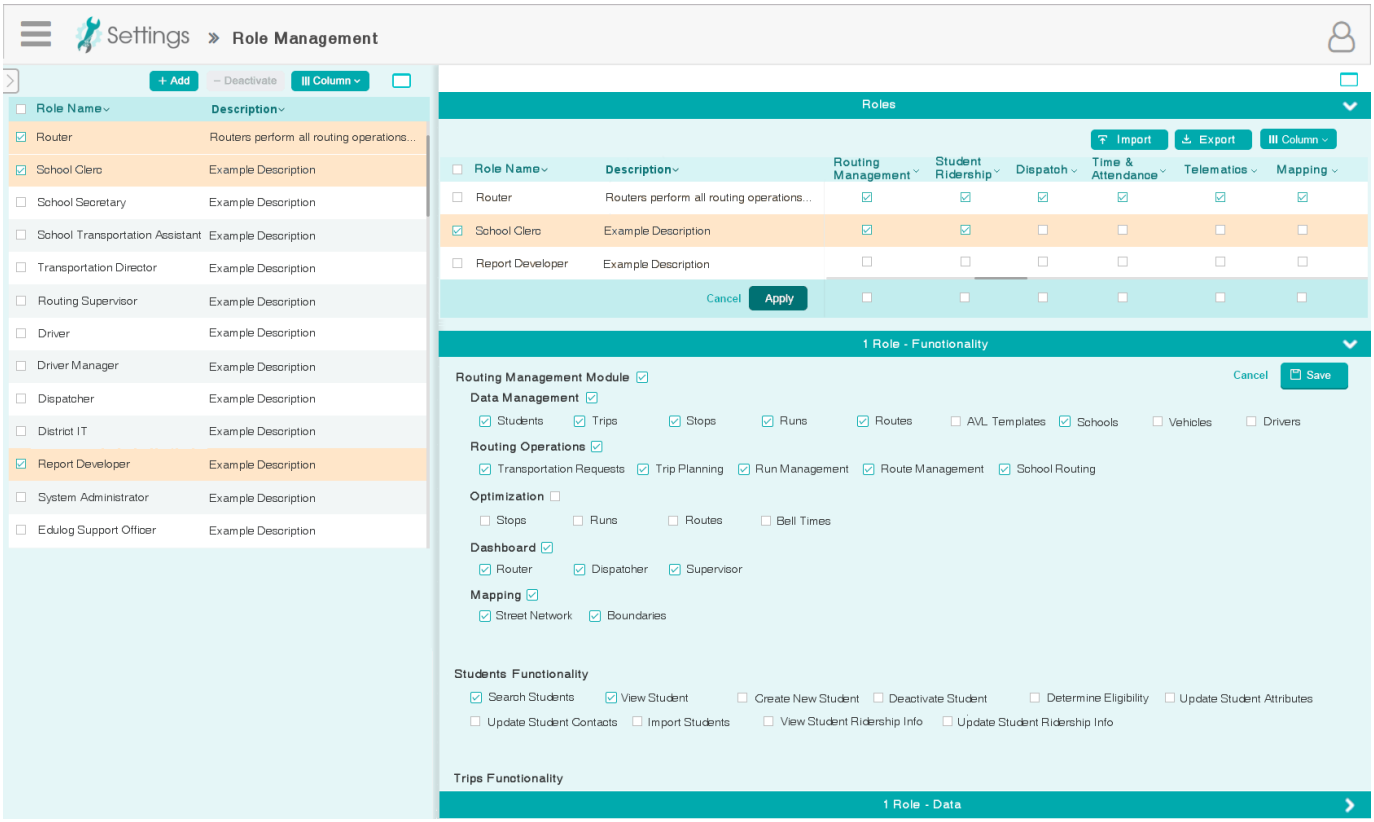
1) A school district transportation operation is divided into five regional depots/branches, each managed by a regional supervisor. Within the regional office, there is the usual staff classification: router, transportation clerk, etc., and these personnel are given the same function permissions as the staff of the central transportation office (assign a student to a run, change a route coupling, deassign a stop, etc.) **But unlike for the central office routers, the data access of branch staff would be limited to only those buses operating out of their depot.** This would mean that only schools, runs served by those buses, stops in the geographic area of the branch, transportation requests, and trips to those schools are accessible to the branch user.

2) Or consider a variation of the above, where the branch staff can have read access to everything (except students and trips) for the whole school district but write access only to the data related to the buses of their depot and read access only to students and trips assigned to the schools served by those buses (when a school belongs to one and only one branch). **The read-**

only access vs. write access would be defined using the user role; which buses, which runs, which students, etc. would be defined by the group.

3) A school district uses four busing contractors. Each contractor can only see their buses, and this would determine the routes, runs and stops associated with those buses that are accessible by each contractor, but they would not have access to students, transportation requests, and trips, except for the passenger lists at the stops the contractor serves. The buses would be defined in the EDULOG database as belonging to a specific contractor. However, runs would not be labeled as assigned to any particular contractor—instead the access permission would be derived from the bus (schools would not capture the data access by a contractor because runs to the same school may be served by different contractors).

The screen capture below for role management shows which software functions the roles of router, school clerk, and report developer will be allowed to access.



User credentials are required to access Athena. Each user must be affirmatively assigned a set of permissions to be able to access information or use Athena to perform any activities. No anonymous access is available, credentials are always required to access Athena and a profile must be assigned that is a combination of role, permissions, and data access.

Unique User IDs are used to create accounts in Athena. Verification of accounts is through email to verify the account and to enable multi-factor authentication. Users do not receive permissions to view data or perform activities in Athena unless those permissions are affirmatively granted either

on a case-by-case basis or by affirmatively assigning the user to a pre-defined role. Removal of user accounts is handled through the ticketing process and/or utilizing an SSO process.

EDULOG recommends that districts adopt a formal business process to govern provisioning of user accounts and permissions.

UNIQUE AND VALUABLE OPTIMIZATION CAPABILITIES

Full optimization, which EDULOG is the best at in all of the world, can be run directly from the main Athena workspace; there is no need to launch a separate application or move away from what is already on the screen—thus significantly enhancing productivity. Even better, **optimized solutions can be posted right away to the routing production environment.**

Pupil transportation optimization, as practiced by EDULOG, is the processing of applying sophisticated mathematical models and algorithms to derive the best solution based on constraints (ride time, bus capacity, distance, and regulations and required driver breaks, for example) and preferences (convenience, economy, and feasibility are several of the possibilities). Although there are a number of variations in how to approach what is known as the "traveling salesman" problem (algorithms known as "greedy," "ant colony," harmony search," etc.), the proprietary optimization algorithms developed by Dr. Nguyen (EDULOG's founder and CEO) specifically address the unique circumstances of pupil transportation. Unlike other logistics problems, with school transportation the number of passengers and the school locations are known, but everything is else is variable: stop locations, school times, the number of vehicles and their capacities, the street and road network (the shortest path may not be the quickest or most efficient path), and the travel speeds based on time of day and type of vehicle.

For examples of how EDULOG optimization is used to solve school transportation problems, we will discuss:

- Bus Run Sequences
- Bus Route Couplings

Bus Run Sequences: According to traditional thinking, this is the heart of the transportation optimization problem: what is the shortest path between any number of points (bus stop locations)? In the most convenient model, a school bus would travel to one bus stop location, collect the students at that stop, and then drive directly to school. In some instances, such as when the number of students equals the capacity of the bus, this one stop bus run would be very efficient—although optimization is still required because the shortest path may not be the best path in regards to time and fuel efficiency.

Most bus runs, however, consist of multiple bus stops, and thus a decision must be made about how the stops are sequenced along the run, and which stop comes first and which last. Although this problem is not inconsequential (but easily solved by EDULOG), its level of complexity is not nearly as great as the problem EDULOG's optimization has been refined to resolve: what efficiencies could be achieved if any bus stop could be put on any run serving a particular school? If the current model has 75 stops assigned to a school and is served by 15 buses, is it possible to optimize this so that the same number of stops could be served by only 11 buses while still meeting all constraints concerning time on the bus and time to school?

To obtain the answers, EDULOG's run building optimization takes a selected group of bus stops and then creates a new set of runs that best meets the needs of the client. This typically involves transporting the most students with the fewest number of buses in the least amount of time. And it usually requires balancing three variables: the capacity of the available buses, the limitations on maximum run time, and the total distance traveled to collect all of the students. Very different solutions can be produced depending on the preference for: the fewest possible runs (thus reducing labor costs and vehicle numbers); the greatest reduction in travel time (providing the greatest convenience to students while possibly reducing labor costs); or the least distance traveled (which reduces fuel costs). EDULOG can rank and adjust these criteria and consider any limits concerning passenger loads and ride times.

Bus Route Couplings: A very simple, and perhaps convenient, plan is to have a driver and a bus make one morning run to school, and then in the afternoon reverse the run from school. This is, however, not a very efficient use of labor and vehicles because both are idle for most of the day. Therefore, the practice of combining separate bus runs into bus routes is commonly used. In essence, bus route coupling optimization is primarily concerned with time management in the allocation of resources: is there enough time for this bus and driver to conduct another run, either to the same or a different school? And is it feasible to perhaps have the same bus serve three or more runs in both the morning and the afternoon?

EDULOG's route coupling optimization process considers school bell times, adjustable bus arrival and departure times (based on school bell times), the duration of each bus run, and the capacity of each bus to combine a specified group of bus runs into bus schedules that minimize fleet and labor requirements, travel distance, and wait times. The optimization can be conducted for any group of specified runs so that the fewest number of buses is used to transport all students safely and efficiently. EDULOG's route coupling optimization often allows one bus to transport the same number of students that previously required two or three buses.

AMAZON WEB SERVICES (AWS) SYSTEM HOSTING

EDULOG is proposing that the EDULOG Athena solution be a cloud-based system using AWS (Amazon Web Services). The benefits of an EDULOG AWS-hosted system include: there will be no need for district IT support of either software or server hardware; the software will always be up-to-date with latest version without any involvement from the district; and the district will have no obligation for data and system operations involving new release installations, backups, system patching, etc. Another advantage of AWS hosting is that electrical outage or a disaster (fire, hurricane, lightning strike, flood) at the district's IT facility will not bring down the system.

With an AWS-hosted EDULOG system, the client school district would have full access to its data just as it would with a district-hosted system, and AWS data security is recognized for its superiority at storage and transmission of even the most sensitive information. From the AWS website:

> "To aid your compliance efforts, AWS regularly achieves third-party validation for thousands of global compliance requirements that we continually monitor to help you meet security and compliance standards for finance, retail, healthcare, government, and beyond. You inherit the latest security controls operated by AWS, strengthening your own compliance and certification programs, while also receiving access to tools you can use to reduce your cost and time to run your own specific security assurance requirements. AWS supports more security standards and compliance certifications than any other offering, including PCI-DSS,

HIPAA/HITECH, FedRAMP, GDPR, FIPS 140-2, and NIST 800-171, helping satisfy compliance requirements for virtually every regulatory agency around the globe."

AWS uptime varies by SLA (Service Level Agreement), with the usual monthly availability being in excess of 99.0%. Some AWS service levels offer, for additional fees, up to 99.99 percent availability.

In regards to latency, access speed should be indistinguishable from what can be achieved with district servers. And, as one example of latency not being an issue, Netflix uses AWS around the globe to provide on-demand streaming service.

Amazon Web Services is used by, among others, the CIA, the Department of Defense, NASDAQ, and Netflix.

ROUTE MANAGEMENT SYSTEM REPORTS

EDULOG's routing software is designed to be a useful and significant contributor in the enterprise resource planning ecology most of today's school transportation departments need to operate efficiently. We know that getting the work done is only half of the work. The work needs to be documented, reported on, analyzed, and reported on again, adjusted, reported on again, ad infinitum. Successful continuous improvement cultures require tools to analyze and report on the work and EDULOG has spent decades building up the expertise and understanding need to tailor our software to facilitate continuous improvement in school transportation departments.

A variety of reports (both standard and user-defined—which can be saved for later use and/or modification) can be generated in the Athena software system. Through the action bar the user will find the category or report type they are in need of in Athena Reporting. Reports that pertain to schools, students, runs, routes, vehicles, and driver direction errors are available. The reporting modules are arranged in such a way that the user can identify the information needed in the report, generate it, then load a file for printing or digital sharing.

EDULOG's powerful reporting capabilities include complete sort priority options for individually designed special reports. For example, the system easily produces computer-generated routes and bus schedules with complete data for dispatching. The software will also automatically compute and display travel times and distances along actual streets. System operators may select students based on any combination of criteria stored in the student files, and then sort and format the information as desired. Statutory reports can be easily produced. For example, the Report-Writer feature can generate reports for the effective management of the transportation system, such as:

- Driver Schedules—stops to be executed by vehicles showing points of pick-up (defined in terms directly understandable by the driver), the names and number of students assigned to each stop, and the expected time of arrival.
- Route Census—listing of route schedules including the name, identification number, school, grade, and home telephone number for each student assigned to a stop. All student data fields are available for selection for this report.
- School Listings—alphabetic listing of students arranged by school, grade, telephone number, birth date, and transportation (bus route and stop) information.
- Driving Directions—directions showing right and/or left turns with specific street names.

Reports can be formatted to provide any eligibility information desired—users can create reports of any desired format without leaving the system or having to learn arcane query languages.

Exception reports are also supported, such as listings of students who are eligible but not transported and/or students who are transported but not eligible.

Athena Routing

TRUE OPTIMIZATION AND SMART SUBSTITUTION

ATHENA

Introducing a cloud-based routing management solution designed for ease of use and access.

Nimble

Visual

Insightful

EDULOG

Schedule a conversation with us today to learn more!

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www.edulog.com
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ATHENA
Transportation Suite

Athena Routing offers everything that you need for safe, efficient, economical student transportation management. Plan, manage, and act upon all daily and long-term busing activities with intuitive, easy to use workspaces customized for each user and role. Quickly act upon changing circumstances and know with certainty what buses are doing at all times. Your school district's routing software should reduce work, not create more! Start your conversation with Edulog today to learn more.

CARES Act and ESSER Funds:
Ask your Edulog representative how to find funding that can be invested towards improving your transportation technology footprint.

Features

- Total integration of route management, planning, reporting, telematics, and parent apps
- Comprehensive user management capabilities
- Total seamless integration of optimization and routing
- Plan and execute alternating schedules
- Create what-if scenarios to stay prepared
- Cloud-based web app: no need for district IT support of either software or hardware
- Your turn-by-turn directions are generated in real-time as you work.

Integration

Athena integrates with your student information system, automatically pulling and populating your transportation rosters, eligibility, and more based on your district's daily records.

Better, Faster, Stronger

Athena's intuitive interface lets you work graphically on your customizable maps or with a spreadsheet and form style interface to ensure that your workflow is comfortable and familiar.

Drag-and-Drop Simplicity

Easily select and assign multiple students to stops, quickly assign stops to runs, and do it all right from your map. Performing your most common routing tasks is simple.

Parent Portal

A secure communication platform that gives parents accurate, real-time busing information with the benefits of instant messaging, alerts, and a user interface with tremendous appeal.

Call: (406) 728-0893 info@edulog.com www.edulog.com

IMPLEMENTATION, SUPPORT, AND TRAINING SERVICES

IMPLEMENTATION AND PROJECT MANAGEMENT

Please note that the proposed offering to the Boone County Schools is for an enterprise student transportation management system that would upgrade the BCS's current EDULOG route management system to the latest version of EDULOG Athena.

EDULOG will have a robust project management and deployment team staffing the project. The EDULOG team will likely include: (1) a project executive; (2) a project manager; (3) subject matter expert leads for each of the substantive deployment areas, and (4) a training lead.

The project will be broken out into major phases along the lines included in the proposed project plan:

(1) Project initiation (tasks include identifying goals and objectives, identifying team members, and fleshing out project phasing);

(2) Phase One – Transition to the EDULOG Athena Route Management system;

Training will be incorporated into each phase. For those phases of the deployment that require training a small number of users, EDULOG will likely directly train those users. For those phases of the deployment that involve a larger number of users (such as school access to the system), EDULOG will likely take a train-the-trainer approach, training groups of employees who can then train additional members of the district staff. For all phases of deployment, EDULOG will work with the Boone County Schools to make sure that the BCS has subject matter experts for all applications being provided.

EDULOG'S APPROACH TO PROJECT MANAGEMENT

At EDULOG, a project manager is the senior person who takes overall responsibility for the successful planning and execution of a given project. The project manager possesses a combination of skills, including the ability to ask meaningful questions, detect unstated assumptions, and resolve interpersonal conflicts—in addition to more traditional, systematic management skills.

One of the EDULOG project manager's key duties is to recognize that risk directly affects the likelihood of success, and that this risk must be both formally and informally measured and discussed throughout the life of the project. Risk arises primarily from uncertainty, and an EDULOG project manager focuses upon this as the main concern. Most of the issues that affect a project arise in one way or another from risk. An EDULOG project manager can reduce risk significantly by adhering to a policy of open communication to ensure that every significant participant has an opportunity to express opinions and concerns.

Thus, an EDULOG project manager is responsible for making decisions both small and large in such a way that risk is controlled and uncertainty minimized. Every decision made by the project manager is based on the goal of directly benefiting the project.

EDULOG project managers use project management software to organize their tasks and workforce and provide the client with reports and charts.

Some of the major roles an EDULOG project manager is involved in include:

Team management: The project manager aims to create an atmosphere of a cooperative and effective team partnership, both within EDULOG and with the client staff. Team management includes all the processes that are needed to identify and form an effective project team. This includes determining who is vital to the project and identifying the roles and responsibilities of each team member. The project manager develops processes for communicating amongst the team that will build the necessary rapport, resolve conflicts, and monitor performance levels to ensure the effectiveness of the team.

In addition to the project management process described in this RFP response, EDULOG has developed a unique service program (included in the software licensing fees) dedicated to ongoing customer success post-system implementation. This service program is called Athena Freshman Year and was developed in recognition of the fact that system implementation is only the beginning of an often lengthy and profound change management process clients must go through to achieve true success with their new systems. Athena Freshman Year picks up after software has been implemented and provides a whole business cycle's worth of enhanced client support to assist clients in fully integrating use of EDULOG's software in their business processes. In addition to the standard Athena Freshman Year service, additional enhanced services (routing assistance, advisory services, etc.) are available for additional fees.

Communication management: Effective communication during a project is imperative to ensure client success and maintain a clear understanding of the project's progress. For the Boone County Schools, EDULOG is proposing a weekly discussion to analyze project status, quantify the remaining tasks, determine the goals for the week ahead, and update the schedule. This will ensure that both the BCS and EDULOG project teams are aware of project-related activities, success, and expectations.

Risk management: The project manager must also work with the client to develop strategies and methods to identify and avoid risks throughout the life of the project. These risks might include business risks associated with the nature of the work and the funding sources, risks within the project and the team environment, and technical risks involved with the system development and implementation or other aspects of the technology.

Configuration management: In a project of the sort contemplated by the BCS, many software versions and files are created during the project. Therefore the EDULOG project manager will be responsible for directing the EDULOG team in identifying and tracking these versions and documenting how

changes will be managed and accepted. All project documentation, project hardware and software, and project output are placed with the EDULOG project management team.

Quality management: Evaluation and testing activities contribute to how the delivered solution adheres to relevant standards. Quality of a software program or deliverable doesn't mean checking it at the end and ensuring that it is bug free. It also means quality is tracked throughout the project. A quality management plan is developed at the beginning of the project, with quality milestones and goals clearly delineated.

Project time management: Developing procedures to manage activities and project scheduling involve creating a detailed schedule at the project definition stage. A work responsibility structure is then developed and agreed to by EDULOG and the client.

EDULOG project managers follow a well-established process that begins at preplanning the project to defining the scope, mission, resource assignments, deliverable definitions, and a common plan agreed to by EDULOG, the subcontractors, and the client.

During the execution of the project, in addition to supervising deadlines, tasks, constraints, and resources, the EDULOG project manager will also monitor goals, issues, key learning areas, alerts, and team dynamics.

The intent of the EDULOG project management process is to:

- Replace "just-in-time" or "good-enough" actions with coherent, planned processes that build on previous successes
- Handle surprises in a pre-planned manner
- Foster a common understanding and commitment within both EDULOG and the BCS
- Ensure that work from different groups (engineering, implementation, operations, and the BCS transportation and IT staffs) don't conflict
- Reduce risks to a non-threatening level
- Make predictions and revisions with confidence

DESCRIPTION OF EDULOG PROJECT MANAGEMENT PHASES

The following text describes EDULOG's time-tested phasing of project management tasks. This discussion is intended to provide the BCS with a starting point for a further discussion with EDULOG of the phasing and tasks for EDULOG Athena and associated systems.

EDULOG project managers all understand that every project big or small follow a basic project life cycle.

- **Starting the project**—This stage involves generating, evaluating, and framing the business need for the project. This consists of the general approach to performing each stage and preparing a detailed project plan. Outputs from this stage may include approval to proceed to the next stage, documentation of the needs of the project or estimates of the time and resources to perform each required function (often included in a project charter), and an initial list of people who may be interested in, involved with, or affected by the project.
- **Organizing and preparing**—This stage involves developing a plan that specifies the desired results; the work to complete; the time, the cost, and other resources required; and a plan for how to address key project risks. Outputs from this stage may include a project plan

documenting the intended results coordinated with the time, resources, and supporting processes to help create them.

- **Carrying out the work**—This stage involves establishing the project team, support systems, performance of the planned work, and complete system monitoring to ensure adherence to the current plan. Outputs from this stage may include project results, project progress reports, and other communications.
- **Closing out the project**—This stage involves assessing the project results, obtaining customer approvals, transitioning project team members to new assignments, closing financial accounts, and conducting post-project evaluations. Outputs from this stage may include final, accepted and approved project results.

Understanding this life cycle and how it relates to the projects ensures success when moving through the project management processes. Our approach will follow these processes:

1. Initiation
2. Planning
3. Execution
4. Control and Monitoring
5. Closure

Successfully performing these processes requires the following:

- Information: Accurate, timely, and complete data for the planning, performance monitoring, and final assessment of the project
- Communication: Clear, open, and timely sharing of information with appropriate individuals and groups throughout the project's duration
- Commitment: Team members' personal promises to produce the agreed-upon results on time and within budget.

Project Initiation

(Clarifying the business need, defining high-level expectations, defining resource budgets, and beginning to identify audiences that may play a role in the project)

If awarded a contract for this project, all contract documents will effectively serve as the Statement of Work and Project Charter to clearly define the business need. These contract documents will serve as the narrative description of the products and services to be delivered within the project. While most of this is outlined within the Request for Proposals (RFP), the scope of the project could change through negotiations with the BCS.

The project plan that is proposed assumes that there are no significant changes to the overall scope of services as defined in the RFP. Details of the project timeline serve as estimates based on the information currently available. The project planning process will be utilized to generate a more concrete timeline and task list that will supersede the portions presented in this proposal.

Project Planning

(Detailing the project scope, time frames, resources, and risks, as well as intended approaches to project communications, quality, and management of external purchases of goods and services)

The EDULOG project manager will take a proactive role in ensuring effective communications on this project. The communications requirements are documented in the Communications Matrix presented in this document. The Communications Matrix will be used as the guide for what information to communicate, who is to do the communicating, when to communicate it, and to whom to communicate with.

As with most project plans, updates or changes may be required as the project progresses or changes are approved. Modifications or updates may be required due to changes in personnel, scope, budget, or other reasons. Additionally, updates may be required as the project matures and additional requirements are needed. The project manager is responsible for managing all proposed and approved changes to the communications management plan. Once the change is approved, the project manager will update the plan and supporting documentation and will distribute the updates to the project team and all stakeholders.

All project communication activities will occur within the project's approved budget, schedule, and resource allocations. The project manager is responsible for ensuring that communication activities are performed by the project team and without external resources which will result in exceeding the authorized budget. Communication activities will occur in accordance with the frequencies detailed in the Communication Matrix in order to ensure the project adheres to schedule constraints. Any deviation of these timelines may result in excessive costs or schedule delays and must be approved by EDULOG and the BCS.

As part of identifying all project stakeholders, the project manager will communicate with each stakeholder in order to determine their preferred frequency and method of communication. This feedback will be maintained by the project manager. Standard project communications will occur in accordance with the Communication Matrix; however, depending on the identified stakeholder communication requirements, individual communication is acceptable and within the constraints outlined for this project.

In addition to identifying communication preferences, stakeholder communication requirements must identify the project's communication channels and ensure that stakeholders have access to these channels. If project information is communicated via secure means or through internal company resources, all stakeholders, internal and external, must have the necessary access to receive project communications.

Once all stakeholders have been identified and communication requirements are established a project team directory will be created. The following table is a sample directory for use by the project team:

Role	Name	Title	Organization/ Department	Email	Phone
EDULOG Project Manager	A. Smith	PMO Manager	PMO	a.smith@abc.com	(555) 555-1313
BCS Project Manager	B. Smith	Project Manager	PMO	b.smith@abc.com	(555) 555-1414

Project Stakeholders	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register	See Stakeholder Register
Project Team					
Site Integrator					

The project team will determine the communication methods and technologies based on several factors to include: stakeholder communication requirements, available technologies (internal and external), and organizational policies and standards.

A Communications Matrix will be developed that identifies the communications requirements for this project:

Communication Type	Objective of Communication	Medium	Frequency	Audience	Owner	Deliverable	Format
Kickoff Meeting	Introduce the project team and the project. Review project objectives and management approach.	● Face to Face	Once	● Project Sponsor ● Project Team ● Stakeholders	Project Manager	● Agenda ● Meeting Minutes	● Soft copy archived on project SharePoint site and project web site
Project Team Meetings	Review status of the project with the team.	● Conference Call	Weekly	● Project Team	Project Manager	● Agenda ● Meeting Minutes ● Project schedule	● Soft copy archived on project SharePoint site and project web site
Technical Design Meetings	Discuss and develop technical design solutions for the project.	● Conference Call	As Needed	● Project Technical Staff	Technical Lead	● Agenda ● Meeting Minutes	● Soft copy archived on project SharePoint site and project web site
Monthly Project Status Meetings	Report on the status of the project to management.	● Conference Call	Monthly	PMO	Project Manager	● Slide updates ● Project schedule	● Soft copy archived on project SharePoint site and project web site
Project Status Reports	Report the status of the project including activities, progress, costs and issues.	● Email	Monthly	● Project Sponsor ● Project Team ● Stakeholders ● PMO	Project Manager	● Project Status Report ● Project schedule	● Soft copy archived on project SharePoint site and project web site

A communication flowchart will be developed to aid in all project communication. This flowchart will provide the framework for the project team to follow if something arises that falls outside of the

communication flowchart the project manager is responsible for discussing the communication to the project sponsors to make a decision on how to proceed.

Efficient and timely communication is key to successful project completion. As such, it is imperative that any disputes, conflicts, or discrepancies regarding project communications are resolved in a way that is conducive to maintaining the project schedule, ensuring the correct communications are distributed, and preventing any ongoing difficulties. In order to ensure projects stay on schedule and issues are resolved, an escalation process will be developed to provide a framework for escalating communication issues.

Project Execution

(Establishing and managing the project team, communicating with and managing project audiences, and implementing the project plans.)

The project plan will begin by:

- Assigning people to all project roles
- Introducing team members to each other and the project
- The distribution and explanation of tasks to all team members
- Defining how the team will perform its essential functions
- Setting up necessary tracking systems
- Announcing the project to the organization

Once the planning stage is complete we will move into:

- Performing the tasks
- Assuring quality
- Managing the team
- Developing the team
- Sharing information

Project Monitoring and Controlling

(Tracking performance and taking actions necessary to help ensure project plans are successfully implemented and the desired results are achieved)

Each phase outlined above will incorporate Monitoring and Controlling activities including: Integrity Testing, Integration and Setup, Validation, Training, and Support and Maintenance.

During Integrity Testing the site integrators will also be tasked with full System Integration and Setup. This will include configuration of the proposed software on AWS (Amazon Web Services) servers.

At various stages of the above activities EDULOG trainers will conduct training. Training videos will be placed online for access.

Support and ongoing maintenance will be established as each increment nears completion.

Project Status Reports will be generated on a weekly basis providing project team members an overall project status summary. These reports will highlight the work that has been completed over the past month, the past week, and upcoming work for the weeks to come. Also, highlighted in this report will be open issues, open risks, open change requests, along with deliverables and milestones.

A Root Cause Analysis (RCA) approach will be taken to identify and document details of a particular problem and the follow-up actions necessary to properly address them. Any RCA will include a detailed Event Description to provide a clear and concise description of the problem including date, time, detailed description of the event/problem, who detected the problem, who was affected and how it affected them. Though investigations the root cause will be identified and corrective action will take place to ensure the same problem is not repeated.

Project Closing

(Ending all project activity)

After completing all phases on the project increments defined in the project plan (including extensive production validation), we will move into formal project acceptance and complete system launch. EDULOG will meet remotely with the BCS to perform a project audit to verify that all deliverables meet performance and product requirements. This audit will determine if there are any after action items that need to be addressed before full project closure.

All activities will transition to Operations within BCS with a detailed transition out plan. The live system will be handed over to BCS Operations and the transfer of knowledge from the Project Team to BCS Operations has also been completed. EDULOG support teams will be assigned to assist in the long-term maintenance of the system.

The Project Manager will move forward with formal closure of this project. The closeout process will include a post-project review, documentation of lessons learned, release of the Project Team, close out of all procurements and archiving all relevant project documents. Once the closing process is completed the Project Sponsor will be notified and the Project Manager will then be released from the project.

SAMPLE EDULOG STANDARD OPERATING PROCEDURE – PROJECT KICKOFF

Please note that the following text is only a suggestion based on past EDULOG implementation projects. During the project initiation phase, tasks and responsibilities will be discussed and defined jointly by EDULOG and the BCS.

PURPOSE
The purpose of the Project Kickoff is to fulfill part of the project initiation and planning processes. This procedure focuses on the internal and external meetings required for thorough information gathering and project documentation.

RESPONSIBILITIES
It is the responsibility of Quality Assurance to initiate a call within the first 48 hours of project acceptance to welcome new clients and explain the roles they will experience with their project (QA Rep, PM, Support, etc.). The QA Rep will then make a note on the project level regarding this call, as well as at the account level. The QA Rep will also verify client statistics and contacts the CRM.

It is the responsibility of the Project Manager to hold internal meetings with all necessary parties that will help determine the proper actions required to achieve project success. After outlining all parts of the scope of work, the Project Manager is then responsible for holding a kickoff call with the client.

PROCESS OVERVIEW
Depending on the project being undertaken, this process should be followed to ensure all information is gathered during the initial stages to develop a complete project charter.

PROCESS STEPS
- Review all provided documentation for the project (contract, SOW, site environment, etc.).
- Determine if additional information is needed from the Account Manager to determine client climate and expectations.
  - Who is the district-side Project Manager? (Who is managing the implementation for the district? The district must designate someone.)
  - Who is the district-side Project Sponsor? (Who purchased the product?)
  - Is the client expecting the product to fulfill a specific function?
  - Is the client expecting a feature that is not a specific line item in the contract? (Special maps, eDTA custom export/report, etc.)
    - Does a new SOW need to be created/signed?
  - Was the client sold a specific version of the software? Is the Account Manager expecting them to be on a certain version?
  - Was an executive involved in the sale? (specifically Jason)
- Determine what custom work will be done for the client (if any), and what departments will be involved.
  - Is this custom item already developed?
  - Does this custom work require additional development?
  - How will the development affect the timeline?
  - Are any third-party vendors providing custom work?
- Hold an internal meeting with the necessary parties (Sales, Engineering, QA, etc.) to discuss the client's project and what is needed to achieve success.
  - Include the PM on any open projects happening at the district as these may affect the timeline of the new project.
  - Is the Account Manager trying to upsell the client? Or will there be additional purchases after this project is completed?
  - Are there any open Support or QA cases at this district? Do they need to be resolved before starting this project?
  - Are there any third-party vendors that should be included in the internal kickoff?
  - Should any member of the executive team be present? (Determined by scale of project, their involvement during the sale, or their relationship with the district.)
- Use the gathered knowledge to begin the project charter.
  - What is in and out of scope?
  - What are the risks and opportunities of this project?
  - Include all internal and external stakeholders in the stakeholder management register.

        - Draft initial schedule based on availability of resources.
    - Schedule a kickoff call with the client.
        - Inform the client if certain people need to be present on the call (IT, Transportation, Finance Department, etc.)
        - Develop an agenda to follow.
        - Have a list of questions prepared for the client if there are still unknown variables.
        - Establish a final schedule for project reporting based on the client's needs.
    - Follow-up with client after the call with a summary.
        - Outline the items discussed during the call.
        - Provide the project timeline, including milestones for the client and EDULOG.
        - Include team contact info and communication plan.
            - How often will the PM provide a status report?
            - Who should be on all emails/part of daily communications?
            - Who should be on status emails only?
        - Provide the client with the appropriate client accountability document.

DEFINITIONS

- Contract = [TBD]
- Scope of Work (SOW) = [TBD] [As defined by PMI: The statement of work (SOW) is a narrative description of products and services to be delivered by the project. For internal projects, the project initiator or sponsor provides the statement of work based on business needs, product or service requirements. For external projects, the statement of work can be received from the customer as part of a bid document, for example, request for proposal, request for information, request for bid, or as part of a contract. The SOW references:
    - Business need. An organization's business need may be based on a market demand, technological advance, legal requirement, or government regulation.
    - Product scope description. This documents the characteristics of the product that the project will be undertaken to create. The description should also document the relationship between the products or services begin created and the business need that the project will address.
    - Strategic plan. The strategic plan documents the organization's strategic goals. Therefore, all projects should be aligned with the strategic plan.)
- Project Charter = The primary document that will outline the project scope, schedule, resources, and risks, as well as tracking issues.
- New Client = A district that is new to EDULOG. Returning clients may be considered new if they have not used EDULOG products in the past several years.
- Project Manager = This person is responsible for the implementation and success of the project. Larger districts may have a titled PM working on the project, while others will designate someone within the Transportation Department to manage the project. The EDULOG PM is ultimately responsible for the success of the project, and maintaining thorough documentation.
- Project Sponsor = This person is financially responsible to the project, typically being the one who made the purchase. (S)he is a champion for the project and helps ensure buy-in throughout the organization. In many cases, there are two Project Sponsors – one for the district, and one for EDULOG.

Sample EDULOG Standard Operating Procedure – Project Workflow

Please note that the following text is only a suggestion based on past EDULOG implementation projects. During the project initiation phase, tasks and responsibilities will be discussed and defined jointly by EDULOG and the BCS.

1. Sale is vetted by executive team before it is presented to the client.
2. Sale is presented to the client by Sales.
3. Project SOW/contract is signed.
4. Project moves into Portfolio until COO or PMO initiates the project, based on capacity.
5. Project is setup by Finance in the CRM.
6. Project resources are assigned, including:
    1. Project Manager
    2. Account Manager
    3. Implementation Specialist
    4. IT Support
    5. Trainer
    6. Salesperson
    7. Deployment and Configuration?
7. Project folders (on project server), Knowledge Base and HipChat spaces are created.
8. Project Manager creates project charter, which includes:
    1. Project plan
    2. Schedule
    3. Stakeholders list
    4. Risk analysis
    5. Technical documentation
9. Project Manager researches internally to fill in any gaps in the project charter
10. Project Manager and Account manager research externally to fill in any gaps in the project charter
11. Project Stakeholder meet for project plan signoff
    1. Includes PM Director, COO, Implementation Manager, Training Director, Deployment and Configuration
    2. Review of Project Charter, timeline, SOW and Site Environment
12. Internal kickoff held
    1. All project stakeholders internally are present, not at director level – the assigned resources to the team
    2. Review SOW, project charter internal and external roles, project timeline
13. External kickoff held
    1. All external project stakeholders, as well as AM an PM internally, are present
    2. Review SOW, project charter internal and external roles, project timeline
14. Project Implementation & Installation
15. If applicable, custom programming and testing
16. Weekly Reports prepared by PM for PMO Director (delivered on Fridays)
17. Periodic communication between PM, AM and Client takes place
18. Deployment and Configuration
19. User Account Setup and Testing
20. Client Training
21. Client Testing
22. Client Sign-off
23. Project closure dialogued performed in CRM

24. Project Survey performed by Customer Service
25. Project transfers to Account Manager

Sample EDULOG Standard Operating Procedure – Project Closure

Please note that the following text is only a suggestion based on past EDULOG implementation projects. During the project initiation phase, tasks and responsibilities will be discussed and defined jointly by EDULOG and the BCS.

PURPOSE
The purpose of the Project Closure is to fulfill the project closing process. This procedure focuses on the internal and external sign-off needed to close a project, and the knowledge that is then shared afterwards.

RESPONSIBILITIES
It is the responsibility of the Project Manager to fulfill all closing tasks, submit documentation for knowledge transfer, and transition the project to Client Retention (CR) for maintenance.

It is the responsibility of the client to provide formal sign-off for deliverables via documentation provided by Project Manager.

It is the responsibility of Client Retention to follow-up with the client after closure to solicit feedback about the project.

PROCESS OVERVIEW
The below process should be followed to gain sign-off of the project upon completion, share lessons learned, and transition the client into a maintenance/support stage.

PROCESS STEPS
1. Review project to ensure all requirements and aspects of the scope have been met.
    a) Are there any project tasks still open?
    b) Have all deliverables been handed over to the client?
    c) Did client receive training?
    d) Did the project undergo proper testing (internal and by the client)?
2. Gain final acceptance of the project.
    a) Does client acknowledge receipt of all products listed in their SOW?
    b) Client should sign-off on the project via the *[Client Sign-off Project Closure]* document, and PM must attach this to the project.
    c) EDULOG Project Sponsor should sign-off on the project.
3. Complete any remaining billing tasks.
4. Complete final performance reporting.
    a) Did the project deliver the value outlined in the project charter or business case?
    b) Identify exceptions in outcome, determine the cause, and take remedial actions.
5. Index and archive records.
    a) File all documents in the archive database.
        i. Computerized documents – Place in _____.
        ii. Hand documents – Create a folder, labeled with the district and project type, and file in _____.
6. Document lessons learned.
    a) What were the project outcome strengths and weaknesses, as well as key

concerns observed in the project process?
b) Assess the long-term project success.
c) Determine what steps should be taken to improve current results.
d) Assess any issues discovered during this review, and determine subsequent actions to address them.
e) Share this information via the knowledge transfer to provide insights on future projects.

7. Handoff project to CR.
    a) Perform the Project Closure dialogue to handoff the project to CR:
        i. Have all Billing Tasks been completed?
        ii. Have all other Project Tasks been completed?
        iii. Please give an overview of the project.
            1. What products were delivered?
            2. Were they delivered on time?
            3. Were extra features provided?
        iv. Please list any negative moments of the project.
        v. Please describe the mood of the client, being as detailed as possible.
            1. Who were the stakeholders?
            2. What was the client climate like?
            3. What is the relationship with the client like?
            4. Is there anything happening at the district EDULOG should be aware of?
        vi. Do you have any concerns for the success of the client in the future? Are there any limitations of the software that wouldn't allow for fulfillment of the client's expectations?
            1. Did the client provide any request that could be used for enhancements? (PERFs)
        vii. Was there any custom work done for the client? If so, please provide a summary and location of further details.
            1. Were any products given to them for free or at a discount?
            2. Was there anything outside the original scope that was added to the project SOW?
        viii. Please list any information you've learned throughout the course of this project that would help others in the future.
        ix. Is this project related to any other open projects?
            1. Are there any open cases (QA or Support) related to this project?

EDULOG SYSTEM TRAINING

Timelines and training schedules will be developed by the EDULOG project management team in conjunction with the BCS team, with the focus on ensuring that sufficient training will be provided to system operators and stakeholders as soon as possible. **In addition, the BCS can benefit from immediate on-line interactive training by enrolling its staff members in EDULOG University (see a following section describing this unique new approach to operator-oriented system learning).**

Many of us at EDULOG have a teaching background, and we know that quality instruction is crucial to effectively using new tools and techniques. Our approach to training is to use situations that you face every day as the instruction set, and then model the classroom sessions to fit your operations.

We ask you what it is that you want to get done, and then we show you how to do it with plenty of hands-on system time.

The exact training syllabus will be developed after consultation with the BCS, but the following represents a sample training plan that can be used as a foundation for the discussion of the project plans. Note that this is only a sample description—and that there may be functions discussed in the following which are not applicable to the system proposed to the BCS.

For the specified prices in our cost/price proposal, all training will be conducted remotely through the web. On-site training, either in addition to, or in lieu of remote training, is always available for a negotiated fee rate (currently $1,250 per day) plus travel and lodging expenses.

For the fees/prices specified in the price proposal, a maximum of 48 hours of on-line remote training in the first year is proposed.

Sample EDULOG Route Management Training Syllabus

Course Objective: To train a variety of users on the daily use and management of the EDULOG route management software by progressing through three phases of increasing trainees' knowledge of the EDULOG system.

Course Content / Curriculum:

I. Beginner Track
A. Introduction to EDULOG interfaces, tools, and interface navigation
B. Map Work—Terminology and working with the map components
C. Boundaries Work—working with and understanding boundary roles
D. Schools—Introduction to school data
E. Students—Working, searching and assigning student data
F. Stops—Creating, assigning and working with stop data
G. Runs—Creating, assigning stops, and working with run data
H. Routes—Route creation and run assignment
I. Querying Data Components—Introduction to base level querying of student, stop, run and route data
J. Reports—Introduction to running and filtering reports
K. EMU—Introduction to system maintenance
L. Review—Question and Answer —May split into two sessions at the middle and the end of the Beginner track

II. Intermediate Track
A. Schools—In depth management of school data
B. Students—Working with student assignment to stop components
C. Stops/Runs/Routes—In depth work with transportation data
D. EMU—In depth look at system maintenance and management
E. Querying Data Components—In depth look at utilizing queries
F. Reports—In depth look at creating and modifying reports
G. Review—Question and Answer

III. Advanced Track
A. Special Needs Routing—Methods for routing for special needs students

B. Transportation—Managing varying school schedules and transportation
C. Transfers/Shuttling of Students—Understanding methods and procedures
D. Map Management—Calibrating, managing map components
E. Optimization—Utilizing optimization components to find efficiencies
F. Review—Question and Answer

EDULOG UNIVERSITY: SELF-PACED, INTERACTIVE TRAINING FOR ALL EDULOG USERS

EDULOG University is an on-line learning management system that is self-directed and self-paced, and which is modeled on the best practices of interactive instruction for adults. We believe that this offering is unique to the student transportation management software market, and is further evidence of EDULOG's commitment to customer service and success. EDULOG University can be used either in conjunction with EDULOG instructor-led training (blending learning), or as a replacement for such training. Either way, the EDULOG help desk is still a phone call away when a client staff member gets stuck.

Using interactive graphics, video, and audio, EDULOG University is a revolutionary new development in transportation management system instruction and assessment. Open to any enrolled EDULOG software operator/administrator (or any other client staff), EDULOG University is accessible 24/7 at no additional charge to the transportation department. The modular design of the EDULOG University curriculum allows for new courses to be quickly added to meet customer needs. In fact, the training staff for the statewide EDULOG implementation in North Carolina was so impressed with EDULOG University that discussions are now underway to customize the courses specifically for instructing all the system operators in the state of North Carolina.

With EDULOG University and our new training methods, everyone is trained consistently and on the same topics, learning objectives, and subject matter. A limitation of traditional user instruction for transportation management systems is how the approach (and the knowledge received) can vary tremendously depending upon the instructor and the audience. The following situations are encountered by instructors on a regular basis: "we didn't cover that topic because we were rushed for time;" "the students were very intelligent so I went more in-depth with them than in my last class;" "I taught this approach to producing a report, but my coworker demonstrates an entirely different method."

In the EDULOG University curriculum, all students are exposed to the same methods and processes, ensuring consistent instruction, examples, and methods. Students who do not quickly understand a subject are not left behind, there is no favoritism involved, and all have an equal opportunity to learn and increase their professional competency. EDULOG University provides a benefit that cannot be matched by the singular training approach of other vendors. We would be delighted to present to the evaluation committee a demonstration of EDULOG University in action.

Other advantages and benefits of EDULOG University include:

ADMINISTRATIVE

- Reduced Learning Costs—there is no need to pay fees for a trainer, travel and lodging expenses, or classroom rental, thus more money can be spent on other educational activities. Access to EDULOG University is from any computer connected to the Internet: in the office, at home, or from a classroom.

- Maximize Training Time—EDULOG University is open 24 hours a day, and there is no limit on the number of staff who can be enrolled or concurrently receive instruction (one EDULOG client recently asked to have more than 100 staff members take courses). However, please note that for the fees specified in the financial proposal, the number of enrollees will be three.

ACCOUNTABILITY

- Easily Track Progress and Performance—students and supervisors can quickly and easily determine proficiency with the system and develop plans for increased competency.
- Self-Assessment—staff can measure their progress, know which subjects they excel in and those in which they may need more work, and understand how further progress can be achieved. EDULOG University is also an excellent tool for supervisors to use with performance evaluations and mentorship programs.
- Reporting—information about individual test scores, time spent in instruction, modules completed and those still needed for competency is readily available to both students and supervisors.

BENEFITS TO THE STUDENT

- Stay Organized and Up-To-Date—know what has been learned and what plans need to made for further advancement.
- Latest Adult eLearning Techniques—EDULOG University uses best practices to provide learning stimulus beyond what can be provided from textbook, manual, or classroom-based instruction.
- Concepts and Practical Experience—are presented through EDULOG University and practiced by the student in as close to a real world simulation as possible.
- Ready Reference Guide—included is an extensive and easy-to-search knowledge base with "just in time" training tips. With EDULOG University it can be easier and quicker to get answers than calling the help desk—and EDULOG University never closes.
- Content Retention—adult learning theories make it clear that deeper and more meaningful learning and retention occurs when learners can control the rate at which they move forward through segmented content.

SYSTEM SUPPORT

EDULOG is fully committed to maintain and support all of its licensed installations. Software maintenance is provided in any of the following forms:

- Whenever possible, EDULOG will perform system diagnosis by directly accessing the client's system through the Internet and performing maintenance. Corrected data files or programs can be transferred through the Internet, allowing the client to be back in operation as soon as possible. Users can also upgrade and/or change software on site without the need to ship or return the system to EDULOG for upgrading purposes.
- If it is decided by EDULOG management that corrections must take place on-site, EDULOG will dispatch a technical representative to the client.

EDULOG SOFTWARE SYSTEM UPDATES, ENHANCEMENTS, AND WARRANTY

EDULOG is committed to maintaining a leading position in providing responsive and effective software, and is fully intent on keeping its technological lead over the competition. EDULOG has developed many enhancements to its system—all provided without charge to licensed sites. The typical process for program enhancement begins either with EDULOG's initiative or, more usually, from client suggestions. If EDULOG believes that a suggestion for customization would benefit most of the client base, the new feature will be included in the standard EDULOG system and will be provided to all users as part of the software maintenance program. Features added to the standard system as maintenance updates have been as varied as a simple change in the screen display to a complete overhaul of a system component. The following are just a few examples of maintenance enhancements:

- change the format of bus schedule reports;
- add a different format for bus run listings;
- provide bus stop listings in several sort orders;
- print bus timeline reports;
- retrieve a student from the database by his/her district ID number;

The purpose of the software maintenance program is to ensure that EDULOG is always in touch with the needs of all its clients, new and old, and that all EDULOG installations are in the best operating conditions. Clients are notified of software upgrades through periodical newsletter releases. Interested clients who can make the time commitment are also invited to become members of an EDULOG design review committee where changes and enhancements to the EDULOG system are discussed and proposed for consideration by EDULOG senior management.

The EDULOG Service, License, and Maintenance Plan provides free of charge for the:

- Correction of any defect in the manuals, forms or programs;
- Updates of user guides as required to ensure their continued usefulness;
- Unlimited assistance by telephone (1-800 toll-free), fax, Internet, or mail regarding the use and operation of the system;
- Updates to the software which include any expansions, modifications, or improvements to the system which relate to the operating performance but do not change the basic function of the software and which are not regularly charged for by EDULOG to other clients as options. In the event that additional services (such as additional training or the configuration of a new attendance boundary plan) are required, these services will be charged to the client at EDULOG's current standard time and material costs.

Support Specifics

For the BCS, support hours will be from 6:00 a.m.—6:00 p.m. Eastern Time Monday-Friday and seven days per week (at reduced daily hours on the weekend) from the first week of July through the first week of September.

Technical support for the EDULOG system can be provided remotely through the internet using Zoom, MS Teams, Skype, "Go to Meeting," etc.

Our Support Services Department now handles client issues using a four-tiered approach, in order to quickly escalate questions to the technical experts best-suited to the client's immediate needs.

The role of Account Manager has also been established to act as your advocate to ensure your needs are always met.

A complete log of all support inquiries is maintained by EDULOG, and this information can be provided to the client upon request.

The client can change its support plan at any time.

QUALITY ASSURANCE PLAN

EDULOG's quality program can best be described as a Continuous Process Improvement (CPI) system in which managers and staff work together to bring about constructive change. In our CPI approach to quality management, managers create an environment in which they, and the staff, focus technical product and service performance to meet the quality level acceptable to the client. This environment enables the managers and staff to think in terms of what is best for the client, and avoids the production of deliverables that meet client tolerances, but miss client needs. It instills the concept that product or service quality is only as good as what the client perceives, and that EDULOG quality expectations will go beyond the requirements set in the contract.

EDULOG's quality program is based on the concept that product or service quality is only as good as what the client perceives, and that EDULOG quality expectations will go beyond the requirements set in the contract.

This management approach has fostered ideas from staff and junior level personnel, which have become a part of the total EDULOG approach to quality. During our thirty years of supporting school district transportation operations, this quality improvement philosophy has evolved to become the corporate standard for work performance. As a result, our technical performance and client satisfaction levels are continually improving. Though the CPI approach has greatly reduced the need for formal quality controls, quality assurance remains a key element in our overall quality management plan.

EDULOG quality assurance procedures include continuous monitoring of a task as it is being performed and an in-depth review of all deliverables. Project managers direct the application of quality assurance procedures for all work under their supervision. Frequent reviews held by the project manager require project team members to prove progress against all technical, cost, and schedule milestones.

Effective quality control begins with the selection of competent personnel to perform assigned tasks. Early in project implementation, the project manager discusses with all assigned team members on the requirements and the review cycles of a project. This ensures that quality assurance (QA) requirements are known to all EDULOG staff assigned to the project. During the performance of each task, quality control procedures are used to evaluate the services being performed and the deliverables being produced. If the QA performance falls short of standards, these reviews will identify the problem early enough to permit timely correction.

Quality Control Measures

EDULOG will use quality control measures to meet all challenges and will provide a system of checks and balances during the planning, installation, implementation, and training phases of the proposed project.

Tasks that are performed under EDULOG's Quality Assurance Program include:

- Project management and oversight by experienced staff
- Final system specification approval based on customer criteria
- Timeline review of staff availability with school district calendar
- Server configuration and testing
- Training on both user software and troubleshooting
- Software customization and enhancements based on customer feedback
- Ongoing reviews with appropriate customer staff to ensure customer satisfaction

Customer Satisfaction Measurement

The EDULOG team will track all written and verbal comments, and the comments and suggestions will be factored into all ongoing decisions and custom development efforts. The district can at any time contact EDULOG to have a formal meeting and on-site system review if at any point the district is unsatisfied with the level of service delivery.

EDULOG will provide an excellent level of customer service by closely maintaining, documenting, tracking and managing all inventory, purchase orders, service orders, RMAs, invoices, and work orders.

Workarounds and Solutions

If a workaround is required so that the EDULOG system can perform a task which is not inherent in the EDULOG system processes or design, the workaround will be defined by the EDULOG account manager in consultation with the client staff. After the definition of the workaround is agreed-upon, the workaround process will be tested by EDULOG's testing staff before being documented for use by the client.

Issue Tracking System

EDULOG uses an issue tracking system which employs ticket tracking so that all (EDULOG, the client) can quickly and easily create, track, report upon, prioritize, manage, and resolve support issues and requests. In addition, EDULOG uses a CRM (customer relations management) system to record all client contact, communication, and cases (issue resolution).

Major/Minor Severity Levels

A major level support issue is defined as one that represents a complete loss of service or the complete unavailability of a significant feature—and no workaround exists. Examples of a major level support issue would be a system crash, the deletion of a database, or the failure to process incoming GPS data. Major level issues are responded to within two working hours. A minor level support

issue would be one that produces apparently incorrect data or inconveniences the production efforts, but which does not render the entire system inoperable. Examples would be run directions that might not process properly, reporting errors in GPS times, or administrative reports which are not correctly formatted. Minor level support issues are responded to within eight working hours.

Problem Resolution

The key to problem resolution is early identification by account management through the review process. These reviews analyze current project status in terms of technical accomplishments, schedule, deliverables, staffing, other resource requirements, and cost. The final element included in the reviews is an assessment of potential problems. Account managers will individually review the status of each task to identify potential problems that could affect the team's support efforts.

Our account managers are aware of the resource requirements for all tasks associated with a client, and can reallocate resources to respond to problems, change of scope, and other conditions that affect a system use and/or performance in a quick and effective manner. To ensure that potential problems are identified as early as possible and that the greatest staffing flexibility can be effected to resolve the problem, the account managers maintain regular contact with all departments of EDULOG.

DETAILS ABOUT EDULOG'S ACCOUNT MANAGEMENT PRACTICES

Mission: Develop and Expand Customer Loyalty

- Quantify state of the customer loyalty through client benchmarking
- Establish a communication plan for our clients that allows us to have meaningful conversations with them at least one time per month
- Create a Knowledge Base page for the Account Management team that allows for quick access to policies, procedures, strategies and product talking points
- Create and refine an on-boarding plan for Account Managers
- Identify key accounts and execute a specific strategy for each account
- Spread the power of Optimism – Our clients will never love our company unless the employees love it first

Strategy

Increase the knowledge level of every EDULOG Account Manager in the following five areas:

- Our Industry
- EDULOG – The company
- EDULOG's solutions
- EDULOG's clients
- EDULOG processes and procedures

- Evaluate all of our clients and rate our clients based on the AM rating scale in the CRM.
- Develop talking points that allow all Account Managers to interact with our clients in a meaningful way as they develop the skills and experience to work more independently
- Develop, implement and evaluate data that allow us to track customer loyalty to the EDULOG brand

Execution Plan

- Establish and execute training to bring all EDULOG Account Managers up to the minimum qualifications required for the department
- Establish communication plans that bring value to each client and will allow us to obtain the baseline information required for rating our clients. That information will then be paired with the following to provide a complete baseline:
  - Evaluating the number of calls to support
  - Evaluating training opportunities
  - Evaluating clients not paying their bills
- Monthly, establish and refine the talking points with our clients. Publish these in the Knowledge Base for future reference.
- Evaluate and establish user groups to share our message with as many clients as possible both at a state and local level
- Work with sales to shore up references to facilitate sales opportunities
- Work with JIRA to provide client feedback to EDULOG Software Development
- Work as appropriate with EDULOG Operations to facilitate client satisfaction

OPTIONAL, ADDITIONAL COST ADVISORY SERVICES

In addition to the implementation services proposed to meet the requirements of the BCS, we believe that the BCS might like to know about EDULOG's additional service options provided through our Advisory Services group. We would be delighted to discuss Advisory Services possibilities (and fees) with the BCS if it is interested—and provide samples of previous written reports we have prepared for our Advisory Services clients.

EDULOG ADVISORY SERVICES

With the ever-changing landscape of student transportation, school districts are often forced to be creative or do more with less. Let EDULOG help you find safe, efficient, and effective solutions to meet the unique needs of your operation. Whether you are building a new environment with a hybrid schedule or trying to reduce transportation costs, EDULOG's Advisory Services can guide your district.

WE CAN HELP YOU

Our team has extensive experience in student transportation and is staffed with former district transportation directors and data analysts. We can assist with transportation optimization, bell-time optimization, district policy and contract analysis, demographics and redistricting, operational assessments, organizational change management, understanding your organization, and implementing new technology. Then, when the analysis is complete, our team can provide remote assistance to ensure your solutions are a success.

- Understand your organization and data
- Evaluate your options
- Visualize your efficiency
- Make data-driven decisions

The advantages EDULOG provides in comparison to other consulting firms include:

- **Proven Expertise -** You can rest easy in our analysis. EDULOG has 40+ years of experience working with districts and transportation providers in 49 US states and 4 Canadian Provinces.
- **Data-Backed Solutions -** Your transportation system has plenty of variables. EDULOG Advisory Services has the team and the software tools to make sure that you find savings based on real data.
- **Custom Projects -** Your school district has unique requirements and policies. EDULOG makes sure your transportation department meets them by finding the right answers for you.
- **More Than Routing -** Get help finding out how changing bell-times, school boundaries, walk distances, and even policies will affect your transportation.
- **Fully Committed -** Our work doesn't stop when the analysis is over. Our advisors can act as advocates for you when making major changes that require district approval.

EDULOG REPRESENTATIVE PROJECTS

Minneapolis Public Schools Board Considers Multiple Redistricting Options

Minneapolis Public Schools is in the midst of a Comprehensive District Design (CDD) – a systematic, long-range plan that it will use to guide decision-making that affects the academic quality, equity, and sustainability of education for students throughout the district. The CDD has been shaped by over three years of research, data analysis, and community input and engagement.

MPS partnered with EDULOG to provide key data to help them test various education service delivery models. Early in the process, the district launched a study to determine whether a community school model would have a positive impact on integration and reduce concentrations of poverty, compared to its historical models. EDULOG's demographic analysis showed that a community school model was at least comparable to more complex alternatives. MPS engaged EDULOG to assist with the next phase involving the placement of 11 magnet programs. Throughout this phase, EDULOG provided estimates of transportation requirements to help the board understand the true cost, or savings, of various approaches.

Brunswick County Schools Board Assesses Transportation Impact of Boundary Changes

Few things are more emotionally charged than school boundary planning and redistricting. Some parents make one of their most important life decisions – where to live – based on the schools that their children will attend. Very often, school districts seek outside assistance to ensure they are considering all relevant aspects and using data in making those considerations. Boundary analysis, enrollment projections, and transportation impacts are key pieces of those considerations.

Recently, Brunswick County (NC) Schools was in the process of redrawing school attendance boundaries due to growth and opening a new middle school. The district was considering four possible redistricting scenarios designed by a demographic consulting firm based on criteria established by the board of education. Rather than relying solely on conjecture, the Board wanted to know the impact on transportation cost impacts for each scenario. EDULOG's Advisory Services group ran four optimization models, one corresponding to each redistricting scenario, providing the Board with transportation cost impact data to factor into the decision. Make no mistake – the Board did not select a scenario based solely on the demographer's recommendation OR the lowest transportation cost OR public input. But they were able to consider each aspect to finalize their decision.

After choosing a plan, the district worked again with EDULOG to develop new efficiency-based bus routes that would implement the Board's directive. EDULOG considered not only the new boundaries, but also identified several options depending on the final bell schedule of the schools impacted. This information was presented to the Board to help them determine the transportation tier and bell schedule for the impacted schools. Following the study and decisions by the Board, EDULOG consultants were able to load the resulting runs and routes into the district's EDULOG system. The new school boundaries and transportation patterns go into effect in August.

Pender County Schools Board Considers Changes in Transportation Policy

Pender County (NC) Schools recently contracted with EDULOG's Advisory Services group to provide data regarding the restructuring of its school bus routes. The district's transportation plan had been developed around the premise that elementary school and middle school students would ride

together to co-located campuses. Even the location of some schools was determined based on the premise that elementary and middle school students would be transported together on the same buses. Historically, this had proven to be an efficient way to provide transportation, especially in more rural areas of the school district.

However, there are different maturity (and immaturity!) levels between elementary students and middle school students. When Pender's board of education was considering separating transportation between elementary and middle schools, it engaged EDULOG to provide operational and fiscal analysis to help in the decision-making process. As a result of EDULOG's study, the Board was able to review the proposal and make policy decisions considering impacts on students and its budget. Brandon Smith, Pender County Schools Transportation Director, summed it up this way: "This was an emotional issue for our community. EDULOG's analysis enabled the Board to see the financial impact of each scenario they were considering."

NEED MORE HANDS-ON INVOLVEMENT?

Work directly with our Service Level Management team. Let us apply our 40+ years of experience in building better transportation solutions for your community.

- **Transportation Optimization -** What if finding the best route was the best way to keep money in the classroom? When you use EDULOG's Transportation Optimization Advisory Services, you get an expert, third-party perspective to analyze your routing and scheduling data and help find small changes that can help put money back into the classroom. EDULOG looks at your complete routing picture to provide data-backed solutions that work.
- **COVID-19 Support -** Advisory Services has been working with districts (whether or not they have EDULOG software) to manage significant change projects already in-flight prior to the COVID-19 pandemic. While the types of scenarios contemplated in these projects – substantial district re-designs, bell-time changes, re-tierings, etc. – used to be once-a-decade types of projects, in the post-COVID-19 world, many more districts are likely to have to consider adopting this type of large-scale fundamental change.
- **District Policy and Contract Analysis -** What if a half-mile walk was the biggest obstacle to keeping a classroom? Predicting the effects of changes to your school district's transportation policy can feel frustrating, whether it's changing the distance a student has to walk to school or creating a shuttle system. EDULOG Advisory Services can help you find the right data and make sense of it to better predict and prepare for changes to your transportation policy.
- **Bell-Time Optimization -** What if it took less than an hour to help save critical school programs? When you use EDULOG Advisory Services to help you evaluate and implement a tiered bell-time solution, you can find transportation savings that can be put back to work in the classroom. Let EDULOG help you find out if separating bell times to allow for more transportation flexibility makes sense for your district.
- **Operational Assessment -** EDULOG Advisory Services will evaluate the working effectiveness of your operation to identify any gaps, areas of risk, or opportunities for increased efficiency. A thorough review of your data will help to define key strategy and maximize the results that matter most to your operation. An independent set of eyes on your operation will help to define key metrics and maximize your results.
- **Demographic and Redistricting Consulting -** When you use EDULOG Advisory Services, we provide you with expertise and data-driven guidance for some of your toughest decisions, such as adjusting school attendance boundaries, school closures, and other politically

sensitive decisions. Our experts are there to support you and help you keep track of all the variables when you're making district-changing decisions.

EDULOG WHITE PAPER ON STUDENT TRANSPORTATION EFFICIENCY AND ACCOUNTABILITY

The following white paper, authored by EDULOG senior transportation consultant Derek Graham, is another example of how EDULOG's superior experience, knowledge, and systems provides tangible benefits to its client school districts.

If the 2020 pandemic has taught us nothing else, it has taught us that every school bus seat is precious. It is an important asset not to be squandered in general, but *especially* in times of reduced capacity. As school districts reacted to local and State policies regarding social distancing and maximum capacity on school buses, this reality - long known to many pupil transportation planners - became obvious to all.

INTRODUCTION

What distinguishes school transportation from other forms of public transit is the personal service provided and the importance of the passengers - the "precious cargo" comprised of today's students. Parents rely on this service and its convenience. They also rely on the security afforded by the big yellow bus, its driver and the school district's transportation department or contractors. All the while, taxpayers and the board of education, among others, expect this transportation to be provided efficiently.

TRADITIONAL ROUTE PLANNING

Many districts have long relied on the practice of starting school with the same routes with which the last school year ended. See who gets on the bus the first week and make adjustments as needed. This is not particularly efficient and flies in the face of best practice for accurate route planning. That said, in some places this practice actually gets the job done.

What exactly was learned from the pandemic and reduced capacity? All of a sudden, pupil transportation planners learned that it really, really matters how many students ride the bus. Not just hitting the mark somewhere between 50 and 72 elementary students, but no more than 24 students per 72-passenger bus in some locales. How do districts plan for that? How do they determine who is going to return to in-person learning? How do they find out exactly who is going to ride the bus?

The answer lies in a general practice that some districts have used for years: requiring students to register for transportation on an annual basis. That is, in order to receive school bus transportation, students must "OPT-IN" - make a specific choice to ride the bus and to request that service from the district. This has nothing to do with denying transportation service for any student - they simply must ask for it.

Many school districts have relied on opt-in transportation for years. Of course, the more complicated the transportation system, the more complicated the process of gathering family opt-in requests. The concept is quite simple: start with an assumption that no student is riding the bus until a request is received from the family that the student needs, or requests, transportation to and/or from school. Then, the routing team can plan for it.

Without a doubt, there is a significant education component. The community must be informed about the process. The district can't just "flip a switch" at the beginning of a new school year and, for the first time, refuse entry to students at the bus stop because parents did not request transportation.

The district must communicate to parents that they need to request transportation. Through careful planning and education, families CAN adapt.

By gathering specific ridership data, the transportation department puts itself in a position to do effective planning. Routes can then be designed to fill buses to the desired capacity. Historically, this means assigning as many students to the route as the bus will hold, within allowable ride times. But allowable capacities, as has been seen in 2020, can change, and the right data is needed to adapt.

BENEFITS OF OPT-IN TRANSPORTATION

What are the benefits of opt-in transportation?

1. **Communication.** It provides parents a higher level of confidence resulting from communication with the district and its transportation department. They receive feedback and a personalized school bus stop.

2. **Planning.** As mentioned previously the only way to plan for efficient transportation is to know the constraints, the variables and the inputs. Without knowing WHO needs to be transported it is difficult to develop a plan for HOW they will be transported.

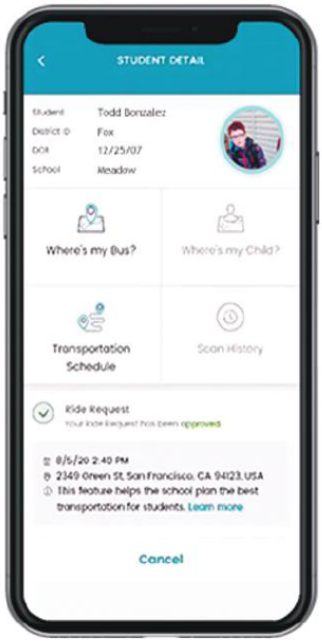
3. **Accountability.** The benefits of knowing exactly who is planning to ride begin with significant accountability. It is further enhanced by a student ridership system where students swipe an RFID card when they get on and off the school bus. This provides real-time information to parents via a smart phone app. For the district, as well, this security and accountability is an important security measure. In the event of a school bus crash or other emergency, for instance, it is better to know which students planned to ride that bus and, if available, which students swiped on/off. This, as opposed to knowing the 120 students eligible to ride, whether they had any intention of riding the bus.

4. **Avoid bad planning.** In addition to having ridership information to allow for very efficient planning, accurate opt-in ridership information allows districts to avoid very poor planning. No one likes to receive reports from the superintendent's office that community members demand to know why buses are "running around" transporting only five students. Similar reports of buses being overcrowded are even worse, due to the safety impact. Without knowing who plans to ride, there is no way to ensure equity and avoid bad planning, much less to make sure the plan is efficient.

HOW TO IMPLEMENT OPT-IN TRANSPORTATION

Given the benefits of opt-in transportation,
how does the district find out who is going to ride?
Very simply: ASK!

The community must be educated that the district needs to know who is going to ride. It should be explained that it is necessary to effectively plan and ensure the safety and security of student passengers. Further, in this pandemic age, the information is valuable for contact tracing.



PARENT PORTAL. Edulog's Parent Portal smart phone app is one-stop shopping for parents and their communication with the transportation department. Traditionally, the app provides parents information about their child's planned bus ride to and from school. It also allows them to get notifications about bus arrivals and to receive messages from the transportation department. Going beyond the basics, using the Ride Registration process or Transportation Request features, parents can opt-in for transportation. That is, using the app they can indicate to the transportation department that their student is requesting school bus transportation to/from school.

STUDENT INFORMATION SYSTEM. Edulog's route management software imports data from the district's student information system (SIS) and can include custom fields. Some districts choose to designate the school as the responsible party for gathering opt-in transportation information. At the school level, a data field is populated in the SIS, indicating whether the student wants school bus transportation in the morning, afternoon, both or neither. The "transportation required" field is then populated in the Edulog Route Management system where routers use that field to assign students to the appropriate transportation.

ONLINE FORMS. Districts that require annual registration for transportation often begin this initiative with a "bus rider request form." Perhaps this was a paper form distributed at the school and then mailed or faxed or otherwise delivered to the routing department. With advances in technology, these paper forms have transitioned to online forms. Such forms can be downloaded and acted on by routers in the transportation department, assigning appropriate bus stops as needed.

SUMMARY

The concept of opt-in transportation, in years past, could seem punitive. The concept of denying transportation to a student until it is requested is foreign to many communities. The time is right for change, however. Many practices that have evolved during 2020 now seem less foreign to communities. The need for the school district to improve its planning processes are perhaps better understood by parents now than in the past.

Very simply, opt-in transportation allows a district to plan, to be efficient and to communicate valuable information with the parents and school community.

RESPONSE TO RFP ATTRIBUTES

SCHOOL BUS ROUTING SOFTWARE

• All data shall be viewed by users through a single web-based interface housed in a cloud-based system.

Yes, most certainly with the EDULOG Athena route management system.

The EDULOG system includes an enterprise license for unlimited users. EDULOG is proposing that the EDULOG Athena solution be a cloud-based system using AWS (Amazon Web Services). The benefits to the BCS of an EDULOG AWS-hosted system include: there will be no need for district IT support of either software or server hardware; the software will always be up-to-date with latest version without any involvement from the district; and the district will have no obligation for data and system operations involving new release installations, backups, system patching, etc. Another advantage of AWS hosting is that electrical outage or a disaster (fire, hurricane, lightning strike, flood) at the district's IT facility will not bring down the system.

With an AWS-hosted EDULOG system, the BCS would have full access to its data just as it would with a district-hosted system, and AWS data security is recognized for its superiority at storage and transmission of even the most sensitive information. From the AWS website:

> "To aid your compliance efforts, AWS regularly achieves third-party validation for thousands of global compliance requirements that we continually monitor to help you meet security and compliance standards for finance, retail, healthcare, government, and beyond. You inherit the latest security controls operated by AWS, strengthening your own compliance and certification programs, while also receiving access to tools you can use to reduce your cost and time to run your own specific security assurance requirements. AWS supports more security standards and compliance certifications than any other offering, including PCI-DSS, HIPAA/HITECH, FedRAMP, GDPR, FIPS 140-2, and NIST 800-171, helping satisfy compliance requirements for virtually every regulatory agency around the globe."

In regards to latency, access speed should be indistinguishable from what can be achieved with district servers. And, as one example of latency not being an issue, Netflix uses AWS around the globe to provide on-demand streaming service.

Amazon Web Services is used by, among others, the CIA, the Department of Defense, NASDAQ, and Netflix.

o The following features are desired:
o Be menu-driven, allowing the user, as appropriate to their role(s), to enter, edit, store and back up data, and produce monthly, year-to-date, and annual reports.

Yes, most certainly. The EDULOG Athena system is menu-driven and allows appropriate users to enter, edit, store and back up data and produce monthly, year-to-date, and annual reports.

EDULOG Athena's Advantages Compared to Other Systems

- Portal Page – With the new EDULOG portal page, users will be able to see and access all of their EDULOG products at one location. After a user has logged-in, only those functions a user has access permission to will be displayed. The portal page is customized for each school district.
- User management – **true, complete, secure, and granular user management** is a major component of Athena. There are three main categories that can be set up for user roles (classifications of users: router, dispatcher, school principal, school secretary, bus driver, etc.).
  - Module – users will only have access to the modules they need to perform their job.
  - Functionality – administrators will have the ability to limit users from performing certain operations within the system **(they can look but not change data, they can change data, they can add a stop to a run but not create a new run, etc.)**.
  - Data – User roles may be grouped so that users only see data that is relevant to their position.
- User Dashboards – Each user role will come with standard dashboards that will assist users with performing their daily work. For example, **one dashboard will show tasks that need to be done for the day when a user first logs into the system in the morning.** Dashboards for administrators would be different from those for routers, which would different from those of dispatchers.
- The Athena Transportation Management Suite allows for multi-user collaboration and comprehensive user management. Administrators, directors, routers, clerks, etc. can all interact with the same data within the same system. There are three main categories that can be set up for user roles: access to modules, functionality per user, and access to data. These settings ensure that every role is properly defined and each user will have the appropriate level of access to the system.
- Context Loading – Athena is designed to present users with data and actions that make sense from the perspective of best practices workflow. When performing operations**, Athena anticipates what the user is trying to accomplish, and then automatically loads the relevant data based on the context** (for example: all stop services and trips for the school bell times I've selected). The goal of Context Loading is to make the system intuitive and easy to learn.

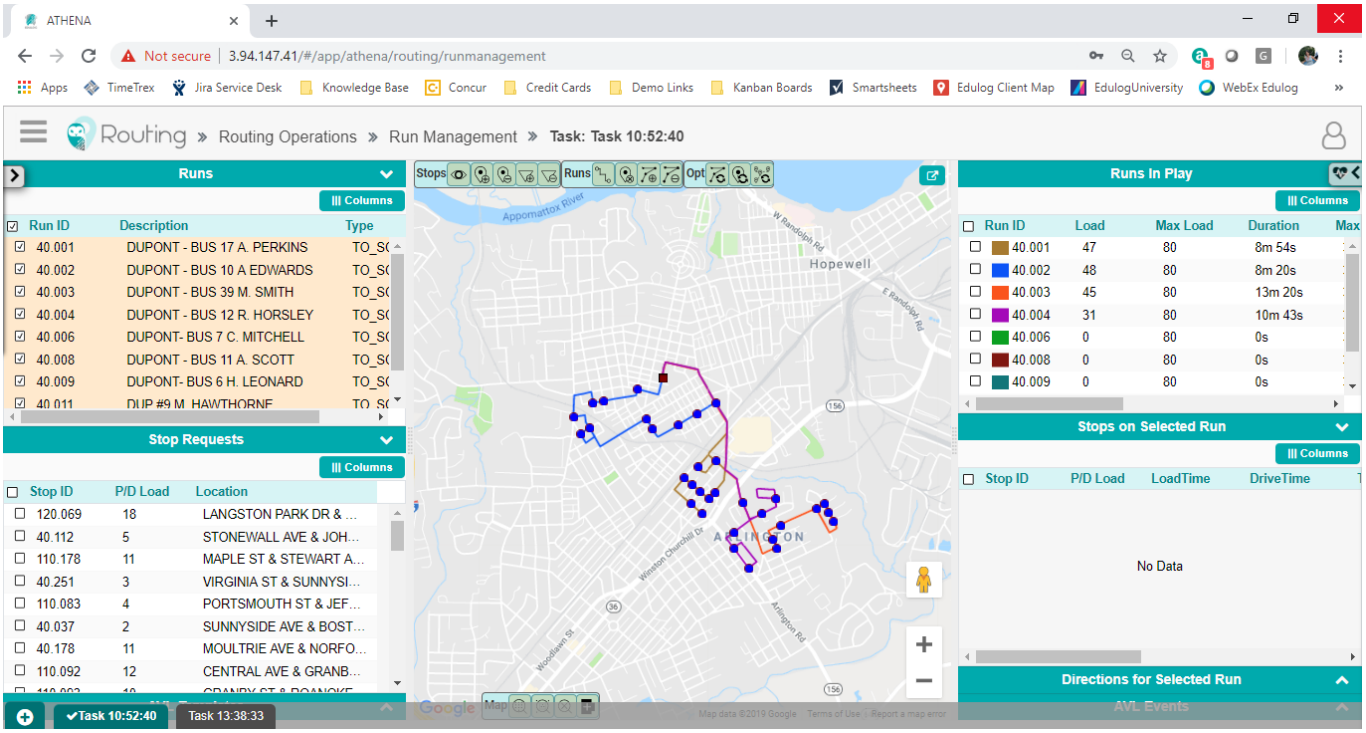
With Athena, you are building an itinerary for a new student when you are interrupted by a phone call from your supervisor, who asks you to look up stop information and a passenger list for a bus driver. You can look up this information without interfering with your itinerary build by creating a task so that you can keep all of your work intact while fulfilling the urgent need of the bus driver. Tasks are an integral part of all Athena route management operations.

- Tasks – users can organize their work into different tasks so they can multitask while using the system. Users may have several tasks open at the same time, and they may enter other parts of the system and **then come back to their task without losing any data or previous work**.
- Simulation/Sandbox - Tasks can be used to simulate what-if scenarios to assist with optimizing bus runs, and small to medium (up to one school) optimization scenarios can be created and reviewed. The benefit of the Athena "sandbox" is that **it's a place where the user has all the available and needed tools to play with the data and see what's possible**. If the results are undesirable, the user can simply delete the task, and start over from scratch—or go on to a new task.
- Point Data Mapping – Point Data Mapping solves the long-standing GIS problem of how to exactly locate an address along a street or highway. Instead of approximating locations using segment-based addressing**, point data mapping will place an address exactly where the**

house is located on the street. This GIS enhancement will increase the accuracy of system-calculated distances (for example, how far is it really from my house to the school, what is the actual mileage between stops on a rural road, etc.).

- Optimization – Full optimization, which EDULOG is the best at in all of the world, can be run directly from the main Athena workspace; there is no need to launch a separate application or move away from what is already on the screen—thus significantly enhancing productivity. Even better, **optimized solutions can be posted right away to the routing production environment.**
- Data Filtering/Display/Export – When working with the data in Athena, users have the ability to export any of the filtered data or worklists on the fly; **there is no need to launch a report writer to view the lists of data you want** (all unassigned stops, all current stops without students, all bus runs with more than 50 passengers, etc.).
- Bulk Editing – Make a selection of multiple schools, students, stops, runs or any other data item and then apply the same action to each of the selected elements (give all the selected buses a head count load of 50, change all runs starting at 8:05 to 8:20, etc.). **Bulk Editing greatly speeds up workflow, reduces errors, and makes route planning even easier than it was before**. Bulk Editing is also a fundamental feature of Transportation Request approvals (so that you can temporarily move all students from a flooded school to another site).
- Data Upkeep Panel – Users will have a dashboard-style tally displaying what tasks need to be completed and/ or data that needs entering or editing. The panel will **display running totals of KPIs to give the team an idea of how well they are keeping up with transportation needs and goals**. The Data Upkeep Panel is refreshed often during the day.
- Multi-Screen Layout – Athena is organized into panels and sections, with the workflow going from top to bottom and left to right. Each panel and section (which can be individually sized) can also be displayed in a new browser window or a separate monitor. **Users are given total flexibility in how they want to organize their workspace**, which greatly increases productivity and enhances the intuitive nature of EDULOG route management.

EDULOG's best in the world optimization can be run right from the main workspace—just select your stops and runs and hit the button. Within moments you will have a fully-optimized solution ready to use the next day.



- Tasks can be used to simulate what-if scenarios to assist with optimizing bus runs. The benefit of the Athena "sandbox" is that it's a place where the user has all the available and needed tools to play with the data and see what's possible. If the results are undesirable, the user can simply delete the task, and start over from scratch—or go on to a new task. If the results are acceptable, they can be placed into production immediately, or they can be stored for further refinement at a later time.

o The software shall have a high degree of usability, meaning it must be easy to navigate, be "user friendly," and minimize the need to know technical terms, keystroke combinations, etc.

Yes, the EDULOG Athena system certainly meets the above requirements for usability—and we look forward to demonstrating this functionality to the BCS.

EDULOG has invested more than $3 million annually to rebuild the entire EDULOG enterprise transportation management suite with the latest technology. Staffed with experts in machine-based learning and artificial intelligence, EDULOG's team will build upon past successes and once again revolutionize the pupil transportation industry.

With the release of the EDULOG Athena suite for school transportation management, school districts are provided with an enterprise solution that will meet the needs of all school transportation operators, schools, and parents. Athena is the result of the largest investment in system research and development the industry has known. And this revolutionary new approach and solution for school transportation is only made possible by EDULOG's considerable—and unmatched—expertise in operations research, machine-based learning, artificial intelligence, and advanced geospatial recognition technologies.

The unprecedented features and benefits of Athena include:

- **Comprehensive user management capabilities:** the same system can be used by all types of users with specific permissions for both data (the whole fleet, one or more schools, one or

more depots, one or more vehicles, one or more students) and function (access, view, print, change) for each of the subsystems with full security and administrative control and integration support for the latest technologies.

- **Full support of transportation planning with effective dates and calendar support:** districts can manage future schedule and route changes for students, stops, runs, routes, and buses; revert back to a previous schedule and route after a certain date; implement different routes and schedules for early outs, snow days, and street construction.
- **Total seamless integration of optimization and routing:** EDULOG's world-renowned optimization capabilities (stop location, run building, route coupling, school bell times) are embedded in the route management system and accessible at any time from the main screen. Do you need to ask a quick "what-if" question? The results appear almost immediately on the screen.
- **EDULOG's routing is the most efficient in terms of real dollars.** Our routing system can be integrated with transportation cost calculations and accounting at the user level to provide the biggest bang for your buck.
- **Integration with public transit:** the system can be configured to include metro bus and/or train routes, schedules, and stops to track and manage students who ride public transportation.
- **New mapping technology for ease of implementation and maintenance:** an object-relational geodatabase; the ability to use point data in addition to segment and layer data; and full compatibility with all leading GIS systems, including ESRI ArcGIS.

o The solution needs to be mobile device compatible.

The EDULOG Athena system is web-based, and so can be accessed from mobile devices with web browsers. The optional, additional cost EDULOG Parent Portal system is app-based for use with smartphones.

• Allows multiple users to view and edit bus routes simultaneously and control user-based security of map edits.

Yes, most certainly. The EDULOG Athena system was designed specifically for large school transportation operations where the number of concurrent users could exceed 50 or more. **true, complete, secure, and granular user management** is a major component of Athena. There are three main categories that can be set up for user roles (classifications of users: router, dispatcher, school principal, school secretary, bus driver, etc.).

- Module – users will only have access to the modules they need to perform their job.
- Functionality – administrators will have the ability to limit users from performing certain operations within the system **(they can look but not change data, they can change data, they can add a stop to a run but not create a new run, they can edit the map—or not, etc.)**.
- Data – User roles may be grouped so that users only see data that is relevant to their position.

• Access rights must be defined by user roles, with each member of the roles inheriting the appropriate rights.

Yes, Athena user management defines access rights by user roles and groups.

User roles define access rights to functionality (e.g., can I create a student record, can I assign a stop to a run, etc.) and also general data separation (e.g., individual school users have access only

to their school, bus operators/garages have access to only their data, etc.). **Typical user roles include: router, dispatcher, school clerk, principal, transportation department assistant, etc.**

- System provides a user defined control over functional elements of the system so that users may be allowed "view," "edit" and/or "print" abilities

Yes, the proposed EDULOG system most definitely meets this requirement for control over functional elements.

EDULOG is expanding system accesses and permissions far beyond the traditional role/group model of managing read/write access to data and functions.

The new EDULOG model is based on the classifications of user roles, tenants, and user groups.

User roles define access rights to functionality (e.g. can I create a student record, can I assign a stop to a run, etc.) and also general data separation (e.g. individual school users have access only to their school, bus operators/garages have access to only their data, etc.). **Typical user roles include router, dispatcher, school clerk, principal, transportation department assistant, etc.**

Tenants are one client/one system implementation, intended for very complex situations such as the management of every school district in a state, whereby the state is the tenant and has access to every school district's functions and data, but the individual school districts have no ability to access the state's (tenant) data—and thus cannot view the data of any other district.

User groups are defined in addition to user roles, and are a more complete way to separate data. In the case of state-wide implementation, the state would be the tenant, and each district would be a user group. This concept of user group can be applied at the district level to separate bus regions or bus contractors.

Scenarios where the distinctions in user roles and user groups would apply include the following:

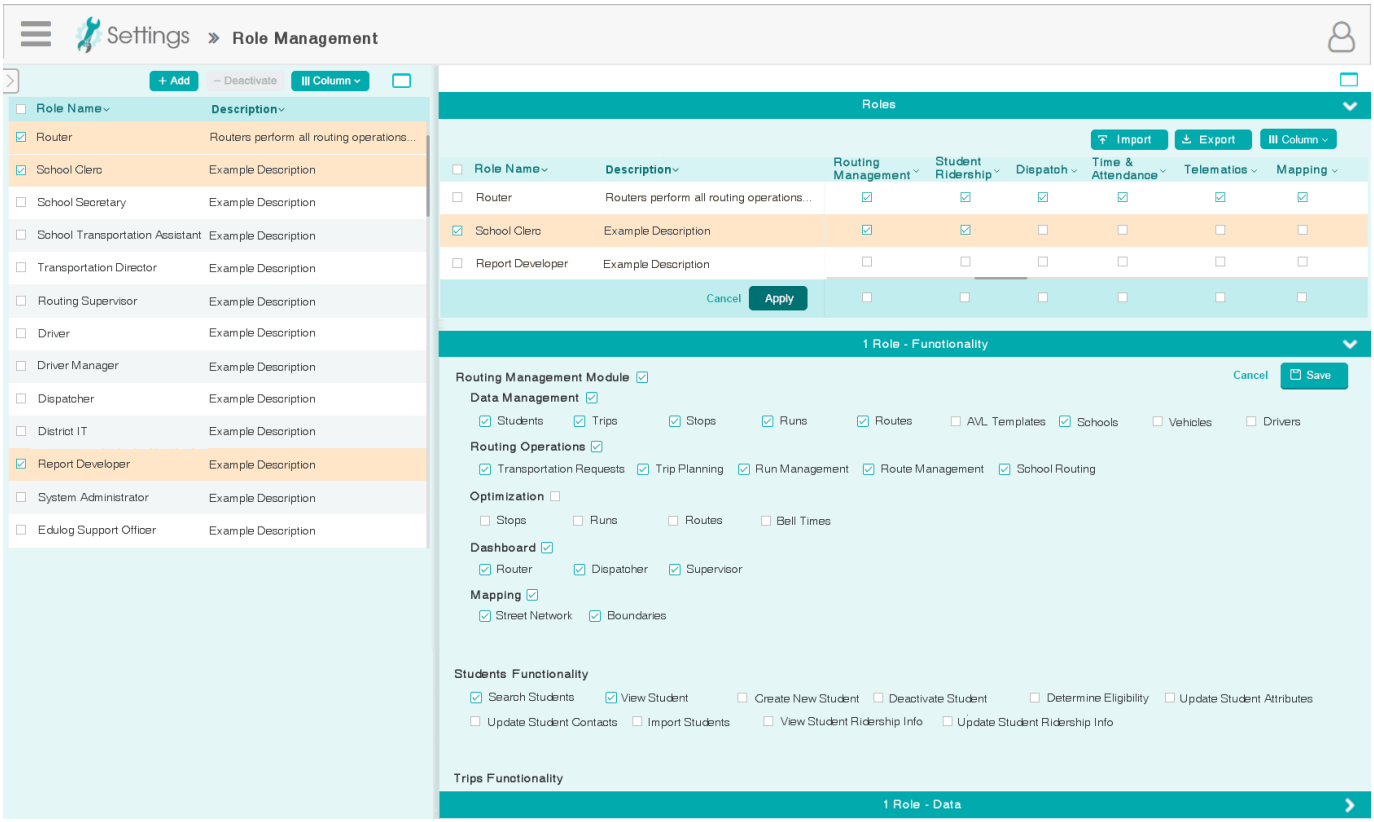
1) A school district transportation operation is divided into five regional depots/branches, each managed by a regional supervisor. Within the regional office, there is the usual staff classification: router, transportation clerk, etc., and these personnel are given the same function permissions as the staff of the central transportation office (assign a student to a run, change a route coupling, deassign a stop, etc.) **But unlike for the central office routers, the data access of branch staff would be limited to only those buses operating out of their depot.** This would mean that only schools, runs served by those buses, stops in the geographic area of the branch, transportation requests, and trips to those schools are accessible to the branch user.

2) Or consider a variation of the above, where the branch staff can have read access to everything (except students and trips) for the whole school district but write access only to the data related to the buses of their depot and read access only to students and trips assigned to the schools served by those buses (when a school belongs to one and only one branch). **The read-only access vs. write access would be defined using the user role; which buses, which runs, which students, etc. would be defined by the group.**

3) A school district uses four busing contractors. Each contractor can only see their buses, and this would determine the routes, runs and stops associated with those buses that are accessible by each contractor, but they would not have access to students, transportation requests, and trips, except for the passenger lists at the stops the contractor serves. The buses would be defined in

the EDULOG database as belonging to a specific contractor. However, runs would not be labeled as assigned to any particular contractor—instead the access permission would be derived from the bus (schools would not capture the data access by a contractor because runs to the same school may be served by different contractors).

The screen capture below for role management shows which software functions the roles of router, school clerk, and report developer will be allowed to access.



User credentials are required to access Athena. Each user must be affirmatively assigned a set of permissions to be able to access information or use Athena to perform any activities. No anonymous access is available, credentials are always required to access Athena and a profile must be assigned that is a combination of role, permissions, and data access.

Unique User IDs are used to create accounts in Athena. Verification of accounts is through email to verify the account and to enable multi-factor authentication. Users do not receive permissions to view data or perform activities in Athena unless those permissions are affirmatively granted either on a case-by-case basis or by affirmatively assigning the user to a pre-defined role. Removal of user accounts is handled through the ticketing process and/or utilizing an SSO process.

EDULOG recommends that districts adopt a formal business process to govern provisioning of user accounts and permissions.

Users:
- Routers
  - View and edit school bus routes.
  - View and print reports.
  - View and edit school bus information to include route number, bus stop, pick up and drop off times.

Yes, to all of the above for router viewing, printing, editing controls.

- School users (i.e. Front Office Staff)
  - View school bus routes.
  - View school bus information to include route number, bus stop, pick up and drop off times.
  - Print specified reports.

Yes, to all of the above for transportation informant viewing, printing, editing controls.

- Transportation Coordinators / Administrators
  - View and edit school bus routes.
  - View and print reports
  - View and edit school bus information to include route number, bus stop, pick up and drop off times.

Yes, transportation administrators will have access to all of the above functions.

- Must allow to view only AM or only PM as well as AM and PM routes.

Yes, this has long been a standard function of the EDULOG system.

- Graphically view routes and stops such that it is clear which stops belong to which routes.

Yes, this has long been a standard function of the EDULOG system.

- User friendly update of roads and addresses must be able to be added to the route map without the need of the vendor to accomplish this task (barring general questions or support issues.)

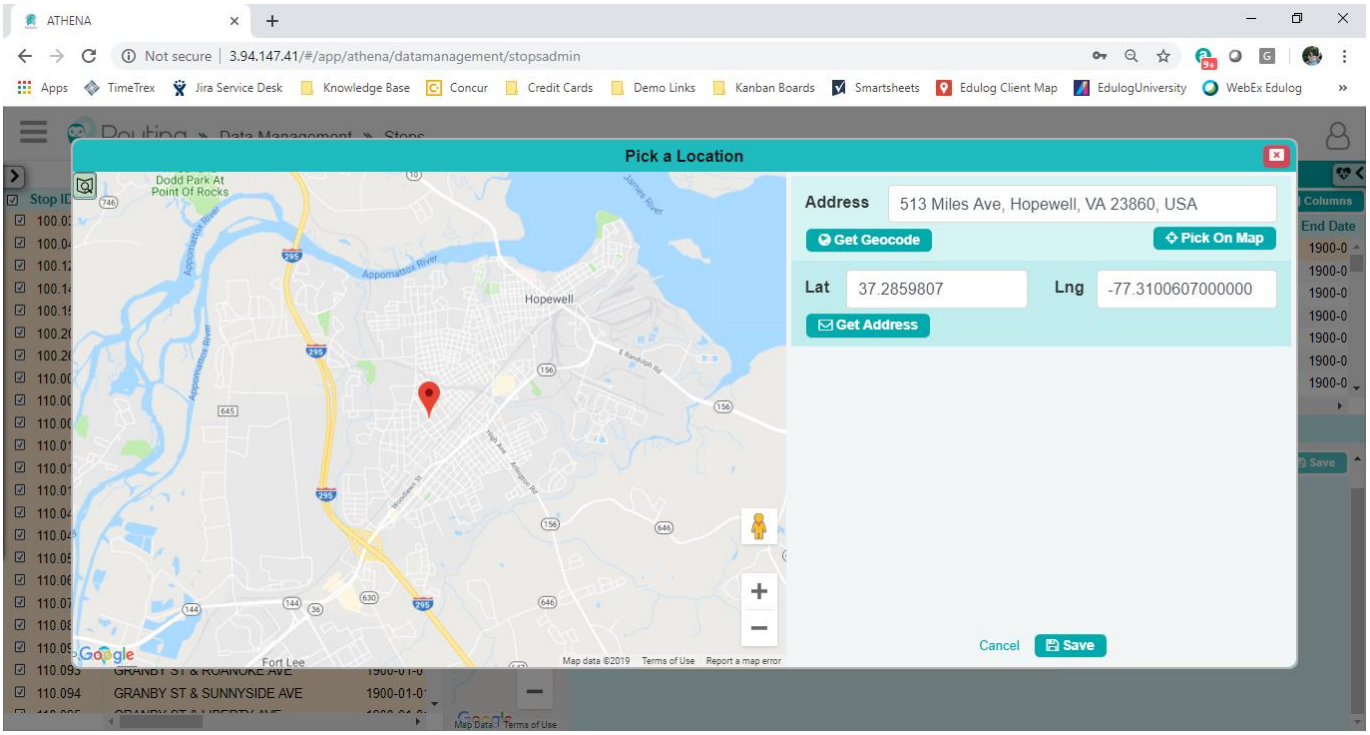
Yes, this has long been a standard function of the EDULOG system.

With EDULOG Athena's new GIS functions and capabilities, EDULOG has greatly increased mapping interoperability between EDULOG and other systems while continuing to enhance the accuracy and ease-of-use of our software and data.

the EDULOG system can accurately compute school bus travel times according to time of day and traffic conditions—without requiring the user to micromanage the street network segment by segment. This is a capability that only EDULOG offers, and one which provides users with the accuracy and flexibility required to effectively manage routing and parent notification functions.

Because our geospatial database conforms to the latest industry standard structures for object-relational geodatabases, EDULOG's mapping system allows for seamless imports and exports from all the leading GIS programs (including ESRI ArcGIS) in the correct projection. Multiple users can edit the map at the same time, and safeguards are built-in to the system to protect mapping information (boundary layers, speed limits, landmark locations) from being overwritten.

Our new geographic system fully supports and realizes the benefits of point addressing (X,Y coordinates; latitude and longitude). This functionality drastically reduces the time and effort needed to create the map data to support the route management system, thus simplifying system implementation and maintenance.



If the address of an active stop is incorrect or requires adjustment, the appropriate location can be set with only a few clicks by dropping a pin on a map or by inputting the latitude and longitudes of the correct location. Google Street View can be launched from the map to visually verify the stop location.

One especially noteworthy benefit of our GIS capabilities is that the EDULOG system can accurately compute school bus travel times according to time of day and traffic conditions—without requiring the user to micromanage the street network segment by segment. This is a capability that only EDULOG offers, and one which provides users with the accuracy and flexibility required to effectively manage route management and parent notification functions and develop meaningful key performance indicators (KPIs).

EDULOG GIS gives you full compatibility with all mapping systems used by government agencies, advanced tools to accurately display and measure geographic points (driveway entrances, buildings on a satellite map, etc.), and intelligence to correctly interpret traffic patterns and conditions.

- View routes and stops with school boundary highlighted.

Yes, this has long been a standard function of the EDULOG system.

- Allow for school boundaries to be clearly distinguished when displayed and individually turned on and turned off as needed.

Yes, this has long been a standard function of the EDULOG system.

- User friendly creation and editing of bus routes.

Yes, most certainly. EDULOG Athena is the most easy-to-use and power system on the market for the creation and editing of school bus runs and routes.

- Athena is designed to present users with data and actions that make sense from the perspective of best practices workflow. When performing operations**, Athena anticipates what the user is trying to accomplish, and then automatically loads the relevant data based on the context** (for example: all stop services and trips for the school bell times I've selected). The goal of Context Loading is to make the system intuitive and easy to learn.
- Tasks – users can organize their work into different tasks so they can multitask while using the system. Users may have several tasks open at the same time, and they may enter other parts of the system and **then come back to their task without losing any data or previous work**.
- Simulation/Sandbox - Tasks can be used to simulate what-if scenarios to assist with optimizing bus runs, and small to medium (up to one school) optimization scenarios can be created and reviewed. The benefit of the Athena "sandbox" is that **it's a place where the user has all the available and needed tools to play with the data and see what's possible**. If the results are undesirable, the user can simply delete the task, and start over from scratch—or go on to a new task.

- During the creation and editing of bus routes users must be prompted to validate if the work must be saved.

Yes, this is a function of EDULOG Athena.

- During the creation and editing of bus routes users must be able to label routes and stops with identifying notes (i.e., route segment names, stop information, run / run information). The notes must be able to be used, sorted, and printed as needed.

Routes and stops can be labeled, and notes attached.

- Software must provide the ability to alter the path of the route manually.

Yes, this has long been a standard function of the EDULOG system.

- Route records are automatically stamped with the username and time of change with available report or extract.

Yes, the Athena system meets this recording/reporting function.

- Allow stops to be added based on user defined start date

Yes, most certainly—this is a function of Athena Effective Dates described previously in the introduction section of this proposal.

The EDULOG Athena system has at its core full calendaring functions—with the data imported from existing district IT systems. Of course, full manual customization is always available for Athena calendars. Athena's calendar system is used to:

- Identify all days (or partial days) when transportation is needed for all or a subset of schools
- Identify all drivers who are available on any particular date (accounting for vacation, sick leave, etc.)
- Identify all vehicles that are in service on any date
- Identify field trips required on any date
- Identify the needs for overall transportation on any date

Hierarchical calendars in Athena can include:

- District: General calendar of holidays, dates of school year, days of operation, etc. applicable to all employees and students of the district
- District (route management)
- School Calendar
- Aggregated Schools Calendar
- Driver Calendar
- Shop Calendar
- Transportation Resources Calendar
- Field Trip Calendar
- Transportation Needs Calendar

Unlike competing routing system which still operate on the principle that assignments and schedules remain fixed for the entire school year (every day John and his sister Susie are picked up at 7:48 a.m. to go to Washington Elementary and return to their home stop at 3:10 p.m.), EDULOG Athena was designed from the ground up with the recognition that student, school, and route circumstances can change at any moment, and that these changes may be planned months in advance or be totally unexpected. In addition, EDULOG understands the complexities of modern family dynamics and educational opportunities: students don't necessarily have the same residence from week to week, they may go to one school on Monday and need busing to a different campus on Friday, and hybrid learning plans (in-school instruction only during certain days) can frequently change.

Athena is the only system available to school districts which manages all these school transportation complexities in a way that makes sense: have all of an individual student's busing information in one data record, and have this record display, plan, and manage this student's trips for today, next, week, and three months from now (with each trip potentially quite different from one another in regards to times, locations, schools, bus routes, etc.). As an example, let's consider the case of eleventh-grader Amanda Harrison.

- Amanda's parents have split custody, so on certain weeks she needs busing to/from her mother's house, and on the other weeks it's to/from her father's apartment.
- And although Amanda's regular school of attendance is Langley High School, on certain days of the month she also needs transportation to another campus for specialized physical therapy services.
- Then, in January, Amanda's parents need to take her out of school for two weeks because of a planned surgery.

Therefore, routers, drivers, school staff—and of course Amanda and her parents—need quick and precise access to Amanda's individual busing plan for each day of the year. And they need to take into account variable school calendars, hours that differ from school to school and day to day, and planned or unplanned events such as Amanda's absence, heavy snowfall, or road construction.

Athena is the only system on the market that makes use of frequencies (different possibilities for each day of the week), calendaring, effective dates, and parental transportation requests to automate many complex, but necessary, tasks—and have all of the information in one place.

For example, Amanda's mom can use Athena's unique transportation request function from her mobile phone to inform the transportation department that Amanda won't need busing for the stated two weeks. This request is automatically routed to the appropriate scheduler, her home stop is removed from her special needs route for those two weeks only, and she's automatically assigned to be picked-up again when she returns to school. All of this is accomplished in Athena with full oversight and approval by the district and automatic notification by the system to Amanda's parents of the changed transportation plan. There's nothing like it on the market!

- System must have the capability of route optimization.

Yes, most certainly and emphatically. Only Athena has the optimization functions for all three categories/situations found in route planning: stop locations, run sequences, and route couplings. In comparison, competing systems have only rudimentary route optimization capabilities. EDULOG's world-renowned optimization functions are embedded in the route management system and accessible at any time from the main screen. Do you need to ask a quick "what-if" question? The results appear almost immediately. **The benefit of the Athena "sandbox" is that it's a place where the user has all the available and needed tools to play with the data and see what's possible**.

High-level mathematical modeling knowledge and expertise is crucial to developing usable optimization processes (and EDULOG has plenty of both!), **but what is even more important to optimization is only what EDULOG can provide: 40+ years of fine-tuning the methodology through actual use in real-world school district operations.**

Pupil transportation optimization, as practiced by EDULOG, is the processing of applying sophisticated mathematical models and algorithms to derive the best solution based on constraints (ride time, bus capacity, distance, and regulations and required driver breaks, for example) and

preferences (convenience, economy, and feasibility are several of the possibilities). Although there are a number of variations in how to approach what is known as the "traveling salesman" problem (algorithms known as "greedy," "ant colony," harmony search," etc.), the proprietary optimization algorithms developed by Dr. Nguyen (EDULOG's founder and CEO) specifically address the unique circumstances of pupil transportation.

Unlike other logistics problems, with school transportation the number of passengers and the school locations are known, but everything is else is variable: stop locations, school times, the number of vehicles and their capacities, the street and road network (the shortest path may not be the quickest or most efficient path), and the travel speeds based on time of day and type of vehicle. EDULOG's optimization capabilities take all of this into account, and the functions were designed specifically for optimizing student transportation—as opposed to commercially-available network analysis systems developed for passenger car travel or package delivery.

EDULOG optimization uses your geographic and transportation data to help you develop a set of routes, considering the factors of time, distance, and capacity, while efficiently serving all eligible students.

- Ability to create bus stops based on student populations considering walk distance policies and walk restrictions, etc.

Yes, this has long been a standard capability of the EDULOG route management system.

- Ability for a single bus stop to be used for students attending multiple schools or programs.

Yes, this can be accomplished (one stop serving multiple schools or programs) in EDULOG Athena.

- Ability to mass assign students to their most optimal bus stop(s) in am/pm based on spatial distribution considering walk distance policies and walk restrictions.

Yes, this has long been a standard capability of the EDULOG route management system.

- Ability to optimize bus runs based for one or more (or all) schools considering student distribution, vehicle travel, and other pertinent parameters.

Yes, most certainly—EDULOG's optimization capabilities are well-known and demonstrably more powerful and flexible than that of any other vendor. **Even school districts using Transfinder routing software ask EDULOG to perform optimization studies using EDULOG's software.**

EDULOG'S OPTIMIZATION CAPABILITIES

Pupil transportation optimization, as practiced by EDULOG, is the processing of applying sophisticated mathematical models and algorithms to derive the best solution based on constraints (ride time, bus capacity, distance, and regulations and required driver breaks, for example) and preferences (convenience, economy, and feasibility are several of the possibilities). Although there are a number of variations in how to approach what is known as the "traveling salesman" problem (algorithms known as "greedy, " "ant colony," harmony search," etc.), the proprietary optimization algorithms developed by Dr. Nguyen (EDULOG's founder and CEO) specifically address the unique circumstances of pupil transportation. Unlike other logistics problems, with school transportation the number of passengers and the school locations are known, but everything is else is variable: stop locations, school times, the number of vehicles and their capacities, the street and road network

(the shortest path may not be the quickest or most efficient path), and the travel speeds based on time of day and type of vehicle.

For examples of how EDULOG optimization is used to solve school transportation problems, we will discuss:

- Bus Run Sequences
- Bus Route Couplings

Bus Run Sequences: According to traditional thinking, this is the heart of the transportation optimization problem: what is the shortest path between any number of points (bus stop locations)? In the most convenient model, a school bus would travel to one bus stop location, collect the students at that stop, and then drive directly to school. In some instances, such as when the number of students equals the capacity of the bus, this one stop bus run would be very efficient—although optimization is still required because the shortest path may not be the best path in regards to time and fuel efficiency.

Most bus runs, however, consist of multiple bus stops, and thus a decision must be made about how the stops are sequenced along the run, and which stop comes first and which last. Although this problem is not inconsequential (but easily solved by EDULOG), its level of complexity is not nearly as great as the problem EDULOG's optimization has been refined to resolve: what efficiencies could be achieved if any bus stop could be put on any run serving a particular school? If the current model has 75 stops assigned to a school and is served by 15 buses, is it possible to optimize this so that the same number of stops could be served by only 11 buses while still meeting all constraints concerning time on the bus and time to school?

To obtain the answers, EDULOG's run building optimization takes a selected group of bus stops and then creates a new set of runs that best meets the needs of the client. This typically involves transporting the most students with the fewest number of buses in the least amount of time. And it usually requires balancing three variables: the capacity of the available buses, the limitations on maximum run time, and the total distance traveled to collect all of the students. Very different solutions can be produced depending on the preference for: the fewest possible runs (thus reducing labor costs and vehicle numbers); the greatest reduction in travel time (providing the greatest convenience to students while possibly reducing labor costs); or the least distance traveled (which reduces fuel costs). EDULOG can rank and adjust these criteria and consider any limits concerning passenger loads and ride times.

Bus Route Couplings: A very simple, and perhaps convenient, plan is to have a driver and a bus make one morning run to school, and then in the afternoon reverse the run from school. This is, however, not a very efficient use of labor and vehicles because both are idle for most of the day. Therefore, the practice of combining separate bus runs into bus routes is commonly used. In essence, bus route coupling optimization is primarily concerned with time management in the allocation of resources: is there enough time for this bus and driver to conduct another run, either to the same or a different school? And is it feasible to perhaps have the same bus serve three or more runs in both the morning and the afternoon?

EDULOG's route coupling optimization process considers school bell times, adjustable bus arrival and departure times (based on school bell times), the duration of each bus run, and the capacity of each bus to combine a specified group of bus runs into bus schedules that minimize fleet and labor requirements, travel distance, and wait times. The optimization can be conducted for any group of specified runs so that the fewest number of buses is used to transport all students safely and

efficiently. EDULOG's route coupling optimization often allows one bus to transport the same number of students that previously required two or three buses.

- Ability to optimize bus runs that service more than one school.

Yes, most certainly with EDULOG Athena—this is a function of EDULOG's route coupling optimization.

- Ability to create route schedules by maximizing daily vehicle utilization

Yes, most certainly with EDULOG Athena—this is a function of EDULOG's route coupling optimization.

- Vendor responsibility to complete map routing updates automatically preferred. Updates are to be scheduled and coordinated prior to execution.

Yes, an annual map update will be provided by EDULOG.

- Allow for the import of a center street line shapefile to be used as background map editing.

Yes, shapefile importing is included.

- Must allow for bus stops to be placed in logical placement to the centerline, at the correct corner,not on the centerline itself.

Yes, bus stops are placed at their accurate location, whether at a corner or at an address.

- Ability to import student data for all student enrollment as a schedulable, automated process

Yes, the EDULOG route management system has long been configured to provide data integration (interfaces) with all the leading SIS systems—thus automating nightly updates of student information.

- Ability to upload transportation data back to the board's student information system - Infinite Campus

Yes, this has long been a standard capability of the EDULOG route management system.

- Ability to produce reports from a list of available reports without the need for a 3rd party reporting tool.

Yes, this is a standard capability of the EDULOG Athena system.

- Ability to develop custom reports for transportation needs.

Yes, this has long been a standard capability of the EDULOG route management system.

- Ability for maps to be updated multiple times yearly.

Yes, this is possible with EDULOG Athena. With EDULOG's new GIS functions and capabilities, EDULOG has greatly increased mapping interoperability between EDULOG and other systems while continuing to enhance the accuracy and ease-of-use of our software and data.

the EDULOG system can accurately compute school bus travel times according to time of day and traffic conditions—without requiring the user to micromanage the street network segment by segment. This is a capability that only EDULOG offers, and one which provides users with the accuracy and flexibility required to effectively manage routing and parent notification functions.

Because our geospatial database conforms to the latest industry standard structures for object-relational geodatabases, EDULOG's mapping system allows for seamless imports and exports from all the leading GIS programs (including ESRI ArcGIS) in the correct projection. Multiple users can edit the map at the same time, and safeguards are built-in to the system to protect mapping information (boundary layers, speed limits, landmark locations) from being overwritten.

Our new geographic system fully supports and realizes the benefits of point addressing (X,Y coordinates; latitude and longitude). This capability is especially important in increasing the accuracy and compatibility with AVL data gathered from GPS devices. It also drastically reduces the time and effort needed to create the map data to support the route management system, thus simplifying system implementation and maintenance.

One especially noteworthy benefit of our GIS capabilities is that the EDULOG system can accurately compute school bus travel times according to time of day and traffic conditions—without requiring the user to micromanage the street network segment by segment. This is a capability that only EDULOG offers, and one which provides users with the accuracy and flexibility required to effectively manage route management and parent notification functions and develop meaningful key performance indicators (KPIs).

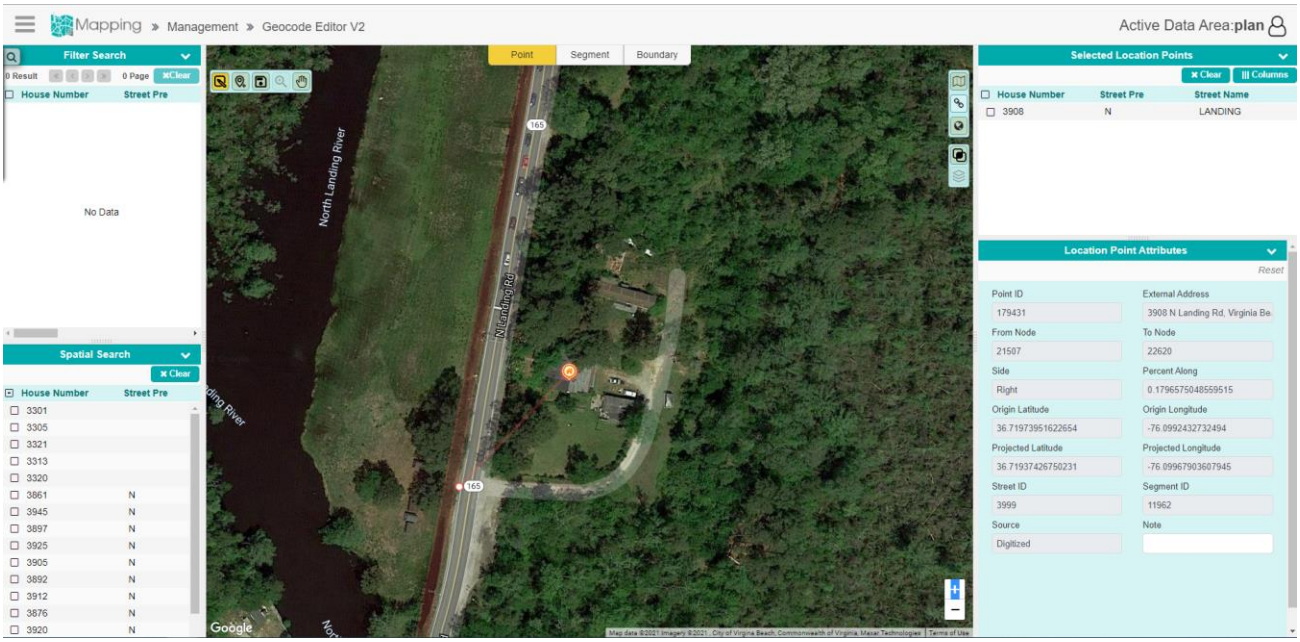
EDULOG GIS gives you full compatibility with all mapping systems used by government agencies, advanced tools to accurately display and measure geographic points (driveway entrances, buildings on a satellite map, etc.), and intelligence to correctly interpret traffic patterns and conditions.

- Ability to integrate with Google Maps & Google Street View directly from the planning application

Yes, map imagery (satellite views, Google Street view, etc.) is included with EDULOG Athena. EDULOG GIS gives you full compatibility with all mapping systems used by government agencies, advanced

tools to accurately display and measure geographic points (driveway entrances, buildings on a satellite map, etc.), and intelligence to correctly interpret traffic patterns and conditions.

The following shows an example in Athena where we are zooming into house where point data does not match the driveway location.



- Must allow for initial import of Master stop file. These are a set of vetted stops that are used for all Routing. This ensures the stop location remains consistent for all school levels and routes. Stops may be added, updated, or deleted from the set. All routes will use a stop from the set of Master-stops. A stop may be used in multiple routes for multiple schools at the same time frame. A school may be used as a school site, bus stop, or transfer site.

Yes, most certainly. During the implementation process for the Athena upgrade, the BCS's current stop information in its EDULOG route management system will be transferred to Athena and checked for validity and completeness.

- ESRI based shape files that can be imported.

o Sample data layers include:

- Street centerlines
- Railroads and USDOT crossings
- Waterways
- Tax parcels
- Address points
- School Boundaries
- Sex offender
- Day cares
- School district boundaries

Yes, all of the above ESRI shape file date can be imported into the EDULOG Athena system.

- Bus stops must be coded as right-hand only, left-hand only, or cross street pick-up/drop-off.

Yes, the proposed system meets this requirement for bus stop codling (right-hand only or cross street pick-up/drop-off).

- Bus stop descriptions that serve multiple schools must be able to be change with only 1 transaction.

Yes, the proposed system meets this requirement for bus stop descriptions.

- Must be able to click on a stop and see what routes are associated with it. This information must also be made available in a report or file export.

Yes, the proposed EDULOG Athena system meets this requirement for associating bus runs with stops.

- The routing system is to leverage automation such as student bus assignment and multiple scheduled data imports and exports.

Yes, EDULOG Athena automates as much as possible student bus assignments and scheduled data imports/exports—with full manual override.

- System must be able to process (stop assign) approximately 20,000 student bus riders in a reasonable length of time.

Yes, EDULOG Athena can process stop assignments for the project student passenger count very quickly and accurately.

o 5 calendar days is preferred.

Yes, EDULOG Athena can meet this requirement.

o 7 calendar days is acceptable.

Yes, EDULOG Athena can meet this requirement.

- The system must allow for manual exceptions to bus assignments when necessary and reasonable.

Yes, manual override of all automatic assignments has long been a standard functionality of the EDULOG route management system.

- The ability to have student bus assignments based on an alternative address. Distinguish between AM only, PM only or AM and PM use of transportation services from that alternative address.

Yes, the EDULOG route management system has long provided the functionality to have student bus assignments based on an alternative address—and to distinguish between AM only, PM only or AM and PM use of transportation services from that alternative address.

Unlike competing routing systems that still operate on the principle that assignments and schedules remain fixed for the entire school year, EDULOG designed Athena from the ground up with the realization that student, school, and route situations can change at any moment, either because of something planned months in advance or a totally unexpected circumstance. EDULOG also understands the complexities of today's family dynamics and educational opportunities: students don't necessarily have the same residence from week to week, they may go to one school on Monday and need busing to a different campus on Friday, and hybrid learning plans (in-school instruction only during certain days) can frequently change.

The fundamental reasons why EDULOG has focused so much work on the area of managing different day, different destination routing, scheduling, and assignments are:

- **Parents' needs.** Parents want to make requests to transport their children in a more flexible than the same fixed way five days a week. For example: alternative pickup and drop-off locations on different days of the week—and also for specific time periods, e.g., starting next week for four weeks, or starting in three days for the rest of the year, etc. Managing the current state of the routes (for dispatching) while planning for what the routes should be in order to meet parents' requests is the crux is what makes Athena so different from other systems.
- **Parents' expectations.** Parents have become more and more engaged in defining what service should be provided to their children, expecting from school transportation the same level of quality and service as airline travel (flight services, reservations, communication facilities, etc.) or ride-sharing (user-friendly apps, convenience, reliance on real-time data, etc.) Why is school bus service so behind? Parents do not accept this as readily as in the past. EDULOG manages the needs of any student for any time in the future (with start and end dates).

Athena is the only system that manages these school transportation complexities in a way that makes sense: have all of an individual student's busing information stored in a rich, yet effective and efficient data structure that can display, plan, and manage a student's trips for today, next week, and three months from now—with each trip potentially quite different from one another in regards to times, locations, schools, bus routes, etc. In addition, Athena stores the history of all student assignments, routes, and schedules.

Only Athena automates the many complex, but necessary, tasks to meet these challenges because it is the only system that makes use of frequencies (different possibilities for each day of the week—and not just for students, but also for routes, and schools), calendaring, effective dates, and parental transportation requests.

- The system must allow for manually assigned stops in support of McKinney Vento, Every Student Succeed Act (Foster Care) and courtesy medical stops. In some cases, stops may need to be hidden from public view.

Yes, the EDULOG Athena system allows for manually assigned stops in support of McKinney Vento, Every Student Succeed Act (Foster Care) and courtesy medical stops.

- The system must allow for routing outside of the school districts boundaries with use of Google maps if no GIS basemap data is available.

Yes, EDULOG Athena meets the above requirement for routing outside of the school district's boundary—Google Maps are an integral part of the EDULOG Athena system.

- Allow for assignment of special equipment to a vehicle

Yes, EDULOG Athena allows for assignment of special equipment to a vehicle.

- Ability to assign special needs based on each student.

Yes, EDULOG Athena allows for the assignment of special needs for each individual student.

- Automatically assign students with special needs to vehicles with needed equipment.

Yes, EDULOG Athena can be used to automatically assign students with special needs to vehicles with needed equipment.

- Ability to set maximum ride time to special needs students

Yes, EDULOG Athena allows for users to set maximum ride time for special needs students.

- Software must be able to support hub and spoke as a routing option.

Yes, the EDULOG Athena system supports "hub and spoke" as a routing option.

- Bus assignments which require transfers through a hub must be automated. A hub site might be a school site or other address location. Transfer information must be displayed as such.

Yes, the EDULOG Athena system meets the requirements for automated transfer through a hub site. This is a major distinctive capability which sets Athena apart from other route management systems. Transfers have always been a challenge for all routing systems. With Athena, EDULOG has developed a unique approach that has made working with transfers a task that is simple, user-friendly and yet extremely powerful and capable of handling all common transfer scenarios.

- Allow for routing of special programs throughout the school day

Yes, EDULOG Athena allows for routing of special programs throughout the school day.

- Allow for routing of students in special programs and/or multiple programs and ability to see all scheduled trips.

Yes, EDULOG Athena allows for routing of students in special programs and/or multiple programs with the ability to see all scheduled trips.

- Allow for special program vehicles to be routed to multiple schools and destinations for one trip.

Yes, EDULOG Athena allows for special program vehicles to be routed to multiple schools and destinations during one trip.

- Encodes map streets so as students are assigned to stops, students will automatically be prevented from walking across hazardous roads to reach a bus stop, even if that stop is closer to their home than another.

Yes, the EDULOG route management system has long been capable of encoding streets on the map so that when students are assigned to stops, students will automatically be prevented from walking across hazardous roads to reach a bus stop—even if that stop is closer to home than another bus stop.

The EDULOG Athena system has the ability to mark and unmark hazards (including drawing a polygon around a hazard) so as to remove such locations and zones from the stop and run planning process. These permanent or temporary hazards can include construction areas, flood zones, street crossings, absence of walking paths or sidewalks, low clearances, and others. Other examples of hazard zones that the Athena system can display and remove from routing consideration are: an area around the home of sexual predator, a drug house, a mining location, a refinery, a pond or lake, a bar, or an adult bookstore.

- Roads must be encoded to prevent walkers to cross or walk depending on hazard level and depending on grade level (i.e., roads may be safe for cross for all students except grades K–5.)

Yes, the EDULOG Athena system meets this requirement for hazard encoding based on grade levels.

- System must allow for multiple live routing systems at the same time. Example: Spring, Summer, Proposed, Fall

Yes, the EDULOG Athena system allows for multiple routing plans at the same time (Spring, Summer, Proposed, Fall, etc.)

- The routing system must be capable of running "what-if" scenarios (i.e. boundary, program, bell time, bus capacity, etc.) without disrupting current production.

Yes, full optimization to test differing and multiple scenarios (boundary changes, program differences, bell time alterations, bus capacities, etc.) is always available for simulation without disrupting or affecting current production.

Yes, to the above requirement. In EDULOG Athena, "Tasks" can be used to simulate what-if scenarios to assist with optimizing bus runs. The benefit of the Athena "sandbox" is that it's a place where the user has all the available and needed tools to play with the data and see what's possible. If the results are undesirable, the user can simply delete the task, and start over from scratch—or go on to a new task. If the results are acceptable, they can be placed into production immediately, or they can be stored for further refinement at a later time.

- Encodes transportation data, such as one-way streets, travel speeds, no travel roads, etc.

Yes, the EDULOG route management system has long included capabilities to encode transportation data, such as one-way streets, travel speeds, no travel roads, etc.

There have been dramatic changes in the use of digital mapping in all areas of economic activities in the last 20 years: Google, GPS/AVL in cars, driving directions in everyday use, GIS used by all municipalities, etc., and yet, in school bus routing, competing school routing software systems have hardly evolved since EDULOG developed GIS-based school bus routing 45 years ago.

EDULOG Athena revolutionizes school transportation mapping by successfully meeting two previously-incompatible goals: 1) having up-to-date and accurate geographic data without burdening district staff with tedious maintenance functions; and 2) presenting all the possible mapping information in a format that is easy to use and understand.

Athena maps combine best-in-class technologies: street networking for travel connectivity, restrictions, speeds, boundaries, etc.; point data for the precise location of addresses, schools, bus stops; and visual overlays (from Google and other sources) for photographic overhead and street view display, traffic and weather information, walking paths and geographic hazards, etc.

All of this is especially designed for the routing of students on school buses—not the delivery of packages as with many systems using commercially available street network managers.

With Athena, you can:

- Zoom in on the map and precisely indicate where buses need to enter or exit a school campus
- Permanently or temporarily block off streets or roads from routing consideration (because of traffic, construction, unplowed snow, etc.)
- Increase scheduling accuracy by having different travel speeds depending upon the time of the day (slower at 8:00 a.m., faster at 2:30 p.m.)
- View potential hazards for bus stops (no crosswalks, obscured sightlines, no sidewalks, etc.)
- Know exactly where to provide door-to-door service for special needs passengers
- Have different rules for different grade levels: first graders can't cross the street to a stop, but high schoolers can
- Pinpoint hazards (homes of sexual offenders, for example) and make sure that there are no bus stops nearby
- Edit the map at any time if you want to (with multiple, simultaneous staff access)

In short, Athena's mapping structure is not a one-thing fits all approach but is the collection of the best of the current state of mapping knowledge and technology. With Athena, EDULOG has achieved the goal that has been elusive in the industry of computerized school bus routing until now: transportation users can focus on routing and get out of the business of maintaining, updating, or correcting maps and adjusting travel speeds, among other burdensome mapping tasks.

Because our geospatial database conforms to the latest industry standard structures for object-relational geodatabases, EDULOG's mapping system allows for seamless imports and exports from all the leading GIS programs (including ESRI ArcGIS) in the correct projection. Multiple users can edit

the map at the same time, and safeguards are built-in to the system to protect mapping information (boundary layers, speed limits, landmark locations) from being overwritten.

- Encodes travel restricted streets, and turn restrictions, that can restrict larger vehicles yet allow smaller ones. These restrictions must be automatically applied during routing so that the operator cannot inadvertently make a mistake on such roads.

Yes, the EDULOG Athena system meets this requirement for travel restricted streets with accommodations for vehicle size.

- The software must be capable of encoding school board, state and federal policies as students are assigned to stops. This would include program eligibilities, attendance boundaries, distance to stop, sex offender boundaries, stop service areas, multiple walk policies.

Yes, the EDULOG Athena system can accommodate school board, state, and federal policies when students are assigned to stops. EDULOG has long excelled in the area of eligibility determination by developing an extremely versatile and flexible approach to modeling school districts' varied transportation eligibility policies. Eligibility is processed either on-line during the update of student data or in a batch mode to process the entire student population.

All school districts have eligibility policies based on maximum walking distance to schools and all have innumerable exceptions to those policies because of hazard conditions, past practices, program exceptions and "grandfather" clauses. The EDULOG system allows users to automatically determine student eligibility conditions accurately for distance criteria and also for other special cases. EDULOG's approach is versatile enough to handle practically all possible eligibility criteria such as walking distance, hazard conditions, programs, and grade levels. Eligible students are automatically assigned to the closest stop along safe walking pathways, with manual override always available during all the steps of the assignment process. Eligibility processing is flexible enough to allow client personnel to modify requirements to reflect changing organization policies.

Eligibility for transportation is determined by the system according to current client transportation policies such as walking distance, hazard conditions, program and grade levels, travel times, bus load capacity, and safety constraints. Accurate computation of travel distances and times along the actual street network are determined without approximations such as "crow flight" or rectangular distances.

The software also allows the user to interactively override the system-determined eligibility for any student.

the EDULOG Athena system also has the ability to mark and unmark hazards (including drawing a polygon around a hazard) so as to remove such locations and zones from the stop and run planning process. These permanent or temporary hazards can include construction areas, flood zones, street crossings, absence of walking paths or sidewalks, low clearances, and others. Other examples of hazard zones that the Athena system can display and remove from routing consideration are: an area around the home of sexual predator, a drug house, a mining location, a refinery, a pond or lake, a bar, or an adult bookstore.

- Software must be capable of checking planned routes against actual routes

Yes, if the EDULOG Athena system is configured to accept GPS data from the district current Zonar GPS system. This would require cooperation from Zonar, and may incur additional fees not included in our cost/price proposal.

- Enhanced security.
  - Role-based access
  - SSL encryption
  - SSO integration

Yes, the proposed EDULOG Athena system meets the above requirements for enhanced security.

- The software product should have the ability to integrate with other systems using Application Programming Interface (API), depending on proposed solution equipment and design.

The EDULOG route management system has long been configured to provide data integration (interfaces) with all the leading SIS systems—thus automating nightly updates of student information.

Any reporting tool that can accept CSV files can be used with EDULOG Athena. If an API to a particular reporting tool is desired, we can discuss providing such an API for an additional fee.

EDULOG's routing software is designed to be a useful and significant contributor in the enterprise resource planning ecology most of today's school transportation departments need to operate efficiently, and, just as importantly, respond to emergent issues and proactively plan for future changes. Accordingly, EDULOG's routing software is designed to play well with major school information systems and GPS systems. **We probably have more experience integrating route management system data with student information systems than any other vendor—because we've been doing so successfully for longer than anyone else.**

EDULOG was the first company in the industry to have a fully integrated GPS/AVL/routing and scheduling solution. And as for integration with student databases, nothing can compare to the ease-of-use and efficiency that EDULOG's live student update utility has provided to EDULOG clients in the past. EDULOG developed a process so that within three minutes of entering student information into the client's SIS, the EDULOG system automatically receives that information, determines transportation eligibility, assigns the student to the correct bus stop and run, and prints a bus pass. This is just one example of the power and integration capabilities that make EDULOG the number one choice of school transportation professionals.

With more than 40 years of system integration experience, EDULOG has integrated its system data with a number of school information systems, GPS/AVL software, payroll systems, fleet inspections systems, etc. and have provided clients with standard and customized data exchange applications for:

- Route management/student information systems data exchange
- GPS/AVL to route management
- Route management to GPS/AVL
- GPS/AVL to payroll

- Compatible with all major operating systems platforms (i.e. Windows, Mac OS, iOS, Android, etc.) and browsers (Chrome, Edge, Safari, Firefox).

The proposed EDULOG system meets this requirement. Chrome is the preferred browser.

- Ability to email parents when permanent routing changes occur

Yes, with EDULOG Athena's communication functions.

- Ability for parents to view bus stop, time and bus number in a web portal by inputting only the service address and school served.

Yes, the above requirement is met by EDULOG Athena's WebQuery functionality.

- Desired ability for parent to request bus service in a web portal/app with approval chain to approve/deny and send status updates to parents.

This can be accomplished by configuring EDULOG Athena's transportation change request functions. Another option would be for the BCS to license EDULOG's optional, additional cost Parent Portal system for use with Smart Phones and the Parent Portal Ride Registration system.

GENERAL AND CUSTOMER SERVICE AND TRAINING

- The qualified professional services firm must have customer support center, which is available, knowledgeable, and responsive.

Yes, most certainly. Also please refer to the following proposal section entitled "IMPLEMENTATION, SUPPORT, AND TRAINING SERVICES."

EDULOG Personalized Support Center Options:
Extensive Call-In Hours: You get the largest support team in the industry.
Email Support: Your time is valuable, so we work hard to find answers.
Concierge Service: Software as a Service available as a subscription for additional fees.

EDULOG is fully committed to maintain and support all of its licensed installations. Software maintenance is provided in any of the following forms:

- Whenever possible, EDULOG will perform system diagnosis by directly accessing the client's system through the Internet and performing maintenance. Corrected data files or programs can be transferred through the Internet, allowing the client to be back in operation as soon as possible. Users can also upgrade and/or change software on site without the need to ship or return the system to EDULOG for upgrading purposes.
- If it is decided by EDULOG management that corrections must take place on-site, EDULOG will dispatch a technical representative to the client.

For the BCS, support hours will be from 6:00 a.m.—6:00 p.m. Eastern Time Monday-Friday and seven days per week (at reduced daily hours on the weekend) from the first week of July through the first week of September.

Technical support for the EDULOG system can be provided remotely through the internet using Zoom, MS Teams, Skype, "Go to Meeting," etc. Clients can also electronically submit a support request (and automatically create a support ticket) through the EDULOG Customer Support Portal.

Our Support Services Department now handles client issues using a four-tiered approach, in order to quickly escalate questions to the technical experts best-suited to the client's immediate needs.

The role of Account Manager has also been established to act as your advocate to ensure your needs are always met.

A complete log of all support inquiries is maintained by EDULOG, and this information can be provided to the client upon request.

The client can change its support plan at any time.

- Provide availability schedule for implementation and normal operations.

For the BCS, support hours will be from 6:00 a.m.—6:00 p.m. Eastern Time Monday-Friday and seven days per week (at reduced daily hours on the weekend) from the first week of July through the first week of September.

Additional hours of availability can be negotiated between EDULOG and the BCS.

- Provide response timeline. Responses need to be timely.

In person response to support requests are usually responded to within two business hours.

EDULOG uses an issue tracking system which employs ticket tracking so that all (EDULOG, the client) can quickly and easily create, track, report upon, prioritize, manage, and resolve support issues and requests. In addition, EDULOG uses a CRM (customer relations management) system to record all client contact, communication, and cases (issue resolution).

MAJOR/MINOR SEVERITY LEVELS

A major level support issue is defined as one that represents a complete loss of service or the complete unavailability of a significant feature—and no workaround exists. Examples of a major level support issue would be a system crash, the deletion of a database, or the failure to process incoming GPS data. Major level issues are responded to within two working hours. A minor level support issue would be one that produces apparently incorrect data or inconveniences the production efforts, but which does not render the entire system inoperable. Examples would be run directions that might not process properly, reporting errors in GPS times, or administrative reports which are not correctly formatted. Minor level support issues are responded to within eight working hours.

PROBLEM RESOLUTION

The key to problem resolution is early identification by account management through the review process. These reviews analyze current project status in terms of technical accomplishments, schedule, deliverables, staffing, other resource requirements, and cost. The final element included in the

reviews is an assessment of potential problems. Account managers will individually review the status of each task to identify potential problems that could affect the team's support efforts.

Our account managers are aware of the resource requirements for all tasks associated with a client, and can reallocate resources to respond to problems, change of scope, and other conditions that affect a system use and/or performance in a quick and effective manner. To ensure that potential problems are identified as early as possible and that the greatest staffing flexibility can be effected to resolve the problem, the account managers maintain regular contact with all departments of EDULOG.

- Vendor is to manage the process of software conversion including converting all necessary data from existing or legacy systems, providing test conversions to ensure accurate outputs in new system.

Yes, EDULOG will conduct data conversion and implement a testing process. Also please refer to the following proposal section entitled "IMPLEMENTATION, SUPPORT, AND TRAINING SERVICES."

- Vendor shall provide maintenance and support throughout software implementation and continued support after software is implemented and annual maintenance is current. This will need to coordinate and planned with the district.

EDULOG will provide maintenance and support of the software throughout implementation and continued support will be provide contingent upon the continued payment of fees by the BCS. Also please refer to the following proposal section entitled "IMPLEMENTATION, SUPPORT, AND TRAINING SERVICES."

- Software training must be provided to core operational staff responsible for the creation of bus routes and provide distributable training material for other groups (i.e., school-based staff, parents)

Yes, understood and agreed to. Also please refer to the following proposal section entitled "IMPLEMENTATION, SUPPORT, AND TRAINING SERVICES"—and especially the subsection entitled "EDULOG SYSTEM TRAINING."

- Vendor will train district staff on live and operational data.

During the initial system upgrade from the BCS's current EDULOG system to EDULOG Athena, EDULOG will train BCS using operational data, and live data if the BCS requires that live data be used—although training with live data, that is data currently in production, can be risky because an inexperienced user can inadvertently change that day's routing plan and assignments by mistake. EDULOG will show the BCS how relevant data specific to the BCS can be used in training without it being actually "live."

- Vendor will provide additional web-based training if available.

Yes, please refer to the discussion of EDULOG's unique new approach to operator-oriented system learning (EDULOG University) following the proposal section entitled "IMPLEMENTATION, SUPPORT, AND TRAINING SERVICES"—and especially the subsection entitled "EDULOG UNIVERSITY: SELF-PACED, INTERACTIVE TRAINING FOR ALL EDULOG USERS."

- Vendor will provide vendor on demand training videos if available

Yes, training videos can be provided.

- Vendor must be able to provide additional training if requested.

Yes, additional training (for negotiated fees) can always be provide either on-site or on-line.

- Vendor shall provide copies of software user's manuals (hardcopy and electronic).

Electronic software user guides will be provided.

- Vendor will submit a brief description of their training plan.

The following text is also provided in the previous proposal section entitled "IMPLEMENTATION, SUPPORT, AND TRAINING SERVICES"—and especially the subsection entitled "EDULOG SYSTEM TRAINING."

Timelines and training schedules will developed by the EDULOG project management team in conjunction with the BCS team, with the focus on ensuring that sufficient training will be provided to system operators and stakeholders as soon as possible. **In addition, the BCS can benefit from immediate on-line interactive training by enrolling its staff members in EDULOG University (see a following section describing this unique new approach to operator-oriented system learning).**

Many of us at EDULOG have a teaching background, and we know that quality instruction is crucial to effectively using new tools and techniques. Our approach to training is to use situations that you face every day as the instruction set, and then model the classroom sessions to fit your operations. We ask you what it is that you want to get done, and then we show you how to do it with plenty of hands-on system time.

The exact training syllabus will be developed after consultation with the BCS, but the following represents a sample training plan that can be used as a foundation for the discussion of the project plans. Note that this is only a sample description—and that there may be functions discussed in the following which are not applicable to the system proposed to the BCS.

Sample EDULOG route management training syllabus

Course Objective: To train a variety of users on the daily use and management of the EDULOG route management software by progressing through three phases of increasing trainees' knowledge of the EDULOG system.

Course Content / Curriculum:

I. Beginner Track
A. Introduction to EDULOG interfaces, tools, and interface navigation
B. Map Work—Terminology and working with the map components
C. Boundaries Work—working with and understanding boundary roles
D. Schools—Introduction to school data

E. Students—Working, searching and assigning student data
F. Stops—Creating, assigning and working with stop data
G. Runs—Creating, assigning stops, and working with run data
H. Routes—Route creation and run assignment
I. Querying Data Components—Introduction to base level querying of student, stop, run and route data
J. Reports—Introduction to running and filtering reports
K. EMU—Introduction to system maintenance
L. Review—Question and Answer —May split into two sessions at the middle and the end of the Beginner track

II. Intermediate Track
A. Schools—In depth management of school data
B. Students—Working with student assignment to stop components
C. Stops/Runs/Routes—In depth work with transportation data
D. EMU—In depth look at system maintenance and management
E. Querying Data Components—In depth look at utilizing queries
F. Reports—In depth look at creating and modifying reports
G. Review—Question and Answer

III. Advanced Track
A. Special Needs Routing—Methods for routing for special needs students
B. Transportation—Managing varying school schedules and transportation
C. Transfers/Shuttling of Students—Understanding methods and procedures
D. Map Management—Calibrating, managing map components
E. Optimization—Utilizing optimization components to find efficiencies
F. Review—Question and Answer

FIELD TRIP SOLUTION (THIS IS AN OPTIONAL YEAR 2 ADD ON)

EDULOG will have an integrated Athena version of field trip management software available in the next two years. The following describes the current EDULOG field trip management software with the WebRequest module and the Approval Rule Management System.

Features

EDULOG's field trip management system includes a web interface for schools to request field trips on-line—and also review the stages of the approval process.

The field trip module stores and reports trips by school, date, destination, requesting group, or trip category. The user can record a variety of items of information relating to each individual trip. Standard information can be included such as: grade levels and the number of students in the activity; originating school; destination; reason and date for the trip; when the trip was requested; and the proposed departure/return time.

Field trip activity status reports can be prepared for a variety of needs to suit school administrators, trip requestors, drivers, and state auditors—and for reimbursement purposes.

To create a field trip, you submit a field trip request. A request is simply a form you fill out with the necessary field trip information, such as the origin, destination, the groups serviced by the trip (schools, typically), the number of passengers, the trip dates, and the times. When you submit the request, your transportation personnel evaluate the trip requirements and approve or deny the request. They can also assign drivers and vehicles, enter billing information, and so on. When they approve the request, the field trip management program automatically creates a field trip record for each requested trip.

The parameters that can be used when requesting a field trip include trip type (for example, overnight or out-of-state), the number of students and adults, the start and end points, the funding source, the group type, the school or schools associated with the trip, the duration of the trip, the names of the requestor and approver, reason for denial of trip request, driver assignment, special needs or certifications, etc.

The system will notify authorized users by email when the status of a matching request or field trip changes. For requests, you can receive notifications for any or all of the following status changes:

- Saved to Canceled
- Saved to Submitted
- Submitted to Denied
- Submitted to Approved
- Denied to Submitted

For field trips, you can receive notifications for the following status changes:

- No Resource
- Pending to Canceled
- Active to Canceled
- Active to Scheduled
- Scheduled to Canceled
- Scheduled to Completed
- Completed to Billed

Among its many versatile features, the field trip management module can automatically assign drivers to field trips scheduled for any particular day by taking into account such information as driver preferences, driver eligibility based on time left prior to overtime, type of vehicle, driver training required for the trip, and availability of vehicle based on use, repair, and mileage.

Because the Athena version of field trip management is still under development, we cannot guarantee that the initial system delivered to the BCS will meet all of the following requirements/attributes.

- a Web-based solution for managing all aspects of the field trip process, from the initial request through invoicing
- Ability to access with SSO
- A secure web portal for school staff to request field trips.
- Ability for requestor to input the budget code funding source for the trip
- Ability for transportation staff to approve, hold, deny any request and automatically update the requestor
- Ability for requestor to input need for special equipment or vehicles.
- Ability to set future block out dates.

- Ability to assign drivers based on multiple factors, including seniority, previous trip hours, and check for conflicts.
- Electronic invoicing to bookkeepers and funding managers
- Ability to split trips for outgoing and returning trip segments
- Ability to set up recurring trips on multiple dates
- Ability to print travel directions/itineraries for driver
- Ability to see historical field trip information
- Ability for dashboard for dispatchers to view daily/weekly trips scheduled
- Reporting for weekly invoices and weekly hours/payroll

EDULOG COST/PRICE PROPOSAL

Please refer to the following spreadsheet.

Boone County Schools, KY

Edulog Price Proposal

February 22, 2024

Sales Representative:	Pete Salinas
Mobile Phone:	(406) 360-0205
Email:	psalinas@edulog.com

These prices and fees would replace all currently agreed-to Edulog prices and fees for route management software (excepting outstanding invoices, if any)	**Unit Price**	**Units**	**Total First Year Price**	**Total Annual Price, Second and Subsequent Years***
Part 1: Upgrade to Edulog Athena Route Management System				
Required Software and Hosting				
Existing Edulog Product Line - Second instance of WebQuery removed	$ 10,755.91	1	$ 10,755.91	$ 10,755.91
Required Features:				
Edulog GIS Suite (Google-Enabled)	$ 12,000.00	1	$ 12,000.00	$ 12,000.00
Required Services:				
Remote Project Management, Implementation, and Training	$ 12,000.00	1	$ 12,000.00	
Amazon Web Services Hosting *(per month)*	$ 1,250.00	12	$ 15,000.00	$ 15,000.00
Total Sum (not including options below):			***$ 49,755.91***	***$ 37,755.91***
Optional Add-On Software Features				
Optimization Suite:	$ 17,500.00	1	$ 17,500.00	$ 17,500.00
Stop Optimization (new)				
Run Optimization (enhanced)				
Route Optimization (enhanced)				
Special Needs Optimization				
Calendaring / Effective Dates	$ 5,000.00	1	$ 5,000.00	$ 5,000.00
Total Sum for Add-On Software Features:			***$ 22,500.00***	***$ 17,500.00***
Full Package Discount	*20%*		*$ (4,500.00)*	*$ (4,500.00)*
PART 1: GRAND TOTAL PRICE FOR ALL OF THE ABOVE			**$ 67,755.91**	**$ 50,755.91**

	Unit Price	Units	Total First Year Price	Total Annual Price, Second and Subsequent Years*
Part 2: Athena WebQuery				
Athena Web Query	$ -	1	$ -	$ -
Remote Project Management, Implementation, and Training	$ 1,000.00	1	$ 1,000.00	
Amazon Web Services Hosting *(per month)*	$ 200.00	12	$ 2,400.00	$ 2,400.00
Total for Part 2			***$ 3,400.00***	***$ 2,400.00***
Part 3: Athena Field Trip Management**				
Athena Field Trip	$ 10,000.00	1	$ 10,000.00	$ 10,000.00
Remote Project Management, Implementation, and Training	$ 5,000.00	1	$ 5,000.00	
Amazon Web Services Hosting *(per month)*	$ -	12	$ -	$ -
Total for Part 3			***$ 15,000.00***	***$ 10,000.00***
GRAND TOTAL FOR COMBINED PARTS 1, 2, AND 3			**$ 86,155.91**	**$ 63,155.91**

**Fees will be increased each year and the amount of such increase will be based on the percentage rate of increase for the immediately preceding 12-month period in the Consumer Price Index, All Urban Consumers, United States, All Items (1982 - 1984 = 100) ("CPI"), as published by the Bureau of Labor Statistics of the United States Department of Labor. This adjustment will take place on the anniversary date of the Agreement each year. The base for the adjustment will be the CPI figure last published by the U.S. Department of Labor prior to the adjustment date. For each succeeding year, the same procedure will be applied.*

***Fees for the Athena Field Trip Management System (software license, hosting services, project management/implementation/training) will not be invoiced until the Customer implements the Athena Field Trip Management Software.*

All costs and fees are valid for ninety (90) days.

The Term for this proposal shall be for a period of three (3) years.

BOONE COUNTY SCHOOLS RFP FORMS

Please refer to the following pages.

CERTIFICATION OF COMPLIANCE WITH SPECIFICATIONS FOR

Certification of Compliance with Specifications:
In compliance with the Request for Bid, and subject to all the conditions thereof, the undersigned hereby certifies to the Boone County Board of Education that all items and/or services included in the bid shall be in compliance with all requirements and technical specifications included in this request for bid, except as noted below:

EXCEPTIONS:

Because the Athena version of field trip management is still under development, we cannot guarantee that the initial system delivered to the BCS will meet all of the requirements/attributes listed in the RFP attributes text.

NAME OF COMPANY Education Logistics, Inc.

BY _____ **OFFICIAL TITLE** Sales Support Manager
(SIGNATURE)

PRINT NAME: Carter Young **DATE** February 22, 2024

CONFLICT OF INTEREST

It shall be a breach of ethical standards for any employee with procurement authority to participate directly in any proceeding or application; request for ruling or other determination; claim or controversy; or other particular matter pertaining to any contract or subcontract, and any solicitation or bid therefore, in which to his knowledge:

a. He, or any member of his immediate family, has a financial interest herein: or

b. a business or organization which he or any member of his immediate family has a financial interest as an officer, director, trustee, partner or employee, is a party; or

c. any other person, business, or organization with whom he or any member of his immediate family is negotiating or had an arrangement concerning prospective employment is a party. Direct or indirect participation shall include, but not limited to, involvement through decision, approval, disapproval, recommendation, preparation of any part of a purchase request, influencing the content of an specification or purchase standard, rendering of advice, investigation, auditing or in any other advisory capacity.

It is a violation of Kentucky Law for any board member or employee with procurement authority, or a member of their immediate family, to have a pecuniary interest either directly or indirectly in an amount exceeding $25.00 per year in any purchase of goods or services by the Board of Education or any school thereof. Violation of this provision subjects the board member or employee to forfeiture of their position and/or employment with the school system.

I, hereby, certify that no member of my immediate family is an employee with procurement authority or Board member of the Boone County Board of Education.

X _____
Signature

February 22, 2024
Date

Name Carter Young Title: Sales Support Manager

References: **KRS 156.480**
OAG 80-32
Model Procurement Code 45A.455

"PROHIBITION AGAINST CONFLICTS OF INTEREST, GRATUITIES AND KICKBACKS"

ANY EMPLOYEE OR ANY OFFICIAL OF THE BOARD OF EDUCATION OF BOONE COUNTY, KENTUCKY, ELECTIVE OR APPOINTIVE, WHO SHALL TAKE, RECEIVE, OR OFFER TO TAKE OR RECEIVE, EITHER DIRECTLY OR INDIRECTLY, ANY REBATE, PERCENTAGE OF CONTRACT, MONEY, OR OTHER THINGS OF VALUE, AS AN INDUCEMENT OR INTENDED INDUCEMENT, IN THE PROCUREMENT OF BUSINESS, OR THE GIVING OF BUSINESS, FOR OR TO, OR FROM, ANY PERSON, PARTNERSHIP, FIRM OR CORPORATION, OFFERING, BIDDING FOR, OR IN OPEN MARKET SEEKING TO MAKE SALES TO THE BOARD OF EDUCATION OF BOONE COUNTY, KENTUCKY, SHALL BE DEEMED GUILTY OF A FELONY AND UPON CONVICTION SUCH PERSON OR PERSONS SHALL BE PUNISHED BY A FINE NOT TO EXCEED FIVE THOUSAND DOLLARS ($5,000) OR BY IMPRISONMENT IN THE PENITENTIARY FOR NOT LESS THAN ONE (1) YEAR NO MORE THAN TEN (10) YEARS, OR BOTH SO FINED AND IMPRISONED IN THE DISCRETION OF THE JURY.

EVERY PERSON, FIRM, OR CORPORATION TO MAKE, OR PAY, OR GIVE, ANY REBATE, PERCENTAGE OF CONTRACT, MONEY OR ANY OTHER THING OF VALUE, AS AN INDUCEMENT OR INTENDED INDUCEMENT, IN THE PROCUREMENT OF BUSINESS, OR THE GIVING OF BUSINESS, TO ANY EMPLOYEE OR TO ANY OFFICIAL OF THE BOARD OF EDUCATION OF BOONE COUNTY, KENTUCKY, ELECTIVE OR APPOINTIVE, IN HIS EFFORTS TO BID FOR, OR OFFER FOR SALE, OR TO SEEK IN THE OPEN MARKET, SHALL BE DEEMED GUILTY OF A FELONY AND SHALL BE PUNISHED BY A FINE NOT TO EXCEED FIVE THOUSAND DOLLARS ($5,000) OR BY IMPRISONMENT IN THE PENITENTIARY FOR NOT LESS THAN ONE (1) YEAR NOR MORE THAN TEN (10) YEARS, OR BOTH SO FINED AND IMPRISONED IN THE DISCRETION OF THE JURY.

NOTE: **IT IS A MISDEMEANOR NOT TO HAVE THIS PROHIBITION ON EVERY SOLICITATION OR CONTRACT DOCUMENT. THE PENALTY IS A $5,000 FINE OR ONE (1) YEAR IMPRISONMENT OR BOTH ON CONVICTION.**

I, hereby, certify that I have read and understand the above "Prohibition against Conflicts of Interest, Gratuities and Kickbacks."

X _____
Signature

February 22, 2024
Date

Name Carter Young Title Sales Support Manager

QUALIFICATIONS

Instruction for Bidders:
Please respond to the following survey questions. Such responses shall be used by The Board of Education for contractor selection and shall be maintained throughout the resulting agreement. Please attach additional pages if necessary.

1. How many years have you been engaged in furnishing schools or similar work, under your present name; also state names and dates of previous firm names, if any.

46 years.

2. In the last five years, has the Contractor ever been terminated from a contract or project?

X (no) ____ (yes). If so, where and why? Not for breach of contract.

3. In the last five years, has the Contractor ever been a party to litigation related to the quality or timeliness of the Contractor's work?

X (no) ____ (yes). If so, where and why?

4. Provide the following information on two (2) completed projects of comparable nature in the past three (3) years:

#1:

Name of Project	Union County Public Schools
Location by city and state	Monroe, NC
Brief Description of Project	Integrated GPS/AVL/Student RidershipTablet system with Edulog route management.
Construction cost & year complete	First Year Project Value: $828,029.99; 2023
Contact name, address & number	Scott Denton Transportation Director 704-296-3015 gregory.denton@ucps.k12.nc.us

#2:

Name of Project	Durham Public Schools
Location by city and state	Durham, NC
Brief Description of Project	Integrated GPS/AVL/Student RidershipTablet system with Edulog route management.
Construction cost & year complete	First Year Project Value: $412,854.00; 2023
Contact name, address & number	Joe Harris Transportation Director (919) 560-3822 joe.harris-jr@dpsnc.net

NAME OF COMPANY Education Logistics, Inc.

X **BY** _____ **OFFICIAL TITLE** Sales Support Manager
(SIGNATURE)

Carter Young

KENTUCKY DEPARTMENT OF EDUCATION **NON-COLLUSION AFFIDAVIT**
702 KAR 4:160

The undersigned agent, being duly sworn, states that neither he/she nor his/her firm has any relationship (financial or through kinship) to:

- ☐ Any school board member or the superintendent;
- ☐ Any or all prime contractors or material suppliers when using the construction management method of construction.

The undersigned further states that he/she has not entered into any agreement or collusion with any person relative to the price bid by anyone nor has he/she attempted to induce anyone to refrain from bidding.

Explain below any kinship or financial relationship you may have to any parties as mentioned above on this project.

None

This affidavit is subject to KRS 45A.455 prohibition against conflict of interest, and gratuities and kickbacks.

Carter Young — Name

Sales Support Manager — Title

Education Logistics, Inc. — Name of Company

STATE OF MONTANA
COUNTY OF MISSOULA
Subscribed and Sworn to Me this

22nd day of February,

2024.

Notary Signature

My Commission expires:

11/05, 2024.

LOIS J JENSEN
NOTARY PUBLIC for the
State of Montana
Residing at Missoula, MT
My Commission Expires
November 05, 2024.

Notary Seal

EDULOG ORDER FORM WITH TERMS AND CONDITIONS (SAMPLE CONTRACT)

Please refer to the following for EDULOG's standard terms and conditions with software license.

During a negotiation phase, EDULOG will propose that the contract between it and the BCS incorporate those provisions of EDULOG's standard terms and conditions that do not conflict with the negotiated form of the BCS's terms and conditions. Key among those provisions are clauses protecting EDULOG's intellectual property rights.

Order Form

Order Form Number	BOONEC 2024—3
Order Form Effective Date	February 22, 2024
Customer Name	Boone County Schools, KY
Initial Term (In Years)	Three (3)

This Order Form is for the purchase of EDULOG's Products and Services as set forth below. Provision of Provision of Software, Cloud-Based Solution, and Services set forth herein is subject to the attached set forth herein is subject to the attached Terms and Conditions and each of the Addenda marked below. The Order Form and all the marked Addenda, if any, constitute the agreement between Customer and EDULOG for the purchase of products and services ("Agreement").

☒ Software Addendum
☒ Cloud-Based Solution Addendum

These prices and fees would replace all currently agreed-to Edulog prices and fees for route management software (excepting outstanding invoices, if any)	**Unit Price**	**Units**	**Total First Year Price**	**Total Annual Price, Second and Subsequent Years***
Part 1: Upgrade to Edulog Athena Route Management System				
Required Software and Hosting				
Existing Edulog Product Line - Second instance of WebQuery removed	$ 10,755.91	1	$ 10,755.91	$ 10,755.91
Required Features:				
Edulog GIS Suite (Google-Enabled)	$ 12,000.00	1	$ 12,000.00	$ 12,000.00
Required Services:				
Remote Project Management, Implementation, and Training	$ 12,000.00	1	$ 12,000.00	
Amazon Web Services Hosting *(per month)*	$ 1,250.00	12	$ 15,000.00	$ 15,000.00
Total Sum (not including options below):			***$ 49,755.91***	***$ 37,755.91***
Optional Add-On Software Features				
Optimization Suite:	$ 17,500.00	1	$ 17,500.00	$ 17,500.00
Stop Optimization (new)				
Run Optimization (enhanced)				
Route Optimization (enhanced)				
Special Needs Optimization				
Calendaring / Effective Dates	$ 5,000.00	1	$ 5,000.00	$ 5,000.00
Total Sum for Add-On Software Features:			***$ 22,500.00***	***$ 17,500.00***
Full Package Discount	*20%*		*$ (4,500.00)*	*$ (4,500.00)*
PART 1: GRAND TOTAL PRICE FOR ALL OF THE ABOVE			**$ 67,755.91**	**$ 50,755.91**

PLEASE CONTINUE ON THE NEXT PAGE

	Unit Price	Units	Total First Year Price	Total Annual Price, Second and Subsequent Years*
Part 2: Athena WebQuery				
Athena Web Query	$ -	1	$ -	$ -
Remote Project Management, Implementation, and Training	$ 1,000.00	1	$ 1,000.00	
Amazon Web Services Hosting *(per month)*	$ 200.00	12	$ 2,400.00	$ 2,400.00
Total for Part 2			***$ 3,400.00***	***$ 2,400.00***
Part 3: Athena Field Trip Management**				
Athena Field Trip	$ 10,000.00	1	$ 10,000.00	$ 10,000.00
Remote Project Management, Implementation, and Training	$ 5,000.00	1	$ 5,000.00	
Amazon Web Services Hosting *(per month)*	$ -	12	$ -	$ -
Total for Part 3			***$ 15,000.00***	***$ 10,000.00***
GRAND TOTAL FOR COMBINED PARTS 1, 2, AND 3			**$ 86,155.91**	**$ 63,155.91**

**Fees will be increased each year and the amount of such increase will be based on the percentage rate of increase for the immediately preceding 12-month period in the Consumer Price Index, All Urban Consumers, United States, All Items (1982 - 1984 = 100) ("CPI"), as published by the Bureau of Labor Statistics of the United States Department of Labor. This adjustment will take place on the anniversary date of the Agreement each year. The base for the adjustment will be the CPI figure last published by the U.S. Department of Labor prior to the adjustment date. For each succeeding year, the same procedure will be applied.*

***Fees for the Athena Field Trip Management System (software license, hosting services, project management/implementation/training) will not be invoiced until the Customer implements the Athena Field Trip Management Software.*

All costs and fees are valid for ninety (90) days.

The Term for this proposal shall be for a period of three (3) years.

Fees will be increased each year and the amount of such increase will be based on the percentage rate of increase for the immediately preceding 12-month period in the Consumer Price Index, All Urban Consumers, United States, All Items (1982 - 1984 = 100) ("CPI"), as published by the Bureau of Labor Statistics of the United States Department of Labor. This adjustment will take place on the anniversary date of the Agreement each year. The base for the adjustment will be the CPI figure last published by the U.S. Department of Labor prior to the adjustment date. For each succeeding year, the same procedure will be applied.

All fees for the Athena Field Trip Management System (software license, hosting services, project management/implementation/training) will not be invoiced until the Customer implements the Athena Field Trip Management Software.

Education Logistics, Inc.
3000 Palmer Street
Missoula, MT 59808

Boone County Schools
8330 US Highway 42
Florence, KY 41042

Date: _____ Date: _____

By: _____ By: _____

Name: _____ Name: _____

Title: _____ Title: _____

1. DEFINITIONS

"**Cloud-Based Solution**" means the software-as-a-service offering provided by EDULOG to Customer as described in the Order Form.

"**Customer Data**" means all data or information submitted by Customer to EDULOG under this Agreement.

"**Documentation**" means EDULOG's user manuals, handbooks, installation guides, or any other documentation relating to the Software and Hardware provided by EDULOG to Customer under this Agreement.

"**Hardware**" means the tablet(s), GPS device(s), or other hardware provided by EDULOG to Customer as described in the Order Form.

"**Implementation Activities**" means certain initial system setup and configuration activities, and unless otherwise specified in the relevant Order Form, do not include hardware install services or onsite work. Implementation Activities for routing products include a one-time build of Customer's system data in the routing software (to be completed within the initial build cycle time frame) from information to be provided by the Customer in an acceptable electronic format (does not include handwritten notes or scanned paper). Implementation Activities do not include network configuration, port forwarding, SQL licensing, hardware acquisition, run building (*e.g.*, entering bus run or bus route information) or any run/route revision, design or optimization services of any kind. These optional services are available for an additional fee.

"**IP Rights**" means copyrights, patents, trademarks, service marks, trade secrets, know-how, trade dress, trade names, logos, corporate names, domain names, and all other intellectual property rights.

"**Products**" means the Software, Cloud-Based Solution, and Hardware.

"**Services**" means the consulting or other professional services provided by EDULOG to Customer as described in the Order Form, as well as any ad hoc services provided to Customer by EDULOG such as through any support contacts (including but not limited to performing operations in the Software) or training (scheduled or unscheduled, formal or informal).

"**Software**" means the software provided by EDULOG to Customer under this Agreement, including software hosted on Customer's server, software hosted on a server controlled by EDULOG ("**Cloud-Based Software**"), and software pre-installed on the Hardware, as described in the Order Form.

"**Technical Support**" means technical break/fix support provided by EDULOG to Customer for EDULOG Products and can include longer term cases or incident-based support.

"**Users**" means users authorized by Customer to use the Products and/or Services.

2. ADDENDA

Additional terms and conditions concerning the Products and Services are set forth in the applicable addenda indicated on the cover page of the Agreement (each, an "**Addendum**" and collectively, the "**Addenda**"). Following the Effective Date, the parties may incorporate new Addenda for additional Products and/or Services by expressly referencing such Addenda in the applicable Order Form.

3. ORDER FORMS

Customer may order Products and/or Services from EDULOG pursuant to order forms executed by the parties referencing and incorporating this Agreement ("**Order Form(s)**"). EDULOG will provide all Products and Services specified in one or more Order Forms to Customer in accordance with the terms and conditions of this Agreement.

4. FEES AND PAYMENT

a. License and/or User Fees. Customer shall pay all fees specified in the Order Form. Fees are quoted and payable in U.S. dollars and, unless specified otherwise in an Order Form, are based on Products and Services purchased and not actual usage. Customer's payment obligations are non-cancelable, and fees paid are non-refundable.

b. Invoicing and Payment. Unless otherwise specified, EDULOG will invoice Customer for all amounts due in the first year, including license fees, upon signature of the associated Order Form. Invoiced charges are due net thirty (30) days from the invoice date. Customer is responsible for maintaining complete and accurate billing and contact information with EDULOG. EDULOG will order hardware only upon receipt of payment from Customer for hardware. License fees are deemed earned and non-refundable irrespective of software usage.

c. Overdue Charges. If any charges are not received from Customer by the due date, then at EDULOG's discretion: (i) such charges may accrue late interest at the rate of 1.5% of the outstanding balance per month, or, if lower, the maximum rate permitted by law, from the date such payment was due until the date paid; and/or (ii) EDULOG may condition future renewals on payment terms shorter than those specified in Section 4b (Invoicing and Payment).

d. Suspension of License/Access and Acceleration. If any amount owing by Customer under this or any other agreement for EDULOG's Products or Services is thirty

(30) or more days overdue, EDULOG may, without limiting its other rights and remedies, accelerate Customer's unpaid fee obligations so that all such obligations become immediately due and payable, and suspend Customer's license to Software and/or access to Cloud-Based Solution, Hardware, or Services until such amounts are paid in full.

e. Taxes. Unless otherwise stated, fees do not include any taxes, levies, duties (including customs duties) or similar governmental assessments of any nature, including, but not limited to, value-added, sales, use or withholding taxes, assessable by any local, state, provincial, federal or foreign jurisdiction (collectively, "**Taxes"**). Customer is responsible for paying all Taxes associated with fees paid hereunder. If EDULOG has the legal obligation to pay or collect Taxes for which Customer is responsible hereunder, the appropriate amount shall be invoiced to and paid by Customer, unless it provides EDULOG with a valid tax exemption certificate authorized by the appropriate taxing authority. For clarity, EDULOG is solely responsible for Taxes assessable against it based on its income, property and employees.

f. Annual Fee Increases. Fees will be increased each year and the amount of such increase will be based on the percentage rate of increase for the immediately preceding 12-month period in the Consumer Price Index, All Urban Consumers, United States, All Items (1982 - 1984 = 100) ((("CPI"), as published by the Bureau of Labor Statistics of the United States Department of Labor. This adjustment will take place on the anniversary date of the Agreement each year. The base for the adjustment will be the CPI figure last published by the U.S. Department of Labor prior to the adjustment date. For each succeeding year, the same procedure will be applied.

g. Expenses. Unless otherwise specified in an Order Form, all travel, accommodation and out-of-pocket expenses incurred by EDULOG in connection with the provision of Products and/or Services (including installation, implementation, training, maintenance) shall be paid by Customer. Expenses for meals will be charged at a rate not to exceed Federal Travel Regulations (FTA) Sec. 301. If Customer's staff travels to Montana for training, all travel and lodging expenses will be the responsibility of the Customer.

5. CONFIDENTIALITY

a. Definition. "**Confidential Information**" means all confidential information disclosed by a party ("**Disclosing Party**") to the other party ("**Receiving Party**"), whether orally or in writing, that is designated as confidential or that reasonably should be understood to be confidential given the nature of the information and the circumstances of disclosure. EDULOG's Confidential Information shall include, without limitation, the Software and the Cloud-Based Solution; and Confidential Information of each party shall include the terms and conditions of this Agreement, as well as business and marketing plans, technology and technical information, product plans and designs, and business processes disclosed by the Disclosing Party. Confidential Information does not include any information that (i) without breach of any obligation owed to the Disclosing Party (a) is or becomes generally known to the public; (b) was known to the Receiving Party prior to its disclosure by the Disclosing Party; (c) is received from a third party by the Receiving Party; or (ii) was independently developed by the Receiving Party without use of the Disclosing Party's Confidential Information.

b. Protection of Confidential Information. Except as otherwise permitted in writing by the Disclosing Party, (i) the Receiving Party shall use the same degree of care not to disclose or use any Confidential Information of the Disclosing Party for any purpose outside the scope of this Agreement that it uses to protect the confidentiality of its own confidential information of like kind (but in no event less than reasonable care); and (ii) the Receiving Party shall limit access to Confidential Information of the Disclosing Party to those of its employees, contractors, and agents who need such access for purposes consistent with this Agreement and who have signed confidentiality agreements with the Receiving Party containing protections no less stringent than those herein.

c. Compelled Disclosure. The Receiving Party may disclose Confidential Information of the Disclosing Party if it is compelled by law to do so, provided the Receiving Party gives the Disclosing Party reasonably prompt prior notice of such compelled disclosure (to the extent legally permitted) and reasonable assistance, at the Disclosing Party's cost, if the Disclosing Party wishes to contest the disclosure. If the Receiving Party is compelled by law to disclose the Disclosing Party's Confidential Information as part of a civil proceeding to which the Disclosing Party is a party, and the Disclosing Party is not contesting the disclosure, the Disclosing Party will reimburse the Receiving Party for its reasonable cost of compiling and providing secure access to such Confidential Information.

d. Suggestions. If Customer provides ideas or feedback to EDULOG about any Products and/or Services, then regardless of what Customer's submission states, the following terms shall apply: Customer agrees that (i) Customer's ideas will automatically become the property of EDULOG, without compensation to Customer, and Customer hereby assigns and agrees to assign all its right,

title and interest in and to such to EDULOG; and (ii) EDULOG can use the ideas for any purpose and in any way without future liability to Customer.

6. LIMITED WARRANTIES AND DISCLAIMERS

a. Limited Warranties. EDULOG warrants that (i) the Software and Cloud-Based Solution will perform materially in accordance with the Documentation, and the functionality of the Software and Cloud-Based Solution will not be materially decreased during the Term, except that EDULOG shall not be responsible for performance issues relating to slow data speeds and/or poor data connectivity; and (ii) EDULOG will perform the Services in a professional and workmanlike manner in accordance with industry standards. For any breach of either such limited warranty, Customer's exclusive remedy shall be as provided in Section 9b (Termination) below.

b. Mutual Warranties. Each party represents and warrants that (i) it is duly organized and in good standing as a corporation or other entity as represented herein; and (ii) it has the legal power to enter into this Agreement.

c. Disclaimer. EXCEPT AS EXPRESSLY PROVIDED HEREIN, EDULOG MAKES NO WARRANTIES OF ANY KIND, WHETHER EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, AND EDULOG SPECIFICALLY DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, NONINFRINGEMENT, OR FITNESS FOR A PARTICULAR PURPOSE, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW.

d. Third-Party Products and Services. Other than as specifically provided in a Scope of Work or Order Form, EDULOG does not warrant or support third-party products or services. EDULOG is not responsible for the performance of any hardware, software or other materials provided by third parties. Product warranties for third-party products, if any, are provided by the respective manufacturers and not by EDULOG.

e. Server and other Equipment Specifications. Customer may receive, from time to time, advisory guidance regarding server and other Customer-owned/provided equipment. Operating conditions vary a great deal from site to site and Edulog does not warrant hardware performance. In particular, server guidance provided to self-hosted clients is advisory only.

f. EDULOG Services and Technical Support. Unless otherwise specified in writing in connection with a specific Order Form, EDULOG does not warrant that any Services or Technical Support will provide Customer with road-ready operational transportation data. Customer retains full responsibility for validating any data outputs for safety, accuracy, and suitability for use in Customer's transportation operations.

7. INDEMNIFICATION.

a. Customer Indemnity. Customer shall indemnify, defend, and hold EDULOG, its directors, officers, employees, and agents harmless from and against any and all losses, damages, liabilities, and costs (including reasonable attorneys' fees) ("**Losses**") resulting from any third-party claim ("**Claim**") based on Customer's use of the Products or Services, its breach of this Agreement, claims that Customer Data or Customer's other materials infringe or misappropriate the IP Rights of a third party, or its violation of applicable law.

b. EDULOG Indemnity. EDULOG shall indemnify, defend, and hold Customer harmless from and against any and all Losses incurred by Customer resulting from any Claim alleging that the Software or Cloud-Based Solution infringes or misappropriates such third party's U.S. patents, copyrights, or trade secrets, provided that Customer promptly notifies EDULOG in writing of the claim, cooperates with EDULOG, and allows EDULOG sole authority to control the defense and settlement of such claim.

If such a Claim is made or appears possible, EDULOG may, at its sole discretion, (i) modify or replace the Software or Cloud-Based Solution, or component or part thereof, to make it non-infringing, or (ii) obtain the right for Customer to continue use. If EDULOG determines that none of these alternatives is reasonably available, EDULOG may terminate this Agreement, in its entirety or with respect to the affected part, effective immediately on written notice to Customer.

EDULOG will have no obligations under this Section 7b to the extent that any Claim is based upon (i) Customer's, Users', Customer's agents' or any third party's modification of or addition to the Products, or combination of the Products with another product; (ii) Customer's failure to obtain any required third-party consents or licenses; or (iii) EDULOG's compliance with design documentation or specifications provided or developed by Customer.

8. LIMITATION OF LIABILITY

IN NO EVENT WILL EDULOG HAVE ANY LIABILITY FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY, OR PUNITIVE DAMAGES HOWEVER CAUSED, WHETHER IN CONTRACT, TORT OR UNDER ANY OTHER THEORY OF LIABILITY, AND WHETHER OR NOT EDULOG HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL EDULOG'S AGGREGATE LIABILITY

ARISING OUT OF OR RELATED TO THIS AGREEMENT, WHETHER IN CONTRACT, TORT OR UNDER ANY OTHER THEORY OF LIABILITY, EXCEED THE TOTAL AMOUNT PAID BY CUSTOMER HEREUNDER IN THE TWELVE (12) MONTHS PRECEDING THE INCIDENT GIVING RISE TO THE CLAIM.

9. TERM AND TERMINATION

a. Term of Agreement. The initial term of this Agreement commences on the Effective Date and, unless terminated earlier pursuant to the applicable terms of this Agreement, will continue in effect until the end of the initial term specified in the applicable Order Form (the "**Initial Term**"). It will automatically renew for additional successive one (1) year terms unless earlier terminated pursuant to the applicable terms of this Agreement or either party gives the other party written notice of non-renewal at least sixty (60) days prior to the expiration of the then-current term (each a "**Renewal Term**," and together with the Initial Term, the "**Term**"). If there is any outstanding Order Form(s) at the time of the expiration of the Term, the terms of this Agreement (including applicable Addenda) will survive and apply to such Order Form(s) until their expiration or termination.

b. Termination. Either party may terminate this Agreement and/or an Order Form for cause (i) upon 30-days' written notice to the other party of a material breach if such breach remains uncured at the expiration of such period; or (ii) if the other party becomes the subject of a petition in bankruptcy or any other proceeding relating to insolvency, receivership, liquidation or assignment for the benefit of creditors.

c. Effect of Expiration or Termination. Upon expiration or earlier termination of this Agreement, the license to the Software, access to the Cloud-Based Solution, and any EDULOG warranty granted or provided under this Agreement will also terminate, and without limiting Customer's obligations under Section 5 (Confidentiality), Customer shall (i) cease accessing or using, and delete, destroy, or return all copies of EDULOG'S Confidential Information, Software and Documentation; and (ii) certify in writing to EDULOG its compliance with (i) and (ii). No expiration or termination will affect Customer's obligation to pay all fees that may have become due before such expiration or termination, or entitle Customer to any refund.

d. Surviving Provisions. In no event shall any termination relieve Customer of the obligation to pay any fees payable to EDULOG for the period prior to the effective date of termination. Customer's continuing obligation to pay fees in the event of a termination may be specifically modified in a Scope of Work and/or Order Form. Sections 4 (Fees and Payment), 5 (Confidentiality), 6c (Disclaimer), 6d (Third-Party Products and Services), 7 (Indemnification), 8 (Limitation of Liability), 9d (Surviving Provisions), 10 (Miscellaneous), and any other provisions identified in an Addendum shall survive any termination or expiration of this Agreement.

10. MISCELLANEOUS

a. Governing Law. The parties agree that the substantive laws of the state of Montana, exclusive of its choice of law provisions, will apply to the construction and interpretation of this Agreement and also with respect to any lawsuit or dispute arising out of or in connection with this Agreement. Customer further agrees that the state or federal courts located in Missoula County, Montana, USA, shall have exclusive jurisdiction of, and shall be the exclusive and correct venue for, the resolution of any dispute arising out of or related to this Agreement.

b. Notices. Except as otherwise specified in this Agreement, all notices, permissions and approvals hereunder shall be in writing to the party's address set forth below the signatures on the Cover Page and shall be deemed to have been given upon (i) receipt if by personal delivery; (ii) upon receipt if sent by certified or registered U.S. Mail (return receipt requested); or (iii) the second business day after sending by a major commercial delivery service.

c. Force Majeure. In no event shall EDULOG be liable to Customer, or be deemed to have breached this Agreement, for any failure or delay in performing its obligations under this Agreement, if and to the extent such failure or delay is caused by any circumstances beyond EDULOG's reasonable control, including but not limited to acts of God, flood, fire, earthquake, explosion, war, terrorism, invasion, riot or other civil unrest, strikes, labor stoppages or slowdowns or other industrial disturbances, or passage of law or any action taken by a governmental or public authority, including imposing an embargo.

d. Relationship of the Parties. The parties are independent contractors. This Agreement does not create a partnership, franchise, joint venture, agency, fiduciary or employment relationship between the parties. There are no third-party beneficiaries to this Agreement.

e. Waiver and Cumulative Remedies. No failure or delay by either party in exercising any right under this Agreement shall constitute a waiver of that right. Any waivers are effective only if recorded in a writing signed by the party granting the waiver. Other than as expressly stated herein, the remedies provided herein are in addition to, and not exclusive of, any other remedies of a party at

law or in equity.

f. Severability. If any provision of this Agreement is held by a court of competent jurisdiction to be contrary to law, the provision shall be modified by the court and interpreted so as best to accomplish the objectives of the original provision to the fullest extent permitted by law, and the remaining provisions of this Agreement shall remain in effect.

g. Attorneys' Fees. Customer shall pay on demand all of EDULOG's reasonable attorneys' fees and other costs incurred by EDULOG to collect any fees or charges due under this Agreement following Customer's breach of Section 4b (Invoicing and Payment). Moreover, in any action arising out of or related to this Agreement, the prevailing party shall be entitled to an award of its reasonable attorneys' fees and costs of suit.

h. Assignment. Customer may not assign any of its rights or obligations hereunder, whether by operation of law or otherwise, without EDULOG's prior written consent. EDULOG may, without Customer's prior written consent, assign its right to payment. Subject to the foregoing, this Agreement shall bind and inure to the benefit of the parties, their respective successors and permitted assigns.

i. Entire Agreement. This Agreement constitutes the entire agreement between the parties and supersedes all prior and contemporaneous agreements, proposals, or representations, written or oral, concerning its subject matter. No modification or amendment of any provision of this Agreement shall be effective unless in writing and either signed or accepted electronically by the party against whom the modification or amendment is to be asserted.

j. Order of Precedence. If there is a conflict or inconsistency between or among the General Terms, an Addendum, or an Order Form, then the order of precedence is as follows: (i) the General Terms; (ii) the Addendum, and (iii) the Order Form, unless the lower priority document explicitly states that it is intended to modify the conflicting terms of the higher priority document. In the event of a conflict or inconsistency between Order Forms, the terms of the later executed Order Form will govern.

Software Addendum

This Software Addendum to the Parties' Master Products and Services Agreement ("**Software Addendum**") is incorporated into and made a part of the Agreement and provides additional terms for Software provided by EDULOG to Customer under the Agreement. Capitalized terms used but not defined in this Software Addendum shall have the respective meanings given to them in the Agreement.

1. License Grant. Subject to the terms and conditions of this Agreement, and conditioned on Customer's and Users' compliance with the Agreement and this Software Addendum, EDULOG grants Customer a limited, non-exclusive, non-sublicensable, non-transferable, and revocable license to use the Software during the Term solely for Customer's internal student transportation management purposes and solely in the State where Customer resides.

2. Use Restrictions. Customer shall not use the Software or Documentation for any purposes beyond the scope of the license granted in the Agreement and this Software Addendum. Without limiting the foregoing and except as otherwise expressly set forth in the Agreement and this Software Addendum, Customer shall not at any time, directly or indirectly (i) copy, modify, or create derivative works of the Software or the Documentation, in whole or in part; (ii) rent, lease, lend, sell, sublicense, assign, distribute, publish, transfer, or otherwise make available the Software or the Documentation; (iii) reverse engineer, disassemble, decompile, decode, adapt, or otherwise attempt to derive or gain access to the source code of the Software, in whole or in part; (iv) remove any proprietary notices from the Software or the Documentation; or (v) use the Software in any manner or for any purpose that infringes, misappropriates, or otherwise violates any IP Rights or other right of any person, or that violates any applicable law.

3. Delivery, Installation and Support. EDULOG will deliver the Software to Customer electronically or by other means in EDULOG's sole discretion. If so selected and specified in the Order Form, EDULOG will also provide installation and support services to Customer pursuant to the terms and conditions described in the Order Form. In the event that Customer elects to use EDULOG Software with global positioning system hardware provided by Customer, Customer acknowledges and agrees that (i) EDULOG's ability to integrate the Software with Customer's global positioning system hardware depends on EDULOG's ability to access and use the applicable application program interface (API) and/or data feed in an industry-standard format from Customer's global positioning system hardware provider (the "**Integration Information**"); (ii) Customer will be solely responsible for obtaining such Integration Information as well as any authorization, license, or permission needed for EDULOG's use of such Integration Information from its global positioning system hardware provider for EDULOG; and (iii) in no event shall EDULOG be responsible or liable for any delay or failure in the installation and/or integration of the Software with Customer's global positioning system hardware if such delay or failure is caused by Customer's inability to provide the Integration Information to EDULOG as per the requirements herein. EDULOG support services provided to Customers under a software license are break/fix services relating to whether the software is working. Additional services (for example, additions to maps, assistance with data imports, custom reports) are available for a fee.

4. Reservation of Rights. Subject to the limited rights expressly granted hereunder, EDULOG reserves all rights, title and interest in and to the Software and Documentation, including all related IP Rights. No

rights, including any rights under license, either express or implied, are granted to Customer hereunder other than as expressly specified herein.

5. Survival. Sections 4 and 5 of this Software Addendum will survive termination or expiration of the Agreement.

Cloud-Based Solution Addendum

This Cloud-Based Solution Addendum to the Master Products and Services Agreement ("**Cloud-Based Solution Addendum**") is incorporated into and made a part of the Agreement and provides additional terms for the Cloud-Based Solution provided by EDULOG to Customer under the Agreement. Capitalized terms used but not defined in this Cloud-Based Solution Addendum shall have the respective meanings given to them in the Agreement.

1. Additional Definition.

"**Malicious Code**" means viruses, worms, time bombs, Trojan horses and other harmful or malicious code, files, scripts, agents or programs.

2. Provision of Cloud-Based Solution. EDULOG will make the Cloud-Based Solution available to Customer, and Customer may use the Cloud-Based Solution, pursuant to the Agreement and this Cloud-Based Solution Addendum. Customer agrees that Customer's purchases hereunder are neither contingent on the delivery of any future functionality or features not described in this Cloud-Based Solution Addendum and the Order Form, nor dependent on any oral or written public comments made by EDULOG regarding future functionality or features.

3. Access to Cloud-Based Solution. The Cloud-Based Solution consists in whole or in part of Cloud-Based Software running remotely on servers controlled by EDULOG. Customer has no right to receive either an object code or source code version of the Cloud-Based Software operating on the remote servers. Customer's usage rights are constrained by this Cloud-Based Solution Addendum and are limited to accessing the Cloud-Based Software via the Cloud-Based Solution provided to Customer by EDULOG. The Cloud-Based Solution may be subject to other limitations, such as, for example, limits on disk storage space, calls per second, or Internet bandwidth. EDULOG will employ commercially reasonable efforts to apprise Customer of any such limitations.

4. Customer's Responsibilities. Customer will (i) be responsible for Users' compliance with this Agreement; (ii) be solely responsible for the accuracy, quality, integrity and legality of the Customer Data and of the means by which Customer acquired the Customer Data; (iii) prevent unauthorized access to or use of the Cloud-Based Software and Cloud-Based Solution and notify EDULOG promptly of any such unauthorized access or use; (iv) use the Cloud-Based Software and Cloud-Based Solution only in accordance with the Agreement, this Cloud-Based Solution Addendum, and applicable laws and government regulations; and (v) include a privacy policy on Customer's website that covers Customer's and EDULOG's collection, use, disclosure, and retention of the Customer Data and fully complies with all applicable laws, rules, and regulations.

5. Restrictions.

(a) Customer shall not (i) permit any third party to access the Cloud-Based Software or the Cloud-Based Solution except as permitted herein or as otherwise agreed by EDULOG in writing; (ii) sell, resell, rent, lease the Cloud-Based Software or the Cloud-Based Solution; (iii) copy, frame, mirror, reproduce, publicly perform, or create derivative works based on, any part or content of the Cloud-Based Software or Cloud-Based Solution; (iv) use the Cloud-Based Software or Cloud-Based Solution to store or transmit infringing, fraudulent, libelous, obscene or otherwise unlawful or tortious material, or to store or transmit material in violation of third-party privacy or IP Rights; (v) use the Cloud-Based Software or Cloud-Based Solution to store or transmit Malicious Code; (vi) interfere with or disrupt the integrity or performance of the Cloud-Based Software or Cloud-Based Solution or third-party data contained therein; (vii) reverse engineer the Cloud-Based Software or Cloud-Based Solution; or (viii) access or use the Cloud-Based Software or Cloud-Based Solution in order to: (a) build a competitive product or service; or (b) copy any features, functions or graphics of the Cloud-Based Software or Cloud-Based Solution.

(b) Unless otherwise specified in the Order Form, Edulog-hosted software clients are allotted six datasets with web services per routing server; six accompanying sets of web services per routing server; one dataset per Edutracker server. Snapshots, optimization work, additional web services, and hardware status may impact performance or usability. Clients needing more datasets should contact their Account Manager to review their options, which may include archiving some current datasets or purchasing more server capacity. Additional fees may apply.

6. Suspension. EDULOG may suspend Customer's and Users' access to any portion of or all of the Cloud-Based Solution if (i) Customer violates any of the requirements set forth in Section 4 (Customer's Responsibilities) or Section 5 (Restrictions) above; (ii) any third-party provider of EDULOG has suspended or terminated EDULOG's access to or use of any third-party services or products required to enable Customer to access the Cloud-Based Solution; or (iii) EDULOG reasonably determines that (a) there is a threat or attack to the Cloud-Based Solution; (b) Customer's or any Users' use of the Cloud-Based Solution disrupts or poses a security risk to EDULOG or to any other customer or vendor of EDULOG; or (c) Customer has ceased to continue its operation in the ordinary course or commenced bankruptcy or insolvency proceedings. EDULOG will use commercially reasonable efforts to provide written notice of any suspension to Customer and resume providing access to the Cloud-Based Solution as soon as reasonably possible after the event giving rise to the suspension is cured. EDULOG will have no liability for any damage, liabilities, losses (including any loss of data or profits), or any other consequences that Customer or any User may incur as a result of a suspension.

7. Third-Party Products or Services and Customer Data. By using the Cloud-Based Solution, Customer acknowledges that EDULOG may allow providers of third-party products to transport the Customer Data as required for the operation of the Cloud-Based Solution. EDULOG will not be responsible for any disclosure, modification or deletion of the Customer Data resulting from any such access by third-party product providers.

8. Acquisition of Third-Party Products and Services. EDULOG may offer third-party products and services as part of the Cloud-Based Solution (e.g., a cloud service provider). Any other acquisition by Customer of third party products or services, including, but not limited to, third-party applications and implementation,

customization and other consulting services, and any exchange of data between Customer and any third-party provider, is solely between Customer and the applicable third-party provider. Please see warranty disclaimer in Section 6.4 (Third-Party Products and Services) of the Agreement.

9. Reservation of Rights. Subject to the limited rights expressly granted hereunder, EDULOG reserves all rights, title and interest in and to the Cloud-Based Software and the Cloud-Based Solution, including all related IP Rights. No rights, including any rights under license, either express or implied, are granted to Customer hereunder other than as expressly specified herein.

10. Usage and Ownership of Data. EDULOG is a "school official" within the meaning of the Family Educational Rights and Privacy Act ("FERPA") and in its capacity as such, is authorized to collect and use personally identifiable information ("PII") for the purposes of performing its obligations under this Agreement. EDULOG will not sell or otherwise use or redisclose education records for behavioral or targeted advertising or marketing to parents or students. In order to continuously improve the products and services EDULOG offers to CUSTOMER, EDULOG may use anonymized or de-identified non-PII data, and any reports or other data generated by EDULOG products and services regarding traffic flow, feature use and functionality, system loads, product installation, and/or similar information.

With the exception of any personally identifiable information governed by FERPA, Customer and EDULOG jointly own all rights, title and interest in and to Customer Data. The parties may use the Customer Data in any way, however, the parties may not disclose the Customer Data in a manner that identifies, or allows identification of, the other party. Other data that is not Customer Data generated by Customer's use of the Cloud-Based Software and Cloud-Based Solution shall be owned by EDULOG.

11. Survival. Sections 9, 10, and 11 of this Cloud-Based Solution Addendum will survive termination or expiration of the Agreement.