



Bismarck Public Schools

**Proposal to Provide Route Efficiency Review and
Analysis of Alternative Service Models**

July 2023



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July 28, 2023

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Mr. Scherr:

Pursuant to our recent conversations and Bismarck Public Schools' (BPS) Request for Proposals, TransPar Group, Inc., is pleased to submit this proposal to perform a route efficiency study and an analysis of alternative service models as they relate to the BPS' student transportation system.

As the largest consulting and management company in North America dedicated to pupil transportation, TransPar is uniquely qualified to complete this work. Our team has performed more than 450 consulting and management projects of various sizes and types for districts, schools, and state agencies in 41 states, from Rhode Island to Hawai'i, and in 4 Canadian provinces, for over 27 years. Our mission aligns directly with our clients' and the challenges that they face, in that we exist to **ensure equitable access to education through Responsible Student Transportation.**

Our work has always focused on supporting instructional leaders in identifying quality improvements to their transportation systems while seeking to lower transportation costs. Furthermore, we understand the increased complexities that districts face in working to provide safe and high-quality transportation services following the COVID-19 pandemic, as well as the current state of the economy and labor market. These challenging realities have created an even greater need for districts to establish the safest, most reliable and most cost-effective educational systems possible, of which student transportation is an undeniable and integral part.

Thank you for your consideration of our proposal. If you have any questions or need for further information on any aspect of the proposal, I can be reached at (512) 284-2916 or via e-mail at mbrassfield@transpar.com.

Sincerely,

A handwritten signature in dark ink, appearing to read "M. Brassfield", is enclosed within a thin black rectangular border.

Director of Advisory Services

TransPar Group, Inc.

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Consultant Qualifications

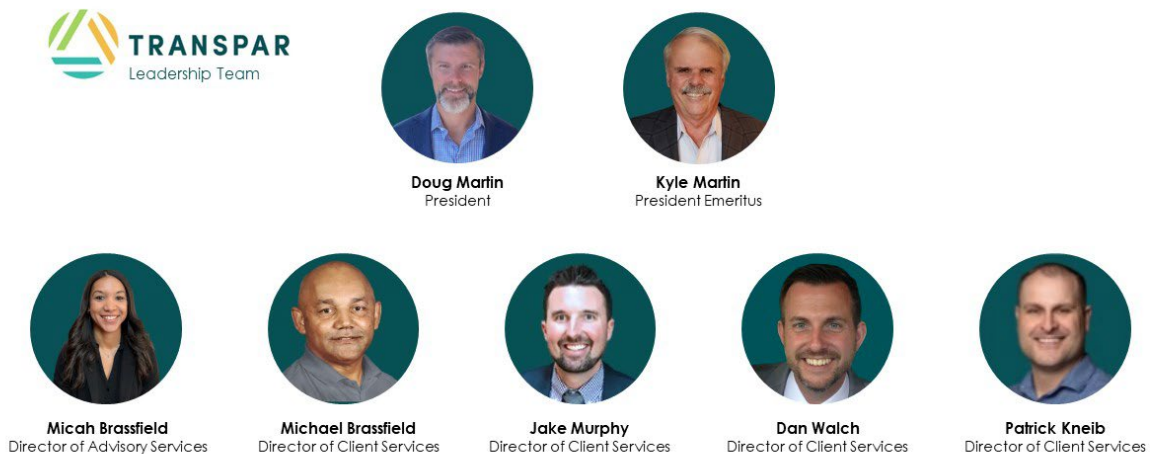
Company Background and Organizational Chart

As the largest company dedicated to providing consulting and management services for student transportation, TransPar not only has the expertise to advise districts in how best to structure and execute transportation operations, but directly leads and manages school transportation operations by acting as the director and operations staff within transportation departments across the nation. TransPar specifically oversees the following aspects of these operations, including but not limited to, federal, state, and local regulatory compliance, strategic planning, budgeting, routing, recruiting, safety and training, incident management and fleet management.

TransPar provides two primary differentiating factors:

1. We have established a long history of successful service to more school districts than any other organization; and
2. No other entity can provide the exact combination of industry-specific knowledge, management experience, and analytical/consultative skills that is being proposed by the TransPar team.

An organizational chart of TransPar's leadership team is provided below.



Project Team Experience

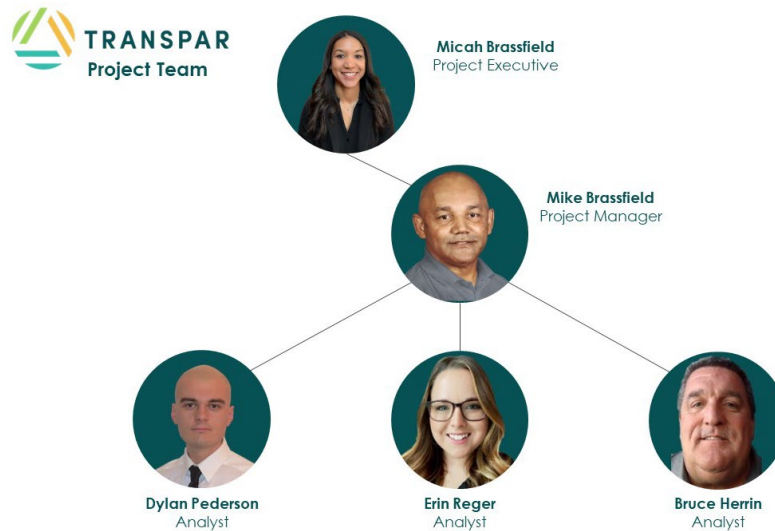
The individuals within TransPar have unmatched experience and expertise in the management of student transportation services, with a long history of analytical capability, specifically in the realm of school transportation operations.

Every TransPar employee is committed to providing the safest, most reliable, and cost-effective services possible for our clients. However, our staff also understands that transportation is but one component in a district's ability to deliver high quality educational services to its students. Consequently, we believe that it is critical for our staff to be able to provide options in addition to answers to transportation concerns. We focus intense effort on appreciating all the activities of the district (i.e., enrollment trends, fiscal constraints, changes in educational strategy) so that our virtual, on-site, and corporate support teams can produce the ongoing analyses and



recommendations required to support the strategic objectives of the district as it expands going forward. Anticipating the needs of the district rather than reacting to them is a crucial element in the TransPar philosophy of service delivery.

The proposed project team for this engagement is included in the graphic below, with further experience detailed in the biographies on the pages to follow.



Micah Brassfield is a former Senior Contract Administrator and Coordinator of Planning and Student Transportation who worked directly for school districts and as a school district consultant for over 15 years before joining TransPar. She oversaw combined operations of more than 450 buses, which collectively served over 75,000 students daily on regular and special education routes, as well as McKinney-Vento, special programs, and extracurricular trips. In her previous roles, she oversaw contracted student transportation services provided by both First Student and National Express (Durham School Services). Micah earned her Bachelor of Arts degree in Interdisciplinary Studies and English Language Arts from the University of Texas at Dallas in Richardson, Texas, and her Master of Business Administration from Texas State University in San Marcos, Texas.

Mike Brassfield is a Director with TransPar Group serving as a subject matter expert for this engagement with a career spanning more than three decades in student transportation. Mike began his transportation career as a bus driver, dispatcher, and payroll specialist in 1983, where he quickly earned subsequent leadership roles as an Operation Supervisor, General Manager, Assistant Director of Transportation, and finally in a variety of roles as a Director of Transportation beginning in 2004 and culminating in his most recent role as an Executive Director of Transportation for Pflugerville Independent School District. Over the course of his career, Mike also gained consulting experience with over a dozen school district transportation operations prior to joining the TransPar team and brings with him this broad perspective of a variety of operations. Mike's expansive and dedicated career as a transportation professional affords him the knowledge and expertise to advise our school district partners in operational efficiency, strategic planning, safety, staffing, and a myriad of other challenges transportation operations are facing across the country.

Dylan Pederson is an Analyst with TransPar, where his primary responsibilities include providing support and analysis to TransPar's management clients, providing alternative scenarios for clients based on their unique needs and circumstances, and utilizing a variety of geospatial programs and tools and analyze client routing data to produce recommendations for organizational and/or



routing changes. Dylan's holds a Bachelor of Arts in Global and International Studies as well as a GIS Professional Certificate, and he is well-versed in ArcGIS Pro.

Erin Reger is an Analyst on the TransPar team specializing in content development in service to the company's Business Development arm. Erin's primary responsibilities include developing client deliverables and interfacing with both management and consulting clients to meet a variety of needs and provide optimum customer service. Prior to working for TransPar, Erin worked for Durham School Services as a Safety and Training Supervisor, focusing on driver training and recruitment, and promoting safe driving practices. Before working for Durham School Services, Erin spent five years in public education, working in an educational capacity and gaining valuable perspective of school districts' needs. Erin holds a Bachelor of Fine Arts degree from Millikin University.

Bruce Herrin is an Analyst specializing in routing efficiency and operational analyses. Bruce responds to client needs by providing support and analysis to our management locations regarding routing support, bell time studies, boundary analyses, and fleet analyses. Prior to accepting his role with TransPar, Bruce was the Routing Supervisor for Pflugerville ISD. He has also worked as a Lead Coordinator and Field Trip Coordinator for Durham School Services, following his own hands-on experience as a bus driver. Bruce is well versed in VersaTrans, Routefinder Pro, and Routefinder PLUS and familiar with a variety of routing software outside of those systems. Bruce holds a Bachelor of Science degree in Geography from Brigham Young University.

Required Service Capabilities

Project Approach and Preliminary Schedule

In collaboration with District and Transportation Leadership, TransPar will engage in a series of phases and tasks, which starts with developing a baseline understanding of the current operation and operational needs and culminates into a final set of recommendations to optimize the efficiency, efficacy, and safety of the BPS transportation system.

Phase 1: Assessment of Current Operations and Routing Review

The tasks contained in this phase are designed to provide an opportunity for BPS and TransPar to begin the working relationship with a comprehensive review of the transportation system. Once the project is kicked off, an introductory virtual conference call will occur with the advisory team, at which point TransPar will request a significant amount of information in order to perform the analyses. This information will come both in the form of operational data from software and systems, as well as information from interviews with key stakeholders and staff.

TransPar will then develop a comprehensive review of the transportation system and its financial performance, service performance, and its routing technology use. This review will provide the necessary foundation from which to begin a thorough analysis of the current routing structure. We have organized the activities for this phase into the following five tasks.

Task 1.1 – Policy Analysis

Once the baseline has been established, we will work with BPS staff to define critical policy related inputs to the routing scheme. These will fall into the following basic categories:



1. Transportation eligibility (programs, student location, etc.)
2. Walk distances to/from, and locations of, bus stops
3. Bus loading (capacity) standards
4. Use of shuttle buses, transfer routes and collector routes for multiple schools
5. Maximum ride time standards
6. Acceptable arrival and departure time windows at schools
7. Courtesy transportation standards (multiple drop-off locations for students, space-available transportation, ride-along with friends, etc.)

The culmination of these inputs will define the operating characteristics and constraints for the transportation system, which form the starting point for the construction of the bus routes. Once these items are defined and the appropriate data sets are obtained, we will develop an analysis of the routing scheme, how the District's policies are shaping the routing scheme, and identify any issues associated with route inefficiency, ride times and other system constraints as they relate to policies. This task represents a complex activity that must also consider the requirements associated with all other services in the district given the cross-systemic nature of transportation. By evaluating how these and other routing strategies fit into the overall bell schedule and the geographic configuration of BPS, it should be possible to determine how to increase the effectiveness and efficiency of the routing system as they relate to policy inputs.

Task 1.2 – Financial Analysis

We will utilize our cost model to allocate current transportation expenditures and to calculate unit cost metrics for transportation services. The cost model will incorporate the amortized capital cost of facilities and equipment and the operational costs required to support the transportation program. After the base cost model is constructed, we will apportion these costs according to major categories of transportation such as: regular home-to-school, special education, athletic, and field trips. **Figure 1** below provides a basic example of the output for this type of analysis.

Figure 1: Sample Cost Allocation Model

Type	2019-2020 Actual	Home to School	Home to School Field Trips	Home to School Athletics & Co Curr	Special Education	Special Education Field Trips
Total Admin Staff	\$ 94,860.00	\$ 69,551.00	\$ 3,616.00	\$ 4,738.00	\$ 16,560.00	\$ 396.00
Total Home to School	\$ 331,553.00	\$ 331,553.00	\$ -	\$ -	\$ -	\$ -
Total Athletics & Co Curr	\$ 18,281.00	\$ -	\$ -	\$ 18,281.00	\$ -	\$ -
Total Home to School Field Trip	\$ 26,098.00	\$ -	\$ 26,098.00	\$ -	\$ -	\$ -
Total Fleet Maintenance & Management	\$ 276,256.00	\$ 221,404.00	\$ 16,910.00	\$ 37,942.00	\$ -	\$ -
Total SPED Home to School	\$ 48,463.00	\$ -	\$ -	\$ -	\$ 48,463.00	\$ -
Total SPED Misc Costs	\$ 55,825.00	\$ -	\$ -	\$ -	\$ 55,632.00	\$ 193.00
Total Allocated Costs	\$ 41,111.00	\$ 33,205.00	\$ -	\$ -	\$ 7,906.00	\$ -
GRAND TOTAL TRANSPORTATION COSTS	\$ 892,447.00	\$ 655,713.00	\$ 46,624.00	\$ 60,961.00	\$ 128,561.00	\$ 589.00

The cost allocation process will provide several critical performance metrics that will be used to assess operational performance, which is further explained in the tasks to follow.

Task 1.3 – Performance Analysis and Cost Baseline

Using available data, we will develop a series of key performance indicators, or KPIs. These indicators will address key aspects of operational performance and provide a reasonable basis for comparing the District's operating strategies to leading industry practices. In addition, this task will allow us to establish the baseline for existing operations before developing comparative models. The financial KPIs established in this process will be used to identify potential changes in costs that may occur in alternatives that are developed. **Figure 2** provides a partial list of the measures we will use in the quantitative analyses.

Figure 2: Sample Key Performance Indicators (KPIs)

Cost Measures	Service Measures
Annual cost per bus	Average buses per 100 students
Daily cost per bus	Average daily capacity utilization
Annual cost per student	Average daily trips per bus
Daily cost per student	Average student ride time
Cost per mile	Earliest and latest bus pick-ups and drops

Task 1.4 – Bell-Time and Routing Assessment

The purpose of this task will be to assess the existing bell times and their impact on the current routing scheme. We would evaluate the current structure to gain understanding of the separation between bell time tiers, the degree of commonality in the length of the instructional day and the degree to which this constrains routing efficiency, all of which heavily influence how many times buses can be filled and reused. Assessing this time-related resource allocation would begin with a modeling of the current bell scheme similar to the one represented in **Figure 3** below.

Figure 3: Sample Bell Time Grid



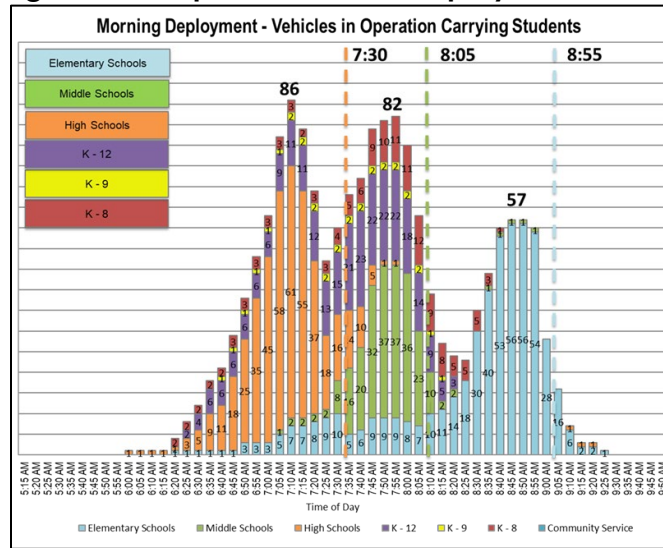
This assessment will provide a basic understanding of the demand for transportation services within the core home-to-school construct. This will be useful for both TransPar staff, as well as the District's key stakeholders, as a major point of both illustration and discussion. In addition to providing a holistic understanding of the routing scheme, further steps will include reviewing the strategies, techniques, and processes involved in routing and scheduling. We will begin this process by interviewing appropriate personnel on how bus routes are developed and updated. Examples of our typical questions include but are not limited to:

- Are bus stops located within defined (and acceptable) walking distance limits; can these be safely consolidated to reduce trip miles and times?
- How are student groups and different schools or programs combined on bus runs where it is advantageous to do so? Are inclusion busing strategies employed to transport special education students on general education routes where it is appropriate and cost effective to do so?
- What are the potential benefits or challenges associated with the impact of varying lengths of instructional days by either program or grade level?
- Are bus runs and routes designed such that they maximize the use of available passenger capacity? Are alternative routing strategies employed where it is safe and reasonable to do so? How are runs assigned to bus routes to minimize empty running miles and layover time?
- How are non-core (e.g., field and extra-curricular trips) managed and how are resources allocated to these services? To what extent do current contractual agreements contribute to the ability to control these costs?

Our assessment of the routes and route planning procedures will be helpful to effectively plan and manage implementation of any proposed changes. In addition, our line of questioning allows for the identification of efficiencies and potential new strategies to improve processes and procedures.

Route data will then be used to develop a distribution of bus routes by time tier for the current route structure. The route model will display graphically the distribution of bus runs for each school according to start and dismissal times. This is illustrative of the current scheme and can assist in discussion of potential scheduling and/or routing changes in the system. **Figure 4** below shows one mechanism for how fleet deployment and utilization can be presented and evaluated.

Figure 4: Sample A.M. Route Deployment Model



We will use this type of modeling to assess changes to the proposed routing structure, including opportunities to increase tier utilization, changes to capacity use, and changing routing structures. The combination of financial analysis and routing assessment will allow TransPar staff to determine both the projected fiscal and operational impacts of potential changes to routes.

Phase 2 - Alternative Service Delivery Analysis

For this portion of the project, TransPar will produce a comprehensive, objective, and supportable analysis of the potential cost and or service benefits of an insourced service or hybrid delivery model for transportation services. The approach we propose to follow for this phase includes:

- **Phase initiation and data collection:** A comprehensive data collection request will be submitted prior to the actual start of this Phase and its onsite work. We will work with BPS staff to minimize the time and effort required and will maximize the electronic data submissions to the degree possible.
- **Contract analysis:** We will evaluate the efficacy of current contract terms and conditions, and their impact on how services are currently designed and delivered and any constraints that may be imposed on a self-operated service delivery model or conversely, how services can be improved if the decision is made to maintain the contract with the current vendor.
- **The analysis of current cost and service metrics:** We will begin with the establishment of a baseline that measures current service levels and costs, both as they relate to the function of system operation as well as to contract compliance. The baseline is necessary to establish a point of comparison against any potential alternative delivery scenarios.
- **Complete an "insourcing or hybrid" feasibility assessment:** We will construct a detailed feasibility model that identifies, by line item, every element of cost and service associated with your current system, as well as any proposed self-operated alternative.
- **Presentation of Results:** TransPar will present the results in a working session format prior to the finalization of recommendations to review and finalize our assumptions and recommendations. This working session will be conducted via phone or web conferencing. The remainder of this proposal details the specific tasks we will perform to complete the work plan.

Task 2.1: Phase Initiation and Data Collection

This task is designed to expand upon the data collection performed as a part of Task 1.1 as well as to provide an opportunity for BPS representatives and TransPar's Advisory Services team to create a positive working environment at the onset of the phase. Our work for this task will include:

- Collaborating with BPS representatives to determine a detailed agenda and timeline, and to set the tone for success by getting the phase work off to a fast and productive start. We believe that this task could be conducted using web-based video conferencing or teleconferencing media to minimize the cost to all parties, but we will conduct this task on-site if it is determined to be in the best interest of the project.
- Developing an understanding of the state of available documentation and system-data to develop a data collection strategy based on conversations with BPS staff. We will work with staff to best decide how to capture and use the data and information that is available through BPS transportation systems. These efforts will facilitate our planning for both data collection and the extent of analytical activities we can perform in subsequent tasks. After these initial discussions, we will submit a detailed data request. While the level of detail and the specific items to be requested will be influenced by the discussions, it can be expected that, in addition to route data, we will require financial, transportation operations, fleet management operations, and personnel data.
- Finally, during this discussion we will also schedule the onsite visitation schedule and



develop the project deliverables deadlines. Our goal will be to ensure that the project team and the key project representatives at BPS have a clear understanding of the project scope and overall timeline, as well as any individual assignments for the initial phase of the project and to begin data collection and site reviews. The analytical tasks that follow will be completed through a combination of onsite visits for discussion, interviews, and observation and well as considerable remote analysis conducted by our project analysts at TransPar offices.

Task 2.2: Contract Analysis

Expanding upon the high-level overview performed in Task 2.1, we will analyze the District's contract with its service provider and its impacts on the effective and efficient operation of the Transportation Department. Our goal will be to assess the impact that the contract has on the efficiency of service delivery, and for any potential constraints on a self-operated service delivery model. We expect that most if not all contract documents will require additional discussion to fully understand the context and application of the contractual requirements.

Task 2.3: Determine “Points of Departure”

We will use the Financial Analysis conducted in Task 1.2 and the Performance Analysis and Cost Baseline from Task 1.3 to establish current financial and operational baseline “points of departure”. Our approach utilizes a quantitative review of the efficiency and effectiveness of transportation services to identify how changes would impact the financial and operational resources that must be allocated to transportation. We will utilize the previously analyzed transportation expenditures and unit cost metrics for transportation services. This model will incorporate operational costs such as employee(s)' salaries and fringe benefits, fuel, insurance, and miscellaneous items. This also may include incidental costs to other departments that provide support to the transportation operation. Examples include human resource services support, payroll and accounting, general liability insurance, and in-service training expenditures.

Our goal will be to establish a unit cost for each type of service provided. We will then use these unit costs to estimate the change in financial and operational resources required to support transportation if the transition to a self-operated service delivery model is selected.

Task 2.4: Construct Comparison Model for a Self-Operated Transportation System

For this task, the project team will begin by identifying reasonable cost estimates for each of the elements necessary to develop and operate the BPS transportation system. Following the approach described to determine baseline costs, we will identify fair estimates of cost using current expenditure information. As a benefit to this assessment, TransPar will be able to utilize the current self-operated costs, the current cost of contracted services, and our empirical knowledge of costs within the region. Where no comparison basis exists, we will survey other industry contacts and utilize other local data sources, as required.

TransPar will develop cost estimates in the following key categories:

Staffing: TPG will identify the staff requirements and organization design needed to support an in-house operation in the key functional areas of:

- Management – staff required for overall system management and oversight
- Operations – staff required for direct oversight of drivers and attendants, plus dispatch, on-road supervision, and coordination with building administrators
- Routing and scheduling – staff required for route development, maintenance, and long-range planning
- Fleet management – staff required for fleet capital asset management, maintenance, and repair
- Support services – staff required for support services such as information technology, human resources, payroll, accounting, custodial, and clerical
- Cost by Position - use organization design as a basis to assign costs by position based on current salary and benefits of local insourced districts or industry data such as health care insurance, workman's compensation insurance, and retirement
- Cost for Other Department Staff - staff required to run a successful organization, including salary and associated employment costs, for other departmental will either be based on similar positions within local districts or local comparable employment costs

Fleet Maintenance and Management: TransPar will identify the bus fleet capital and operating cost requirements using the current count of buses and types in service as the baseline. We will determine the cost of maintaining the fleet assets compared to the current service delivery model including:

- Estimates for spare parts inventory and usage plus tooling and equipment needs
- Fair estimates of fuel costs based on current and historic expenditures

Additional Items: TransPar will estimate the one-time transition costs, such as additional furnishings or equipment that may be necessary and the human resources assistance required for recruiting and hiring, associated with initiating a solely BPS-operated system.

Financial Model: With the estimates for staffing in place, TransPar will construct a financial model that will be used to compare the current cost of transportation services against the projected cost of a BPS-owned and operated system. Line-item cost estimates for a ten-year planning horizon will be developed for the hypothetical BPS operated system. The current system costs will be extracted from the model developed in the prior task and projected over the same ten-year horizon in a side-by-side comparison. The characteristics and requirements of the current service diagramed as part of the prior task will serve as the common comparison basis for this analysis.

Sensitivity Testing: TransPar's proprietary methodology for the evaluation of insourcing supports *sensitivity testing* of key assumptions which helps to validate potential alternatives and reduces the risks associated with the transition to insourced services. As an example, several different scenarios can be performed based on a range of driver wages and benefits. In this area, sensitivity testing helps to ensure that a self-operated BPS operation will be successful considering the recognized difficulty that transportation operations have had and are experiencing in driver recruitment and retention.

Organizational management is another key area that can be examined and *tested*. If the District is interested in understanding the potential cost and or service benefit of having the system professionally managed, TransPar can model this scenario substituting contracted managers in the place of a district employed director, fleet manager, etc.



Task 2.5: Presentation and Documentation of Results

We will prepare a presentation of our findings and provide this to representatives from BPS in a working session format. It is our intent to use this session to provide BPS representatives with an understanding of its options and the possible financial and operational consequences of a given course of action. This is designed to be an interactive session whereby all questions can be answered, and BPS has an opportunity to challenge the methodology and results before they are committed to writing in the project technical brief.

The TransPar project team will present the methodology followed, the assumptions built into the analysis, the challenges faced, and the results achieved. A critical part of this will be to illuminate the many operational issues that would surround the change to a BPS “owned and operated system”, should the results indicate that this would be a favorable change. Subsequent to our presentation, we will document our findings in a written technical brief that summarizes the methodology and results in a concise, action-oriented format to support the BPS decision-making process as it moves forward.

This model would be constructed using a ten-year timeframe beginning with the best data available, current year actual expenditures and/or budget amounts. The results of the study will provide a detailed, forward-looking, side-by-side comparison of the two alternatives. We will supplement the analysis with a discussion document that puts the results in context and covers all the soft issues impacting the decision, such as the challenges involved in managing the change in the event that full insourcing is considered.

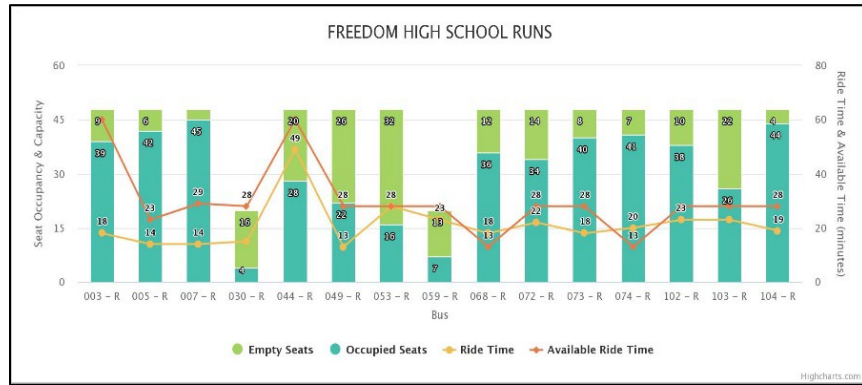
Optional Additional Tasks

Based upon conversations with BPS transportation leadership and our review of the RFP, TransPar would like to submit two additional tasks for consideration by the District, which could be added to the selected Scope of Work at an additional cost. These optional tasks are outlined below.

Optional Task 3: RouteYield™ Analysis

Expanding upon the high-level overview outlined in Phase 1, TransPar will conduct a time and capacity utilization analysis of all runs and routes via use of its proprietary route efficiency tools: RouteYield™ and the fleet deployment model. TransPar staff would come onsite to conduct this audit during the fall of the 2022-23 school year, providing route data survey forms to all drivers to complete by filling in pertinent information for their respective routes. TransPar’s staff will input the data into the RouteYield™ system and will analyze all runs to identify any that are under 60% utilized in time and capacity. **Figure 5**, below, is an example of the RouteYield™ output, which provides a graph and table output to highlight capacity available vs. capacity utilized and time available vs. time utilized. The two runs that have a red highlight in the bottom row of the table are two that were identified as underutilized in time and capacity. The district would receive an output like this for every one of its schools, programs, and campuses and their associated bus runs:

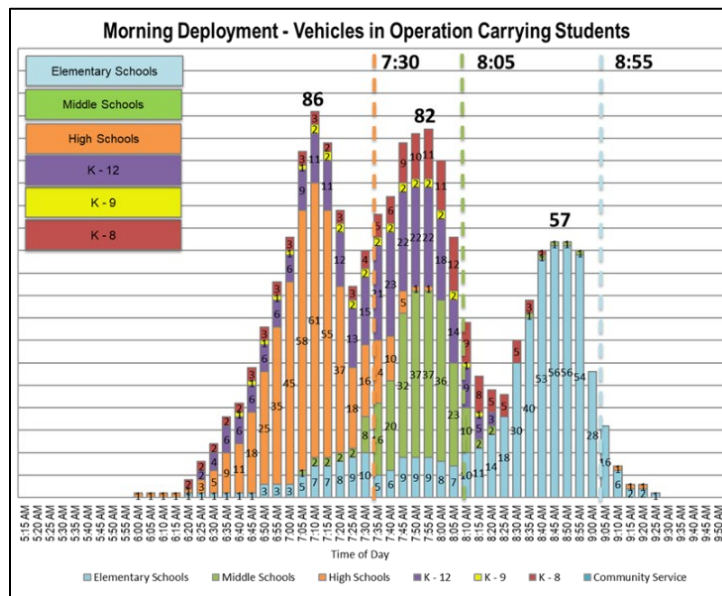
Figure 5: Sample RouteYield™ Time and Capacity Analysis, Runs by Campus



	003 - R	005 - R	007 - R	030 - R	044 - R	049 - R	053 - R	059 - R	068 - R	072 - R	073 - R	074 - R	102 - R	103 - R	104 - R
Occupied Seats	39	42	45	4	28	22	16	7	36	34	40	41	38	26	44
Empty Seats	9	6	3	16	20	26	32	13	12	14	8	7	10	22	4
Seat Capacity	48	48	48	20	48	48	48	20	48	48	48	48	48	48	48
Capacity Utilized (%)	81	87	94	20	58	46	33	35	75	71	83	85	79	54	92
Ride Time	18	14	14	15	49	13	28	23	18	22	18	20	23	23	19
Ride Time Available	60	23	29	28	60	28	28	28	28	13	28	28	13	28	28
Time Utilized (%)	30	61	48	54	82	46	100	82	138	79	64	154	82	82	68
Max Utilized (%)	81	87	94	54	82	46	100	82	138	79	83	154	82	82	92

The route data will then be used to develop a distribution of bus routes by time tier for the current route structure. The route model will display graphically the distribution of bus runs for each school according to start and dismissal times. This can be illustrative of the current scheme and can assist in discussion of potential schedule challenges within the system. **Figure 6**, below, shows a three-tier system that does not currently have enough time between the first and second tier for the majority of the buses to be emptied and re-used before the second wave of transportation must begin. While there is more time between the second and third tier, this visual indicates that if more time between tiers could be allotted, that the system could likely operate with 10 to 20 buses less than the 86 that it currently requires.

Figure 6: Sample A.M. Route Deployment Model



Optional Task 4: Bell Time Analysis

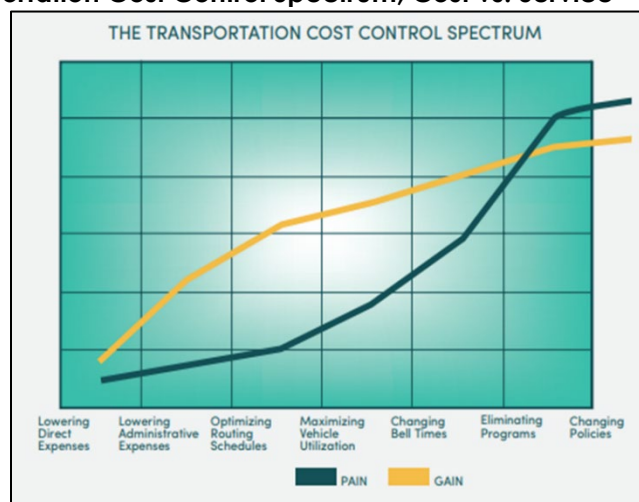
How to Be Successful with Bell Time Changes

TransPar, as a provider of consulting and management services to school districts across the United States, fully appreciates the impact and influence that changing bell times can have on school communities. When changing bell times, there are numerous stakeholders that will and should have a say in the final outcome of a bell time change, including but not limited to students, parents, community members, local business leaders, teachers, administrators, district leadership and school board members. While the driving force behind conducting a bell time change is most often associated with an attempt to improve upon and/or mitigate transportation costs and service challenges, it is still a difficult undertaking to alter a schedule around which district stakeholders have not only planned the educational goals of the district, but a schedule around which all other stakeholders have also planned their personal and professional lives. Therefore, it is imperative that transparent communication and strategic coordination are discussed from the outset of a bell time study to ensure that stakeholders have a voice in the process, objectives and goals are clear, and that the outcomes are not singularly focused, but rather geared towards a comprehensive approach to doing what is best for students.

Taking a comprehensive approach is what TransPar recognizes as finding the “sweet spot,” or finding the best balance between cost and service execution. If transportation costs have risen, it is important to determine if those increases in costs stem from improvements in customer service or if inefficient practices have emerged. TransPar's understanding of how best to help districts find their unique “sweet spot,” as seen in **Figure 7**, below, on the following page, comes from many years of evaluating, analyzing and developing answers and solutions to many of the following questions:

- How would a change in district policy affect our costs and expected service?
- How would the optimization of routing schedules reduce our overall costs?
- How can the maximization of our assets and resources reduce our overall costs?
- If we uncover areas to operate more efficiently – can we use those freed resources to improve service in other areas?

Figure 7: Transportation Cost Control Spectrum, Cost vs. Service – The “Sweet Spot”





Outside of defining the qualitative aspects needed to begin determining the best balance of cost and service, we are also experts at understanding the technical and operational difficulties of transitioning to new schedules; therefore, the ultimate goal of this assessment will be to provide administrators and policy makers with the detailed analysis and information required to review and potentially implement alternative bell schedules for the 2024-25 school year. TransPar is unique in that we are both a management and consulting firm as opposed to a management consulting firm. As such, we are focused on providing actionable solutions that we are confident implementing ourselves if/when requested.

Once a good foundation of understanding for the day-to-day operation is established, TransPar can begin to assess and develop options for bell time alignments and transportation scheduling mitigations to accommodate change. The tasks listed below support this phase of the project.

Optional Task 4.1 – Establish Constraints and Objectives

We realize that a change to school start and end times can be disruptive. Our approach is based on experience that indicates that a critical element to success will be collaborating with stakeholders early in the process to properly identify the broadest possible range of expected outcomes, and then to develop a small set of options that best achieve these outcomes.

A sample of the fixed constraints are items (by grade level or grade groupings; regular education and special education) includes:

- The earliest time of day that a student may be picked up
- The latest time of day that a student may be dropped off
- The maximum length of time a student may ride a bus
- The maximum number of assigned students allowed per bus

These parameters are then balanced against variable constraints such as:

- The earliest that a bus can drop students at a school
- What type of early or late dismissal times will continue to be permitted
- The latest after the bell that a bus can depart a school

It is expected that this effort will require several discussions and multiple iterations before it is finalized. This step will help facilitate these discussions, as well as any further outreach and engagement that may be required by other stakeholders and will ultimately allow for greater refinement of options prior to finalization of the chosen alternative. The development of these options is the subject of the next subtask.

Given the importance of this task, we will ensure that senior BPS staff and TransPar project managers sign off on the proposed next steps prior to any work on the development of actual alternative scenarios.

Optional Task 4.2 – Initial Options Development

TransPar will utilize the results of the baseline analysis, the objectives and constraints identified in the preceding task, and our experience in similar analyses, to assess, develop and document up to three TransPar-developed bell time scenarios for consideration. This task represents the key and most complex analytical task of the project: conducting the analysis necessary to quantify the cost changes and the stakeholder impacts of each option.

We will model a number of alternative scenarios in order to identify the option that best meets the needs and expectations of the district as identified in Optional Task 4.1. TransPar will leverage our analysis and existing route data, as well as the constraints identified, in order to ensure scenarios that are feasible. This process allows for an efficient vetting of a range of potential alternatives at a level of detail that makes decision making possible. Each subsequent iteration of analysis is designed to refine the options with the ultimate objective of homing in on the single option that will be pursued. Detailed activities within this task will include:

- Analyze route pairings (i.e. groupings) that would be impacted by a change in schools' start times
- Estimate the changes to key criteria such as ride times, number of buses required, and start and end times for routes, as well as compliance with arrival and departure requirements
- Assess impacts on operational efficiency including route-pairings and capacity-use ratios
- Define an appropriate number of alternatives for consideration
- Develop options to mitigate any negative impacts associated with each alternative; while it is unlikely that it will be possible to create a completely neutral solution, the goal will be to minimize any potential cost and/or service impact(s), to the extent possible

The outcome of this task will be the financial analysis of each considered alternative. TransPar will summarize the options developed, the relative impact of each option on the key defined criteria, and the options to mitigate any negative impacts. The summary will include several exhibits that allow stakeholders to appreciate the scope of the bell time considerations. **Figures 8 through 11**, below and on the following pages, are examples of the analytical summaries and scenarios that will be provided in progress updates and the final submitted report.

Figure 8: Sample Bell Time Analysis Overview

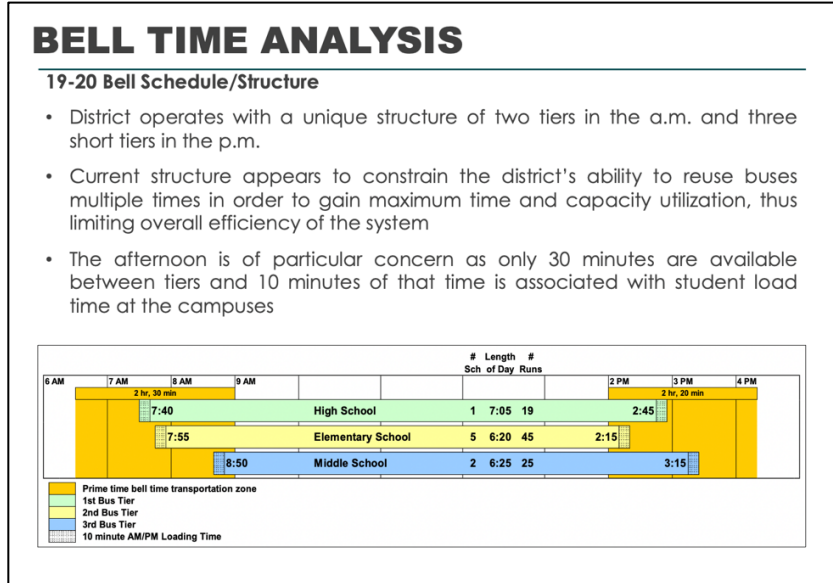


Figure 9: Sample Bell Time Option

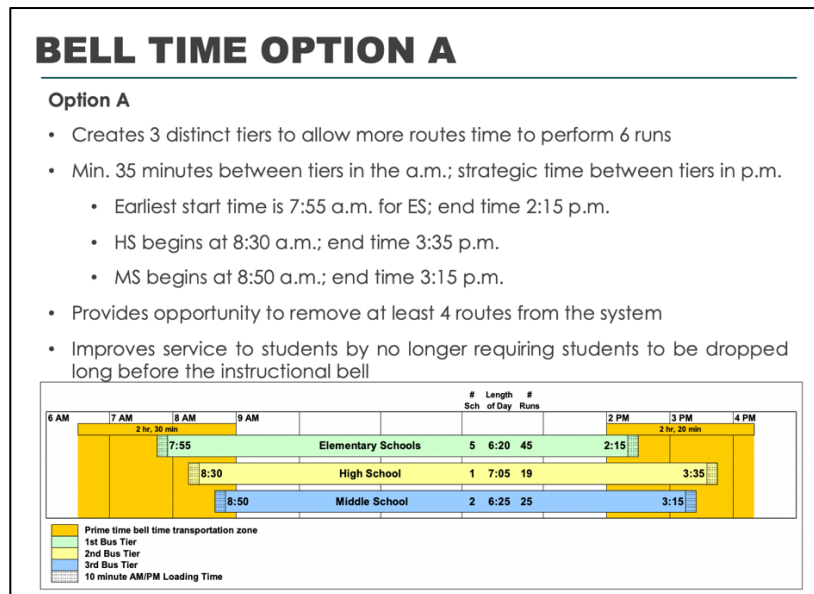


Figure 10: Additional Sample Bell Time Option

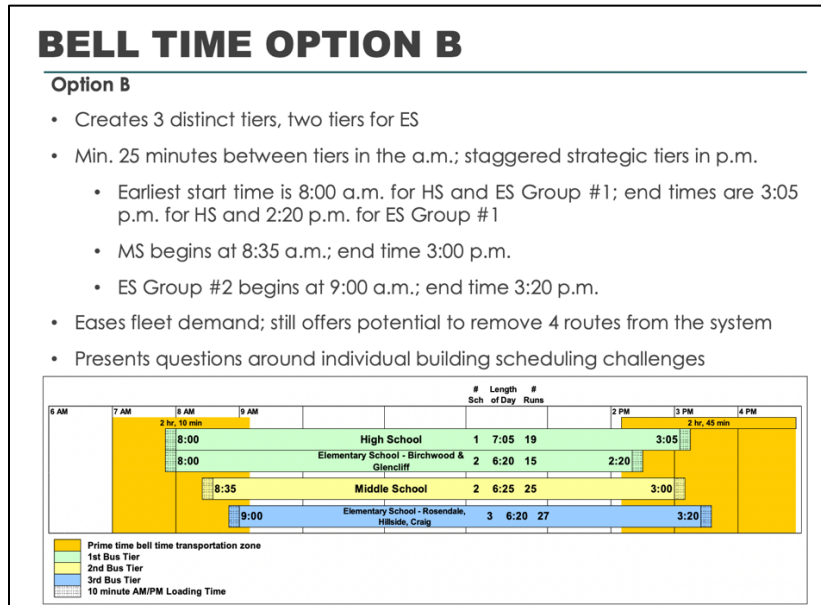
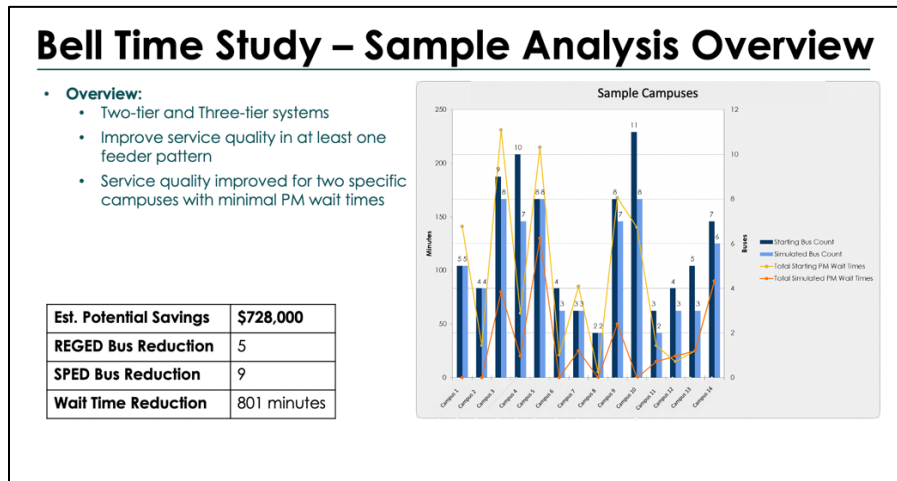


Figure 11: Sample of Service and Financial Impact Analysis



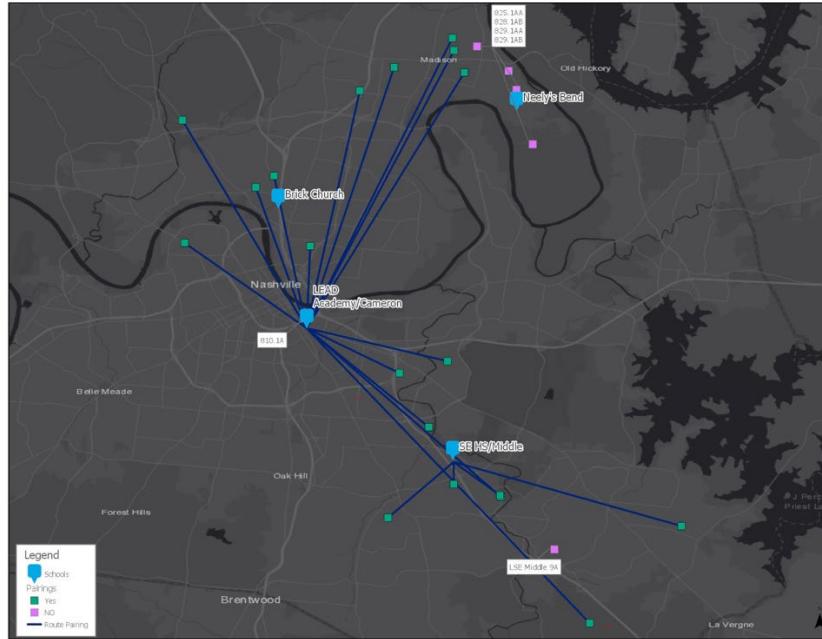
The established scenarios will provide a comprehensive yet efficient method of communicating which opportunities and threats exist relative to each potential change in bell times by presenting, among other things:

- Impact on professional development time for staff
- Calculated twilight/darkness impacts related to students walking to/from the bus
- Estimated routing modifications as related to the current routing scheme and structure
- Predicted effects on resource levels and corresponding financial implications

As part of the effort to further understand the effects potential bell time changes will have on the routing structure, TransPar will conduct a run pairing analysis that incorporates current routes

within the proposed bell time structure. This analysis incorporates the local street network and traffic conditions to provide a more accurate representation of what occurs on the roads during BPS' peak transportation windows. We will then utilize a statistical model that applies the available time between each pairing option to identify the most efficient pairings. **Figure 12**, below, is a representation of our run pairing analysis.

Figure 12: Sample Run Pairing Analysis



Should BPS choose to engage TransPar for both of the aforementioned optional tasks in addition to the full scope of work above, the optional tasks will be included at a reduced price as outlined below.

Optional Task 5: RFP Development Support

Should the work plan outlined above indicate that BPS would be best served by exploring additional options for outsourcing services to alternate vendor(s), and if both the District and TransPar Advisory Services teams agree that it is in the best interest of the BPS Transportation Department to issue a request for proposals (RFP) for transportation services, TransPar is prepared to assist the District with the development of a RFP for these services for an additional fee. TransPar has experience supporting transportation operations in the area of RFP development with school district partners across the country, and as such is uniquely qualified to support BPS in this endeavor, should it be in the best interest of the District to do so. Pricing for this additional task will be included upon request, following the completion of the tasks outlined in Phases 1 and 2 of the above work plan.



Project Timeline and Investment

Contingent upon timing of award, TransPar is prepared to begin this work in September 2023 with the goal of presenting our findings to District leadership in January of 2024. This would allow the District time to evaluate and implement any changes in preparation for the 2024-2025 school year.

TransPar is prepared to deliver the services proposed herein for a firm-fixed price of \$65,350, inclusive of travel and expenses for up to two (2) site visits. This investment is inclusive of all phases and tasks, including the optional tasks other than Task 5, the drafting of an RFP, which may not be necessary. Breakdown of pricing is as follows:

Phase 1: Assessment of Current Operations and Routing Review	\$24,500
Phase 2: Alternative Service Delivery Analysis	\$22,500
Optional Task 3: RouteYield™ Analysis	\$12,500
Optional Task 4: Bell Time Analysis	\$8,000
Optional Task 5: RFP Development Support	TBD
Total	\$67,500
Discounted Total (Phases/Tasks 1-4 Bundle)	\$65,350

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