# BELLAIRE LOCAL SCHOOL DISTRICT
# BELMONT COUNTY

# SHARED SERVICES FEASIBILITY STUDY

**APRIL 2018**

Dave Yost · Auditor of State

**This page intentionally left blank.**

**Dave Yost**
Ohio Auditor of State

HB5 FEASIBILITY STUDY

# A message from the Auditor

I am pleased to present the first shared-services feasibility study conducted by my office under the auspices of House Bill 5.

The four school districts and two educational service centers that volunteered for this study are blazing a trail that I hope other local governments across the state will study and follow as they seek ways to deliver more effective, economical and efficient government to their constituents.

Ohio has thousands of local government entities, which has the benefit of keeping government close to the people and responsive to their needs.

But this also means a lot of duplication of effort, facilities, equipment and resources. As in so many things in life, this is a trade-off, and it is up to voters and their elected leadership to decide where to strike the balance.

As circumstances change – if economic factors tighten budgets or if demand for government services grows or transitions – shared services has the potential to keep government close to the people while reducing redundant administration, facilities and equipment.

For these four schools districts, AOS staff made a detailed analysis of data about bus maintenance, staffing, usage and facilities. Then they examined the potential costs and benefits of a variety of scenarios in which two or more of the districts share resources.

In most cases, the study determined that the partners could see benefits, including savings on buildings and buses, ensuring that staff remain fully employed, and making the most of each tax dollar.

This study shows some of the possibilities in Belmont County. But I hope it also provokes interest in Ohio's 87 other counties.

Sincerely,

Dave Yost

**Table of Contents**

**This page intentionally left blank.**

# Executive Summary

**Feasibility Study Authority and Purpose**

The Bellaire Local School District (Bellaire) requested this feasibility study from the Ohio Auditor of State (AOS) using the Leverage for Efficiency, Accountability, and Performance (LEAP) program. AOS is authorized under Ohio Revised Code (ORC) § 117.473 to conduct shared services feasibility studies at the request of State agencies and local government offices in order to identify opportunities for local governments to combine resources to deliver services more economically, efficiently and effectively. OPT has extensive experience in evaluating State and local government management and operations, and is uniquely qualified to perform this study.

This study analyzes fleet facilities and fleet maintenance practices to determine if shared services would yield savings and improved efficiency. In addition to Bellaire, the following project partners are participants in the study:

- Bridgeport Exempted Village School District (Bridgeport);
- Shadyside Local School District (Shadyside); and
- St. Clairsville-Richland City School District (St. Clairsville).

Additionally, the Muskingum Valley Educational Service Center and the East Central Ohio Educational Service Center are included as supporting partners.[1]

The school districts electing to participate in this study are members of the Ohio Shared Services Collaborative (OSSC). OSSC is a consortium of school districts, educational service centers (ESCs), information technology centers (ITCs), and one board of developmental disabilities dedicated to reducing school transportation expenses through shared services. In 2014, OSSC was awarded a $1.76 million Straight-A Fund grant to reduce transportation costs. The four project partners involved in this study are participants in OSSC's efforts to reduce the consortium fleet by 5.0 percent and reduce operating costs by 2.0 percent by monitoring student ridership to analyze needs, reducing idle times, improving bus routes and sharing transportation services and facilities where feasible. Participating districts are also members of the Coalition of Rural and Appalachian Schools.

**Time Period for Study**

This study sought to determine the current state of each entity based on data from fiscal year (FY) 2016-17. However, as necessary and appropriate, this information was closely informed by the three preceding years (FY 2013-14 through FY 2015-16) of operational information. In addition, fiscal year-to-date (FYTD) 2017-18 was also incorporated into the study. Finally,

[1] These supporting partners helped to facilitate the project and have offered assistance in the implementation of any shared services scenarios that may result.

where necessary and appropriate to inform the feasibility study over a longer period, additional historical information was taken into account.

**Objectives, Scope, and Methodology**

The objective of this engagement was to analyze selected operations relative to similar operations, industry standards, and leading practices, with an emphasis on shared service opportunities to increase economy, efficiency, and/or effectiveness for the participating districts. The project examined the feasibility of sharing transportation maintenance staff, resources, and facilities among the project partners. This included an analysis of the current state of operations as well as operational scenarios with shared service arrangements, and the financial implications of each scenario.

To complete this study, auditors gathered data and interviewed individuals involved in relevant district operations. Information and proposals were shared with each school district and responses from each district were taken into consideration throughout the process.

AOS and OPT express their appreciation to the elected officials, management, and employees of each district for their cooperation and assistance throughout this study.

**Data-Driven Decision Making**

Making decisions that are compelled by verifiable data leads to efficiency, and the success of the data-driven approach depends upon the quality of the data collected and how it is analyzed and interpreted. One of the objectives of this study was to provide each district with a current state view of their operations based on their data. The analytical method used in this report can be used by each school district to inform all transportation decision-making, not just decisions about shared services.

To complete this study, auditors developed and employed a methodology to extrapolate data in order to determine feasibility; however, there are limitations in the data and certain assumptions had to be made. As part of those assumptions, auditors used a conservative approach in determining feasibility by taking into account the highest of either the districts' historical or projected workloads to ensure enough anticipated capacity. In reality, district workloads will likely fall far short of those projections. The data used comes from the handwritten hours recorded by the maintenance staff members at Bellaire and Shadyside. The hours recorded by the staff members in Bellaire and Shadyside were not necessarily recorded for the purpose of such an analysis and may not reflect all work performed by the mechanic staff members. Based upon the recorded data, average repair times were developed for each repair type, which were then applied to the repair activities in Bridgeport and St. Clairsville. Bridgeport and St. Clairsville do not record such data, but collecting precise and complete data going forward increases the precision of the analysis and strengthens decision-making.

As districts consider future shared services partnerships, each district should be collecting various pieces of data. The more robust the data collection, the better each district will be able to use that data to inform decision-making. To make data-driven decisions, the following information should be collected by any district looking to share fleet maintenance services:

- Age and size of fleet maintained
- Annual direct labor workload hours
- Fleet maintenance activity type and date
- Location, age, and size of garage
- Current fleet maintenance staffing level

# Background

The school districts in this study are facing a number of conditions that are placing pressure on their student transportation systems. All are receiving a smaller share of their school district's overall budget. Each has experienced declining ridership. While this can be offset by a corresponding reduction in the number of buses, it is not so easy to achieve corresponding reductions in fixed costs of bus maintenance, primarily the fixed costs of operating a maintenance facility and its staff. This becomes more problematic as maintenance facilities age to the point where expensive renovation or new construction becomes necessary.

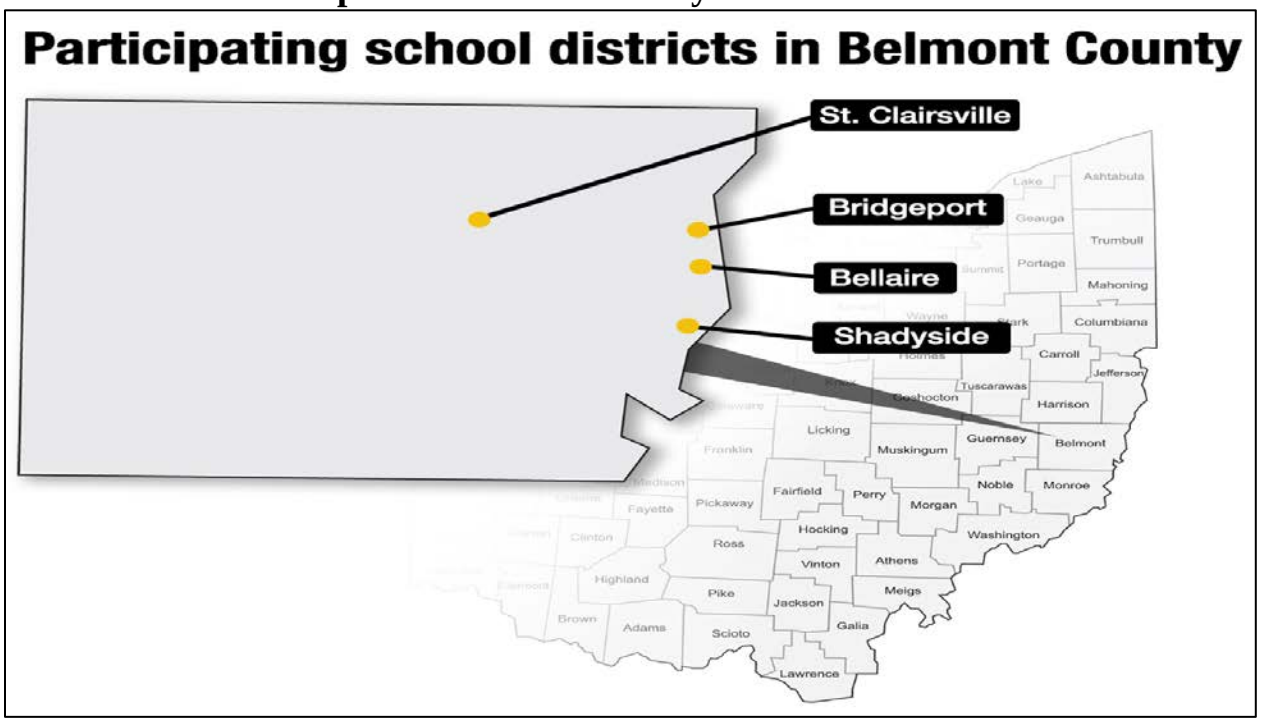
When a number of school districts are facing such constraints, a data-driven analysis can determine if a shared-services agreement could deliver efficiencies that the individual districts could not achieve on their own.

Bellaire requested such an analysis to determine if greater efficiency or cost savings could be realized by sharing transportation facilities and maintenance resources with the other three districts involved in this study.

**Geographical Location**

**Map X-1** shows the locations of all of the Belmont County school districts involved in this study. The physical proximity of these districts is important for determining whether shared services are geographically feasible.

**Map X-1: Belmont County School Districts**



As shown in **Map X-1**, the close proximity of Bellaire, Bridgeport, Shadyside, and St. Clairsville make them uniquely positioned for this study.

### The Need for Shared Services

**Table X-1** shows a comparison of the combined total transportation costs of the four districts relative to combined ridership for FY 2013-14 through FY 2016-17. Comparing ridership and costs can provide important context to understand the need for shared services.

## Table X-1: Combined Cost and Ridership Trend

| | FY 2013-14 | FY 2014-15 | FY 2015-16 | FY 2016-17 | FY 2017-18 [1] |
|---|---|---|---|---|---|
| Ridership [2] | 2,547 | 1,956 | 1,903 | 1,825 | 1,687 |
| Cost Per Pupil [3] | $3,673 | $4,548 | $4,113 | $4,421 | N/A |

Source: ODE
[1] Cost data is not yet available for FY 2017-18.
[2] Ridership data is from ODE T-1 Reports.
[3] Cost per pupil data is from ODE T-2 Report Summary data.

As shown in **Table X-1**, combined ridership has steadily declined throughout the five-year period shown, causing cost per pupil to increase from FY 2013-14 levels. In total, the districts have 860, or 33.8 percent, fewer bus riders in FY 2017-18 than in FY 2013-14, while combined per pupil costs increased $748, or 20.4 percent, between FY 2013-14 and FY 2016-17.

As a result of the decline in ridership and increase in cost per pupil, these districts are looking to cut transportation funding or combine resources to minimize the costs associated with transportation. This allows more funds to be directed to educational functions and decreases the need to ask voters for additional tax revenue.

Two primary factors that can affect transportation costs are the number of buses and the number of facilities and mechanics used to maintain them. **Table X-2** shows combined ridership, number of buses and full-time equivalent (FTE) mechanics for the districts for FY 2013-14 through FY 2017-18 as well as the number of riders per bus and buses maintained per mechanic. This is important to show how ridership has changed relative to district operations, and how this could be contributing to the overall increase in costs per pupil transported.

## Table X-2: Ridership vs. Operational Changes

| | FY 2013-14 | FY 2014-15 | FY 2015-16 | FY 2016-17 | FY 2017-18 | Difference | % Difference |
|---|---|---|---|---|---|---|---|
| Riders | 2,547 | 1,956 | 1,903 | 1,825 | 1,687 | (860) | (33.8%) |
| Buses | 55 | 53 | 53 | 49 | 47 | (8) | (14.5%) |
| Mechanic FTEs | 2.13 | 1.75 | 2.13 | 2.13 | 2.13 | 0.00 | (0.0%) |
| | | | | | | | |
| **Riders per Bus** | **46.3** | **36.9** | **35.9** | **37.2** | **35.9** | **(10.4)** | **(22.5%)** |
| **Buses per Mechanic FTE** | **25.8** | **30.3** | **24.9** | **23.0** | **22.1** | **(3.8)** | **(14.5%)** |

Source: Bellaire, ODE, Bridgeport, Shadyside, and St. Clairsville

As shown in **Table X-2**, the districts have eliminated eight buses, or 14.5 percent, of the total fleet of buses between FY 2013-14 and FY 2017-18. The districts, however, have not reduced the number of FTE mechanics during that span, other than during portions of FY 2014-15 and FY 2015-16 when St. Clairsville operated without a mechanic.[2] In total, there are 10.4, or 22.5 percent, fewer riders on each bus in FY 2017-18 than there were in FY 2013-14. Additionally, each mechanic is now responsible for maintaining 3.8, or 14.5 percent, fewer buses than in FY 2013-14, and 8.2, or 27.1 percent, fewer buses than in FY 2014-15.

Another issue effecting operations of these four districts is a reduction in State transportation funding. Although overall State funding for schools generally increases annually, these increases have not necessarily mirrored the increase in the overall cost of education. As a result, school districts must look for ways to maximize revenues to ensure sufficient funding is dedicated to instructional functions. As a result, districts often cut funding for support services such as transportation.

**Table X-3** shows how the combined transportation budgets of the four districts changed from FY 2013-14 to FY 2017-18 relative to General Fund and district-wide budgets. This is important for showing the reduction in transportation funding facing these districts relative to overall operations.

## Table X-3: Combined Transportation Budgets Relative to Overall Budgets

| | FY 2013-14 | FY 2017-18 | Difference | % Difference |
|---|---|---|---|---|
| Transportation Budget | $2,209,323 | $1,916,221 | ($293,102) | (13.3%) |
| | | | | |
| General Fund Budget | $40,511,468 | $47,353,180 | $6,841,712 | 16.9% |
| % of GF Budget | 5.5% | 4.0% | (1.5%) | (25.8%) |
| | | | | |
| Overall Budget | $61,685,700 | $68,888,175 | $7,202,475 | 11.7% |
| % of Overall Budget | 3.6% | 2.8% | (0.8%) | (22.3%) |

Source: Bellaire, Bridgeport, Shadyside, and St. Clairsville

As shown in **Table X-3**, the combined transportation budgets of the four districts declined by 13.3 percent from FY 2013-14 to FY 2017-18. The significance of this decline is further exemplified relative to the General Fund and district-wide budgets. In FY 2013-14, combined transportation budgets accounted for 5.5 percent of the combined General Fund budgets and 3.6 percent of the overall district budgets, whereas in FY 2017-18, the combined transportation budgets account for just 4.0 percent of the General Fund budget and 2.8 percent of the overall budget. Unless school districts decide to increase funding for transportation, these operations will continue to feel the squeeze resulting in the need to explore creative options to minimize costs. Fleet maintenance is a transportation department activity that could benefit from the economies of scale that could arise from shared services (e.g., combined parts ordering or sharing facilities, staff, or vehicles).

**Table X-4** shows average transportation fleet maintenance expenditures per bus by category for each district between FY 2013-14 and FY 2016-17. This provides an understanding where these

[2] Mechanic took a leave of absence for personal reasons.

four districts have typically been spending their fleet maintenance dollars over the past four years.

## Table X-4: Average Expenditures per Bus

| | Bellaire | Bridgeport | Shadyside | St. Clairsville | Average |
|---|---|---|---|---|---|
| **Personnel Costs** | | | | | |
| Personal Services - Salaries & Wages | $17,809 | $9,802 | $15,484 | $17,887 | $15,245 |
| Employees' Retirement & Insurance Benefits | $17,083 | $6,681 | $10,449 | $11,306 | $11,380 |
| **Sub-Total** | **$34,892** | **$16,483** | **$25,933** | **$29,193** | **$26,625** |
| **Non-Personnel Costs** | | | | | |
| Purchased Services | $1,881 | $6,118 | $4,825 | $3,520 | $4,086 |
| Supplies & Materials | $8,824 | $3,033 | $4,901 | $7,884 | $6,161 |
| Capital Outlay | $9,405 | $6,030 | $8,276 | $5,150 | $7,215 |
| Other Objects | $0 | $387 | $0 | $24 | $103 |
| **Sub-Total** | **$20,110** | **$15,568** | **$18,002** | **$16,578** | **$17,564** |
| **Total Expenditures** | **$55,002** | **$32,051** | **$43,935** | **$45,771** | **$44,190** |

Source: Bellaire, Bridgeport, Shadyside, and St. Clairsville

As shown in **Table X-4**, the biggest cost driver of transportation operations are personnel costs, indicating that the greatest potential area of cost savings may come from the sharing of transportation staff. Outside of the long-term capital costs of a garage, the next largest area of spending has been for the capital outlay for buses or vehicles. The other two main categories of non-personnel costs are for purchased services and supplies and materials. Purchased services are primarily the costs associated with outsourced repairs, but also include the costs of utilities, property insurance, property services, and other professional and technical services. Supplies and materials costs include the costs for parts to maintain vehicles and equipment, tires and tubes, fuel, and office and computer supplies.

# Current State

**Bellaire**

Bellaire operates a 4,030 square foot fleet maintenance garage that includes two mechanics' bays, a two-story storage area, offices, and restroom facilities with operations overseen by the part-time Supervisor of Classified Operations (0.25 full-time equivalent (FTE) position). In addition to in-house maintenance, Bellaire occasionally outsources specialized tasks.[3] Between FY 2013-14 and FY 2016-17, it outsourced an average of 19.2 repair hours per year, which amounts to 3.4 percent of total repair hours. Bellaire maintains 18 buses, including 14 assigned to regular routes and four spares, in addition to two vans, four trucks, and a trailer. The highest number of buses operated on any single day in FY 2016-17 was 18, which occurred once. All buses and other vehicles and equipment are maintained by 1.25 FTE mechanics (one employee works 0.25 FTE as a mechanic and 0.75 FTE as a bus driver). Both mechanics are members of the Ohio Association of Public School Employees (OAPSE) bargaining unit and are covered under a collective bargaining agreement (CBA) between OAPSE and Bellaire.

A full-time mechanic who works a full 12-month schedule is typically paid for 2,080 hours per year (40 hours per week for 52 weeks). With 1.25 FTE mechanics, Bellaire is compensating its mechanics for 2,600 annual hours. It is important, however, to understand that all compensated hours are not direct labor hours because time used for leave, training, other duties are also compensated. Therefore, compensated work hours can be broadly divided into the following categories:

- **Direct labor –** time spent performing vehicle or equipment maintenance;
- **Indirect labor –** time spent at work performing duties other than direct labor; and,
- **Leave hours –** paid time off as outlined in a bargaining unit contract for holidays, sick leave, personal leave, vacation, calamity days, etc.

**Table X-5** shows total hours Bellaire mechanics were available for direct labor annually in relation to the number of hours of vehicle maintenance performed during the peak workload year between FY 2013-14 and FY 2016-17. An examination of actual labor hours available relative to total vehicle maintenance performed can help highlight the number of hours the mechanics have available for other responsibilities.

[3] Top outsourced repairs have primarily involved tire replacements, engine control module repair, exhaust gas recirculation valves/coolers/gaskets, body work, or indeterminate leaks that may fall under previous repair warranty.

## Table X-5: Bellaire Mechanic Direct Labor Capacity Utilization

| | Mechanic A | Mechanic B | Total |
|---|---|---|---|
| Total Available Hours - 1.0 FTE | 2,080 | 2,080 | 4,160 |
| Bellaire FTEs | 1.00 | 0.25 | 1.25 |
| Compensated Hours | 2,080 | 520 | 2,600 |
| Vacation | 160 | 20 | 180 |
| Sick Leave | 120 | 30 | 150 |
| Personal Leave | 24 | 6 | 30 |
| Training | 11.7 | 11.7 | 23.4 |
| Break Time | 124 | 62 | 186 |
| Holidays | 104 | 26 | 130 |
| Sub Driver Hours | 40.7 | 73.3 | 114 |
| Calamity Day Hours Missed | 16 | 4 | 20 |
| | | | |
| Available Direct Labor | 1,479.6 | 287.0 | 1,766.6 |
| Available Direct Labor Hours as % Total Available Hours per FTE | 0.71 | 0.55 | 0.68 |
| | | | |
| Peak Vehicle Maintenance Hours — FY 2016-17 | | | 773.3 |
| Direct Labor Used as % of Available Direct | | | 43.8% |
| % of FTE | | | 0.44 |
| | | | |
| Excess Direct Labor Capacity | | | 993.3 |
| Excess Direct Labor Capacity as % of an FTE | | | 56.2% |
| Excess Director Labor Capacity as FTE | | | 0.56 |

Source: Bellaire

Note: Hours for vacation, sick, and personal leave are the maximum annual allowable by contract given the years of service of the mechanics. Training time is based upon the eight hours per year of mechanics' training required by the State as well as the 20 hours of classroom training and two hours of on-bus instruction time required every six years for all bus drivers. Break time includes two 15-minute breaks for Mechanic A and one 15-minute break for Mechanic B. There are 13 paid holidays for all 12-month employees, per the Bellaire-OAPSE contract. Substitute driver hours were calculated from payroll records for FY 2016-17. Calamity day hours missed are established by the CBAs and are based upon the four calamity days experienced in FY 2016-17.

As shown in **Table X-5**, Bellaire's 1.25 FTE mechanics averaged 1,766.6 hours of direct labor available per year or 68.0 percent of total compensated hours. Between FY 2013-14 and FY 2016-17, the peak annual hours of direct labor used was 773.3 hours, which occurred during FY 2016-17. This means that during its peak workload year, Bellaire utilized only 43.8 percent of available labor hours available on fleet maintenance activities.

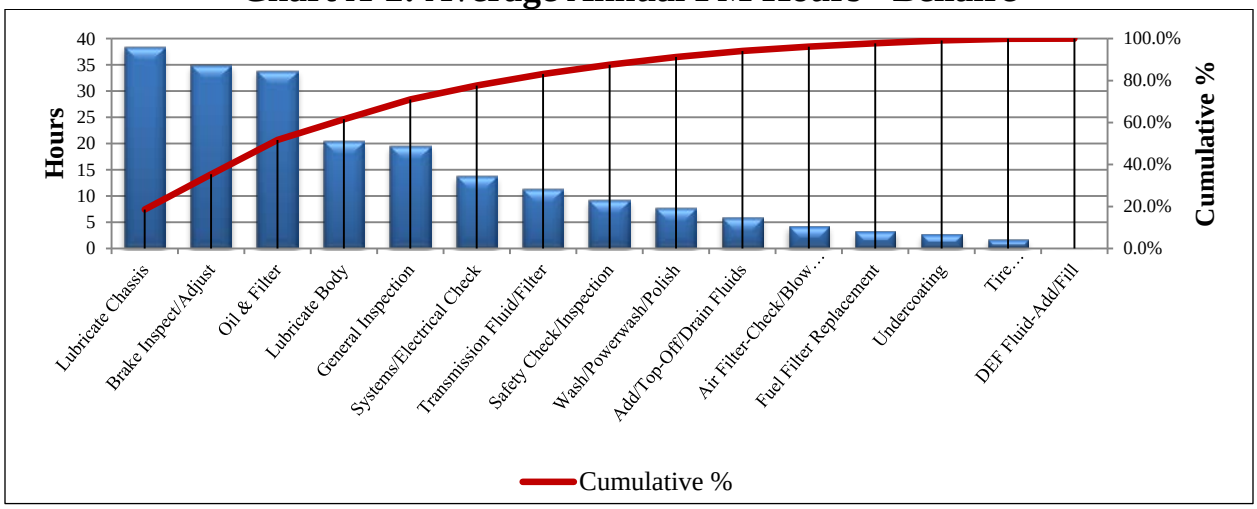
Direct labor hours for mechanics typically consist of two types of activities:

- **Preventive maintenance (PM) –** activities performed at regular intervals to maintain safe operating conditions, to detect or prevent more costly repairs, or to extend the life of the vehicle (e.g., oil changes); or
- **Corrective maintenance (CM) –** activities performed to repair component defects (e.g., tire repair or replace).

**Chart X-2** and **Chart X-3** show the average number of direct labor hours used by Bellaire's mechanics sorted by PM and CM between FY 2013-14 and FY 2016-17. Examining repair

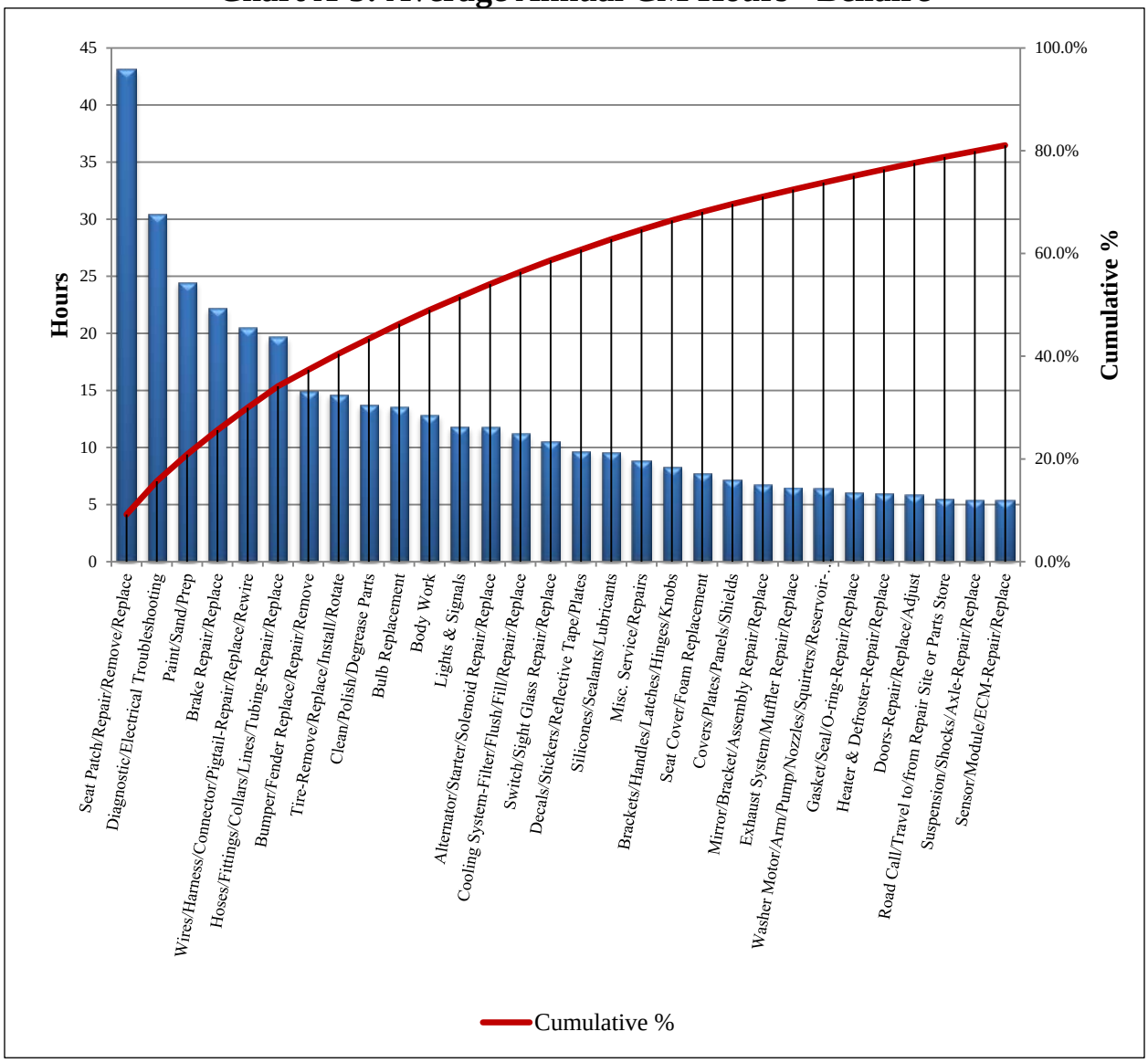
activity time can be helpful in understanding the activities with the highest allocation of direct labor time.

**Chart X-2: Average Annual PM Hours - Bellaire**




Source: Bellaire

**Chart X-3: Average Annual CM Hours - Bellaire**




Source: Bellaire

As shown in **Chart X-2**, the mechanic staff at Bellaire spends an average of about 128 hours a year, or 61.6 percent of all PM hours, on oil changes; brake inspections; and lubrications (body and chassis). Also, **Chart X-3** shows Bellaire spends an average of about 120 hours per year, or 25.6 percent of total CM activity hours, on the top four repair categories, seat repair; diagnostic or electrical troubleshooting; painting or sanding; and brake repairs.

### Bridgeport EVSD

Bridgeport operates a fleet of 10 buses, including seven active buses and three spares as well as two vans and a truck. The highest number of buses operated on any single day in FY 2016-17

was nine.[4] Transportation operations are overseen by a part-time transportation coordinator (0.5 FTE) and all fleet maintenance and repairs are outsourced. In FY 2016-17, Bridgeport outsourced 205.4 hours of labor for 90 different repair activities.[5]

**Shadyside**

Shadyside operates a fleet of eight buses, including five active buses and three spares, as well as two trucks, one van, and four tractor/mowers. The highest number of buses operated on any single day in FY 2016-17 was eight, which happened four times. Transportation operations, including operation of a 3,263 square foot fleet maintenance garage that contains 2,520 square feet of mechanics' bay area, are overseen by a part-time maintenance and transportation supervisor (0.5 FTE). Between FY 2013-14 and FY 2016-17, Shadyside outsourced most specialized or longer repair tasks,[6] which in FY 2016-17 equated to 19.4 percent of its total repair hours. The remaining repair tasks were handled by a 0.5 FTE mechanic, who is a member of the OAPSE bargaining unit.[7]

**Table X-7** shows the average direct labor capacity utilization of the Shadyside mechanic for FY 2013-14 through FY 2016-17. An examination of direct labor hours available relative to total vehicle maintenance performed can help highlight excess labor capacity available for other responsibilities.

[4] The GPS systems of three buses (two regular and one spare) were disconnected during FY 2016-17 so no data was available. It is assumed here that these three buses ran on the busiest days.
[5] All outsourced repairs in FY 2016-17 occurred between 3/27/2017 and 4/27/2017.
[6] Outsourced repairs have included oil changes, tire rotations, installations, and engine or transmission repairs.
[7] The mechanic is also a 0.5 FTE maintenance employee, the primary substitute bus driver, lines the football field, and is responsible for mowing.

## Table X-7: Shadyside Mechanic Direct Labor Capacity Utilization

| | |
|---|---|
| Annual FTE Hours | 2,080 |
| Mechanic FTEs | 0.50 |
| Paid Mechanic Hours | 1,040 |
| Vacation | 40 |
| Sick Leave | 60 |
| Personal Leave | 16 |
| Training | 11.7 |
| Break Time | 65 |
| Holidays | 48 |
| Sub Driver Hours (FY 2014-2015) | 95.6 |
| Calamity Day Hours Missed | 44 |
| | |
| Available Direct | 659.7 |
| Available Direct as % of paid FTE | 0.63 |
| | |
| Peak Direct Labor Performed (FY 2014-15) | 512.4 |
| Direct Labor Used as % of Available Direct | 77.7% |
| Direct Labor as FTE | 0.78 |
| | |
| Excess Direct Labor Capacity | 147 |
| Excess Direct Labor Capacity as % of an FTE | 22.3% |
| Excess Director Labor Capacity as FTE | 0.22 |

Source: Shadyside

Note: Hours for vacation, sick, and personal leave are the maximum annual allowable by contract given the years of service of the mechanic. Training time is based upon the eight hours per year of mechanics' training required by the State, as well as the 20 hours of classroom training and two hours of on-bus instruction time required every six years for all bus drivers. Break time includes one 15-minute break for the mechanic. There are 12 paid holidays for all 12-month employees, per the Shadyside OAPSE contract. Substitute driver hours were calculated from payroll records for FY 2014-15. Calamity day hours missed are established by the CBA and are based upon the 11 calamity days experienced in FY 2014-15. Since only half of the day is spent working as a mechanic, all available hours for holidays, leave, and calamity days were multiplied by 0.50 to reflect the correct portion of the mechanic's daily hours that can be attributed to this function.

As shown in **Table X-7**, Shadyside's part-time mechanic had an average annual capacity of 659.7 hours of direct labor; 63.0 percent of total paid hours. Between FY 2013-14 and FY 2016-17, the peak annual direct labor performed was 512.4 hours in FY 2014-15, meaning that during its peak workload year, Shadyside utilized 77.7 percent of available labor hours on fleet maintenance activities.

Since the peak workload year of FY 2014-15, the Shadyside mechanic has become the primary substitute bus driver, causing his annual hours spent driving a bus to increase. **Table X-8** shows how many annual hours the Shadyside mechanic would have available assuming the same demand for substitute driver hours as FY 2016-17 and the same peak workload hours as in FY 2014-15. Considering this possibility ensures that the current state reflects the past peak workload accurately.

## Table X-8: Shadyside Mechanic Direct Labor Capacity Utilization

| | |
|---|---|
| 1.0 FTE Hours | 2,080 |
| Mechanic FTEs | 0.50 |
| Paid Mechanic Hours | 1,040 |
| Vacation | 40 |
| Sick Leave | 60 |
| Personal Leave | 16 |
| Training | 11.7 |
| Break Time | 65 |
| Holidays | 48 |
| Sub Driver Hours (FY 2016-2017) | 305.7 |
| Calamity Day Hours Missed | 16 |
| | |
| Available Direct | 477.6 |
| Available Direct as % of paid FTE | 0.46 |
| | |
| Peak Direct Labor Performed (FY 2014-15) | 512.4 |
| Direct Labor Used as % of Available Direct | 107.3% |
| Direct Labor as FTE | 1.07 |
| | |
| Excess Direct Labor Capacity | (34.8) |
| Excess Direct Labor Capacity as % of an FTE | (7.3%) |
| Excess Director Labor Capacity as FTE | (0.07) |

Source: Shadyside

Note: Hours for vacation, sick, and personal leave are the maximum annual allowable by contract given the years of service of the mechanic. Training time is based upon eight hours per year of mechanics' training required by the State as well as the 20 hours of classroom training and two hours of on-bus instruction time required every six years for all bus drivers. Break time includes one 15-minute break. There are 12 paid holidays for all 12-month employees, per the Shadyside OAPSE contract. Substitute driver hours were calculated from payroll records for FY 2016-17. Calamity day hours missed are established by the union contract and are based upon the four calamity days experienced in FY 2016-17. Since only half of the day is spent working as a mechanic, all available hours for holidays, leave, and calamity days were multiplied by 0.50 to reflect the correct portion of daily hours that can be attributed to this function. Because the mechanic is also a 0.50 FTE building and grounds maintenance employee, the remainder of hours missed are attributed to that portion of the day.

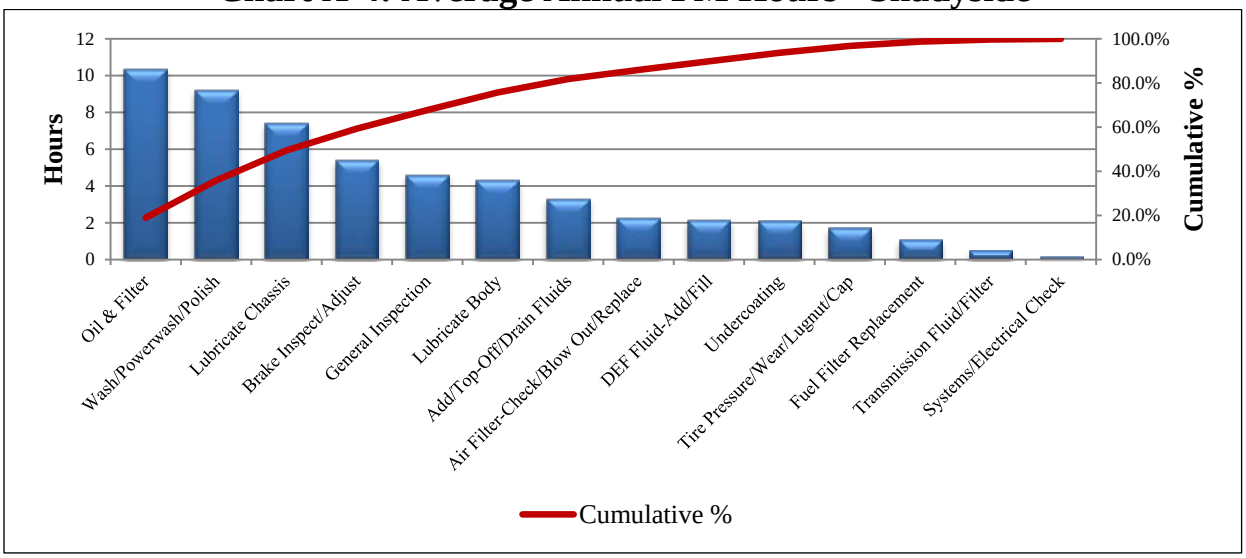
As shown in **Table X-8**, Shadyside's mechanic would have 477.6 hours available per year for direct labor, assuming peak mechanic workload hours and the demand for substitute bus driving hours continues to equal substitute driver hours in FY 2016-17. In that case, available direct work hours would be equivalent to 46 percent of paid FTE hours. This means that the mechanic would spend 107.3 percent of available mechanic labor hours on actual fleet maintenance activities. **Table X-8** is likely to be more representative of the current state because the mechanic routinely earns overtime.[8]

**Chart X-4** and **Chart X-5** show the average number of direct labor hours used by Shadyside's mechanics sorted by PM and CM between FY 2013-14 and FY 2016-17. Examining repair

[8] Between FY 2014-15 and FY 2016-17, the mechanic averaged 266.5 hours of overtime, or 10.25 hours per bi-weekly pay period. Shadyside does not track the purpose of overtime based on workload demand, but it is reasonable to assume that a portion of these overtime hours were used for vehicle maintenance activities.

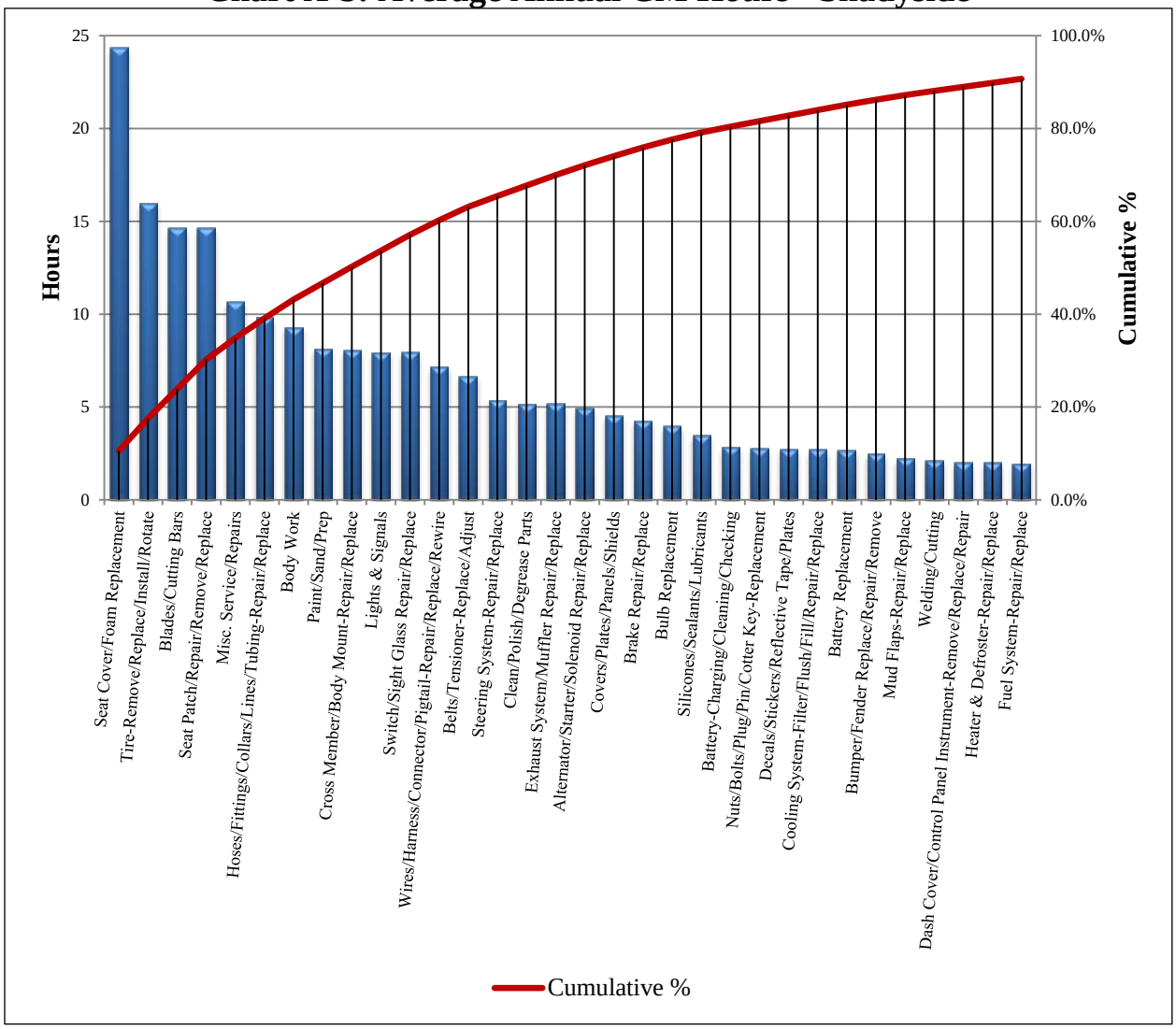
activity time can be helpful in understanding the activities with the highest allocation of direct labor time.

**Chart X-4: Average Annual PM Hours - Shadyside**




Source: Shadyside

**Chart X-5: Average Annual CM Hours - Shadyside**




Source: Shadyside

As shown in **Chart X-4**, the Shadyside mechanic allocated an average of 33 hours a year, or 59.3 percent of all PM hours, to oil changes, lubrications, brake inspections, and washing or power washing. In addition, **Chart X-5** shows that Shadyside allocated an average of 70 direct labor hours per year, or 30.2 percent of total repair activity hours, to the top four CM categories; seat covers and foam replacements, seat patch or repair, tire removal or replacement, and mower blades.

### St. Clairsville

St. Clairsville operates a fleet of 11 buses, including seven active and four spares in addition to two vans, three trucks, and three trailers. The highest number of buses operated on any single day in FY 2016-17 was 11, which occurred three times. Transportation operations are overseen by a part-time director of support services (0.63 FTE) who is supported by a part-time

administrative assistant (0.60 FTE). St. Clairsville operates a 6,240 SF fleet maintenance garage that includes two mechanics' bays, an unheated bay for van parking and storage, a second-story storage area, and offices and restroom facilities. All buses and other vehicles and equipment are maintained by a part-time mechanic (0.38 FTE) who works 11 months annually.

The majority of fleet maintenance activities are handled in-house; however, St. Clairsville occasionally outsources specialized tasks.[9] Between FY 2013-14 and FY 2016-17, an annual average of 25.0 repair hours were outsourced, which was an average of 10.6 percent of total repairs during that span.[10]

**Table X-10** shows the average direct labor capacity utilization of the St. Clairsville mechanic for FY 2013-14 through FY 2016-17. An examination of direct labor hours available relative to total vehicle maintenance performed can help identify excess labor capacity available for other responsibilities.

**Table X-10: St. Clairsville Mechanic Direct Labor Capacity Utilization**

| | |
|---|---|
| 1.0 FTE Hours | 2,080 |
| Mechanic FTEs | 0.38 |
| Paid Mechanic Hours (FY 2016-17) | 794 |
| Vacation | 0 |
| Sick Leave | 0 |
| Personal Leave | 0 |
| Training | 11.7 |
| Break Time | 57.5 |
| Holidays | 0 |
| Sub Driver Hours (FY 2016-17) | 165.3 |
| | |
| Available Direct | 559.5 |
| Available Direct as % of paid FTE | 0.70 |
| | |
| Peak Direct Labor Performed (FY 2016-17) | 172.9 |
| Direct Labor Used as % of Available Direct | 30.9% |
| Direct Labor as FTE | 0.31 |
| | |
| Excess Direct Labor Capacity | 386.6 |
| Excess Direct Labor Capacity as % of an FTE | 69.1% |
| Excess Director Labor Capacity as FTE | 0.69 |

Source: St. Clairsville

Note: Training time is based upon the eight hours per year of mechanics' training required by the State as well as the 20 hours of classroom training and two hours of on-bus instruction time required every six years for all bus drivers. Break time includes one 15-minute break for the mechanic. Substitute driver hours were calculated from payroll records for FY 2016-17.

As shown in **Table X-10**, the St Clairsville mechanic had an average annual capacity of 559.5 hours of direct labor; 70.0 percent of total compensated hours. Between FY 2013-14 and FY

[9] Outsourced maintenance has typically involved inspections, electrical, transmission, instrument, exhaust, and general overall repairs.

[10] St. Clairsville operated without an in-house mechanic for parts of FY 2014-15 and FY 2015-16.

2016-17, the peak annual hours of direct labor performed was 172.9 hours in FY 2016-17,[11] meaning that during its peak workload year, St. Clairsville spent 30.9 percent of available labor hours on fleet maintenance activities.

Because St. Clairsville operated almost entirely without an in-house mechanic during FY 2014-15, the number of direct labor hours performed that are reflected in **Table X-10** may not necessarily reflect the typical number of repair hours that it could expect to have in any given year. For example, in FY 2014-15, repair hours totaled 409.2. Between FY 2013-14 and FY 2016-17, however, St. Clairsville averaged 223.9 hours of repairs.

**Table X-11** shows how many annual hours the St. Clairsville mechanic would have available assuming that the demand for substitute driving was equal to FY 2016-17, with workload at the peak level from FY 2014-15. Considering this possibility ensures that workload projections accurately reflect the current state.

## Table X-11: St. Clairsville Mechanic Direct Labor Capacity Utilization

| | |
|---|---|
| 1.0 FTE Hours | 2,080 |
| Mechanic FTEs | 0.38 |
| Paid Mechanic Hours | 794 |
| Vacation | 0 |
| Sick Leave | 0 |
| Personal Leave | 0 |
| Training | 11.7 |
| Break Time | 57.5 |
| Holidays | 0 |
| Sub Driver Hours (FY 2016-17) | 165.3 |
| | |
| Available Direct | 559.5 |
| Available Direct as % of paid FTE | 0.70 |
| | |
| Peak Direct Labor Performed (FY 2014-15) | 409.2 |
| Direct Labor Used as % of Available Direct | 73.1% |
| Direct Labor as FTE | 0.73 |
| | |
| Excess Direct Labor Capacity | 150.3 |
| Excess Direct Labor Capacity as % of an FTE | 26.9% |
| Excess Director Labor Capacity as FTE | 0.27 |

Source: St. Clairsville

Note: Training time is based upon the eight hours per year of mechanics' training required by the State, as well as 20 hours of classroom training and two hours of on-bus instruction time also required every six years for all bus drivers. Break time includes one 15-minute break per shift for the mechanic. Substitute driver hours were calculated from payroll records for FY 2016-17.

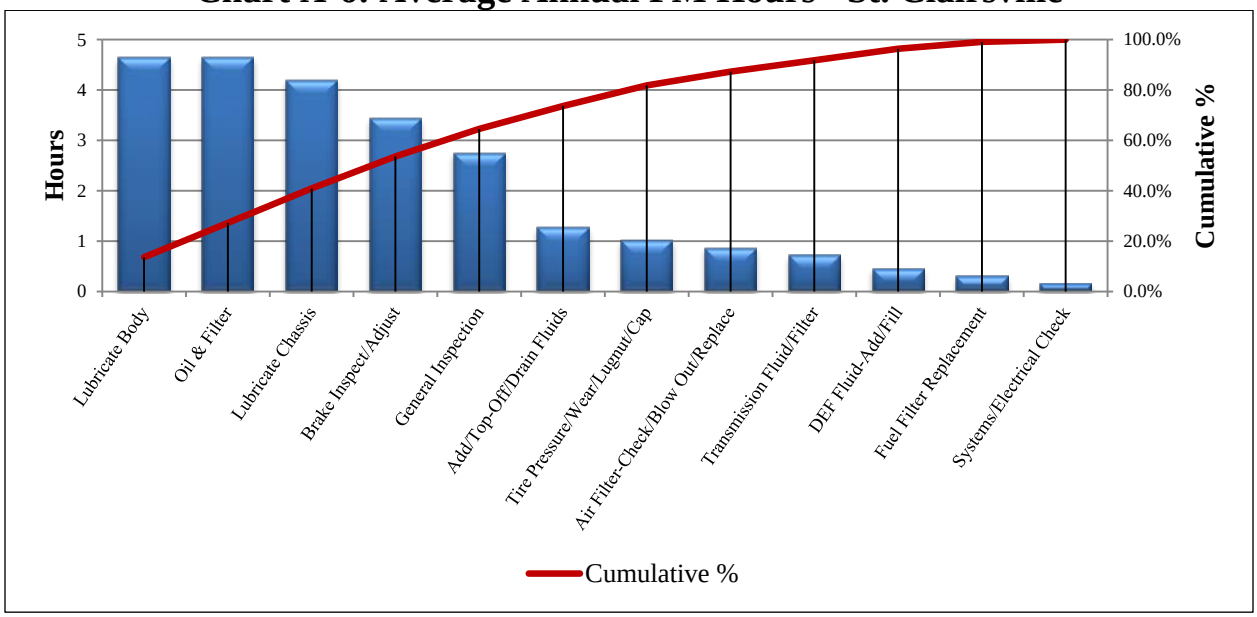
As shown in **Table X-11**, St. Clairsville would still have 559.5 hours available per year for direct labor if the mechanic was required to substitute drive hours commensurate with FY 2016-17 levels. However, if the mechanic had to complete the 409.2 workload hours St. Clairsville faced

[11] Peak workload hours are based on the past repair times extrapolated from the repair data of Bellaire and Shadyside.

during its peak workload year in FY 2014-15, its mechanic would spend 73.1 percent of available labor hours on fleet maintenance activities.

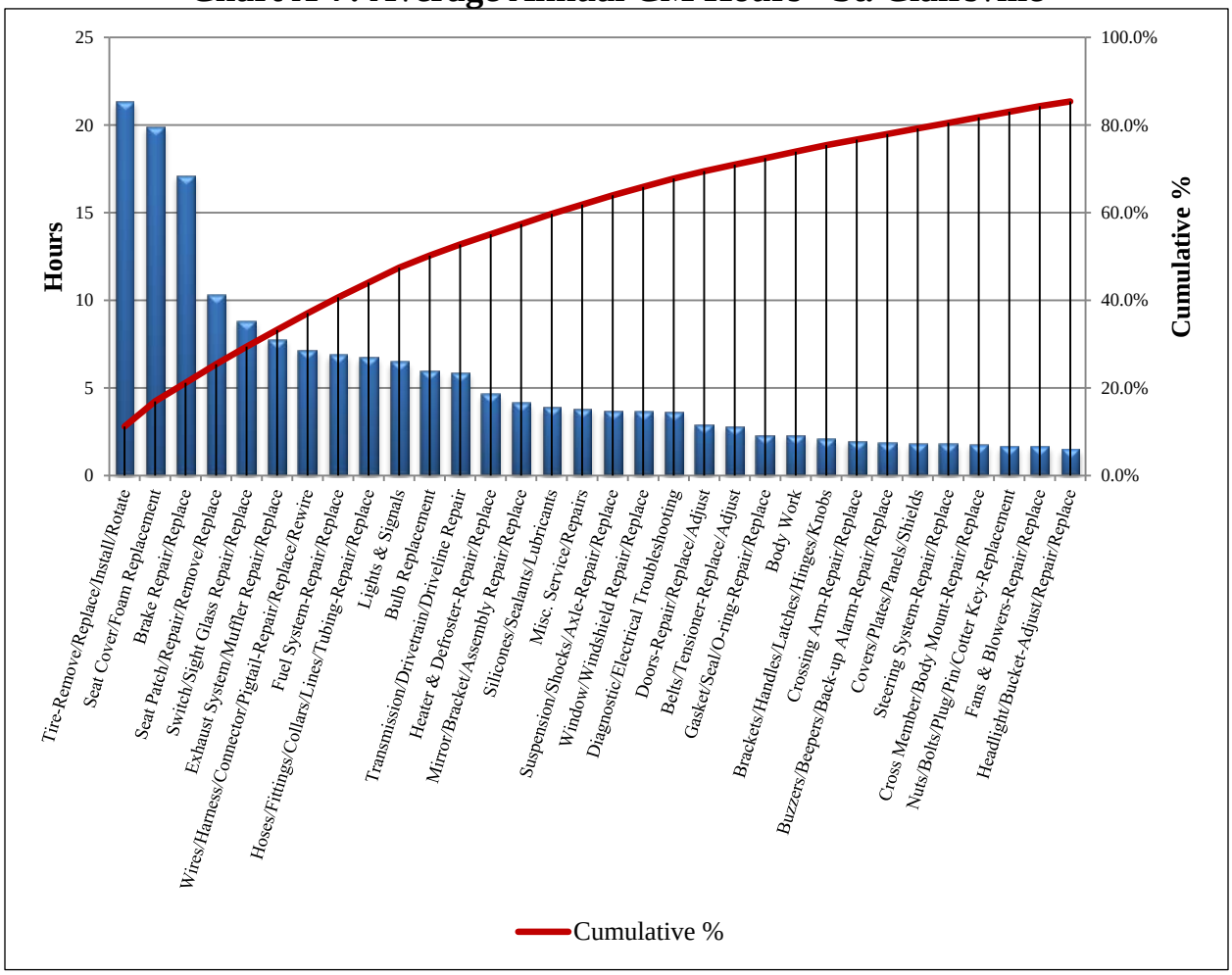
**Chart X-6** and **Chart X-7** show the average number of direct labor hours used by the St. Clairsville mechanic sorted by PM and CM between FY 2013-14 and FY 2016-17. Examining repair activity time can be helpful in understanding the activities with the highest allocation of direct labor time.

**Chart X-6: Average Annual PM Hours - St. Clairsville**




Source: St. Clairsville

**Chart X-7: Average Annual CM Hours - St. Clairsville**




Source: St. Clairsville

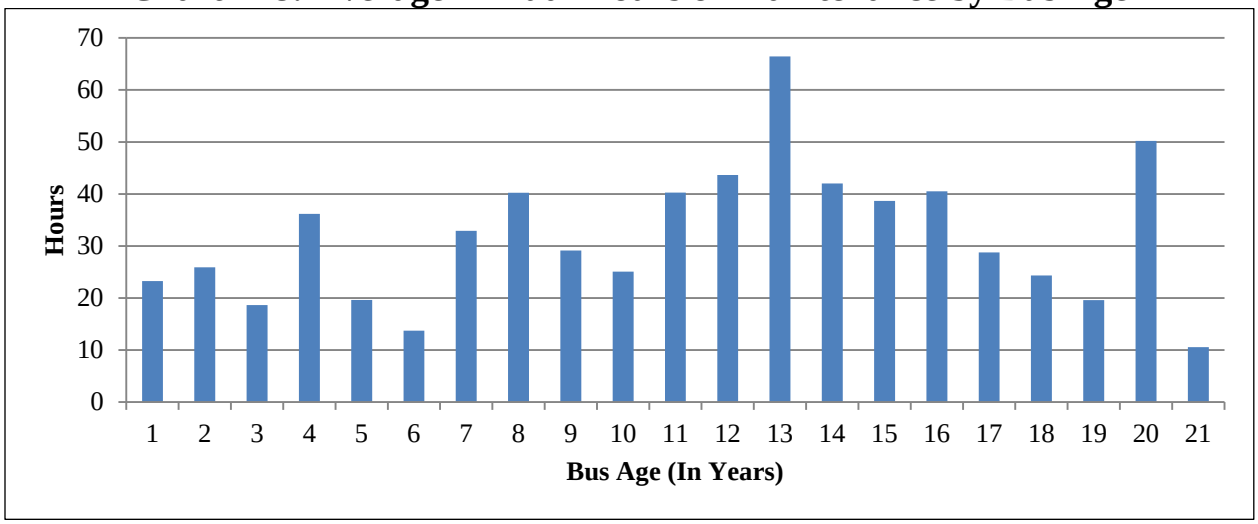
As shown in **Chart X-6**, the St. Clairsville mechanic allocated an average of 17 hours per year, or 53.6 percent of all PM hours, to oil changes, lubrications, and brake inspections. In addition, **Chart X-7** shows that the St. Clairsville mechanic allocated an average of 69 direct labor hours per year, or 25.4 percent of total repair activity hours, to the top four repair categories, tire removal or replacement; seat cover and foam replacements; brake repair; and seat patch or repair.

# Shared Service Scenarios

According to *Shared Services Concepts* (Ohio Association of School Business Officials, September, 2011), school transportation operations should be fully reviewed for the feasibility of delivery through a shared services model whenever that model effectively increases the quality of services to students, parents and communities. There are several ways in which shared services could be adopted by some or all of the districts involved in this study to gain efficiencies and improve transportation services to students. Some opportunities include the sharing of fleet maintenance facilities, staff, or vehicles.

In any shared service scenario, particular attention should be paid to expected maintenance workload, as this will drive demand for mechanic services. One of the major factors in projecting maintenance workload is the age of vehicles and equipment, and the hours of maintenance the vehicles and equipment will require based upon age. **Chart X-8** shows the hours of maintenance required by the combined bus fleets, by age of bus, between FY 2013-14 and FY 2016-17. An examination of repair hours in relation to bus age can show how maintenance demands of a bus change over its life cycle.

**Chart X-8: Average Annual Hours of Maintenance by Bus Age**




Source: Bellaire, Bridgeport, Shadyside, St. Clairsville

As shown in **Chart X-8**, the repair needs of the buses have varied, but tend to increase as a bus ages. After a bus reaches 10 years, average annual maintenance steadily increases, peaking at 66.4 hours in year 13. If a bus is maintained beyond year 13, maintenance requirements remain high for the next three years before beginning to tail off and peaking again in year 20. The decline in bus maintenance after year 16 is likely attributed to there being fewer data points due to buses being removed from the fleet, or because a bus of that age likely has been moved from active to spare and therefore requires less maintenance.

Another major factor to be considered in any shared services scenario is the number of buses that will need to be maintained. Depending on age, each bus requires anywhere from 10.6 to 66.4, or an average of 31.9, hours per year of maintenance. Therefore, reductions in fleet size could have a significant impact on the facilities or staffing that would be required.

**Table X-12** shows the average number of annual hours that each type of vehicle or equipment has required for FY 2013-14 through FY 2016-17.[12] This data is useful in projecting the future maintenance needs of the vehicles and equipment within each district.

## Table X-12: Non-Bus Maintenance Hours by Equipment Type

| Equipment | Annual Hours |
|---|---|
| Tractors | 24.3 |
| Trailers | 0.0 |
| Trucks | 12.0 |
| Vans | 9.2 |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville

As shown in **Table X-12**, tractors required an average of 24.3 hours of maintenance per year, while trucks required 12.0 hours and vans required 9.2 hours. Trailers did not require maintenance in the past four years.

**Table X-13** shows the expected annual maintenance demand for the current fleet of each district based upon projected bus age (see **Chart X-8**) and the average annual maintenance hours required for all non-bus equipment (see **Table X-12**). Examining the history of all repair hours provides an indication of future demand of each district (see also **Appendix A, Tables A-1 to A-4**).

## Table X-13: Projected Annual Repair Demand by District

| | Bellaire | Bridgeport | Shadyside | St. Clairsville |
|---|---|---|---|---|
| FY 2017-18 | 533.7 | 369.1 | 370.1 | 475.5 |
| FY 2018-19 | 530.6 | 356.4 | 334.1 | 441.4 |
| FY 2019-20 | 496.7 | 275.0 | 408.3 | 437.6 |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville

As shown in **Table X-13**, based on current fleet ages, maintenance labor hours should be expected to decline in each district with the exception of Shadyside over the next three years. These numbers could further decline should any district replace an older bus with a newer one, or eliminate any bus from its fleet.[13] Additionally, these annual maintenance hour projections for St. Clairsville further support the usage of a peak workload of 409.2 hours from FY 2014-15 to represent baseline direct labor used in **Table X-10**, rather than the 172.95 hours used in **Table X-9**.

[12] Insufficient data points exist to create a similar chart for the non-bus vehicles and equipment based upon age.

[13] Repair hours will not change if older vans, trucks, tractors, or trailers are replaced with newer ones since annual maintenance projections were based upon the average annual repair hours experienced and not based upon the age of those vehicles or pieces of equipment.

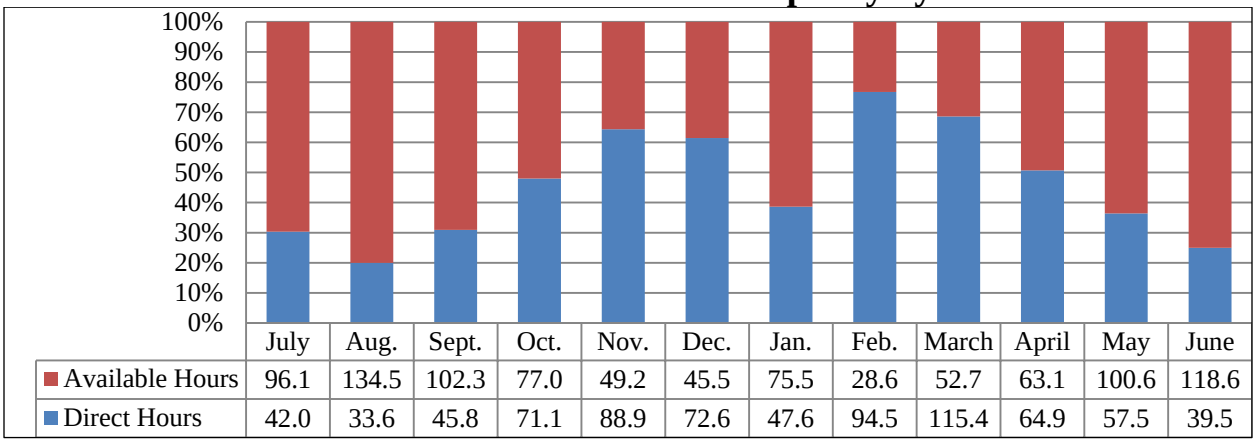
**Shared Service Scenarios**

Each district in this study could choose to serve as a hub for a shared services fleet maintenance garage. This would require an appropriate level of staffing and a facility to handle the capacity of insourced workload. Also, while this study is limited to the four participating school districts, a shared services analysis could be applied more widely to other members of the Ohio Shared Services Collaborative. However, within the scope of this study and based on the data in the current state of operations, outsourcing work to Bellaire presents the best opportunity for sharing transportation operation services between the four districts involved in this study because Bellaire:

- Is centrally located relative to the other districts;
- Is the only district involved in this study with a full-time mechanic;
- Has the most labor capacity based upon a peak labor demand analysis.

**Chart X-9** shows the level of excess capacity for Bellaire by month for FY 2016-17.[14] Examining labor capacity by month can provide an indication of workload trends throughout the year.

**Chart X-9: Bellaire Direct Labor Capacity by Month**




| | July | Aug. | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | March | April | May | June |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Available Hours | 96.1 | 134.5 | 102.3 | 77.0 | 49.2 | 45.5 | 75.5 | 28.6 | 52.7 | 63.1 | 100.6 | 118.6 |
| Direct Hours | 42.0 | 33.6 | 45.8 | 71.1 | 88.9 | 72.6 | 47.6 | 94.5 | 115.4 | 64.9 | 57.5 | 39.5 |

Source: Bellaire

As shown in **Chart X-9**, Bellaire completed anywhere from 33.6 hours of direct labor in August 2016, to 115.4 hours of direct labor in March 2017. Even in February, the busiest month, Bellaire still had nearly one full week of excess labor capacity. This suggests that, although levels may vary, Bellaire could have excess capacity each month to insource work from other districts.

The following scenarios are examined that involve outsourcing work to Bellaire:

- **Scenario 1** - involves Bellaire performing fleet maintenance for any one of the other three districts in its current garage location;
- **Scenario 2** - involves Bellaire performing fleet maintenance for any two of the other districts in its current garage; and
- **Scenario 3** - involves Bellaire performing fleet maintenance for all four districts in its current garage.

[14] The chart reflects all time off for holidays, leave, vacation, calamity days, training, and breaks.

**Scenario 1 – Bellaire Performs Fleet Maintenance for One District**

**Table X-14** shows the combined workload of Bellaire and the peak workload[15] of each partner district singularly. Examining the combined labor hours generated in each of these scenarios is helpful in determining the feasibility of Bellaire sharing a fleet maintenance facility and staff with one district.

## Table X-14: Bellaire Single-District Outsourcing Scenarios

| **Scenario 1A – Insource Bridgeport Services** | | | |
|---|---|---|---|
| | **FY 2017-18** | **FY 2018-19** | **FY 2019-20** |
| Bellaire Capacity | 1,766.6 | 1,766.6 | 1,766.6 |
| Bellaire Workload | 773.3 | 773.3 | 773.3 |
| Bridgeport Workload | 369.1 | 356.4 | 275.0 |
| Remaining Hours | 624.2 | 636.9 | 718.3 |
| | | | |
| **Scenario 1B -- Insource Shadyside Services** | | | |
| Bellaire Capacity | 1,766.6 | 1,766.6 | 1,766.6 |
| Bellaire Workload | 773.3 | 773.3 | 773.3 |
| Shadyside Workload | 512.4 | 512.4 | 512.4 |
| Remaining Hours | 480.9 | 480.9 | 480.9 |
| | | | |
| **Scenario 1C -- Insource St. Clairsville Services** | | | |
| Bellaire Capacity | 1,766.6 | 1,766.6 | 1,766.6 |
| Bellaire Workload | 773.3 | 773.3 | 773.3 |
| St. Clairsville Workload | 475.5 | 441.4 | 437.6 |
| Remaining Hours | 517.8 | 551.9 | 555.7 |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville

Note: The table reflects the hours of combined labor if Bellaire was to take on the peak annual fleet maintenance labor for any one district in its garage, which serves as a feasible work location since it is centrally located between the districts. The workload hours for each district reflects the higher of either the peak historical workload between FY 2014-15 and FY 2016-17 or the peak projected workload between FY 2017-18 to FY 2019-20, which is based on age of current fleet.

As shown in **Table X-14**, it is feasible for Bellaire to take on the peak workload hours of any one of the other districts. In each potential scenario, the mechanic staff in Bellaire would still have remaining labor hours available assuming all direct labor hours were spent performing only fleet maintenance activities. Measuring the projected workloads of all interested parties in this way would be necessary for any district looking to operate its own shared services garage.

One possible advantage of insourcing additional workload is an increase in revenue. **Table X-15** shows the fully-loaded cost to Bellaire of their highest paid mechanic in FY 2017-18. An examination of this information is needed to calculate the amount of revenue that could be generated through the insourcing of work from other districts.

[15] Peak workload used is the higher of either the peak historical workload between FY 2014-15 and FY 2016-17, or the peak projected workload from FY 2017-18 to FY 2019-20.

## Table X-15: Bellaire Mechanic Compensation

| | Board-Paid Costs |
|---|---|
| Hourly Rate | $16.18 |
| Annual Paid Hours | 2,080 |
| Annual Salary | $33,654 |
| Board-Paid SERS | $6,058 |
| Board-Paid Medicare Tax | $488 |
| Total Cost to District | $40,200 |
| **Fully-Loaded Cost per Hour** | **$19.33** |

Source: Bellaire

As shown in **Table X-15**, the fully-loaded cost of the highest paid mechanic in Bellaire is $19.33 per hour. Since Bellaire is already compensating its mechanics for 993 hours of indirect labor time each year, it is possible to reallocate up to that many hours of insourced work from other districts. Bellaire could then bill those other districts at this fully-loaded cost per hour or some other mutually acceptable rate to help offset overhead expenses of operating a garage.

**Table X-16** shows the amount of revenue that could be generated for Bellaire by insourcing work, or the total cost to the other districts for outsourcing to Bellaire. Considering the resulting revenue/costs of sharing fleet maintenance service is important for helping all districts determine the feasibility of each sharing scenario.

## Table X-16: Outsourcing Peak Labor Hours to Bellaire

| | Bridgeport[1] | Shadyside | St. Clairsville |
|---|---|---|---|
| Current Labor Cost per Hour | $70 | $18.33 | $13.85 |
| Peak Workload Hours | 369.1 | 512.0 | 475.5 |
| Peak Cost to District | $25,837 | $9,387 | $6,588 |
| Bellaire Total Hourly Cost | $19.33 | $19.33 | $19.33 |
| Cost to Outsource to Bellaire | $7,134 | $9,895 | $9,190 |
| **Savings** | **$18,703** | **($508)** | **($2,602)** |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville-Richland

[1] While the current labor cost per hour for Bridgeport is an important factor in the analysis, and is reflective of the actual invoiced expenses, it is not an apples-to-apples comparison to the labor cost per hour of the other two districts. The vendor rate is a fully-burdened cost of doing business while the labor costs for the schools reflect only mechanic staff salaries and benefits. Furthermore, the vendor rate is reflective of market competitiveness in a private industry while the school cost is reflective of a tax-payer funded government operation.

As shown in **Table X-16**, Bridgeport appears to be the only district that would benefit financially from outsourcing its peak workload hours to Bellaire in the current state. However, a closer look at each of these scenarios is warranted.

### Scenario 1A - Insourcing from Bridgeport

Through a shared services arrangement with Bridgeport, Bellaire could generate approximately $7,100 in additional annual revenue and Bridgeport would save approximately $18,700 annually over its current cost per hour to outsource. Savings could be greater if Bellaire were able to perform these tasks more efficiently than the current vendor.

**Table X-17** shows Bridgeport's total billed hours for FY 2016-17 compared to the estimated hours it would have taken had the workload been outsourced to Bellaire instead. Comparing the labor hour differences between Bellaire and the local vendor helps to show additional efficiencies that could be gained through a shared services arrangement with Bellaire.

## Table X-17: Bridgeport Labor Efficiency Comparison

| | |
|---|---|
| 2017 Outsourced Labor Costs | $14,378 |
| Billable Cost/Hour of Outsourced Labor Provider | $70 |
| Total Billable Hours at Cost | 205.4 |
| Bellaire Labor Hours for Same Repair Activities[1] | 135.9 |
| Time Savings (Hours) | 69.5 |
| **% Difference** | **33.8%** |

Source: Bridgeport, Bellaire, Shadyside
[1] Based upon the combined average repair times of Bellaire and Shadyside.

As shown in **Table X-17**, it would have taken Bellaire 33.8 percent less time to complete the same repairs that Bridgeport outsourced to its local vendor in FY 2016-17. The difference between the repair times of Bellaire and Bridgeport's current vendor is referred to as the vendor efficiency factor. Because of this level of efficiency, the savings achieved from outsourcing could be greater than what is shown in **Table X-16**.

**Table X-18** shows the increase in hours after accounting for the 33.8 percent vendor efficiency factor. Comparing peak workload at this efficiency level ensures that the projected costs savings generated by outsourcing to Bellaire is reflected accurately.

## Table X-18: Peak Labor Hour Comparison

| | **Bridgeport** |
|---|---|
| Current Labor Cost per Hour | $70 |
| Peak Workload Hours [1] | 369.1 |
| Vendor Efficiency Factor | 33.8% |
| Peak Workload Hours (Assuming Vendor Efficiency Factor) | 493.9 |
| Peak Cost to District | $34,570 |
| Bellaire Total Hourly Cost | $19.33 |
| Cost to Outsource to Bellaire | $7,134 |
| **Savings** | **$27,436** |

Source: Bridgeport
[1] Peak workload hours are based on the past repair times extrapolated from the repair data of Bellaire and Shadyside.

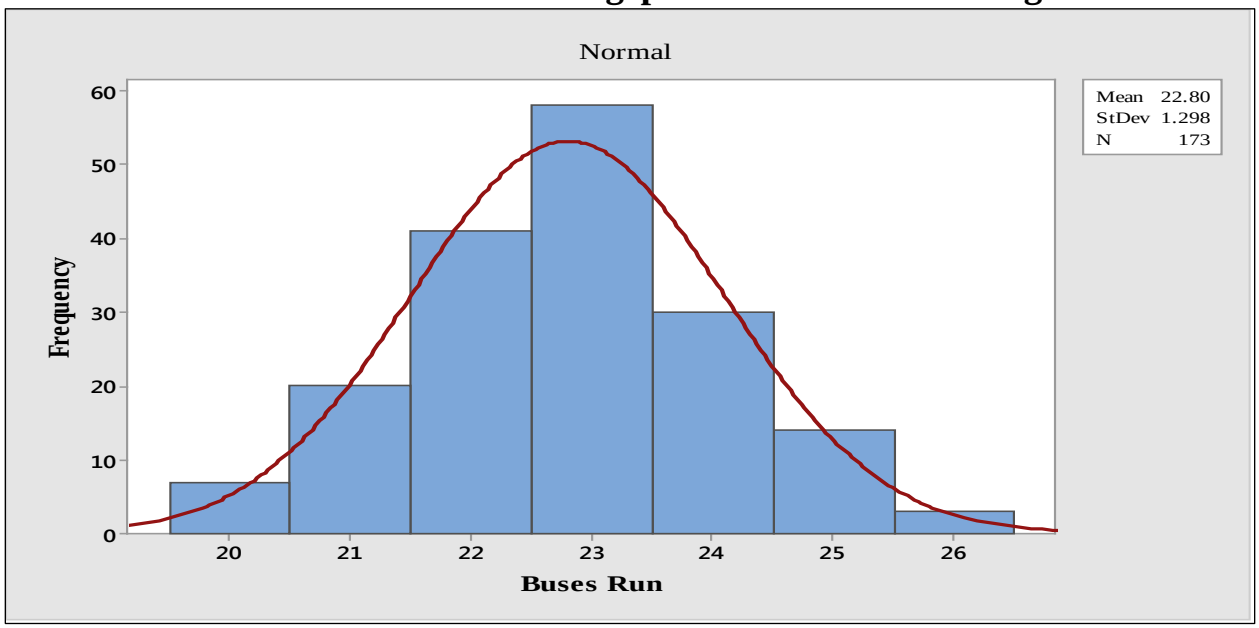
As shown in **Table X-18**, it would require 493.9 hours of labor to outsource Bridgeport's peak annual workload to the current vendor, assuming the 33.8 percent vendor efficiency factor, and only 369.1 hours to outsource that labor to Bellaire. Therefore, Bridgeport would save $27,436 by outsourcing its peak workload to Bellaire rather than using the current vendor.

In addition to sharing fleet maintenance staff and facilities, Bellaire and Bridgeport could also benefit from operating with a shared pool of spare buses or by having an agreement in place to share spare buses with one another. Spare buses are those maintained by a district in addition to those assigned to regular routes. Each district maintains a certain number of these spare buses to

use when a regular route bus is down for maintenance, or for extra trips that must occur when an assigned bus is running a regular route or otherwise unavailable for use. By partnering together to share spare buses, districts are able to reduce the total number of spare buses between them while still ensuring that there are enough spares to meet periods of peak demand. This will require some coordinated scheduling by the hub district in order to accommodate the increased workload.

**Chart X-10** shows the combined number of buses that Bellaire and Bridgeport used on their common school days in FY 2016-17. Considering combined bus usage can help to show where further efficiencies could be gained between the two districts if they were to share a pool of spare buses.

**Chart X-10: Bellaire-Bridgeport Combined Bus Usage**




Source: Muskingum County ESC

As shown in **Chart X-10**, Bellaire and Bridgeport jointly operated an average of approximately 23 buses on combined school days in FY 2016-17. The highest number of buses used between the two districts on a single common school day was 26. These two districts currently maintain a combined total of 28 buses. Therefore, the districts would need to maintain two fewer total buses if a shared services arrangement involving fleet, such as a shared pool of spare buses, were to be implemented.[16] Reducing two buses will result in fewer required annual maintenance hours.

**Table X-19** shows the total number of labor and compensated hours that could be eliminated if Bellaire and Bridgeport were to share a pool of spare buses and could reduce the two oldest buses from their combined fleet as well the corresponding level of labor cost savings this would

[16] While this is based upon bus usage on a daily basis, it is possible that an examination of bus usage throughout each hour of the day might reveal additional efficiency opportunities.

generate.[17] Establishing the number of hours that could be saved through a shared spare bus fleet helps to show the additional efficiencies that can be gained by reducing the overall fleet size.

**Table X-19: Bellaire-Bridgeport Optimized Fleet**

| | Current | Optimized | Difference | Compensated Hours | FTEs | Savings |
|---|---|---|---|---|---|---|
| FY 2017-18 | 805.8 | 784.7 | (21.1) | (31.0) | 0.01 | $600 |
| FY 2018-19 | 790.0 | 768.9 | (21.1) | (31.0) | 0.01 | $612 |
| FY 2019-20 | 674.7 | 653.6 | (21.1) | (31.0) | 0.01 | $612 |
| **Average** | **756.8** | **735.7** | **(21.1)** | **(31.0)** | **0.01** | **$608** |

Source: Bellaire, Bridgeport

As shown in **Table X-19,** Bellaire and Bridgeport could reduce 21.1 labor hours, or 31.0 compensated hours, per year by sharing a pool of spare buses. Eliminating the two oldest buses would result in a yearly labor cost savings of $608. These labor hours amount to the equivalent of 0.01 FTE mechanic hours in Bellaire.

In addition to the reduction of labor hours, each spare bus that is eliminated would save $860 in annual insurance costs, and would generate a one-time savings of $4,000 in salvage value.[18] The method of reduction would be dependent on the shared services agreement reached by the districts.

It is useful to keep in mind another reason for Bridgeport to continue outsourcing its workload. If Bridgeport wanted to do its fleet maintenance work in-house, this would require construction of a maintenance garage. **Table X-20** shows projected costs of constructing a fleet maintenance garage the size of the existing Bellaire garage.[19] Considering the cost of constructing a new facility highlights the capital expenditures Bridgeport would have if it were to handle all fleet maintenance in-house.

[17] Savings projected for FY 2018-19 and FY 2019-20 is based upon highest salary schedule for mechanic shown in Bellaire OAPSE contract.

[18] Savings includes the average insurance cost per bus across all four districts as well as the salvage value of a functional, 16-year-old, 72-passenger bus from Richie Brothers online auctions, as determined during a previous OPT performance audit of Gallipolis City School District.

[19] Based upon the per square foot cost of the recently constructed garage in the Gallipolis City School District.

## Table X-20: Projected Construction Costs of New Two-Bay Garage

| Construction Year | Square Footage | Per Sq. Foot[1] | Total Cost |
|---|---|---|---|
| 2018 | 4030 | $110.44 | $445,073 |
| 2019 | 4030 | $114.86 | $462,886 |
| 2020 | 4030 | $119.45 | $481,384 |
| 2021 | 4030 | $124.23 | $500,647 |
| 2022 | 4030 | $129.20 | $520,676 |
| 2023 | 4030 | $134.37 | $541,511 |
| 2024 | 4030 | $139.74 | $563,152 |
| 2025 | 4030 | $145.33 | $585,680 |
| 2026 | 4030 | $151.14 | $609,094 |
| 2027 | 4030 | $157.19 | $633,476 |
| 2028 | 4030 | $163.48 | $658,824 |

[1] Adjusted for inflation.

As shown in **Table X-20**, it would cost Bridgeport approximately $445,000 to construct a new fleet maintenance garage the size of the Bellaire garage in 2018 and up to $659,000 by 2028. By continuing to outsource its fleet maintenance labor hours, Bridgeport avoids these potential costs as well as the ongoing operational costs of that facility.

### Scenario 1B - Insourcing from Shadyside

Shadyside could incur minimal additional costs by outsourcing its direct labor to Bellaire (see **Table X-16**). Savings may be achievable, however, because Shadyside had to compensate its mechanic at overtime rates to complete his total required workload. **Table X-21** shows the amount of overtime hours that the Shadyside mechanic was paid between FY 2014-15 and FY 2016-17 as well as a projection for FY 2017-18.[20] Examining overtime is helpful for identifying the full costs of handling most fleet maintenance activities in-house.

## Table X-21: Shadyside Mechanic Overtime Pay

| | FY 2014-15 | FY 2015-16 | FY 2016-17 | Average | FY 2017-18 Projected |
|---|---|---|---|---|---|
| Overtime Pay | $4,476 | $7,264 | $4,644 | $5,462 | $6,348 |
| Hourly Rate | $12.95 | $13.55 | $14.63 | $13.71 | $15.88 |
| Overtime Rate | $19.43 | $20.33 | $21.95 | $20.57 | $23.82 |
| Overtime Hours | 230.4 | 357.4 | 211.6 | 266.5 | 266.5 |

Source: Shadyside

Note: This table only reflects the amount of overtime compensation paid out to the Shadyside mechanic in each year. This is helpful in determining the number of hours of overtime for which the mechanic was compensated; however, it does not reflect the total cost of his time to Shadyside because of associated benefits.

As shown in **Table X-21**, Shadyside paid an average of 266.5 hours of overtime compensation per year to its mechanic for combined workload activities over the past three years.[21] Shadyside

[20] The FY 2017-18 projection is based upon the average hours of the previous three years multiplied by the current rate of overtime pay for the mechanic.

[21] The mechanic is also a 0.5 FTE building maintenance employee and is responsible for mowing grass and lining the football field.

does not track the purpose of overtime based on workload demand; however, since historical and projected workload hours exceed these paid overtime hours, it is reasonable to conclude that Shadyside would not have incurred any of these overtime hours and expenses if all fleet maintenance activities had been outsourced to Bellaire.

**Table X-22** shows the actual cost of these overtime hours accrued by the Shadyside mechanic with additional benefit costs included.[22] Considering the full cost of in-house overtime is necessary when determining the cost efficiency of outsourcing.

## Table X-22: Full Cost of Shadyside Overtime

| | |
|---|---|
| Full Compensation Cost per Hour | $18.33 |
| Overtime Cost per Hour | $27.50 |
| Overtime Hours | 266.5 |
| Full Overtime Cost | $7,328 |
| | |
| Bellaire Cost/Charge per Hour | $19.33 |
| Cost of OT Hours if Shifted to Bellaire | $5,150 |
| | |
| **Net Savings from Outsourcing to Bellaire** | **$2,178** |

Source: Bellaire and Shadyside

As shown in **Table X-22,** Shadyside could save $2,178 by outsourcing all mechanic overtime hours for FY 2017-18 to Bellaire. Considering these overtime labor costs changes affects the feasibility of Shadyside outsourcing all of its vehicle maintenance labor hours to Bellaire.
**Table X-23** shows the full cost if Shadyside were to outsource all labor hours to Bellaire, and considers the actual costs of the maintenance and the elimination of projected overtime of the Shadyside mechanic. Examining the full cost to Shadyside of performing maintenance in-house is necessary to determine the feasibility of any outsourcing agreement.

[22] Board-paid costs include a 14.0 percent contribution to the School Employees Retirement System (SERS), additional 4.0 percent SERS board pick-up, and 1.45 percent Medicare contribution, but do not include the costs of any insurance benefits.

## Table X-23: Full Cost of Shadyside Partnering with Bellaire

| | |
|---|---|
| Full Compensation Cost per Hour | $18.33 |
| Peak Labor Hours | 512 |
| Cost of Peak Labor Hours | $9,387 |
| Overtime Cost per Hour | $27.50 |
| 50% Overtime Premium Pay | $9.17 |
| Overtime Hours | 266.5 |
| Overtime Premium Cost to District | $2,443 |
| Total In-House Vehicle Maintenance Cost | $11,830 |
| | |
| Bellaire Cost/Charge per Hour | $19.33 |
| Cost to Outsource All Labor to Bellaire | $9,895 |
| | |
| Net Savings from Outsourcing to Bellaire | $1,935 |

Source: Bellaire and Shadyside

As shown in **Table X-23**, the total cost of Shadyside performing its peak fleet maintenance hours in-house, and incurring the average overtime hours, exceeds the costs the District would have incurred if it had outsourced to Bellaire its entire fleet maintenance workload projected for FY 2017-18 by $1,935.

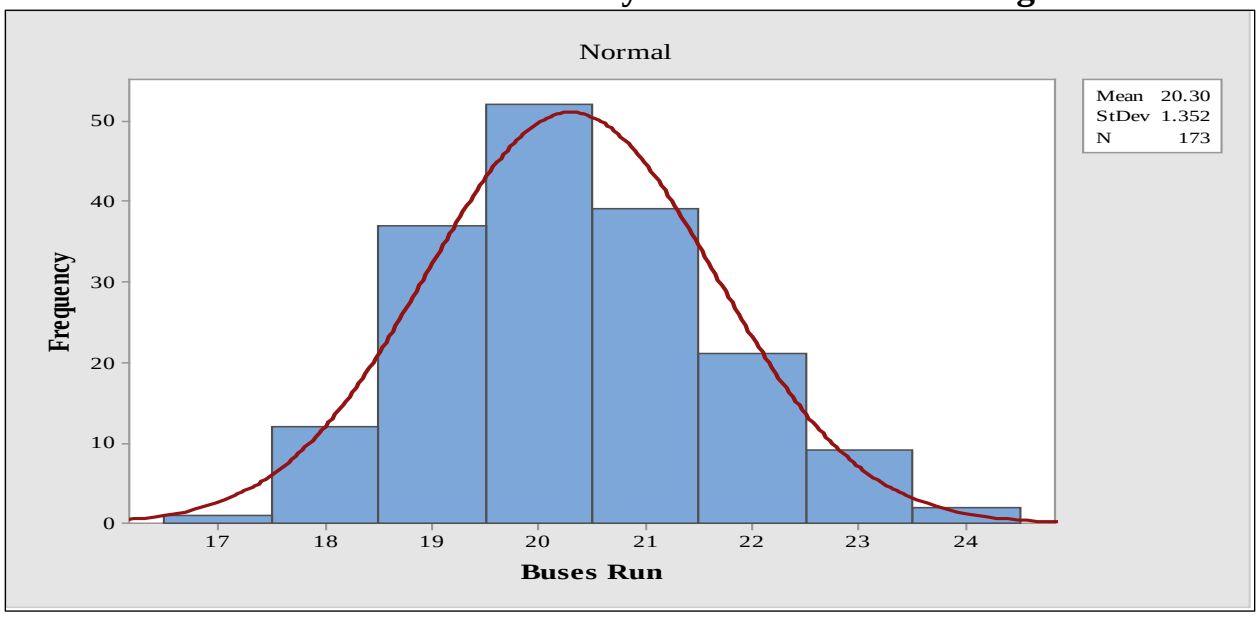
An ancillary benefit to Shadyside from outsourcing all fleet maintenance activities to Bellaire is that it could free up hours the mechanic is currently spending on these fleet maintenance activities. These hours could be reallocated to other tasks. For example, Shadyside's current Transportation and Maintenance Supervisor is eligible to retire and there is no succession plan for this key position. The reallocated mechanic's hours could be spent cross-training with the Transportation and Maintenance Supervisor. According to *Ohio's Talent for Tomorrow and Beyond* (Ohio Department of Administrative Services (DAS), 2011), government entities should have a succession plan in place for key employees. Positions should be identified as key if they have the following characteristics:

- Are single incumbent;
- Have specialized knowledge or expertise;
- Are difficult to replace;
- Are difficult to retain;
- Have risk of attrition; and
- Are retirement vulnerable.

In addition to sharing fleet maintenance staff and facilities, Bellaire and Shadyside could also benefit from operating with a shared pool of spare buses or by having an agreement in place to share spare buses with one another.

**Chart X-11** shows the combined number of buses that Bellaire and Shadyside used on their common school days in FY 2016-17. Considering combined bus usage can help to show where further efficiencies could be gained between the two districts if they were to share a pool of spare buses.

## Chart X-11: Bellaire-Shadyside Combined Bus Usage




Source: Muskingum County ESC

As shown in **Chart X-11**, Bellaire and Shadyside jointly operated an average of 20 buses on combined school days in FY 2016-17. The highest number of buses used between the two districts on a single common school day was 24. Because the districts currently maintain a combined total of 26 buses, they would need to maintain two fewer total buses if a shared services arrangement involving fleet, such as a shared pool of spare buses, were to be implemented.[23] An elimination of two buses will reduce the total required annual workload hours.

**Table X-24** shows the total number of labor and compensated hours that could be eliminated if Bellaire and Shadyside were to share a pool of spare buses and could reduce the two oldest buses from their combined fleet as well the corresponding labor cost savings this would generate.[24] Establishing the number of labor hours that could be saved through a shared spare bus fleet helps to show the additional efficiencies that could be gained by reducing the overall fleet size.

## Table X-24: Bellaire-Shadyside Optimized Fleet

| | Current | Optimized | Difference | Compensated Hours | FTEs | Savings |
|---|---|---|---|---|---|---|
| FY 2017-18 | 706.9 | 667.6 | (39.3) | (57.8) | 0.03 | $1,117 |
| FY 2018-19 | 667.8 | 632.9 | (34.9) | (51.3) | 0.02 | $1,012 |
| FY 2019-20 | 708.0 | 677.9 | (30.1) | (44.3) | 0.02 | $874 |
| **Average** | **694.2** | **659.4** | **(34.8)** | **(51.1)** | **0.02** | **$1,001** |

Source: Bellaire, Shadyside

[23] Bus total assumes the elimination of bus #6 as currently planned. This is based upon bus usage on a daily basis. It is possible that further examination of bus usage throughout each hour of the day might reveal additional efficiency opportunities.

[24] Savings projected for FY 2018-19 and FY 2019-20 is based upon highest salary schedule for mechanic shown in Bellaire OAPSE contract.

As shown in **Table X-24,** Bellaire and Shadyside could reduce an average of 34.8 labor hours, or 51.1 compensated hours, over the next three years by sharing a pool of spare buses. Eliminating the two oldest buses between them would result in a yearly labor cost savings of $1,001. These labor hours amount to the equivalent of 0.02 FTE mechanic hours in Bellaire.

In addition to the reduction of labor hours, each spare bus that is eliminated would save $860 in annual insurance costs, and would generate a one-time savings of $4,000 in salvage value.[25] The method of reduction would be dependent on the shared services agreement reached by the districts.

There is some additional cost savings if Shadyside outsources its workload. **Table X-25** shows projected costs of constructing a fleet maintenance garage the size of the existing Bellaire garage.[26] Considering the cost of eventually constructing a new facility highlights the capital expenditures Shadyside would have if it were to handle all fleet maintenance in-house.

**Table X-25: Projected Construction Costs of New Two-Bay Garage**

| Construction Year | Square Footage | Per Sq. Foot[1] | Total Cost |
|---|---|---|---|
| 2018 | 4030 | $110.44 | $445,073 |
| 2019 | 4030 | $114.86 | $462,886 |
| 2020 | 4030 | $119.45 | $481,384 |
| 2021 | 4030 | $124.23 | $500,647 |
| 2022 | 4030 | $129.20 | $520,676 |
| 2023 | 4030 | $134.37 | $541,511 |
| 2024 | 4030 | $139.74 | $563,152 |
| 2025 | 4030 | $145.33 | $585,680 |
| 2026 | 4030 | $151.14 | $609,094 |
| 2027 | 4030 | $157.19 | $633,476 |
| 2028 | 4030 | $163.48 | $658,824 |

[1] Adjusted for inflation.

As shown in **Table X-25**, it would cost Shadyside approximately $445,000 to construct a new fleet maintenance garage the size of the Bellaire garage in 2018 and up to $659,000 by 2028. By outsourcing its fleet maintenance labor hours, Shadyside avoids these potential costs as well as the ongoing operational costs of that facility.

**Scenario 1C -- Insourcing from St. Clairsville**

As shown in previous **Table X-16**, it is not currently financially beneficial from a labor cost perspective for St. Clairsville to outsource its annual workload to Bellaire. However, St. Clairsville is currently operating with a long-term substitute mechanic. Should the current situation change, the CBA between St. Clairsville and OAPSE requires that the mechanic position be offered to a qualified bargaining unit member.

[25] Savings includes the average insurance cost per bus across all four districts as well as the salvage value of a functional, 16-year-old, 72-passenger bus from Richie Brothers online auctions, as determined during a previous OPT performance audit of Gallipolis City School District.

[26] Based upon the per square foot cost of the recently constructed garage in the Gallipolis City School District.

**Table X-26** shows a comparison of the fully-loaded cost per hour for the current substitute mechanic in St. Clairsville relative to the fully-loaded cost per hour of employing a bargaining unit mechanic/bus driver.[27] Comparing these costs is an important step in determining whether or not to outsource fleet maintenance activities to Bellaire.

## Table X-26: St. Clairsville Bargaining Unit Mechanic Cost Comparison

| Category | Current Substitute Mechanic | Bargaining Unit Mechanic |
|---|---|---|
| Hourly Rate | $12.00 | $18.79 |
| Annual Billed Hours[1] | 794 | 964 |
| Annual Salary | $9,528 | $18,114 |
| Board-Paid SERS | $1,334 | $2,536 |
| Board-Paid Medicare Tax | $138 | $263 |
| Total Cost to District | $11,000 | $20,913 |
| **Fully-Loaded Cost per Hour** | **$13.85** | **$21.69** |

Source: St. Clairsville

[1] Annual billed hours for a bargaining unit mechanic are stipulated in the contract based upon the number of work days.

As shown in **Table X-26** St. Clairsville would incur drastically higher costs by employing a bargaining unit mechanic, which would have a significant effect on the financial benefit of outsourcing fleet labor activities to Bellaire.

**Table X-27** shows potential labor cost savings if St. Clairsville were to outsource its peak workload hours to Bellaire rather than having it done in-house by a bargaining unit mechanic. Comparing these costs more accurately shows the feasibility of sharing a fleet facility and maintenance staff with Bellaire.

## Table X-27: St. Clairsville Outsource Comparison

| | |
|---|---|
| Bargaining Unit Labor Cost per Hour | $21.69 |
| Peak Workload Hours | 475.5 |
| Peak Cost to District | $10,315 |
| Bellaire Total Hourly Cost | $19.33 |
| Cost to Outsource to Bellaire | $9,190 |
| **Savings** | **$1,125** |

Source: St. Clairsville

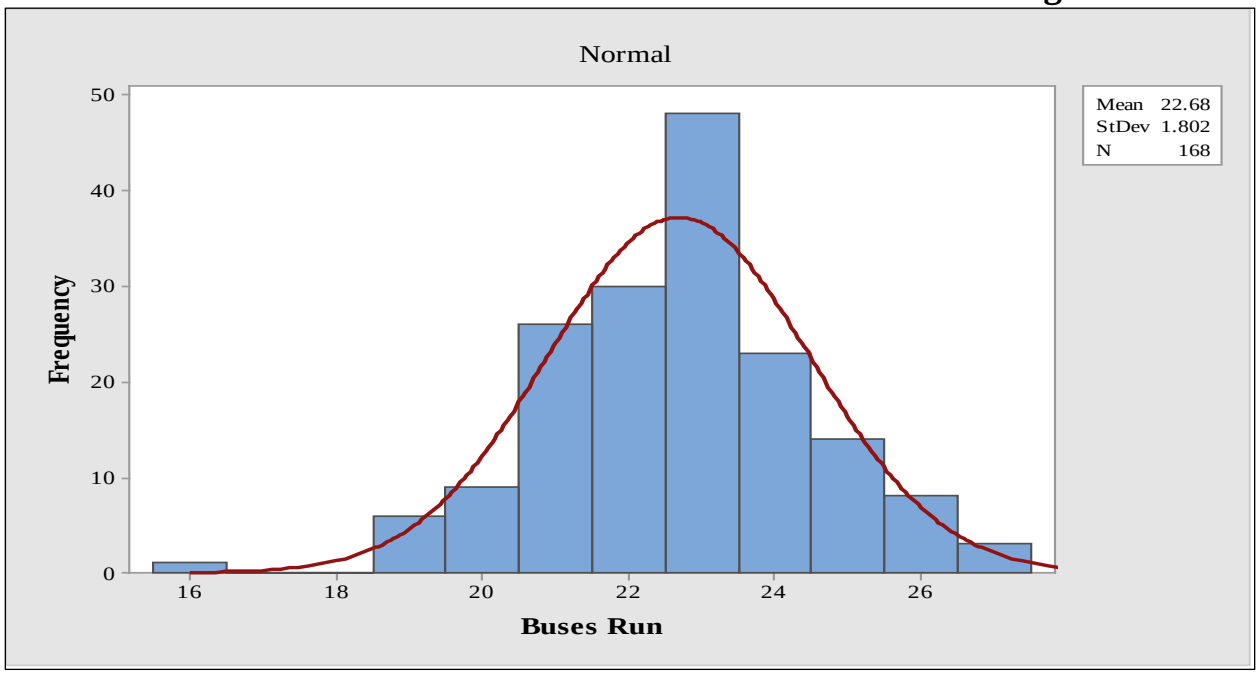
As shown in **Table X-27,** St. Clairsville could save $1,125 per year in labor costs by outsourcing its fleet maintenance activities to Bellaire rather than paying a bargaining unit mechanic for this same labor.

In addition to sharing fleet maintenance staff and facilities, Bellaire and St. Clairsville could also benefit from operating with a shared pool of spare buses or by having an agreement in place to share spare buses.

[27] Rate is based upon Step 1 of the CBA between St. Clairsville and OAPSE for FY 2017-18.

**Chart X-12** shows the combined number of buses that Bellaire and St. Clairsville used on their common school days in FY 2016-17. Considering combined bus usage can help to show where further efficiencies could be gained between the two districts if they were to share spare buses.

**Chart X-12: Bellaire-St. Clairsville Combined Bus Usage**




Source: Muskingum County ESC

As shown in **Chart X-12**, Bellaire and St. Clairsville jointly operated an average of 23 buses on combined school days in FY 2016-17. The highest number of buses used between the two districts on a single common school day was 27. Because the districts currently maintain a combined total of 29 buses, they would need to maintain two fewer total buses if a shared services arrangement involving fleet, such as a shared pool of spare buses, were to be implemented.[28] An elimination of two buses will reduce the total maintenance hours required.

**Table X-28** shows the total number of labor and compensated hours that could be eliminated if Bellaire and St. Clairsville were to share a pool of spare buses and could reduce the two oldest buses from their combined fleet, as well the corresponding amount of labor cost savings this would generate.[29] Establishing the number of labor hours that could be saved through a shared spare bus fleet helps to show the additional efficiencies that can be gained by reducing the overall fleet size.

[28] While this is based upon bus usage on a daily basis, it is possible that an examination of bus usage throughout each hour of the day might reveal additional efficiency opportunities.

[29] Savings projected for FY 2018-19 and FY 2019-20 are based upon the highest salary schedule for a mechanic shown in the Bellaire OAPSE contract.

## Table X-28: Bellaire-St. Clairsville Optimized Fleet

| | Current | Optimized | Difference | Compensated Hours | FTEs | Savings |
|---|---|---|---|---|---|---|
| FY 2017-18 | 888.2 | 848.9 | (39.3) | (57.8) | 0.03 | $1,117 |
| FY 2018-19 | 851.1 | 816.2 | (34.9) | (51.3) | 0.02 | $1,012 |
| FY 2019-20 | 813.4 | 783.2 | (30.1) | (44.3) | 0.02 | $874 |
| **Average** | **850.9** | **816.1** | **(34.8)** | **(51.1)** | **0.02** | **$1,001** |

Source: Bellaire, St. Clairsville

As shown in **Table X-28,** Bellaire and St. Clairsville could reduce an average of 34.8 labor hours, or 51.1 compensated hours, over the next three years by sharing a pool of spare buses. Eliminating the two oldest buses between them would result in a yearly labor cost savings of $1,001. These labor hours amount to the equivalent of 0.02 FTE mechanic hours in Bellaire.

In addition to the reduction of labor hours, each spare bus that is eliminated would save $860 in annual insurance costs, and would generate a one-time savings of $4000 in salvage value.[30] The method of reduction would be dependent on the shared services agreement reached by the districts.

There is some additional cost savings if St. Clairsville outsources its workload to Bellaire. **Table X-29** shows projected costs of constructing a fleet maintenance garage the size of the existing Bellaire garage.[31] Considering the cost of constructing a new facility highlights the capital expenditures St. Clairsville would eventually have if it were to handle all fleet maintenance in-house.

## Table X-29: Projected Construction Costs of New Two-Bay Garage

| Construction Year | Square Footage | Per Sq. Foot[1] | Total Cost |
|---|---|---|---|
| 2018 | 4030 | $110.44 | $445,073 |
| 2019 | 4030 | $114.86 | $462,886 |
| 2020 | 4030 | $119.45 | $481,384 |
| 2021 | 4030 | $124.23 | $500,647 |
| 2022 | 4030 | $129.20 | $520,676 |
| 2023 | 4030 | $134.37 | $541,511 |
| 2024 | 4030 | $139.74 | $563,152 |
| 2025 | 4030 | $145.33 | $585,680 |
| 2026 | 4030 | $151.14 | $609,094 |
| 2027 | 4030 | $157.19 | $633,476 |
| 2028 | 4030 | $163.48 | $658,824 |

[1] Adjusted for inflation.

As shown in **Table X-29**, it would cost St. Clairsville approximately $445,000 to construct a new fleet maintenance garage the size of the Bellaire garage in 2018 and up to $659,000 by 2028. By outsourcing its fleet maintenance labor hours, St. Clairsville avoids these potential costs as well as the ongoing operational costs of that facility.

[30] Savings includes the average insurance cost per bus across all four districts as well as the salvage value of a functional, 16-year-old, 72-passenger bus from Richie Brothers online auctions, as determined during a previous OPT performance audit of Gallipolis City School District.

[31] Based upon the per square foot cost of the recently constructed garage in the Gallipolis City School District.

**Scenario 2 – Bellaire Performs Fleet Maintenance for Two Districts**

Scenario 1 shows that it is feasible in the current state for Bellaire to reallocate indirect labor hours to handle the fleet maintenance workload of any one of the other districts. **Table X-30** shows additional workload for Bellaire if it insourced annual fleet maintenance labor of two districts at its current garage location. Examining the combined labor hours generated in each of these scenarios is helpful in determining the feasibility of Bellaire sharing a fleet maintenance facility and staff with two other districts.

## Table X-30: Two District Outsourcing to Bellaire Scenarios

| Scenario 2A - Insource from Bridgeport and Shadyside | | | |
|---|---|---|---|
| | **FY 2017-18** | **FY 2018-19** | **FY 2019-20** |
| Bellaire Capacity | 1,766.6 | 1,766.6 | 1,766.6 |
| Bellaire Workload | 773.3 | 773.3 | 773.3 |
| Bridgeport Workload | 369.1 | 356.4 | 275.0 |
| Shadyside Workload | 512.4 | 512.4 | 512.4 |
| Remaining Hours | 111.8 | 124.5 | 205.9 |
| | | | |
| **Scenario 2B - Insource from Bridgeport and St. Clairsville** | | | |
| Bellaire Capacity | 1,766.6 | 1,766.6 | 1,766.6 |
| Bellaire Workload | 773.3 | 773.3 | 773.3 |
| Bridgeport Workload | 369.1 | 356.4 | 275.0 |
| St. Clairsville Workload | 475.5 | 441.4 | 437.6 |
| Remaining Hours | 148.7 | 195.5 | 280.7 |
| | | | |
| **Scenario 2C - Insource from Shadyside and St. Clairsville** | | | |
| Bellaire Capacity | 1,766.6 | 1,766.6 | 1,766.6 |
| Bellaire Workload | 773.3 | 773.3 | 773.3 |
| Shadyside Workload | 512.4 | 512.4 | 512.4 |
| St. Clairsville Workload | 475.5 | 441.4 | 437.6 |
| Remaining Hours | 5.4 | 39.5 | 43.3 |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville

Note: The workload hours shown in the table reflect the higher of either the peak historical workload between FY 2014-15 and FY 2016-17 or the peak projected workload between FY 2017-18 to FY 2019-20, which is based on age of current fleet.

As shown in **Table X-30**, it is feasible for Bellaire to take on the peak workload hours of any two of the other districts and still have excess direct hours available. Again this assumes all direct labor hours are spent only performing fleet maintenance activities. Bellaire could then generate additional revenue by billing these to other districts at the normal hourly rate of its highest-paid mechanic or some other agreed upon rate. Any district looking to operate a shared services garage would need to consider the projected workloads of all interested parties in this fashion.

**Table X-31** shows the total revenue Bellaire could generate by reallocating the appropriate number of its mechanic indirect labor hours towards the direct labor demand of the other two districts in each of the above scenarios. Considering the financial impact to Bellaire for taking on the maintenance workload of these other two districts will help determine the feasibility of such a shared service arrangement.

## Table X-31: Insourcing Labor from Two Districts

| District | Scenario 2A | Scenario 2B | Scenario 2C |
|---|---|---|---|
| Bridgeport | $7,134 | $7,134 | N/A |
| Shadyside | $9,895 | N/A | $9,895 |
| St. Clairsville | N/A | $9,190 | $9,190 |
| **Total** | **$17,029** | **$16,324** | **$19,085** |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville

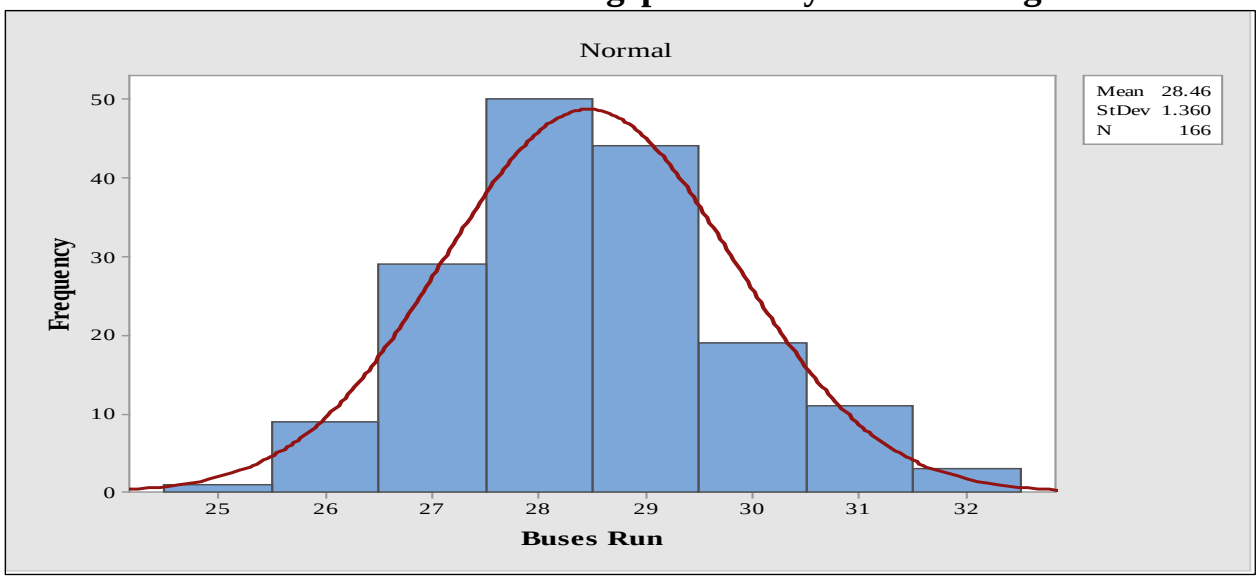
As shown in **Table X-31**, Bellaire could generate additional revenue by insourcing work from any two of the other districts. Bellaire could generate the most additional revenue by assuming the workload of Shadyside and St. Clairsville.

### Scenario 2A – Insourcing from Bridgeport and Shadyside

In addition to sharing fleet maintenance staff and facilities, Bellaire, Bridgeport, and Shadyside could also benefit from operating with a shared pool of spare buses or by having an agreement in place to share spare buses with one another.

**Chart X-13** shows the combined number of buses used by Bellaire, Bridgeport, and Shadyside on their common school days in FY 2016-17. Considering combined bus usage can help to show where further efficiencies could be gained between the three districts if they were to share spare buses.

## Chart X-13: Bellaire-Bridgeport-Shadyside Bus Usage




Source: Muskingum County ESC

As shown in **Chart X-13**, the three districts jointly operated an average of 28 buses on combined school days in FY 2016-17. The highest number of buses used between the three districts on a single common school day was 32. Because the districts currently maintain a combined total of 36 buses, they would need to maintain four fewer total buses if a shared services arrangement

involving fleet, such as a shared pool of spare buses, were to be implemented.[32] A reduction of four buses will decrease the number of maintenance hours that would be necessary.

**Table X-32** shows the total number of labor and compensated hours that could be eliminated if Bellaire, Bridgeport, and Shadyside were to share spare buses and could reduce the four oldest buses from their combined fleet, as well the corresponding amount of labor cost savings this would generate.[33] Establishing the number of labor hours that could be saved through a shared spare bus fleet helps to show the additional efficiencies that could be gained by reducing the overall fleet size.

**Table X-32: Bellaire-Bridgeport-Shadyside Optimized Fleet**

| | Current | Optimized | Difference | Compensated Hours | FTEs | Savings |
|---|---|---|---|---|---|---|
| FY 2017-18 | 1045.4 | 976.0 | (69.4) | (102.1) | 0.05 | $1,974 |
| FY 2018-19 | 993.6 | 898.0 | (95.6) | (140.7) | 0.07 | $2,774 |
| FY 2019-20 | 952.5 | 901.3 | (51.2) | (75.3) | 0.04 | $1,486 |
| **Average** | **997.2** | **925.1** | **(72.1)** | **(106.0)** | **0.05** | **$2,078** |

Source: Bellaire, Bridgeport, Shadyside

As shown in **Table X-32,** the three districts could reduce an average of 72.1 labor hours, or 106.0 compensated hours, over the next three years by sharing spare buses. Eliminating the four oldest buses between them would result in a yearly labor cost savings of $2,078. These labor hours amount to the equivalent of 0.05 FTE mechanic hours for Bellaire.

In addition to the reduction of labor hours, each spare bus that is eliminated would save $860 in annual insurance costs, and would generate a one-time savings of $4000 in salvage value.[34] Bridgeport and Shadyside would also both save between $445,000 and $659,000 over the next 10 years by avoiding the cost of constructing a new fleet maintenance garage as well as the ongoing operational costs of that facility.

### Scenario 2B – Insourcing from Bridgeport and St. Clairsville

In addition to sharing fleet maintenance staff and facilities, Bellaire, Bridgeport, and St. Clairsville could also benefit from operating with a shared pool of spare buses or by having an agreement in place to share spare buses with one another.

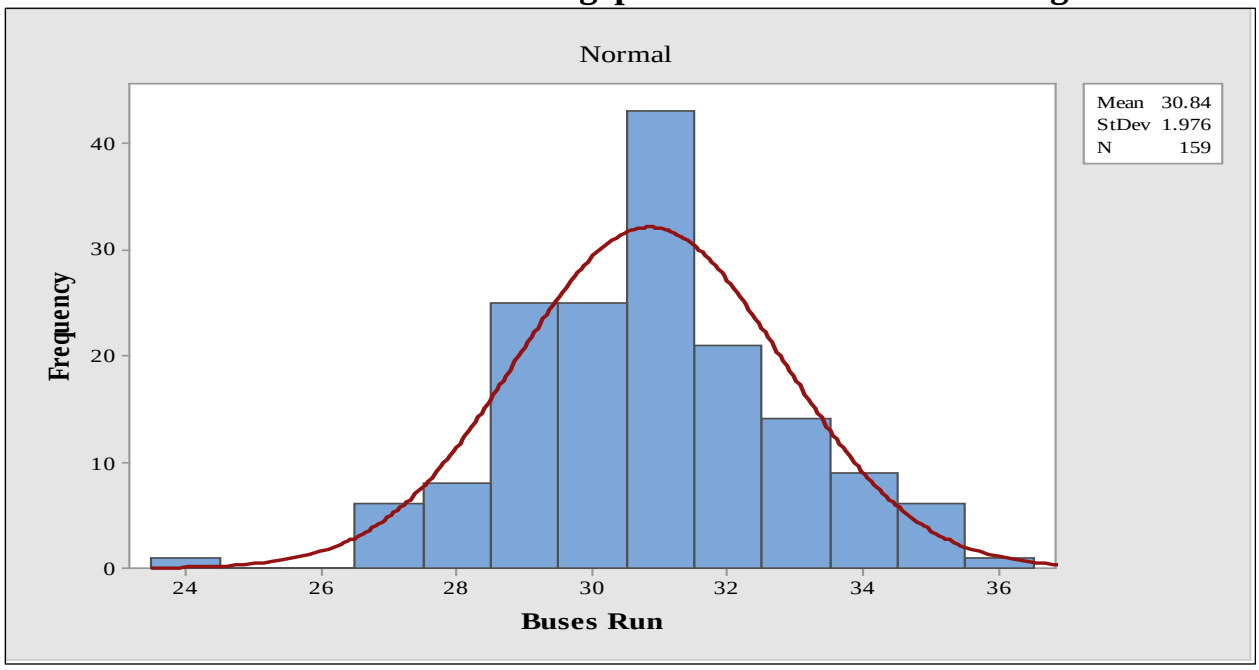
**Chart X-14** shows the combined number of buses used by Bellaire, Bridgeport, and St. Clairsville on their common school days in FY 2016-17. Considering combined bus usage can help to show where further efficiencies could be gained between the three districts if they were to share spare buses.

[32] While this is based upon bus usage on a daily basis, it is possible that further examination of bus usage throughout each hour of the day might reveal additional efficiency opportunities.

[33] Savings projected for FY 2018-19 and FY 2019-20 is based upon highest salary schedule for mechanic shown in Bellaire OAPSE contract.

[34] Savings includes the average insurance cost per bus across all four districts as well as the salvage value of a functional, 16-year-old, 72-passenger bus from Richie Brothers online auctions, as determined during a previous OPT performance audit of Gallipolis City School District.

**Chart X-14: Bellaire-Bridgeport-St. Clairsville Bus Usage**




Source: Muskingum County ESC

As shown in **Chart X-14**, these three districts jointly operated an average of 31 buses on combined school days in FY 2016-17. The highest number of buses used between the three districts on a single common school day was 36. Because the districts currently maintain a combined total of 39 buses, they would need to maintain three fewer total buses if a shared services arrangement involving fleet, such as a shared pool of spare buses, were to be implemented.[35] Eliminating three buses will reduce the number of maintenance hours required.

**Table X-33** shows the total number of labor and compensated hours that could be eliminated if Bellaire, Bridgeport, and St. Clairsville were to share spare buses and could reduce the three oldest buses from their combined fleet, as well the corresponding amount of labor cost savings this could generate.[36] Establishing the number of labor hours that could be saved through a shared spare bus fleet helps to show the additional efficiencies that can be gained by reducing the overall fleet size.

**Table X-33: Bellaire-Bridgeport-St. Clairsville Optimized Fleet**

| | Current | Optimized | Difference | Compensated Hours | FTEs | Savings |
|---|---|---|---|---|---|---|
| FY 2017-18 | 1226.8 | 1176.9 | (49.9) | (73.4) | 0.04 | $1,418 |
| FY 2018-19 | 1177.0 | 1131.5 | (45.5) | (66.9) | 0.03 | $1,320 |
| FY 2019-20 | 1057.8 | 1017.2 | (40.6) | (59.7) | 0.03 | $1,177 |
| **Average** | **1153.9** | **1108.5** | **(45.4)** | **(66.7)** | **0.03** | **$1,305** |

Source: Bellaire, Bridgeport, St. Clairsville

[35] While this is based upon bus usage on a daily basis, it is possible that an examination of bus usage throughout each hour of the day might reveal additional efficiency opportunities.

[36] Savings projected for FY 2018-19 and FY 2019-20 is based upon highest salary schedule for mechanic shown in Bellaire OAPSE contract.

As shown in **Table X-33**, these three districts could reduce an average of 45.4 labor hours, or 66.7 compensated hours, over the next three years by sharing spare buses. Eliminating the three oldest buses between the districts could result in a yearly labor cost savings of $1,305. These labor hours amount to the equivalent of 0.03 FTE mechanic hours in Bellaire.

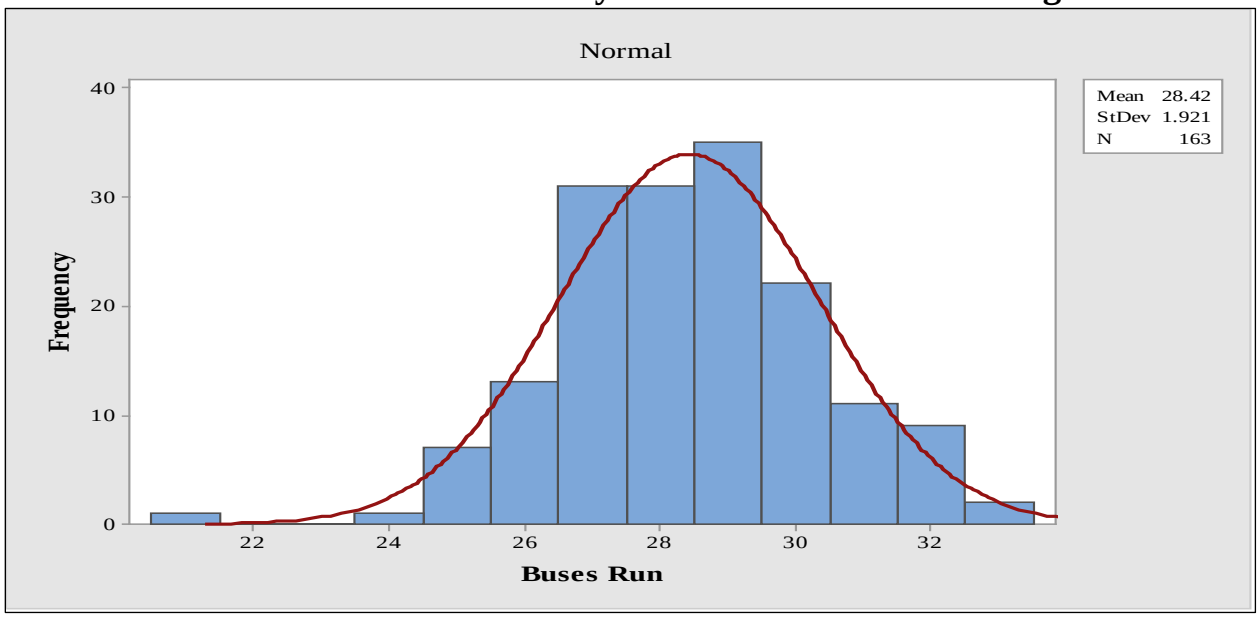
In addition to the reduction of labor hours, each spare bus that is eliminated would save $860 in annual insurance costs, and would generate a one-time savings of $4000 in salvage value.[37] Both Bridgeport and St. Clairsville could also save between $445,000 and $659,000 over the next 10 years by avoiding the cost of constructing a new fleet maintenance garage as well as the ongoing operational costs of that facility.

### Scenario 2C – Insourcing from Shadyside and St. Clairsville

In addition to sharing fleet maintenance staff and facilities, Bellaire, Shadyside, and St. Clairsville could also benefit from operating with a shared pool of spare buses or by having an agreement in place to share spare buses.

**Chart X-15** shows the combined number of buses used by Bellaire, Shadyside, and St. Clairsville on common school days in FY 2016-17. Considering combined bus usage can help to show where further efficiencies could be gained between the three districts if they were to share spare buses.

**Chart X-15: Bellaire-Shadyside-St. Clairsville Bus Usage**




Source: Muskingum County ESC

[37] Savings includes the average insurance cost per bus across all four districts as well as the salvage value of a functional, 16-year-old, 72-passenger bus from Richie Brothers online auctions, as determined during a previous OPT performance audit of Gallipolis City School District.

As shown in **Chart X-15**, these three districts jointly operated an average of 28 buses on combined school days in FY 2016-17. The highest number of buses used between the three districts on a single common school day was 33. Because the districts currently maintain a combined total of 37 buses, they would need to maintain four fewer total buses if a shared services arrangement involving fleet, such as a shared pool of spare buses, were to be implemented.[38] Eliminating four buses will reduce the annual number of maintenance hours required.

**Table X-34** shows the total number of labor and compensated hours that could be eliminated if Bellaire, Shadyside, and St. Clairsville were to share spare buses and reduced the four oldest buses from their combined fleet, as well the corresponding amount of labor cost savings this would generate.[39] Establishing the number of labor hours that could be saved through a shared spare bus fleet helps to show the additional efficiencies that can be gained by reducing the overall fleet size.

**Table X-34: Bellaire-Shadyside-St. Clairsville Optimized Fleet**

| | Current | Optimized | Difference | Compensated Hours | FTEs | Savings |
|---|---|---|---|---|---|---|
| FY 2017-18 | 1,127.9 | 1,031.1 | (96.8) | (142.3) | 0.07 | $2,751 |
| FY 2018-19 | 1,054.7 | 971.2 | (83.5) | (122.8) | 0.06 | $2,423 |
| FY 2019-20 | 1,091.2 | 1,021.9 | (69.3) | (101.9) | 0.05 | $2,009 |
| **Average** | **1,091.2** | **1,008.0** | **(83.2)** | **(122.3)** | **0.06** | **$2,394** |

Source: Bellaire, Shadyside, St. Clairsville

As shown in **Table X-34**, the three districts could reduce an average of 83.2 labor hours, or 122.3 compensated hours, over the next three years by sharing spare buses. Eliminating the four oldest buses between them could result in a yearly labor cost savings of $2,394. These labor hours amount to the equivalent of 0.06 FTE mechanic hours in Bellaire.

In addition to the reduction of labor hours, each spare bus that is eliminated would save $860 in annual insurance costs, and would generate a one-time savings of $4000 in salvage value.[40] Both Shadyside and St. Clairsville could also save between $445,000 and $659,000 over the next 10 years by avoiding the cost of constructing a new fleet maintenance garage as well as the ongoing operational costs of that facility.

[38] While this is based upon bus usage on a daily basis, it is possible that an examination of bus usage throughout each hour of the day might reveal additional efficiency opportunities.

[39] Savings projected for FY 2018-19 and FY 2019-20 is based upon highest salary schedule for mechanic shown in Bellaire OAPSE contract.

[40] Savings includes the average insurance cost per bus across all four districts as well as the salvage value of a functional, 16-year-old, 72-passenger bus from Richie Brothers online auctions, as determined during a previous OPT performance audit of Gallipolis City School District.

**Scenario 3 – Bellaire Performs Fleet Maintenance for All Other Districts**

**Table X-35** shows the workload Bellaire would have if it was to take on the annual fleet maintenance labor of all three of the other districts at its current garage location. Examining the combined labor hours generated in each of these scenarios is helpful in determining the feasibility of Bellaire sharing a fleet maintenance facility and staff with those three other districts.

**Table X-35: All Districts Outsourcing to Bellaire**

| | FY 2017-18 | FY 2018-19 | FY 2019-20 |
|---|---|---|---|
| Bellaire Capacity | 1,766.6 | 1,766.6 | 1,766.6 |
| Bellaire Workload | 773.3 | 773.3 | 773.3 |
| Bridgeport Workload | 369.1 | 356.4 | 275.0 |
| Shadyside Workload | 512.4 | 512.4 | 512.4 |
| St. Clairsville Workload | 475.5 | 441.4 | 437.6 |
| Remaining Hours | (363.7) | (316.9) | (231.7) |
| Additional Paid Hours Needed | 534.9 | 466.0 | 340.7 |
| Additional Paid FTEs Needed | 0.26 | 0.22 | 0.16 |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville

Note: The workload hours shown in the table reflect the higher of either the peak historical workload between FY 2014-15 and FY 2016-17, or the peak projected workload between FY 2017-18 to FY 2019-20, which is based on age of current fleet.

As shown in **Table X-35**, it is not feasible in the current state for Bellaire to assume the peak annual labor hours of all three of the other districts unless it added additional paid labor hours. Again this assumes all direct labor hours are spent performing only fleet maintenance activities. For example, this scenario would have been feasible for FY 2017-18 if Bellaire had employed an additional 0.26 FTEs for a total of 1.51 mechanic FTEs. Looking forward, Bellaire would need an additional 0.22 FTE in FY 2018-19 or an additional 0.16 mechanic FTE in FY 2019-20 in order to handle the projected workloads of the other three districts. This means that by FY 2019-20, Bellaire would need to employ a total of 1.41 mechanic FTEs in order to handle the peak projected workloads of the other three districts. Perhaps this could be accomplished by bumping the current 0.25 FTE mechanic up to a 0.41 FTE mechanic, which would still allow this mechanic enough paid FTE hours to drive his regular four-hour bus route. If not, Bellaire would need to hire an additional 0.16 FTE mechanic. Any district looking to operate a shared services garage would need to consider the projected workloads of all interested parties in this same fashion.

**Table X-36** shows the fully-loaded cost to Bellaire for hiring a mechanic at Step 1 of the FY 2018-19 salary schedule, the highest projected rate shown in the current classified contract. Considering the cost to the district of having to hire an additional 0.16 FTE mechanic and comparing to the revenue generated from insourcing work from the other districts will further help to inform the decision about a shared services arrangement with other districts.

## Table X-36: Cost to Hire Additional 0.16 FTE Mechanic

| Category | Board-Paid Costs |
|---|---|
| Hourly Rate | $15.92 |
| Annual Paid Hours (0.16 FTE) | 340.7 |
| Annual Salary | $5,424 |
| Board-Paid SERS | $976 |
| Board-Paid Medicare Tax | $79 |
| Total Cost to District | $6,479 |
| **Fully-Loaded Cost per Hour** | **$19.02** |

Source: Bellaire

As shown in **Table X-36**, it would cost Bellaire $6,479 to hire the additional 0.16 FTE mechanic needed in FY 2019-20. Since the total revenue generated by insourcing exceeds this total, it would be feasible for Bellaire to hire the additional 0.16 FTE mechanic in order to insource work from all other districts at the current billing rate of its highest-paid mechanic. It may be even more economically feasible for Bellaire to insource the work at an even higher reimbursement rate, while still providing financial savings for the other districts.

Scenario 3 assumes that work for all four districts would be performed in the existing garage in Bellaire. In addition, the districts could collectively consider the construction of a new garage. However, if Bellaire were able to handle the peak workloads of the other three districts in its current garage location, it would not make sense economically to undertake the costs of building a new garage in the existing location at this time, but may be a future consideration as the current Bellaire garage nears the end of its life cycle (see **Appendix A, Table A-5** and **Table A-6**). The current Bellaire garage was constructed in 1990. In accordance with accounting guidelines established by the Ohio Office of Budget and Management (OBM) and the Ohio Department of Administrative Services (DAS), state-owned buildings have an estimated useful life of between 20 and 45 years, dependent on factors such as construction type (e.g., concrete, brick, metal, or frame) and building use (e.g., truck storage, administrative, salt storage, etc.).[41] Buildings nearing the end of the useful lifecycle can be expected to require either a significant capital reinvestment to replace aging components (i.e., heating ventilation air conditioning (HVAC) systems, plumbing, etc.) or a full replacement.

The Bellaire fleet maintenance garage currently has two mechanics' bays. *Guidelines for Designing a School Bus Maintenance Facility* (School Bus Fleet, April 2001), states that no facility should have fewer than two bays dedicated to maintenance, and there should be one maintenance bay for every 20 to 30 buses. Based upon that standard, the Bellaire garage should be large enough to maintain the combined total of 47 buses in the current state.

[41] In accordance with *State of Ohio Asset Management Policies and Procedures* (DAS, 2017) and *Financial Reporting and Accounting Policies for Capital Assets* (OBM, 2014), building assets acquired after July 1, 2001 are required to be accounted for using a mix of general construction, other construction, and land improvements (if applicable). General construction estimated useful life for steel, concrete, masonry, wood, and metal is all 45 years, while other construction for these same asset types are all 20 years. The result is a building with an estimated useful life of 45 years, with components of the building having an estimated useful life of only 20 years. The practical implication of this difference in estimated useful life is that an asset management strategy must take both into account to ensure that repair and replacement practices are appropriately timed to meet the anticipated need.

The question then becomes whether or not the existing Bellaire garage would be large enough to handle all pieces of equipment. **Table X-37** shows the total combined fleet and pieces of equipment that would require maintenance if all four districts were to share a fleet maintenance garage and staff.[42] Considering the number and types of equipment that would have to be maintained in a shared garage is critical for determining the feasibility of such a shared service scenario.

**Table X-37: Current Combined Fleet and Equipment for All Districts**

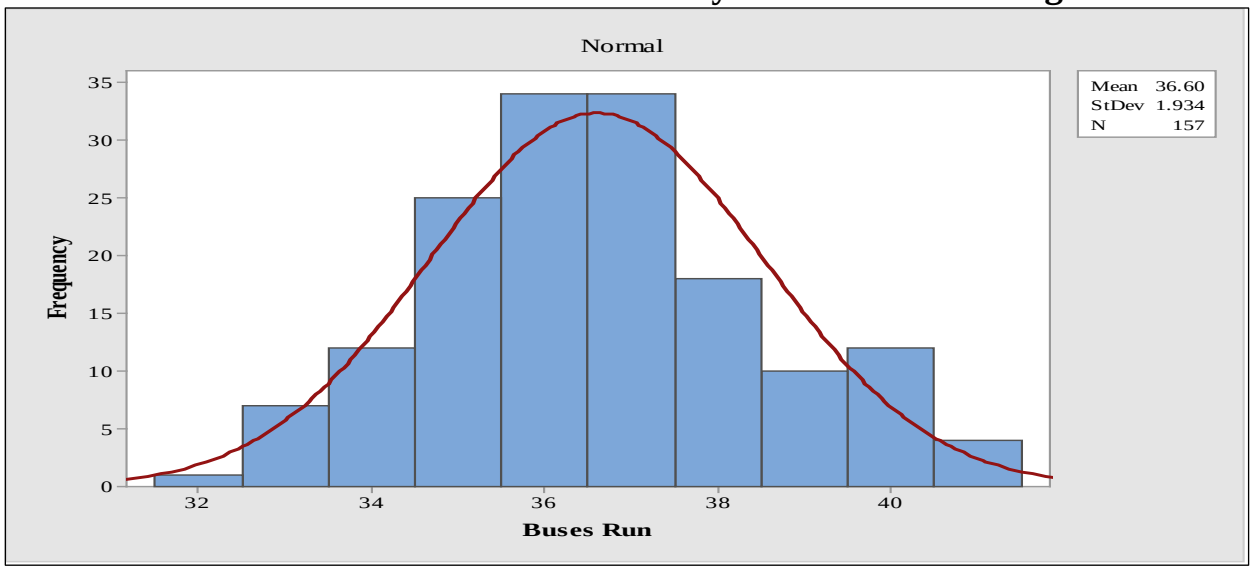
| Vehicle/Equipment Type | Bellaire | Bridgeport | Shadyside | St. Clairsville | Total |
|---|---|---|---|---|---|
| Buses | 18 | 10 | 8 | 11 | 47 |
| Vans | 2 | 2 | 1 | 2 | 8 |
| Trucks | 4 | 1 | 2 | 3 | 9 |
| **Total** | **24** | **13** | **11** | **16** | **64** |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville

As shown in **Table X-37**, there are a total of 64 pieces of equipment that would need to be maintained by the Bellaire mechanic staff if all four districts were to share a fleet facility and maintenance staff. This number exceeds the standard for bus as stated in *Guidelines for Designing a School Bus Maintenance Facility*; however, this could still be a feasible scenario if the four districts involved in this study operated with a shared pool of spare buses or had an agreement in place to share spare buses with one another.

**Chart X-16** shows the combined number of buses that were used in FY 2016-17 on common school days for all four districts. Considering combined bus usage can help to show where further efficiencies could be gained through a shared services arrangement involving spare vehicles.

**Chart X-16: Combined School Day Maximum Bus Usage**




Source: Muskingum County ESC

[42] Fleet size assumes the disposal of Shadyside Bus #6 as currently planned. It also presumes that the maintenance of the tractor/mowers in Shadyside is still performed by the Shadyside maintenance staff, as is the case in other districts. Trailers have not historically required any annual maintenance hours, so they are not included in the table.

As shown in **Chart X-16**, the four districts involved in this study used a total of 37 buses on most common school days in FY 2016-17. The highest number of buses used between the three districts on a common school day was 41. Because the districts currently maintain a combined total of 47 buses, they would need to maintain six fewer total buses if a shared services arrangement involving fleet, such as a shared pool of spare buses, were to be implemented.[43] Eliminating six buses will reduce the annual fleet maintenance hours required.

**Table X-38** shows the total number of labor and compensated hours that could be eliminated if all four districts were to share spare buses and reduced the six oldest buses from their combined fleet, as well the corresponding amount of labor cost savings this would generate.[44] Establishing the number of labor hours that could be saved through a shared spare bus fleet helps to show the additional efficiencies that can be gained by reducing the overall fleet size.

## Table X-38: Optimized Fleet – All Districts

| | Current | Optimized | Difference | Compensated Hours | FTEs | Savings |
|---|---|---|---|---|---|---|
| FY 2017-18 | 1,466.4 | 1,339.5 | (126.9) | (186.6) | 0.09 | $3,608 |
| FY 2018-19 | 1,380.6 | 1,236.3 | (144.3) | (212.2) | 0.10 | $4,185 |
| FY 2019-20 | 1,335.6 | 1,245.2 | (90.4) | (132.9) | 0.06 | $2,621 |
| **Average** | **1,394.2** | **1,273.7** | **(120.5)** | **(177.3)** | **0.09** | **$3,471** |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville

As shown in **Table X-38**, the combined four districts could also reduce an average of 120.5 labor hours, or 177.3 compensated hours, over the next three years by sharing spare buses. Eliminating the six oldest buses between them would result in a yearly labor cost savings of $3,471. These labor hours amount to the equivalent of 0.09 FTE mechanic hours in Bellaire.

**Table X-39** shows how many combined pieces of equipment that would be maintained if all four districts were able to share spare buses and could therefore eliminate the six oldest buses while maintaining all other vehicles in the current fleet. Examining the effect of shared spare buses between all four districts helps to show the feasibility of this scenario from a garage size perspective.

## Table X-39: Optimized Fleet and Equipment for All Districts

| Vehicle/Equipment Type | Bellaire | Bridgeport | Shadyside | St. Clairsville | Total |
|---|---|---|---|---|---|
| Bus | 16 | 8 | 7 | 10 | 41 |
| Vans | 2 | 2 | 1 | 2 | 8 |
| Trucks | 4 | 1 | 2 | 3 | 9 |
| **Total** | **22** | **11** | **10** | **15** | **58** |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville, Zonar GPS

As shown in **Table X-39**, if the four districts could share spare buses, there would be just 58 vehicles that would need to be maintained by the Bellaire garage; a level within the *Guidelines*

[43] While this is based upon bus usage on a daily basis, it is possible that an examination of bus usage throughout each hour of the day might reveal additional efficiency opportunities.

[44] Savings projected for FY 2018-19 and FY 2019-20 is based upon highest salary schedule for mechanic shown in Bellaire OAPSE contract.

*for Designing a School Bus Maintenance Facility* benchmark standard of 20-30 buses per bay for a two-bay garage.

In addition to the reduction of labor hours, each spare bus that is eliminated would save $860 in annual insurance costs, and would generate a one-time savings of $4000 in salvage value.[45] Bridgeport, Shadyside, and St. Clairsville could also all save between $445,000 and $659,000 over the next 10 years by avoiding the cost of constructing a new fleet maintenance garage as well as the ongoing operational costs of that facility.

**Items for Consideration**

*Routing*

In any shared services scenario, routing impacts fleet optimization and size, and therefore the potential dimensions of a fleet maintenance garage and the number of mechanics necessary. Bus routes can be optimized in three primary ways. These include:

- Improved efficiency of the actual routes (e.g., route optimization software);
- Multi-tiered bus routes; and
- Increased bus utilization.

Several of the districts in the Ohio Shared Services Collaborative have worked together with the Center for Innovation and Data Services (CIDS) at the Muskingum Valley Educational Service Center to optimize routes. St. Clairsville worked with CIDS to develop optimized routes that work within the district. The other three districts involved in this study have yet to work with CIDS and prefer to develop bus routes manually based on past practice and knowledge of the local roads and ridership.

Ultimately the number of route tiers and bus capacity utilization, as well as the optimization of the routes themselves, could impact the number of buses required in each district and could therefore affect any shared service fleet maintenance scenario. Decisions about specific routes will have to be made with input from each community and with consideration of what is in the best interest of the riders.

*Hub District*

As stated previously, any of the districts involved in this study could serve as the hub for a shared services fleet maintenance garage with an appropriate level of staffing and available workload capacity. In fact, this methodology is scalable to allow for other districts to serve as the hub given those same conditions. The district serving as the hub would just need to collect the requisite data from all parties involved (fleet age and size, workload hours, fleet maintenance activity type and date, garage location and capacity, and existing fleet maintenance staffing level).

[45] Savings includes the average insurance cost per bus across all four districts as well as the salvage value of a functional, 16-year-old, 72-passenger bus from Richie Brothers online auctions, as determined during a previous OPT performance audit of Gallipolis City School District.

*Shared Services Agreement*

It is important that any shared services agreement be legally established. Some important factors to consider in the shared services agreement include, but are not limited to:

- Liability and indemnification;
- Allowable overhead and administrative costs;
- Labor contract provisions that affect the ability to implement;
- Procedures for amending and monitoring the agreement;
- Scalability to other districts or parties;
- How overhead costs are affected by additional participants;
- How citizen concerns will be handled and which jurisdiction will handle them

# Summary

As noted earlier, the districts involved in this study face growing constraints on their ability to operate bus maintenance operations efficiently. They are experiencing declining ridership, are allocated a smaller share of their school district budget, and cost-cutting can go only so far because of the fixed overhead expenses of operating bus-maintenance facilities. Once cost-cutting has reached this limit, the districts could consider asking voters for additional tax revenue. Instead, Bellaire led this group of districts to consider the feasibility of shared services as another way to be more efficient with available resources.

Shared services involve two or more government entities combining resources to provide service to their constituents. This may improve the overall efficiency and effectiveness of service delivery and could lead to lower service costs through economies of scale. In turn, this could promote stability in employment and delivery of services. It also could delay or avert substantial costs to renovate or replace maintenance facilities and equipment. A data-driven assessment of the feasibility of shared services can help fully quantify the potential costs and benefits.

AOS used the following data points to analyze the feasibility of sharing fleet maintenance services:

- Age and size of fleet maintained
- Annual direct labor workload hours
- Fleet maintenance activity type and date
- Location, age, and size of garage
- Current fleet maintenance staffing level

The data demonstrates, based on the current state and the data available, the feasibility of sharing services in various scenarios.

**Conclusion**

Are shared services feasible? Yes.

There are several scenarios in which it is feasible for the districts involved in this study to share services if they choose; however, the degree of feasibility and value of a shared services agreement varies between the study partners depending on the agreement reached and parties involved.

The following list summarizes the benefits identified by this study:

*Bellaire*

- Bellaire is well-positioned to supply bus maintenance services to one or more of the partner districts.
- Shared services would mean sustained, stable workload and job security for maintenance staff.
- In-sourcing maintenance work from other districts would generate additional revenue to support maintenance facilities.
- Depending on the shared services scenario, Bellaire could reduce its spare bus fleet and realize annual insurance savings and revenue from the sale of buses.

*Bridgeport*

- Bridgeport's current bus maintenance workload doesn't support the expense of maintaining or fully staffing a vehicle maintenance garage.
- Bridgeport currently outsources its maintenance work. By outsourcing to Bellaire, Bridgeport could reduce costs and diversify its maintenance options.
- By strengthening its outsourcing option, Bridgeport avoids the capital investment in a maintenance garage.
- Depending on the shared services scenario, Bridgeport could reduce its spare bus fleet and realize annual insurance savings and revenue from the sale of buses.

*Shadyside*

- Shadyside's bus maintenance workload does not support the expense of maintaining or fully staffing a vehicle maintenance garage.
- Outsourcing to Bellaire could save money by avoiding mechanic overtime.
- By pursuing the outsourcing option, Shadyside avoids the capital investment of replacing its maintenance garage when it becomes obsolete.
- Depending on the shared services scenario, Shadyside could reduce its spare bus fleet and realize annual insurance savings and revenue from the sale of buses.

*St. Clairsville*

- Based on St. Clairsville's current labor cost structure, the district would not benefit from outsourcing to Bellaire at this time.
- Ridership and budget trends combined with changing labor conditions could make outsourcing to Bellaire a viable option.
- St. Clairsville also could use the methodologies in this study to identify opportunities to insource maintenance from other neighboring school districts, in the same way proposed for Bellaire. This could offset costs associated with building a garage, provide for job stability, and provide revenue for the district.
- Depending on the shared services scenario, St. Clairsville could reduce its spare bus fleet and realize annual insurance savings and revenue from the sale of buses.

All of these districts are facing the same dynamic, a smaller amount of revenue and declining enrollment. Sharing services allows districts to reduce overhead costs by eliminating the need for separate assets and facilities to perform fleet maintenance. The precise amount of savings and efficiencies gained would depend on the particulars of the shared service agreement negotiated by the partners.

This study shows various shared services scenarios operating out of the current fleet maintenance garage in Bellaire, the only district in this study where it is feasible to operate a shared services facility in the current state. However, any of the districts involved in this study could serve as a hub for a shared services fleet maintenance garage if willing to operate and staff such a facility.

# Appendix

**Table A-1** shows how many hours of fleet maintenance labor Bellaire can expect to have in FY 2017-18 through FY 2019-20, based upon the size and age of its fleet.[46] An examination of projected labor hours is helpful in determining the available capacity Bellaire would have for insourcing work from other districts.

**Table A-1: Bellaire Projected Workload**

| | | FY 2017-18 | | FY 2018-19 | | FY 2019-20 | |
|---|---|---|---|---|---|---|---|
| **Type** | **Make** | **Age** | **Hours** | **Age** | **Hours** | **Age** | **Hours** |
| Bus #1 | Bluebird | 14 | 38.7 | 15 | 40.5 | 16 | 28.7 |
| Bus #2 | International | 14 | 38.7 | 15 | 40.5 | 16 | 28.7 |
| Bus #3 | Thomas | 1 | 25.9 | 2 | 18.6 | 3 | 36.2 |
| Bus #4 | Thomas | 1 | 25.9 | 2 | 18.6 | 3 | 36.2 |
| Bus #5 | International | 2 | 18.6 | 3 | 36.2 | 4 | 19.6 |
| Bus #7 | International | 16 | 28.7 | 17 | 24.3 | 18 | 19.6 |
| Bus #8 | Thomas | 1 | 25.9 | 2 | 18.6 | 3 | 36.2 |
| Bus #9 | International | 7 | 40.2 | 8 | 29.1 | 9 | 25.1 |
| Bus #10 | International | 2 | 18.6 | 3 | 36.2 | 4 | 19.6 |
| Bus #12 | International | 4 | 19.6 | 5 | 13.7 | 6 | 32.9 |
| Bus #14 | International | 4 | 19.6 | 5 | 13.7 | 6 | 32.9 |
| Bus #15 | Amtran | 20 | 10.6 | 21 | 10.6 | 22 | 10.6 |
| Bus #16 | International | 2 | 18.6 | 3 | 36.2 | 4 | 19.6 |
| Bus #17 | International | 3 | 36.2 | 4 | 19.6 | 5 | 13.7 |
| Bus #18 | International | 3 | 36.2 | 4 | 19.6 | 5 | 13.7 |
| Bus #19 | International | 2 | 18.6 | 3 | 36.2 | 4 | 19.6 |
| Bus #21 | Thomas | 0 | 23.2 | 1 | 25.9 | 2 | 18.6 |
| Bus #25 | Thomas | 0 | 23.2 | 1 | 25.9 | 2 | 18.6 |
| Sub-Total | | 96 | 467.2 | 114 | 464.2 | 132 | 430.2 |
| | | | | | | | |
| Truck | Silverado | 3 | 12.0 | 4 | 12.0 | 5 | 12.0 |
| Truck | Silverado | 12 | 12.0 | 13 | 12.0 | 14 | 12.0 |
| Van | Ford E250 | 14 | 9.2 | 15 | 9.2 | 16 | 9.2 |
| Truck | Ford 150 | 14 | 12.0 | 15 | 12.0 | 16 | 12.0 |
| Trailer | H&H Trailer | 14 | 0.0 | 15 | 0.0 | 16 | 0.0 |
| Van | Ford E150 | 15 | 9.2 | 16 | 9.2 | 17 | 9.2 |
| Truck | Ford 250 | 18 | 12.0 | 19 | 12.0 | 20 | 12.0 |
| Sub-Total | | 90 | 66.5 | 97 | 66.5 | 104 | 66.5 |
| **Total** | | **186** | **533.7** | **211** | **530.6** | **236** | **496.7** |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville-Richland

As shown in **Table A-1**, with its current fleet, Bellaire is projected to require 534 maintenance hours of direct labor in FY 2017-18, about 531 hours of projected labor hours in FY 2018-19,

[46] Labor hours required are based upon the average of the districts over the past four years for a bus at that age, and do not reflect any additions or deletions from the fleet.

and about 497 hours in FY 2019-20. Since Bellaire currently has 1,767 paid labor hours available at its current staffing levels, it would have over 1,200 hours in each of the next three years that could be reallocated for insourcing work.

**Table A-2** shows how many hours of fleet maintenance labor that Bridgeport can expect to have in each of the next three years, based upon the number and age of its fleet.[47] An examination of these projected labor hours is helpful in determining whether the District's workload could be outsourced to Bellaire.

**Table A-2: Bridgeport Projected Workload – FY 2017-18 to FY 2019-20**

| Type | Make | 2018 Age | 2018 Hours | 2019 Age | 2019 Hours | 2020 Age | 2020 Hours |
|---|---|---|---|---|---|---|---|
| Bus #10 | Bluebird | 2 | 18.6 | 3 | 36.2 | 4 | 19.6 |
| Bus #11 | Bluebird | 6 | 32.9 | 7 | 40.2 | 8 | 29.1 |
| Bus #15 | Bluebird | 1 | 25.9 | 2 | 18.6 | 3 | 36.2 |
| Bus #16 | Bluebird | 3 | 36.2 | 4 | 19.6 | 5 | 13.7 |
| Bus #17 | Bluebird | 20 | 10.6 | 21 | 10.6 | 22 | 10.6 |
| Bus #18 | Bluebird | 0 | 23.2 | 1 | 25.9 | 2 | 18.6 |
| Bus #19 | Bluebird | 18 | 19.6 | 19 | 50.2 | 20 | 10.6 |
| Bus #20 | Bluebird | 14 | 38.7 | 15 | 40.5 | 16 | 28.7 |
| Bus #21 | Bluebird | 12 | 66.4 | 13 | 42.0 | 14 | 38.7 |
| Bus #22 | Bluebird | 12 | 66.4 | 13 | 42.0 | 14 | 38.7 |
| Sub-Total | | 88 | 338.6 | 98 | 325.9 | 108 | 244.5 |
| | | | | | | | |
| Van | Chevrolet | 26 | 9.2 | 27 | 9.2 | 28 | 9.2 |
| Van | Chevrolet | 5 | 9.2 | 6 | 9.2 | 7 | 9.2 |
| Truck | Ford | 19 | 12.0 | 20 | 12.0 | 21 | 12.0 |
| Sub-Total | | 50 | 30.5 | 53 | 30.5 | 56 | 30.5 |
| **Totals** | | **138** | **369.1** | **151** | **356.4** | **164** | **275.0** |

Source: Bridgeport

As shown in **Table A-2**, with its current fleet, Bridgeport is projected to require 369.1 maintenance hours of direct labor in FY 2017-18, about 356.4 hours of projected labor hours in FY 2018-19 and about 275 hours in FY 2019-20. Since Bellaire will have over 1,200 hours in each of the next three years that could be reallocated for insourcing work, it is feasible for Bridgeport to outsource its fleet maintenance to Bellaire.

**Table A-3** shows how many hours of fleet maintenance labor that Shadyside could have for FY 2017-18 through FY 2019-20, based upon the size and age of its fleet.[48] An examination of these projected labor hours is helpful in determining whether Shadyside's workload could be outsourced to Bellaire.

[47] Labor hours required are based upon the average of the districts over the past four years for a bus at that age, and do not reflect any additions or deletions from the fleet.

[48] Labor hours required are based upon the average of the districts over the past four years for a bus at that age, and do not reflect any additions or deletions from the fleet.

## Table A-3: Shadyside Projected Workload

| Type | Make | FY 2017-18 | | FY 2018-19 | | FY 2019-20 | |
|---|---|---|---|---|---|---|---|
| | | **Age** | **Hours** | **Age** | **Hours** | **Age** | **Hours** |
| Bus #2 | Bluebird | 16 | 28.7 | 17 | 24.3 | 18 | 19.6 |
| Bus #6 | Bluebird | 18 | 19.6 | 19 | 50.2 | 20 | 10.6 |
| Bus #10 | Thomas | 1 | 25.9 | 2 | 18.6 | 3 | 36.2 |
| Bus #11 | Thomas | 1 | 25.9 | 2 | 18.6 | 3 | 36.2 |
| Bus #12 | Thomas | 0 | 23.2 | 1 | 25.9 | 2 | 18.6 |
| Bus #14 | International | 10 | 40.3 | 11 | 43.6 | 12 | 66.4 |
| Bus #15 | International | 8 | 29.1 | 9 | 25.1 | 10 | 40.3 |
| Bus #17 | Thomas | 1 | 25.9 | 2 | 18.6 | 3 | 36.2 |
| Bus #18 | International | 15 | 40.5 | 16 | 28.7 | 17 | 24.3 |
| Sub-Total[1] | | 52 | 239.7 | 60 | 203.6 | 68 | 277.8 |
| | | | | | | | |
| Van | Ford E150XL | 6 | 9.2 | 7 | 9.2 | 8 | 9.2 |
| Truck | Chevy Box | 27 | 12.0 | 28 | 12.0 | 29 | 12.0 |
| Truck | Ford F150 | 6 | 12.0 | 7 | 12.0 | 8 | 12.0 |
| Tractor | Kubota 2110 | ? | 24.3 | ? | 24.3 | ? | 24.3 |
| Tractor | Kubota B2910 | ? | 24.3 | ? | 24.3 | ? | 24.3 |
| Tractor | JD 1023 | 2 | 24.3 | 3 | 24.3 | 4 | 24.3 |
| Tractor | JD 455 | ? | 24.3 | ? | 24.3 | ? | 24.3 |
| Sub-Total | | 41 | 130.5 | 45 | 130.5 | 49 | 130.5 |
| **Totals** | | **93** | **370.1** | **105** | **334.1** | **117** | **408.3** |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville
[1] Assumes the elimination of bus #6 as planned.

As shown in **Table A-3**, with its current fleet, Shadyside is projected to require 370 maintenance hours of direct labor in FY 2017-18, 334 hours of projected labor hours in FY 2018-19 and 408 hours in FY 2019-20. Since Bellaire will have over 1,200 hours in each of the next three years that could be reallocated for insourcing work, it is feasible for Shadyside to outsource its fleet maintenance to Bellaire.

**Table A-4** shows how many hours of fleet maintenance labor St. Clairsville could have in each of the next three years, based upon the number and age of its fleet.[49] An examination of projected labor hours is helpful in determining whether the St. Clairsville's workload could be outsourced to Bellaire.

[49] Labor hours required are based upon the average of the districts over the past four years for a bus at that age, and do not reflect any additions or deletions from the fleet.

## Table A-4: St. Clairsville Projected Workload

| Type | Make | FY 2017-18 | | FY 2018-19 | | FY 2019-20 | |
|---|---|---|---|---|---|---|---|
| | | **Age** | **Hours** | **Age** | **Age** | **Hours** | **Age** |
| Bus #10 | Bluebird | 1 | 25.9 | 2 | 18.6 | 3 | 36.2 |
| Bus #16 | Bluebird | 16 | 28.7 | 17 | 24.3 | 18 | 19.6 |
| Bus #17 | Bluebird | 15 | 40.5 | 16 | 28.7 | 17 | 24.3 |
| Bus #18 | International | 12 | 66.4 | 13 | 42.0 | 14 | 38.7 |
| Bus #19 | International | 12 | 66.4 | 13 | 42.0 | 14 | 38.7 |
| Bus #20 | International | 11 | 43.6 | 12 | 66.4 | 13 | 42.0 |
| Bus #21 | International | 10 | 40.3 | 11 | 43.6 | 12 | 66.4 |
| Bus #22 | Bluebird | 9 | 25.1 | 10 | 40.3 | 11 | 43.6 |
| Bus #23 | Bluebird | 8 | 29.1 | 9 | 25.1 | 10 | 40.3 |
| Bus #24 | Bluebird | 3 | 36.2 | 4 | 19.6 | 5 | 13.7 |
| Bus #25 | Bluebird | 2 | 18.6 | 3 | 36.2 | 4 | 19.6 |
| Sub-Total | | 99 | 421.0 | 110 | 387.0 | 121 | 383.1 |
| | | | | | | | |
| Van | Chevrolet | 10 | 9.2 | 11 | 9.2 | 12 | 9.2 |
| Van | Chevrolet | 4 | 9.2 | 5 | 9.2 | 6 | 9.2 |
| Truck | Chevrolet | 32 | 12.0 | 33 | 12.0 | 34 | 12.0 |
| Truck | Dodge | 16 | 12.0 | 17 | 12.0 | 18 | 12.0 |
| Truck | Dodge | 4 | 12.0 | 5 | 12.0 | 6 | 12.0 |
| Trailer | Pennstyle | 21 | 0.0 | 22 | 0.0 | 23 | 0.0 |
| Trailer | Car Mate | 14 | 0.0 | 15 | 0.0 | 16 | 0.0 |
| Trailer | Car Mate | 1 | 0.0 | 2 | 0.0 | 3 | 0.0 |
| Sub-Total | | 102 | 54.5 | 110 | 54.5 | 118 | 54.5 |
| **Totals** | | **201** | **475.5** | **220** | **441.4** | **239** | **437.6** |

Source: Bellaire, Bridgeport, Shadyside, St. Clairsville

As shown in **Table A-4**, with its current fleet, St. Clairsville is projected to require 476 maintenance hours of direct labor in FY 2017-18, 441 hours of projected labor hours in FY 2018-19 and 438 hours in FY 2019-20. Since Bellaire is projected to have over 1,200 hours in each of the next three years that could be reallocated for insourcing work, it is for it to outsource its fleet maintenance to Bellaire.

**Table A-5** shows the size and costs of a potential new garage similar to the shared service garage built by the Gallipolis City School District (CSD), which has three mechanics' bays, a wash bay, a parts storage area, offices, meeting area, and restroom facilities. Construction was completed on this shared services facility in July 2017. A garage of this size would be large enough to handle the current workload of all four districts involved in this study. Considering the actual construction costs of such a project is helpful for showing the level of capital outlay that would be necessary to share services in a newly-designed garage space.

## Table A-5: Gallipolis Fleet Maintenance Garage Costs

| | |
|---|---|
| First Floor Square Feet | 7,688 |
| Total Cost | $849,064 |
| Cost Per Sq. Foot | $110.44 |

Source: Gallipolis CSD

As shown in **Table A-5**, the new 7,688 square foot shared services garage built by Gallipolis CSD cost $849,000 to construct, or $110.44 per square foot.

**Table A-6** shows how much such a garage the size of the one in Gallipolis would cost indexed to inflation over the next 10 years. Reviewing projected costs allows the districts in this study to assess the overall feasibility of a new shared services garage in future years.

## Table A-6: Projected Cost of New Three-Bay Garage with Wash Bay

| Construction Year | Per Sq. Foot[1] | Total Cost |
|---|---|---|
| 2018 | $114.86 | $883,026 |
| 2019 | $119.45 | $918,347 |
| 2020 | $124.23 | $955,081 |
| 2021 | $129.20 | $993,285 |
| 2022 | $134.37 | $1,033,016 |
| 2023 | $139.74 | $1,074,337 |
| 2024 | $145.33 | $1,117,310 |
| 2025 | $151.14 | $1,162,003 |
| 2026 | $157.19 | $1,208,483 |
| 2027 | $163.48 | $1,256,822 |

Source: Gallipolis CSD and producer price index (PPI)
[1] Inflation rate is based on PPI average from August 2006 to August 2017.

As shown in **Table A-6**, a service garage like the one in Gallipolis CSD would cost approximately $1.2 million to construct in 2027.