# The Four-day School Week in Montana: A Comprehensive Study 2008-2023


## A STUDY OF SELECTED SCHOOL DISTRICTS

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# INTRODUCTION

This study, focusing on selected school districts that utilized the 4dsw schedule, is a continuation of previous research: *The Four-day School Week in Montana: A Comprehensive Study 2008-2023* (Allen et al., 2024) and *The Four-day School Week in Montana: A Comprehensive Study 2008-2023 Phase II* (Allen et al., 2025).

## Background

Historically, Montana schools have adhered to the traditional five-day school week (5dsw) schedule. However, in 2005, the Montana legislature passed Senate Bill 170, introducing increased flexibility in school schedules. This bill changed attendance requirements from the traditional 180 pupil instruction day school year, to instead requiring 1,080 minimum aggregate hours of pupil instruction (Montana Code Annotated, 20-1-301). This change allowed schools to explore alternative schedules, leading to ten Montana school districts transitioning to a four-day school week (4dsw) schedule by the conclusion of the 2006-2007 school year (Allen et al., 2024). Since that time, a total of 141 Montana school districts, comprising 260 individual schools, have adopted a four-day school week schedule (Allen et al., 2024). With 32 school districts adopting the 4dsw schedule in the 2022/23 and 2023/24 school years (Allen et al., 2024), the number of Montana school districts transitioning to a 4dsw is rapidly increasing.

In a published report addressing national concerns regarding the allocation of time and the use of the school day for instructional purposes, The National Education Commission on Time and Learning (1994) stated, "Learning in America is a prisoner of time…The degree to which today's American school is controlled by the dynamics of clock and calendar is surprising even to people who understand school operations" (p. 7). Previous to the Allen et al. (2024) study, there was no comprehensive study of the 4dsw schedule beyond student achievement. In 2014, Tharp found, using a census, a disparity in student academic achievement in Montana schools who had adopted a 4dsw schedule compared to achievement in schools retaining the 5dsw schedule. Tharp (2014) also found that in the first two years of implementation, student achievement scores in school districts utilizing the 4dsw schedule are better than the state average achievement scores. However, once the 4dsw schedule becomes part of the culture, the loss of the days of instruction appear to negatively affect student performance (Tharp et al., 2016). The results in Allen et al. (2024) aligned closely with the findings of Tharp (2014).

According to Irving (2023), some policymakers question whether the 4dsw schedule provides the same level of educational quality as a 5dsw schedule. As school districts continue to implement the 4dsw schedule, policymakers need to understand the implications for educational quality (Hayward, 2018). Policy decisions regarding school scheduling need to be based on empirical evidence for each of the quality indicators of an effective education.

The five school districts identified for this study met the selection criteria by having a minimum enrollment (64 students in the elementary, 32 students in the high school, or 72 students in a K-12 district) and in the years 20-21, 21-22, and 22-23 exceeded the state student achievement average in math, reading, and ACT assessments. Three school districts were also selected as comparison districts. These three school districts met the inclusionary criteria for

school size but did not meet the criteria for student achievement. Student achievement in these three similarly sized districts was below the state average. The five school districts that exceeded the state average for student achievement were all dual districts. For fiscal purposes, these districts were comprised of an elementary district and a high school district governed by a common Board of Trustees. The three comparison districts were all K-12 districts. These were single districts that encompassed both high school and elementary in the same district.

**Research Questions**

This study, Phase III of The Four-day School Week in Montana, explored data from selected school districts who utilized the 4dsw schedule during the years 2020-2023 through the following 7 research questions:

1. How many school districts that utilized the 4dsw schedule and met minimum enrollment criteria (minimum of 64 students in the elementary, 32 students in the high school, or 72 students in a K-12 district) in the years 20-21, 21-22, and 22-23 exceeded the state student achievement average in math, reading, and ACT assessments?
2. What commonalities exist among five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement when examined by expenditures?
3. What commonalities exist among five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement when examined by percentage of maximum budget?
4. What commonalities exist among five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement when examined by teacher retention?
5. What differences exist between five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement and three similarly sized school districts that utilized the 4dsw schedule that had achievement significantly lower than the state average when examined by expenditures?
6. What differences exist between five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement and three similarly sized school districts that utilized the 4dsw schedule that had achievement significantly lower than the state average when examined by percentage of maximum budget?
7. What differences exist between five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement and three similarly sized school districts that utilized the 4dsw schedule that had achievement significantly lower than the state average when examined by teacher retention?

An additional eighth research question was added, addressing taxation for transportation in all districts that utilize the 4dsw schedule.

8. What changes were made in spending and taxation in school districts that transitioned to the 4dsw schedule?

This report is organized by eight research questions. Each Research Question is stated, followed by Key Points and Discussion. Following the Discussion, data analysis is depicted in charts, tables, and graphs.

## RESEARCH QUESTIONS

**Research Question 1** - *How many school districts that utilized the 4dsw schedule and met minimum enrollment criteria (minimum of 64 students in the elementary, 32 students in the high school, or 72 students in a K-12 district) in the years 20-21, 21-22, and 22-23 exceeded the state student achievement average in math, reading, and ACT assessments?*

### Research Question 1 Key Points

- ✓ **There were only five school districts that met the inclusionary criteria in Research Question 1.**
- ✓ **Three school districts were selected as a comparison group. These school districts met the inclusionary criteria in Research Question 1, except for student achievement. Student achievement in these three districts was below the state average.**

### Research Question 1 Discussion

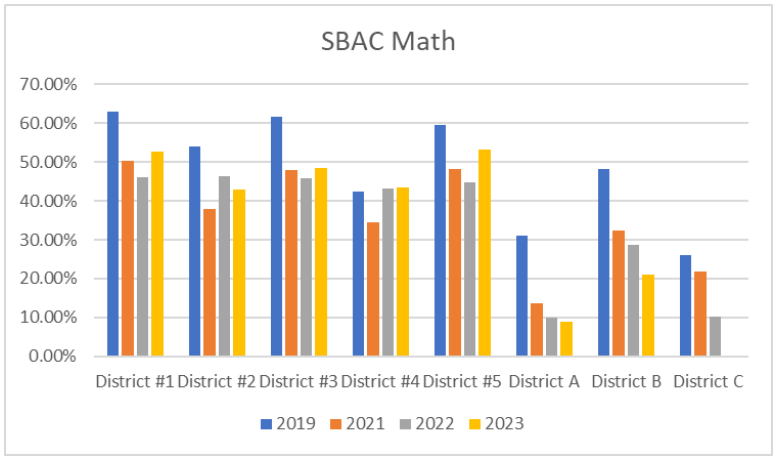
There were five school districts that met the inclusionary criteria in Research Question 1 for the years 2019-2023. The five school districts that met the criteria are designated as Districts 1–5 and the three school districts in the comparison group are designated as Districts A-C (Figure 1.1, Figure 1.2, and Figure 1.3). The Smarter Balanced Assessment Consortium (SBAC) assessment was used to assess student achievement in Montana public schools for grades 3-8 during the time of this study and the ACT assessment was used to assess student achievement for eleventh grade students.

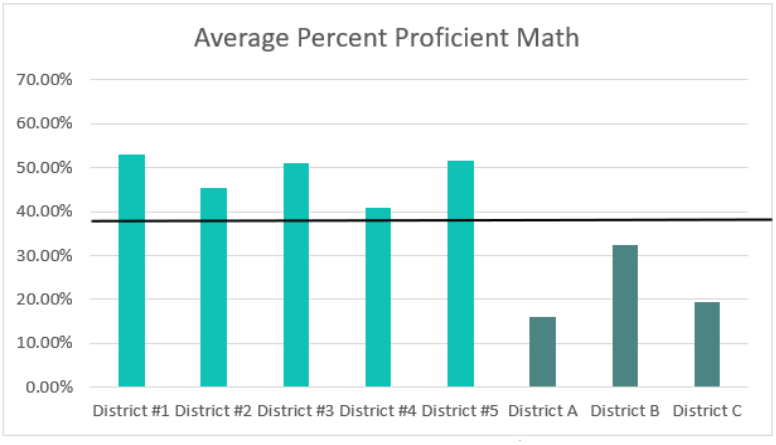
**Figure 1.1**

*Percent Proficient in Math by School District*

| | % Proficient | | | | |
|---|---|---|---|---|---|
| Math | District #1 | District #2 | District #3 | District #4 | District #5 |
| 2019 | 62.84% | 54.10% | 61.64% | 42.35% | 59.60% |
| 2021 | 50.39% | 37.80% | 47.83% | 34.57% | 48.31% |
| 2022 | 45.99% | 46.27% | 45.83% | 43.18% | 44.79% |
| 2023 | 52.74% | 43.02% | 48.39% | 43.33% | 53.26% |

| | % Proficient | | |
|---|---|---|---|
| Math | District A | District B | District C |
| 2019 | 30.99% | 48.15% | 25.93% |
| 2021 | 13.75% | 32.26% | 21.82% |
| 2022 | 10.00% | 28.57% | 10.17% |
| 2023 | 8.96% | 21.15% | |



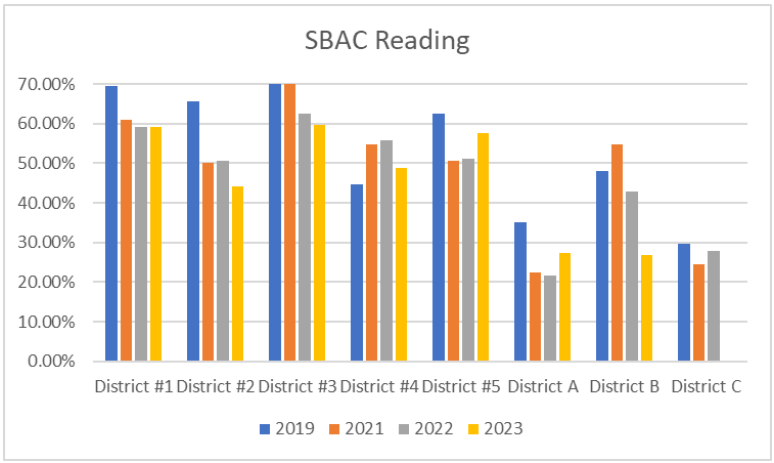

*Note.* The black line indicates the state average for student achievement (2019 – 2023).

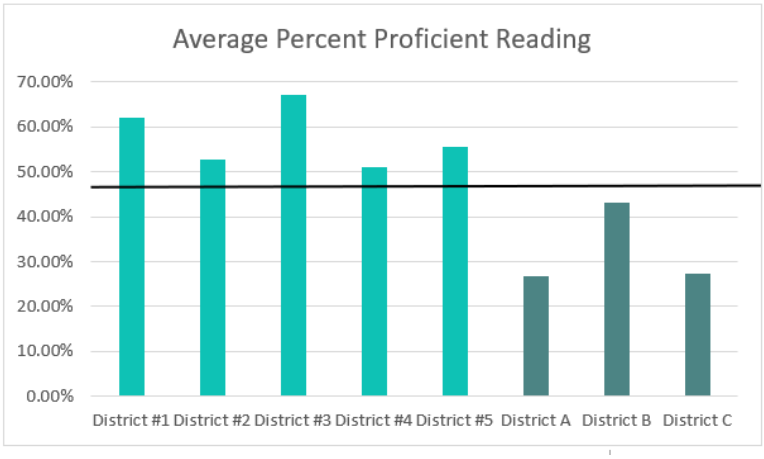
**Figure 1.2**

*Percent Proficient in Reading by School District*

| | % Proficient | | | | |
|---|---|---|---|---|---|
| Reading | District #1 | District #2 | District #3 | District #4 | District #5 |
| 2019 | 69.39% | 65.57% | 72.60% | 44.71% | 62.63% |
| 2021 | 60.94% | 50.00% | 73.91% | 54.88% | 50.56% |
| 2022 | 59.12% | 50.67% | 62.50% | 55.68% | 51.04% |
| 2023 | 59.18% | 44.19% | 59.68% | 48.89% | 57.61% |

| | % Proficient | | |
|---|---|---|---|
| Reading | District A | District B | District C |
| 2019 | 35.21% | 48.15% | 29.63% |
| 2021 | 22.50% | 54.84% | 24.56% |
| 2022 | 21.74% | 42.86% | 27.87% |
| 2023 | 27.27% | 26.92% | |



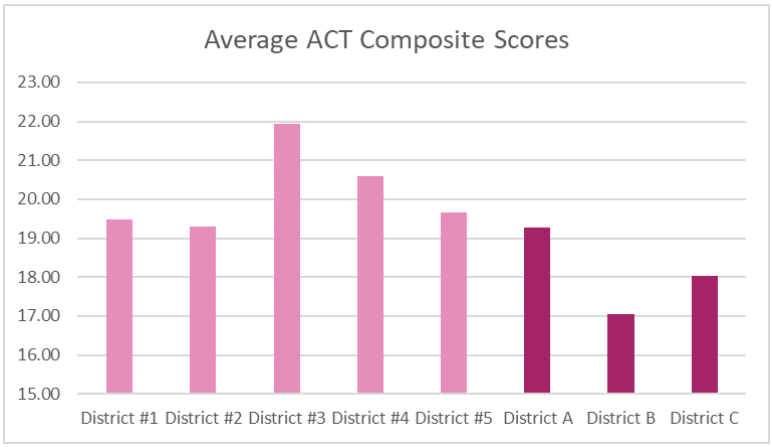




*Note.* The black line indicates the state average for student achievement (2019 – 2023).

**Figure 1.3**

*Average ACT Scores by School District (2019 – 2023)*

| | District #1 | District #2 | District #3 | District #4 | District #5 | District A | District B | District C |
|---|---|---|---|---|---|---|---|---|
| **ACT** | **19.49** | **19.31** | **21.94** | **20.59** | **19.67** | **19.27** | **17.05** | **18.04** |


Average ACT Composite Scores
23.00
22.00
21.00
20.00
19.00
18.00
17.00
16.00
15.00
District #1
District #2
District #3
District #4
District #5
District A
District B
District C

**Research Question 2** - *What commonalities exist among five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement when examined by expenditures?*

**Research Question 2 Key Points**

- ✓ **In the General Fund Instruction, four of the five elementary districts analyzed spent more per Average Number Belonging (ANB) after transitioning to the 4dsw schedule.**
- ✓ **In the General Fund Instruction, three of the five high school districts analyzed spent more per Average Number Belonging (ANB) after transitioning to the 4dsw schedule.**
- ✓ **For instruction in All Funds, all five high school districts spent less per ANB after transitioning to the 4dsw schedule.**
- ✓ **There is no overwhelming trend in expenditures in the five school districts.**

**Research Question 2 Discussion**

Expenditures for each school district meeting the inclusionary criteria were calculated on a per ANB basis. ANB is calculated by each school's enrollment on the first Monday in October and February 1st each school year. These numbers are averaged, then multiplied by 187 and, finally, divided by 180. ANB = ((October Count + February Count) / 2) X 187 / 180.

The instructional costs, by school district, by year, were extracted from the annual Trustees Financial Summaries (TFS) for the General Fund (Fund 01). Instructional costs were identified by function code 1XXX. The function code assigned to all instructional costs by the school district clerk is 1XXX. All function codes in the 1,000s are instruction related. In the TFS these are combined under the function code 1XXX.

The same process was followed using instruction codes from All Funds within the school district budget. These additional funds to the General Fund (Fund 01) include: Tuition Fund (Fund 13), Miscellaneous Program Fund (Fund 15) (including Title I Funds), Federal Impact Aid (Fund 26), and Technology Fund (Fund 28).

Maintenance costs by school district, by year were extracted from the TFS for the General Fund (Fund 01). The function code for maintenance is 26XX. The same process was followed using maintenance function codes (26XX) from All Funds within the school district budget. These additional funds to the General Fund (Fund 01) include: Transportation Fund (Fund 10), Miscellaneous Program Fund (Fund 15), Federal Impact Aid (Fund 26), Technology Fund (Fund 28), and Building Reserve Fund (Fund 61).

Transportation costs by school district, by year were extracted from the TFS for the Transportation Fund (Fund 10). The function code for student transportation is 27XX.

Food service costs by school district, by year were extracted from the TFS for the Food Service Fund (Fund 12). This fund includes all expenditures utilized to operate a school district's food services.

The totals for each function by school district (Instruction: General Fund, Instruction: All Funds, Maintenance: General Fund, Maintenance: All Funds, Student Transportation, and Food Service) were then divided by each school district's total ANB for each year. These calculations generated a function cost per ANB by school district, by year.

For each elementary school district that met the inclusionary criteria, the per student expenditures were calculated for two years prior to the transition to the 4dsw schedule and two years after the transition. The categories studied were Instruction (General Fund and All Funds), Maintenance (General Funds and All Funds), Transportation, and Food Services (Figure 2.1).

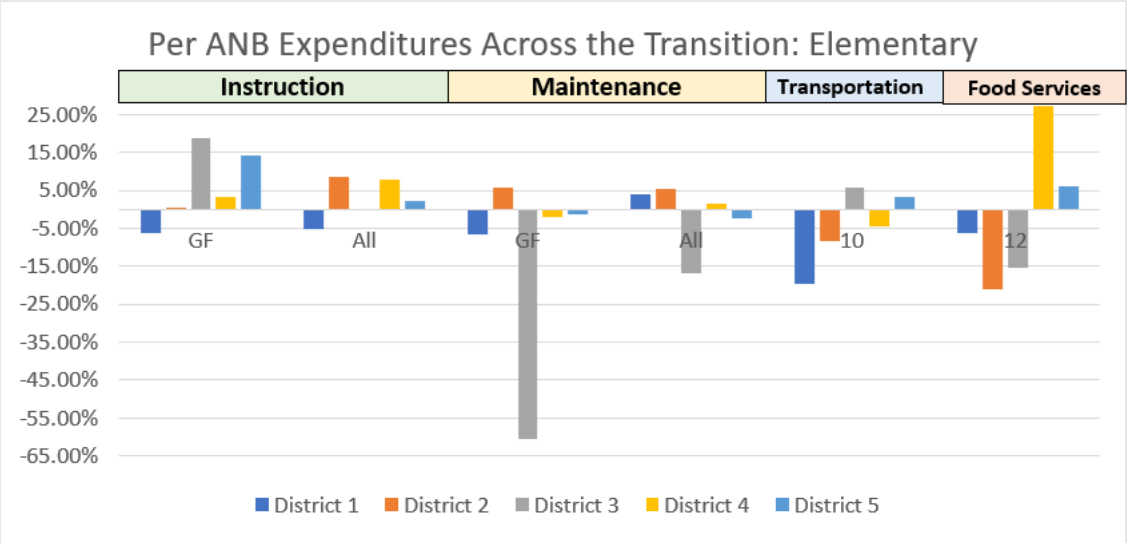
In the category of General Fund Instruction, four of the five elementary school districts spent more per ANB after transitioning to the 4dsw schedule. For instruction in All Funds, three out of the five elementary school districts spent more per ANB after transitioning. In the category of Student Transportation (to and from school), two out of the five elementary school districts spent more per ANB after transitioning. In the category of Food Services, two out of the five elementary school districts spent more per ANB after transitioning.

In the category of Maintenance, caution needs to be exercised when interpreting the data. Function Code 26XX is applied to all maintenance and maintenance related expenditures and can involve short-term, high-cost maintenance projects. These projects can skew the per student expenditures for Maintenance (e.g., Figure 2.1, District 3).

**Figure 2.1**

*Percent Change in Elementary School District Expenditures Two Years Before Transition to the 4dsw and Two Years After Transition*

| | | Instruction | | Maintenenace | | Transportation | Food Services |
|---|---|---|---|---|---|---|---|
| | | GF | All | GF | All | 10 | 12 |
| District 1 | Elem | -6.22% | -5.36% | -6.48% | 4.10% | -19.82% | -6.31% |
| District 2 | Elem | 0.48% | 8.39% | 5.87% | 5.30% | -8.35% | -20.91% |
| District 3 | Elem | 18.91% | -0.02% | -60.42% | -16.77% | 5.64% | -15.40% |
| District 4 | Elem | 3.32% | 7.93% | -1.89% | 1.36% | -4.51% | 27.41% |
| District 5 | Elem | 14.10% | 2.09% | -1.33% | -2.41% | 3.33% | 6.04% |




For each high school district that met the inclusionary criteria, the per student expenditures were calculated for two years prior to the transition to the 4dsw schedule and two years after the transition. The categories that were studied were Instruction (General Fund and All Funds), Maintenance (General Funds and All Funds), Transportation, and Food Services (Figure 2.2).

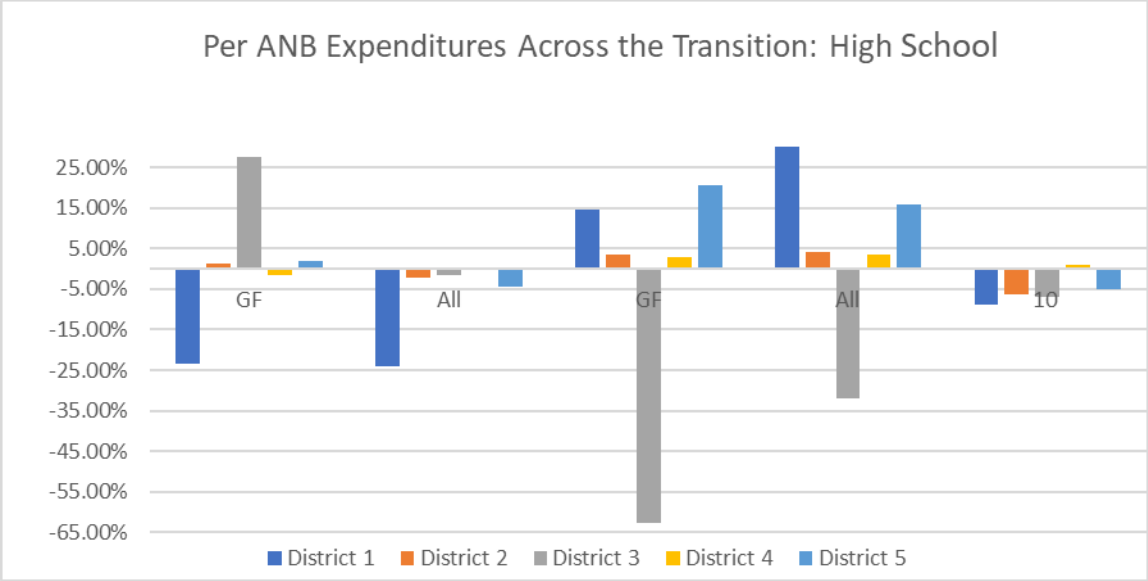
In the category of General Fund Instruction, three of the five high school districts spent more per ANB after transitioning to the 4dsw schedule. For instruction in All Funds, no high school district spent more per ANB after transitioning. In the category of Student Transportation (to and from school), one out of the five high school districts spent more per ANB after transitioning.

In the category of Maintenance, caution needs to be exercised when interpreting the data. Function Code 26XX is applied to all maintenance and maintenance related expenditures and can involve short-term, high-cost maintenance projects. These projects can skew the per student expenditures for Maintenance (e.g., Figure 2.2, District 3).

**Figure 2.2**

*Percent Change in High School District Expenditures Two Years Before Transition to the 4dsw and Two Years After Transition*

| | | Instruction | | Maintenance | | Transportation |
|---|---|---|---|---|---|---|
| | | GF | All | GF | All | 10 |
| District 1 | HS | -23.41% | -23.97% | 14.74% | 40.86% | -8.96% |
| District 2 | HS | 1.30% | -2.20% | 3.62% | 4.08% | -6.29% |
| District 3 | HS | 27.66% | -1.49% | -62.67% | -32.09% | -6.89% |
| District 4 | HS | -1.54% | -0.27% | 2.87% | 3.45% | 0.96% |
| District 5 | HS | 1.98% | -4.40% | 20.66% | 16.03% | -5.11% |



**Research Question 3** - *What commonalities exist among five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement when examined by percentage of maximum budget?*

**Question 3 Key Point**

- ✓ **All five school districts that met the inclusionary criteria exceeded the base budget in the years 2020-2023.**

**Question 3 Discussion**

In 1988, a group of school districts led by the Helena School District filed suit against the state of Montana, claiming the disparity in school funding between school districts violated the Montana Constitution. On February 1, 1989, the court ruled in favor of the school districts. This finding tasked the Montana legislature with implementing a school funding formula that was equitable based on Article 10 of the Montana Constitution. After several attempts, in spring of 1993, the legislature passed, and the governor signed into law, House Bill 667. This established an equalization formula in which a maximum budget was calculated for each district and all districts would need to fall between 80% (Base Budget) and 100% of the calculated maximum budget. Districts that were below 80% would need to increase their general fund revenue over a three-year period to achieve the 80% threshold. Tax levies were allowed on a permissive basis (without a vote) up to the 80% level. To go above 80%, districts would need to ask the community for an additional voted levy.

In the years 2020-2023, all five school districts that met the inclusionary criteria exceeded their Base Budget (80% of Maximum Budget) (Figure 3.1). Of these five districts, District #1 utilized the lowest percentage of the Maximum Budget, in both the elementary and high school, and maintained student achievement scores that exceeded the state average in math and reading. While their achievement scores remained above the state average, the percentage proficient for the years 2019-2023 dropped 10.10% in math and 10.21% in reading. The state average for the same period dropped 4.11% in math and 4.82% in reading (Figures 1.1 and 1.2).

District #3 budgeted 100% of their Maximum Budget, in both the elementary and high school (Figure 3.1), and maintained student achievement scores that exceeded the state average in math and reading. While their achievement scores remained above the state average, the percentage proficient for the years 2019-2023 dropped 13.25% in math and 12.92% in reading. The state average for the same period dropped 4.11% in math and 4.82% in reading (Figures 1.1 and 1.2).

District #4 budgeted almost 100% of their Maximum Budget, in both the elementary and high school (Figure 3.1), and maintained student achievement scores that exceeded the state average in math and reading. While their achievement scores remained above the state average, the percentage proficient for the years 2019-2023 increased 0.98% in math and 4.18% in reading. The state average for the same period dropped 4.11% in math and 4.82% in reading (Figures 1.1

and 1.2). District #4 was above the state student achievement average and improved slightly between 2019-2023. In 2019, they were 20.49% below District #1 in math and 24.68% below District #1 in reading.

**Figure 3.1**

*Percent of Maximum Budget Adopted by School District and Year*

| Elementary | District #1 | District #2 | District #3 | District #4 | District #5 |
|---|---|---|---|---|---|
| 2020 | 89.69% | 96.31% | 100.00% | 99.99% | 100.00% |
| 2021 | 89.35% | 99.52% | 100.00% | 99.88% | 100.00% |
| 2022 | 89.48% | 97.27% | 100.00% | 99.63% | 100.00% |
| 2023 | 89.27% | 97.55% | 100.00% | 100.00% | 99.85% |

| High School | District #1 | District #2 | District #3 | District #4 | District #5 |
|---|---|---|---|---|---|
| 2020 | 92.82% | 92.83% | 100.00% | 100.00% | 100.00% |
| 2021 | 91.73% | 93.27% | 100.00% | 100.00% | 100.00% |
| 2022 | 91.69% | 93.43% | 100.00% | 98.86% | 100.00% |
| 2023 | 91.89% | 93.41% | 100.00% | 100.00% | 100.00% |

**Research Question 4** - *What commonalities exist among five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement when examined by teacher retention?*

### Question 4 Key Points

- ✓ **Teacher retention rates in the five school districts analyzed were low when compared to the state average. The retention rates in these five school districts ranged from 43.48% to 68.18%.**

### Question 4 Discussion

For the five school districts that met the inclusionary criteria, teacher retention was low when compared to the state average (Figure 4.2) and decreased in each school district in the years 2020-2023 (Figure 4.1). The decrease in teacher retention ranged from 4.16% (District #1) to 11.72% (District #3). The average decrease in teacher retention for all five school districts was 8.78%.

### Figure 4.1

*Teacher Retention Rates*

| | District #1 | District #2 | District #3 | District #4 | District #5 |
|---|---|---|---|---|---|
| 2020 | 58.33% | 47.62% | 59.09% | 54.55% | 54.17% |
| 2021 | 46.15% | 50.00% | 47.62% | 44.44% | 43.48% |
| 2022 | 58.33% | 52.38% | 50.00% | 68.18% | 44.00% |
| 2023 | 54.17% | 36.84% | 47.37% | 48.00% | 43.48% |

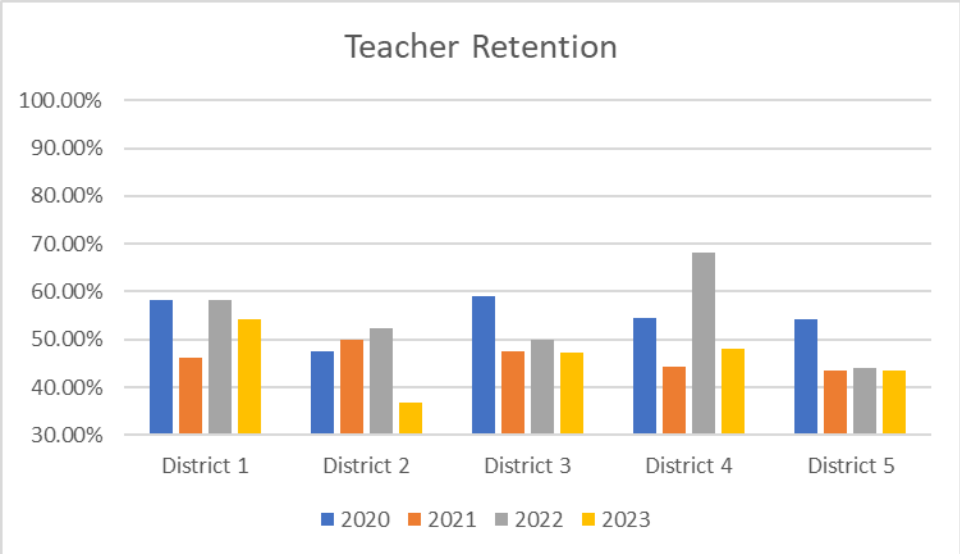
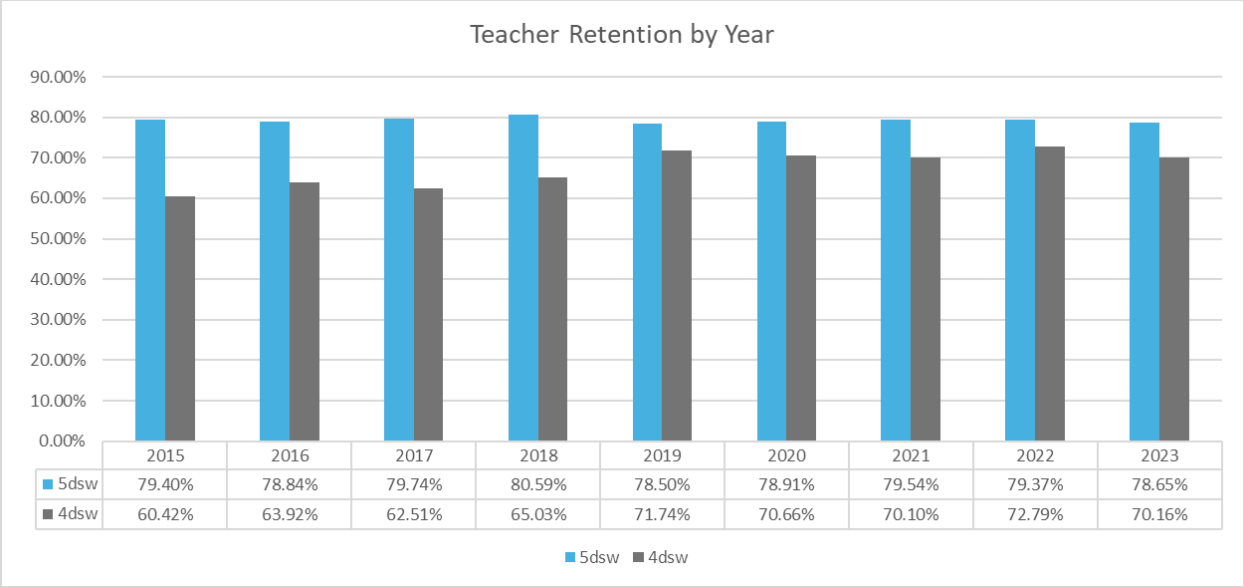


**Figure 4.2**

*State Average Teacher Retention Rate in School Districts That Utilize the 4dsw Schedule and the 5dsw Schedule by Year*




| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|
| 5dsw | 79.40% | 78.84% | 79.74% | 80.59% | 78.50% | 78.91% | 79.54% | 79.37% | 78.65% |
| 4dsw | 60.42% | 63.92% | 62.51% | 65.03% | 71.74% | 70.66% | 70.10% | 72.79% | 70.16% |

**Research Question 5** - *What differences exist between five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement and three similarly sized school districts that utilized the 4dsw schedule that had achievement significantly lower than the state average when examined by expenditures?*

**Question 5 Key Points**

- ✓ **For the three school districts (Districts A, B, and C) in which student achievement did not surpass the state average, expenditures per ANB rose following the transition to the 4dsw schedule, exceeding the increase calculated in the five school districts (Districts 1, 2, 3, 4, and 5) where student achievement exceeded the state average.**
- ✓ **When comparing the five school districts that met the inclusionary criteria to the three comparison school districts that did not meet the inclusionary achievement criteria, results were inconsistent.**

**Question 5 Discussion**

Expenditures for each of the five school districts that met the inclusionary criteria, as well as the three comparison districts, were calculated on a per ANB basis. ANB is calculated by each school's enrollment on the first Monday in October and February 1st each school year. These numbers are averaged, then multiplied by 187 and, finally, divided by 180. ANB = ((October Count + February Count) / 2) X 187 / 180.

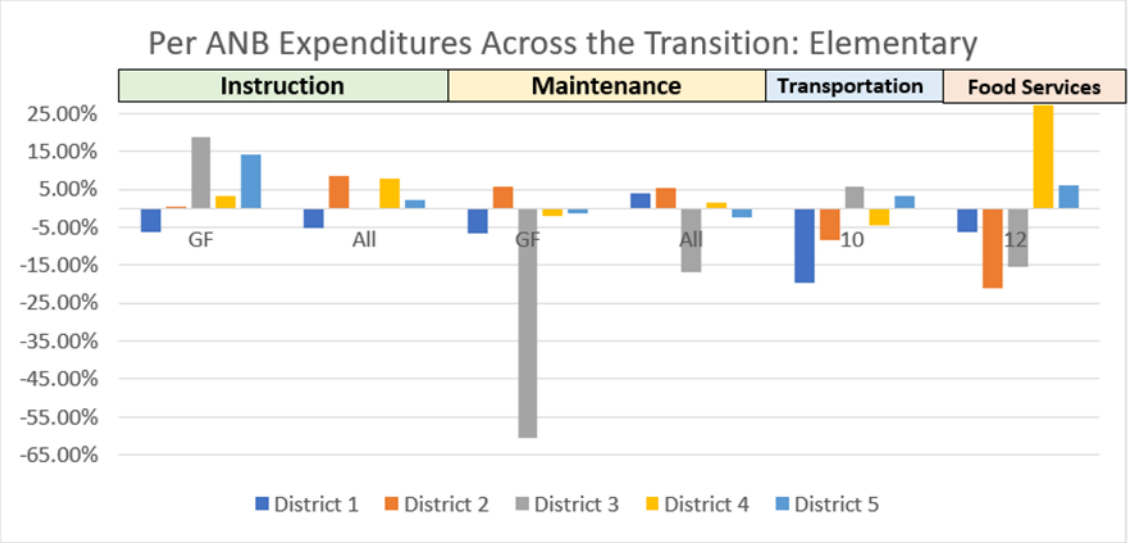
For the three school districts (Districts A, B, and C) where student achievement did not surpass the state average, expenditures per ANB rose following the transition to the 4dsw schedule, exceeding the increase calculated in the five school districts where student achievement exceeded the state average (Figures 5.1, 5.2, and 5.3).

When comparing the five school districts that met the inclusionary criteria to the three comparison school districts that did not meet the inclusionary student achievement criteria, results were inconsistent. For the area of Instruction in the General Fund, 70% of the five school districts that met the inclusionary criteria spent more after transitioning to the 4dsw schedule. Whereas 100% of the three comparison school districts spent more after transitioning to the 4dsw schedule. For Instruction in All Funds, 30% of the five school districts that met the inclusionary criteria spent more after transitioning to the 4dsw schedule. Whereas 100% of the three comparison school districts spent more after transitioning to the 4dsw schedule. For the area of Maintenance in the General Fund, 50% of the five school districts that met the inclusionary criteria spent more after transitioning to the 4dsw schedule. Whereas 100% of the three comparison school districts spent more after transitioning to the 4dsw schedule. For Maintenance in All Funds, 70% of the five school districts that met the inclusionary criteria spent more after transitioning to the 4dsw schedule. Whereas 100% of the three comparison school districts spent more after transitioning to the 4dsw schedule. For student Transportation (to and from school), 30% of the five school districts that met the inclusionary criteria spent more after transitioning to the 4dsw schedule. Whereas 66.67% of the three comparison school districts spent more after transitioning to the 4dsw schedule (Figures 5.1, 5.2, and 5.3).

**Figure 5.1**

*Percent Change in Elementary School District Expenditures Two Years Before Transition to the 4dsw and Two Years After Transition in Five School Districts that Exceeded the State Average in Student Achievement*

| | | Instruction | | Maintenenace | | Transportation | Food Services |
|---|---|---|---|---|---|---|---|
| | | GF | All | GF | All | 10 | 12 |
| District 1 | Elem | -6.22% | -5.36% | -6.48% | 4.10% | -19.82% | -6.31% |
| District 2 | Elem | 0.48% | 8.39% | 5.87% | 5.30% | -8.35% | -20.91% |
| District 3 | Elem | 18.91% | -0.02% | -60.42% | -16.77% | 5.64% | -15.40% |
| District 4 | Elem | 3.32% | 7.93% | -1.89% | 1.36% | -4.51% | 27.41% |
| District 5 | Elem | 14.10% | 2.09% | -1.33% | -2.41% | 3.33% | 6.04% |

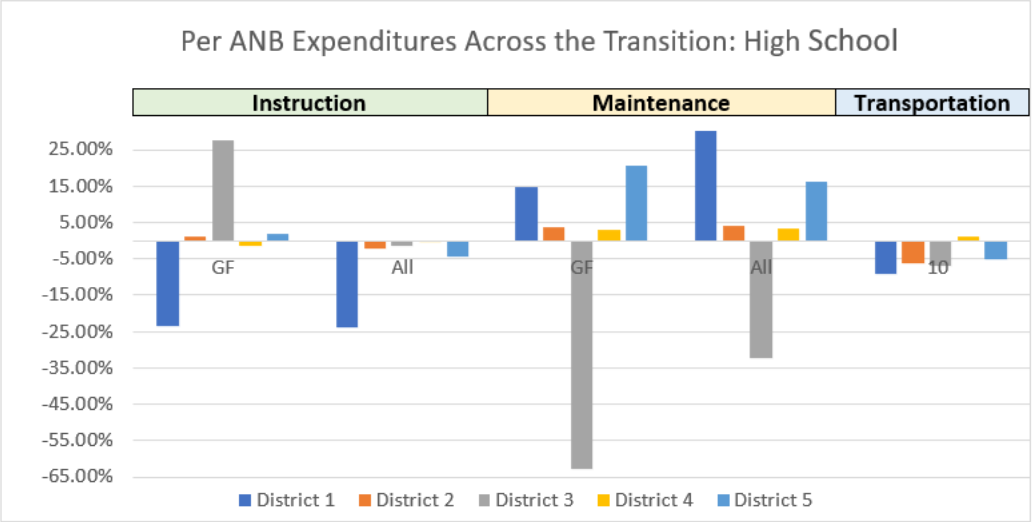



*Note.* In the category of Maintenance, caution needs to be exercised when interpreting the data. Function Code 26XX is applied to all maintenance and maintenance related expenditures and can involve short-term, high-cost maintenance projects. These projects can skew the per student expenditures for Maintenance.

**Figure 5.2**

*Percent Change in High School District Expenditures Two Years Before Transition to the 4dsw and Two Years After Transition in Five School Districts that Exceeded the State Average in Student Achievement*

| | | Instruction | | Maintenance | | Transportation |
|---|---|---|---|---|---|---|
| | | GF | All | GF | All | 10 |
| District 1 | HS | -23.41% | -23.97% | 14.74% | 40.86% | -8.96% |
| District 2 | HS | 1.30% | -2.20% | 3.62% | 4.08% | -6.29% |
| District 3 | HS | 27.66% | -1.49% | -62.67% | -32.09% | -6.89% |
| District 4 | HS | -1.54% | -0.27% | 2.87% | 3.45% | 0.96% |
| District 5 | HS | 1.98% | -4.40% | 20.66% | 16.03% | -5.11% |

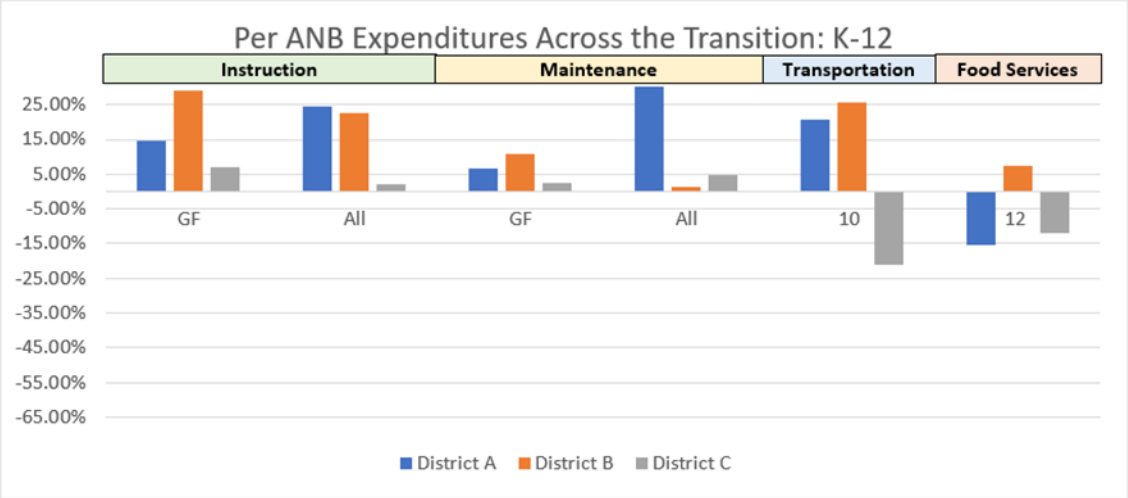



*Note.* In the category of Maintenance, caution needs to be exercised when interpreting the data. Function Code 26XX is applied to all maintenance and maintenance related expenditures and can involve short-term, high-cost maintenance projects. These projects can skew the per student expenditures for Maintenance.

**Figure 5.3**

*Percent Change in School District Expenditures Two Years Before Transition to the 4dsw and Two Years After Transition in Three Districts That did not Exceed the State Average in Student Achievement*

| | Instruction | | Maintenance | | Transportation | Food Services |
|---|---|---|---|---|---|---|
| | GF | All | GF | All | 10 | 12 |
| District A | 14.60% | 24.43% | 6.82% | 37.63% | 20.67% | -15.56% |
| District B | 29.09% | 22.64% | 10.96% | 1.39% | 25.78% | 7.51% |
| District C | 6.90% | 2.14% | 2.56% | 4.65% | -21.22% | -12.14% |



**Research Question 6** - *What differences exist between five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement and three similarly sized school districts that utilized the 4dsw schedule that had achievement significantly lower than the state average when examined by percentage of maximum budget?*

**Question 6 Key Points**

- ✓ **The five school districts analyzed that exceeded the state student achievement average and the three districts analyzed that did not exceed the state student achievement were very similar regarding their percent of maximum budget adopted.**

**Question 6 Discussion**

In the years 2020-2023, the three school districts (Districts A, B, and C) that did not exceed the state student achievement average, exceeded their Base Budget (80% of Maximum Budget) (Figure 6.1). Of the three school districts, District C utilized the lowest percentage of the Maximum Budget. The five school districts analyzed that exceeded the state student achievement average and the three districts analyzed that did not exceed the state student achievement were very similar regarding their percent of maximum budget adopted.

**Figure 6.1**

*Percent of Maximum Budget Adopted by School District and Year*

| Elementary | District #1 | District #2 | District #3 | District #4 | District #5 |
|---|---|---|---|---|---|
| 2020 | 89.69% | 96.31% | 100.00% | 99.99% | 100.00% |
| 2021 | 89.35% | 99.52% | 100.00% | 99.88% | 100.00% |
| 2022 | 89.48% | 97.27% | 100.00% | 99.63% | 100.00% |
| 2023 | 89.27% | 97.55% | 100.00% | 100.00% | 99.85% |

| High School | District #1 | District #2 | District #3 | District #4 | District #5 |
|---|---|---|---|---|---|
| 2020 | 92.82% | 92.83% | 100.00% | 100.00% | 100.00% |
| 2021 | 91.73% | 93.27% | 100.00% | 100.00% | 100.00% |
| 2022 | 91.69% | 93.43% | 100.00% | 98.86% | 100.00% |
| 2023 | 91.89% | 93.41% | 100.00% | 100.00% | 100.00% |

| K-12 | District A | District B | District C |
|---|---|---|---|
| 2016 | 100.00% | 100.00% | 87.48% |
| 2023 | 98.20% | 100.00% | 86.88% |

**Research Question 7** - *What differences exist between five school districts that utilized the 4dsw schedule and exceeded the state average in reading, math, and ACT achievement and three similarly sized school districts that utilized the 4dsw schedule that had achievement significantly lower than the state average when examined by teacher retention?*

**Question 7 Key Points**

- ✓ **The five school districts who exceeded the state student achievement average had a lower rate of teacher retention than the three school districts that did not exceed the state student achievement average in the years 2020 - 2023.**
- ✓ **All three of the school districts whose student achievement was below the state average had teacher retention rates that exceeded the state average for 4dsw districts in the years 2020 - 2023.**
- ✓ **The difference in teacher retention rates between the school districts that exceeded the state student achievement average and the school districts that did not exceed the state student achievement average was 32.74%.**

**Question 7 Discussion**

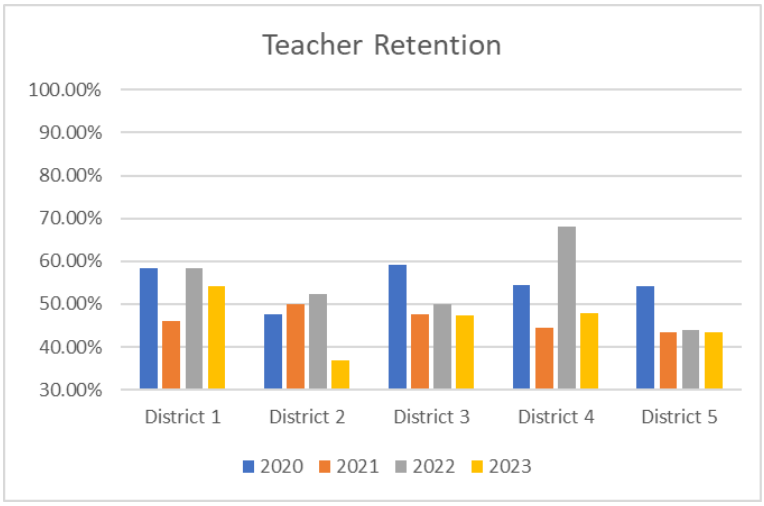
For the five school districts analyzed that exceeded the state average in student achievement, teacher retention was low when compared to the state retention average (Figure 7.2) and decreased in each school district in the years 2020-2023 (Figure 7.1). The decrease in teacher retention ranged from 4.16% (District #1) to 11.72% (District #3). The average decrease in teacher retention for all five school districts was 8.78%.

For the three school districts analyzed that did not exceed the state average in student achievement, teacher retention was higher when compared to the state retention average (Figure 7.2) and increased in two (Districts B and C) of the three school districts for the years 2020-2023 (Figure 7.1). The teacher retention rates for the five school districts that exceeded the state student achievement was 50.41%. The teacher retention rate for the three school districts that did not exceed the state student achievement average was 83.15%. This indicates a 32.74% difference in retention rates between the two groups of school districts.

**Figure 7.1**

*Teacher Retention Rates*

| | District #1 | District #2 | District #3 | District #4 | District #5 | | District A | District B | District C |
|---|---|---|---|---|---|---|---|---|---|
| 2020 | 58.33% | 47.62% | 59.09% | 54.55% | 54.17% | | 83.87% | 75.00% | 76.67% |
| 2021 | 46.15% | 50.00% | 47.62% | 44.44% | 43.48% | | 80.65% | 90.91% | 79.41% |
| 2022 | 58.33% | 52.38% | 50.00% | 68.18% | 44.00% | | 75.76% | 95.24% | 93.10% |
| 2023 | 54.17% | 36.84% | 47.37% | 48.00% | 43.48% | | 81.25% | 82.61% | 83.33% |



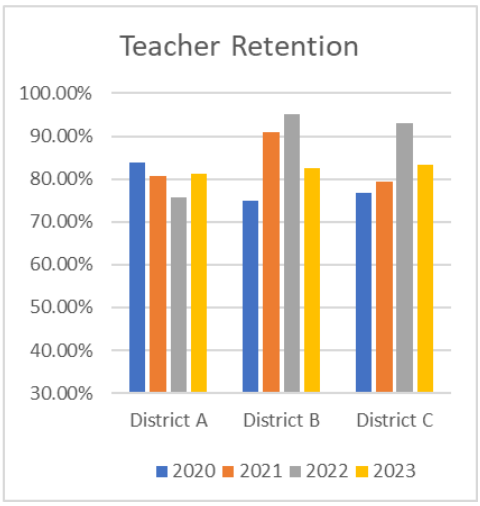
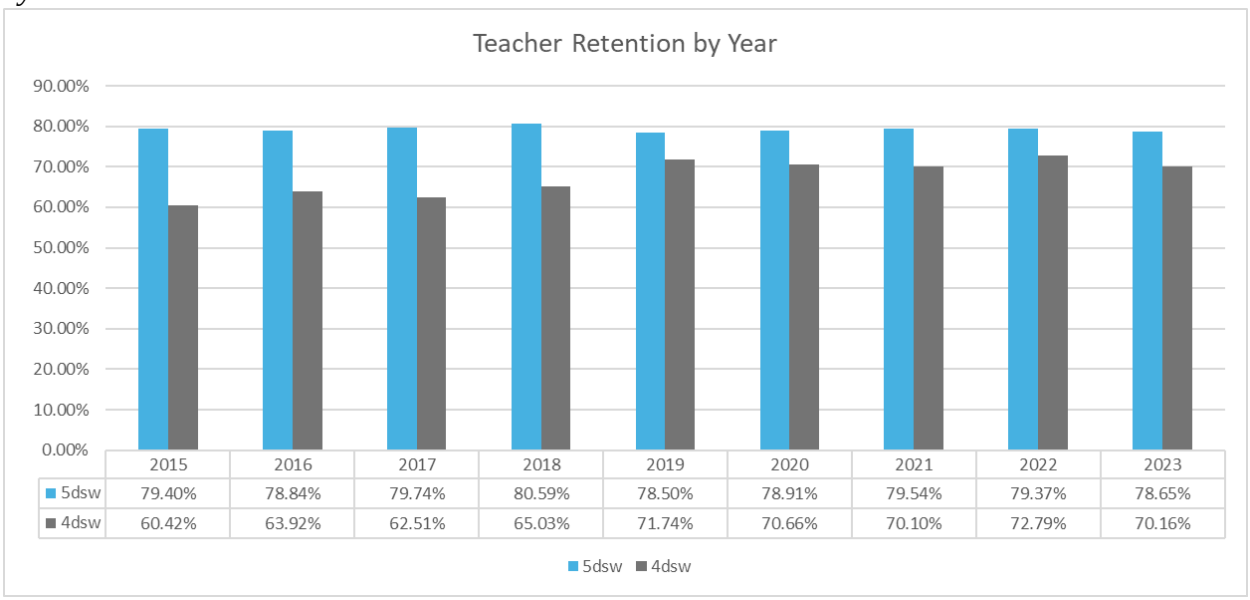




**Figure 7.2**

*Teacher Retention Rate in School Districts That Utilize the 4dsw Schedule or the 5dsw Schedule by Year*




| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|
| 5dsw | 79.40% | 78.84% | 79.74% | 80.59% | 78.50% | 78.91% | 79.54% | 79.37% | 78.65% |
| 4dsw | 60.42% | 63.92% | 62.51% | 65.03% | 71.74% | 70.66% | 70.10% | 72.79% | 70.16% |

**Research Question 8 -** What changes were made in spending and taxation in school districts that transitioned to the 4dsw schedule?

**Question 8 Key Point**

- ✓ **Of the 78 school districts that utilized the 4dsw schedule, 48 (61.54%) had a higher local district tax rate for transportation after transitioning to the 4dsw schedule.**
- ✓ **Of the 78 school districts that utilized the 4dsw schedule, 41 (52.56%) spent more per student on transportation after transitioning to the 4dsw schedule.**
- ✓ **Of the 78 school districts that utilized the 4dsw schedule, 18 (23.08%) received more on schedule reimbursement for their bus routes after transitioning to the 4dsw schedule.**
- ✓ **Of the 78 school districts that utilized the 4dsw schedule, 20 (25.64%) received less on schedule reimbursement, increased local taxes, and spent less on student transportation.**
- ✓ **Of the 78 school districts that utilized the 4dsw schedule, 18 (23.08%) received less on schedule reimbursement, increased local taxes, and spent more on student transportation.**

**Question 8 Discussion**

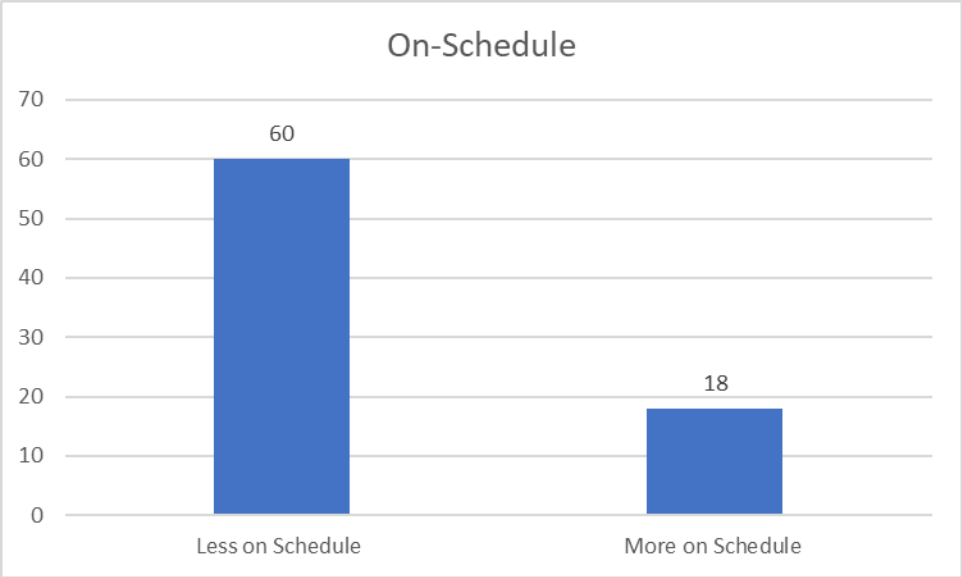
School districts in the state of Montana receive revenue to support student transportation to and from school from three sources (state, county, and local). Based on the number of miles traveled by buses on each route, and the capacity of the school bus, school districts receive reimbursement for each mile traveled in equal proportion from the state and county. This is referred to as the on-schedule reimbursement. In addition, to cover the full cost of transporting students to and from school, districts can impose a local tax levy. The per mile reimbursement from the state and county is usually inadequate to cover the cost of bus services. Because of this, the local tax levy becomes necessary.

There were 78 school districts which transitioned to the 4dsw schedule between 2006 - 2023 and transported their students to and from school on buses. A comparison was made of on-schedule reimbursement, local tax for transportation, and expenditure per ANB for transportation for each school district in this group for two years prior and two years after transitioning to utilizing the 4dsw schedule. There were 17 school districts that did not transport their students to and from school and were not included.

Of the 78 school districts analyzed, 60 (76.92%) school districts received less on-schedule reimbursement. This was the expected outcome because most districts transported their students less miles each week. However, 18 (23.08%) districts received more on-schedule reimbursement (Figure 8.1).

**Figure 8.1**

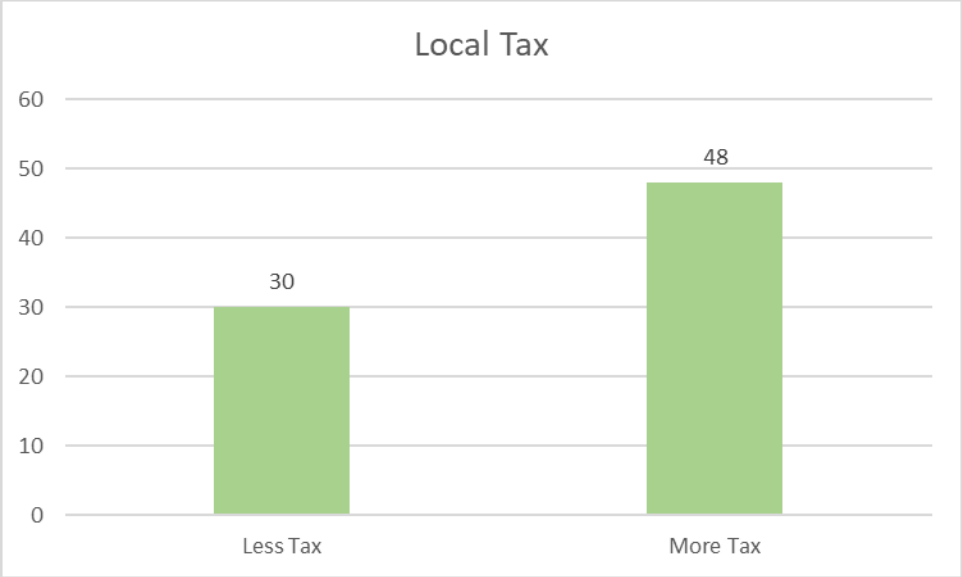
*Changes in On-Schedule Reimbursement*




Of the 78 school districts analyzed, 30 (38.46%) school districts received less local tax revenue for student transportation to and from school. Whereas, 48 (61.54%) school districts received more local tax revenue for transportation when they transitioned to utilizing the 4dsw schedule (Figure 8.2).

**Figure 8.2**

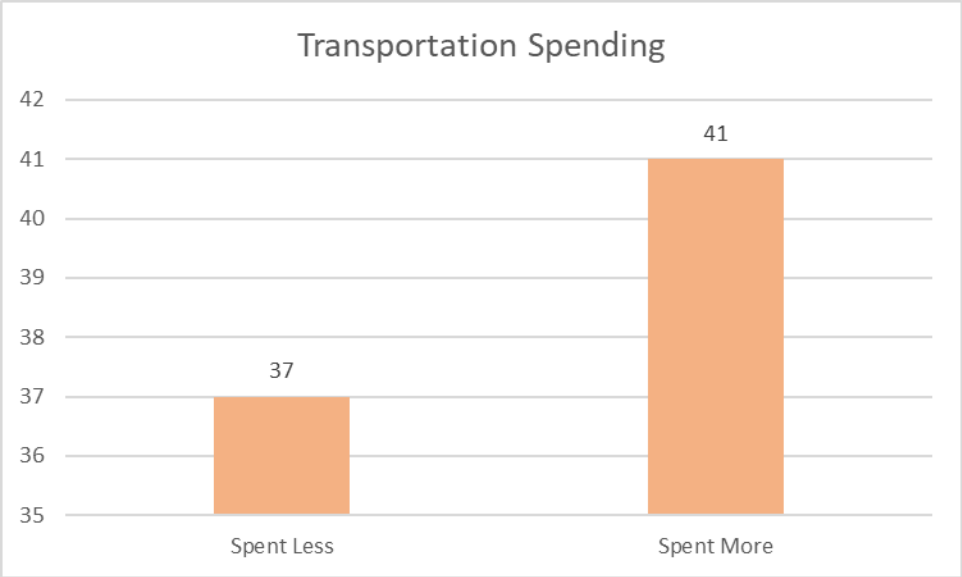
*Changes to Local Tax Revenue for Transportation*



Of the 78 school districts analyzed, 37 (47.44%) school districts spent less for student transportation to and from school. Whereas, 41 (52.56%) school districts spent more for transportation when they transitioned to utilizing the 4dsw schedule (Figure 8.3).

**Figure 8.3**

*Changes in Transportation Spending*




The 78 school districts that transitioned to utilizing the 4dsw schedule, and transported their students to and from school on busses, were categorized by on-schedule revenue, local tax revenue, and expenditures. School districts received either less or more revenue from the state and county (on-schedule reimbursement). They also received less or more revenue from their local taxpayers and spent less or more of that revenue on student transportation. Figure 8.4 identifies the number of school districts and percentage in each category.

**Figure 8.4**

*Number and Percentage of School Districts in Each Category Based on On-Schedule Revenue, Tax Revenue, and Expenditures for Student Transportation to and From School*

| | # of SD | % of SD |
|---|---|---|
| Less on Schedule<br>Less Tax<br>Spent Less | 12 | 15.38% |
| More on Schedule<br>More Tax<br>Spent More | 7 | 8.97% |
| Less on Schedule<br>Less Tax<br>Spent More | 10 | 12.82% |
| Less on Schedule<br>More Tax<br>Spent More | 18 | 23.08% |
| More on Schedule<br>More Tax<br>Spent Less | 3 | 3.85% |
| More on Schedule<br>Less Tax<br>Spent Less | 2 | 2.56% |
| More on Schedule<br>Less Tax<br>Spent More | 6 | 7.69% |
| Less on Schedule<br>More Tax<br>Spent Less | 20 | 25.64% |

*Note.* # of SD = Number of School Districts and % of SD = Percent of School Districts

## CONCLUSIONS AND RECOMMENDATIONS

During the years 2006 – 2023, there were 141 school districts that utilized the 4dsw schedule. Of those 141 school districts, only 11 districts met the criterion of having student achievement scores consistently above the state average. When adding the inclusionary criterion of size (minimum of 64 students in the elementary, 32 students in the high school, or 72 students in a K-12 district), only five districts met the criteria. There were three school districts selected (Districts A, B, and C) as a comparison group. These school districts met the inclusionary criteria, except for student achievement. Student achievement in these three districts was below the state average.

For the three school districts (Districts A, B, and C) where student achievement did not surpass the state average, expenditures per ANB rose following the transition to the 4dsw schedule, exceeding the increase observed in the five school districts (Districts 1, 2, 3, 4, and 5) where student achievement exceeded the state average. Specifically, for Instruction in the General Fund, four of the five elementary districts analyzed spent more per Average Number Belonging (ANB) after transitioning to the 4dsw schedule. For Instruction in the General Fund, three of the five high school districts analyzed spent more per Average Number Belonging (ANB) after transitioning to the 4dsw schedule. For instruction in All Funds, all five high school districts spent less per ANB after transitioning to the 4dsw schedule. There is no overwhelming trend in expenditures in the five school districts.

All five school districts that met the inclusionary criteria for student achievement exceeded the base budget in the years 2020-2023. The five school districts analyzed that exceeded the state student achievement average and the three districts analyzed that did not exceed the state student achievement were very similar regarding their percent of maximum budget adopted.

Teacher retention rates in the five school districts analyzed were low when compared to the state average. The retention rates in these five school districts ranged from 43.48% to 68.18%. The five districts who exceeded the state student achievement average had a lower rate of teacher retention than the three districts that did not exceed the state student achievement average in the years 2020 - 2023. All three of the school districts whose student achievement was below the state average had teacher retention rates that exceeded the state average for 4dsw districts in the years 2020 - 2023. The difference in teacher retention rates between the school districts that exceeded the state student achievement average (Districts 1, 2, 3, 4, and 5) and the school districts that did not exceed the state student achievement average (District A, B, and C) was 32.74%.

Of the 78 school districts that utilized the 4dsw schedule and transported students on busses, 48 (61.54%) had a higher local district tax rate for transportation after transitioning to the 4dsw. Of the 78 school districts that utilized the 4dsw schedule, 41 (52.56%) spent more per student on transportation after transitioning to the 4dsw.

**Extreme caution should be taken when considering a move to the 4dsw schedule**. Few school districts have been academically successful while utilizing the 4dsw schedule and for most districts, cost savings have not been realized by attending school one less day (Allen et al., 2024,

2025). There is some evidence that teacher recruitment may be enhanced in the 4dsw schedule (Allen et al., 2025). However, teacher retention is consistently lower in schools that utilize the 4dsw schedule (Allen et al., 2025).

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