## WYOMING EDUCATION FINANCE

## Small Schools Report

Submitted to
Wyoming State Legislature

Prepared for MAP by
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## J anuary 31, 2002

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## Small School Adjustment

In it's February 2001 ruling in Campbell v. Wyoming, the Wyoming Supreme Court held that the current adjustment for small schools is not fully cost-based, and the cut-off points for inclusion or exclusion of a school from the adjustment are arbitrary. This paper describes a cost based alternative to the current system for Wyoming. The proposed model recognizes that diseconomies of scale exist at the smallest range of school size. Given the Court's concern about a cut off point in defining small schools, we have proposed that all schools with enrollments lower than the three funding prototypes receive an adjustment, with the size of the adjustment inversely related to school size (i.e. as school enrollment grows, the per pupil adjustment gets smaller). The proposed model recognizes that there are diseconomies of scale with respect to the cost of compensating personnel including both teachers and all other personnel at the school site, the provision of utilities, and student activities. MAP proposes cost based adjustments to accommodate each of these issues. The result is a set of smooth cost functions that provide variable funding on a per pupil basis above a fixed base for teacher compensation, utility costs, and student activities. Three separate models, one each for elementary, middle and high schools are developed in the pages that follow.

## Defining a Small School

There has been considerable debate in Wyoming over the definition of a small school. As pointed out by Smith and Hayward ${ }^{1}$ the existence of co-located schools has complicated the determination of what constitutes a school for the purposes of the small school adjustment. At the present time, despite the probability that co-located schools do not suffer from the same diseconomies as do schools that are truly free-standing schools, the state's current formula provides an adjustment for small schools regardless of co-location. In this analysis, we assume any school identified as having an enrollment that qualifies for the adjustment will receive that adjustment. This, of course, inflates the true cost of small schools, by over-funding some that do not actually experience diseconomies. Therefore, we recommend that the Legislature adopt the following definition of school:

A school, for funding purposes, is one or more buildings that contain one or more grades and at least three of the following facilities that are not shared with another school: (1) library, (2) cafeteria, (3) administrative office, (4) heating and ventilation system. School districts may not reduce the size or scope of any of these facilities for the purpose of qualifying for a small school adjustment. Elementary and middle school programs with 30 or fewer ADM and high school programs with 48 or fewer ADM may, with the permission of the State Board of Education, qualify as a school even when they contain fewer than three of the above criteria.

[^0]If the Legislature agrees with this definition of a small school, the model we have developed will need to be modified to reflect the definition. The effect of this would be to reduce the amount of the adjustment for some co-located schools.

In addition, the Wyoming Supreme Court expressed concern with the cut-off points for ending eligibility for small school funding at 200 students for elementary and middle schools and 400 students for high schools. The literature does not contain enough detail to specifically identify when a school is large enough to no longer experience diseconomies of scale making it impossible to pinpoint such a cut-off with certainty. To resolve this problem, the proposed adjustment for small schools provides a declining per pupil adjustment for all schools smaller than the prototypes currently funded through the block grant funding model.

## Development of the Small School Adjustment

The proposed small school adjustment provides schools with enrollments below the prototype number of students with additional funds per pupil for the additional personnel (teacher and non-teacher) costs associated with operation of a small school, along with adjustments for utility costs and student activity funds.

Each adjustment is described below.

## Personnel Costs (Teachers)

To compensate small schools for the relatively higher per pupil cost of teachers, we first estimated the need for teachers by school enrollment and type of school. Using data on the number of teachers by school, ${ }^{2}$ we regressed the number of teachers on school enrollment.

Three separate equations were estimated, one each for elementary, middle and high schools. Because of the very strong linear relationship between school size and number of teachers, we were able to conclude that 89 percent or more of the variance in the number of teachers in a school results from the number of students in each school ${ }^{3}$. Charts 1,2 and 3 show the linear nature of the relationship between teachers and number of students for elementary, junior high and high schools respectively.

Using these figures, the constant from the regression (which was somewhat under 2 for elementary and junior high schools, and just over 3.3 for high schools) offers an estimate of the minimum number of teachers needed. The coefficient on the enrollment variable indicates the fraction of an additional teacher needed as enrollment increases by one student. For elementary schools of 263, this results in 18.5 teachers and a pupil/teacher ratio of 14.43. At the lowest enrollment level of 31, the resultant elementary pupil/teacher ratio is 8.7. At the junior high level, this resulted in a pupil teacher ratio of 9.0 at an enrollment of 31 and of 13.94 at an

[^1]enrollment of 299. For the high school, the resultant pupil-teacher ratio at 49 students is 7.8 and at 599 students it is 15.1 . Based on our field visits and the responses to our survey, these staffing levels are adequate to deliver the basket.

Before computing the number of teachers a small school would be entitled to receive, we needed to adjust the estimated line so it would better match the established prototypes. If we did not make this adjustment, an elementary school with 263 students would qualify for 18.5 teachers as described in the preceding paragraph, and a school with 264 would only qualify for 17.5 teachers as determined by the prototype. To resolve this problem we developed an adjustment factor that converted the number of teacher generated at 263 students to 17.5 and used that factor to reduce the number of teachers at each enrollment level below that number. We made similar adjustments for middle and high schools using the appropriate prototype enrollment levels and pupil teacher ratios. ${ }^{4}$

In small enrollment population centers (typically characterized by small schools in a small district), it is often difficult for districts to employ teachers in small fractions of teaching positions. Moreover, there is relatively little ability to change the number of teachers rapidly in response to shifts in school enrollments. Therefore rather than create a step function that added one additional teaching position at certain enrollment levels, we created a smooth estimate of the costs of teachers at any given school size below the prototype. This is computed by taking the predicted number of FTE teachers (including fractions of teachers) multiplying by the teacher compensation for the beginning teacher of $\$ 37,325$ (salary and benefits computed by MAP) and dividing the result by the number of students.

This figure represents the teacher compensation portion of the funding to be provided for schools with fewer students than the prototype models. The prototypes include funding for nonteaching personnel (including school site administrators), supplies and materials, central office administration, and most other functions required to operate a school district. Moreover, as described above, for small districts, the proposed changes to the small district adjustment provide adequate funding to compensate for any diseconomies of scale in this area at the small schools located in small districts.

To estimate the per pupil allocation for a school smaller than the prototype, we took the 1996-97 per pupil prototype funding value for the type of school and subtracted from it the portion devoted to teacher compensation when it was computed. That result was inflated based on the WCLI (as required by the Supreme Court). We then added that result to the teacher costs we computed for the school with that enrollment. This provides a total per pupil funding figure that would be generated by all students in a school of the given size. Differences in the cost of administration are accommodated through the inclusion of such costs in the original prototype. Since this figure was increased by the external cost adjustment, adequate funds for administration should be available at each school site. ${ }^{5}$

[^2]
## Personnel Costs (Non-Teacher Costs)

Effectively the small school adjustment for teacher salaries would be the difference between this figure and the cost adjusted prototype funding level. However, it also makes sense that small schools have higher than average costs for other personnel as well. To add those costs to the adjustment, we computed the percentage of total personnel compensation costs for each prototype devoted to non-teaching positions for each of the three prototypes, and for the very small school prototypes developed for elementary and high schools in the previous model.

For elementary and middle schools with 30 or fewer students and high schools with 48 or fewer students we applied the percentage of personnel costs from the very small prototypes to teacher salaries to estimate non-teacher costs. Between 30 (or 48 ) students and the appropriate prototype, we used a linear factor to adjust the percentage of non-teacher personnel costs as ADM changed. This factor was applied at each identified small school to estimate non-teacher personnel costs.

## Non-Personnel Costs

In addition to making an adjustment for teacher costs, the model provides an additional funding adjustment for utilities and student activities.

Utilities and Student Activities: To create a cost based adjustment for utilities and student activities, we estimated three regressions for each of the two expenditure functions - one each for elementary, middle and high schools. The regression estimated expenditures in each area as a function of ADM. Then, using the same approach as described above, we used the constant that was derived from the regressions plus the coefficient times the school enrollment to estimate the allocation of funds for the adjustments. Since we did not have data for schools with enrollments between 200 and the prototypes (elementary and middle) or 400 and the prototype (high school), we extrapolated the figures from the regression for those size schools.

Food Services: Food service revenues are comprised of Federal subsidies and payments by students, and adults. Efficient food service operations should be able to break even, or possibly make a small profit. We recognize that operating at break-even is more difficult for the very smallest schools if they choose to provide a full service meals program. We have found, however, that most small schools have found alternative ways to provide meals that do not involve a full service kitchen. Some of the alternatives we have observed in Wyoming schools include : Offering no hot lunch program, encouraging students to bring sack lunches; providing food heating facilities (stoves, microwaves) for students and adults to heat food items brought from home; delivering hot lunches from kitchens in nearby district schools; and contracting with local cafes or Meals on Wheels programs to furnish hot meals. Our observations lead us to conclude that, creatively managed, affordable solutions can be found in most cases. Accordingly, we recommend that food service cost recoveries be a local control issue, and not subject to state subsidies. Thus, we recommend that no adjustment for food services be provided.

Chart 1: Relationship Between Enrollment and Number of Teachers: Elementary Schools, 2000-01


Chart 2: Relationship between Number of FTE Teachers and Student Enrollment: Junior High Schools, 2000-01


Chart 3: Relationship Between Number of FTE Teachers and Student Enrollment: High Schools, 2000-01


## Appendix A: Methodology

To develop a cost based adjustment for small schools, MAP considered the literature on economies of scale in schools, and conducted an analysis of how such adjustments are done in other states. In addition, we conducted site visits in a sample of twelve small school districts and their schools, and seven large districts and some of their small schools. The nineteen districts were selected based on their size and geographic location. Included in our study were two districts with heavy concentrations of Native American students at the request of the Wyoming Department of Education, and two alternative high schools in large districts. Extensive interviews were conducted with district and school officials in each of these schools during the months of September and October 2001. The interview guides used at the school site are included in Appendices E and F of this report. Interview guides for the district level interviews are included in Appendix B of the Small District Report submitted by MAP.

In addition to conducting interviews with district staff and school personnel, we provided each school and district with a set of survey forms and asked them to provide us information on the number of staff at each school by position and proportion of time worked in that position.

Table A1 lists the schools and school districts we visited. Note that some of the schools are in districts that are not identified as small districts. This was intentional so that we could better understand the relationship between small schools and the size of school districts.

Following the table, the survey forms used in our site visits are reproduced. Individual site write-ups are included in a separate volume. The survey instruments and the letter accompanying the surveys are included in Appendices G, H and I.

Finally, we conducted a random survey of 104 small schools across the state seeking information on their staffing patterns, and how each position was funded. We intended to survey every school with enrollment lower than the prototype school size for that type of school (i.e. all elementary schools with less than 288 students, all middle schools with fewer than 300 students and all high schools with fewer than 600 students.) These 107 schools enrolled 15,556 students in 2000-01, of which 14,842 were in 74 schools with more than 50 students, 527 in 14 schools with between 21 and 50 students and the remaining 187 in the 19 schools with 20 or fewer students. Of the 107 we found valid contact information for 104 when the survey was mailed in September 2001. We received responses from a total of 62 or 59.6 percent of these schools as of November 17, 2001. Analysis of the schools that responded indicated they are representative of the distribution of small schools generally across the state.

The data from these surveys was used to confirm and expand upon data received from both the Wyoming Department of Education and the Wyoming Small Schools Association regarding the allocation and use of staff and other resources at small schools across the state.

Table A1: Districts and Schools Visited for Small School Study

| District | Small <br> District? | School |
| :--- | :--- | :--- |
| Big Horn \#1 | Yes | Byron Elem. |
| Big Horn \#1 | Yes | Rocky Mountain <br> Middle |
| Big Horn \#2 | Yes | Lovell High School |
| Big Horn \# 4 | Yes | Cloud Peak Middle |
| Carbon \#2 | Yes | Saratoga Middle |
| Fremont \# 1 | No | South Elementary |
| Fremont \#14 | Yes | Wyoming Indian K- <br> 12 |
| Fremont \#2 | Yes | Dubois High School |
| Fremont \#6 | Yes | Pavillion K-12 |
| Goshen 1 | No | Southeast K-12 |
| Johnson \#1 | Yes | Kaycee Elem. |
| Laramie \#1 | No | Triumph Alt.H.S. |
| Laramie \#2 | Yes | Carpenter Elem. |
| Lincoln \#2 | No | Cokeville High |
| Natrona \#1 | No | Park Elementary |
| Natrona \#1 | No | Jefferson Elem. |
| Platte \#2 | Yes | Guernsey K-12 |
| Sheridan \#2 | No | Ft. McKenzie Alt. <br> High School |
| Sublette \#9 | Yes | La Barge Elem. |
| Sweetwater \#1 | No | Farson-Eden K-12 |
| Washakie \#2 | Yes | Ten Sleep K-12 |



## Appendix B:

## Small School Site Visit

## Form 1

School ADM by Grade
MAP Researcher: Complete one form for each school, including co-located schools.
District $\qquad$
School $\qquad$
Form completed by $\qquad$ Date $\qquad$

| Grade | 2000-01 ADM | Number of <br> Free/Reduced <br> Lunch | Number of LEP |
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| Totals |  |  |  |

This form will be completed using data available from WDE.

## Appendix C:



## Small School Site Visit

Form 2

## School Enrollment by Self-Contained Class <br> SY 01-02

Dear School Administrator:
In order to minimize the amount of time necessary to complete the site visit we ask that you complete this form prior to the visit by the MAP researchers. Please list every classroom or other space where students are instructed. Include special education and pull out programs, but do not count any student more than once. (It may be most convenient to portray a snapshot of a particular period.) Information provided on this form should be accurate as of the date the form is completed.

For departmentalized instruction use form 2 a.
Complete a separate form for each school.
This form will be collected and discussed at the time of the scheduled visit.

## District

$\qquad$
School
Form completed by

## Date prepared

Self Contained Classes

| Classroom <br> Number | Teacher <br> Name | Grade Span* | Number of <br> Students <br> Enrolled |
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*If there are special education classes, please indicate that as well in this column.
Copy this form if additional sheets are necessary. Indicate here if additional sheets are being provided


Dear School Administrator:
In order to minimize the amount of time necessary to complete the site visit we ask that you complete this form prior to the visit by the MAP researchers. Please list every class and period where students are instructed. Alternatively, you may annotate a master schedule with the course title, name of the teacher and the number of students enrolled in each period. Include all periods during which students receive instruction. If a teacher is employed in more than one school or less than full time, indicate time he/she works in this school. All information on this form should be accurate as of the date this form is completed.

## Note: Do not count any student more than once for any period.

## Complete a separate form for each school.

This form will be collected and discussed at the time of the scheduled visit.

## District

School
Form completed by $\qquad$ Date completed $\qquad$
Total Student Enrollment (on the date this form was completed) $\qquad$
Departmentalized Classes

| Class Title |  <br> Room Number | Teacher <br> Name | Number of <br> Students <br> Enrolled | \% Time Teacher is <br> Employed at this <br> School <br> (FTE) |
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| Class Title |  <br> Room Number | Teacher <br> Name | Number of <br> Students <br> Enrolled | \% Time Teacher is <br> Employed at this <br> School <br> (FTE) |
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*If there are special education classes, please indicate that as well in this column.
Copy this form if additional sheets are necessary. Indicate here if additional sheets are being provided


## Appendix E:

## Small School Site Visit

Form 3

## School Staff

SY01-02
Please complete the following information for every individual who works at this school. Include all classified and certified employees. If an employee works at more than one school (for example a custodian or an administrator who serves two or three schools), allocate his or her time based on relative enrollment at each school. If you choose another method of allocating time, please describe this on a separate sheet. Complete a separate form for each school. All information provided on this form should be accurate as of the date the form is completed.

Names listed on forms 2 and 2a may be incorporated on this form by reference and attaching them to this form.

This form will be collected and discussed at the time of the site visit.

## District

School
Form completed by
Date completed

| Name | Job (e.g. teacher, principal, custodian, <br> bus driver, etc.)* | \% time <br> employed <br> at this <br> school <br> (FTE) |
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| Name | Job (e.g. teacher, principal, custodian, <br> bus driver, etc.)* | \% time <br> employed <br> at this <br> school <br> (FTE) |
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* Please provide sufficient detail to describe job function, e.g. library aide or classroom aide rather than just aide.

Copy this form if additional sheets are necessary. Indicate here if additional sheets are being provided $\qquad$


## Background to be completed by MAP prior to the visit:

What are the grade levels in this school? (For all secondary schools, please obtain and attach a master schedule, if not otherwise provided.)

Is this school accredited? When?

What are the WY CAS scores for this school for the past 3 years?
00-01
99-00
98-99

## Reading

Math

Dollar amount of small school adjustment generated by this school $\$$ $\qquad$ per ADM Total\$ $\qquad$

Other adjustments generated by this school
EDY \$__ per ADM Total\$ $\qquad$
LEP \$ $\qquad$ per ADM Total\$ $\qquad$
Other \$ $\qquad$ Total\$ $\qquad$

Interview Questions for Administrator at Small Schools
District
School
Name of MAP researcher conducting interview $\qquad$

Name(s) and titles of person(s)
interviewed $\qquad$ Date of site visit $\qquad$

1. Describe this school. Is it co-located with other schools, how many buildings on campus, where is next nearest school with same or similar grades, how far from district office? Are there unique characteristics of this school that could affect cost?
2. What is the administrative arrangement for this school? How many administrators? Full time? Part time? Shared time with another school?
3. What special problems or additional costs do you feel your school incurs due to its small size (enrollment)? (probes: administration, transportation, small classes, etc.)
4. Below are the costs you reported to WDE in 99-00 and 00-01. Do you anticipate that they will change substantially in 01-02? Why?

00-01 $\quad 99-00 \quad$ Change?
a. Utility costs
b. Transportation costs
c. Student activities
d. School lunchroom costs
5. Does the district provide any special or additional services to your school due its size?
6. Are there any major resources (instructional materials, technology, aides, or itinerant teachers, etc.) available to larger schools that are not available to your school because of its size? How serious a problem for student learning do you think this is?
7. To what extent do you offer students instruction through distance learning, correspondence, independent study, concurrent enrollment in a college or university, etc.?
8. What do you see as the biggest advantages to students who attend this school?
9. How well do the students leaving this school do at the next level of schooling? How do you know?
10. For high schools only What portion of your graduates attend college or go on to other post secondary training? Do you have any indication of how well they do? What data do you have?
11. Does your instructional program cover all of the state standards? If not, which ones are not being offered? Why not? What will you do about it?
12. In your opinion is this a good place for child to attend school? Why?
13. In your opinion is this a good place to teach? Why?
14. How difficult do you find it to attract and retain qualified teachers? Please cite examples. Has this changed over time?
15. How many teachers did you hire this year? What are their names? From where did you hire them? Do you have any unfilled vacancies?
16. How many teachers did you hire last year? What are their names? From where did you hire them?
17. Does your district offer teachers an opportunity for early retirement? Why? Have any teachers at this school taken advantage of this in recent years?
18. What are the biggest impediments you encounter at this school in providing students an opportunity to meet state standards?
19. For Elementary schools only How do you plan to implement the new state requirements for foreign language instruction?
20. For Elementary schools only How do you plan to implement the new state requirements for reading assessment and instruction?
21. Please describe the nature of professional development provided teachers in this school last school year. Do you have a written professional development plan? (If so, please attach.) What effect, if any, does the size of this school have on the professional development for your teachers?
22. Does your school receive any federal funding? For which programs? How much?
23. What types of adjustments for small school size do you think the state should make, and if you could change the current system, what changes would you make?
24. If the state were to adopt the following definition of school, what would be the effect on this school?
A school is one or more buildings that contain one or more grades and at least three of the following facilities that are not shared with another school: (1) library, (2) cafeteria, (3) administrative office, (4) heating and ventilation system.

# Appendix G: Small Schools Survey Letter 

September 27, 2001
Jane Brown, Principal
ABC Elementary
123 Main Street
Somewhere, WY 12345

Dear Ms. Brown,
Management Analysis Planning, Inc. has been contracted by the Wyoming Legislature to develop a cost based adjustment to account for the higher per pupil costs of operating small schools and small school districts. To gain a better understanding of the financial needs of small schools and districts in Wyoming, we are conducting this survey of a scientifically selected sample of schools whose enrollment is smaller than the school size used to develop the prototype schools for each school level. We are seeking this information to gain a better understanding of the specific financial pressures schools of various size face each year.

Please fill out the attached survey instrument and return it to our offices no later than October 12 in the enclosed, self-addressed and stamped envelope, or fax it to 530-753-3270. The attached survey instrument should take you no more than 15 minutes to complete. A separate form should be completed for each school. Do not combine schools on a single form.

Thank you in advance for your participation with this important study. Your time and effort will make a real contribution toward the establishment of a fair and equitable funding formula for Wyoming's schools. If you have any questions, please feel free to call me at 530-753-3130 or contact me by e-mail at jrsmith@edconsultants.com.

Sincerely,

James R. Smith
President
Enclosures
Small School Survey Forms A, B

## Appendix H:



School Enrollment by Self-Contained Class
SY 01-02
Dear School Administrator:
The following questions are designed to gather information on the allocation and use of financial and personnel resources in smaller schools across Wyoming. Please use data from the current (2001-02) school year to answer each of the questions. Please list every classroom or other space where students are instructed. Include special education and pull out programs, but do not count any student more than once. (It may be most convenient to portray a snapshot of a particular period.) Information provided on this form should be accurate as of the date the form is completed.

For departmentalized instruction use the form for departmentalized classes
Please fax this to MAP at 530 753-3270, or mail to MAP, 2925 Spafford Street, Suite E, Davis, CA 95616 in the enclosed self-addressed envelope

## District

School
Form completed by
Date prepared $\qquad$
Self Contained Classes

| Class-room <br> Number | Teacher <br> Name | Grade <br> Span* | Number of <br> Students <br> Enrolled | \% Time <br> Teacher is <br> Employed at <br> this School <br> (FTE) | \% funded by <br> Federal, <br> Special <br> Education or <br> Student <br> Activities <br> funds* |
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| Class-room <br> Number | Teacher <br> Name | Grade <br> Span* | Number of <br> Students <br> Enrolled | \% Time <br> Teacher is <br> Employed at <br> this School <br> (FTE) | \% funded by <br> Federal, <br> Special <br> Education or <br> Student <br> Activities <br> funds* |
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*You may need to obtain this information from your district office

Copy this form if additional sheets are necessary. Indicate here if additional sheets are being provided $\qquad$

1. Other Questions
A. Can you describe the process your district uses to decide the numbers of certified personnel to be assigned to your school? Is there a specific formula for determining the number of teachers a school should have? If there are larger schools in the district, is the procedure for allocating staff different for them?
B. Please describe any characteristics of your school that you believe might contribute to a higher than average cost per pupil. Please give concrete examples wherever possible.
C. Please provide any comments or advice that you believe would help us develop an adjustment for small schools and small districts. To the extent possible, describe how you would change the current adjustment.

# Appendix I: <br> Small School Survey <br> School Enrollment by Departmentalized Class <br> SY01-02 

Dear School Administrator:
The following questions are designed to gather information on the allocation and use of financial and personnel resources in smaller schools across Wyoming. Please use data from the current (2001-02) school year to answer each of the questions. Please list every class and period where students are instructed. Alternatively, you may annotate a master schedule with the course title, name of the teacher and the number of students enrolled in each period. Include all periods during which students receive instruction. If a teacher is employed in more than one school or less than full time, indicate time he/she works in this school. All information on this form should be accurate as of the date this form is completed.

For schools with self-contained classes use the self-contained form
Please fax this to MAP at 530 753-3270, or mail to MAP, 2925 Spafford Street, Suite E, Davis, CA 95616 in the enclosed self-addressed envelope

Note: Do not count any student more than once for any period.

## District

$\qquad$
School
Form completed by $\qquad$ Date completed $\qquad$
Total Student Enrollment (on the date this form was completed) $\qquad$

Departmentalized Classes

|  | Period <br>  <br> Room <br> Number | Teacher <br> Name | Number of <br> Students <br> Enrolled | Time Teacher <br> is Employed <br> at this School <br> (FTE) | Percent <br> funded by <br> Federal, <br> Special <br> Education or <br> Student <br> Activities <br> funds* |
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*If there are special education classes, please indicate that as well in this column.
Copy this form if additional sheets are necessary. Indicate here if additional sheets are being provided

## 2. OTHER QUESTIONS

A. Can you describe the process your district uses to decide the numbers of certified personnel to be assigned to your school? Is there a specific formula for determining the number of teachers a school should have? If there are larger schools in the district, is the procedure for allocating staff different for them?
B. Please describe any characteristics of your school that you believe might contribute to a higher than average cost per pupil. Please give concrete examples wherever possible.
C. Please provide any comments or advice that you believe would help us develop an adjustment for small schools and small districts. To the extent possible, describe how you would change the current adjustment.


[^0]:    ${ }^{1}$ Smith, J, and Hayward, G. (2001). Wyoming Education Finance: Implementation Issues. Davis, CA: Management Analysis and Planning, Inc. (Report submitted to the Wyoming Legislature, July 2, 2001.

[^1]:    ${ }^{2}$ These data were provided by the Small School Coalition and confirmed via our individual site visits and survey of small schools.
    ${ }^{3}$ The R-square, which in our equations measures the amount of variance in FTE teachers described by district ADM, was 0.89 or higher in all three equations.

[^2]:    ${ }^{4}$ The effect of this adjustment was to rotate the line fitted to a plot of FTE v. ADM downward.
    ${ }^{5}$ Recall that in addition, in another place in the model, each district will receive an adjustment based on the experience and responsibility level of each administrator.

