SECTION 4
FINANCIAL ANALYSIS AND PROGRAM EVALUATION
Successful financial management of a school foodservice operation requires careful review and analysis of financial data. For financial data to be purposeful and useful, it must be easily understood, reliable, relevant, and timely. Understanding and monitoring financial data can help decision-makers determine the profitability and efficiency of a school foodservice operation and identify areas for improvement. The relationship between available revenue and program costs must be evaluated on a regular basis. Increasingly programs are expected to be self-supportive and cost effective; this requires increased accountability.

There are several types of analyses appropriate to generate performance indicators for evaluating the effective financial management of a school foodservice operation. Performance indicators may be stated in dollars, percentages, or ratios to facilitate the analysis process. NFSMI Task Force members identified the following performance indicators for “taking the financial pulse” of school foodservice programs:

- financial position (statement of revenue & expenditures, balance sheet, budget variances, fund balance)
- percent of cost by category to total revenue (operating ratios)
- meal cost (plate cost, food cost/meal, labor cost/meal, commodity value/meal)
- participation rate (by program, eligibility category)
- productivity (meals per labor hour, revenue to variable costs)

These performance indicators are meaningful only when compared to other useful criteria. One way to accomplish this comparison is through the utilization of an internal and external benchmarking process. Benchmarks are standards used to:

- measure performance and
- identify areas for improvement.

Benchmarking data can be compared to:

- corresponding data from the prior period; significant increases or decreases may be identified from this comparison,
- planned goals such as the budget, participation, and meals per labor hour, and
- other school foodservice operations with similar characteristics.

The goal of benchmarking is to improve performance by adopting best practices of benchmarking partners. The use of “best practices” identifies operations of excellence and can help a school foodservice administrator answer questions about how the district foodservice operation is doing when compared to other school districts.

**Meal Equivalents**

In school foodservice programs, the production of meals is the unit of measurement used to gauge the effectiveness and efficiency of a school foodservice program. The student reimbursable lunch is the standard unit of measurement most often used. Counting meal and food sales other than lunches is not as clear-cut as counting the traditional lunch. Thus, a method for converting operational data for all food sales, including student lunches, must be used to determine the equivalent of a meal. It is important to remember that a meal equivalent is not a unit of production but a calculation that allows the operator to equate all meals to a standard, the student lunch. By converting all food sales to meal equivalents, the school foodservice
administrator can determine a per meal cost and productivity ratios such as meals per labor hour. Meal costs based on meal equivalents allow school foodservice administrators to better benchmark financial performance, both internally and externally. Examples of meal equivalent conversion formulas and calculations are presented below.

**Lunch**

All student reimbursable lunches and full-paid adult lunches are counted as one meal equivalent for each lunch served. If a student purchases more than one lunch on a given day, the second lunch is considered non-reimbursable and is reported as either an extra food sale or adult meal sale. The category for reporting is determined by state agency requirements. Lunches eaten by school foodservice employees at no charge for the meal are considered “inkind” meals and should not be counted as a meal equivalent.

**Breakfast**

The method used in this document for determining breakfast meal equivalents specifies that three breakfasts are the equivalent of two lunches. In 2004, this breakfast meal equivalency was updated from a ratio in which two breakfast were considered the equivalent of one lunch. The new ratio is based on recommendations from participants in a national task force convened to update the Financial Management Information System model. It is important to note that the meal equivalent ratio used for calculating breakfast meal equivalents varies from state to state. For this reason, school foodservice administrators should check with their state agencies for guidance. Once a ratio is selected it should remain consistent for the entire reporting period (year) for comparisons or benchmarking in order to be meaningful.

Using the FMIS formula, breakfast meal equivalents are calculated as follows:

\[
\text{Meal Equivalent} = \text{Number Breakfasts Served} \times \text{conversion factor} \times (2/3 = .66)
\]

**Example:** A school foodservice program served 300 student reimbursable breakfasts and 58 adult breakfasts on a given day. Using the formula that 3 breakfasts are equivalent to 2 lunches, the breakfasts served were equivalent to 236 lunches or meal equivalents.

\[
358 \times .66 \\
= 236.28 \text{ or } 236
\]

**Afterschool Snacks**

NSLP snacks are served to children and youth in afterschool care programs that are eligible for USDA reimbursement. While there are no current research studies to support the meal equivalency ratio, a survey of selected state agencies indicated most states use a 3-to-1 ratio of snacks to lunch. Using this equivalency, snacks can be converted to meal equivalents as follows:

\[
\text{Meal Equivalent} = \frac{\text{Number of Snacks Served}}{3}
\]

**Example:** An elementary school served 450 students reimbursable afterschool snacks. Using the formula that 3 snacks are equivalent to 1 meal, the snacks served to students on this particular day were equivalent to 150 lunches or meal equivalents.

\[
\frac{450}{3} \\
= 150
\]
**Other Food Service Sales**

Meal equivalent calculations for all other foodservices are based on the annual federal reimbursement rate for students eligible for free lunch plus the entitlement commodity value. The revenue from nonreimbursable food sales can be converted to meal equivalents as follows:

\[
\text{Meal Equivalent} = \frac{\text{a la carte Sales or Extra Food Sales Revenue}}{\text{Free Lunch Reimbursement} + \text{Commodity Value per Meal}}
\]

**Example:** Assume that a school foodservice operation sold nonreimbursable food items on a given day that totaled $234.00 in revenue. Using the formula above, we can convert the revenue from nonreimbursable food sales to the equivalent of 97 lunches.

\[
\frac{\$234}{2.24 + .1725 (2.4125)} = 96.99 \text{ or } 97
\]

*Based on reimbursement rates effective from July 1, 2004 – June 30, 2005

The same formula would apply for other foodservice events such as catered meals or special school functions.

\[
\text{Meal Equivalent} = \frac{\text{Catered Meal Sales Revenue}}{\text{Free Lunch Reimbursement} + \text{Commodity Value Per Meal}}
\]

**Example:** A school foodservice operation offers catering services to departments within the school system. During one month, the foodservice department catered three events with resulting sales of $935.70. To determine the meal equivalents for catered sales, the school foodservice administrator divided the catering sales total by the value of the federal reimbursement for students eligible for free meals plus the commodity value of the lunch. Using this calculation, the catering sales for that month converted to 388 lunch equivalents.

\[
\frac{\$935.70}{2.24 + .1725 (2.4125)} = 387.85 \text{ or } 388
\]
Cost of Purchased Food Used

School foodservice administrators need to know how much money they spend on purchased food used during a given period of time. This is important information that is used to determine whether costs are within guidelines and funds that are available to cover costs. The cost of purchased food used is included in other calculations that might be helpful to the administrator. For example, the cost of purchased food used must be calculated before the school foodservice administrator can determine meal costs.

A physical inventory must be taken consistently and on a regular basis (a minimum of a monthly inventory is recommended) to obtain current and accurate results. At the end of the accounting period, the food inventory is taken, the value of the food inventory is calculated, and the cost of purchased food used for the period is determined as follows:

\[
\text{Cost of Purchased Food Used} = \frac{\text{Beginning Purchased Food Inventory} + \text{Food Purchases}}{\text{Total Purchased Food Available}} - \text{Ending Purchased Food Inventory} = \text{Cost of Purchased Food Used}
\]

**Example:**

<table>
<thead>
<tr>
<th></th>
<th>Annually</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning food inventory</td>
<td>$8,000</td>
<td>$8,000</td>
</tr>
<tr>
<td>Food purchases</td>
<td>300,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Food available</td>
<td>308,000</td>
<td>33,000</td>
</tr>
<tr>
<td>Less: ending food inventory</td>
<td>7,000</td>
<td>7,000</td>
</tr>
<tr>
<td>Cost of purchased food used</td>
<td>$301,000</td>
<td>$26,000</td>
</tr>
</tbody>
</table>

Streamlined Commodity Inventory

When calculating the cost of food used, the value of USDA-donated commodities must be considered. USDA has recently taken steps to more fully integrate commodities with other foods utilized by school nutrition programs. This has resulted in purchased and commodity food items being accounted for in one inventory. The intent is to reduce cost and provide more timely deliveries. Under the single inventory concept, cost of food used may include the value of USDA commodities.

The guidelines for the single inventory concept are as follows:

- Inventories of donated foods are no longer required to be separate from inventories of other foods.
- Most commodities are packed with commercial labels instead of USDA labels.
- Procedures may differ from state to state in commodity inventories.

Some states continue to provide school districts with commodity information that includes the per-case value. The commodity value is entered into the district accounting records separately from the cost of purchased food. This allows the school district to calculate both the cost of purchased food used and the value of USDA-donated commodities used in the reporting period.
Per Meal Costs

The cost of producing a meal is a critical piece of information for the school foodservice administrator. Meal cost is determined by dividing total expenditures for a given reporting period (day, week, month, quarter, year) by total meal equivalents during the same period. Expenditures include all costs to the school foodservice program, including food costs, labor costs, supply costs, and all other costs. These costs categories are illustrated below.

**Food Costs**
- Cost of purchased food used
- Value of USDA commodities (if available)

**Labor Costs**
- Salaries and wages, including administrative office salaries
- Employee benefits

**Supply Costs**
- General operating supplies
- Food production supplies
- Expendable equipment

**Other Costs**
- Capital equipment
- Repairs, maintenance
- Professional development (travel, conferences, training, etc.)
- Overhead (utilities, communication, and other appropriate costs as defined by state guidelines)
- Indirect (charges from district).

**NOTE**

This listing is not exhaustive. Each school foodservice program must include costs unique to its operation. The important point is that all costs be included so that an accurate result is achieved.

**Per Meal Cost Calculation**

When expenditures are categorized, each cost category—food, labor, supply, and other costs—can be calculated per meal. For example, purchased food cost per meal can be calculated using the following formula:

\[
\text{Cost of Purchased Food Used} / \left( \text{Total Lunches} + \text{Meal Equivalents} \right)
\]

The formulas for labor and supply costs are listed below. School foodservice administrators can use the formula also to calculate per-meal costs for other expenditure categories.

\[
\text{Labor Costs} / \left( \text{Total Lunches} + \text{Meal Equivalents} \right)
\]

\[
\text{Supply Costs} / \left( \text{Total Lunches} + \text{Meal Equivalents} \right)
\]
To calculate total costs for producing a meal, the school foodservice administrator should divide the sum of expenditures in all categories for the period being analyzed by the total meal equivalents served in that period.

\[
\text{Meal Cost} = \frac{\text{Total Expenditures}}{\text{Total Lunches + Meal Equivalents}}
\]

Meal cost can be calculated for any accounting period the school foodservice administrator wishes to analyze. The example below provides an explanation of the total process for calculating the cost to produce a meal for a given period of time.

**Example:** In ABC Elementary School, foodservice staff members concerned about plate costs in their school decided to analyze meal costs on a daily basis. On this particular day, the school foodservice operation served 200 student lunches, 23 adult lunches, 96 breakfasts, 54 snacks in the afterschool care program, and had $110.00 in a la carte and extra milk sales. There were $619.55 in expenditures for the day. Using the following steps, the staff calculated the cost per meal based on the number of meal equivalents served for the day.

**Step 1 - Determine the expenditures for period.**

<table>
<thead>
<tr>
<th>Expenditure Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food costs (includes commodities)</td>
<td>$301.50</td>
</tr>
<tr>
<td>Labor costs</td>
<td>179.50</td>
</tr>
<tr>
<td>Benefit costs</td>
<td>60.50</td>
</tr>
<tr>
<td>General supplies/paper supplies</td>
<td>36.60</td>
</tr>
<tr>
<td>Overhead costs (prorated as a daily rate based on an average monthly cost)</td>
<td>41.45</td>
</tr>
<tr>
<td><strong>Total costs for the day</strong></td>
<td><strong>$619.55</strong></td>
</tr>
</tbody>
</table>

Note: Calculations made at the school level serve as a tool for evaluating expenditures at that site. They may not necessarily reflect all costs associated with the district’s school foodservice operation.

**Step 2 - Calculate all meals and meal equivalents.**

After the total expenditures were calculated, the number of meal equivalents for each type of service was determined. Using the meal conversion formulas presented in this section, the total number of meals and meal equivalents were calculated as follows:

- **Breakfasts Meal Equivalents** = Number of Breakfasts Served x conversion factor
  
  \[96 \times .66 = 63\]

- **Snack Meal Equivalents** = \( \frac{\text{Afterschool Care Snacks Served}}{3} \)
  
  \[\frac{54}{3} = 18\]

- **a la carte Meal Equivalents** = \( \frac{\text{a la carte Sales Revenue}}{\text{Federal Free Lunch Reimbursement + Commodity Value}} \)
  
  \[\frac{110}{2.24 + 1.725 (2.4125)} = 45.59 \text{ or } 46\]

- **Lunches** = Student lunches + Adult Lunches
  
  \[200 + 23 = 223\]
Step 3 - Add all meal equivalents and lunches together.

When the number of meal equivalents for each type of service has been determined, they are added together to get the total meal equivalents served for the time period being analyzed.

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>Meal Equivalents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>63</td>
</tr>
<tr>
<td>Snack</td>
<td>18</td>
</tr>
<tr>
<td>A la carte</td>
<td>46</td>
</tr>
<tr>
<td>Lunch</td>
<td>223</td>
</tr>
<tr>
<td>Total meal/lunch equivalents</td>
<td>350</td>
</tr>
</tbody>
</table>

Step 4 - Calculate the per plate meal cost.

Divide the total expenditures for the period by the total meal equivalents. This tells the school foodservice administrator the cost of producing a meal equivalent on a per-plate basis for the period of time being analyzed.

\[
\text{Meal Cost} = \frac{\text{Total Expenditures}}{\text{Total Meals/Lunch Equivalents}}
\]

\[
\frac{619.55}{350} = 1.77
\]

The meal cost of $1.77 for the day may be compared to other meal costs for this school foodservice program. For example, the previous week's daily meal costs were as follows:

- Monday: $1.68
- Tuesday: 1.65
- Wednesday: 1.62
- Thursday: 1.67
- Friday: 1.69

The meal cost of $1.77 is $.08 more than the highest cost for the previous week's meals. This may alert the school foodservice administrator to investigate the reason for the increase or to the need to balance high-cost with low-cost meals to meet established cost guidelines. In addition, the information is a valuable tool for future menu planning.

Operating Ratios

Operating ratios help school foodservice administrators evaluate and monitor their operations. These ratios relate expenses to revenues and are useful to management because they allow comparison of actual results against anticipated operational plans. All expenditures can be calculated as a percentage of total revenue. This section will provide examples of two of the most critical ratios, food cost percentage and labor cost percentage.
**Food Cost Percentage**

School foodservice administrators often rely on this ratio to determine whether expenditures for purchased food are reasonable and in-line with previously established guidelines. Because most of the revenue in school foodservice programs comes from the sale of food, the food cost percentage is generally calculated using the ratio of food cost to total revenue. The results are then compared to established or budgeted goals. The food cost percentage can be calculated using the following formula:

\[
\text{Food Cost Percentage} = \frac{\text{Cost of Purchased Food}}{\text{Total Revenue}}
\]

**Example:** A school foodservice program had total revenue of $30,000 for the month of February and a food cost of $16,500 for the same month. Using the formula above, we can see that this operation had a 55% food cost in relation to total revenue for the month. This tells the school foodservice administrator that $.55 of every revenue dollar was spent for food in the month of February.

\[
\frac{16,500}{30,000} = .55 \times 100 \text{ or } 55\%
\]

The school foodservice administrator planned to maintain a 38-40% average for purchased food cost throughout the year. A 55% food cost signals that the goal is not being met and the reason for the higher food cost must be investigated. Tracking the food cost to a revenue ratio on a weekly or monthly basis can identify trends and pinpoint potential problems.

Variance may be due to:

- poor portion control
- overproduction and waste of food
- inaccurate inventories when food cost is based on food used rather than food received
- theft
- unexpected increases in the price of food products

Consideration should also be given to revenue records. Inaccurate revenue reports caused by reporting errors can distort the ratio of costs to total revenue.

A lower than expected food cost also should be investigated. While it may mean cost control methods are working better than expected, it also could mean:

- inaccurate inventories
- inaccurate reporting of food expenditures
- food portions smaller than requirements are being served
- some meal components are not prepared in sufficient quantities for all students

There may be a need to adjust the target food cost percentage if the district combines purchased food used with the value of commodities. School foodservice administrators should seek advice from their state agency regarding food cost percentages that include USDA-donated commodity values. Using food cost percentages for external benchmarking from state to state may be difficult due to the differences in methods used to inventory purchased food and commodities.
Labor Cost Percentage
A general labor cost percentage is determined by dividing total labor costs by total revenue. This percentage is useful to school foodservice administrators as a benchmark for making comparisons. These comparisons can be made from school to school within a district or from district to district within a state or region. Cost percentages higher than anticipated may be an indication that too many labor hours are being allocated for the number of meals served. The labor cost percentage is calculated using the following formula:

\[
\text{Labor Cost Percentage} = \frac{\text{Payroll, Benefits, Other Related Expenses}}{\text{Total Revenue}}
\]

**Example:** A school foodservice operation had an annual payroll, including benefits and other labor expenses, of $400,000. They had an annual revenue of $800,000. The annual labor cost percentage is calculated as follows:

\[
\frac{400,000}{800,000} = .50 \text{ or approximately 50%}
\]

This percentage tells the SFS administrator that for every $1 in revenue earned, $.50 or one-half of all revenue went toward labor expenses during the period in review. The remaining $.50 must cover all other expenditures, including purchased food; otherwise the program will have a deficit for the period.

Pricing Meals and Nonreimbursable Food Items

Reimbursable Meals
Student meal prices in a school district are generally determined by the local school food authority with approval from the school board and should, as a rule, cover current meals costs less current reimbursement and the value of USDA entitlement commodities. Adult meal prices should cover the full cost of the meal and commodity value. Reimbursable meals served in the normal school setting include breakfast, lunch, and afterschool snacks. A price determination should be made for each meal type.

**Example:** Assume that an analysis of food cost for the coming year forecast the total average cost for producing a reimbursable lunch at $2.32. If section 4 reimbursement is $.21 and the school receives $.1725 per meal in entitlement commodities, the following method would be used to determine student and adult lunch prices.

<table>
<thead>
<tr>
<th></th>
<th>Average Lunch Costs</th>
<th>- Section 4 Reimbursement</th>
<th>- USDA Commodity Value</th>
<th>= Base Price</th>
<th>Possible Final Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>$2.32</td>
<td>- 0.21</td>
<td>- 0.1725</td>
<td>= $1.94</td>
<td>$2.00</td>
</tr>
<tr>
<td>Adult</td>
<td>$2.32</td>
<td></td>
<td></td>
<td>= $2.32</td>
<td>$2.35</td>
</tr>
</tbody>
</table>

In this scenario, school officials may want to consider charging $2.00 for ease in collecting payment and making change. If the school district determines that secondary students will be given larger portions or offered more services, then a student meal price of $2.10 or $2.25 would be advisable for students at the secondary level. Federal regulations mandate that the price for an adult meal must cover the full cost of the meal ($2.32). Therefore, adults should pay a minimum of $2.35. If the school district anticipates an increase in operational costs due to large equipment purchases, then it may be prudent to set the adult meal cost higher than breakeven status. This prevents a sudden and substantial increase in meal prices to adult school employees. The method described above should also be used to set breakfast and afterschool snack prices.
Non-reimbursable Food Items

School foodservice operations must establish appropriate selling prices for non-reimbursable food items that are sold separately from the school meal. There are several factors that influence prices charged for extra food or a la carte items sold to both students and adults. The factors most likely to influence prices charged for non-reimbursable food items include:

- demand
- perception of value
- prices charged in nearby school districts
- relationship between sales prices and volume
- total costs to prepare item
- promotional activities (i.e., pricing foods with high nutritional value, such as fruit, to encourage higher sales)

There are several methods used in the foodservice industry to price food items that are sold individually. Each method helps ensure that in addition to costs, the customer's perception of value for price and the organization’s financial goals are considered in setting the selling price. While school foodservice administrators must decide on a method that best fits their district, the two methods discussed below are easy to use and may be a good starting point from which other factors are considered and the price adjusted accordingly.

Method # 1: Desired Food Cost Percent Mark-up

The desired food cost percent markup is one of the simplest methods used to determine the price of a food item. Although easier and less complicated to use than other methods, it has some disadvantages in that it only establishes a base selling price and may not necessarily reflect all other considerations. It should be emphasized that because the markup is based only on food cost, other factors should be considered before establishing a final selling price.

There are three steps to establishing the base selling price for a food item using a desired food cost percent mark-up method.

1. Determine the standard food cost of the item offered for sale.
2. Identify the desired food-cost percentage for the operation.
3. Establish a base selling price by dividing the item’s standard food cost by the desired food cost percent.

\[
\text{Base Selling Price} = \frac{\text{Standard Food Cost}}{\text{Desired Food Cost Percent}}
\]

Example: A school foodservice operation set a goal of 38% as a desirable food cost percentage for the school year. Students are allowed to purchase extra slices of pizza with meals. The raw food cost for one slice (serving) of pizza is $.52. The base selling price for a slice of pizza using the desired food cost percent mark-up can be calculated as follows:

\[
\text{Base Selling Price} = \frac{.52}{38 \div 100 \text{ or } .38} = \frac{.52}{.38} = \frac{1.3684}{.38} = $1.3684
\]

If management prices the slice of pizza at $1.40 (rounded), this provides $.52 to cover the food cost of the pizza and $.88 to cover labor and other costs associated with selling students extra slices of pizza. However, if the customer perceives a value of $1.50 per pizza slice as reasonable, then the school foodservice management team may decide to charge the extra $.10 per slice.
**Method # 2: Overhead Contribution + Desired Profit Percentage**

This is a modification of the desired food cost percentage. The food percentage used in establishing a selling price is determined by first establishing the total cost percentage of all other nonfood expenditures plus a desired profit percent. The percentages for all nonfood costs, including labor, plus the desired profit (net gain) percentage are subtracted from 100 percent, leaving the percentage that is available to cover food costs.

\[
\text{Selling Price} = \frac{\text{standard food costs}}{100\% - (\text{nonfood cost percentages} + \text{profit percentage})} = \text{percent allowed for food costs}
\]

Assume the cost of a slice of pizza is $0.52 and that all nonfood costs including labor make up 65% of total revenue. The school foodservice department has determined that a 5% increase in revenue for nonreimbursable food items is needed in the budget for the current operating year. The base selling price for a slice of pizza can be calculated using the following formula.

**Example:**

\[
\text{Selling Price} = \frac{0.52 \, (\text{standard food cost for 1 slice of pizza})}{100\% - (65\% \, \text{for nonfood cost} + 5\% \, \text{for profit})} = 30\% \, \text{allowed for food cost percentage}
\]

\[
\text{Selling Price} = \frac{0.52}{30 \div 100} = \frac{0.52}{0.30} = 1.7333
\]

If the price is rounded to $1.75 for each slice of extra pizza sold, this provides $1.23 per pizza slice to cover other costs and profit after allowing $0.52 to cover food cost. In this scenario, the customer may perceive the value of a slice of pizza to be less than $1.75. If so, the district will need to identify other areas in the budget to adjust.

The price of any combination of food items that qualify for a reimbursable meal should exceed the price charged for the meal so that is advantageous for the student to purchase the reimbursable meal. Students should be made aware of the cost advantage of purchasing a nutritious reimbursable meal as opposed to selecting food items separately.

**Productivity**

Evaluating productivity is important to the financial success of the school foodservice program. The number of lunches or meal equivalents served per labor hour represents the primary measure of productivity for school foodservice programs. Knowing the rate of production in the school setting is essential in formulating budgets and determining labor needs.

**Meals per Paid Labor Hour**

The productivity index of meals per labor hour (MPLH) is used by many school foodservice administrators to monitor the efficiency of their operation and to determine appropriate staffing. This important information indicates to administrators whether they are making good use of their resources. This measure can help in determining how many employees are needed in a single production unit or throughout the district. The MPLH index is most effectively used to compare labor utilization within a system because labor is so dependent on the type of operation used in food production. For example, factors that may affect MPLH as a productivity measure are:

- size of operation
- number of serving lines
- type service provided
- scheduling of lunch periods
• production system
• amount of convenience foods used
• skill level of employees
• complexity of the menu, etc.

The MPLH index is calculated on the actual productive labor hours assigned to a school-level foodservice program. The number of paid labor hours includes labor charged to and paid for by the school foodservice operation for managers, kitchen staff, cashiers, and custodial services used for cleaning in the dining area. Paid hours for substitutes are included, but not paid hours for sick, personal, or holiday leave.

MPLH can be determined for a school site by dividing the total meal equivalents for a given time period by the total number of productive paid labor hours for the same time period. The following scenario provides an example of how to evaluate the MPLH at a school site.

Example: The school foodservice manager at ABC Elementary School and the district school foodservice administrator agreed that there is a need to increase productivity at the school foodservice program site. The school foodservice administrator and school manager performed the following calculations to analyze the existing productivity index.

1. Calculate the current total hours of labor paid daily in the foodservice operation.

   Food Service Employees including the Manager
   
   1 @ 7 hrs. = 7
   3 @ 6 hrs. = 18
   3 @ 5 hrs. = 15
   3 @ 3 hrs. = 9
   **Total Hours Paid Daily 49**

2. Calculate the average number of meal equivalents served daily using the formulas discussed on pages 63-64.

   **Meal Categories**
   
   Lunch (student and paid adults)  440
   Breakfast (182 x .66)  120
   Snacks (75 ÷ 3)  25
   Nonreimbursable Sales  
   (200 ÷ 2.24 ÷ .1725 = 82.9)  83
   **Total Meal Equivalents 668**

3. Divide the number of meals or meal equivalents by the number of paid labor hours to determine MPLH.

   Meals per Labor Hour = Number of Meals or Meal Equivalents
   Number of Paid Productive Labor Hours

   668 meal equivalents
   49 productive labor hours

   = 13.63 MPLH.
After an evaluation of the productivity level is completed, the school foodservice administrator can make a decision regarding staffing. If the evaluation indicates an overload and increasing participation is not an alternative, cuts in labor hours may be necessary. The following method can be used to determine the number of labor hours needed for the desired productivity level.

1. Decide the desired number of MPLH for the school site. Assume ABC Elementary School set a goal of 17 MPLH based on the type of meal service offered. An accepted industry guideline is 14 - 18 MPLH.

2. Divide the total meal equivalents by the desired number of MPLH to determine the total labor hours needed per day.

   Example:
   
   \[
   \frac{668}{17} = 39.3\text{ Total Labor Hours}
   \]

3. Determine the number of excess labor hours daily that will need to be eliminated.

   Example:
   
   \[
   \begin{array}{c|c}
   \text{Current Paid Labor Hours} & 49 \\
   \text{Desired Paid Labor Hours} & 39.3 \\
   \text{Reduction needed} & 9.7 \text{ labor hours}
   \end{array}
   \]

   The school foodservice administrator can make a decision to reduce the hours of employees or eliminate positions to increase MPLH.

   **Volunteer labor**

   The number of meals per paid labor hour does not include volunteer labor. If volunteer labor is used, then an additional measure of productivity must be calculated using total number of labor hours (both paid and unpaid). This measure should not be compared to an operation using a productivity index to calculate meals per labor because the comparison would not be valid. The operation using unpaid volunteer labor could have a higher number of meals per labor hour than one using only paid labor.

   **Average Daily Participation**

   School foodservice administrators must have accurate information about the average number of students who will participate in the school lunch and breakfast program on a daily basis. The average daily participation is used to determine staffing needs, purchase food and supplies, and schedule food production. Knowing the average participation over a period of time can assist school foodservice administrators in making better financial management decisions that strengthen their programs’ resources.

   The average daily participation can be used as a forecasting tool to:
   
   - prevent waste in excess labor hours and overproduction of food, and
   - reduce customer dissatisfaction because of inadequate staff and too little food prepared for the number served.

   **NOTE**

   The number of paid labor hours includes all labor charged to and paid for by the school foodservice operation. For example, this might include labor for cashiering, ticket selling, or custodial services. If these labor hours were paid by school foodservice, then they would be included in the total number of paid labor hours when calculating the productivity index of meals per labor hour.
Student participation in the school meals program may vary depending on variables such as:

- percent of paid, free, and reduced price meals served
- rural or urban location
- age or grade level of participants
- closed or open campus
- school or district regulations
- competition from other foodservices (i.e., fast food restaurants)
- weather conditions

Such differences must be taken into account when comparing participation rates between schools/districts in order to obtain an accurate picture. Average meal participation per day can be calculated by dividing the number of meals served during the month by the operating days in the month. Typically, participation is determined separately for breakfast and for lunch. The formulas for calculating the average daily participation for lunch and breakfast are as follows:

\[
\text{Average Lunch Participation Per Day} = \frac{\text{Number of Lunches Served in a Month}}{\text{Number of Operating Days in Month}}
\]

\[
\text{Average Breakfast Participation Per Day} = \frac{\text{Number of Breakfasts Served in a Month}}{\text{Number of Operating Days in Month}}
\]

**Example:** A school foodservice operation served 2000 free student lunches, 850 reduced price student lunches, 3000 paid student lunches, and 200 paid adult lunches during a month with 20 operating days.

\[
\frac{6050}{20} = 302.5 \text{ or } 303
\]

The school also served 800 free student breakfasts, 300 reduced student breakfasts, 600 paid student breakfasts, and 150 adult breakfasts during the month.

\[
\frac{1850}{20} = 92.5 \text{ or } 93
\]

This school had an average district participation of 303 lunches and 93 breakfasts per day for the month.
In addition to determining the average daily participation numbers, it is helpful to know the ratio of students eating a school meal to the total number of students enrolled in the school. This ratio can be expressed as the percent of students enrolled in the school or school district who eat in a given period of time. The formulas for calculating the rate of average daily participation (ADP) for lunch and breakfast are as follows:

\[
\text{Breakfast Participation Rate} = \frac{\text{Breakfast ADP}}{\text{Enrollment}}
\]

\[
\text{Lunch Participation Rate} = \frac{\text{Lunch ADP}}{\text{Enrollment}}
\]

**Example:** For the reporting period of October, a school district had an enrollment of 7,710 on any given day. It calculated that an average of 1754 students ate breakfast on a daily basis, and an average of 4959 students ate the reimbursable lunch.

The average participation rate for breakfast among enrolled students during October was -

\[
\frac{1754}{7710} = .2274 \text{ or } 23\\%
\]

The average participation rate for lunch among enrolled students during October was -

\[
\frac{4959}{7710} = .6432 \text{ or } 64\\%
\]