Economic Impact Analysis of School Facility Construction

For more information regarding this report, contact:

Carol M. Hooker
Center for Urban & Public Affairs
Wright State University
3640 Colonel Glenn Hwy.
Dayton OH 45435-0001
Phone: (937) 775-2941
Fax: (937) 775-2422
Executive Summary

In 2009, Huber Heights City Schools contracted with the Center for Urban & Public Affairs (CUPA) to conduct the economic impact analysis of new school construction on the local economy. For this study, CUPA used IMPLAN, a tool for economic impact assessment to estimate the direct, indirect, and induced impacts of the $159.1 million\(^1\) school facility construction project on the local (zip code 45424) and the regional economy (Montgomery, Greene, and Miami counties). It should be noted that these impacts are estimated for the project as a whole and not estimated for each year of the 32-month construction period.

Construction of the seven new school buildings on the three-county regional economy is estimated to generate a total of $258.3 million in sales, 1,944 jobs, $92 million in labor income, and $4.5 million in state and local sales and income tax revenues over the 30-month span of the construction project.

The total impact of new construction on the Huber Heights (zip code 45424) economy in 2010 is estimated to be 668 jobs out of the 1,944 jobs generated. These jobs are estimated to generate $33.2 million in labor income. New building construction is also estimated to generate nearly $1.3 million in state and local sales and income tax revenues.

\(^1\) Huber Height City Schools – Design Development Estimate Summary of Costs for the Board of Education, Resolution 14 December 2009.
Table of Contents

Executive Summary.................................................................................................................................... i
Introduction ........................................................................................................................................... 1
Project Methodology ............................................................................................................................ 2
Findings .................................................................................................................................................. 4
  Impact on the Regional Economy (Montgomery, Greene, and Miami Counties)......................... 4
  Impact on the Huber Heights Economy (Zip Code 45424)........................................................... 5
Introduction

In 2009, Huber Heights City Schools contracted with the Center for Urban & Public Affairs (CUPA) to conduct the economic impact analysis of new school construction on the local economy. Huber Heights Schools estimates that spending will total $159.1 million\(^2\) in current dollars on new school construction over the 32-month period from January 2010 to August 2012.

An economic impact study is an analytical assessment of the positive and/or negative influence of a business, program, or event on a target area. For this study, it is the measurement of the economic impact of the estimated school district wide expenditure of $159.1 million in January 2010 – August 2012 for the construction of the seven new buildings (five new PK-6, one middle school, and a new high school).

Planned expenditures on school construction will generate direct and indirect economic impacts for Huber Heights and the Miami Valley in the form of employment, income, gross domestic product, and state and local tax revenues.

The purpose of the study was to assess the impact of new building construction commissioned by Huber Heights City Schools on the economy of zip code 45424 (Huber Heights) and the region — Montgomery, Greene, and Miami Counties. It identifies the number of jobs and labor income directly associated with the construction of the new school buildings and the total impact on the local economy from this one-time event.

New construction of Huber Heights school facilities is estimated to bring a total of $89.3 million in sales to the local economy (zip code 45424). Employment is projected to generate $33.2 million in labor income and create a total of 668 jobs in the 45424 zip code area as a result of school building construction. The total impact of the construction of the seven new school buildings on the three-county regional economy is estimated to be $258.3 million in sales, 1,944 jobs, and $92 million in labor income. It should be noted that these impacts are estimated for the project as a whole and not estimated for each year of the 32-month construction period.

Project Methodology

This study utilizes the Impact Analysis for Planning (IMPLAN) economic modeling software and 2008 IMPLAN (Social Accounting Matrices (SAMs)) data sets for Greene, Montgomery, and Miami Counties and zip code 45424 created by the Minnesota IMPLAN Group Inc. (MIG), of Stillwater, Minnesota. The Social Accounts Matrices describe the structure and function of a specific economy, so that IMPLAN can create a highly localized model to investigate the consequences of projected economic transactions of a specific geographic region. Huber Heights City Schools provided information on the estimated costs for the school construction project necessary to generate the model, which examines employment, output, and tax data, discussed in this report.

The software can measure current economic impacts, as well as impacts that will occur in the future. The models help analysts understand how a local economy works and, in this case, what economic impact a project or action can have on the local economy. The software can also help predict the effect of economic growth and contraction.

IMPLAN makes certain assumptions about organizations within a region. These assumptions include:

- An organization will purchase its goods locally based on BEA averages, if the goods are available in a sector
  - The amount of locally purchased goods can be edited if the amount is known
- If a region has goods available, there will be enough goods to meet increased demand
- When a region is used, instead of a single area, results may differ due to:
  - Average pay within the area
  - Average output per employee
  - Trade flow differences between areas
- The model is a snapshot of organizational activities, it cannot predict trends
  - Events can take place in different years
    - Deflators are used to put the events occurring in future or past years in current dollars
- IMPLAN uses its own industry sector codes
  - Some sector codes have been added and combined for the 2008 data
- All employees will come from the region being analyzed

---

3 Minnesota IMPLAN Group, Inc.
The IMPLAN software generates the model or multipliers that analysts use to report the total impact an industry, project, or one-time event may have on the local economy. All businesses and events have “direct,” “indirect,” and “induced” impacts on the local economy. IMPLAN modeling software uses Bureau of Economic Analysis (BEA) statistics to build multipliers by economic sector and to identify the direct, indirect, and induced impact economic actions have on the study area.

- **Direct effects** refer to the actual jobs and income created in the local economy from businesses that can come about by investments and any purchase of goods and services needed for the initial investment (in this case, the construction of the new school facilities). The direct effect is measured by output, the value of production by industry; employment, the number of employees; labor income, the sum of employee compensation and proprietor income; and total value added, the payments made by a company to workers, interest, profits and indirect business taxes.

- **Indirect effects** are measured by output, which are the goods and services used in the operation of the company in the direct effect; employment, the number of employees needed to produce the goods or services being purchased by the company making the initial investment; labor income, the sum of employee compensation and proprietor income; and total value added, the payments made by a company to workers, interest, profits and indirect business taxes.

- **Induced effects** are changes or impacts generated in the local economy by the increased sales of goods and services in the local economy from spending by employees (households) due to the changes in direct and indirect production.

The total impact on the local economy by each industrial sector can be calculated through an economic model known as a “multiplier.” The multiplier expresses the number of additional jobs or amount of additional income created by each new job or each dollar earned. For example, every dollar spent on building materials or services necessary to construct the new schools in the City of Huber Heights will generate additional dollars in other sectors of the local economy. Another way of expressing these impacts is that every dollar the construction manager uses to purchase building materials for the job site from a local supplier generates income for the local proprietor. The local proprietor saves or invests some of the revenue and purchases additional goods or services from another local vendor with the remainder of the funds, which becomes income for a third establishment and this activity continues to ripple through the local economy.

Another way to look at multipliers is the impact economic activities have on the workforce. For example, if the construction of the new school facilities in Huber Heights brings 100 new
construction laborers to the local economy, which creates an additional 30 local jobs to support the construction activities, the multiplier would be 1.3. For each new job generated in the local economy, an additional 0.3 jobs ($1 + 0.3 = 1.3$) would be created in existing industries in the local economy.

**Findings**

This study estimates the direct, indirect, and induced output (sales), employment, and labor income impact of new school facility construction on the Huber Heights (zip code 45424) and the regional three-county economy — Montgomery, Greene, and Miami counties. This study also estimates state and local tax revenues generated as a result of these impacts.

**Impact on the Regional Economy (Montgomery, Greene, and Miami Counties)**

As shown in Figure 1, the direct effect of the school district’s construction-related activities is nearly $155.7 million\(^4\) of the total projected design and construction cost of all seven buildings. This added stimulus to the Huber Heights and regional economy generates an additional $51.6 million in estimated indirect effects or output (sales and services) from supporting industries throughout the three-county area. This indirect effect is the purchases made by supporting businesses involved in the construction of the facility and their supplying or supporting businesses (i.e., purchased building and office materials and contracted services). The direct and indirect effects or activities related to the construction of the school facilities will stimulate an estimated $51.0 million in induced effects (sales as construction laborers and employees and other area employees spend the income they earned on products and services). The total estimated one-time economic output of the three-county economy, resulting from the school construction project, is more than $258 million.

\(^{4}\) The IMPLAN model can show a lower direct impact in output than the initial total investment ($159.1 million). This discrepancy is due a leakage of investment for goods and services which can only be acquired outside the selected region to fulfill the requirements needed for the investment. (i.e., if a fire alarm system is required to complete the construction of a school building and the service or materials can only be acquired from a vendor or contractor outside the geographic or modeled area being analyzed, then the funds necessary for these services will not be factored in the model because this investment will not be made in the analyzed region.)
The construction project is estimated to generate a total of 1,944 jobs in Montgomery, Greene, and Miami counties related to the construction of the school buildings. The IMPLAN model estimates that 1,113 laborers and professional employees will be directly related to the construction of the Huber Heights school buildings. Indirectly, 387 jobs will be created as a result of products and services (associated with the construction the Huber Heights facilities) purchased from area businesses. An additional 444 jobs will be created in the three-county area to support increased household spending generated by those workers affected directly and indirectly by the construction project.

Also provided in Figure 1 is the labor income figure, which provides the estimated wages and benefits that laborers/employees will earn from the construction project. The total labor income is estimated to be nearly $92 million. The direct effect of labor income supported by the school district construction is approximately $55.4 million, while nearly $36.5 million in wages and benefits is projected to be generated in indirect and induced effects — $19.9 million and $16.7 million, respectively.

The economic activity will also have a significant impact on tax revenues. The model estimates that $2.3 million will be generated indirectly by businesses as sales tax. The model also estimates that just over $2.2 million will be generated in the local economy as income tax revenues paid by employees.

Impact on the Huber Heights Economy (Zip Code 45424)

As shown in Figure 2, the direct effect of the school district’s construction-related activities on the Huber Heights economy is nearly $64.5 million. As a result, the construction activity will stimulate the local economy (Huber Heights zip code - 45424) and generate an additional $12.5 million in estimated indirect effects or output (sales and services). The direct and indirect effects or activities related to the construction of the school facilities will stimulate an

---

5 The IMPLAN model can show a lower direct impact in output than the initial total investment ($159.1 million). This discrepancy is due a leakage of investment for goods and services which can only be acquired outside the selected region to fulfill the requirements needed for the investment.
estimated $12.3 million in induced effects or dollars spent by construction laborers and other local employees on products and services from the income they earned. The total estimated one-time economic output for the 45424 zip code, resulting from the school construction project, is more than $89.3 million.

<table>
<thead>
<tr>
<th>Impact Type</th>
<th>Direct Effect (Construction)</th>
<th>Indirect Effect (Changes to other industries due to construction)</th>
<th>Induced Effect (Household Spending)</th>
<th>Total Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output (Sales)</td>
<td>$64,462,807</td>
<td>$12,525,213</td>
<td>$12,318,320</td>
<td>$89,306,340</td>
</tr>
<tr>
<td>Employment</td>
<td>457</td>
<td>102</td>
<td>109</td>
<td>668</td>
</tr>
<tr>
<td>Labor Income</td>
<td>$24,328,386</td>
<td>$5,186,364</td>
<td>$3,645,513</td>
<td>$33,160,263</td>
</tr>
</tbody>
</table>

Figure 2: Huber Heights City Schools Facility Construction - Estimated Economic Impacts on the Local Economy (Zip Code 45424)

The construction project is estimated to generate a total of 668 jobs in Huber Heights. The IMPLAN model also estimates an additional 457 laborers and professional employees will be generated to support an increase in activities to construct the Huber Heights school buildings. Indirectly, 102 jobs will be created as a result of products and services (associated with the construction of the Huber Heights facilities) purchased from area businesses. An additional 109 jobs will be created in zip code 45424 to support increased household spending generated by those workers affected directly and indirectly by the construction project.

Also provided in Figure 2 is the labor income figure, which provides the estimated wages and benefits that laborers/employees will earn from the construction project. The total labor income is estimated to be nearly $33.2 million. The direct effect of labor income supported by the school district construction is approximately $24.3 million, while nearly $8.8 million in wages and benefits is projected to be generated in indirect and induced effects — $5.2 million and $3.6 million, respectively.

The economic activity will also have a significant impact on tax revenues. The model estimates that approximately $630 thousand will be generated indirectly by businesses as sales tax. The model also estimates that just over $700 thousand will be generated in the local economy as income tax revenues paid by employees.

It is important to note that, because of the very nature of the construction industry (contracted services), the effects for the limited geography of zip code 45424 are likely overstated because of leakages to other jurisdictions. Workers hired from outside the City of Huber Heights will be required to pay income tax to the City of Huber Heights if they work in the City for 12 or more days within the calendar year. If not, contractors hired from outside jurisdictions will not report earnings or pay taxes to the City of Huber Heights. Instead, those employees will report their earnings and pay taxes to the jurisdictions from where the business office is located.