

COST OF COMMUNITY SERVICES STUDY

TECHNICAL BULLETIN

Land use in a community significantly affects taxes, public services, and overall quality of life. It determines the size and scope of local government, the infrastructure and equipment needed, and the tax rates required to fund such services. It also impacts school systems, influencing student numbers, school buildings, staffing needs, and educational taxes. An active farmland and open space preservation program, balanced with moderate residential land development, can ease local tax and service burdens, while permitting municipalities to plan for proper growth.

To better understand these impacts, many Pennsylvania communities utilize the Cost of Community Services (COCS) ratio, developed by the American Farmland Trust. This ratio compares the revenue generated by different land uses—residential, commercial, industrial, and farm/open land—to the cost of providing services to those areas.

COCS studies typically show that residential land costs more in services than it brings in through revenue, while commercial, industrial, and farm/open land typically provide a net gain. These studies help communities see the financial impact of land use patterns and guide their future planning.

BACKGROUND

COCS studies were first introduced in the mid-1980s by the American Farmland Trust to help rural communities easily and affordably measure the financial contribution of farmland, which is often the first land type developed. Since then, over 150 local governments in 26 states have conducted COCS studies. While originally developed by the American Farmland Trust, Penn State University's Cooperative Extension Service, created a step-by-step guide designed specifically for Pennsylvanian communities.

METHODS

Preliminary Steps

Calculating COCS ratios involves analyzing a municipality's finances and land use, including data from the local school district. Revenues and expenses are divided among land use categories based on detailed budget information. This process requires information from local officials, including municipal staff, and school district administrators. The data is then combined to calculate final ratios.

While the process is systematic, it also involves judgment, especially when categorizing complex budget items. When specific allocations aren't possible, default methods are used to maintain accuracy. A full study generally follows nine key steps.



Step 1: Data Collection

- Collect data from the municipality, school district, and county tax assessment office:
 - a. Municipal Tax Assessment (County data)
 - b. Municipal Tax Audit (Municipal data)
 - c. School District Financial Budget (School District data)
 - d. School District Annual Report (School District data)

Steps 2-4: Municipal Calculations

- Determine property tax base percentages by land uses.
- Determine municipal tax revenues and allocate by land uses.
- Determine municipal non-tax revenues and allocate by land uses.
- Determine municipal expenditures and allocate by land uses.

Steps 5-7: School District Calculations

- Determine school district tax revenues and allocate by land uses.
- Determine school district non-tax revenues and allocate by land uses.
- Determine school district expenditures and allocate by land uses.

Steps 8-9: Results

- Calculate the Cost of Community Services ratios and actual dollar differences by land uses.
- Interpret the results.



Balancing development with preservation is an important part of ensuring a communities financial sustainability.

DETAILED STEPS

STEP 1: Data Collection

To complete the Cost of Community Services Analysis, the following data is needed:

Municipal Budget Information

Local governments are required by law to use certain revenues only for specific purposes. For example, money from the state for road maintenance must be used only on roads. To manage this, governments use separate accounts called “funds.” Most local governments in Pennsylvania have at least a General Fund (for most activities) and a Liquid Fuels Fund (for road-related spending from gas tax revenues). There may be additional funds for things like sewer or water systems. When reviewing a local government’s finances, it’s important to include all funds and use actual financial data from the past year—not estimates. The following information is needed:

- All revenues, by budget category, from the General Fund
- All expenditures, by budget category, from the General Fund
- All revenues, by budget category, from the Liquid Fuels Fund (sometimes referred to as the Highway Fund)
- All expenditures, by budget category, from the Liquid Fuels Fund
- All revenues and expenditures, by budget categories, from any other funds used in the municipality

School District Finance Information

Like with the municipal information, financial information received from the school district must represent actual revenue and expenses from the previous year, not projected figures.

- School district taxes collected from the study municipality
- Total school district taxes collected for the entire school district

- Number of students who live in the study municipality
- Number of students who attend the school district
- Total revenue for the school district
- Total expenditures for the school district

Municipal Tax base from county tax assessment office

- Total assessed value of real property in the study municipality, by land use category

County tax assessment offices track the assessed value of properties by land use category.

For a Cost of Community Services (COCS) study, use assessed (not market) values. Residential farm buildings must be reclassified as residential—subtract their value from the farm total and add it to the residential total.

After making needed adjustments, total residential, commercial, industrial, and farm values to determine the total taxable assessed value. Then calculate each land use's percentage share of that total—these are the tax base percentages used for allocating taxes and other metrics.

Municipal Calculations

STEP 2: Allocating Municipal Tax Revenues

Use a spreadsheet to allocate municipal tax revenues across land use types. You can enter actual revenue amounts or percentages by land use for each municipal fund. Work with local officials to make informed decisions, while following these general guidelines:

- Real Property Tax: Allocate based on each land type's tax base percentage (from county assessment data).
- Earned Income Tax: Typically paid by residents—allocate to residential land unless nonresident payments are known.
- Real Estate Transfer Tax: Allocate by tax base percentage, assuming sales follow land distribution.
- Per Capita & Occupation Tax: Paid by residents—allocate to residential land.
- Occupational Privilege Tax: Paid by people working in the township—allocate based on the share of commercial vs. industrial employment.
- Utility Tax: Paid by utilities—allocate to industrial land.
- Amusement Tax: Paid at commercial entertainment venues—allocate to commercial land.

Once all revenues are allocated, total each land type's contributions and calculate their percentage of total taxes. These are the "tax defaults" used for allocating some of the non-tax revenues later in the assessment.

STEP 3: Allocate municipal nontax revenues by land use

Nontax revenues should also be allocated by land use, item by item.

- If a revenue item benefits all land types (e.g., fines, interest, state/federal transfers), allocate it using the "tax default" percentages from the previous step.

Agricultural lands are an important economic resource for local communities.



- If a revenue item is specific to a land use, allocate it accordingly.

Once all nontax revenues are assigned, combine them with tax revenues to get the total revenue from each land use. Then, calculate each land use's percentage share of total revenues—these are the “revenue defaults,” which will be used later to allocate some municipal expenditures.

STEP 4: Allocating Municipal Expenditures

Most municipal expenditures in Pennsylvania are general (e.g., admin costs, building maintenance, tax collection) and benefit all land types. Allocate these General Fund expenses using the “revenue defaults” from Step 3.

Originally, the American Farmland Trust method suggested interviewing police and fire chiefs to assign costs based on actual service calls. However, the methodology developed by Penn State assumes that everyone benefits from these services—through deterrence and public safety—so police, fire, and road costs are allocated across all land types using revenue default percentages.

For other expenses that clearly benefit specific land uses, allocate them accordingly. If it's unclear or if the benefit is general, use revenue defaults for allocation.

School District Calculations

STEP 5: Allocating School District Tax Revenues

Allocate school district taxes by land use using the same methods as for municipal taxes (e.g., real property tax by tax base percentage).

Make sure to use only the data for the specific municipality you're analyzing—not the entire school district—to avoid overestimating costs and revenues.

After allocating, calculate the percentage of school

district taxes contributed by each land use. These are the “school district tax defaults,” used later in the analysis.

STEP 6: Allocating School District nontax Revenues

Allocating school nontax revenues and expenditures is challenging because most Pennsylvania school districts serve multiple municipalities and don't track finances separately by municipality.

While districts usually know how much tax revenue comes from each municipality, they often lack data on how many students come from each one or how nontax revenues (like state/federal aid, grants, etc.) are distributed.

As a result, estimates will need to be calculated for each municipality's share of school nontax revenues using one of two methods, depending on what data you have available.

Method A: Percentage of students from study municipality = $\frac{\text{Number of students from municipality}}{\text{Total number of students in school}}$





Commercial and industrial land uses also help offset the cost of residential development since they contribute more in taxes but do not need many services.

district. Multiply the total nontax revenues by the given percentage to estimate the portion of nontax revenue attributed to the study municipality. This method assumes that revenues are distributed in proportion to where the schoolchildren reside.

Method B: Percentage of total school district taxes from study municipality = Total school district taxes from the municipality/ Total school district taxes from all municipalities. To estimate the amount of nontax revenue attributable to the study municipality, multiply the total nontax revenues by the resulting percentage. This approach assumes that nontax revenues are distributed proportionally based on the source of tax revenues. Once the attributable amount is calculated, use the “school district tax defaults” to allocate it across different land uses within the municipality.

STEP 7: Allocating School District Expenditures

Since all school students live on residential land, allocate all school expenditures to residential property—including farmhouses. This approach assumes that non-residential properties do not benefit from schools, even though they arguably do (e.g., by supplying an educated workforce).

To avoid overestimating costs, you must

disaggregate school expenditures and use only those tied to the study municipality—not the entire school district. Two methods are provided (like nontax revenue allocation) to help estimate this, depending on the data you have available. Choose the method that best fits your data.

- a. If the school district knows how many students live in the study municipality:
 - Estimate the total school district expenditures attributed to the study municipality by using the percentage of total students who live there (calculated in Step 6, when allocating school district nontax revenues).
- b. If the school district does not know how many students live in the study municipality:
 - Use the percentage of total tax revenues coming from the study municipality (also calculated in Step 6) to estimate the share of school district expenditures.

STEP 8: Cost of Community Services Ratios

1. Calculate total revenues for each land type by adding:
 - General Fund revenues
 - Liquid Fuels Fund revenues
 - Other local government fund revenues
 - School district revenues
2. Calculate total expenditures for each land type by adding:
 - General Fund expenditures
 - Liquid Fuels Fund expenditures
 - Other local government fund expenditures
 - School district expenditures
3. Calculate the COCS ratio for each land type by dividing total expenditures by total revenues for that land type.

UNDERSTANDING THE RESULTS

What Do the Ratios Mean?

- COCS ratios show the financial relationship between land use types and local government finances.
- A ratio over 1.00 means that land type costs more in services than it contributes in revenue (e.g., a 1.10 means \$1.10 in services for every \$1.00 in revenue).
- A ratio under 1.00 means the land use generates more revenue than it consumes in services.
- Focus on overall trends, not just the exact numbers.
- Key questions the ratios help answer:
 - Which land uses contribute more in taxes than they receive in tax funded services?
 - Which land use requires more in tax funded services than they contribute in taxes?

How Do Ratios Compare to Other Communities?

- COCS ratios vary by community due to differences in:
 - Services provided
 - Land use mix
 - Local tax structure

Why Does Residential Land Usually Cost More?

- Schools drive up residential costs:
 - School expenses make up about 84% of total local spending in many PA communities.
 - All land types contribute to school revenue, but only residential land is assigned school expenses in COCS studies.
- Thus, residential areas often appear to consume more resources than they generate.

What About the Costs of Development?

- COCS ratios reflect averages across land types, not the cost of specific developments.
- For example, senior housing may cost less in services than family housing with children (due to school costs).
- To assess new development, you need more detailed fiscal analysis than a COCS ratio can provide.

What Influences the Cost of Development?

Key factors include:

- Type of development (e.g., office parks vs. townhomes)
- Impact on services (schools, roads, utilities, etc.)
- Existing capacity of infrastructure and public services



Example: A development that fits within existing school capacity costs less than one requiring new classrooms.

COCS ratios are a helpful starting point for understanding how different land uses affect local government finances. However, they're not a substitute for detailed fiscal analysis when it comes to planning or evaluating specific development proposals.

CONCLUSION

COCS (Cost of Community Services) studies help local officials understand the general financial impacts of different land uses, enabling better decision-making, policy-setting, and community planning.

They also support land conservation efforts by dispelling common myths—especially the false belief that preserving land (like farmland or open space) is a financial burden on taxpayers. By presenting clear fiscal data, COCS studies show that conservation often saves local governments money.

This reinforces the case for preservation:

- For those who value environmental and social benefits, it adds a financial justification.
- For those who prioritize fiscal responsibility, it offers a compelling reason to support conservation—even if they aren't moved by environmental arguments.

In short, COCS studies bridge the gap between conservation and cost-conscious planning.

EXAMPLES

- Westtown Township, Chester County
 - Conducted in 2022 to illustrate the cost savings of a dedicated open space tax when compared to the potential cost of new residential development.
- Honey Brook Township, Chester County
 - Conducted as part of the Open space referendum process in 2005.
 - Updated in the 2025 Land Preservation Plan.
- East Nottingham Township, Chester County
 - Conducted as part of the Open space referendum process in 2005.
 - Updated in the 2022 Land Preservation Plan.

ADDITIONAL RESOURCES

- *PA Municipalities Planning Code (MPC)*
- *Implementing a Municipal Open Space Program: A Guide for Pennsylvania's Municipalities (by Michael Frank)*
 - *Developed by Heritage Conservancy and DCNR*



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