

# **THE COST OF COMMUNITY SERVICES**

**in the Towns of Gibraltar  
and Nasewaupée**

**Door County, Wisconsin**

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## I. Introduction

A community's land use is inextricably linked to its way of life. Door County Wisconsin is known throughout the Midwest for its extraordinary landscape—from its vast rugged lakeshores and dense forests to its acres of cherry and apple trees and large expanses of agricultural land to its quaint downtowns. Land use determines a particular way of life, and it also affects the community in very specific ways. Of particular concern to community residents and local policy makers is the effect of that land use on the fiscal balance sheet of the community—the amount that must be spent to maintain an acceptable level of service to residents and businesses and tourists and the revenue that must be generated to enable this spending. Residents are, of course, particularly concerned with not only their quality of life and the maintenance of the scenic and recreational value of the landscape, but also with their own bottom line and their own annual property tax bill.

Surface water features are one of Door County's most significant resources. The county contains about 250 miles of shoreline along Lake Michigan and Green Bay, representing the second highest mileage of shoreline in any county in the nation (Town of Nasewaupée 2025 Recommended Draft Comprehensive Plan, July 2003). This is in addition to many lakes and streams and one of the features that make Door County a destination for recreationists.

There are a number of ways to examine the interplay among land use and local spending and revenues. A number of studies attempt to shed some light on how different types of land use affect a community's fiscal position. These studies, known as *Cost of Community Services (COCS)* studies, are typically undertaken to examine the impacts of open space and farmland versus other types of land uses on a community's fiscal balance sheet. They provide a community with a set of ratios that compare total revenue generated by each land use to total costs related to the land use.

The following report provides such an analysis of two communities in Door County and quantifies the net fiscal impact of different types of land uses in the communities. An understanding of the fiscal costs and revenues generated by different types of land is important as policy-makers grapple with issues of sprawl and increasing rates of farmland conversion. The costs of community services method detailed below allows a community to assess their fiscal position at one point in time in terms of the demands placed on the locality by different land use categories.

The towns were selected to represent different types of communities in the county. Despite declining numbers of farms in Door County reflecting the nationwide trend, agriculture remains the dominant land use in the town of Nasewaupée. Nearly 40 percent of the land in the town is classified as prime farmland and nearly 20 percent more is identified as prime farmland when properly drained.<sup>1</sup> The Town is not as tourism-dependent as the northern areas of the county, including Gibraltar, but it is home to a state park, campgrounds and other public and private recreational facilities.

The Town of Gibraltar includes the thriving commercial community of Fish Creek. Fish Creek is home to a variety of specialty shops, galleries, resorts and entertainment venues. It attracts visitors from across the Midwest all year long. The main entrance to one of the largest and busiest of Wisconsin's state parks, Peninsula State Park, is also located in Fish Creek.

The report is organized into five sections. Section II below includes a discussion of previous research on the COCS methodology and describes the research steps involved in conducting a COCS. Section III focuses specifically on the Door County case studies and details the research steps and the process for calculating the fiscal ratios.

COCS ratios have been calculated from various perspectives: the taxpayer (who is interested in the fiscal impact of land uses in the town and school district), the town itself, and the school districts serving the town. Land use categories are also combined in different ways to better understand specific influences of different land uses.

Section IV discusses the findings and compares the town ratios. Finally, the last section includes a discussion of the implications of the findings.

## **II. Previous Research**

COCS studies are intended to help local decision-makers and residents to better understand the relationship between land use and local costs and revenues. The American Farmland Trust (AFT) developed the COCS method and has conducted a series of studies across the nation over the past few decades. Many of the early studies were either conducted or sponsored by the AFT, but in more recent years, a number of studies have emerged that were conducted by local governments and other researchers.

COCS studies are undertaken to examine the impacts of farmland, residential land, commercial land, industrial land and open space and forest land on a community's fiscal balance sheet in a single year. The studies are snapshots of the net fiscal costs of different land uses. It is important to note that they are snapshots because they measure one year in time and do not make projections into the future.

The COCS approach compares annual revenues to annual expenses of public services for various land use categories. Through a variety of approaches, local revenues and expenditures are allocated to major categories of land use, and the result is a set of ratios showing the proportional relationship of revenues and expenditures for different land uses at one point in time. A ratio greater than one indicates that for every dollar of revenue collected for a type of land use, more than one dollar is spent to serve that land use. When the net fiscal impact of a land use is neutral, expenditures are equal to revenues and the ratio is \$1.00 : \$1.00. For every dollar of revenue generated, a dollar is spent to provide services to the land use type.

COCS studies typically show that for residential land, the cost of service ratio is greater than one. In examining a series of recent COCS ratios illustrated in the table below, you see that

the average costs in these studies range from about \$1.02 to \$1.64 for residential development for every dollar of revenue generated.

**Table 1: Summary of Recent COCS Research (Revenue generated : Expenditures)**

State/Town- Year of Study	Residential	Commercial Industrial	Farm/ Forest/Open	Source
<b>Colorado</b>				
Custer County	1: 1.16	1: 0.71	1: 0.54	Haggerty, 2000
Saguache County	1: 1.17	1: 0.53	1: 0.35	Dirt, Inc, 2001
<b>Georgia</b>				
Carroll County	1: 1.29	1: 0.37	1: 0.55	Dorfman and Black, 2002
<b>Kentucky</b>				
Lexington-Fayette	1: 1.64	1: 0.22	1: 0.93	American Farmland Trust, 1999
<b>Maryland</b>				
Kent County	1: 1.05	1: 0.64	1: 0.42	American Farmland Trust, 2002
Wicomico County	1: 1.21	1: 0.33	1: 0.96	American Farmland Trust, 2001
<b>Massachusetts</b>				
Middleboro	1: 1.08	1: 0.47	1: 0.70	American Farmland Trust, 2002
Southboro	1: 1.03	1: 0.26	1: 0.45	Adams and Hines, 1997
<b>Michigan</b>				
Marshall Township	1: 1.47	1: 0.20	1: 0.27	American Farmland Trust, 2001
Newton Township	1: 1.20	1: 0.25	1: 0.24	American Farmland Trust, 2001
<b>Montana</b>				
Carbon County	1: 1.60	1: 0.21	1: 0.34	Prinzing, 1999
<b>New Hampshire</b>				
Lyme	1: 1.05	1: 0.28	1: 0.23	Pickard, 2000
<b>New Jersey</b>				
Freehold Township	1: 1.51	1: 0.17	1: 0.33	American Farmland Trust, 1998
<b>Pennsylvania</b>				
Hopewell Township	1: 1.27	1: 0.32	1: 0.59	South Central Assembly for Effective Governance, 2002
<b>Texas</b>				
Bandera County	1: 1.10	1: 0.26	1: 0.26	American Farmland Trust, 2002
Hays County	1: 1.26	1: 0.30	1: 0.33	American Farmland Trust, 2000
<b>Virginia</b>				
Northampton County	1: 1.13	1: 0.97	1: 0.23	American Farmland Trust, 1999
<b>Washington</b>				
San Juan County	1: 1.28	1: 0.27	1: 0.71	American Farmland Trust, 2002
<b>Wisconsin</b>				
Town of Dunn	1: 1.02	1: 0.55	1: 0.15	WI Land Use Research Program, 1999
Town of Perry	1: 1.20	1: 1.04	1: 0.41	WI Land Use Research Program, 1999
Town of Westport	1: 1.11	1: 0.31	1: 0.13	WI Land Use Research Program, 1999

Source: American Farmland Trust<sup>2</sup>

COCS ratios for commercial and industrial properties are typically below one. For commercial and industrial properties, again the series of studies show that it costs between 17 cents and \$1.04 to provide public services to these properties. For agricultural land and open space, ratios are typically slightly smaller, ranging from 13 to 96 cents for every dollar of revenue generated. COCS studies across the board have concluded that farmland and open space provides more revenue to a community than is incurred in expenditures, resulting in a net fiscal benefit to a community.

In a recent COCS study conducted in Colorado, the author found that in one county, for every dollar of revenue generated by residential land, \$1.16 was spent on services for that land. In that same county, for every dollar of revenue generated by agricultural land, 54 cents was spent on services<sup>3</sup>. Again, findings such as these are typical and they have been used to dispel allegations that residential development increases property tax revenue and that conservation is too expensive to achieve at the local level.<sup>4</sup>

In Wisconsin, the Wisconsin Land Use Research Program conducted a series of studies across the state. Consistent with the findings of the AFT, the analysis showed that agricultural and open space was the least costly type of land use to serve. On average across all nine communities, for every dollar of revenue generated by agricultural lands, 13 cents was spent to serve them (excluding the single city in the sample). In contrast, for every dollar of revenue generated by residential uses, \$1.10 was spent to serve them. The table below illustrates the town summary of ratios.

**Table 2: Cost of Service Ratios (taxpayer’s perspective\*)**

Land Use	Residential	Ag. Residential	Commercial/ Manufacturing	Ag. Land	Swamp/ Forest	Ag. Land and Residences
<b>Dunn</b>	1.02	1.09	.55	.16	.10	.96
<b>Perry</b>	1.20	1.21	1.04	.09	.04	.96
<b>Westport</b>	1.11	1.23	.31	.13	.08	.74
<b>Harrison</b>	1.04	1.21	.30	.06	.07	.92
<b>Stockton</b>	1.08	1.09	.44	.04	.03	.74
<b>Jamestown</b>	1.01	1.11	1.11	.29	.43	.91
<b>Wyoming</b>	1.30	1.35	.61	.20	.17	.83
<b>New Richmond</b>	1.13	1.19	.15	.14	.11	.69
<b>**River Falls</b>	1.03		.92	.93		.93

\* Includes all local costs, including costs/revenues for school districts.

\*\*River Falls represents the only City in the sample.

The Wisconsin studies deviated somewhat from the standard methodology put forth by the American Farmland Trust. Typical COCS studies include agricultural residences in the residential land use category. The ratios provided above illustrate separate ratios for agricultural land and agricultural residences. This is intended to provide a better financial picture of the total impact of farms and their residents and workers. Typical COCS studies also often combine commercial and industrial land uses. This study examines those land use categories individually.

Critics of COCS studies often discount them because of the many underlying assumptions. Most notably, the studies often fail to acknowledge that the residential category

includes the homes of most people who farm or work on farms in the study area. This means that the costs associated with servicing farmers, resident agricultural workers, and their families are apportioned to the residential category, and many kinds of costs – such as street maintenance, garbage collection or protective services are not assigned to any agricultural uses. As a result of this approach, the overall costs associated with agriculture and other natural resource industries will necessarily be low or nonexistent. Since the traditional AFT methods discount the human service costs associated with agricultural activities, conventional COCS ratios may not provide a clear picture of the different fiscal impacts associated with farming versus residential land uses.

It has also been noted that the results of COCS studies are often interpreted incorrectly. For example, although a general class of land use may be associated with a net fiscal benefit or loss, it is also true that any individual piece of property may have an impact that can be significantly different from the overall averages. The residential category includes very diverse types of residential properties, ranging from single family homes on large lots to densely settled subdivisions to mobile homes. The COCS ratio for residential property does not provide information about which of these sub-categories of housing might have better or worse fiscal impacts on a local community.

Similarly, a COCS study does not provide a community with a measure of the fiscal impact of a specific *proposed development* – one residential development may result in a fiscal benefit to a community, and another, a fiscal deficit – depending on a variety of factors from the location of the development, its design, and the value of the property in relation to its public service requirements. A more detailed fiscal impact analysis must be conducted to ascertain the impact of a specific development proposal.

COCS studies are not intended to prescribe a course of action. Rather, they are intended to provide an assessment of a community's fiscal situation with regard to different types of land use at one particular point in time. Using this information as a starting point, communities should embark on a more careful analysis of the fiscal impacts of all types of land use changes that they might be considering.

The basic steps to conducting a COCS study are as follows:

1. Define the scope of the study and specify land use categories.
2. Collect data on local government expenditures, revenues, property value, etc.
3. Allocate expenditures by land use category.
4. Allocate revenues by land use category.
5. Analyze data and calculate the ratios for each land use type.

### III. Cost of Community Services for Door County Towns: Profile and Methods

The tables below illustrate the mix of land use types by acreage in each of the towns. Based on 2002 Wisconsin Department of Revenue data, over 65 percent of the total acreage the town of Gibraltar is residential. In contrast, about 10 percent of the acreage in the town of Nasewaupée is residential, and nearly 50 percent is agricultural.

**Table 3: Town of Nasewaupée: Acreage by Land Use, 2002**

Land Use	Total Acres	Percent of Total
Residential	2,410	10.1%
Commercial	750	3.2%
Manufacturing	20	0.1%
Agricultural	11,528	48.5%
Swamp	3,627	15.3%
Forest	5,129	21.6%
Other	289	1.2%
<b>Total</b>	<b>23,753</b>	<b>100.0%</b>

The Town of Nasewaupée, with a population of 1,883, is a small farming community with scattered rural residences and a variety of businesses along the Highway 42/57 corridor. Despite its small population and rural character, it is feeling growth pressure. Pressures facing the town include conversion and fragmentation of natural areas and agricultural lands and growth of and annexation by the neighboring city of Sturgeon Bay. Both Nasewaupée and Gibraltar are home to large and growing seasonal populations, further exacerbating development pressures.

The Town of Gibraltar, with a population of 1,063 includes the unincorporated Village of Fish Creek and acts as an important recreational and residential center for Northern Door County. With its scenic topography and variety of shops, restaurants, resorts and entertainment venues, the tourism industry contributes significantly to its economy.

**Table 4: Town of Gibraltar: Acreage by Land Use, 2002**

Land Use	Total Acres	Percent of Total
Residential	9,653	66.3%
Commercial	344	2.4%
Manufacturing	-	0.0%
Agricultural	2,265	15.6%
Swamp	636	4.4%
Forest	1,446	9.9%
Other	207	1.4%
<b>Total</b>	<b>14,551</b>	<b>100.0%</b>

## **A. Project Scope and Identification of Land Use Categories**

The scope of the study includes both the town governments and the local school districts serving each town. Gibraltar Area School District serves the town of Gibraltar and Southern Door County School District serves Nasewaupée. COCS ratios discussed below reflect both units of local government.

Land use categories were distinguished as follows and as defined by the state of Wisconsin for assessment purposes:

- Residential: Property used as a dwelling, including homes, mobile homes and apartment buildings of three units or less.
- Commercial: All land and improvements devoted to buying and reselling goods for profit, including apartments of four or more units, stores with apartments above, and golf courses.
- Manufacturing: Properties used in manufacturing, assembling, processing, fabricating, making or milling tangible personal property for profit, including warehouses, storage facilities and offices that support manufacturing.
- Agricultural: Land devoted primarily to farming.
- Swamp and Waste: Includes bog, marsh, lowland brush and other nonproductive land not classified elsewhere.
- Forest Lands: Land which is producing or capable of producing commercial forest products.
- Other: Agricultural buildings and improvements and the land necessary for their location and convenience, including farm residences, silos, sheds and barns.<sup>5</sup>

In addition, I used information available through each town clerk and town residents to identify properties that were associated with active farming. These properties were used to create a category called “Agricultural Residences” (refer to endnotes for more detail).

## **B. Data Collection**

All local revenue and expenditure data were collected for fiscal year 2003. Property value data was collected for 2002. All of the data necessary were located in town offices and in the State Department of Revenue. Much of the data can be found in the local budgets, the tax assessment rolls and the statements of assessment. School district fiscal data were obtained from the Department of Public Instruction (DPI).<sup>6</sup>

It was also necessary to gather some demographic data on the communities, including population and number of farm and non-farm dwelling units. Both communities are also in the process of completing comprehensive plans, so data and information was also pulled from these documents. Data were supplemented by extensive interviews with local officials and staff.<sup>7</sup>

### **C. Allocation of Expenditures by Land Use Category**

The allocation of expenditures is the crux of the COCS approach to estimating the fiscal impacts of different land uses. It is extremely important to try to be as precise as possible in allocating across land use categories. This typically entails extensive interviews with local officials who are familiar with services provided by the community, as well as an examination of local records. In this study, I began the allocation procedure by reviewing all town expenditures (reported in their annual budget) with the town clerk, and then deriving sensible allocation rules for assigning each town expense to particular land use categories.

Public works and public safety generally represent the two largest expenses in municipal budgets. In the town of Nasewaupee, public safety represents nearly 34 percent of total town spending, while public works represents nearly 54 percent. Similarly in the town of Gibraltar, public safety represents 14 percent of total spending and public works, 34 percent. Gibraltar spends relatively more on general government expenses, including general administration, legal services, elections and assessments, than does Nasewaupee.

The precise methods used in allocating expenditures across land use categories for each of the towns are varied, and a number of techniques were used. Most expenditures are allocated based on information in local records and information elicited from town clerks and staff. For example, highway and road-related costs in both towns are allocated based on trip generation estimates. This is a method commonly used in traffic impact analysis. Trip generation rates, based on estimates from a variety of sources, including the Institute of Transportation Engineers, *Trip Generation Manual*, were calculated for each type of land use in the town. The Institute estimates that each household generates about 10 trips per day and light industrial uses generate just over 5 trips per day. Once all trips were estimated on an annual basis, the relative number of trips generated by each land use category was used to allocate road maintenance costs across land use categories. In the Town of Gibraltar, for example, 25 percent of trips are allocated to residential land uses and nearly 75 percent to commercial, reflecting the significance of tourism in the town.<sup>8</sup>

Educational expenses were estimated using Wisconsin Department of Public Instruction data. A share of each school district's overall budget was allocated to the town based on the number of pupils in the school district living within the town limits. Pupil counts were obtained from representatives of the school districts.

School district expenditures in each town were then allocated across land use categories. All school district expenses were allocated to residences and agricultural residences, based on the relative number of pupils in each category of land use. No school district expenses were

assigned to the agricultural lands, commercial/industrial properties or forest/swampland land use categories.

#### **D. Allocation of Revenues by Land Use Category**

Revenues are allocated across land use categories, similar to expenditures. Again, local interviews and local records provide much of the information necessary to allocate revenues. Most local revenues come from a clearly identifiable source, which can be discerned through the examination of local records. License and permit revenue, for example, can be tracked back to the source of the permit. Liquor license revenue is allocated to commercial uses, whereas mobile home permit revenue is allocated to residential uses.

Local governments in Wisconsin rely predominantly on taxes and intergovernmental revenues to fund their services. Tax revenue represents 55 percent of total revenue in the town of Gibraltar and nearly 68 percent in the town of Nasewaupée. Intergovernmental revenue, another large source, represents 16 percent of the total in Gibraltar and nearly 25 percent in Nasewaupée.

School funding is derived from four main revenue sources: state school aids; local property taxes; other local revenues; and federal aids, with the bulk coming from the local property tax. Local property taxes for schools are collected from each type of land use.

Because they are usually distributed based on population estimates, other types of local revenues, and state and federal shared-revenues are assumed to be generated by residences and agricultural residences. This means they are allocated based on number of dwelling units in each land use category.

A default percentage is also used to allocate both revenues and expenditures. This is based on the relative property value of each land use category. It represents an approach to allocating revenues and expenditures across land use categories when every type of land use demands or uses the service. For example, often general government expenditures, which include town staff and government operations expenses, are allocated based on this default percentage due to the difficulty in identifying exactly where general government expenses are spent across land uses and due to the fact that all land uses demand and use these services. However, it should be considered that this allocation method does assume that property value is an appropriate proxy for local spending patterns.

#### **E. Calculation of COCS Ratios for each Land Use Type**

Finally, COCS ratios were calculated by dividing total expenditures by total revenues in each category of land use. The tables in the next section illustrate the ratios for each of the towns and school districts.

## IV. Cost of Community Services for Door County Towns: Findings

The following tables illustrate the set of revenue-cost ratios for the towns. COCS ratios are provided from three perspectives. First, the perspective of the resident of the town who pays taxes to both the town and the school district is illustrated. These ratios include all revenues and expenditures associated with both the town government and its school district. I then examine the COCS ratios separately for town government and school districts.<sup>9</sup>

### A. Town of Gibraltar

Table 5 shows that the ratios for the Town of Gibraltar are generally consistent with those found in previous studies in Wisconsin. The analysis shows that the cost of town and school services provided to all types of residences slightly exceeds the revenue generated by those residences. Those residences associated with agriculture have a slightly higher ratio of revenues to costs than other residences, due to the lower values associated with agricultural residences and the accompanying lower amounts of property tax revenue generated by them. Ratios for commercial properties in the Town are generally higher than previous studies. Again, Gibraltar includes the Village of Fish Creek, which attracts thousands of tourists each year.

**Table 5: Town of Gibraltar: Cost of Service Ratios (including education) from perspective of taxpayer**

Land Use	Residential	Ag. Rsd.	Commercial	Industrial	Ag./Open Lands
Revenues	2,009,058	16,988	495,169	70.11	22,464
Expenditures	2,116,217	18,120	404,200	17.48	5,193
Ratio	\$1 : 1.05	\$1 : 1.07	\$1 : 0.82	\$1 : 0.25	\$1 : 0.23

The shortfall in residential land use revenues was offset by fiscal surpluses in commercial, industrial, agricultural and open lands. For every dollar of revenue generated by agricultural and open lands, it costs 23 cents to provide services to the land. Similarly, for every dollar of revenue generated by industrial lands, it costs 25 cents to serve them.

When agricultural and open lands are combined with agricultural residences, as shown in Table 6, they still generate more local revenue than they demand from local services. For every dollar generated in revenue, it costs 59 cents to serve the land and its active farmers. However, other residences cost more to serve than they generate in revenue. For every dollar they generate in revenue, it costs \$1.05 to provide services to them.

**Table 6: Town of Gibraltar: Cost of Service Ratios (including education and combining agricultural land and residences) from perspective of taxpayer**

Land Use	Residential	Ag. Rsd/Ag/Open	Commercial	Industrial
Revenues	2,009,058	39,452	495,169	70.11
Expenditures	2,116,217	23,314	404,200	17.48
Ratio	\$1 : 1.05	\$1 : 0.59	\$1 : 0.82	\$1 : 0.25

Whereas the previous two tables illustrate ratios from the perspective of the taxpayer in the town of Gibraltar who pays taxes to the town and school district, the following tables illustrate cost of service ratios from the perspectives of the town and school district governments. Table 7 illustrates the cost of service ratios for the town government only. It is useful to calculate the ratios from different perspectives since land uses impact on governments differently. It also illustrates the significance of including school districts in the final calculation.

From the perspective of the town government, residential development actually represents a fiscal surplus, as it costs about 88 cents to serve residential land and 90 cents to serve agricultural-residential for every dollar returned in revenue. Agricultural and open space is the most fiscally beneficially type of land use, costing only 44 cents for every dollar of revenue generated. From the town’s perspective, commercial is actually the most expensive land use, costing \$1.31 for every dollar of revenue generated.

**Table 7: Town of Gibraltar Cost of Service Ratios (excluding education) from the perspective of the Town Government**

Land Use	Residential	Ag. Rsd.	Commercial	Industrial	Ag./Open
Revenues	738,370	6,527	307,856	31	11,739
Expenditures	649,218	5,896	404,200	17	5,193
Ratio	\$1: 0.88	\$1: 0.90	\$1: 1.31	\$1: 0.55	\$1: 0.44

Table 8 below illustrates the fiscal impact of the different land uses on the school district serving the Town. The school district perspective looks different than the other perspectives because not all land uses demand local educational services (only residences do) but all land uses contribute to property taxes to fund schools. The results suggest that residential land uses have a negative fiscal impact in Gibraltar, while the remaining land uses have positive impacts.

**Table 8: Town of Gibraltar: Cost of Service Ratios for Education from the perspective of the School District**

Land Use	Residential	Ag. Rsd.	Commercial	Industrial	Ag./Open
Revenues	1,270,688	10,461	187,312	38	10,725
Expenditures	1,467,000	12,225	0	0	0
Ratio	\$1: 1.15	\$1: 1.17	\$1 : 0	\$1 : 0	\$1 : 0

**B. Town of Nasewaupee**

As was the case in the Town of Gibraltar, Table 9 shows how the cost of town and school services spent on residences in the Town of Nasewaupee slightly exceeds the revenues generated by those residences. The shortfall is offset by the positive contributions of industrial land uses and agricultural and open space lands. Agricultural residences cost slightly more per dollar of revenue generated than other residences. Again, this is due mainly to the lower property values associated with these residences and the lower property tax revenues associated with them.

**Table 9: Town of Nasewaupee: Cost of Service Ratios (including education) from perspective of taxpayer**

Land Use	Residential	Ag. Rsd.	Commercial	Industrial	Ag./Open
Revenues	3,201,413	94,761	306,265	39,190	98,801
Expenditures	3,431,455	110,956	171,480	6,592	19,948
Ratio	\$1: 1.07	\$1: 1.17	\$1: 0.56	\$1: 0.17	\$1: 0.20

Table 10 shows that agriculture, with residences and land combined, still provides a net positive fiscal impact and generates more in revenue than it costs the town and school district to serve. For every dollar of revenue generated by agriculture, 68 cents is spent to serve the land and its residents. This is slightly more than was the case in the town of Gibraltar at 59 cents.

**Table 10: Town of Nasewaupee: Cost of Service Ratios (including education and combining agricultural land and residences) from perspective of taxpayer**

Land Use	Residential	Ag. Rsd/Ag/Open Space	Commercial	Industrial
Revenues	3,201,413	193,563	306,265	39,190
Expenditures	3,431,455	130,905	171,480	6,592
Ratio	\$1: 1.07	\$1: 0.68	\$1: 0.56	\$1: 0.17

Table 11 illustrates ratios from the town perspective only. As was the case in Gibraltar, commercial land uses cost the most for the town itself to maintain. For every dollar of revenue generated by commercial land uses, \$1.49 is spent to provide services to the land. Residences and agricultural residences are fiscally beneficial to the town itself, as was the case in Gibraltar.

**Table 11: Town of Nasewaupée: Cost of Service Ratios (excluding education) from the perspective of the Town Government**

Land Use	Residential	Ag. Rsd.	Commercial	Industrial	Ag./Open
Revenues	579,074	16,556	114,896	8,727	25,314
Expenditures	531,922	14,626	171,480	6,591	19,948
Ratio	\$1: 0.92	\$1: 0.88	\$1: 1.49	\$1: 0.76	\$1: 0.79

Finally, Table 12 illustrates the ratios from the perspective of the school district only. Again, costs are allocated to residential uses only, although all land uses contribute property tax revenue to the school district. While commercial, industrial and agriculture and open space uses are net contributors, residences cost more to serve than they generate in revenue for the school districts. Again, this is a function of the way in which these costs and revenues are allocated across the land uses—school costs are allocated to residential land uses only.

**Table 12: Town of Nasewaupée: Cost of Service Ratios for Education from the perspective of the School District**

Land Use	Residential	Ag. Rsd.	Commercial	Industrial	Ag./Open Space
Revenues	2,622,339	78,204	191,369	30,463	73,488
Expenditures	2,899,533	96,330	0	0	0
Ratio	\$1: 1.11	\$1: 1.23	\$1 : 0	\$1 : 0	\$1 : 0

## V. DISCUSSION AND IMPLICATIONS

Table 13 below shows a summary of the results for both towns. The ratios for the towns are quite similar, with the exception of those for commercial properties being slightly higher in Gibraltar. In both towns, agricultural and open lands represent the least costly type of land use for every dollar of revenue generated. Commercial and manufacturing lands are also net contributors to each of the towns. As in most previous COCS studies, including those conducted in Wisconsin, the residences are the high demanders of public services. Although residential development may expand the tax base, according to these results, the tax revenue associated with the developments are offset by even larger increases in public services provided to the developments.

These results are fairly consistent with those found in studies conducted across the nation. Residential land typically costs more than it provides back in revenues. Agricultural and open space lands typically provide more in local revenue than they demand in local services. Overall, these COCS studies demonstrate the importance, from a fiscal perspective, of achieving a balance of different types of land use in a community.

**Table 13: Cost of Service Ratios (including education) from the perspective of the taxpayer**

Land Use	Residential	Ag. Residential	Commercial	Industrial	Ag./Open
Gibraltar	\$1: 1.05	\$1: 1.07	\$1: 0.82	\$1: 0.25	\$1: 0.23
Nasewaupee	\$1: 1.07	\$1: 1.17	\$1: 0.56	\$1: 0.17	\$1: 0.20

Table 14 shows that agriculture, with residences and land combined, provides a net positive fiscal impact and generates more in revenue than it cost the town and school district to serve. For every dollar of revenue generated by agriculture, open space and its residents, 68 cents is spent to serve the land and its residents in Nasewaupee and 59 cents in Gibraltar. Because this ratio includes both active farms residents and their land combined, it represents a more accurate picture of the true positive impact of farming on the communities.

**Table 14: Cost of Service Ratios (including education and combining agricultural land and residences) from the perspective of the taxpayer**

Land Use	Residential	Ag. Rsd/Ag/Open	Commercial	Industrial
Gibraltar	\$1: 1.05	\$1: 0.59	\$1: 0.82	\$1: 0.25
Nasewaupee	\$1: 1.07	\$1: 0.68	\$1: 0.56	\$1: 0.17

Finally, table 15 illustrates the COCS ratios using the AFT approach to combine different land use types. This allows for a comparison to the many other COCS ratios from across the nation. These results mirror much of the national data. Residential land uses cost more than they provide in local revenue, while agricultural and open space cost substantially less to maintain.

**Table 15: Cost of Service Ratios: AFT Approach (from the perspective of the taxpayer)**

Land Use	All Residential	Commercial/Industrial	Ag./Open/Forest
Gibraltar	\$1: 1.05	\$1: 0.82	\$1: 0.23
Nasewaupee	\$1: 1.07	\$1: 0.52	\$1: 0.20

Despite widespread interpretation of COCS ratios, these ratios do not measure the costs of development, nor do they suggest that any one type of land use is better or worse than another. They also do not suggest that a town should follow a particular growth strategy. They simply provide the community with a baseline of information about the fiscal affects of different types of land use.

Furthermore, these results are not predictive and should not be used to predict the impact of future developments, as they represent revenue-cost ratios for 2003 only. These ratios are meant to prompt discussion within communities on the role of different land use types in the planning process and most importantly, to demonstrate the value of having a diverse tax base.

A balance of land use types is necessary for the long-term health of any community as these ratios show how different land use types subsidize others. Although these ratios do not measure the costs of change, they do show that both revenues and costs are important in considering development. Of course, land use and development has consequences beyond fiscal, which these studies fail to address. Development poses challenges in terms of the impacts it may have on the environment, the social atmosphere of the town, and traffic patterns. A more complex study is needed to illustrate such comprehensive effects of different land use types.

## Endnotes

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<sup>1</sup> Foth and Van Dyke. 2003. *Year 2025 Recommended Draft Comprehensive Plan, Town of Nasewaupée, Door County, Wisconsin*.

<sup>2</sup> American Farmland Trust. 2002. *Fact Sheet: Cost of Community Services Studies*. Washington DC.

<sup>3</sup> Haggerty, Mark. 2000. *The Cost of Community Services in Custer County, Colorado*. University of Colorado.

<sup>4</sup> American Farmland Trust. 1992. *Does Farmland Protection Pay? The Cost of Community Services in Three Massachusetts Towns*. Northampton, MA: American Farmland Trust.

<sup>5</sup> Definitions from: Property Assessment Manual for Wisconsin Assessors, Volume 1: Administrative, Procedural, 1998. The “Other” category is a new category of as of 1996. This category was disaggregated even further to obtain a category of “active farming”. It was created by determining which parcels were part of operating farms by examining tax assessment rolls and interviewing local staff and residents.

<sup>6</sup> Wisconsin Department of Public Instruction. 2003. *Basic Facts About Wisconsin Elementary and Secondary Schools* Madison, Wisconsin.

<sup>7</sup> This report would not be possible without the helpful assistance of local town staff and residents—Jill Lau, Town Clerk for the Town of Nasewaupée; Sharon Keller, Town Clerk for the Town of Gibraltar; Beth Hagan, Town of Gibraltar; Jerry Viste and Paul Lambeck, residents, Town of Nasewaupée.

<sup>8</sup> Trip Generation estimates were derived from several reports: Institute of Transportation Engineers (ITE) *Trip Generation Manual*; Transportation Research Board, *Truck Trip Generation Data: A Synthesis of Highway Practice; Development and Application of Trip Generation Rates—Final Report*; *San Diego Municipal Code, Land Development Code, Trip Generation Manual 2003*.

<sup>9</sup> To provide the complete taxpayer’s perspective, the other local units that serve the towns should be included, including the technical college districts. This was beyond the scope of this study, and because the majority of taxes are paid to and services provided by the town and school districts, these ratios represent a nearly complete picture of fiscal impact from the taxpayers perspective.

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**Mary Edwards Bio:**

Mary Edwards is currently an assistant professor with the Department of Urban and Regional Planning at the University of Illinois, Urbana-Champaign. Her teaching responsibilities include courses in the areas of statistics, planning methods, urban development and state and local government finance. She holds a Ph.D in urban and regional planning from the University of Wisconsin-Madison.

Her previous positions include work as a practicing planner in Madison, Wisconsin, where she was responsible for smart growth plans, neighborhood plans, fiscal analyses, among other short-term development projects. As Program Manager for a land use research organization also based in Madison, she was responsible for the development of a guidebook to assist University of Wisconsin Extension educators in assessing the impacts of development on local communities. She also conducted a number of cost of community services (COCS) analyses for small communities in Wisconsin, including the towns of Dunn, Perry and Westport in Dane County. The publication summarizing these studies is noted below:

Edwards, Mary and Douglas Jackson-Smith. 2001. The Cost of Community Services in Three Wisconsin Communities. *Journal of the Community Development Society* 32, 2.

