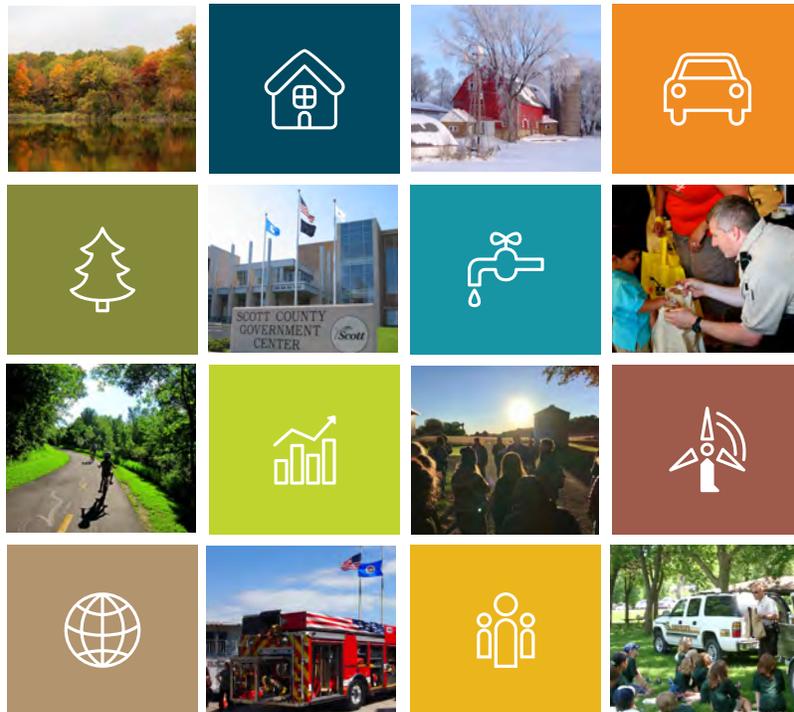


Review and Blueprint for Scott County Cost of Community Services Study



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The project on which this report is based was completed in collaboration with Scott County as part of the 2018–2019 Resilient Communities Project (RCP) partnership. RCP is a program at the University of Minnesota’s Center for Urban and Regional Affairs (CURA) that connects University faculty and students with Minnesota communities to address strategic projects that advance local resilience and sustainability.

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Resilient Communities Project

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Date: May 7, 2019

Re: **Review and Blueprint for Scott County Cost of Community Services Study**

Executive Summary:

What are the fiscal impacts of zoning decisions? The Cost of Community Services (COCS) method, developed by the American Farmland Trust, provides a straightforward way of organizing existing budget data to shed light on that question. Here’s how the analysis works. Take a set of land-uses within a government’s jurisdiction and use data and department experts to decide how many of the dollars of public service delivery are spent on each type of land. Do the same for revenues. With that, you can build the COCS ratio: the number of dollars you spend on a land use for every dollar in revenue that land use brings in. Hundreds of COCS studies have been done throughout the country with the general finding that agricultural and commercial lands subsidize residential lands, but rarely have these studies been done at the county level and only a handful have ever been completed in Minnesota. This document gives some background on the COCS method and provides a detailed blueprint for how a COCS study could be done in Scott County. While some budget categories will require in-person interviews, this plan envisions working mainly with publicly available data and details how past studies have approached the most challenging budget categories. The resulting study could act as a template for future reports, which could be produced much more readily, providing ongoing insight into how development decisions impact the county’s bottom line.

Background and Review

1. Cost of Community Services (COCS) Ratio and History of Method

$$COCS_{land\ use\ type} = \frac{\$ annual\ expenses_{land\ use\ type}}{\$ annual\ revenue_{land\ use\ type}}$$

COCS studies produce estimates of the ratio of expenses to revenues in a typical year for different land use types. A land use with a COCS ratio less than 1, for example, is a net revenue contributor to the government’s budget. Land use types with a COCS value

greater than 1, in contrast, require more than a dollar in services for every dollar of revenue they generate. Thus, the COCS ratio gives an indication of which land uses have “paid their own way” during the time period over which data is collected.

The COCS method was developed by the American Farmland Trust (AFT) in the mid-1980s. At that time, growing discussions of the budgetary impact of urban development largely focused on trade-offs between commercial and residential growth patterns, generally excluding the value of farm and working lands from analysis. In the last three decades it has become a widely-used tool to help planners and public officials understand the fiscal impacts of their land-use decisions, largely due to the relative simplicity of implementing the method. AFT has continued to provide guidance and support for these studies. (See, for example, a handbook by Freedgood 2002, or the factsheet from the Farmland Information Center 2016.)

2. National and Local Findings of COCS studies

Across over a hundred locations and various government scales where COCS studies have been implemented there are some general findings. Most commonly, land use types are broken into three categories: residential, commercial/industrial, and agricultural/open lands. A remarkably consistent finding is that ratios for residential land-uses tend to be greater than one (expenditures exceeding revenues), while commercial/industrial and agricultural lands tend to have ratios less than one (revenues exceeding expenditures). In analyzing 125 COCS studies, Kotchen & Schulte (2009) found inclusion of school budgets to be a key methodological decision that altered the resulting COCS numbers. They found that residential ratios increased with population but decreased as the share of the total budget dedicated to schools also shrank, suggesting that demand for education services is a key mechanism through which residential development impacts local government budgets.

COCS studies have only minimally been implemented in Minnesota, and never fully at the county level. Only one proper COCS study has been performed in Minnesota: it produced COCS ratios for residential, commercial/industrial, and farmland land uses for the cities of Farmington (R: 1.02, C/I: 0.79, F: 0.77), Lake Elmo (R: 1.07, C/I: 0.20, F: 0.27), and Independence (R: 1.03, C/I: 0.19, F: 0.47), but excluded county expenses and revenues (Senf 1994). The Minnesota Department of Agriculture produced a COCS-like analysis in the late 90s focused only on costs and revenues from residential land-uses and took Scott County as a case study. It’s key finding was that, “new residential development tends to be more fiscally advantageous to local governments when it occurs within or adjacent to established urbanized areas than when it occurs in outlying undeveloped rural areas” (MDA 1999). This result, however, is nearly two decades old

and MDA's projections haven't been revisited. The study may no longer provide insight into the fiscal impacts of current zoning within Scott County.

It's worth noting that, as best as could be determined, Scott County's attention to the fiscal impact of development sets it apart from its peers. Anoka County doesn't conduct any planning and zoning activities (personal communication, Keren Skepper, Director of Community and Government Relations, 3/7/2019). Townships in Washington County assumed responsibility for zoning decisions in the early 2010s (personal communication, Molly O'Rourke, County Administrator, 3/7/2019). Dakota County only exercises its land use authority in shoreland and floodplain districts in unincorporated areas, otherwise leaving these activities to the cities and townships (personal communication, Kurt Chatfield, Planning Manager, 3/7/2019). So relative to metro-area counties at the urban-suburban-exurban transition, Scott County appears to be taking a more data-driven approach to managing growth.

3. Criticisms and Alternative Approaches

It can be helpful to situate the COCS approach within the broader frame of fiscal impact studies and to understand the limitations of this method. In reviewing the pros and cons of various techniques, Kotval and Mullin (2006) explain that fiscal impact assessment is generally a practice of evaluating specific development proposals as opposed to the global, retrospective view of a COCS study. Such analyses typically try to assess anticipated costs and revenues of an intended development by adopting either an average or marginal cost approach. Average cost analyses break costs down into amounts per service unit and are most appropriate when incremental increases in service demand can fit within existing infrastructure. Marginal cost approaches, on the other hand, specifically try to anticipate additional employment or capital costs incurred at particular demographic or economic thresholds. While potentially more realistic, they are also more expensive and rely on a fair amount of subjective assessment. (The Metropolitan Council and City of Shakopee have both historically contracted with the firm now known as TischlerBise to execute fiscal impact studies in the marginal cost style, under certain growth scenario case-studies. See references.)

COCS studies bear a closer resemblance to the average cost approach, which helps explain the chief criticism they face. Because the COCS ratios are a snapshot in time, they do not directly answer a question like, "What would be the impact of converting 1% of our farmland to residential land?" This question is one of marginal impacts, and depends on specific details about public service supply – especially how close departments are to incurring large additional fixed costs. On the other hand, it is entirely possible for COCS studies to demonstrate the typical patterns (subsidization of

residential by commercial and agricultural lands) yet for there to be no meaningful change on the budget resulting from an incremental adjustment between these categories. A comprehensive study of land use change in Florida found just such results (Clapp et al 2018).

Nonetheless, COCS remain a straight-forward and illuminating way of assessing the connection between land-use policy and public budgets. All fiscal impact studies respond to the very real fact that, while development decisions have consequences on financing and provision of public services, those consequences are not always obvious. By simply reorganizing public data, COCS studies can provide a meaningful empirical look at how money flows into and out of public budgets and enrich public discussion and deliberation about land use policy.

Blueprint

The following sections outline a detailed blueprint for executing a COCS study for Scott County. Recall that the COCS ratio is calculated for each land use type using the following formula:

$$COCS_{land\ use\ type} = \frac{\$ annual\ expenses_{land\ use\ type}}{\$ annual\ revenue_{land\ use\ type}}$$

Getting to this calculation involves identifying the scope and structure of the analysis (sections 4, 5) as well as from where to draw data (section 6) and transform it as needed (section 7). The most difficult step of the analysis involves apportioning costs and revenues to different land use types. For this, I review general methods in section 8 and some approaches to specifically challenging departments in section 9.

It may be useful to think of the COCS study as a new piece of infrastructure. Much of the effort involved in executing this blueprint is an upfront investment that will pay off over the long-term. Once data sources have been identified, key departmental decisions made, and computer programs written for the first COCS study, future studies can be easily produced at fairly minimal cost.

4. Proposed Scope of Expenses and Revenues

$$Revenues\ (Expenses) = County + Township + School\ District + City$$

This blueprint outlines a strategy for incorporating township, school district, and city revenues and expenses into the COCS calculation. This strategy produces a measure

that is most comparable with other such studies. Furthermore, prior studies have found that education expenses fundamentally determine the final metric. Inclusion of non-county budget items is achievable based on publicly available administrative data and can be defensibly apportioned to land use types without substantial staff support from these units of government. Aggregation to the county-level is described in a section below. Given this blueprint it is easy to additionally produce a county-only measure by simply excluding expenses and revenues from these other units of government.

5. Land Use Types

$$(a) \text{ land use type} = \begin{cases} \textit{Ag Preservation (A - 1)} \\ \textit{Rural Residential (RR - 1)} \\ \textit{Rural Industrial (I - 1)} \\ \textit{All other non - city} \\ \textit{Municipal} \end{cases}$$

Scott County’s planning and decision making will be best supported by an assessment that provides detailed information on the COCS ratios of three dominant rural land use types: Agricultural Preservation Districts, Rural Residential Reserve Districts, and Rural Industrial Districts. These correspond to zoning districts A-1, RR-1 and I-1, respectively, as given in chapter 20 of the county’s Zoning Ordinance Number 3. Given the county-wide scope of this analysis, revenues and costs must be apportioned to these three categories as well as the additional groupings of a non-city catch-all composed of all other zoning district categories and a municipal grouping.

An alternative approach may provide some insight into the fiscal impact of Urban Reserve Districts, too, by expanding the agricultural, residential, and industrial categories. That alternative is given below, again using zoning district codes.

$$(b) \text{ land use type} = \begin{cases} \textit{Agriculture and Woodland (A - 1, A - 2, A - 3)} \\ \textit{Rural Residential (RR - 1, RR - 1C, RR - 2, RR - 3)} \\ \textit{Rural Industrial/Commercial (I - 1, C - 1)} \\ \textit{Urban Reserve (UER, UER - C, UBR, UTR, UTR - C)} \\ \textit{Municipal} \end{cases}$$

6. Data Sources and Years

For each unit of government, publicly available financial data is available for a number of years. Averaging over these years may be preferable to mitigate inter-annual fluctuations in expenditures like plowing, road repair and large but infrequent capital costs. Data sources are hyperlinked in the digital version of this document, but omitted

here for simplicity of presentation. For non-county units of government, the specific jurisdictions are listed. This table thus defines the total universe of financial data used for this analysis

	Data Source, URL	Years Available	Jurisdictions
County	Scott County, Open Gov	2015-2019	
Townships	MN State Auditor, Town Financial Data Search and Comparison Tool	2003-2017	Belle Plaine Township, Blakeley Township, Cedar Lake Township, Credit River Township, Helena Township, Jackson Township, Louisville Township, New Market Township, Sand Creek Township, Spring Lake Township, St. Lawrence Township
School Districts	MN Department of Education, district and site level revenue and expenditure reports, enrollment by district and county	2011-2018, 2006-2019	Belle Plaine, Burnsville-Eagan-Savage Schools, Jordan, Lakeville, New Prague School District, Prior Lake-Savage Area Schools, Shakopee Schools, SouthWest Metro Educational Cooperative
Cities	MN State Auditor, City Financial Data Search and Comparison Tool	1995-2017	Belle Plaine, Elko New Market, Jordan, New Prague (partly in Le Sueur County), Prior Lake, Savage, Shakopee
Property tax breakdown by property class for each source	MN Department of Revenue, Property Tax History Data Interactive Reports	2005-2016	All city/town, county, and school districts above

7. County-level Aggregation

$$\text{Scott County Education Share} = \frac{\# \text{ Scott County students}}{\# \text{ students in whole district}}$$

$$\text{Scott County Municipal Share} = \frac{\$ \text{Scott County property value}}{\$ \text{property value in municipality}}$$

While townships are entirely nested within counties, school districts have borders that do not overlap with the county, nor do the boundaries of the city of New Prague. Addressing this requires aggregating city and school revenues and expenses to the county level. This is done by estimating a set of ratios that approximate the share of revenue and expenses generated within Scott County. For education this ratio is proportional to student enrollments, while for cities it is proportional to property values.

8. Methods of Apportionment to Land Use Types

The key analytic step of a COCS study is the apportionment of revenues and expenses to the different land use types in question. This is done in a number of ways. Some categories can be allocated to land-use types by definition, as would be municipal revenues and expenses in this case. Many revenue sources have this sort of direct tie to land use types, property taxes especially. Beyond that, service data and staff expertise provide the best approach to allocating the proportion of expenses across different land-use categories. Where population fundamentally drives costs, as with school spending, allocations to land use types can be made in proportion to the distribution of population across those types, as determined by geographic information systems (GIS) analysis of census block data from the 2010 decadal census or more recent American Community Survey releases.

There is a default allocation that bears some explanation. Quantities of cost or revenue that cannot be reasonably allocated based on other methods should be allocated in a way that has a minimum effect on whether a land use type will be judged to “pay its own way.” This bias minimization is achieved by apportioning the quantity across land-use types in proportion to the property value in each of those land-use types, since the dominant revenue source of local government is property taxes, a function of property values.

The proposed method of apportionment for all revenue sources and department expenses is given below. In general, if the proposed method falls short, the next method in the sequence should be attempted. Additional methodological details are given in the section that follows.

By definition	<p><u>Revenues</u>: all municipal taxes; property taxes paid to county, township, and school districts</p> <p><u>Expenditures</u>: all municipal expenditures; “Regional Rail Authority”; “Watershed Management Organization”</p>
Based on service data and staff knowledge	<p><u>Revenues</u>: all types of general revenue other than property taxes; all types of “shared revenue”; all intergovernmental revenues</p> <p><u>Expenditures</u>: all “Capital Improvement Projects” and “Debt Service” items; all “Criminal Justice and Public Safety” items; “Highway Department” and “Fleet Services” in keeping with determinations about road costs incorporated in capital expenses; “Ditches” using similar method to roads; “Community Services” items; township expenditures matching allocation of similar county expenses</p>
Based on population	<p><u>Revenues</u>: per-pupil school funding</p>
OR	<p><u>Expenditures</u>: school district expenses; “Health & Human Services” costs</p>
Based on proportion of land value in land-use type (defaults)	<p><u>Revenues</u>: all township revenues other than property taxes</p> <p><u>Expenditures</u>: “General Government”, “OMB”, “Internal Services” and other items related to core administrative capacity</p>

9. Special Considerations for Apportionment

a) Property taxes

While Minnesota’s various property tax classifications make the state’s system one of the most complex in the country, here they are a benefit to apportioning property tax revenues into different types. The key analytic effort is to construct a mapping between state property tax classes (as described in [this property tax administrator’s handbook](#) provided by the MN Department of Revenue) and

land-use types. Where property classes span land use categories, parcel level analysis can provide the appropriate division.

b) Grants and Transfers

The important step in this allocation is identifying what the grant is for and mapping those purposes into the different land-uses. It may be easier to identify a department the grants fund and use the department's overall allocation strategy. It's also worth noting that some grants are not intermittent, which underlines the significance of inter-annual averaging.

c) Schools

School expenditures and revenues are sensibly divided into per pupil amounts. The per pupil amounts can then be apportioned to the different land-use types based on the number of school age children in those land-uses, on average, as given by a GIS analysis of census data.

d) Health & Human Services

While service data would ideally provide a rationale for attributing these costs to land uses, privacy laws may prohibit that. Regardless, a population-based apportionment is likely a reasonable proxy, since it is unlikely that residents of a particular land use type are, on average, likely to be more or less healthy than residents of another land-use type.

e) Community Services

Within the various community service categories, staff interviews may uncover an appropriate scaling unit for their work or effort. Location of environmental and health inspections, for example, can help distribute per-inspection costs to different land uses. Planning and assessment activities may appropriately scale per parcel. Others may scale by acre, etc.

f) Criminal Justice and Public Safety

For fire and police, 911 call data could be attributed to land use types based on GIS analysis. Legal and court related costs by land-use type may be assessed by

interviewing the most knowledgeable official within the various agencies or institutions.

g) Roads

Because roads service flow through the county they present a challenge to COCS studies. Still, the key goal is to attempt to determine what land use – commercial/industrial, municipal, rural residential, or rural agricultural – the road primarily serves. This can be done in a data-driven way by using records on administrative or maintenance responsibility as well as the [functional classifications](#) provided by the MN Department of Transportation. Pairing this with expert perspectives from the planning department and department heads can divide road mileage into the key land-use categories and then attribute amounts by mile.

h) Watershed Management Organization (WMO) & Ditches

Water related services for the WMO and the drainage authorities could arguably be attributed to the land uses in which they exist by GIS analysis. WMO expenses are likely related to Best Management Practices, which are arguably entirely agricultural.

i) Capital improvements and debt service

The dominant expense here is road construction and should be approached in the same ways as road costs are attributed. Otherwise, identification of the department for which the capital expenses serve would allow these costs to be attributed according to the method used by that department.

10. References

*All references have been shared with Brad Davis, Scott County Planning and Resource Management Director, and are available upon request.

Metropolitan Council. (2001). *The Fiscal Impact of Growth on Cities*.

Renkow, M. (2009). *The Cost of Community Services in Franklin County*. Retrieved from https://nmcdn.io/e186d21f8c7946a19faed23c3da2f0da/71b809487afe4d7da3262b45ea8ef886/files/services/planning-and-inspections/Microsoft_Word_-_Franklin_County_COCS_Report_-_Final.pdf

Senf, D. R. (1994). *Farmland and the Tax Bill: The Cost of Community Services in Three Minnesota Cities*.

Minnesota Department of Agriculture. (1999). *Cost of Public Services Study*.

City of Shakopee, & Tischler and Associates. (1999). *Fiscal Impact Analysis: Growth Scenario Comparison & Land Use Prototype*.

Clapp, C. M., Freeland, J., Ihlanfeldt, K., & Willardsen, K. (2018). The Fiscal Impacts of Alternative Land Uses. *Public Finance Review*, 46(5), 850–878. <https://doi.org/10.1177/1091142116687842>

Kotchen, M. J., & Schulte, S. L. (2009). A Meta-Analysis of Cost of Community Service Studies. *International Regional Science Review*, (April 2008), 376–399.

Farmland Information Center. (2016). *Cost of Community Services Studies*. Retrieved from http://www.communitypreservation.org/community_services.pdf

Freedgood, J. (2002). *Cost of Community Service Studies: Making the Case for Conservation*. American Farmland Trust. Washington, D.C.

City of Shakopee, & Tischler and Associates. (1999). *Service Level, Cost & Revenue Assumptions*.

Kotval, Z., & Mullin, J. (2006). *Fiscal Impact Analysis: Methods, Cases, and Intellectual Debate*. Lincoln Land Institute.