

**STAFF PAPER SERIES**

**Toward a Minnesota Model of the Fiscal Impacts of  
Residential Development**

By

Laura Kalambokidis

and

David Leishman

---

**DEPARTMENT OF APPLIED ECONOMICS  
COLLEGE OF AGRICULTURAL, FOOD, AND ENVIRONMENTAL SCIENCES  
UNIVERSITY OF MINNESOTA**

---

## **Toward a Minnesota Model of the Fiscal Impacts of Residential Development**

by

Laura Kalambokidis

and

David Leishman

*Laura Kalambokidis is an Assistant Professor and Extension Economist and David Leishman is a former Graduate Research Assistant in the Department of Applied Economics at the University of Minnesota, St. Paul, MN.*

*This paper was prepared for the 8<sup>th</sup> Joint Conference on Food, Agriculture and the Environment, August 25-28, 2002, Red Cedar Lake, Wisconsin.*

*The authors are grateful for funding from the Center for Urban and Regional Affairs at the University of Minnesota.*

*The analyses and views reported in this paper are those of the author. They are not necessarily endorsed by the Department of Applied Economics or by the University of Minnesota.*

*The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.*

*Copies of this publication are available at <http://agecon.lib.umn.edu/>. Information on other titles in this series may be obtained from: Waite Library, University of Minnesota, Department of Applied Economics, 232 Classroom Office Building, 1994 Buford Avenue, St. Paul, MN 55108, U.S.A.*

*Copyright (c) 2003 by Laura Kalambokidis and David Leishman. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.*

## **ABSTRACT**

Land use has become a critical issue for Minnesota communities, and for many of those on the suburban fringe, the central land-use policy question is whether or not to approve new residential development. New residences may bring increased property tax revenues, but the new residents will demand additional services from the county, city, utilities, and school district. On net, the impact on finances at all levels of government, especially into the future, is not always clear. In this paper, we describe some of the possible roles for the Extension Service in helping Minnesota communities to predict the fiscal impacts of residential development. We list some principles of fiscal impact modeling, describe an existing fiscal impact tool, and explain a number of issues that arose when that tool was used to estimate the impact of residential development in two Minnesota counties. Finally, we describe a possible framework for the next generation of personal computer-based, fiscal impact models.

## I. Introduction

Land use has become a critical issue for many Minnesota communities. County, city, and even township planning commissions try to fashion land-use and development policies to balance the competing goals of promoting economic growth, controlling urban sprawl, providing affordable housing for workers, and preserving farmland and green space. For many suburban fringe communities, the central land-use policy question is whether or not to approve new residential development. New residences may bring increased property tax revenues, but the new residents will demand additional services from the county, city, utilities, and school district. On net, the impact on finances at all levels of government, especially into the future, is not always clear. Consequently, policy-makers and planners need to reliably predict how alternative land-use strategies will influence the community's long-term financial condition and economic sustainability.

In order to better understand the impact of proposed developments, many communities hire private planning consultants to perform impact analyses. Despite this private sector involvement, there are at least three justifications for an Extension Service role in predicting the impact of land use strategies. First, smaller, rural communities may not have the financial resources to contract with a private consultant to provide impact analyses. The community may do the analysis on its own or not at all. An impact assessment performed in partnership with an Extension Service team could provide information that would improve local policy decisions.

Second, an Extension Service model and analysis would be based on the most recent academic research on economic and fiscal impact analysis. The model's results, therefore, are likely to be seen as defensible, replicable, and unbiased.

Third, as we explain later in this paper, the impacts of land use planning usually span more than one governmental jurisdiction. For example, a new residential development will impact the budgets of the city or township, county, and school district in which it is located. While each governmental body will logically focus on the impacts on its own

budget, an Extension Service team can bring together the various groups so that the full impact of a proposed development is understood.

The paper is organized into five sections. In the second section, we describe some of the possible roles for the Extension Service in fiscal impact analysis. The third section of the paper is devoted to the many issues that will have to be addressed if an Extension Service team undertakes to develop a model of the fiscal impacts of residential development. In this section we also briefly describe an impact analysis model that was developed under contract with the Minnesota Department of Agriculture. We explain a number of issues that arose when that model was used to estimate the impact of residential development in two Minnesota counties. In the fourth section we describe a possible framework for the next generation of personal computer-based, fiscal impact models. The fifth section identifies outstanding modeling questions and lists the next steps in this research.

## II. Possible Roles for the Extension Service in Fiscal Impact Analysis

As we explained above, there are several reasons for the Extension Service taking a role in estimating the impacts on local governments of residential development. But what should that role be? Three possible options are described below, along with their advantages and disadvantages.

### Consultant role

In this role, an Extension Service team would develop an impact model that would be kept “in house” at the University. Faculty members would run simulations at the request of local groups, interpret the results, and present the results and interpretations to requesting groups. In effect, the Extension Service team would play the same role as private consultants, even charging a fee for an impact analysis.

The advantages of this approach are as follows:

- The Extension Service team retains complete control and understanding of the model that is being used for impact analysis within Minnesota. The team’s resources are not

diverted to answering questions about models developed by others and over which they have no control.

- The Extension Service team retains control over how the analyses are done, ensuring quality and consistency across different studies.
- The Extension Service team retains control over the presentation of results, reducing the possibility that results will be misinterpreted or misused.
- Community groups can be confident that the model is based on current research and will be updated as new information and modeling techniques arise.
- The Extension Service team should be able to charge a fee to most groups that request an analysis, allowing the Service to recoup some of the costs of model development and maintenance.

There are several disadvantages of a consultant role:

- Building a model, running simulations, and presenting results all require significant Extension resources.
- The Extension Service is obligated to support, update, and maintain the model, requiring a continuous stream of funding.
- Local groups do not develop the capacity to do impact analyses themselves, ensuring their dependence on the Extension Service.

#### Developer role

Under this scenario the Extension Service team develops impact assessment software that can be used by local groups themselves. The software would consist of a computational model, which might be very similar to the model described in the previous subsection, but to which is applied a very easy user interface. Any economic development professional or government finance staff person would be able to run the model and perform simulations. The Extension Service would provide training for potential users and would support and update the software, but the Service would not perform analyses or interpret results.

The advantages of the developer approach are as follows:

- The Extension Service team retains complete control and understanding of the model that is being used for impact analysis within Minnesota. The team's resources are not diverted to answering questions about models developed by others and over which they have no control.
- Local groups develop the capacity to do impact analyses themselves, reducing their dependence on the Extension Service.
- The Extension Service team should be able to charge a fee to most groups that request the software, allowing the Service to recoup some of the costs of model development and maintenance. In fact, once the software and training curriculum are developed, the Service's only costs are for model updates and support and for delivering the training. The cost of model updates can be covered by subscription fees from software users.

The disadvantages of acting as a developer are:

- The Extension Service team does not control how the analyses are done, and cannot ensure quality and consistency across different studies.
- The Extension Service team does not control how the results are presented, increasing the possibility that results will be misinterpreted or misused.
- Building a model requires significant Extension resources.
- The Extension Service is obligated to support, update, and maintain the model, requiring a continuous stream of funding.

#### Advisor role

The Extension Service could choose to forgo model-building altogether. Instead, the team would evaluate and test fiscal impact models and tools that have been developed by others, such as private consultants, software developers, or Extension Service teams in other states. The team would also create an educational curriculum that helps groups understand fiscal impact analysis and choose among the available tools and approaches. A possible framework for such a curriculum is described in Kalambokidis (2002).

The advantages of the advisor role are as follows:

- The Extension Service can improve communities' ability to make sound land use choices with a minimal expenditure of resources.
- The Extension Service is not obligated to maintain and support a model.
- The Extension Service is not seen as endorsing any particular approach or tool.

The disadvantages of acting as an advisor are:

- The Extension Service team retains no control over models that are being used for impact analysis within Minnesota. The team's resources are diverted to answering questions about models developed by others and over which they have no control. In many cases, commercially produced software is not "open-structure," making it very difficult to understand how they perform.
- The Extension Service team does not control how the analyses are done, and cannot ensure quality and consistency across different studies.
- The Extension Service team does not control how the results are presented, increasing the possibility that results will be misinterpreted or misused.
- This option offers little potential for revenue-generation.

### III. Principles of Modeling the Fiscal Impacts of Residential Development

Clearly there are tradeoffs among the different roles the Extension Service could play in fiscal impact analysis. The rest of this paper, however, will focus on the role of developer. That is, we will assume the Extension Service will create a personal-computer-based or online model of the fiscal impacts of residential development that is intended for local users. In the first subsection below, we describe and critique a model that was developed for such a purpose under contract with the Minnesota Department of Agriculture. In the second subsection we list the principles that a model developer should follow to ensure that the fiscal impact tool is as useful as possible. The first set of principles relates to the characteristics the software should have to make it easy for use by local governments and groups. The second set relates to the methodology the model uses to estimate fiscal impacts.

## **Using DIAMATRÓ**

In 1999, the Minnesota Department of Agriculture hired private consultant Michael Siegel to create a software program that local governments could use to estimate the impacts on their budgets of residential development. The program, called “Development Impact Assessment Model,” or DIAMATR©, was used to produce estimates for Minnesota Department of Agriculture’s 1999 *Cost of Public Services Study* (Duncan Associates (1999)).

DIAMATR© is designed to run impact analyses for multiple levels of government. For example, Duncan Associates (1999) performed case studies in five Minnesota locations. For each location, the authors used the software to estimate the impact of development on the budgets of a city, the township adjacent to the city, and the county and school district in which the city lies. Within the software, each jurisdiction is represented by a separate module, and the user enters input data separately for each jurisdiction. The software then generates output for each individual jurisdiction and combines the results in a summary screen.

For each jurisdiction to be studied, DIAMATR© accepts as inputs a single year of government revenue and expense data, the term and interest rate on new debt, and factors identifying the characteristics of new dwelling units in each jurisdiction (such as the average market value of new homes and the average number of new homes built in the jurisdiction). The user also enters scenario parameters, such as the length of the forecast period.

The model allocates each government budget item to the residential and nonresidential sectors. The output data are the budget items (and a net deficit or surplus) projected to the forecast year and presented on a per resident basis, separately for new and base year residents and for residents within and outside the city. The program does not forecast the aggregate values for budget items or the population in the jurisdiction.

DIAMATR© includes a user interface built over the spreadsheet formulas that govern the model's calculations. Unfortunately, those formulas are hidden from the user. As a result, even though the program is accompanied by a manual (Siegel (1999)), and some information on the model appears in Duncan Associates (1999), much about how the model performs is unclear. Therefore, this paper does not include a detailed description of DIAMATR's© estimation model. However, in the process of implementing DIAMATR© in two Minnesota counties and attempting to use it for fiscal impact analysis, a number of important modeling issues arose. In the next section we describe some principles of model development that we think the developers of the next generation of fiscal impact models should follow.

### **Principles of usability**

1. The software should combine an easy user interface with a completely open framework.

As mentioned above, DIAMATR© does not have an open framework, keeping the calculation formulas hidden from users. While some information on the model's methodology appears in Siegel (1999) and Duncan Associates (1999), it is incomplete. The next generation fiscal impact model should have a simple user interface that eases data entry and model manipulation, but it should also provide a way for the user to see how each piece of output was calculated. This kind of framework allows the user to fully understand the model's methodology, and therefore, its limitations. The more thoroughly the user understands the methodology, the less likely the model will be misused or its results misinterpreted. In addition, an open framework will reduce the user's dependence on the Extension Service for model-related questions.

2. The software should be accompanied by training and curriculum.

Even the most carefully designed fiscal impact analysis software cannot – or should not – stand alone. Users should be required to receive training on the model, either in person or via distance learning. In addition to basic education on how to operate the software, the training curriculum should explain:

- the goals and limitations of fiscal impact analysis, generally;

- the model’s intended uses;
- the model’s limitations;
- how to interpret results;
- common pitfalls in interpreting results;
- how to develop internally consistent scenarios; and
- how to collect data.

3. Software support, updates, and maintenance should be available to users.

A successful software developer should update the software when new data are available and when advances are made in the methodology. The developer should also correct “bugs” in the software as they are discovered and be available to answer users’ questions. By promising high-quality support, the Extension Service can charge users a software subscription fee, generating a stream of revenue.

4. The model should require no “off-model” calculations.

Impact assessment models, including DIAMATR©, frequently require the user to make calculations aside from the software, either on a separate spreadsheet or with pencil and paper. For example, DIAMATR© adjusts public expenditures for residents inside and outside the cities according to parameters derived from a state-wide econometric analysis. The program also estimates government expenditures attributed to new residents with parameters derived from analyses done outside Minnesota. If the user wishes to replace any of these default adjustment factors with local parameters, those parameters must be derived “off-model.”

Off-model calculations can cloud the model’s transparency. For example, the user might enter into the model a factor that results from an “off-model” calculation without documenting how that factor was calculated. Additionally, having a collection of “off-model” calculations makes it difficult to maintain consistency through model simulations. For example, if the user wants to apply a factor, such as an inflation or growth rate, to all of the parameters of the model, the “off-model” calculations may be missed.

4. The model should provide guidance on how to recognize when default parameters are inappropriate for the community under study.

DIAMATR's © manual encourages the user to replace default parameters with local data that are "more appropriate for your jurisdiction or the particular development scenario being analyzed."<sup>1</sup> The manual does not, however, help the user understand when the default parameters might be inappropriate. This leaves most users to choose the default parameters, whether or not their community is an outlier. The next generation of fiscal impact software – or the accompanying curriculum -- should explicitly include all of the default parameters. The users should then be directed to specific information sources that will help them determine if any parameter is inappropriate for the community or scenario under study.

5. The model should provide guidance on how to estimate parameters with local data

Subjectivity in how parameters are estimated can lead to biased results. Again, if the user wants to override DIAMATR's© default adjustment parameters, the program and documentation provide little or no guidance on how to do the estimation. For example, all of the government expense items are adjusted to reflect the different levels of service demanded by new, higher income residents. These parameters were estimated with a regression analysis model that cannot be replicated by the software user. If a user has determined that one or more of these default adjustment factors is inappropriate for the community under study, it is not clear how new parameters are to be obtained. Without a recommended estimation method, users may rely on their own subjective guess about the value, possibly biasing the results. Therefore, wherever the model gives users the option of overriding default parameters, specific guidelines should be provided for how to estimate new parameters from local data.

6. The software should make it easy to run and compare scenarios.

Most users of a fiscal impact tool will want to run numerous "what if?" scenarios for their community. They want to know the likely effect of staying the current course with regard to development policy, and they want to know how that outcome compares with

---

<sup>1</sup> Siegel (1999), p. 9.

any of a number of different options. Moreover, running numerous “what if?” scenarios, even if they are highly unlikely to be considered for policy discussions, helps a user understand how the model functions and how the calculations are done. For example, one way to test and understand how a model works with a particular communities’ input data is to enter extreme values into the parameters (for example, a zero rate of growth or doubling the rate of growth) and reviewing the results.

Because “what if?” analysis will be important to model users, they should not have to invent a system for saving scenarios or exporting the results into a spreadsheet or compare results. The software should be designed to make it easy to define, run, save, and compare numerous scenarios.

### **Principles of calculation methodology**

1. The model should use readily available input data that are consistent across jurisdictions.

Many of the data items needed by DIAMATR© appear on the annual budgets that local governments submit to Minnesota’s Office of the State Auditor (OSA). Because the data are prepared according to standards set by the OSA, they are consistent across jurisdictions. Moreover, the most recent years of audited budget data are available from OSA online, making it possible to collect many jurisdictions’ data at once. Some school district data are also available online from the Minnesota Department of Children, Families, and Learning. Making extensive use of online and other centrally-available data will conserve the user’s resources, avoiding the costs of traveling to the community and obtaining data from local officials.

Some data items, such as the average value of new homes, average number of persons per new home, utilities information, and the government’s capacity to meet the service demands of new residents, will not be available from a central source. The curriculum should provide extensive guidance on where to seek these data so the analyses are as consistent as possible across jurisdictions.

2. The curriculum and training that accompany the model should provide guidance on how to choose the year or years of data to input as the baseline.

A user of any forecasting model needs to take care in choosing the year of data that will form the baseline of the projection. The most tempting choice is to use the most recent data available. But if the current year is extraordinary – for example, if it was a recession year, a year in which a significant new housing development was built, or a year of extraordinary budget surplus or deficit – the forecasts could be unrealistic. Moreover, an unsophisticated forecasting methodology will generate a forecast that simply carries the extraordinary circumstances into the future. As an example, consider the “per capita multiplier” method of forecasting fiscal impacts. According to Burchell, Listokin, and Dolphin (1994), the simplest method for forecasting government revenue and costs involves calculating each revenue and cost item on a per capita basis. These per capita amounts are assumed to stay the same as population grows. The government’s budget is then forecast by multiplying projected changes in population (including new residents of different types, such as school pupils) by the per capita multipliers. Clearly, under the assumption that the multipliers do not change as population increases (or falls), the circumstances of the base year are replicated into the future. If the base year net budget per capita multiplier is negative, adding more residents will simply make the budget more negative, whether or not that is a realistic scenario.

While few fiscal impact models use such a naive forecasting system, it is important that the next generation model and its curriculum provide guidance on how to choose a base year, or whether to use an average over several years, in a way that is consistent with the model’s forecasting methodology.

3. The model should be consistent with Minnesota’s government and revenue structure.

If the University of Minnesota Extension Service invests resources to produce a fiscal impact model and curriculum, the model should be closely aligned with Minnesota’s complex local government structure. Eventually the Service may wish to expand the model for use in other states, but the first effort should be toward a local tool, not a general one.

4. The model and the curriculum should encourage users to consider the impacts on multiple jurisdictions.

Bringing new residents into a city will have an impact on the finances of the city as well as on the county in which the city sits. Moreover, a single development may affect the two governments very differently, depending on which entity provides which public services. In fact, this was often the case in the studies that appear in Duncan Associates (1999). Often left out of the discussion altogether are other jurisdictions, such as the school district, which often feels the greatest impact from new housing.

DIAMATR© is designed so a user can enter data for all the levels of government that could be affected by a residential development. However, it is also possible for a user to perform an analysis for a single level. This can produce misleading results when the cost and revenue effects of the development cross jurisdictions.

In addition, it is not easy in DIAMATR© to run scenarios for various combinations of jurisdictions. For example, some Minnesota school districts do not coincide exactly with a single county, making it necessary to analyze more than one county-city-township-school district combination. This, however, is tedious in DIAMATR©.

The next generation model, together with its curriculum, should strongly encourage multi-jurisdictional analysis. It should also be simple to analyze various county-city-township-school district combinations.

5. The model should output aggregates as well as per capita items.

As noted above, DIAMATR© outputs only per capita amounts of revenue and cost items for different types of residents. If some of the per capita amounts are positive and others negative, it is impossible, without projections of the numbers of different types of residents, to forecast the magnitude of the budget or even whether it will be in net surplus or deficit. The next generation model should output aggregate as well as per capita budget amounts.

6. The model should not focus solely on the residential share of local budgets.

The first calculation made by DIAMATR© is to allocate budget items between residential and nonresidential uses of property. This method is reminiscent of the “Cost of Community Services” studies conducted by the American Farmland Trust (Kelsey(1996)), which allocated the cost of providing services to properties of several different types. The government’s costs and revenues associated with residential uses may be interesting to a policymaker who wants to know how much new net revenue will be generated by a residential development. But it does not reflect the overall fiscal condition of the community. For example, a new residential development may have a negative impact on the government’s budget, but if commercial properties are expected to bring in net revenue that can offset those losses, the community may choose to accept the development anyway. Even if the next generation model will only estimate changes in the budget due to new residential properties, it should allow comparisons across different types of existing properties. In addition, the methodology used to allocate public service costs across different types of properties should be responsive to the extensive criticisms of the allocation methods used in early “Cost of Community Services” studies. (Kelsey (1996), Edwards (2001)).

7. The model should account for differences between new and old residents.

The naive per capita multiplier estimation method described above assumes that per capita amounts remain constant as population grows (or falls). Duncan Associates (1999) found, however, that new residents typically have different preferences than existing residents in a community. In the case of a growing, suburban fringe community, newer residents often have higher incomes than base year residents, and they tend to have moved from a high-amenity urban community. These new residents, therefore, will demand a higher level of public services than existing residents. If the government is responsive to these new demands, the per capita costs for services for the new residents will be higher than base year residents, and a constant multiplier will give an incorrect result. DIAMATR© accounts for this by adjusting the per capita costs for services for new residents.

8. The model should account for differences in communities' abilities to provide service to new residents.

One of the findings of Duncan Associates (1999) was that the location of a new residential development matters. The authors found that “the fiscal impacts of new residential development tend to be enhanced when it occurs in cities, rather than in outlying rural areas,...because cities are generally much more able to provide the level of urban services typically demanded by new residents.”<sup>2</sup> Indeed, a community’s capacity to provide public services to new residents is a key factor in measuring the fiscal impacts of that growth. If the community’s infrastructure (schools, roads, utilities, etc.) has no excess capacity, they will need to be expanded to accommodate new growth, and that growth will be very costly. On the other hand, if the public infrastructure is adequate, increasing population density – expanding the local tax base without incurring significant capital costs -- can have a positive financial impact.

Deller (2001), however, notes that density levels and service capacity vary by community and are difficult to measure. He sees this as such a significant problem for fiscal impact analysis that “each proposed development and land use be assessed on a case-by-case basis,”<sup>3</sup> seemingly shutting the door on a model that is intended for broad use.

In contrast with Deller (2001), we recommend that a methodology for estimating service capacity be explicitly included in the fiscal impact model. The curriculum should direct the user to the correct public officials to approach for an objective assessment of the current capacity for each type of public service. The user should also be directed to the correct official or data source for determining how much capital investment will be required – and in what year – to accommodate new residents. Finally, the model should be capable of handling lumpy capital investments – those that are not made in a smooth stream of equal amounts over a number of years.

---

<sup>2</sup> Duncan Associates (1999), p.1.

<sup>3</sup> Deller (2001). p. 13.

8. Government behavior should be explicitly modeled.

Some fiscal impact models (including, but not limited to, DIAMATR©) assume that the local government will provide new residents with public services at the level they demand, using government spending as a proxy for demand. As explained above, in growing, suburban fringe communities, new residents typically demand a higher level of public services than the original residents. This approach assumes that the government will respond to the arrival of these new residents by increasing spending. However, public choice and voting theory has much to say about whether that is true. The COMPAS-Type<sup>4</sup> models, such as the model used in Deller (2001) integrate public choice theory into their fiscal impact modules to varying degrees. The next generation fiscal impact model should employ the state-of-the-art approach to modeling local governments' provision of public services.

Another aspect of government behavior that should be explicitly modeled is the tax system. All fiscal impact models that project government revenues into the future, including the COMPAS-type models, assume that the structural parameters of the tax system remain the same over time. Minnesota, however, recently adopted a property tax reform that could have significant impact on fiscal projections. For example, the most recently available budget data is for a tax year prior to the imposition of the reforms, ensuring that any projections will be over the reform year. The fiscal impact curriculum should address this problem.

9. The model should explicitly explain changes in property values.

Housing markets can be fairly complex, and the determinants of changes in property values are not always clear. New homes impact the values of existing homes, but whether the impact is positive or negative depends, among other things, on the conditions in the housing market and the degree of public service congestion in the community. Because of the importance of property tax revenue in Minnesota, it is crucial that the next

---

<sup>4</sup> For more detailed information on these models see Johnson, Scott, and Mia (1997). A COMPAS-Type model for Minnesota is developed in Ha (1999).

generation fiscal impact model explain how a new development will affect the market values of, not only the new home, but also the existing homes. As with the fiscal impact modules, the COMPAS-Type models vary in the degree to which they incorporate structural models of property value.

#### IV. Framework of a next generation model

Ryan and Taff (1999) produced a workbook that guides a community group through the questions, data-gathering, and calculations necessary to estimate the budgetary effects of a new residential development. The workbook is consistent with Minnesota's local government and revenue systems, and has been widely used, but it needs to be updated.

The basic procedure prescribed by the workbook is illustrated by the blue rectangles in Figure 1.<sup>5</sup> We propose to use this framework as the basis of a personal computer-based fiscal impact model that would include the elements listed in the previous section. The Ryan-Taff framework would be supplemented with computational modules drawn from other sources or created specifically for this model. In Figure 1, the pink ovals and the yellow rectangle all represent new modules. For example, in the Ryan-Taff framework, a change in population directly determines the change in public service costs, primarily with a per capita multiplier. The next generation model, however, would circumvent this direct link with a module that estimates the government's response to the demands of new residents (perhaps through a median voter framework), as well as a module that could estimate the community's capacity to provide those new services.

#### V. Next steps

The first step to be taken by an Extension Service Fiscal Impact Analysis Team is to assess the market for the kind of model we have described here. The team needs to know the answers to the following questions:

- Which groups and governments in Minnesota need or want assistance with fiscal impact analysis?

---

<sup>5</sup> Ryan and Taff (1999), p.3.

- At which levels of government are land use questions being debated? For example, it might not be sensible to develop a county-focused model if increasing numbers of land-use decisions are taking place at the city or township level.
- What kinds of land-use questions are being debated? Is it the best use of Extension's resources to focus on residential development, or should we be prepared to analyze the impacts of other uses of land?
- What kinds of impacts are important to potential user groups? While we have focused solely on the budgetary impacts of development, other economic, social, and environmental impacts may be equally as pressing.
- What do these groups do in the absence of Extension's assistance? Do they perform fiscal impact analyses on their own, or do they purchase services from private consultants? Is there a role for Extension to offer fiscal impact programming only to smaller communities that cannot purchase private services?

Second, the team should do a comprehensive survey of state-of-the-art fiscal impact models. This work has already begun with this paper and earlier work (Kalambokidis (2002)), but many modelers are active in other states. We need to establish whether other fiscal impact tools include components that would be useful for Minnesota's effort.

If the needs assessment points to the Extension Service taking on the role of model-building, the team will have to seek funding, not only for creating the model and writing the curriculum, but also for pilot-testing the program and maintaining the software.

Finally, the team should assemble and begin the work of creating a personal-computer-based fiscal impact analysis tool for Minnesota communities.

## References

- Bunnell, Gene. 1998. "Analyzing the Fiscal Impacts of Development: Lessons for Building Successful Communities." *The Journal of the Community Development Society*. 29(1): 39-57.
- Burchell, R.W., D. Listokin, and W.R. Dolphin. 1994. *The New Practitioner's Guide to Fiscal Impact Analysis*. New Brunswick: Center for Urban policy Research.
- Deller, Steven C. 2001. "The Impact of Alternative Economic Development and Land Use Options: A Case Study Using the Wisconsin Economic Modelling System." Paper presented at the annual meetings of the North American Regional Science Association, Charleston, S.C., November 2001.
- Duncan Associates. 1999. *Minnesota Department of Agriculture Cost of Public services Study*. St. Paul, MN: Minnesota Department of Agriculture.
- Edwards, Mary. 2001. "Fiscal Impact Analysis: Does Method Matter?" *Journal of the Community Development Society*. 32(1): 107-129.
- Ha, Inhyuck. 1999. *The Minnesota Regional integrated Modeling Sytem: A Case Study of Economic and Fiscal Impacts of Tax Abatements*. University of Minnesota PhD. Thesis.
- Johnson, Thomas G., James K. Scott, and Jian Mia. 1997. "The Community Policy Analysis System." Available online at <http://www.rupri.org/>.
- Kalambokidis, Laura. 2002. *Toward a Fiscal Impact Analysis Curriculum*. Microsoft Powerpoint® Presentation at the University of Minnesota Department of Applied Economics, February 10, 2002.
- Kelsey, Timothy W. 1996. "The Fiscal Impacts of Alternative Land Uses: What Do Cost of Community Services Studies Really Tell Us?" *Journal of the Community Development Society*. 27(1): 78-89.
- Ryan, Barry and Steven J. Taff. 1999. *Estimating the Fiscal Impacts of Residential Devleopment in Smaller Communities*. St. Paul, MN: The University of Minnesota Extension Service.
- Siegel, Michael. 1999. *DIAMATR Development Impact Assessment Model: A Technical Resource for Minnesota Governments*. Washington, D.C.: Public and Environmental Finance Associates.

Figure 1: Proposed framework for next generation model

