Blackberry Creek Watershed
Alternative Futures Fiscal Impact Study
Kane County, Illinois

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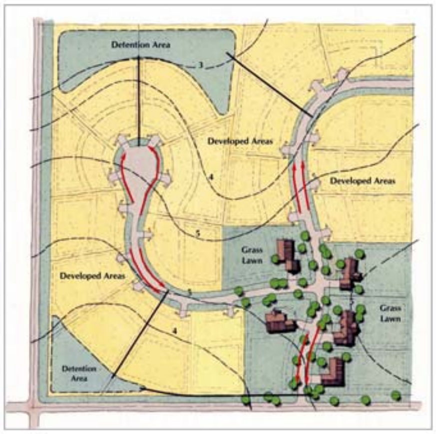

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Executive Summary

Background

Typically, communities have land use plans and development regulations that promote conventionally designed residential subdivisions, commercial areas, and office/industrial parks. With growth occurring at such a rapid pace in the Chicago metropolitan region and at other locations throughout the State of Illinois (State), it is important that communities have adequate background knowledge to consider new approaches to land use planning; approaches that can produce plans that will enhance the environment, the economy, and quality of life. Contemporary techniques for land use planning such as geographic information systems (GIS) and land capacity modeling (LCM) can allow communities to make mistakes on paper rather than on the landscape. Yet, there are few communities in the State accessing the informed output available from those combined techniques.

Land capacity models utilize land use designations from the comprehensive plan and site development standards from local development regulations to create a matrix of land development factors which are applied to raw acreage figures for the study area. The use of specific land use plans and development standards allows the projection of development patterns unique to a given area. Further, the models can be designed to reference local service standards and to apply those standards to demand units. That process allows the projection of public service and facility needs. Land capacity models, and the linkage to other analytical techniques, can allow the community to *make mistakes on paper - rather than on the landscape*.

This document, Alternative Futures Fiscal Study (Study), represents a support document for the larger Blackberry Creek Watershed Alternative Futures Analysis. The basic hypothesis behind the Study is that there is a neutral or positive relationship between environmentally sensitive land development and fiscally responsible land development. To support that hypothesis, the Study analyzes fiscal impacts of planned development within the Blackberry Creek watershed under two alternative development scenarios for the municipalities in the watershed including: Aurora, Batavia, Elburn, Montgomery, North Aurora, Sugar Grove, and Yorkville. Throughout various sections of the Study, these municipalities are referred to as the “component communities”. The alternative development scenarios presented and analyzed are referred to as Conventional and Conservation. These concepts are defined in detail in the Blackberry Creek Watershed Alternative Futures Analysis.

The analytical techniques applied in support of this Study are capable of generating data for a broad range of variables associated with land development practices for the entire study area which includes the unincorporated and undeveloped portion of the Blackberry Creek watershed located in the planning areas of the component communities (see attached Map 1 and Map 2). The land capacity model presented in the Technical

Appendix represents the projected development of all land use categories in the study area over a 10-year period. However, the objective of the Study is to explore the fiscal impacts associated with Conventional and Conservation development. As a result, the primary focus of analysis is on those land use categories that can provide the most direct comparison available.

Findings

Although the procedures employed in preparing the study are somewhat complex, the findings for the alternative land development scenarios are straightforward and can be summarized as follows:

Conventional Development - This scenario is comprised of Rural Estate Residential, Large Lot Single Family Residential, and Commercial land use categories. Average lot sizes for Rural Estate Residential and Large Lot Residential are 58,200 and 12,500 square feet, respectively. For the Large Lot Residential category, the development pattern includes conventional rights-of-way and storm water control as well as infrastructure improvements including public water, sanitary sewer, storm sewers, sidewalks, and full urban cross-section (curbs and gutters) in standard street widths.

Between the two alternatives analyzed, Conventional Development imposes a higher public cost based on an analysis that considers both population-based and land-based fiscal impacts.

Conservation Development - This scenario is comprised of Rural Residential, Moderate Density Residential, and Commercial land use categories. Average lot sizes for Rural Residential and Moderate Density Residential are 21,385 and 7,685 square feet, respectively. These land use categories correspond to the conservation design Templates found in the Blackberry Creek Watershed Alternative Futures Analysis.

The Conservation scenario represents a form of development in which the overall pattern is flexible with respect to topography in general and natural drainage patterns in particular. The flexibility allows for a more concise development pattern leaving more of the land in natural areas. Infrastructure is minimal with reduced rights-of-way and street widths, and the use of natural land features in support of storm water control. The "clustering" of residential dwelling units is an important feature of the Conservation scenario.

Between the two alternatives analyzed, Conservation Development imposes a lower public cost based on an analysis that considers both population-based and land-based fiscal impacts. It should be noted that, in order to realize the potential public cost savings to the maximum extent, the clustering of development should be focused in a compact and contiguous form locating development at the immediate periphery of the community wherever possible.

Introduction

This Study (Alternative Futures Fiscal Study) is intended to function as a support document for the larger Blackberry Creek Watershed Alternative Futures Analysis. That analysis is designed to provide concepts and information to assist communities in achieving environmentally sensitive growth. The larger project presents model land use planning concepts to communities in the Blackberry Creek Watershed in Kane County, Illinois. The Blackberry Creek Watershed Alternative Futures Analysis contains four basic elements as follows:

1. Introduction and Background

2. Template Design and Evaluation

3. Scenario Design and Evaluation

4. Outreach and Next Steps

The work included in this Study is closely associated with elements two and three, above. Specifically, the analyses presented in this document focus on the projected fiscal impacts associated with the alternatives of Conventional and Conservation development. As a result, it is necessary for the reader of this work to have a basic understanding of the land use concepts associated with those alternatives as presented in the Blackberry Creek Watershed Alternative Futures Analysis.

The Blackberry Creek Watershed

Blackberry Creek is a 32-mile long stream originating north of Elburn in central Kane County and draining to the Fox River near Yorkville in Kendall County. The 73 square-mile watershed is located in south central Kane County and north central Kendall County. There are four significant tributaries to Blackberry Creek including East Run, Lake Run, and two unnamed tributaries. The watershed includes incorporated areas of Elburn, Sugar Grove, North Aurora, Aurora, Montgomery, and Yorkville.

The watershed is largely rural in nature with 71.0% agricultural and 16% urban land uses. Wetlands occupy approximately 3.5% of the land area in the watershed. By 2005, the land area covered by urban uses is expected to nearly double to 27.0%. By the year 2020, both watershed population and employment are expected to double. Without adequate storm water controls and natural resource protection measures, this could lead to substantial increases in flooding, further degradation of stream quality, and reduced water quality.*1

The Blackberry Creek watershed contains a diverse and unique range of cultural and ecological resources with wetlands, stream corridors, and other critical natural features interfacing with rural, small town, and suburban development. The watershed is dotted with hydric soils and wetlands, and Blackberry Creek and its tributaries generally drain from north to south. Wetlands consist of both riparian wetlands well connected to Blackberry Creek and depressional wetlands scattered throughout the watershed. Wetland types include marshes, seeps, fens, and occasional wooded wetlands. Prior to European settlement, woodlands, prairies, wetlands, and limited agricultural fields were the primary land covers in the watershed.*2

Given the relatively high quality environmental nature of the Blackberry Creek watershed, it is ironic that its location in the greater Chicago metropolitan area makes it a prime target for land development from a market perspective. That observation is supported by the findings presented in the comprehensive plans of all component communities. The challenge for current and future residents of the Blackberry Creek watershed will be to accommodate an appropriate level of land development while preserving and enhancing the unique environmental qualities of the area.

Form of Analysis

Land capacity modeling represents a principal component of analysis for this Study. Land capacity models transform local land development regulations and land use designations into land use data for further analysis. For example, a community may require 10,000 square feet of lot area for a detached, single family residence; yet the land area needed to support that residence includes other land areas for streets, storm water control, and possibly, parks. As a result, the land area required for a single residence could actually be 30% greater than the minimum lot area requirement.

Land capacity models put the real requirements of land development into perspective, and permit a linkage to other forms of information required for growth management planning. As a result, land capacity models can be useful in comparing the induced effects of alternative land use regulations in a specific study area. Land capacity models, and the linkage to other analytical techniques, can allow the community to *make mistakes on paper - rather than on the landscape*. A detailed explanation of land capacity modeling follows.

Land Capacity Models

Land capacity models are computer programs designed to project various data elements of land use development patterns and to generate information for estimating the service demands likely to result from the development of defined areas of land.*3 The models may be supported by a data base containing land parcel information or land use data may be entered directly into the model. Land use modeling is based on the fact that each local or regional government will have its own set of land use development controls which, given adequate service capabilities, will dictate the future development pattern in its planning area. These controls are expressed as basic land use designations in comprehensive plans and as zoning and site development standards in local ordinances and regulations.

If the land capacity analysis employs a land use database for gross acreage input, operation begins with the assembly of basic information for all parcels of land located in the study area. Land capacity models can accept data for individual parcels in the form of a computer data base including entry fields for land use designation, parcel size, parcel identification, and any relevant subarea designations. Although not required, it is often desirable to include field entries in the data base for other available information such as tax parcel number, ownership, locational (mapping) reference, and site development constraints. The land capacity modeling developed for this study is supported by a geographic information system (GIS). The GIS brings detailed land use data and mapping capabilities to the land capacity modeling effort and greatly enhances program flexibility.

Although any of the data generated by a land capacity model could be obtained through manual calculation, use of a model permits the rapid processing of large amounts of data that would require many hours of manual work. As a result, once a study area is established, a model can be used to generate hypothetical land use scenarios incorporating a variety of assumptions regarding alternative combinations of land uses and the resulting service area impacts. Analysis of the alternatives can be used to forecast the effects of a continuation of recent development trends or to project the effects of possible changes in existing trends.*4 Additionally, when linked to a site capacity model, a land capacity model can be used to examine and evaluate the potential long-term, large-scale effects of proposed revisions to site development standards.*5 The land capacity model presented in the Technical Appendix represents the projected, full development of all land use categories in the study area over a 30-year period.

The Study Area

The study area is comprised of the entire unincorporated and undeveloped portion of the Blackberry Creek watershed located in the planning areas of the component communities. That area contains about 18,000 gross acres and is illustrated on Map 1 and Map 2.

Land use categories for the Blackberry Creek watershed land capacity model have been derived from land use designations in the comprehensive plans of the component communities. Due to the number of land use designations included in the various comprehensive plans, it was necessary to consolidate the designations into a workable yet inclusive number of categories. As a result, the land capacity model prepared for this Study is capable of providing projections for land use categories as follows:

Countryside Estate Single Family Residential
Rural Estate Single Family Residential
Urban Estate Single Family Residential
Large Lot Single Family Residential
Standard Lot Single Family Residential
Attached Large Lot Single Family Residential
Multi-family Residential
Community Facility
Commercial
Office, Research, Industrial/Business Park

The land use categories have been structured to accommodate all land use designations listed in the comprehensive plans of all component communities. The Technical Appendix includes a listing of the land use categories and the most similar corresponding zoning classifications for the component communities. The land use categories for the Conventional scenario are illustrated on Map 1 (see Maps & Graphics section).

Land development standards for the Conventional scenario have been derived from a variety of sources including the Blackberry Creek Watershed Alternative Futures Analysis. Because the primary purpose of this Study is an exploration of fiscal impacts associated with Conventional and Conservation development scenarios, the land capacity model provides alternative land development standards for the Conservation scenario. Those land development standards represent conventional standards modified by concepts from the Template Design section of the Blackberry Creek Watershed Alternative Futures Analysis. In both instances, development standards and factors for development support functions such as rights-of-way and storm water detention are applied to the gross acreage of the study area through a series of calculations. These calculations result in data output for the following:

1. Net developed acreage for individual land use categories.

2. Yields in dwelling units for residential development.

3. Yields in square footage for non-residential development.

4. Potential natural area preservation.

5. Population for residential development.

6. Demand units for selected public service. *6

Land capacity output for the above items is illustrated in the Tables and Figures section of this Study. It is important to note that most Conventional land use categories have a corresponding Conservation Template as follows:

Land Use Category	**Template**
Countryside Estate Single Family Residential	Estate Residential
Rural Estate Single Family Residential	Rural Residential
Urban Estate Single Family Residential	Moderate Density Residential
Large Lot Single Family Residential	Moderate Density Residential
Standard Lot Single Family Residential	Moderate Density Residential
Attached Single Family Residential	None
Multi-family Residential	None
Community Facility	None
Commercial	Commercial/Industrial
Office Research, Industrial/Business Park	Commercial/Industrial

The land use categories for the Conservation scenario are illustrated on Map 2. Additional detail regarding the specifics of the Templates can be found in the Blackberry Creek Watershed Alternative Futures Analysis. Illustrations of both Conventional and Conservation Templates are included in the Maps & Graphics section.

Although the analytical techniques applied in support of this Study are capable of generating data for a broad range of variables associated with land development practices for the study area, the primary focus of analysis is on those land use categories that can provide the most direct comparison available between the Conventional scenario and the Conservation scenario. As a result, the analysis examines conventional development in the form of Rural Estate Residential and Large Lot Residential, and conservation development in the form of Rural Residential and Moderate Density Residential. By necessity, these comparisons presume a regulatory environment allowing flexibility in land development design.

Linking Land Capacity and Fiscal Impact Analysis

The analysis of the fiscal impacts associated with land development may be considered one of the most critical components of local or regional growth management. Communities that ignore such impacts over a prolonged period of time may be unpleasantly surprised in the future. The simple fact is that growth requires an allocation of resources to support expanded operational and capital improvement programs. The balance between anticipated revenues and expenditures can vary substantially among the three basic private sector land use categories (residential, commercial, and industrial) and among individual development projects. Yet, the number of communities that consider the specific linkage between land use planning and fiscal impact remains relatively small.*7

Many communities receive fiscal impact analysis reports for individual development proposals. Fiscal impact analyses may be submitted voluntarily by developers, or they may be required by communities based on some selected threshold of size or complexity. Although fiscal impact reports may include some reference to the community=s comprehensive plan, this reference is usually limited to a statement or brief paragraph indicating the level of relative conformance of the development proposal with the basic land use designation(s) for the subject property. In general, the fiscal impact analysis is conducted apart from any specific linkage to the comprehensive land use plan.*8

The comprehensive land use plans of most communities include some mix of residential and non-residential land uses. Although there are significant variations from place to place, it has become fairly common knowledge that the great majority of residential development does not "pay its way" and that some level of non-residential development is required in order to support residential development.*9 In addition, more subtle variations in fiscal impact may exist within various categories of land development. Yet, the process for determining the type and amount of land use designations in comprehensive plans is usually determined without any formal consideration of the fiscal balance that may result from the designations. To some extent, the lack of consideration may be attributable to a general inability to transform gross land use designations into detailed land use projections and to use the land use projections as input for fiscal impact analysis.

This Study utilizes the Fiscal Impact Land Use Model (FILUM) to create a linkage between land use planning and fiscal impact analysis.*10 The FILUM program represents a form of land use driven fiscal impact analysis. The land use input for the FILUM program is provided through a land capacity model based on land use designations in local comprehensive plans and on local land development regulations. Although this form of analysis requires information regarding the community's development regulations and predominant development patterns in addition to the usual types of information required for a standard fiscal impact analysis, land use inputs are not limited to individual sites or specific development proposals; and output is representative of prevailing local conditions. Both experimental and empirical applications of the FILUM program suggest that there may be a linkage between environmentally sound land use planning and fiscally responsible land use planning. This Study explores that possible linkage.

Fiscal Impact Analysis

Fiscal impact analysis is a process for projecting the overall balance between revenues and expenditures likely to occur over time as a result of the development of land within a municipality or service district. Fiscal impact analysis differs from economic impact analysis in that the objective of fiscal impact analysis is limited to evaluating the balance between direct revenues and expenditures whereas economic impact analysis usually implies some level of effort aimed at evaluating indirect revenues and expenditures over a broader base of factors.*11

Fiscal impact methodologies can be classified generally as average cost or marginal cost techniques. The basic difference between these techniques can be summarized by noting that average cost techniques will be based on linear relationships meaning that as the value of one variable changes the value of other dependent variables will change a like amount. Conversely, marginal costing techniques are based on non-linear relationships that may be supported by derived factors or data regarding individual situations.*12

For all forms of fiscal impact analysis, some projection time frame is chosen. These time frames often range from five to 20 years with 10 years being the most commonly employed period. In general, longer time frames imply greater assumptions and decreased accuracy. Because fiscal impact analysis is projected over extended periods of time, some assumptions must be made regarding absorption rates for the land development being analyzed. Absorption simply refers to the rate at which any given level of development is projected to be built-out.

Most fiscal impact analyses are expressed in constant, current dollar amounts with no assumptions regarding appreciation in property values, inflation rates, revisions to tax rates, or changes in fee structures throughout the projection period. That approach eliminates conjecture regarding changes in those factors. Although it is possible to generate fiscal impact projections for any public service function, most analyses focus on impacts on the municipality and the school district(s).

Revenue Methodologies

In order to provide an accurate projection of the property tax revenues likely to be generated by a development, it is necessary to make assumptions regarding the value of the development and apply factors relevant to the local property tax structure. In Illinois, there is basically a four step process involved in the computation of real estate tax revenue as follows:*13

1. Determining fair market value (FMV).

2. Applying the local assessment factor.

3. Applying the state equalization factor to obtain the equalized assessed value (EAV).

4. Applying the real estate tax rate to the EAV.

To determine the fair market value (FMV) of a development, assumptions must be made regarding the value of land and improvements. The FMV of a development is usually based on one, or some combination, of three basic real estate valuation techniques: market approach, income approach, and cost approach.

The assessed value of a property is the basis upon which its tax liability is computed. For example, in Kane County, Illinois, developed residential, commercial, and industrial property is assessed at one-third of its FMV. Residential owner-occupied property receives a homeowner's exemption of $3,500.

The Illinois Department of Revenue (DOR) establishes an annual equalization factor intended to ensure that property throughout the state is being assessed at one-third of its true FMV. However, regardless of assessment and equalization practices, it is the EAV that forms the base for the application of property tax rates and, therefore, revenue from that source.

Sales tax distributions comprise a significant portion of revenue in many municipal budgets. In Illinois, sales tax distributions are based on "point of sale". Therefore, for fiscal impact analyses conducted within developed metropolitan areas, a conservative projection of sales tax receipts is usually based on the sales potential associated with additional retail commercial space and not on assumptions regarding the retail and service expenditures of new resident households.*14 Further, prudent fiscal impact analysis should consider a "redistribution factor" that accounts for the overlap of new retail commercial operations with existing operations in the community.*15 A 20% redistribution factor has been applied in this study.

Most other revenues accruing to the municipality or service district are projected on the basis of population and dwelling units. For example, Illinois municipalities receive revenues from motor fuel tax and state income tax on a per capita basis, whereas building permit fees and development impact fees are usually received on a per dwelling unit basis. A calculation of the current per capita and per dwelling unit revenue from other sources is illustrated in the Tables and Figures section. It should be noted that the figures for per capita revenue are indicative of the *value* of residents based on the assumption that they will be counted for per capita revenue purposes. However, the extent to which the new residents will actually be a factor in some revenue calculations will depend upon the timing of special census efforts to ensure their contribution to the per capita revenue base. The value approach reflects the primary intent of this study, which is to illustrate the relative difference between basic patterns of development rather than attempting to predict the timing of specific land development projects or local government actions.

Expenditure (Cost) Methodologies

All expenditure calculations are based on the assignment of operational and capital costs to development. As noted above, there are two basic approaches to estimating costs for fiscal impact purposes: average cost and marginal cost. Average cost methods include proportional valuation, cost per developed acre, cost per capita, and a combination of cost per developed acre and cost per capita. Marginal cost methods include case study, comparable municipality (service district), and cost per employee. Proportional valuation and cost per employee methods are usually limited to non-residential development.*16 Average costing is more commonly employed because it is easier to understand and is more relevant in high growth environments that require an on-going, long-term response to development.

This Study is based on an average cost technique for two primary reasons:

- Considering the component communities' comprehensive plans, their location within a growing area of the greater metropolitan region, and the associated development potential; it seems reasonable to consider a 10 year development projection as an element in a long term continuum (25 - 30 years) and, therefore, more incremental in nature.

- One of the principal objectives of the Study is to perform an analysis in a manner that allows for readily understandable projections of the fiscal impact of development of new territory in a study area and to facilitate relative levels of impact analysis for various development scenarios.

Each type of fiscal impact methodology may be appropriate in a given situation. However, recent trends have favored some combination of cost per developed acre and cost per capita for mixed use developments (residential and commercial) in high growth environments due to flexibility and reasonable data requirements. Basically, that methodology applies the ratio of developed land in the three principal private sector land use categories (residential, commercial, and industrial) to the budget to derive an assignment of cost per developed acre. The resulting residential component of the budget is then divided by the population to derive a cost per capita.

Although the cost per developed acre/cost per capita methodology has a number of advantages, there are two weaknesses in that form of analysis. First, it is possible to over-estimate costs associated with non-residential development. That weakness results from the assumed equal distribution of certain public service functions, such as solid waste collection, among the basic land use categories. However, the problem can be largely overcome by adjustments to cost assignment among the basic land use categories.

The second problem with the cost per developed acre/cost per capita methodology, in its basic form, is the lack of sensitivity to geographically induced service costs. That is to say that some components of public service cost are influenced to a greater degree by land area than by population count. For example, it is likely that a compact community with a concise street pattern would have a lower public service cost for street reconstruction and maintenance than a sprawling community with the same population. That limitation of the cost per developed acre and cost per capita methodology can be overcome through the use of a "blended methodology" that allocates individual components of the local budget based on perceived sensitivity to land area or population. In this process, it should be noted that the allocation of the "streets" budget to the land-based element of the analysis does not imply that population is not a factor in demand for that service, but rather that the streets budget will likely be influenced to a greater extent by land area than by population counts. This study utilizes the blended methodology to enhance sensitivity to both geographic and demographic variables.

Summary of Revenues and Expenditures for the Community

Communities receive revenues from development, and incur operating and capital improvement costs in serving development. Examples of primary budget components representing municipal revenues and expenditures are as follows:

Revenues	**Expenditures**
Real Estate Taxes	General Fund
Motor Fuel Tax Rebates	Special Funds
State Income Tax Rebates	Debt Service Fund
Sales Tax Distributions	Capital Funds
Development Impact Fees	Proprietary Funds
Building Permit Fees	Pension Funds

Population and Land Use-based Findings

As expected, the wide diversity of the component communities was reflected in their respective budgets with absolute figures ranging from a little more than $5,000,000 (Elburn) to more than $250,000,000 (Aurora). As a result, it was necessary to view the figures from the perspective of cost per demand unit. Population-based costs formed a fairly consistent pattern with an average (mean) figure of $630 per capita. It is important to note that this per capita figure does not include that portion of expenditures assigned as land-based and, therefore, represents only a portion of residential-based development costs.

In contrast, land-based costs displayed considerable variation - a condition consistent with differences in the physical characteristics and stage in development history of the component communities. However, two alternative forms of averaging (central tendency measurement) produced reasonably similar results with a mean average cost of $867 per residential acre and a median average cost of $1,035 per residential acre for the component communities. The mean average figure was used in the analysis.

Applying a similar approach with respect to percentage of costs assignable to population and land, yielded an average (mean) figure of approximately 85% assignable to population and approximately15% assignable to land. These factors, and others derived from a review of the various budgets, form a basis for the construction of a "composite" fiscal impact analysis that is generally representative of the component communities.

It should be noted that budget analysis for fiscal impact purposes differs from most other forms of budget analysis and that per capita and per acre figures may vary from those presented in the local budget. An explanation of the basic fiscal impact budget review process is provided in the Technical Appendix.

Land Use Scenarios

Conventional Development

Table Series 1 is output from a land capacity model and output from the fiscal impact land use model (FILUM) illustrating the hypothetical build-out of a portion of the unincorporated, undeveloped planning areas of the component communities in the Blackberry Creek watershed. The projection is based on a 10 year build-out consuming one-third of the land designated for Rural Estate Residential and one-half of the land designated for Large Lot Residential, Commercial, and Industrial uses.

The FILUM output provides a projected fiscal impact of that development over the 10-year period. Table Series 1 is based on land development regulations and techniques reflecting the Conventional scenario and focuses exclusively on land use categories that are most comparable to corresponding design Templates from the Blackberry Creek Watershed Alternative Futures Analysis (Rural Estate Residential, Large Lot Residential, Commercial, and Industrial).

In the Conventional scenario, 1,595 acres are assigned to Rural Estate Residential (58,200 square foot average lot sizes), 555 acres are assigned to Large Lot Residential (12,500 square foot average lot sizes), 390 acres are assigned to Commercial, and 901 acres are assigned to Industrial land use. The commercial (retail) development is projected for year three and year six of the analysis. Absorption rates for the other land use categories are assumed to uniform over the projection period.

Based on the applicable land development factors and an annual absorption rate of 10 percent for residential land area, the Conventional scenario could be expected to produce 2,120 dwelling units over the term of the projection (10 years). For Rural Estate development, the bedroom mix is set at 60% four bedroom and 40% five bedroom with the average fair market value of homes set at $325,000 and $350,000, respectively. For Large Lot development, the bedroom mix is set at 20% three bedroom and 80% four bedroom with the average fair market value of homes set at $225,000 and $250,000, respectively.

Given the projected nature and intensity of development, the 10-year fiscal impact balance is negative (-$4,485,610). The fiscal impact analysis is detailed in the Tables and Figures section.

Cluster Design - Generally

Cluster design refers generally to a form of residential land development that focuses actual development on a portion of the entire development site, or sites, while leaving some significant portion of the site undeveloped and in a natural state. As a result, cluster development results in higher localized densities (smaller individual lot sizes) but can be designed to accommodate the same number of lots and dwelling units as conventional residential subdivisions on the entire site. Designed in that fashion, cluster development is said to be "density neutral" with respect to conventional development patterns. Illustrations of the cluster design alternative are provided in the Blackberry Creek Watershed Alternative Futures Analysis.

Cluster development relies heavily on building orientation and buffering with natural plant materials to achieve levels of privacy and "personal space" comparable to large lot and estate lot development. Additionally, cluster development creates common, natural open space that can serve as habitat for wildlife and areas of recharge for groundwater systems. Several studies conducted throughout the nation indicate that there may be notable enhancements to property values associated with residential development in close proximity to natural open space areas.*17

Conservation Development

Table Series 2 is output from a land capacity model and output from the fiscal impact land use model (FILUM) illustrating the hypothetical build-out of a portion of the unincorporated, undeveloped planning areas of the component communities in the Blackberry Creek watershed. The projection is based on a 10 year build-out consuming one-third of the land designated for Rural Residential and one-half of the land designated for Moderate Density Residential, Commercial, and Industrial uses.

The FILUM output provides a projected fiscal impact of that development over a 10-year period. Table Series 2 is based on land development regulations and techniques reflecting the Conservation scenario.

In the Conservation scenario, 1,595 acres are assigned to Rural Residential (21,385 square foot average lot sizes), 555 acres are assigned to Moderate Density Residential (7,685 square foot average lot sizes), 390 acres are assigned to Commercial, and 901 acres are assigned to Industrial land use. The commercial (retail) development is projected for year three and year six of the analysis. Absorption rates for the other land use categories are assumed to uniform over the projection period.

Based on the applicable land development factors and an annual absorption rate of 10 percent for residential land area, the Conservation scenario could be expected to produce 2,120 dwelling units over the term of the projection (10 years). For Rural Residential development, the bedroom mix is set at 60% four bedroom and 40% five bedroom with the average fair market value of homes set at $325,000 and $350,000, respectively. For Moderate Density Residential development, the bedroom mix is set at 20% three bedroom and 80% four bedroom with the average fair market value of homes set at $225,000 and $250,000, respectively.

It should be noted that the development parameters for the Conservation scenario have been chosen purposely to produce a “density neutral” alternative to Conventional development. Also, dwelling unit values and bedroom characteristics have been held constant.

Given the projected nature and intensity of development, the 10-year fiscal impact balance is negative (-$340,175). The fiscal impact analysis is detailed in the Tables and Figures section. Under the Conservation scenario, about 45% of the gross land area assigned to Rural Estate Residential is preserved as natural areas and about 29% of the gross land area assigned to Moderate Density Residential is preserved as natural areas.

Summary

This Study utilizes the Fiscal Impact Land Use Model (FILUM) to create a linkage between land use planning and fiscal impact analysis. The FILUM program represents a form of land use driven fiscal impact analysis. The land use input for the FILUM program is provided through a land capacity model based on land use designations in local comprehensive plans and on local land development regulations. Although this form of analysis requires information regarding the community's development regulations and predominant development patterns in addition to the usual types of information required for a standard fiscal impact analysis, land use inputs are not limited to individual sites or specific development proposals; and output is representative of prevailing local conditions.

Although the procedures employed in preparing the study are somewhat complex, the findings for the various land development alternatives are straightforward and can be summarized as follows:

Conventional Development - This scenario is comprised of Rural Estate Residential, Large Lot Single Family Residential, and Commercial land use categories. Average lot sizes for Rural Estate Residential and Large Lot Residential are 58,200 and 12,500 square feet, respectively. For the Large Lot Residential category, the development pattern includes conventional rights-of-way and storm water control as well as infrastructure improvements including public water, sanitary sewer, storm sewers, sidewalks, and full urban cross-section (curbs and gutters) in standard street widths.

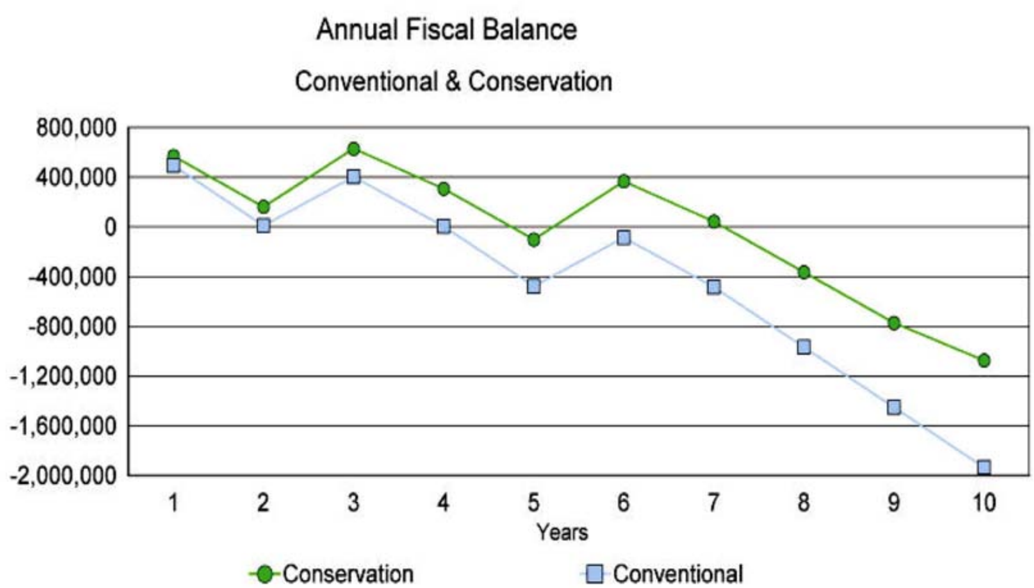
Between the two alternatives analyzed, Conventional Development imposes a higher public cost based on an analysis that considers both population-based and land-based fiscal impacts.

Conservation Development - This scenario is comprised of Rural Residential, Moderate Density Residential, and Commercial land use categories. Average lot sizes for Rural Residential and Moderate Density Residential are 21,385 and 7,685 square feet, respectively. These land use categories correspond to the conservation design Templates found in the Blackberry Creek Watershed Alternative Futures Analysis.

The Conservation scenario represents a form of development in which the overall pattern is flexible with respect to topography in general and natural drainage patterns in particular. The flexibility allows for a more concise development pattern leaving a greater percentage of the land in natural areas. Infrastructure is minimal with reduced rights-of-way and street widths, and the use of natural land features in support of storm water control. The “clustering” of residential dwelling units is an important feature of the Conservation scenario. Under the Conservation scenario, approximately 45% of the gross land area assigned to Rural Estate Residential is preserved as natural areas and 29% of the gross land area assigned to Moderate Density Residential is preserved as natural areas.

Between the two alternatives analyzed, Conservation Development imposes a lower public cost based on an analysis that considers both population-based and land-based fiscal impacts. It should be noted that, in order to realize the potential public cost savings to the maximum extent, the clustering of development should be focused in a compact and contiguous pattern locating development at the immediate periphery of the community wherever possible.

A graphic comparison of the fiscal impacts of the two alternatives is provided below.



In the hypothetical development alternatives presented, both the Conventional and Conservation scenarios result in a negative fiscal impact balance over the 10-year period; and that result is not surprising given a development projection dominated by residential land uses. However, the extent of the negative impact is reduced significantly under the Conservation scenario. The downward trend of the projections results from the gradual reduction of revenue from one-time sources such as building permit fees and development impact fees combined with the cumulative nature of service costs.

The fiscal benefits of the Conservation form of development result from the simple fact that reduced resources are required to support service delivery to, and infrastructure for, natural areas. In a given study area, it is likely that the extent of the benefit could vary considerably, whereas the existence of the benefit would remain constant.

Footnotes:

1. Blackberry Creek Watershed Management Plan, Volume 1: Management Plan, Blackberry Creek Watershed Management Committee, September 1999.

2. Blackberry Creek Watershed Alternative Futures Analysis, Conservation Design Forum, Illinois Department of Natural Resources, Kane County, The Conservation Foundation, U.S. Environmental Protection Agency, 2003.

3. Dahlstrom, Roger K., "Practical Computer Applications for Land Use Planning", Northern Illinois University Law Review, Summer 1997.

4. Kelly, Eric Damian, "Planning for Public Facilities: A Primer for Local Officials", Planning Advisory Service, Report No. 447, American Planning Association, 1993.

5. Dahlstrom, Roger K., "Practical Computer Applications for Land Use Planning", Northern Illinois University Law Review, Summer 1997.

6. Demand Unit: A direct or induced impact of development requiring a response in a specified level of service or capacity in a facility often expressed in the form of population.

7. "Approaches to Fiscal Impact Analyses", Public Investment, American Planning Association, September 2001.

8. Ibid.

9. Galambos, Eva. C. and Arthur F. Schreiber, Economic Analysis for Local Government, National League of Cities, 1978

10. Dahlstrom, Roger K., Linking the Comprehensive Land Use Plan and Fiscal Impact Analysis, Mid-continent Regional Science Association, June 2000.

11. Burchell, Robert W., and David Listokin, Fiscal Impact Handbook: Projecting the Local Costs and Revenues Related to Growth, 1978

12. Ibid.

13. Practical Guide to Illinois Real Estate Taxation, Taxpayer's Federation of Illinois, 1994.

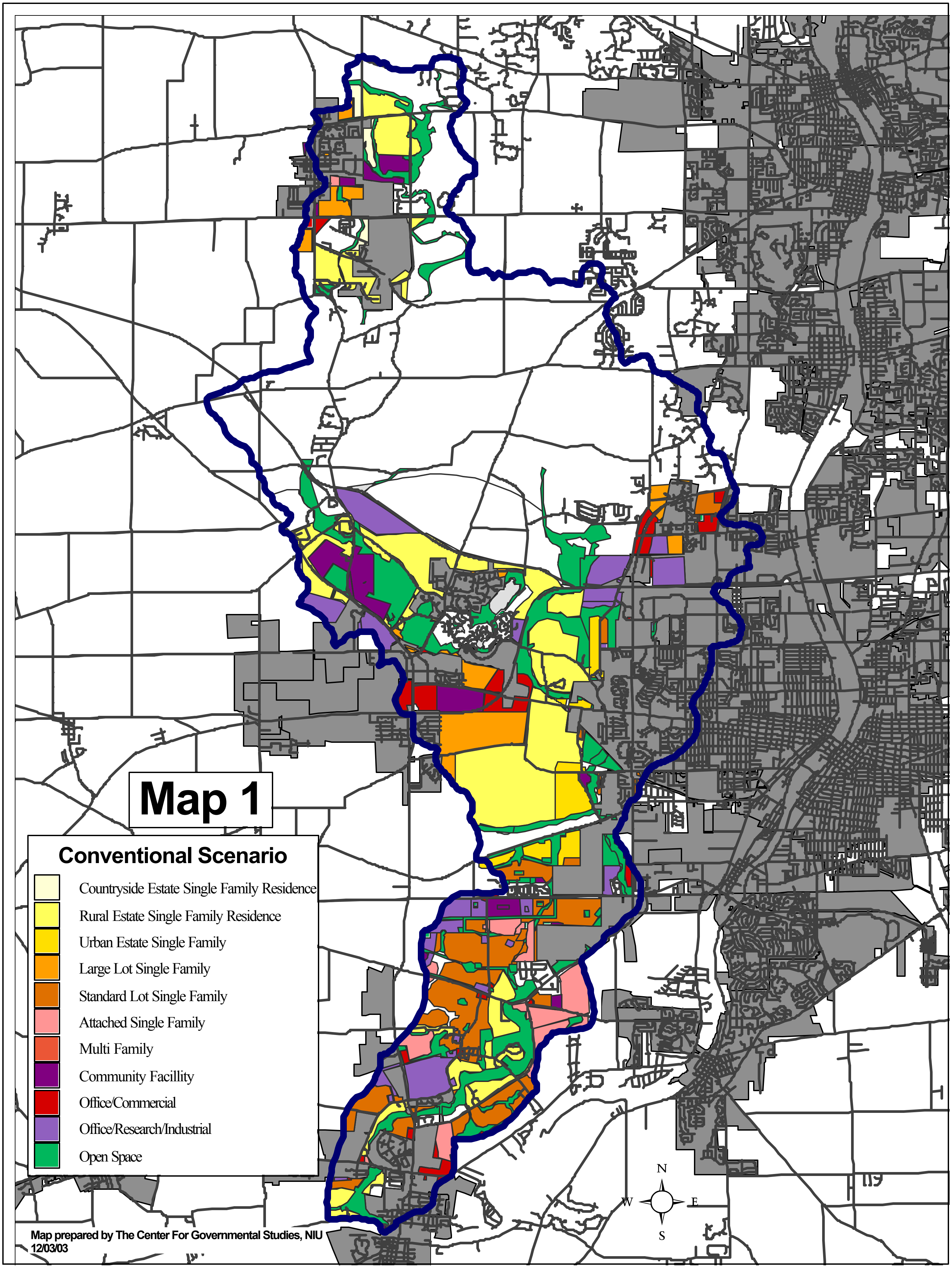
14. Brian O'Leary, "Retail Market Analysis in the Suburbs", Public Investment, American Planning Association 1996.

15. Peters, Dawn S., Retail Potential Analysis: A Case Study of Retail Potential for the City of DeKalb, Northern Illinois University, 1997.

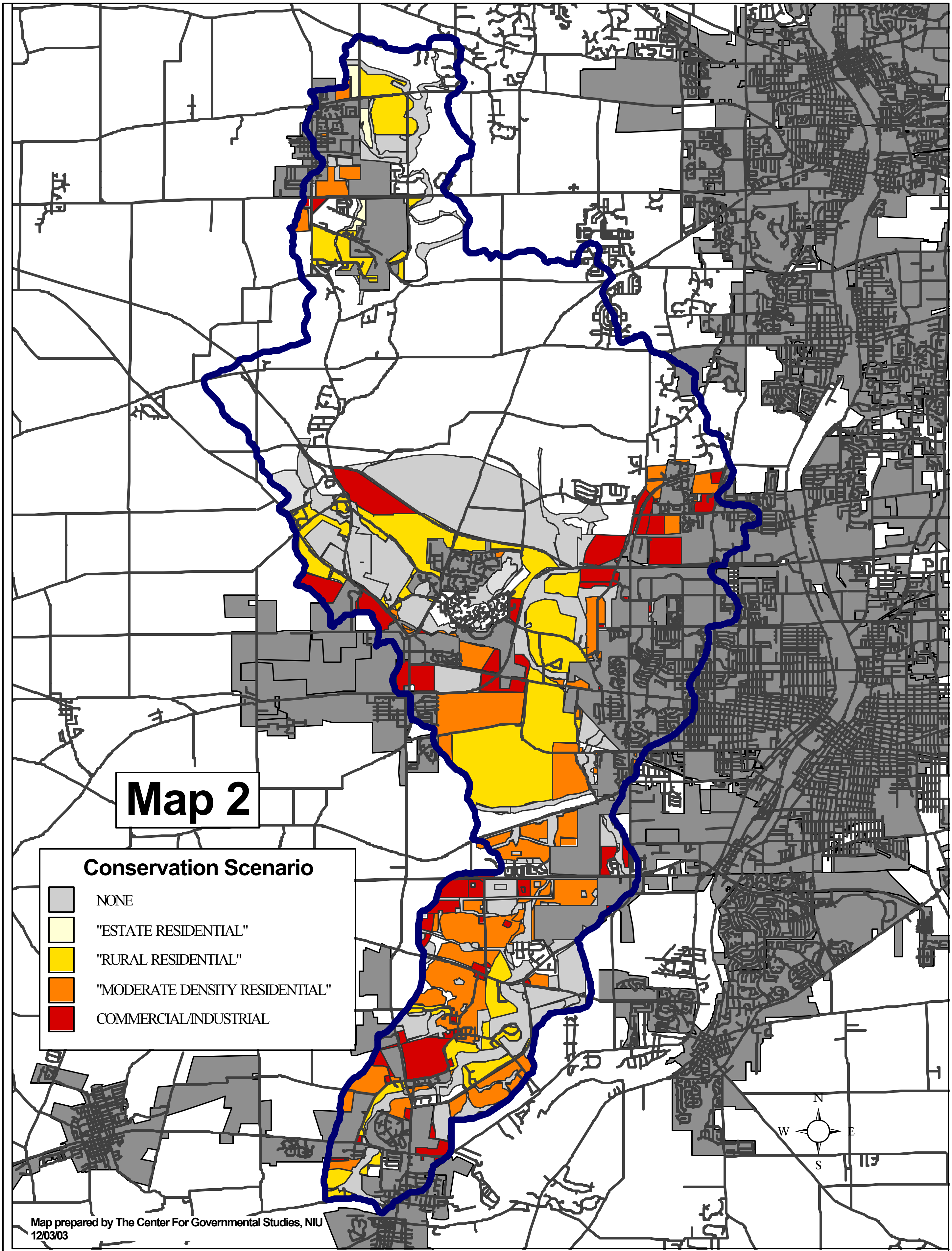
16. Burchell, Robert W., and David Listokin, Fiscal Impact Handbook: Projecting the Local Costs and Revenues Related to Growth, 1978

17. Does Land Conservation Pay? Determining the Fiscal Implications of Preserving Open Land, Lincoln Institute of Land Policy, Resource Manual, 1994.

MAPS & GRAPHICS



Map 1
Conventional Scenario
Countryside Estate Single Family Residence
Rural Estate Single Family Residence
Urban Estate Single Family
Large Lot Single Family
Standard Lot Single Family
Attached Single Family
Multi Family
Community Facillity
Office/Commercial
Office/Research/Industrial
Open Space
N
W
E
S
Map prepared by The Center For Governmental Studies, NIU
12/03/03



Map 2
Conservation Scenario
NONE
"ESTATE RESIDENTIAL"
"RURAL RESIDENTIAL"
"MODERATE DENSITY RESIDENTIAL"
COMMERCIAL/INDUSTRIAL
N
W
E
S
Map prepared by The Center For Governmental Studies, NIU
12/03/03

~ Conventional ~
Rural Residential Template

Housing

Development Lot Line

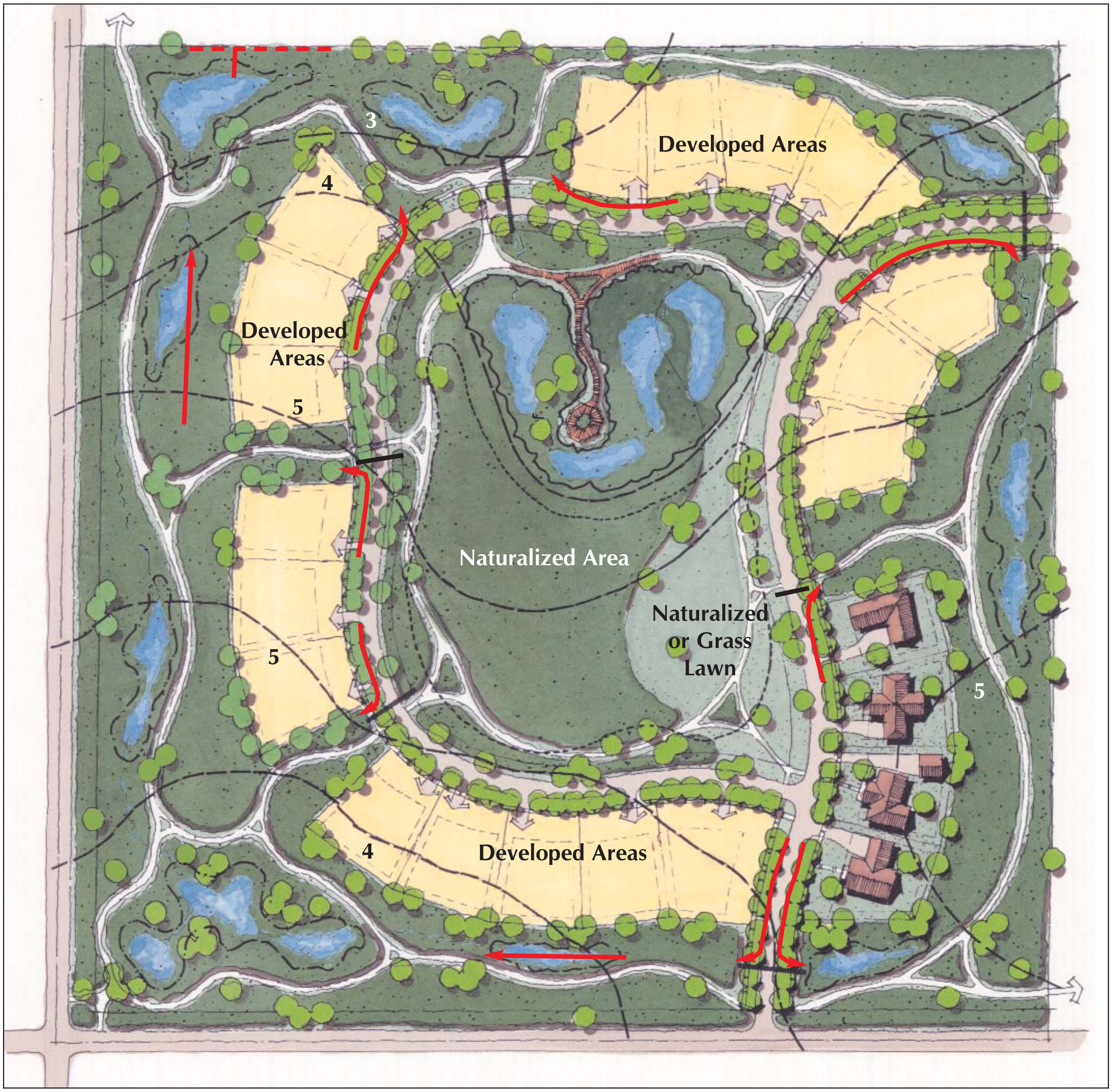
Contour Lines

Stormwater Infrastructure

Stormwater Flow Direction

Detention Pond Boundary

~ CONSERVATION ~
Rural Residential Template



Housing

Recreational Shelter

Development Lot Line

Contour Lines

Bioswales

Canopy Trees

Stormwater Infrastructure

Stormwater Flow Direction

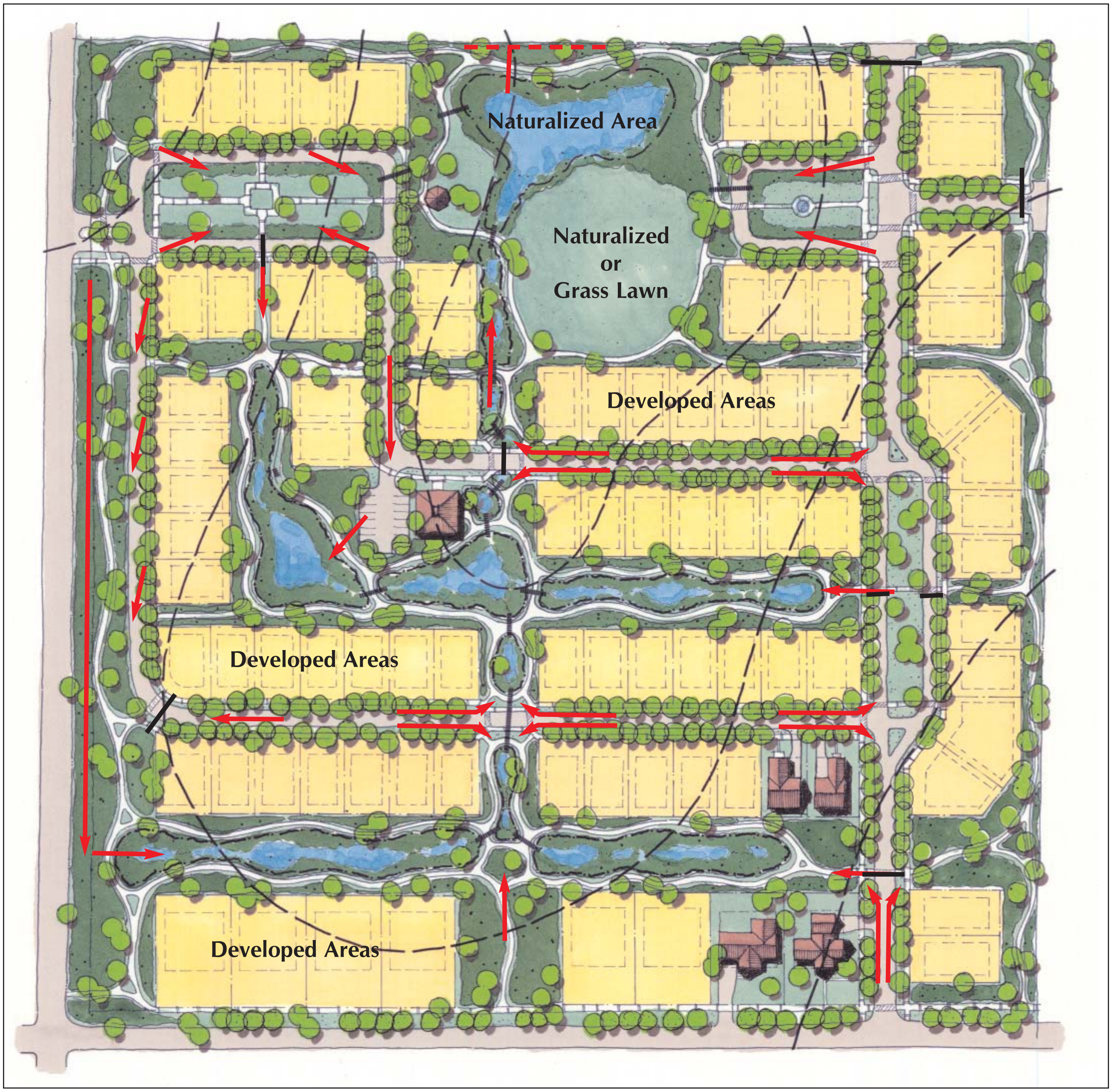
Stormwater Level Spreader

~ Conventional ~

Moderate Density Residential Template

~ CONSERVATION ~

Moderate Density Residential Template



Housing

Community/Commercial Center

Development Lot Line

Contour Lines

Bioswales

Canopy Trees

Stormwater Infrastructure

Stormwater Flow Direction

Stormwater Level Spreader

TABLES & FIGURES

TABLE SERIES 1
Conventional Development

Conventional Scenario
Study Area 10 Year Build-out

FILUM
Fiscal Impact / Land Use Model

Project Location: Kane County, Illinois
Project Name....: Blackberry Creek
Project Number..: 05-02

Study Area Acreage	3,440.4			
	0.0			
	Year #1		**Development Standards**	
			Minimum	**Floor Area**
Gross Land by Use Category:	**Land Area**	**Percent**	**Lot Area**	**Yields**
Countryside Estate Residential	0.0	0.0%	217,800	
Rural Estate Residential	159.5	52.3%	58,200	
Urban Estate Residential	0.0	0.0%	20,000	
Large Lot Residential	55.5	18.2%	12,500	
Standard Lot Residential	0.0	0.0%	7,500	
Attached Residential	0.0	0.0%	5,000	
Multi-Family Residential	0.0	0.0%	3,000	
Other Residential	0.0	0.0%	3,000	
Community Facility	0.0	0.0%		7,000
Commercial	0.0	0.0%		8,275
Industrial	90.1	29.5%		20,000
Residential Subtotal	214.9	70.5%		
Commercial Subtotal	0.0	0.0%		
Industrial Subtotal	90.1	29.5%		
Remaining Undeveloped Area	3,135.4	91.1%		
Annual Total Developed Gross Land Area	305.0	8.9%		

Land Development Factors:	**Natural Areas**	**Rights-of-Way**	**Storm Water Detention**	**Park Land**
Countryside Estate Residential	0.000	0.118	0.048	0.000
Rural Estate Residential	0.000	0.170	0.095	0.000
Urban Estate Residential	0.000	0.170	0.095	0.000
Large Lot Residential	0.000	0.272	0.090	0.000
Standard Lot Residential	0.000	0.272	0.090	0.000
Attached Residential	0.000	0.202	0.076	0.000
Multi-Family Residential	0.000	0.213	0.096	0.000
Other Residential	0.000	0.213	0.096	0.000
Community Facility	0.000	0.011	0.050	0.000
Commercial	0.000	0.011	0.050	0.000
Industrial	0.000	0.024	0.033	0.000

Net Land by Use Category:			Development Gross
Countryside Estate Residential	0.0		0.0
Rural Estate Residential	117.2		159.5
Urban Estate Residential	0.0		0.0
Large Lot Residential	35.4		55.5
Standard Lot Residential	0.0		0.0
Attached Residential	0.0		0.0
Multi-Family Residential	0.0		0.0
Other Residential	0.0		0.0
Community Facility	0.0		
Commercial	0.0		
Industrial	85.0		
Residential Subtotal	152.6		
Commercial Subtotal	0.0		
Industrial Subtotal	85.0	Total	214.9

Density Factors (per acre):	Net	Gross
Countryside Estate Residential	0.20	NA
Rural Estate Residential	0.75	0.55
Urban Estate Residential	2.18	NA
Large Lot Residential	3.48	2.22
Standard Lot Residential	5.81	NA
Attached Residential	8.71	NA
Multi-Family Residential	14.52	NA
Other Residential	14.52	NA
Community Facility	7,000	NA
Commercial	8,275	NA
Industrial	20,000	18,860

Project Area Yield:		
Countryside Estate Residential	0	Dwelling Units
Rural Estate Residential	88	Dwelling Units
Urban Estate Residential	0	Dwelling Units
Large Lot Residential	123	Dwelling Units
Standard Lot Residential	0	Dwelling Units
Attached Residential	0	Dwelling Units
Multi-Family Residential	0	Dwelling Units
Other Residential	0	Dwelling Units
Community Facility	0	Square Feet
Commercial	0	Square Feet
Industrial	1,699,663	Square Feet

RESIDENTIAL

TABLE 1

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Development Gross Acreage Added	215	215	215	215	215	215	215	215	215	215
Development Gross Acreage Total	215	430	645	860	1,075	1,290	1,504	1,719	1,934	2,149
Net Acreage Added	153	153	153	153	153	153	153	153	153	153
Net Acreage Total	153	305	458	610	763	916	1,068	1,221	1,373	1,526
Dwelling Unit Distribution:										
Owner Units - Detached SF										
Two (2) Bedroom	0	0	0	0	0	0	0	0	0	0
Three (3) Bedroom	25	25	25	25	25	25	25	25	25	25
Four (4) Bedroom	152	152	152	152	152	152	152	152	152	152
Five (5) Bedroom	35	35	35	35	35	35	35	35	35	35
Owner Units - Attached SF										
One (1) Bedroom	0	0	0	0	0	0	0	0	0	0
Two (2) Bedroom	0	0	0	0	0	0	0	0	0	0
Three (3) Bedroom	0	0	0	0	0	0	0	0	0	0
Four (4) Bedroom	0	0	0	0	0	0	0	0	0	0
Annual Owner DU's	212	212	212	212	212	212	212	212	212	212
Rental Units - Attached SF										
One (1) Bedroom	0	0	0	0	0	0	0	0	0	0
Two (2) Bedroom	0	0	0	0	0	0	0	0	0	0
Three (3) Bedroom	0	0	0	0	0	0	0	0	0	0
Four (4) Bedroom	0	0	0	0	0	0	0	0	0	0
Rental Units - Apartments										
Studio (0) Bedroom	0	0	0	0	0	0	0	0	0	0
One (1) Bedroom	0	0	0	0	0	0	0	0	0	0
Two (2) Bedroom	0	0	0	0	0	0	0	0	0	0
Three (3) Bedroom	0	0	0	0	0	0	0	0	0	0
Annual Rental DU's	0	0	0	0	0	0	0	0	0	0

RESIDENTIAL SUMMARY **TABLE 2**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Owner Units (O) Added	212	212	212	212	212	212	212	212	212	212
Rental Units (R) Added	0	0	0	0	0	0	0	0	0	0
Total Owner Units (O)	212	424	636	848	1,060	1,272	1,484	1,696	1,908	2,120
Total Rental Units (R)	0	0	0	0	0	0	0	0	0	0
Total All Units	212	424	636	848	1,060	1,272	1,484	1,696	1,908	2,120
Annual Market Value (O)	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000
Annual Market Value (R)	0	0	0	0	0	0	0	0	0	0
Total Market Value (O)	59,850,000	119,700,000	179,550,000	239,400,000	299,250,000	359,100,000	418,950,000	478,800,000	538,650,000	598,500,000
Total Market Value (R)	0	0	0	0	0	0	0	0	0	0
Assessed Value Owner Units	19,949,980	39,899,960	59,849,940	79,799,920	99,749,900	119,699,880	139,649,860	159,599,840	179,549,820	199,499,800
Assessed Value Rental Units	0	0	0	0	0	0	0	0	0	0
Base EAV All Dwelling Units	19,949,980	39,899,960	59,849,940	79,799,920	99,749,900	119,699,880	139,649,860	159,599,840	179,549,820	199,499,800
Homeowners Exemption	742,000	1,484,000	2,226,000	2,968,000	3,710,000	4,452,000	5,194,000	5,936,000	6,678,000	7,420,000
Total Residential EAV	19,207,980	38,415,960	57,623,940	76,831,920	96,039,900	115,247,880	134,455,860	153,663,840	172,871,820	192,079,800

POPULATION & ENROLLMENT ESTIMATES

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Annual Population Increase	777	777	777	777	777	777	777	777	777	777
Total Accrued Population	777	1,553	2,330	3,106	3,883	4,659	5,436	6,212	6,989	7,766
Annual Enrollment Increase	230	230	230	230	230	230	230	230	230	230
Total Accrued Enrollment	230	460	690	920	1,150	1,380	1,610	1,840	2,070	2,300

TABLE 3

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
COMMERCIAL										
Net Acreage Added	0	0	183	0	0	183	0	0	0	0
Total Net Acreage	0	0	183	183	183	366	366	366	366	366
Square Footage Added	0	0	1,515,194	0	0	1,515,194	0	0	0	0
Total Square Footage	0	0	1,515,194	1,515,194	1,515,194	3,030,388	3,030,388	3,030,388	3,030,388	3,030,388
Average Value per Net Acre	217,800	217,800	217,800	217,800	217,800	217,800	217,800	217,800	217,800	217,800
Average Value per Square Foot *1	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
Total Market Value	0	0	145,943,840	145,943,840	145,943,840	291,887,680	291,887,680	291,887,680	291,887,680	291,887,680
Estimated Assessed Value	0	0	48,647,898	48,647,898	48,647,898	97,295,796	97,295,796	97,295,796	97,295,796	97,295,796
Total Commercial EAV	0	0	48,647,898	48,647,898	48,647,898	97,295,796	97,295,796	97,295,796	97,295,796	97,295,796
Estimated Sales per Square Foot *2	214.93	214.93	214.93	214.93	214.93	214.93	214.93	214.93	214.93	214.93
BUSINESS PARK/INDUSTRIAL										
Net Acreage Added	85	85	85	85	85	85	85	85	85	85
Total Net Acreage	85	170	255	340	425	510	595	680	765	850
Square Footage Added	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663
Total Square Footage	1,699,663	3,399,326	5,098,990	6,798,653	8,498,316	10,197,979	11,897,642	13,597,306	15,296,969	16,996,632
Average Value per Net Acre	174,240	174,240	174,240	174,240	174,240	174,240	174,240	174,240	174,240	174,240
Average Value per Square Foot	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
Total Market Value	116,787,258	233,574,516	350,361,773	467,149,031	583,936,289	700,723,547	817,510,805	934,298,062	1,051,085,320	1,167,872,578
Estimated Assessed Value	38,929,047	77,858,094	116,787,141	155,716,188	194,645,235	233,574,282	272,503,329	311,432,376	350,361,423	389,290,470
Total Industrial EAV	38,929,047	77,858,094	116,787,141	155,716,188	194,645,235	233,574,282	272,503,329	311,432,376	350,361,423	389,290,470
UNDEVELOPED										
Total Gross Acres	3,135.36	2,830.32	2,330.28	2,025.24	1,720.20	1,220.16	915.12	610.08	305.04	0.00

REVENUE ESTIMATES

TABLE 4

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Real Estate Tax Revenue:										
Municipal EAV	58,137,027	116,274,054	223,058,979	281,196,006	339,333,033	446,117,959	504,254,986	562,392,013	620,529,040	678,666,067
School District EAV										
Total Municipal Tax *3	0	464,457	928,913	1,782,018	2,246,475	2,710,932	3,564,036	4,028,493	4,492,950	4,957,406
Total School Dist. Tax	0	0	0	0	0	0	0	0	0	0
Other Revenue (Municipal):										
State Income Tax	0	51,097	102,194	153,292	204,389	255,486	306,583	357,680	408,777	459,875
Tax Distributions (per capita)	0	29,043	58,086	87,129	116,172	145,215	174,258	203,302	232,345	261,388
Local Revenue (per capita)	0	0	0	0	0	0	0	0	0	0
Adjusted Sales Tax	0	0	2,605,285	2,605,285	2,605,285	5,210,570	5,210,570	5,210,570	5,210,570	5,210,570
Fees & Taxes/Residential (temp) *4	212,000	212,000	212,000	212,000	212,000	212,000	212,000	212,000	212,000	212,000
Fees & Taxes/Residential *5	21,200	42,400	63,600	84,800	106,000	127,200	148,400	169,600	190,800	212,000
Fees & Taxes/Comm. & Ind. (temp) *4	339,933	339,933	642,971	339,933	339,933	642,971	339,933	339,933	339,933	339,933
Fees & Taxes/Comm. & Ind.	16,997	33,993	87,611	104,608	121,604	175,222	192,218	209,215	226,212	243,208
Park Site Impact Fee *6	440,694	440,694	440,694	440,694	440,694	440,694	440,694	440,694	440,694	440,694
Fees per D.U. (misc.) *7	530,000	530,000	530,000	530,000	530,000	530,000	530,000	530,000	530,000	530,000
Household Retail Sales Tax	0	0	0	0	0	0	0	0	0	0
Total Other Revenue	1,560,823	1,679,160	4,742,442	4,557,740	4,676,077	7,739,358	7,554,656	7,672,993	7,791,330	7,909,667
Total Municipal Revenue	1,560,823	2,143,617	5,671,355	6,339,758	6,922,552	10,450,290	11,118,693	11,701,486	12,284,280	12,867,074

TABLE 5

COST ESTIMATES

Municipality:	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Per Capita Service Costs (R)	630	630	630	630	630	630	630	630	630	630
Per Acre Service Costs (R)	867	867	867	867	867	867	867	867	867	867
Per Acre Service Costs (C) *8	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300
Per Acre Service Costs (BP/I) *9	4,598	4,598	4,598	4,598	4,598	4,598	4,598	4,598	4,598	4,598
Annual Incremental Costs *10	1,066,317	1,066,317	3,135,403	1,066,317	1,066,317	3,135,403	1,066,317	1,066,317	1,066,317	1,066,317
Total Accrued Project Costs	1,066,317	2,132,633	5,268,036	6,334,353	7,400,669	10,536,073	11,602,389	12,668,706	13,735,022	14,801,339

FISCAL IMPACT

Municipality:	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue Surplus	494,506	10,984	403,319	5,405	NA	NA	NA	NA	NA	NA
Revenue Deficit	NA	NA	NA	NA	478,118	85,783	483,696	967,219	1,450,742	1,934,265
Revenue/Cost Balance per Year	494,506	10,984	403,319	5,405	-478,118	-85,783	-483,696	-967,219	-1,450,742	-1,934,265
Revenue/Cost Balance (10 yrs)	-4,485,610									

*1 Weighted average of construction type (BOCA) commercial (3A) with Illinois adjustment and updated by ENR Building Cost Index factor.
*2 Gross sales estimate from Dollars and Cents of Shopping Centers: 2002, Urban Land Institute.
*3 Property tax rate: mean figure for component communities.
*4 Plan review fees and building permit fees.
*5 Estimated utility tax.
*6 Park site requirements fulfilled through payment of cash.
*7 Estimated general development impact fees/exactions.
*8 Mean cost per acre: commercial development.
*9 Mean cost per acre: business park, industial development.
*10 Figures represent the additional annual costs associated with the additional population or acreage resulting from project build-out.

Fiscal Impact Balance
Conventional Development

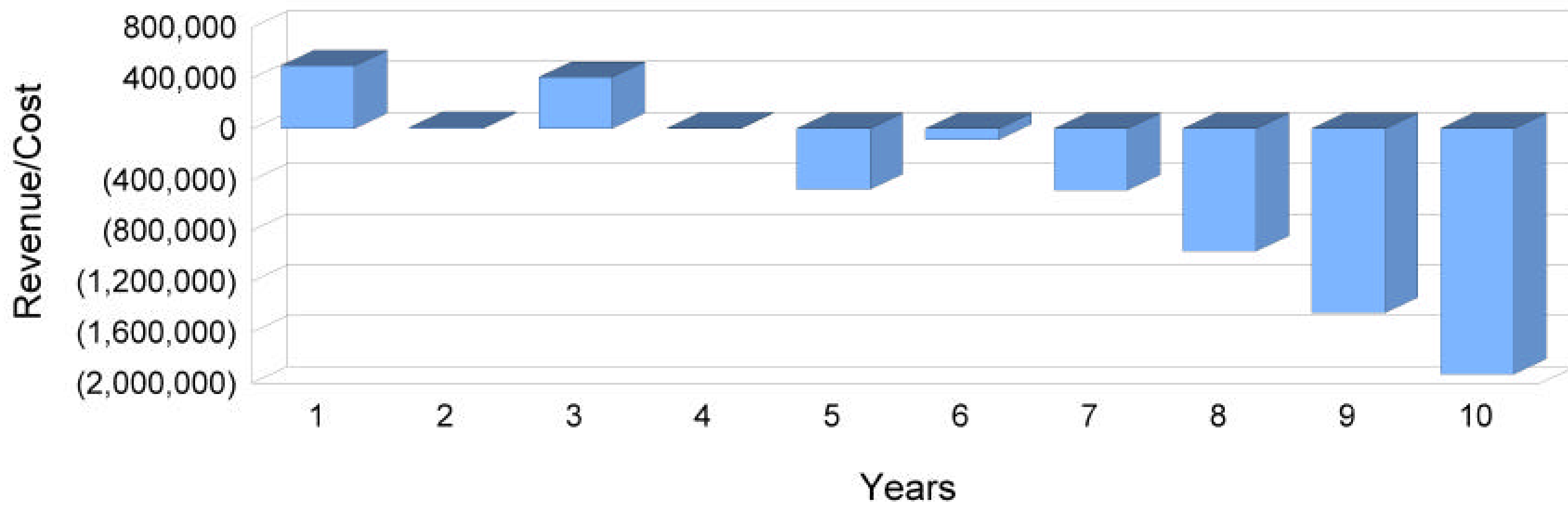


TABLE SERIES 2
Conservation Development

Conservation Scenario
Study Area 10 Year Build-out

FILUM
Fiscal Impact / Land Use Model

Project Location: Kane County, Illinois
Project Name....: Blackberry Creek
Project Number..: 05-02

Study Area Acreage	3,440.4			
	0.0			
	Year #1		**Development Standards**	
			Minimum	**Floor Area**
Gross Land by Use Category:	**Land Area**	**Percent**	**Lot Area**	**Yields**
Countryside Estate Residential	0.0	0.0%	217,800	
Rural Residential	159.5	52.3%	21,385	
Urban Estate Residential	0.0	0.0%	20,000	
Moderate Density Residential	55.5	18.2%	7,685	
Standard Lot Residential	0.0	0.0%	7,500	
Attached Residential	0.0	0.0%	5,000	
Multi-Family Residential	0.0	0.0%	3,000	
Other Residential	0.0	0.0%	3,000	
Community Facility	0.0	0.0%		7,000
Commercial	0.0	0.0%		8,275
Industrial	90.1	29.5%		20,000
Residential Subtotal	214.9	70.5%		
Commercial Subtotal	0.0	0.0%		
Industrial Subtotal	90.1	29.5%		
Remaining Undeveloped Area	3,135.4	91.1%		
Annual Total Developed Gross Land Area	305.0	8.9%		

Land Development Factors:	**Natural Areas**	**Rights-of-Way**	**Storm Water Detention**	**Park Land**
Countryside Estate Residential	0.000	0.118	0.048	0.000
Rural Residential	0.445	0.190	0.095	0.000
Urban Estate Residential	0.000	0.170	0.095	0.000
Moderate Density Residential	0.288	0.230	0.090	0.000
Standard Lot Residential	0.000	0.272	0.090	0.000
Attached Residential	0.000	0.202	0.076	0.000
Multi-Family Residential	0.000	0.213	0.096	0.000
Other Residential	0.000	0.213	0.096	0.000
Community Facility	0.000	0.011	0.050	0.000
Commercial	0.000	0.011	0.050	0.000
Industrial	0.000	0.024	0.033	0.000

Net Land by Use Category:			Development Gross
Countryside Estate Residential	0.0		0.0
Rural Residential	43.1		88.5
Urban Estate Residential	0.0		0.0
Moderate Density Residential	21.7		39.5
Standard Lot Residential	0.0		0.0
Attached Residential	0.0		0.0
Multi-Family Residential	0.0		0.0
Other Residential	0.0		0.0
Community Facility	0.0		
Commercial	0.0		
Industrial	85.0		
Residential Subtotal	64.8		
Commercial Subtotal	0.0		
Industrial Subtotal	85.0	Total	128.0

Density Factors (per acre):	Net	Gross
Countryside Estate Residential	0.20	NA
Rural Residential	2.04	0.55
Urban Estate Residential	2.18	NA
Moderate Density Residential	5.67	2.22
Standard Lot Residential	5.81	NA
Attached Residential	8.71	NA
Multi-Family Residential	14.52	NA
Other Residential	14.52	NA
Community Facility	7,000	NA
Commercial	8,275	NA
Industrial	20,000	18,860

Project Area Yield:		
Countryside Estate Residential	0	Dwelling Units
Rural Residential	88	Dwelling Units
Urban Estate Residential	0	Dwelling Units
Moderate Density Residential	123	Dwelling Units
Standard Lot Residential	0	Dwelling Units
Attached Residential	0	Dwelling Units
Multi-Family Residential	0	Dwelling Units
Other Residential	0	Dwelling Units
Community Facility	0	Square Feet
Commercial	0	Square Feet
Industrial	1,699,663	Square Feet

TABLE 1

RESIDENTIAL	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Development Gross Acreage Added	128	128	128	128	128	128	128	128	128	128
Development Gross Acreage Total	128	256	384	512	640	768	896	1,024	1,152	1,280
Net Acreage Added	65	65	65	65	65	65	65	65	65	65
Net Acreage Total	65	130	194	259	324	389	454	518	583	648
Dwelling Unit Distribution:										
Owner Units - Detached SF										
Two (2) Bedroom	0	0	0	0	0	0	0	0	0	0
Three (3) Bedroom	25	25	25	25	25	25	25	25	25	25
Four (4) Bedroom	152	152	152	152	152	152	152	152	152	152
Five (5) Bedroom	35	35	35	35	35	35	35	35	35	35
Owner Units - Attached SF										
One (1) Bedroom	0	0	0	0	0	0	0	0	0	0
Two (2) Bedroom	0	0	0	0	0	0	0	0	0	0
Three (3) Bedroom	0	0	0	0	0	0	0	0	0	0
Four (4) Bedroom	0	0	0	0	0	0	0	0	0	0
Annual Owner DU's	212	212	212	212	212	212	212	212	212	212
Rental Units - Attached SF										
One (1) Bedroom	0	0	0	0	0	0	0	0	0	0
Two (2) Bedroom	0	0	0	0	0	0	0	0	0	0
Three (3) Bedroom	0	0	0	0	0	0	0	0	0	0
Four (4) Bedroom	0	0	0	0	0	0	0	0	0	0
Rental Units - Apartments										
Studio (0) Bedroom	0	0	0	0	0	0	0	0	0	0
One (1) Bedroom	0	0	0	0	0	0	0	0	0	0
Two (2) Bedroom	0	0	0	0	0	0	0	0	0	0
Three (3) Bedroom	0	0	0	0	0	0	0	0	0	0
Annual Rental DU's	0	0	0	0	0	0	0	0	0	0

TABLE 2

RESIDENTIAL SUMMARY

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Owner Units (O) Added	212	212	212	212	212	212	212	212	212	212
Rental Units (R) Added	0	0	0	0	0	0	0	0	0	0
Total Owner Units (O)	212	424	636	848	1,060	1,272	1,484	1,696	1,908	2,120
Total Rental Units (R)	0	0	0	0	0	0	0	0	0	0
Total All Units	212	424	636	848	1,060	1,272	1,484	1,696	1,908	2,120
Annual Market Value (O)	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000	59,850,000
Annual Market Value (R)	0	0	0	0	0	0	0	0	0	0
Total Market Value (O)	59,850,000	119,700,000	179,550,000	239,400,000	299,250,000	359,100,000	418,950,000	478,800,000	538,650,000	598,500,000
Total Market Value (R)	0	0	0	0	0	0	0	0	0	0
Assessed Value Owner Units	19,949,980	39,899,960	59,849,940	79,799,920	99,749,900	119,699,880	139,649,860	159,599,840	179,549,820	199,499,800
Assessed Value Rental Units	0	0	0	0	0	0	0	0	0	0
Base EAV All Dwelling Units	19,949,980	39,899,960	59,849,940	79,799,920	99,749,900	119,699,880	139,649,860	159,599,840	179,549,820	199,499,800
Homeowners Exemption	742,000	1,484,000	2,226,000	2,968,000	3,710,000	4,452,000	5,194,000	5,936,000	6,678,000	7,420,000
Total Residential EAV	19,207,980	38,415,960	57,623,940	76,831,920	96,039,900	115,247,880	134,455,860	153,663,840	172,871,820	192,079,800

POPULATION & ENROLLMENT ESTIMATES

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Annual Population Increase	777	777	777	777	777	777	777	777	777	777
Total Accrued Population	777	1,553	2,330	3,106	3,883	4,659	5,436	6,212	6,989	7,766
Annual Enrollment Increase	230	230	230	230	230	230	230	230	230	230
Total Accrued Enrollment	230	460	690	920	1,150	1,380	1,610	1,840	2,070	2,300

TABLE 3

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
COMMERCIAL										
Net Acreage Added	0	0	183	0	0	183	0	0	0	0
Total Net Acreage	0	0	183	183	183	366	366	366	366	366
Square Footage Added	0	0	1,515,194	0	0	1,515,194	0	0	0	0
Total Square Footage	0	0	1,515,194	1,515,194	1,515,194	3,030,388	3,030,388	3,030,388	3,030,388	3,030,388
Average Value per Net Acre	217,800	217,800	217,800	217,800	217,800	217,800	217,800	217,800	217,800	217,800
Average Value per Square Foot *1	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
Total Market Value	0	0	145,943,840	145,943,840	145,943,840	291,887,680	291,887,680	291,887,680	291,887,680	291,887,680
Estimated Assessed Value	0	0	48,647,898	48,647,898	48,647,898	97,295,796	97,295,796	97,295,796	97,295,796	97,295,796
Total Commercial EAV	0	0	48,647,898	48,647,898	48,647,898	97,295,796	97,295,796	97,295,796	97,295,796	97,295,796
Estimated Sales per Square Foot *2	214.93	214.93	214.93	214.93	214.93	214.93	214.93	214.93	214.93	214.93
BUSINESS PARK/INDUSTRIAL										
Net Acreage Added	85	85	85	85	85	85	85	85	85	85
Total Net Acreage	85	170	255	340	425	510	595	680	765	850
Square Footage Added	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663	1,699,663
Total Square Footage	1,699,663	3,399,326	5,098,990	6,798,653	8,498,316	10,197,979	11,897,642	13,597,306	15,296,969	16,996,632
Average Value per Net Acre	174,240	174,240	174,240	174,240	174,240	174,240	174,240	174,240	174,240	174,240
Average Value per Square Foot	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
Total Market Value	116,787,258	233,574,516	350,361,773	467,149,031	583,936,289	700,723,547	817,510,805	934,298,062	1,051,085,320	1,167,872,578
Estimated Assessed Value	38,929,047	77,858,094	116,787,141	155,716,188	194,645,235	233,574,282	272,503,329	311,432,376	350,361,423	389,290,470
Total Industrial EAV	38,929,047	77,858,094	116,787,141	155,716,188	194,645,235	233,574,282	272,503,329	311,432,376	350,361,423	389,290,470
UNDEVELOPED										
Total Gross Acres	3,135.36	2,830.32	2,330.28	2,025.24	1,720.20	1,220.16	915.12	610.08	305.04	0.00

REVENUE ESTIMATES

TABLE 4

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Real Estate Tax Revenue:										
Municipal EAV	58,137,027	116,274,054	223,058,979	281,196,006	339,333,033	446,117,959	504,254,986	562,392,013	620,529,040	678,666,067
School District EAV										
Total Municipal Tax *3	0	464,457	928,913	1,782,018	2,246,475	2,710,932	3,564,036	4,028,493	4,492,950	4,957,406
Total School Dist. Tax	0	0	0	0	0	0	0	0	0	0
Other Revenue (Municipal):										
State Income Tax	0	51,097	102,194	153,292	204,389	255,486	306,583	357,680	408,777	459,875
Tax Distributions (per capita)	0	29,043	58,086	87,129	116,172	145,215	174,258	203,302	232,345	261,388
Local Revenue (per capita)	0	0	0	0	0	0	0	0	0	0
Adjusted Sales Tax	0	0	2,605,285	2,605,285	2,605,285	5,210,570	5,210,570	5,210,570	5,210,570	5,210,570
Fees & Taxes/Residential (temp) *4	212,000	212,000	212,000	212,000	212,000	212,000	212,000	212,000	212,000	212,000
Fees & Taxes/Residential *5	21,200	42,400	63,600	84,800	106,000	127,200	148,400	169,600	190,800	212,000
Fees & Taxes/Comm. & Ind. (temp) *4	339,933	339,933	642,971	339,933	339,933	642,971	339,933	339,933	339,933	339,933
Fees & Taxes/Comm. & Ind.	16,997	33,993	87,611	104,608	121,604	175,222	192,218	209,215	226,212	243,208
Park Site Impact Fee *6	440,694	440,694	440,694	440,694	440,694	440,694	440,694	440,694	440,694	440,694
Fees per D.U. (misc.) *7	530,000	530,000	530,000	530,000	530,000	530,000	530,000	530,000	530,000	530,000
Household Retail Sales Tax	0	0	0	0	0	0	0	0	0	0
Total Other Revenue	1,560,823	1,679,160	4,742,442	4,557,740	4,676,077	7,739,358	7,554,656	7,672,993	7,791,330	7,909,667
Total Municipal Revenue	1,560,823	2,143,617	5,671,355	6,339,758	6,922,552	10,450,290	11,118,693	11,701,486	12,284,280	12,867,074

TABLE 5

COST ESTIMATES

Municipality:	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Per Capita Service Costs (R)	630	630	630	630	630	630	630	630	630	630
Per Acre Service Costs (R)	867	867	867	867	867	867	867	867	867	867
Per Acre Service Costs (C) *8	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300
Per Acre Service Costs (BP/I) *9	4,598	4,598	4,598	4,598	4,598	4,598	4,598	4,598	4,598	4,598
Annual Incremental Costs *10	990,945	990,945	3,060,032	990,945	990,945	3,060,032	990,945	990,945	990,945	990,945
Total Accrued Project Costs	990,945	1,981,890	5,041,922	6,032,867	7,023,812	10,083,843	11,074,788	12,065,733	13,056,678	14,047,623

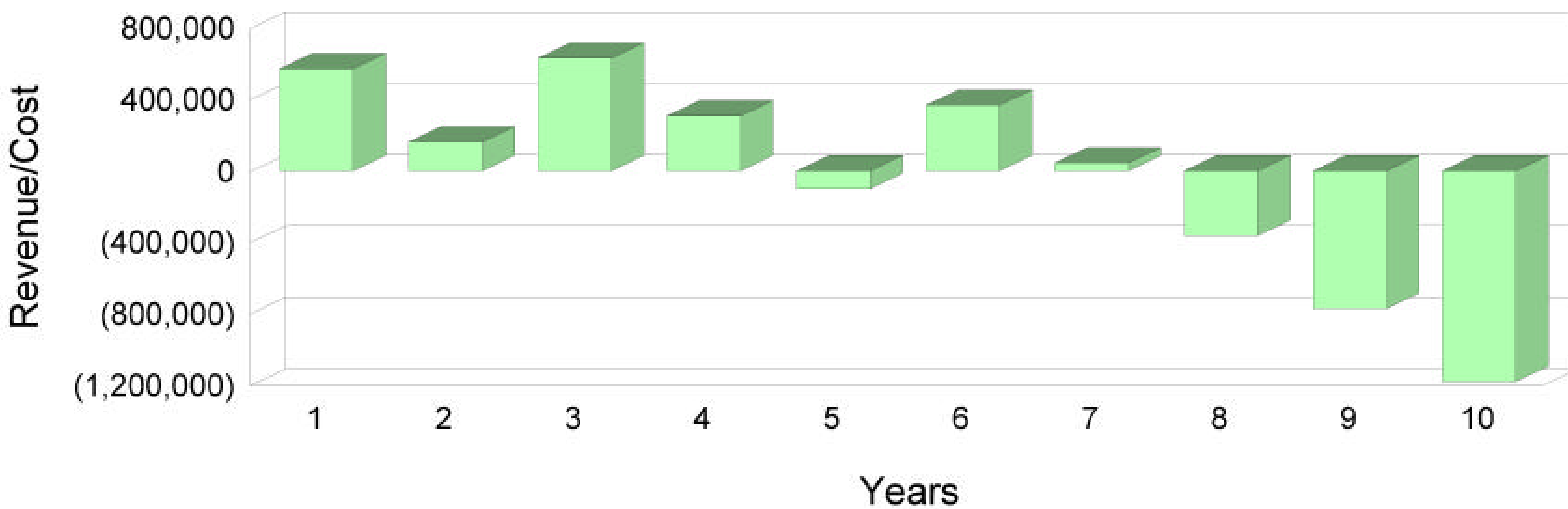
FISCAL IMPACT

Municipality:	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue Surplus	569,878	161,727	629,433	306,891	NA	366,447	43,905	NA	NA	NA
Revenue Deficit	NA	NA	NA	NA	101,260	NA	NA	364,247	772,398	1,180,550
Revenue/Cost Balance per Year	569,878	161,727	629,433	306,891	-101,260	366,447	43,905	-364,247	-772,398	-1,180,550
Revenue/Cost Balance (10 yrs)	-340,175									

*1 Weighted average of construction type (BOCA) commercial (3A) with Illinois adjustment and updated by ENR Building Cost Index factor.
*2 Gross sales estimate from Dollars and Cents of Shopping Centers: 2002, Urban Land Institute.
*3 Property tax rate: mean figure for component communities.
*4 Plan review fees and building permit fees.
*5 Estimated utility tax.
*6 Park site requirements fulfilled through payment of cash.
*7 Estimated general development impact fees/exactions.
*8 Mean cost per acre: commercial development.
*9 Mean cost per acre: business park, industrial development.
*10 Figures represent the additional annual costs associated with the additional population or acreage resulting from project build-out.

Fiscal Impact Balance

Conservation Development



TECHNICAL APPENDIX

Conventional Scenario
Study Area 30 Year Build-out

FILUM
Fiscal Impact / Land Use Model

Project Location: Kane County, Illinois
Project Name....: Blackberry Creek
Project Number..: 05-02

Study Area Acreage	17,954.7
Open Space	4,556.8

Gross Land by Use Category:	Year #1 Land Area	Percent	Development Standards Minimum Lot Area	Floor Area Yields
Countryside Estate Residential	145.0	0.0%	217,800	
Rural Estate Residential	4,784.1	22.2%	58,200	
Urban Estate Residential	602.6	0.0%	20,000	
Large Lot Residential	1,109.0	77.8%	12,500	
Standard Lot Residential	2,384.2	0.0%	7,500	
Attached Residential	850.9	0.0%	5,000	
Multi-Family Residential	0.0	0.0%	3,000	
Other Residential	0.0	0.0%	3,000	
Community Facility	939.9	0.0%		7,000
Commercial	779.9	0.0%		8,275
Industrial	1,802.3	0.0%		20,000
Residential Subtotal	9,875.8	100.0%		
Commercial Subtotal	779.9	0.0%		
Industrial Subtotal	1,802.3	0.0%		
Community Facility Land Area	939.9	91.0%		

Land Development Factors:	Natural Areas	Rights-of-Way	Storm Water Detention	Park Land
Countryside Estate Residential	0.000	0.118	0.048	0.000
Rural Estate Residential	0.000	0.170	0.095	0.000
Urban Estate Residential	0.000	0.170	0.095	0.000
Large Lot Residential	0.000	0.272	0.090	0.000
Standard Lot Residential	0.000	0.272	0.090	0.000
Attached Residential	0.000	0.202	0.076	0.000
Multi-Family Residential	0.000	0.213	0.096	0.000
Other Residential	0.000	0.213	0.096	0.000
Community Facility	0.000	0.011	0.050	0.000
Commercial	0.000	0.011	0.050	0.000
Industrial	0.000	0.024	0.033	0.000

Net Land by Use Category:

Countryside Estate Residential	120.9
Rural Estate Residential	3,516.3
Urban Estate Residential	442.9
Large Lot Residential	707.5
Standard Lot Residential	1,521.1
Attached Residential	614.3
Multi-Family Residential	0.0
Other Residential	0.0
Community Facility	882.6
Commercial	732.3
Industrial	1,699.6
Residential Subtotal	6,923.2
Commercial Subtotal	732.3
Industrial Subtotal	1,699.6

Density Factors (per acre):	Net	Gross
Countryside Estate Residential	0.20	0.17
Rural Estate Residential	0.75	0.55
Urban Estate Residential	2.18	1.60
Large Lot Residential	3.48	2.22
Standard Lot Residential	5.81	3.71
Attached Residential	8.71	6.29
Multi-Family Residential	14.52	NA
Other Residential	14.52	NA
Community Facility	7,000	6,573
Commercial	8,275	7,770
Industrial	20,000	18,860

Project Area Yield:

Countryside Estate Residential	24	Dwelling Units
Rural Estate Residential	2,632	Dwelling Units
Urban Estate Residential	965	Dwelling Units
Large Lot Residential	2,466	Dwelling Units
Standard Lot Residential	8,835	Dwelling Units
Attached Residential	5,352	Dwelling Units
Multi-Family Residential	0	Dwelling Units
Other Residential	0	Dwelling Units
Community Facility	6,177,963	Square Feet
Commercial	6,059,998	Square Feet
Industrial	33,991,378	Square Feet

The Process of Budget Analysis for Fiscal Impact Measurements

Governmental accounting is a means of creating some level of accountability in the operations of a community. On one hand is the recording of revenues, and on the other is the recording of expenditures. In a perfect world, the two sides should balance or have excess revenues. After a thorough analysis of the budget, this often is not the case. This section will describe the process used to determine what a community's working budget can reveal and what level of expenditures is actually hidden within.

In analyzing a governmental budget, funds are used to track the financial activity of the government's basic services such as police, administration, road repairs, and wastewater functions. Generally speaking, an analysis of seven basic classifications of funds takes place. These funds include the following:

1) the *general fund* is used to account for revenues available for the general operations of the government and accounts for resources not required to be in another fund
2) the *special revenue fund* tracks revenue sources restricted to a specific use and are earmarked for special purposes
3) the *debt service funds* are used to account for the accumulation of interest and principal on long-term debt and resources used to repay general long-term debt
4) the *capital projects funds* follow the resources used to build, acquire, and renovate major general capital assets
5) the *enterprise funds* may be used to account for any activity that charges a fee to users in order to recover all of its operations and capital costs
6) the *internal service funds* are used to report activities that provide goods or services to other funds of the government or used to account for transactions made within the government
7) the *fiduciary funds* report resources that are held for others and those that cannot be used to support general governmental programs, such as pension and investment funds.

The first step in the analysis process is to determine what category each of the government's funds most properly fits based upon the definitions presented above. In many budgets, this step is already completed, but in many smaller communities, the budget is less formal and may need to be deciphered and categorized. This can be done by looking at the budget and pulling out all the funds and grouping them into the seven basic categories of general, special revenue, debt service, capital projects, enterprise, internal service, and fiduciary. Under each of these fund categories, a list of sub-funds may be available indicating where and how money is being spent. Below is a shortened example of how a community's funds could be grouped based upon the definitions detailed above:

General Fund:
Administration, Police Department, Finance Department, Building and Zoning, Sanitation, and Streets and Alleys Fund.

Special Revenue Funds:
Motor Fuel Tax, Special Service Areas, Tax Increment Financing Districts, Parks, and Block Grant Fund.

Debt Service Funds:
Debt Service, Bond and Interest, and Bond Reserves Fund.

Capital Projects Fund:
Police Capital Equipment, Capital Improvement, Ward Projects, and Bridge Projects Fund.

Enterprise Funds:
Sewer Maintenance, Water Operation, Storm Drain, Transportation Center, and Refuse Fund.

Internal Service Funds:
Equipment Services, Property and Casualty Insurance, Health Insurance, and Employee Insurance Fund.

Fiduciary Funds:
Police Pension, Firefighter's Pension, and Perpetual Care Fund.

The second step is a bit more straightforward. Once all the funds are grouped into the proper category, one needs to locate the total expenditure for each fund available. Each of the categories and their sub-funds could be entered into a spreadsheet to help organize the analysis process. Along the side of each fund listed on the spreadsheet, the total expenditure should be entered indicating the total cost the government incurred from each fund that particular year. For example, the General Fund category could appear as followed:

Budget Item	**Total**
General Fund:	
Police Department	1,415,116
Finance Department	2,728,184
Streets & Alleys	731,098
Health & Sanitation	347,386
Building and Zoning	112,400
Subtotal	5,334,184

It is important to note that the expenditure reporting in this step also covers interfund transfers, as well as outlays. Transfers are shifts of resources from one part of a government budget to another without receiving something in return, such as from General Fund to a Debt Service Fund. Therefore, double counting of some funds can occur. To solve this problem, the analyst needs to search through the budget in its entirety, page-by-page, to locate any transfers taking place between funds. A transfer could be identified as a "transfer in" or a "transfer out" of the fund. A transfer-in indicates money is being transferred into the funds revenues, and a transfer-out indicates money is being removed from that fund and increasing its expenditures. By tracking all transfers, it is possible to balance out the total transfers-in and the total transfers-out of all the funds in the end. This ensures the amount is not being double counted in each fund where the transfers took place, and creates accountability for the movement of money from one fund to another.

Next, it is helpful to determine the actual working budget. This step tells the analyst how much of the budget is actually used for the operation and activities of the governmental unit. To provide a summary of the actual expenditures, the process should include an accumulation of total expenditures in the General, Special, Debt Service, Capital, and Pension Funds. Since Enterprise and Internal Service Funds are self-sustaining funds and generate revenue to support operations, they are removed from the working budget totals. Self-sustaining services are provided to the consumer or other governmental units for a fee sufficient to cover the current costs, as well as the future maintenance, replacement, and financing costs of operations. Therefore, the total expenditures for the General Fund and the Special Funds should be added only to the total expenditures for the Debt Service, Capital, and Pensions Funds (see chart below). Finally, the total interfund transfers must be subtracted from the total expenditures to ensure these are not being double counted in the final costs.

General Fund	5,334,184
Special Funds	1,107,486
Debt Service Fund	485,276
Capital Funds	155,240
Pension Funds	252,555
Interfund Transfers	-1,612,690
Working Budget	5,722,051

The resulting number will tell the analyst what portion of the budget is strictly allocated to the expenses of governmental operations and activities. This final number is helpful in the determination of what future development and services may cost a government.

Land vs. Population Costs

Another step can be carried out to analyze how much of the budget can be applied to the development of land. In many instances, a study may be done to determine what level of cost will occur from the development of additional land. The development of land will in-effect impose additional costs on a government due to the expansion of services and materials required for the community to grow. By determining what portion of the budget is focused on land-based costs, one can come to a reasonable conclusion of what services will cost in the future for a proposed development or annexation. This step can be tedious and very involved, but the information gathered is very informative.

Throughout the budget, line items within each fund can be categorized as being a land-based cost or a population-based cost. A land-based cost is simply any expenditure applied to services or materials that are required or increased primarily due to the expansion of land area. In short, these costs are influenced by how much land they must cover. For example, the municipal fleet must cover a certain area within a community. The larger the community's land area, the greater the wear and tear on the vehicles. Additionally, sewer lines in a larger community must go a greater distance to reach the consumer. Therefore, in a community with a smaller land area the cost to run the lines is less.

A population-based cost requires the same process of thinking. These costs are incurred as a result of residents. The larger the number of people in a community, the greater some governmental costs will be to adequately provide service to them regardless of geography. For example, some line item costs associated with police services are based upon the number of residents in a community. As the population increases, it is reasonable to assume that police calls will increase as a result. Similarly, the cost associated with reading water meters could be applied to population-based costs, because an increase in housing units will increase the time and cost needed to read and service each meter.

As a result, a community with greater land consumption may have greater expenditure totals than a community with less land, but more people. Once a ratio is determined for the land-based costs and the population-based costs, it is easy to distinguish how much of the working budget is being applied toward each cost. This can help predict the approximate costs of future land development or service expansion and determine the feasibility of land growth.