Version 2.0
February 2002

Program Manual
Welcome to G.R.E.A.T.

**Graphing Revenues, Expenditures And Taxes**, or G.R.E.A.T., offers an easy way to retrieve local financial data and to make a range of calculations based on the data. The database distributed with the software program includes more than a decade of revenues, expenditures, property valuations and property taxes for each county and municipality in Wisconsin. G.R.E.A.T. will perform calculations on this data and store the results, in both table and chart form, in an Excel spreadsheet. Because of the time lags associated with the revenue and expenditure data, the most recent data can be keyed in manually into a spreadsheet and integrated into the software for different calculations.

This program was developed with financial assistance from the University of Wisconsin-Extension, Division of Cooperative Extension, and the University of Wisconsin-Madison, Agricultural Experiment Station. The Department of Revenue provided assistance in gathering and defining the data.

**System Requirements**

A Windows 95/98/ME/NT/2000/XP computer
Microsoft Excel '97 or higher
About 40 MB of hard disk space (plus additional space to maintain performance)
A printer, if you wish to print charts
RAM: Minimal = 32 MB; at least 64-128 MB recommended
Processor: Pentium III or faster recommended (will run on a 486, albeit slowly)

The speed of your computer (processor and amount of RAM) can have a dramatic effect on performance. On a Pentium 75 with 32 MB RAM, it can take 30-60 seconds per calculation, while on a Pentium III-450 with 128 MB RAM it takes 2-3 seconds per calculation.

**Table of Contents**

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section I</td>
<td>Introductions, Overview and Program Design</td>
<td>2</td>
</tr>
<tr>
<td>Section II</td>
<td>Program Installation</td>
<td>19</td>
</tr>
<tr>
<td>Section III</td>
<td>Creating Charts</td>
<td>20</td>
</tr>
<tr>
<td>Section IV</td>
<td>Calculations</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Groups vs. Regions</td>
<td>38</td>
</tr>
<tr>
<td>Section V</td>
<td>Groups</td>
<td>39</td>
</tr>
<tr>
<td>Section VI</td>
<td>Regions</td>
<td>43</td>
</tr>
<tr>
<td>Section VII</td>
<td>Working Outside of G.R.E.A.T.</td>
<td>47</td>
</tr>
<tr>
<td>Section VIII</td>
<td>Uploading New Data</td>
<td>48</td>
</tr>
<tr>
<td>Section IX</td>
<td>Updating and Restoring Data</td>
<td>50</td>
</tr>
<tr>
<td>Section X</td>
<td>Troubleshooting</td>
<td>52</td>
</tr>
<tr>
<td>Appendix A</td>
<td>Chart Types</td>
<td>53</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Menu Structure</td>
<td>57</td>
</tr>
<tr>
<td>Appendix C</td>
<td>GDP Deflators</td>
<td>58</td>
</tr>
<tr>
<td>Appendix D</td>
<td>Data Information</td>
<td>59</td>
</tr>
<tr>
<td>Appendix E</td>
<td>Aggregates</td>
<td>67</td>
</tr>
<tr>
<td>Appendix F</td>
<td>Calculation List</td>
<td>68</td>
</tr>
</tbody>
</table>
I. Introduction and Program Overview

Introduction

In order for local officials and citizens of a community to craft effective fiscal policy, it is very helpful if they obtain a basic understanding of the strengths and weaknesses of historical and current trends in local government revenues and expenditures. In order to assist local officials and citizens achieve this understanding of their local fiscal condition, the University of Wisconsin-Extension in partnership with the University of Wisconsin-Madison have compiled a detailed database and software interface that allows for hands-on analysis. The program is called Graphing Revenues, Expenditures And Taxes, or G.R.E.A.T.

Purpose

The purpose of G.R.E.A.T. is to inform local officials and communities of their fiscal trends and composition. The data used in the software program has been available for some time, but not easily accessible without a great deal of effort in gathering and manipulating the data. The university did not feel it was in the best interest of county agents and local governments to spend their time gathering and manipulating data to arrive at various calculations. This would represent massive repetitive efforts that could be accomplished rather easily, and has been, through this program.

While the purpose of the program is to provide financial information to local governments, we have several objectives in doing so. First, it is hoped that by reviewing the materials generated by the software, local officials and citizens will engage in better-informed and more open discussions about their finances, levels of service, how they evaluate the performance of those services, and how they allocate their resources. Second, Extension specialists and county agents are currently developing several educational programs around certain components of the program, such as the property tax, to better inform the public of the workings of local public finance. A better-informed public can be expected to more reasonably and helpfully participate in budget and financing decisions. Third, local officials may institute better financial practices and policies as a means of maximizing their tax dollars for services, overseeing their operations, and establishing better systems for making decisions and mid-course adjustments. Finally, review of one's expenditures and revenues may encourage greater communication among local governments in evaluating different alternatives to cooperatively deliver services.

Role of County Agent

At the current time, UW-Extension is only making the G.R.E.A.T. software available to county agents and some state agencies. This may change within the next year or two. A marketing plan for other interested parties is being developed; alternatively, access on the Internet is being evaluated. Hence, county agents are the only available conduit for local governments of this information now.

To work effectively with communities using the G.R.E.A.T. software, it is important to draw a team together from existing local officials and develop an educational plan. Foremost among your team members should be the officials or professional staff responsible for the community's financial administration. These people will include the clerk, auditor, department heads and administrator. All of them will know, or are in a better position to find out, the community's history and be an available resource to narrate what other officials, department heads, and citizens are seeing portrayed in the graphs and charts. Board members and the chairperson that oversee the operations and budget of the community should be actively involved as well. These individuals can best answer questions about policies, decisions, plans, programs, and level of service. And, of course, UW-Extension specialists can be considered a resource available to you and your team.

If you attempt to develop an educational program on your own, you will likely create an embarrassing situation for yourself and the officials you are trying to educate. Imagine going through graph after graph that show wild swings in expenditures and then trying to provide some sort of explanation for these sky rocketing
phenomena! Anything you will come up with will be speculative at best. What is worse, local officials will look as though they do not know what they are doing. No one will thank you for it, and, everyone who should have been on the team will be frustrated at best.

Once the team is established, review the available information in the software program, the accompanying materials, and any existing educational programs developed around components of the software with the group. The team can then best select the information that meets their needs. In selecting information, the team begins to define their overall purposes and objectives. These should be clearly drawn out and stated. Discuss how and when the information will be presented, who will be invited to attend, and the purposes and objectives of each presentation. Given the volume of information, it may be decided to tailor a number of programs around each database, certain activities of the local government, specific topics of financial administration, or around developed educational programs. All of these steps are important since the information provided, its use, and the intended audience are apt to vary depending upon the defined purpose of the presentation. To get some ideas, review the sample summary of a local government financial program and preparedness index in the materials that accompany the manual.

Agents, like citizens, often do not get involved in local public finance because it appears complex and there is no clearly defined role. Lacking an understanding of local finance, everyone is confused about who does what, how things work, etc. The role of county agents is to first understand local public finance themselves, convey the resources available to local officials and the public, facilitate the development of a local education program, and help deliver it with your team members. Unlike citizens, however, county agents are not advocates for programs, positions or better financial management. Agendas for change are developed locally and agents help deliver quality educational programs with their team members.

Your role on any local finance team is largely defined by what you bring to it:

- Good information.
- Quality education programs around select topics.
- An understanding that people learn in different ways and appropriate delivery methods.
- An appreciation for audience access and diversity that allows you to suggest different strategies to target audiences and meet their educational needs.
- Facilitator of local change through quality education programs.

By providing information on local finance and administration, you are not assuming the role of a financial expert or consultant. If the local government does not have professional staff who have these responsibilities, then they need to obtain those services, if even on a contract or project basis. For example, an educational program on local investment policy provides an overview of the purposes and components for such, but does not indicate the specific policy and procedures that may best serve any given local government. That is a choice for local officials after interviewing financial consultants.

Your role in public finance education is essentially the same as other areas of your community involvement. It only seems different and overwhelming because this may be new to you. Alternatively, it may seem a boring topic fraught with ideological controversies among different citizen groups – a sticky wicket you don’t want to pick up. But the changes that can result from these programs can greatly improve local financial decisions, operations and plans as well as improve intergovernmental communication. Depending upon the community, you may only be called upon to provide information and some educational programs. In others, you may be the primary facilitator for the team as well as provide educational programming. However expansive or contracted your role, remember you provide information not prescriptions.
The Database

The G.R.E.A.T. program includes four kinds of data available to you: local revenues, expenditures, property taxes, and equalized property values. Read the information under each type carefully to understand its source, limitations, and use with the other types of data.

Revenues and Expenditures

The Wisconsin Department of Revenue (DOR) annually compiles local revenue and expenditure data from statutorily mandated financial reports. The summary data is published in an annual report titled “County and Municipal Revenues and Expenditures.” Until recently, you received a copy of this report from our office, but must now order a free copy directly from DOR.

Operating and Capital Budgets

The database includes 23 revenue categories and 26 expenditure categories listed for each county and municipality. (Note: the listing of proprietary revenues and expenditures is listed in the expenditures database.) These are very summary figures that include the operating and capital portions of the general fund. The operating budget items include the revenues and expenditures necessary to provide a service on a day-to-day basis. These include wages, benefits, supplies, insurance, rent, and so on which are financed by taxes, fees, licenses, aids, interest income and intergovernmental contract payments. The capital budget includes revenues and expenditures for items that have a useful life of greater than one to five years, such as vehicles, buildings, some office equipment, land, and other machinery and equipment. These are financed from revenues from a variety of sources, such as debt principal, reserves, special assessments, grants perhaps, revenue and general obligation bonds, and so forth.

Summary Accounting Categories

In addition, each figure represents a governmental accounting category and therefore combines many revenues or expenditures into one figure. For example, solid waste collection and disposal includes general fund operating and capital expenditures for garbage collection, landfills and other disposal costs, and recycling. The summary nature of the data, therefore, speaks to only general trends around governmental activities and revenues. This also highlights the very important role of local officials in filling out the narration that will accompany a presentation of the graphs and charts. To find out what is included in the chart you have chosen, click on the underlined terms used in the calculation, which is shown in the box to the right of the graph and chart listing. A definition of the accounting category will appear on the screen. Alternatively, find the definitions in Appendix D.

That's a good deal of information to take in at once, but it really just indicates the need to look at what you are talking about and to be cautious in assigning causality. This may sound like financial gibberish; however, a basic review of these parameters will give you a comfortable understanding of what you are looking at and some questions to ask. So take heart and let's move on to the next piece: what is in the general fund for these databases and what is not?

Funds

The general fund is a summary of all operating and capital revenues and expenditures for activities financed by the taxes and the aids received by the local government. In this data, special revenue funds and debt service funds are included. Special revenue funds are designated monies that will be used for a specific purpose, such as a grant for land use planning or land information systems. Debt service funds are monies set aside for the repayment of debt and may include debt principal, interest income on the principal, grants, gifts, or an annual appropriation from the budget. For the revenues and expenditure figures listed in the database, all three funds are added together.

There are two items listed in the database for all other funds not listed in the general fund, which are called proprietary revenues and expenditures. In this database, these figures combine revenues and expenditures for operating and capital budgets from proprietary, internal and trust funds. Proprietary funds are for
governmental activities that are run like businesses; the idea being to generate enough revenue to meet their expenses without tax support from the local government. However, these funds may include tax support from the local government. Examples include cemeteries, utilities, solid waste disposal, airports, parking, mass transit, hospitals, mental health services, golf courses, and civic centers. Revenues can be from charges, federal aid, grants, donations, interest, bond proceeds, and other sources. Expenditures are for the day-to-day operations of the activity, capital purchases, and reinvestment back into the enterprise through expansion, retraining, and so on. Internal service funds are charges by certain parts of a local government for services rendered to other parts. Examples include information technology, purchasing, printing, insurance, and facilities management. Some counties, for example, include a number of their transportation revenues and expenditures under an internal service fund. That is why many counties will show a low level of expenditures for transportation. Trust funds are used to maintain assets that the local government holds in trust for others. The most common example is pension trust funds.

Use of Funds
Local government funds show the way a local government organizes its activities and how it finances them. It is an important distinguishing characteristic. Let's look at an example. Suppose you are looking at a village's utility revenues and expenditures. First, you see what could possibly be included in the accounting category for the village and the comparison groups you are using to gauge the village's expenditure trends. The village may only include sewerage, whereas other similarly sized villages may provide water as well. Aha! You say to yourself. Differences in expenditure levels as well as growth rates may be the result of the types of services offered. The village may not be so much efficient as offering a portion of the service others are providing. In addition, you may find that the village pays for the utility by a fee it charges on the tax bill. Any cost over that amount is paid by monies raised through taxes. Other villages of the same size do not operate this way. They may show no utility service at all, because they have set up their utilities like a business, which directly charges the consumers the cost of the service. This would show up in their proprietary fund revenues and expenditures (which is listed in the expenditures database).

This example may not look simple or even informative. Yet, it is! When the village shows a high level of utility expenditure compared to other villages of the same size, it prompts further research. Questions of other villages may reveal that a greater level of service is offered and that it is financed solely through monthly charges to customers. Talk may ensue about reorganizing the utility such that it runs like a business, or increasing the fee on the tax bill to reflect the true cost. It is the beginning of evaluation, information gathering, talking to other villages, examining options, holding open discussion with the public, and then, making more informed budget and finance decisions.

Property Taxes
The property tax data is taken from a report annually compiled by the Wisconsin Department of Revenue (DOR) from local tax reports and state valuation reports titled “Town, Village and City Taxes.” For each year of the report, the property taxes shown are those taxes levied in that year. For example, the 1999 report shows the taxes levied in 1999 that will be collected in 2000. In addition, taxes that are levied in 1999 will not all be collected in 2000. Collections in any given year will be less than the total amount levied, especially in times of economic downturns. Hence, there is not a perfect equivalency between levies and collections from one year to the next.

You will see this lack of equivalency if you compare the property taxes shown in the revenues data with the property tax amount shown in the property tax data. The property tax figure reported in the revenue data is the amount collected for a given year, such as 1998, and will reflect the taxes levied in 1997.

The property tax data shows the taxes levied by each local taxing jurisdiction (county, municipal, school, technical college, and other districts), the gross mill rates, and the equalized value per capita used by the DOR in state aid allocations. In addition, school taxes and mill rates are configured in both their gross and net (minus the state tax credit) forms.

Please note that while there is a county tax, the total county figures for this database are composite figures of
municipal levies. At the county level, the only useful data items in the property tax database are the per capita valuation used in shared revenue calculations and the total county tax.

One important use of this data is to determine the composition of the local property tax. In other words, it answers the questions of how much goes to schools? To the county? To the local government? Pie charts for different years, or stacked bar charts, can show changes in composition that prompt further investigation. For example, you may find school district taxes going from 48% of a village's property tax bill in 1990 to 35% after the state assumed two-thirds funding of school costs in 1996.

Mill rates should be approached with caution. The gross mill rates here do not reflect the reduction from the state property tax credit from the school district levy; the net mill rate does reflect that adjustment. While much public and media attention is on mill rates, they only tell part of the story. Rates are a function of both the tax levy and the total amount of property value. If property values climb fast and levies increase slightly or not at all, mill rates can decrease. (See the paper on property tax rates that accompany this manual) At first glance, this looks like wonderful fiscal management. And it may be. However, it also reflects what is happening to property values. In addition, the database does not include assessed values, but only shows the equalized or full market value as determined by DOR. Assessed values may lag painfully below that, be higher, or just adjusted to market values in a revaluation. All of those situations will affect the mill rate and should be understood. The database shows the percent level of assessment, or how close assessed values come to equalized values. A 90% level indicates that assessed values across all categories of property are about 90% of the equalized value. The papers on equalized and assessed values will be helpful to you in distinguishing their uses and the appropriate context within which to discuss them.

Equalized Property Values

The Department of Revenue annually compiles the database on equalized property values and a notification of value by classification is sent to each municipality on August 15. These property values are equalized values, which is an estimation of its full market value. The equalized values are shown for the following categories of property: residential, commercial, manufacturing, agricultural, wetlands, forest, personal property and other property. For some of these categories, both the land value and the improvement values are listed separately in the database.

Again, the information for counties is not especially useful beyond a measure for the county tax rate, or as a general measure of growth within the county.

While there are many uses for this database, two primary ones immediately suggest themselves. First, the charts can indicate the composition of the property base and how this may have changed over time. Manufacturing property may have decreased as a proportion of a community's property base with a subsequent increase in commercial property. This may be consistent with the growth changes within the community over the period shown, but remember that property values increase as a function of both increased construction and increased market values. A community may not have seen much growth over a given period, but property values for certain types of property may have escalated in response to the market. Many areas of the state, for example, have seen annual increases of 25% or more for woodlands and wetlands in response to the recreational market. Few woodlands and wetlands have been created in those areas, but the increased value of the property is a direct result of market demand and parcels changing hands. Woodlands, therefore, may make up a greater portion of the property value base than in previous years.

Increased property value does not automatically translate into increased property tax base. In the case of woodlands, for example, many new owners have enrolled their lands into the Woodland Tax program, which effectively reduces the property tax base for local governments. This reduction in tax base is mitigated by several in lieu of tax payments and changes in state aid allocations. By way of another example, manufacturing property can increase, but there are a number of machinery and equipment exemptions so that the actual taxable property is less than its reflected value. You should review the property tax papers
that accompany this manual on exemptions, what constitutes the base, and programs that provide payments in lieu of taxes.

When you witness an increased proportion of property values in certain categories, this can be the result of substantial decreases in other categories of property. For example, the assessment of agricultural land at its use value decreased the value of that category of property in many municipalities. This had the effect of increasing the proportion that other categories of property made of the total property value. The “other” category includes agricultural improvements, including the farm residence and buildings and the land they are located on. This category was created expressly for this purpose. Hence, you will not find values in this category prior to 1995. Unfortunately, the database does not include the value of agricultural improvements prior to 1995. In addition, for cities and villages, land was not placed in the wetland or forest classification until 1996 with the advent of agricultural use value assessment. In the charts and graphs, you may see the “all cities” and “all villages” average indicate values prior to 1996. This reflects the values of towns that have incorporated into cities or villages.

A second important use, which is related to the first, is to examine the indexed trends of property valuation for different categories of property. These graphs indicate actual increases in valuation as opposed to just making up a larger or smaller share of the pie, which as we have seen, can result from several causes. For a more specific look at what is happening to the values in any given municipality, check out the DOR website under their equalized value reports. There are reports for each municipality by category of property, its percent change from one year to another, and how much of that change is a result of new construction or demolition and how much is attributable to changes in market value.

Types of Charts

There are three basic types of charts and graphs available in the G.R.E.A.T. software program that provide different information of a local government’s finances. The three types, discussed more fully below, are: indexed graphs, per capita charts, and proportionate comparisons. Learn the purpose of each, its limitations, and have fun. You can also create charts of the actual data. For more information on this, read the section on creating calculations and charts.

Indexed Graphs

The indexed graphs show comparative historical growth trends for revenues, expenditures, property taxes and values. Growth indices are computed relative to some base year (this can be selected) and allow for comparisons between the unit of government under consideration, the statewide average for all such units, and a similarly-sized population average for all such units (i.e., county, city, town, village).

All values in the indices are controlled for inflation. If this feature is unselected (this feature is automatically selected unless manually unchecked), the values shown in the charts and graphs will reflect actual dollars. You can select the year you wish to use in controlling for inflation. For example, you may choose the current year, which would translate the value for all prior year data into current dollars. You may choose 1987, which will translate the value of all the data into 1987 dollars. You would still see the same growth rate and proportionate comparisons. Per capita figures would differ but only by a constant factor.

The values shown in the graph, however you want to measure them in time, are then calculated to show the growth, decline, or stability of the selected item over time. The graphs show percentage changes from the base year, not total amounts. The base year is 100, whatever level of expenditure, revenue, tax or value that was, and all succeeding years show the increase or decrease from that base level. For example, a village shows 100 in 1987 for general government expenditures and 187% in 1999. Over this 12-year period, general government expenditures increased 87%. Put the cursor on the line point to see the specific percentage amount.

Example
In the indexed graph below, Adams County’s expenditures for parks and recreation show an increase of 1204% between 1987 and 1999. (When you place the cursor on the 1999 point for Adams County, the value shown is 1304.) The monetary values are adjusted to 2001 dollars, or current dollars. Park and recreation expenditures are defined to include:

“Operating expenditures and capital outlays for parks and zoo; recreation programs such as summer baseball and swimming lessons; events such as annual summer picnics, holiday decorations and parades; and recreation facilities such as ice arenas, swimming pools, and baseball diamonds.”

Limitations
There are some limitations in using an index that you should keep in mind during your review.

- First, the changes recorded are very sensitive to initial levels of expenditures, revenues, taxes or values. If Adams County, for example, has a limited parks program in 1987 and then expands the program to include a swimming pool in 1999, the expenditure growth will likely appear to be dramatic.

- Second, the changes recorded do not indicate levels of expenditures, revenues, taxes or values. For example, Adams County’s park and recreation expenditures still may be minimal after what looks like a dramatic increase.

- Third, growth rates do not indicate the relative proportion of an item to the whole. For example, highway maintenance and construction may make up 50% of Adams County’s total expenditures, but its growth rate as reflected on the indexed charts is “flat-lined.” By contrast, park expenditures may make up only 5% of total county expenditures, but be all over the place because a little change in a small amount shows a big percentage difference.

- Fourth, higher or lower than average trends may indicate unique features of a local government. For example, a town may have higher than average growth in highway expenditures due to undertaking a plan to upgrade their roads. Another example is a town showing no or little change in the way of property tax growth because of state aid payments for an electric generating facility. Still another example is a town with declines in their equalized value because of state or federal purchases of forests.

- Fifth, the local government being examined will show swings, some wild, in their trends relative to the comparison groups. That is because the comparison groups are averages! Individually, everyone
looks wild from time to time. Remember that the data includes capital purchases, so Adams County may well have made a significant capital outlay in 1999 for a swimming pool, ice arena, another park and so forth.

**Per Capita Charts**

The per capita charts in the G.R.E.A.T. software are trend graphs and summary bar charts that show the level of expenditure, revenue, taxes, and value in dollar amounts on a per person basis for a given community, communities of the same size and type, and a statewide average for the same type of community. All values are adjusted for inflation (the year can be selected), or the actual dollar value changes unadjusted for inflation can be shown.

**Population**

Since the per capita calculations use population, that variable will be considered important to examine more fully. The population figure that is used here is estimated by the Department of Administration as a county’s or municipality’s resident population, based on the latest census data, for the years being examined. It is the figure used by the state to allocate state aids. Municipalities and counties with large transient populations due to tourism, recreation and higher education will be especially interested in the figures used to do the per capita calculations.

You may wish to examine these population figures and trends in conjunction with the per capita charts. There are two population charts available to you in the “Custom” database. First, you may wish to select the population index to see whether the population has grown or declined and by what percent. The actual chart will show you the number of people used in the calculation. For the comparison groups, the actual figures shown are averages.

**Example**

The first chart below shows the population trend for the City of Bayfield as compared to cities below 2,500 and all cities. Bayfield, which thrives on an active tourist trade, shows a declining resident population between 1990 and 1999. By placing the cursor on the points for each trend line, the following values are shown: the population in all cities increased by 7% between 1990 and 1999, the population in cities below 2,500 decreased during this period and then regained its 1990 population level in 1999, and the population in Bayfield decreased by 13% between 1990 and 1999.

The second chart below shows the actual level of population figures used in the calculation. By placing the cursor on the 1990 and 1999 points for each trend line, the following values are shown: the average for all
cities was 14,790 in 1990 and 15,834 in 1999, for cities under 2,500 the average population went from 1,605 to 1,600, and for Bayfield the resident population went from 799 to 696 people during this period.

![Per Capita Charts](chart.jpg)

**Per Capita Charts**

The value of this analysis is primarily two-fold. First, it indicates to some extent the effect population has on the level of expenditures, revenues, taxes, and values. In this way, it also shows how a local government is allocating its resources among services and how different sizes of population require more of certain government services. Second, the analysis prompts further questions, such as:

- What is included in this category of data for us that may not be typical of other similar governments?
- What is excluded from this category of data for us that may not be excluded from other similarly sized governments?
- How do we deliver this service? How do others?
- How do we pay for this service? How do others?
- What are the available options of service delivery and what have other local governments experienced with each option?
- Does a higher than average per capita expenditure indicate excess capacity? If so, can we contract with other local governments to meet their needs?
- What are some of the unique characteristics of our community that may affect the per capita figure?
- How have we expanded our services, capital outlays, and debt in response to growth?
- How have we expanded our revenues in response to growth?

While these questions are not exhaustive, they indicate some of the directions inquiry and discussion may take. Answering these questions may explain wide variations in per capita comparisons, prompt further research and communication among governments, and suggest further topics of study for the community in financial administration.

**Examples**

The first chart shows the per capita trend line chart for the City of Eau Claire for parks and recreation expenditures, adjusted to 2001 dollars. When placing the cursor on the beginning and end points, the following figures are shown: all cities averaged $24 per person in parks expenditures in 1987 and $68 in 1999, cities between 25,000 and 500,000 people showed $22 in 1987 and $58 in 1999, and Eau Claire had $33 per capita park expenditures in 1987 and $74 in 1999. The higher than average expenditure may be the result of the comparison group, as 25,000 to 500,000 people would skew averages toward larger cities. An adjustment in this comparison group may provide a truer basis of comparison.
The second chart shows the per capita expenditures for summary categories in 1999 for all three groups. A review of the charts shows that three types of activities command the largest outlays: protective services (police, fire protection, ambulance), transportation (road construction, maintenance, facilities, mass transit and other means), and parks, culture, conservation and development. In these respective areas, Eau Claire shows per capita expenditures of $265, $233, and $71; the all city averages are $257, $237, and $211; and cities of a similar size are $326, $181, and $177. The composite per capita charts are located at the bottom of the chart listing by the proportionate comparison charts.

Limitations of Data
In comparing a community’s per capita dollar values to the averages of other similarly sized communities and the statewide average, remember the limitations of the data:

- The data is summary in nature for revenues and expenditures. The accounting categories include a range of revenues and expenditures as well as those from the operating and capital budgets.
- Governments offer a different bundle of services or revenues in any given category.
- The financing system may differ across governments (i.e., part of the general fund or a proprietary fund).
Governments deliver services differently and a higher or lower per capita figure may reflect this. For example, a town with its own fire department may have higher fire protection expenditures than a town that contracts for this service. However, the town may recoup a significant amount of their expenditures through intergovernmental contracts for fire protection.

A selected year may show high expenditures in one category, reflecting perhaps a big capital outlay. Therefore, the year selected for comparison is important and choices may best be informed by looking first at the growth indices or trends.

Higher or lower than average per capita revenues and expenditures may reflect unique characteristics of the community that need to be taken into account (i.e., greater road mileage, little tax base).

Due to these data limitations, per capita measures using the revenues and expenditures database are not in themselves simple performance measures of efficiency and cost-effectiveness. However, higher and lower than average per capita values do prompt further inquiry. Because you are provided a dollar amount per person, a review of the major categories in the per capita share chart for revenues and expenditures does provide an indication of the relative level of an expenditure or revenue.

Proportionate Comparisons

These sets of charts are provided to show the relative proportion of expenditures, revenues, taxes or values to the total for a given community, similar communities of the same-sized population, and a statewide average for the same type of local government. The information is displayed in three ways: a pie chart, a pie chart in stacked-bar format, and a stacked bar chart for a community over three selected years.

The purpose of these charts is to get an overview of the composition of a local government’s revenues, expenditures, taxes and values. This may change over time and prompt questions as to why. Comparison with other communities of the same size and type of government may indicate distinct differences that highlight unique characteristics of a community, changes in state aid formulas or appropriations, changes in service delivery, state mandates, increased reliance on different revenue sources, and so forth.

Examples

The first set of charts below shows a pie chart of general fund revenues for the Village of Blanchardville, villages between 501 and 1,000 people, and all villages in 1999. The dollar values have been adjusted to 2001 dollars. Under each title is the percentage that each revenue source makes up of total general fund revenues. Placing the cursor on the pie slice gives the amount. The largest source of revenues for Blanchardville was state shared revenues at 48%, for villages of similar population size and all villages the “other” category made up the largest source of revenue at 33% and 46% respectively. Included in this category are tax increments, in lieu of tax payments, other taxes (i.e., room tax, mobile home fees), special assessments, other local government aids (highway and bridge aids, grants for parks, solid waste management), interest income, principal on debt, sales and rental of property, delinquent personal property collection. Examining these categories of revenues separately under the per capita line graphs would give an indication of their level and provide information on the revenue sources most used. Indices would reflect the trends over time. While there was some difference in their reliance on the property tax, the variation is relatively small ranging from 20% to 27% of revenues.
The second set of charts below shows the same information as is seen in the three pie charts, but it is depicted in bar format side-by-side for easier comparison. Here, for example, it can be more easily seen that Blanchardville’s revenue composition relies more on state shared revenues and charges and fees than either of the comparison groups. In fact, nearly half of Blanchardville’s revenues come from state shared revenues while all villages on average rely for nearly half of their revenues on sources other than the property tax and major state aid programs.

The third set of charts shows the relative proportion of equalized value for the Town of Bayfield for three different years (1990, 1995 and 2000) in stacked bar format. While the program generates three such charts, only the all towns average is shown here for comparison purposes. These charts are like pie charts, only in stacked format. The data is represented in an ascending order as listed in the legend, so that if you have difficulty determining what you are viewing, look to the order shown in the legend. The advantage to this type of chart is that relative proportions can be traced over selected years. By placing the cursor on one of the designations in the bar stack, you can see the actual percentage rate. Moving this across the same designation for different years gives you an idea how a revenue, expenditure, property tax, or value has shifted in its relative proportion (and importance) to the whole.
The charts below show a steady increase in the proportion that residential value makes up total property values in the Town of Bayfield. Agricultural, commercial and forest lands have shown steady declines in their percent of total property value. This trend is somewhat reflected statewide in all towns. Residential value as a part of the property tax base has increased and commercial property has declined slightly. Reflecting use value assessment, the value of agricultural land statewide decreased dramatically as a part of the property tax base with a subsequent increase in “Other” property, or agricultural improvements. Unlike the Town of Bayfield, the value of forest land and wetland has increased as a percent of total property values statewide, as is seen in the “all towns” comparison.

Limitations
There are several considerations in looking at proportionate comparisons.

- First, looking at proportions alone does not speak to the level of expenditure, revenue, value, or tax. For example, Blanchardville may show a high reliance on shared revenues, but their payment amount may actually be significantly less than what other villages of the same size receive. You need to place the cursor on the pie slice to get the actual amount.

- Second, the composition of revenues, expenditures, taxes and values can shift in any given year even though the level of expenditures for most items has not changed. For example, highway expenditures may make up 60% in one year and 45% the next year. In both years, the expenditures for highways could be the same, but significant expenditures for fire protection in the second year have reduced the percentage highways make up of total expenditures.

- Third, while proportionate charts show the allocation of resources in the general fund (both revenues and expenditures), it is important to remember that many local governments may show the activity in proprietary funds. Thus, allocating few resources to an activity does not automatically translate into a low level of service or lack of priority by the local government. Rather, it can indicate a difference in funding the service (running it like a business).

- Fourth, remember that the proportionate charts may indicate unique characteristics of the local government that should be included in an analysis. For example, a town may have a great deal of forest land, but this value is not translated into the property base. It could be that the land is owned by the state or federal government and is not part of the tax base.
New Options

The G.R.E.A.T. program has many features to tailor your analysis. These include creating regions, local comparison groups, fine-tuning the population groups you use for comparison, and creating calculations. While an explanation of these features is given below, along with the limitations and proper usage, you will want to look further into the manual for step-by-step instructions.

Regions
You can create regions from the database by combining municipalities or even counties. A region, however, is an entity or the sum of the municipalities and counties that are used to create it. In using this option, careful attention must be paid to the municipalities and counties used to create a region and the variables in the database that are selected. For revenues and expenditures, county data is not a composite of municipal data but reflects those of the county only. For property taxes, only the total county tax is attributable to the county and all other data is a composite of municipal data. For property valuation, all county data is composite data. Therefore, if you create a region for most of the property tax and value information using both county and municipal data, you will be duplicating information and creating unrealistic numbers.

In addition, municipalities that are located in more than one county have been assigned to only one county in this program for all of the databases. For example, the City of Appleton has been assigned to Outagamie County for its revenues, expenditures, taxes and property value even though parts of the city are located in Calumet and Winnebago counties. For this reason, per capita value calculations in the property value database, which is used in allocating state aid, will not reflect the true value assigned to any of those three counties. Specifically, the property tax and value base will be underrepresented in Calumet and Winnebago counties and over represented in Outagamie County.

However, if you are creating a region using the property tax and value data, you must add all of the districts for multi-county municipalities like Appleton. Examining revenues and expenditures for any created region already combines the districts in these cases.

Examples

- A county has four large municipalities that are located in each of the quadrants of the county. Most activity is organized around these municipalities, including agricultural preservation areas and school districts. You make each quadrant a region and compare revenue base, expenditures, property taxes and values, and population trends. In creating each region, you add together all of the municipalities in the quadrant. None of the municipalities are located in multiple counties, so you do not have to take that into account in your analysis.

- The state has various economic, cultural and social centers that are located in areas of unique natural and agricultural resources. You carve the state up into these regions and compare revenue base, expenditures, property taxes and values, and population trends. For the population, property tax and value data, you can just create the region by using county data as it is a composite of all municipal data in the county. For revenues and expenditure comparisons, you would need to add together all counties and municipalities in each region.

Comparison Groups
The software program allows you to choose a municipality or county and compare it with the default population groups for that type and size of municipality or county. The default settings for these groups can be changed or further refined to meet your needs. Unlike regions, comparison groups are averages of the data under review.
The software offers other options with comparison groups. First, you can create comparison groups that better meet your needs. Second, the software offers a number of existing templates that can be interchanged for purposes of analysis under the “comparison groups” designation.

Examples

- You want to compare the City of Wausau with cities of the same size and all cities. Because the default setting for population groups of the same size is between 25,001 to 500,000, you want to narrow this range to 25,001 to 50,000 given that Wausau has a population of roughly 35,000.

- You want to compare all municipalities under 500 people on a range of revenues and expenditures. You choose villages, towns and cities under 500 people under the existing templates for your analysis.

- The towns in your county are developing land use plans and would like to evaluate their finances, property taxes and values. You create a comparison group of all the towns in that county, another group for towns around municipalities, and another for more rural towns, and still others based on location (i.e., creating comparison groups based on quadrants or other geographical criteria). Any town can be compared against these averages or alternatively, the comparison groups can be run against each other.

Calculations
The software program comes equipped with numerous charts and graphs that you can use in your analysis. Still, this might not be enough for you or not quite meet your needs. You can design your own charts using the calculation feature of the program. Variables can be added together, divided, and reduced. Variables, however, cannot be multiplied. You can construct many calculations using the variables in the databases and translate them into indexed and per capita graphs, pie charts, and bar charts.

Examples

- The expenditures database separates out transportation into four categories: maintenance, construction, road-related facilities, and other transportation. You may wish to add these together in the form of an index, pie chart, per capita trend lines, and stacked bar chart.

- You want to see what the relative proportion of general fund revenues is to expenditures and to see whether this has changed over time. You create an actual and indexed graph for this calculation of total revenues/total expenditures.

Uploading New Data
The revenues and expenditures databases will always lag by two years, because it is based on the financial reports of local governments for their preceding year. Because of this, you can upload more recent data for a municipality or county so that the chart, graphic, and calculation features of the program can be used. Be careful that you use the same revenue and expenditure categories that are in the database. The clerk or administrator can use the account lines in the definition section to ensure this.
Some Reminders about Analysis

There are several things to keep in mind in reviewing the many charts and graphs for a local government. Foremost among them are:

- **The indexed graphs are going to make any given local government look as though they are erratic at best, and possibly veering out of control.**

This is because the comparative trends used are averages for population groups. Averages smooth out all of the wild swings that you see in a review of an individual local government. It smoothes them out, but it doesn't mean they aren't there for everyone else. In addition, the revenue and expenditures data includes both operating and capital revenues and expenditures, so a given year showing a mighty spike may well reflect a large capital outlay.

- **Don't provide the reasons or causes for erratic swings in financial patterns.**

Remember this isn't your job. Those local officials responsible for financial administration will provide the reasons. It is their job! If an official is new, this will give him or her the opportunity to explore their records, interview those who filled the position before them, and become better acquainted with the local government's financial history and decision-making structure.

- **Remember to speak to the scale and purpose of the chart or graph in front of you.**

The charts and graphs are scaled differently depending upon the overall financial trend possible or witnessed for a certain expenditure, revenue, property tax, mill rate, or property value. Hence, you may wish to manually adjust the scale for some graphs in Excel to better detail the information.

Each chart or graph has purposes and limitations. Review these to refresh your memory. For example, when reviewing the indexed charts, you are looking at growth in revenues, expenditures, taxes and values. Growth is expressed as a percentage change. It does not reflect the “level” or the “amount” of the revenue, expenditure, tax, or value. The indexed charts also do not indicate the relative proportion a revenue, expenditure, tax, or value has to the total.

- **Look at the composition of the financial item you select to see what the category includes.**

The data, especially for revenues and expenditures, is very summary. It includes both capital and operating budgets for the general fund, any debt service and special funds. Wild swings may be explained locally by capital purchases, getting the accounting system on track, and so on. The governmental accounting categories are also comprised of many activities and revenue sources. All fees received from the public, for example, are placed in one category. These may consist of park fees, copying charges, garbage collection and so forth.

By clearly understanding what a category includes, the local government is in a better position to determine where changes occurred and why. In addition, their comparison with other local governments will lead to questions about how a service is delivered, how they pay for it, what they might offer in their service that we don't, and so forth. Garbage collection and disposal, for example, may be relatively inexpensive in a village as they contract out for the service and cover the cost through fees to its citizens. By contrast, a neighboring town may have substantially high garbage collection and disposal costs, because they own a landfill as well as trucks and equipment to perform this service for their citizens.

- **Don't look at a financial item in isolation from the whole picture.**

Let's look at the town with high garbage collection and disposal costs attributable to their ownership of a landfill, trucks and other equipment to perform the service. This expenditure may make up a significant
portion of their expenditures, show annual healthy increases in outlays, and so forth. It looks like a big money sink. And, it just might be. Still, a review of how that service is delivered to citizens, and perhaps neighboring municipalities, may show that revenues from fees and intergovernmental charges for services are higher than average and pay for the cost of service delivery.

Another example is Grant County, which administers health and human services for a five-county area. As expected, their per capita health and human service expenditures are comparatively high. Monies spent for these services, however, are recaptured through intergovernmental charges and public fees.

- **Think about the level of government, or region you created, and the data you wish to use.**

Some of the data is not meaningful for certain levels of government because it is a composite of municipal data. For example, most of the county data on property taxes is a total of municipal, school district and other taxes. It does not directly pertain to the county. The meaningful property tax data for the county is the total county tax.

- **Think about the comparison groups you create and avoid side-by-side comparisons.**

This software program was designed to make it difficult to compare one municipality against another. This is one of the biggest temptations with this type of data and one of the worst uses of it. What people really get out of a side-by-side comparison is a feeling of superiority if their expenditures are less than their neighbors, or conversely, a feeling of insecurity if their expenditures are more than their neighbors. Rarely does that type of analysis pierce the surface numbers to discover the reasons, such as differing levels of service and service delivery.

- **The very nature of the data limitations defines and restricts your role.**

There is a very real fear that this data will be misused. Understanding its limitations and proper use go a long way in not actualizing that fear. This data just does not allow a number of things you may be asked or expected to do: evaluate the effectiveness and efficiency of a utility, service or revenue; speak to cost containment; determine the best method of delivering a service; suggest ways to better invest idle funds; and, so on. Those tasks require far more detailed information than what is available in the G.R.E.A.T. program. No doubt that information will be accessed and used as local governments further discuss their financial systems, level of service, manner of service delivery, revenue options, and overall financial administration. You, however, do not have that information nor are you an expert in those fields. That is the domain of department heads, financial managers and consultants. Often this expertise can be tapped in-house, or private consultants and other professionals will provide a presentation for a board on some topic in the hopes of securing future business. Quite simply, you don't have to worry about going into these areas, because you can't!

- **Enjoy yourself!**

This work will be new for most of you. Remember that for each community, it is going to be new as well. You will be shaping it together, with local officials supplying the narrative and you the information. Questions, discussion, reviewing options, looking into other governments’ ways of providing a service or financing it, and getting a better understanding of one’s financial situation and administration is what is important. The possibilities for action in this area are numerous and creative. Work in this area has the potential to foster intergovernmental dialogue, cooperation and understanding. It's work, but it is also fun and rewarding. Enjoy!
II. Program Installation

Overview

This section will discuss how to install G.R.E.A.T. onto your computer. Please make sure that you meet the system requirements (see page 1).

Procedure

1) Insert the G.R.E.A.T. CD into the CD-ROM drive.

2) Click Start, and then Run. You should see the following window:

3) Click Browse and then click on “My Computer.” This will show a list of drives on your computer.

4) Find your CD-ROM Drive in the Browse window. It should be the one labeled “G.R.E.A.T.”, with a red icon of some charts. Highlight it and click Open.

5) Then, click on setup. You should be back to the Run window, and it should say something like D:\setup.exe. Click OK.

6) You can follow the instructions on the screen the rest of the way. You should be able to just click OK on each screen, unless you want to do something special.

7) When the installation is finished, you can find an icon to run the program by clicking Start, Programs, G.R.E.A.T. You will also find a copy of the G.R.E.A.T. documentation and the G.R.E.A.T. help file there.
III. Creating Charts

Overview

This is an overview of how to create charts in G.R.E.A.T.

First, you should click on Data on the menu and then click on Create Charts. We will use the notation Data->Create Charts throughout the rest of this manual.

You will be presented with a window that steps you through the chart-creation process. Here are the eight steps:

1) Select Local Government Type
2) Select Local Government(s)
3) Select Comparison Group Types
4) Select Calculation Type
5) Select Calculations
6) Select Years
7) Specify Scaling Preferences
8) Specify Excel Options

Note that some steps might be skipped, depending on your previous choices. For example, if you choose a Comparison in Step 1, then Step 3 will be skipped.

After you click Finish at Step 8, G.R.E.A.T. will process your calculations. This will take between 2 and 30 seconds per calculation, depending on how fast your computer is. When this step is finished, G.R.E.A.T. will load Microsoft Excel and show your charts.

Since the charts are created by Excel, you can do anything that Excel allows such as change the colors of slices in pie charts, choose different data from the spreadsheet to graph, and export the chart(s) to Microsoft PowerPoint. See Working with charts for more detailed information.
Step 1 - Select Local Government Type

Here you can choose what kind of government you want to work with.

For cities, towns, and villages you will be able to chart the public finances of the municipality and compare them against municipalities of the same population size or against the average for all municipalities of that type.

For counties, you can do the same thing. Here, you need to understand that for revenues and expenditures, the figures represent totals for the county government itself. By contrast, the property valuation and property tax data represents the aggregate total of the members of the county, with the exception of the total county tax. The total county tax pertains to the county.

The Wisconsin state total is the aggregate total for all local governments within the state.

If you choose Region, you will be able to plot a region against comparison groups that contain similar regions. See the Regions section for an explanation of how G.R.E.A.T. defines a region.

If you choose Comparison, then you can mix and match cities, towns, villages, counties, regions, the Wisconsin state total, and groups. Because you are allowed such great flexibility, you will need to fully specify which comparison groups to include.

Step 2- Select Local Government(s)

Select one or more municipalities, counties, or regions that you want to work with. All local governments must be of the government type specified in Step 1; if you want to analyze several types then you need
to repeat the creating charts procedure for each type of government, or plot them together by choosing Comparison in Step 1. Please note that if you select multiple municipalities or counties, G.R.E.A.T. will create a separate Excel file for each one, and plot them separately.

To select a government, click on the checkbox, or highlight the municipality and press the spacebar. To select all governments, click Check All. To deselect all, click Uncheck All.

If you chose Comparison in Step 1, then the rules are as follows:

1) To select an entire group type, click the checkbox to the left of the group type’s name. All groups that belong to that group type (indented underneath) will also be checked.

2) You may only include one local government within the comparison. Directly comparing one government against another is a poor method of comparison because each local government has its own unique characteristics that make that kind of analysis invalid. Thus, the program will not allow such a comparison to be made.

After you have selected all of the governments that you want to work with, click Next (or press ENTER).

If you selected a government unit type of Comparison, you can skip ahead to Step 4 - Select Calculation Type.

Otherwise, continue on to Step 3 - Select Comparison Group Type.
Step 3 - Select Comparison Group Types

At this window, you can choose which group types you want to compare against each local government that you have selected. G.R.E.A.T. will determine which group of the group type corresponds to each local government. The average for members of that group will be plotted alongside data for the corresponding local government.

You can create and modify most of these group types from Settings->Group. See the Groups Overview for more details. If you want to compare individual groups against each, back up to Step 1 and choose Comparison. If you back up, the window may appear blank for awhile, as the program reloads the selections.

The Wisconsin State Total group type cannot be changed. It represents the total of all municipalities and counties in the state of Wisconsin.

You can save the comparison settings as your default by clicking Save Default Comparisons.

Step 4 - Select Calculation Type

Choose the calculation type that you want to work with by clicking on the name. If you want to work with more than one calculation type, then you will have to repeat the Create Charts procedure for each one.

Select the calculation type that you want to work with, and click Next (or just double-click on the calculation type).
Note: If you want to alter the list of calculation types that is displayed here, see Settings->Calculation, or read Section III - Calculations.

**Step 5- Select Calculations**

In this step, you can choose which calculations you want to chart.

You can customize the list of calculations that you regularly examine. To add or remove a predefined group of calculations, pull down the arrow next to analysis, and choose one. Then, click on Add to check those calculations, or on Remove to uncheck those calculations. You can also save a combination of calculations by checking several calculations and clicking Save.

To select or deselect a calculation, click in the checkbox, double-click on the calculation's name, or press the spacebar while the calculation name is highlighted.

If you want to see details for each calculation, click Show Details (this is done for you by default). The right side of the screen will show the series names (if applicable), the calculation formula, and the calculation description. If you don't want to see this extra information, click Hide Details. Your preference for showing calculation details is automatically saved and will be used in future instances of creating charts.

To get information about a field, click on its name. A small help window will be displayed, containing the definition of the field. This window will tell you what is contained in the fields you select. Alternatively, you can print Appendix D, which lists all of the field definitions. You should move the window to where you want it to be placed. The window will automatically load itself there in the future.

Click the chart type to get information about the charts you are selecting. Review the sections in the manual that provide more information on proper usage and limitations.

For proportionate comparisons and the composite per capita chart, data is combined to provide different categories. By clicking the series, each category will be displayed. By clicking on the category, the fields used in the calculation box will be displayed.
Step 6 - Select Years

In this step, you can specify the years that will be used in the calculations to create the charts and graphs.

**Line charts**
These settings apply to all line charts (INDEX, ACTUAL, RATIO, PER-CAPITA, MILL-RATE).
- **From year** - The first year that you want data. Note that the revenues and expenditures data begin in 1987, while the property valuation and property tax data begin in 1990.
- **To year** - The last year in the series you want data shown.

**Index charts**
- **Base year** - Choose which year you want as your base year. Data for other years will be expressed as a percentage of this (So if the revenue for your base year is set at 100, and revenue doubles the following year, the next value will be 100*2 = 200.)
- **Index start** - The index ‘s value at your base year. By program default, this is set to 100. So no matter what value the data for the base year is (except zero), it will show as 100 on the graph.

**Single-year charts**
This setting applies to the following chart types: PIE, BAR-FIELD, BAR-RATIO, BAR-PER-CAPITA:
- **Select year** - Choose a single year that will be calculated for all non-line charts. For pie charts, a new chart will be created for each comparison group. For bar charts, a single-year chart will only get used if you do not include any comparison groups.

**Multiple-year charts**
This setting applies to the following chart types: BAR-STACK, BAR-FIELD, BAR-RATIO, PAR-PER-CAPITA.
- **Choose years** - Check each year that you want to include in the chart. Keep in mind that including too many years will result in the bars being narrow.

**Express in xxxx dollars** - If you enable this, then all monetary values will be adjusted to account for inflation. By expressing values in xxxx dollars, all calculations will be inflated or deflated to dollars in year xxxx. See Appendix C – GDP Deflators for information on how to view and change deflators.

To save your year selections as the default for this calculation type, click on Save As Default.
Step 7 - Specify Scaling Preferences

This step allows you to customize the extent to which G.R.E.A.T. vertically positions line and bar charts. This makes a dramatic difference in how people interpret graphs. For example, if an index chart shows that a city had a thirty percent increase in property taxes, while all other cities had only a twenty percent increase, the choice in scaling makes a large impact. If the y axis is scaled from 100 to 5000, then the two lines will look almost identical. However, if the y axis is scaled from 110 to 130, then it will appear as though there is a huge difference between the growth rates. In G.R.E.A.T., charts will automatically be scaled between the lowest and highest data points among similar charts that are graphed. To prevent an extremely high or extremely low data point from having a significant effect on the scaling of other charts, maximum and minimum points are defined. See Change Scale Type for information on configuring scale types, understanding how we decide which scales are "similar", and how to specify the maximum and minimum values that are considered "normal".

You are given three choices for choosing a scaling scheme.

1) **Scale similar charts the same** - This is the default setting, and is recommended for most situations. Every chart has the same scale as other charts of a similar type. You should especially use this setting if you will be showing two or more similar charts in a presentation. Then, the y-axis will be scaled the same so that people can make judgments about the charts by just looking at the heights of the lines and bars.

2) **Scale each chart individually** - Selecting this option will allow each chart to look its best when viewed by itself. The scale is set so that the minimum value is the minimum value on the chart while the maximum value is the maximum value on the chart. One disadvantage in using this option is that charts cannot easily be compared against each other.

3) **Custom: Scale each chart as follows** - This setting provides the user with the greatest flexibility. The user can select each scale type and can specify the precise minimum and maximum values to graph. To do this, you need to uncheck *Auto-scale this chart type* and specify a minimum and a maximum value. For help in determining which classification a chart type has, see Change Scale Type.
Step 8 - Specify Excel Options

Here you can customize how G.R.E.A.T. will make your charts look.

**Show charts using G.R.E.A.T.'s color scheme**
By default, G.R.E.A.T. will set the colors for all charts as black, red, blue, and green. If you do not like the way that G.R.E.A.T. applies colors to your charts, you can uncheck this setting. Then, in Excel you can configure the default colors as you like, and G.R.E.A.T. will use Excel's color scheme in future charts.

**Show pie and bar charts in black and white**
For the best output on a black-and-white printer, select this option. G.R.E.A.T. will make it easier to distinguish between each region on bar and pie charts. The first two regions will be colored in black and white, while the other regions will have various contrasting shades.

When done, click on Finish. G.R.E.A.T. will then process your calculations.

**Processing calculations**

The progress bar shown above will be updated as your calculations are processed. Depending on your computer, it can take anywhere from a couple of seconds to half a minute to process each calculation and create a chart. Please be patient as you wait. If creating charts seems to take too long, you may want to run fewer calculations at a time, or process the calculations on a faster computer. If you want to cancel the calculating early, then you should click on Cancel (the same button as Close, shown here).
If you get an out of memory error, you probably tried to run too many calculations. Repeat the Create Charts procedure, with fewer local governments and/or calculations.

If any errors are encountered in your calculations, then the bottom two-thirds of this window will be displayed. The middle part contains a list of local governments and the calculations that had errors. If you click on the calculation name, descriptions of the errors in the bottom part of the window will be displayed, along with how this affects your charts.

**Verifying calculations**

Before you present a chart created with G.R.E.A.T., it is important to convince yourself that the results of its calculations are correct. Here we will discuss how to go about doing this.

To see the calculation generated by G.R.E.A.T. and used to create the charts, click on the leftmost tab in Excel labeled “Calculation”. You may need to click on the left arrow if you created a lot of charts.

Here, you will see several multi-line blocks, each representing a calculation. If you highlight a number, as shown in the picture above, the formula used to get that number is displayed. Here, we see that the City of Plymouth Per Capita Total Commercial for 1991 was found by calculating

\[(47326600 \times 0.8953/1.0802)/6826\]

So what do these numbers mean? The way to find out is to go to Step 5 – Calculations and look up the calculation. On the right side of the screen you will see the formula used in the calculation. If you do that for this calculation, you will see the following:
Thus, you can see that the calculation is

\[
\frac{([COMMERCIAL LAND] + [COMMERCIAL IMPS])}{[POPULATION]} \times \frac{([GDP DEFLATOR FOR REAL DOLLARS YEAR])}{([GDP DEFLATOR FOR YEAR])}
\]

So 47326600 represents ([COMMERCIAL LAND] + [COMMERCIAL IMPS]) and \((0.8953/1.0802)\) represents the adjustment for inflation from 1991 to 2001 dollars. Also, 6826 is the population in that year. If you do not understand what any of the fields above mean, you can click on them in Step 5 to get definitions. Notice that the first number represents the sum for the numerator of the calculation.

Checking the calculation for a group is a bit more difficult. First, when making a calculation for a group, only local governments within that group where neither the numerator nor the denominator for the calculation is zero are included. Then, the calculation is done individually for each local government. Finally, the average of the results of these calculations is taken.

For example, we will look at a test group created for the purpose of this documentation called “Cities of Sheboygan County.” This group includes only three members: Sheboygan, Sheboygan Falls, and Plymouth. If you look at the result of the calculation for 1991, you’ll see the following formula:

\[
(5323.71 \times (0.8953/1.0802))
\]

Here, \((0.8953/1.0802)\) represents the adjustment into real dollars, while 5323.71 represents the average of the calculation for these three cities. If the calculation worked correctly, this is what we should hope to find:

\[
\frac{(P-land + P-imps) + (S-land + S-imps) + (F-land+F-imps)}{P-pop + S-pop + F-pop} \times \frac{1}{3}
\]

Where all values are from 1991, and

\(P = Plymouth, S = Sheboygan, F = Sheboygan Falls,\)

\(land = commercial land, imps = commercial improvements, and pop = population.\) This equals:

\[
\frac{(8294700 + 39031900 + 50734800 + 231688300 + (2366500 + 17321300))}{6826 + 49789 + 5850} \times \frac{1}{3} = 15971.12 / 3 = 5323.71
\]
Note that it is extremely important that you divide first and then add. If you do it the other way, you get the following:

\[
\frac{(P\text{-land} + P\text{-imps} + S\text{-land} + S\text{-imps} + F\text{-land} + F\text{-imps})}{P\text{-pop} + S\text{-pop} + F\text{-pop}} \times \frac{1}{3} \quad \text{DON'T CALCULATE THIS WAY!}
\]

which equals

\[
\frac{8294700 + 39031900 + 50734800 + 231688300 + 2366500 + 17321300}{6826 + 49789 + 5850} = \frac{349437500}{62465} \times \frac{1}{3} = 5594.13 \times \frac{1}{3} = 1864.71
\]

Also note that if either (commercial lands + commercial improvements) or the population was zero for one of these cities, that we would only take the average of the other two.

Verifying data

You should look up the numbers used in the calculation to be confident of their accuracy. There are two ways to do this:

1) Look data up in the original books published by the Department of Revenue.

2) Look data up within G.R.E.A.T.

Note that in some cases G.R.E.A.T. contains more recent data than that published in the books, so it is okay if the figures vary a little. Also, it is better to verify data using the books than from within the program, since you can catch any errors (if they exist) resulting from conversion from the book to the database. See View Data below to find out how to view data used by G.R.E.A.T.

View Data

You can access this window by choosing Data->View Data.

View Data will allow you to see the data, as stored in G.R.E.A.T.’s database. Choose the local government type from the pull down menu and click on the municipality, county, or region of interest. The raw data will be displayed on the right side of the window.

Click 'Save to Excel' to transfer the data to Excel. There, you can create your own calculations and/or charts.

Remember that all monetary figures are in actual dollars. You will need to use GDP deflator values (See Appendix C) if you want to account for inflation.
Working with charts

After you create charts with G.R.E.A.T., you can do anything that you would normally do with a chart created in Excel. Here are some tasks you might want to do:

- Import charts into PowerPoint or other presentation software.
- Import charts into Word or other word processing software. (This was done to create this manual.)
- Print the charts.
- Add or remove series from the chart. (To do this, you can right-click on the chart, choose Source Data, and then change the data range.)
- Fix up the chart. You can add legends, change the colors, change the chart type (create a 3D-pie chart for example), and do other modifications as you would in Excel.

You can also save your charts, so that you will not need to recreate them later, to a disk or on your hard drive.
IV. Calculations

Overview

G.R.E.A.T. includes over a hundred calculations that you can apply to local governments and counties. (See Appendix F for the list.) If a calculation that you want does not exist, then you can create it yourself or modify an existing calculation. This section will show you how to do this.

Calculation Types

To begin working with calculations, choose Settings->Calculation. You will then see a list of calculation types, as shown above. These calculation types correspond with the analysis types shown in Step 4 when you create charts.

Calculation types serve two purposes:

1) They separate calculations into more manageable lists.
2) They allow assigning different default years to different calculation types.

For example, the revenues and expenditures calculation types default to starting in 1987 while the other calculation types default to starting in 1990, since data in 1987-89 is only available for revenues and expenditures. You can organize calculations however you like. In this window, you can open, create, copy, rename, and delete calculation types. Generally, you will only need to select a calculation type and click Open.

You will then see a list of calculations. Calculations can be created, modified, deleted, and moved.
Creating New Calculations

Let's create a chart that shows the net proprietary revenue earned per person. We suggest that you include new calculations under the Custom calculation type when they are rarely used, logically don't fit in another category, or generally apply to all of the calculation types. Because this is an example calculation, we recommend placing there. Select Settings->Calculation, highlight Custom, and click Open. Now, click New to create a new calculation.

You will see a screen similar to the one above. The first screen asks you what kind of chart you want to create. If you want to show how a quantity has changed over time (as a growth percentage), then you should choose INDEX. If you want to show a per capita calculation, then choose a PER-CAPITA or a PER-CAPITA-RATIO chart. If you want to show how several numbers relate to each other as a percentage of their whole, choose a PIE, BAR-STACK, or BAR-FIELD chart. If you just want to show the raw data in a line chart, then choose ACTUAL. Further information about chart types can be found in the Chart Type Description or in Appendix A – Chart Types.

Since we want to create a per capita chart, choose PER-CAPITA and click Next. The window will then ask you for a name for the calculation. Type “Net Proprietary Funds” in the Calculation Name field and click Save. You will now be able to define the calculation.

To make the program easier to use, calculations have been limited to the structure

<sum and difference of fields> / <sum and difference of other fields>.
However, G.R.E.A.T. is capable of performing a greater variety of calculations since the abilities to create an indexed chart and to convert currency into real dollars are built-in. When creating a calculation, the first thing to do is determine which fields make up the calculation. Click 'New field' to get a list of fields.

![New Field](image)

This shows you the field description list (above). Here you need to choose a field and whether or not you want to add or subtract it. The description for the field will be displayed along with information about whether or not the data for counties represents an aggregate total or the county government itself. Since the net proprietary revenue should be defined as proprietary revenue minus proprietary expenses, choose Proprietary Fund Types: Revenues and click Save.

Normally you can continue creating fields in this manner until your numerator is the appropriate expression. In this case, we still need to subtract the expenses. Click New Field, find Proprietary Fund Types: Expenses, choose subtract and click Save. It should look like the picture below.

![Calculation Details](image)

Some calculation types allow you to specify a denominator as well. Click the Denominator tab. Since this is a per capita population, the denominator has automatically been set to POPULATION. Other calculation types, such as BAR-RATIO and MILL-RATE, will let you add fields to the denominator just like you add them to the numerator.

Once your calculation is defined, you can do some further customization. Click the Settings tab.
Here you can enter a description for the calculation. This description will be displayed both here and when you choose calculations while creating charts. Many chart types will allow you to choose a scale type. If you click “Change”, the following window will appear.

Scale types are used to help solve the problem of charts not being scaled in ways that are easy to compare them. You can set the minimum and maximum values that are deemed “normal” for a scale type here. All scales that are not “normal” will always be scaled independently. You can also determine which charts are of a “similar” type, by selecting the same scale type for each of them. See the scaling step of creating charts for details on how scale types are used. In general, we recommend that you do not modify Scaling settings.

You can also specify the sequence number for a calculation. This helps to control the order that the calculations appear. Calculations with a lower sequence number appear earlier in the list.

When you are done making changes to the calculation, click Save and then click Close. The new calculation will show up at the bottom of your listing (under Custom in this case) and in the calculation list when you create charts.
Creating Calculations with Multiple Series

Some calculation types, such as pie and bar charts, are slightly more difficult to create. Here we will create a pie chart for expenses in road work.

First, we create a new calculation like we did before. We choose Settings->Calculation, Custom, and click New. We tell it to create a chart of type PIE, assign it the name “Roads and Transportation”, and click Save.

We want our chart to include data for road-related facilities, highway maintenance and administration, highway construction, and other transportation. You will need to create a “series” for each slice in a pie chart or bar in a bar chart. The first series will be called “SERIES 1”. Choose Rename Series and type “Road-related facilities” and click Enter.

You can now define both a numerator and a denominator for this series. We set the numerator by clicking New Field and choosing “Road-related facilities”. Since for pie charts the denominator is automatically set, you do not enter anything there. However, if a calculation does have a denominator, you would need to click the Denominator tab and then add fields like you did for the numerator.

Click “Save Series” after the numerator and denominator are set.

You can then create another series for “Highway Maintenance and Administration” by clicking New Series, giving it a name, clicking New Field, “Highway Maintenance and Administration”, and saving the series.

You can then repeat this for the remaining two series, Other Transportation and Highway Construction.
Modifying Calculations

Let’s modify the “Roads and Transportation” pie chart that we just created, to combine “Highway Maintenance and Administration” with “Highway Construction” to create a series called “Highways”.

First, we open the calculation by clicking Settings->Calculation, opening the Custom calculation type, highlighting “Roads and Transportation”, and clicking Open.

![Calculation Details Window](image)

You should now see a calculation details window similar to the one shown above. First, we will remove the “Highway Maintenance and Administration” series. To do this, we click on the arrow next to the series name and highlight the maintenance and administration series. This will make that series current. Now, click on Delete Series to remove it.

Next, we will open the “Highway Construction” series by clicking on the arrow and highlighting the name. Click Rename Series and change the name to “Highways”.

Finally, we need to change the “Highways” series so that it also includes the maintenance and administration. To do this, click New Field, find “Highway Maintenance and Administration”, and click Save.

The calculation has now been updated to have a series that includes all highway expenses.
Groups vs. Regions

Groups and regions provide different ways of comparing local governments. Here we will explain the difference between them and why you would want to use one instead of the other. The essential difference is a matter of taking an average (groups) versus finding the sum (regions).

A group represents the average value for its member local governments. A group should be used instead of a region if you want to answer a question such as "What is the average per capita school tax for a Wisconsin city of my size?". Groups also have the advantage that they are stored in group types which will automatically determine which group corresponds with a local government. To plot a group on its own, create a chart in Comparison mode.

This contrasts with how a region is used. When you perform calculations with a region, the sum of the region's members is used. You should use a region if you are considering the region members as a single political entity, and you are asking questions such as, "What is the per capita school tax for south-eastern Wisconsin?"

Note that you are not allowed to create a region or a group with only one member. It is a bad idea to directly compare two local governments because each has unique qualities. Thus, the program requires at least two members in every region or group.
V. Groups

Overview

Groups add additional series to charts to allow easy comparison between a local government and the average of other similar ones. For example, G.R.E.A.T. is distributed with a group type that compares calculations against local governments of the same type with a similar population. You can use G.R.E.A.T. to create other groups. This section will show you how to create, delete, and update groups.

Groups vs. Regions

First, you need to decide if what you want is really a group. See Groups vs. Regions to find out.

Group Types

To view and modify groups, choose Settings->Group. The first window that you will see is called Group Types. Group types are used to categorize groups, just as calculation types categorize calculations. However, group types have the additional power in that if you create a chart for a local government then all groups within a group type that contain that government are automatically plotted in the chart.

Thus, how you organize groups is especially important. We recommend that if you only intend to use a group in the Comparison feature, that you place the group into the “Comparison Groups” group type. If “Comparison Groups” starts to fill up, you can develop your own method of group organization.

You can create, open, rename, delete, and copy group types. If you copy or delete a group type, it will affect all of its groups.

Creating a Group

Let's create a group containing all cities in Sheboygan County. Go to Settings->Group, highlight “Comparison Groups”, and click Open. You will now see a list of groups included within this group type.
Click New to create a new group. It will ask you for a name for the group. Type “Sheboygan County cities” and click OK.

You will now see the group details window as shown above. The left-hand side contains a list of members of the group. Currently there are none. On the right is a list of unassigned local governments, counties, and regions that you can include within the group. Note that in some instances you will have to click the Show Unassigned button before this list will be displayed.

To move local governments between the two columns, you need to highlight them. You can do this individually by clicking on the name. Alternatively, you can hold down either CONTROL or SHIFT while clicking so that more than one government can be selected at a time. Find the City of Sheboygan, City of Sheboygan Falls, and City of Plymouth, and click on each while holding down the CONTROL key. You should see something like “Unassigned (3/1924)” above the list to indicate that 3 of 1924 elements are selected. Click the <- arrow to move the cities into the group.

The group should now look similar to the above picture. If you like, you can also write a comment for the group, perhaps to remind yourself how you were able to generate it. You can also click Export to Excel to make a spreadsheet that contains a list of group members.
Modifying a Group

Suppose that you do not know which cities are in Sheboygan County or that the number of cities was so large that it would take a long time to include each one. Fortunately, G.R.E.A.T. includes a Power Selection feature that lets you make selections based on criteria.

Open the “Cities of Sheboygan County” group again by highlighting it and clicking Open. Click Show Unassigned if necessary, select each of the three group members, and click the -> button to remove them. Then click Power Selection and we will show how you can create this group in another way.

You will see the above window.

The ‘Apply to’ section specifies which local government types should be included. If you leave them all checked, then local governments of all types will be included in your selection. Since you only want to include cities in this group, uncheck all of these boxes except for cities.

There are three kinds of selections that you can make.

1) Choose ‘Select All’ to include all local governments that fit the ‘Applies to’ criteria. You would want to use this, for example, if you want to select All Cities.

2) Choose ‘Select all local governments in x county’, to include all members in the ‘Applies to’ criteria that belong to the county. There are a few issues that you need to be careful of here.
   - If you include both counties and other local governments, for some calculations data will be included twice, since for some fields counties represent the aggregate of their members.
   - This might not get you exactly what you want. Some local governments span over multiple counties (such as Appleton). You will want to examine that list to determine which amongst these local governments you want to include.

3) Choose ‘Select all local governments where the field x...’ if you want to define groups based on a value of a field. The built-in group type “By similar population size” was created this way using population thresholds. You will need to specify the field, the year in which to compare the data, and the range of values to include in a group.

For “Cities of Sheboygan County”, we want to use the second selection type. Choose Sheboygan County from the list and click Make Selection. The local governments that meet the criteria will be selected which will allow you to click an arrow to add or remove them. If ‘Deselect all others’ is unchecked, then the selections that you had made before remain; otherwise everything else will be unselected.
After adding the cities back to the group, click Save again.

**Copying and Restoring Group Types**

If you want to modify a group that is marked as “built-in”, we recommend that you first make your own personal copy and modify that instead, in case you make a mistake. To do this, go to Settings->Group, highlight a group type, click Copy, and assign it a new name. Notice that the new group type does not say “built-in”, while the other one does.

When you update the database, the groups in all built-in group types will be restored to factory default. This will cause you to lose any changes that you have made to them.

If you make changes to built-in groups such that they no longer work as they should, see Upgrading and Restoring Data.
VI. Regions

Overview

Regions allow you to combine multiple local governments to analyze them as a single entity.

Here are some uses for regions:

- Analyze the area affected by the Milwaukee Brewers Stadium Tax, or overseen by some other government entity.
- Analyze a metropolitan area. Rather than just looking at the city of Milwaukee you can include the suburbs to get a more macroscopic view.
- Perhaps you are concerned with how property taxes of the northern part of the state have been changing. Then you could create a code representing all of northern Wisconsin, or portions thereof.

This section will show you how to create, delete, and update regions.

Groups vs. Regions

First, you need to decide if what you want is really a region. See Groups vs. Regions to find out.

Precautions

There are several things that you need to be careful of when creating regions:

1) Ensure that you understand what county data represents. For some fields (specifically revenues and expenditures), the county data corresponds to the county government itself. For property tax and value fields, the data represents the total of all municipalities that are a part of the county. If you would include both municipal and county property tax and value data, you would be including some data twice. The one exception is the total county tax, which applies to the county government. However, adding the municipal county tax levies together will give you the total.

2) Do not include the same area twice within a region. For example, if you include both the city of Milwaukee and Milwaukee County within the same region, a lot of the property tax and property value data will be included twice, once for the city and again for the county.
Creating a Region

To begin working with regions, go to Settings->Region.

You should now see the regions list. You can create, edit, and delete regions. Notice that first two digits of the code for each region are “90”. This is how you can determine if a local government is a region.

Let’s create a new region called CITIES which will include data for all of Wisconsin’s cities.

To create a region, click New. You will then be asked to give the region a name. Type CITIES and press OK. You will now see the Region Details window.

This window works in exactly the same way as the Group Details window. On the left-hand side is a list of local governments that belong to the region and on the right-hand side is a list of other local governments. This differs from Group Details, however, in that for municipalities that span multiple counties the tax districts that comprise the municipality are listed instead of the municipality itself.

You can select unassigned local governments by highlighting them and clicking on the <- button to move them to the left. To choose members of your region more easily, you can use the Power Selection feature. Click Power Selection, and uncheck towns, villages, counties, and regions so that only cities are included. Click Make Selection and all cities will be highlighted. Click the <- button to move them to the member list. If you want to learn more about Power Selection, it is explained in further detail in the Groups section.
Click Save and choose Yes to save the new member list for the region.

Now you will see the above window that says “Updating Aggregate Totals”. This window takes all of the data for each member of the region and adds them together. Wait for this window to finish and you will be returned back to the Regions List. (If you interrupt this, you will need to resave the region or restore the entire database.)

At this point, the CITIES region is now selectable in other parts of the program, such as when you set up groups or plot local governments. If you want to compare your newly-created region with existing groups such as “All Regions”, then you need to add every region that you wish to include under the group. The “All Regions” group is an average of the region members. To do this, go to Settings -> Groups -> All Municipalities -> All Regions and add or remove regions.

**Viewing/Modifying a Region**

Suppose that you want to remove the larger cities (greater than 25000 people) from the analysis. To update the region, you need to select **Settings->Region**, highlight CITIES, and click Edit.

You will then see the familiar Region Details window. Click Show Unassigned, Power Selection, and then choose the third selection option. Here, you want to highlight all local governments where the population is greater than 25000. To do this, enter 25000 and 999999999 in the two boxes.
Now click Make Selection and click the -> button to remove the highlighted cities.

Suppose that you want to print a list of the members of this region. To do this, click “Save to Excel”, and you will get a spreadsheet like the one shown below. You can print this via Excel if you like.

Go back to G.R.E.A.T. and click Save for your region. You will see the “Updating Aggregate Totals” window again. Wait for it to finish and CITIES will be updated to exclude the larger cities. Make sure you remember what the region represents.

**Deleting a Region**

Now that you have finished learning how to use regions, you can delete the CITIES region. Select **Settings->Region**, highlight CITIES, and click Delete.
VII. Working outside of G.R.E.A.T.

Overview

If G.R.E.A.T.'s analysis is not flexible enough for you, then you will need to work with the data outside of the program. There are two ways to do this:

1) Choose Data->View Data, select the local government, and click Save to Excel.

2) Open the file datafile.mdb in the G.R.E.A.T. folder using Microsoft Access.

Precautions

There are several things you should be aware of as you work with this data:

- The equalized value and property tax data are itemized for each tax district while the revenues and expenditures data is itemized for each municipality. To compensate for this, in some instances we have had to combine several tax districts together into a single code. You can verify that a local government's data was aggregated together in this way by checking if its code begins with 99. See Appendix E – Aggregates (or view the Aggregates table in Access) for a list of members of each aggregate.

- If you view the data in Access, then you need to pay special attention to the population field. Beginning in 1990, the population field represents the number of people living in just the tax district associated with the municipal code. However, before then one of the tax districts contains the population for the entire municipal or county, and the other tax districts contain no population data. Note that if you let G.R.E.A.T. make the calculations, all of these issues have been accounted for.

- When working with the raw data found in datafile.mdb, you will be most especially interested in the Area and the AreaData tables. The AreaData table contains data for each municipal code and year; the Area table contains an entry for each municipal code, giving its name, municipality type, and county. If you use any SQL aggregate functions such as SUM, AVG, etc. you need to ensure that you select only those records in Area where the field UNIQUEMUNI = True. Otherwise, there is a possibility that some data might be included twice within the calculations. Also, you need to ensure that you use the aggregate codes whenever you look at the property tax or property value data for a local government that spans over multiple counties. Note that if you let G.R.E.A.T. make the calculations, all of these issues have been accounted for.

- If you open the file in Microsoft Access 2000 or Microsoft Access XP, make sure that you do not resave the database with the newer file format. G.R.E.A.T. requires the older Access '97 file format. If you want to make changes from within Access, you will need to use Access ’97 or make another copy of the database.
VIII. Uploading New Data

Overview

Every year, the Wisconsin Department of Revenue releases new data that would be useful to include in G.R.E.A.T. However, they release this data separately as three sources: revenues & expenditures, property taxes, and property values. Because the data is made available at different times of the year, it is possible that you can receive the data months before it is integrated into the latest version of the G.R.E.A.T. database.

You can use the procedure below to include selected data in the G.R.E.A.T. database. Note that since you need to type in each figure manually, we do not recommend using this procedure to include a lot of data. If you wait until the latest version of the G.R.E.A.T. database is released, then you will have all of the new data without having to manually enter new data.

You will now need to load Excel and choose a file to modify. This will depend upon which set of data you are working with. See the list below for the file that you should open.

<table>
<thead>
<tr>
<th>DOR Dataset</th>
<th>Excel Spreadsheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues/Expenditures</td>
<td>C:\Program Files\G.R.E.A.T\revexp.xls</td>
</tr>
<tr>
<td>Property Values</td>
<td>C:\Program Files\G.R.E.A.T\propvalues.xls</td>
</tr>
<tr>
<td>Property Taxes</td>
<td>C:\Program Files\G.R.E.A.T\proptaxes.xls</td>
</tr>
</tbody>
</table>

Note: Although the population is available in both Revenues/Expenditures and in Property Taxes, G.R.E.A.T. will only use the value from the Property Taxes dataset.

After opening the appropriate Excel file, choose Save As and give the file a new name. These files are marked read-only, since you should always work with a copy of the files and never with the originals.

The file will look similar to the following:

In the first row, you will need to change <YEAR> to the year that the data is for. Leave the “GREAT” and “REVEXP” alone, since they are there so that G.R.E.A.T. knows that it is a G.R.E.A.T. upload file and that the fields belong to the revenues and expenditures database. In the third and subsequent rows, you need to enter the data for the local government(s) that you want to include. When done, close Excel and save the file.
Load G.R.E.A.T. and choose Settings->Upload. Here, you should select the file that you just saved, and click Upload. The Upload New Data window is displayed above.

G.R.E.A.T. will then process your upload file. If the file was set up correctly, it should finish rather quickly. Otherwise, you will need to make changes in the Excel spreadsheet and upload again. Once uploading is successful, G.R.E.A.T. will begin to update aggregates and counties (for property taxes and property values) with the appropriate totals.

If you loaded data for a new year, you might want to change the default years in the calculations. To do this, go to the Select Years step of creating charts, change the default years, and click Save Defaults. You will have to do this for each calculation type that you want to include the new year.

If you accidentally add too much data, and you want to remove it, you should restore the database. See Updating and Restoring Data for instructions on how to do this.
IX. Updating and Restoring Data

Overview

You can access this window by choosing Tools->Load Database.

This window allows you to load a G.R.E.A.T. database file and lets you either update the database with the latest data or restore settings to how they were when you first installed the software.

Updating Data

If you choose to load a database file that is newer than the present one, then you are upgrading the database. You can tell how recent your current database is by looking at the bottom right corner of the G.R.E.A.T. window.

The first thing that you will need to do is specify which database file you want to load into the program. If you are updating, then you will be able to get this either via the web or by ordering a CD-ROM. If you downloaded the file over the web, you will need to click Browse and find the file. If you received the file on a CD-ROM, then choose Browse, and select your CD-ROM drive. The files will be named similar to GREAT2001a.mdb, GREAT2002c.mdb, etc. To ensure that the new database is not out-dated, the program will only allow you to load a file that is at least as recent as the current database.

Because the data is newer than what you have, you will be required to load all settings. Click Load Data, and wait about twenty minutes for the update to complete. The update actually clears the entire database and reloads it from the new version to ensure data integrity. You will be prompted if you want to replace your GDP deflator table and your default year selection. Typically, you should say yes here, unless you had customized these settings yourself. As upgrading finishes, the database will be compacted to ensure that it is faster and takes less space on your hard drive. If you cancel the program while it is in the process of updating, G.R.E.A.T. will force you to reload all settings before letting you do anything else in the program, since the database will be temporarily corrupt.

Restoring Data

This window can also be used to restore data back to built-in factory defaults. To do this, click Browse and find the G.R.E.A.T. database. If you received G.R.E.A.T. on a CD-ROM, then insert the CD into the drive and look for the database there. If you downloaded G.R.E.A.T. off the web, then you will need to download another copy of the database, find it in the file listing, and select it.
Then you will be asked which portion of the database you want to restore. Below are descriptions for each update type, along with a definition of what is "built-in".

**Municipality, county, and region data** - This is the most important (and slowest) part of the update. This will clear the entire database of local governments and the corresponding data and replace it with the contents of the specified file. This includes any data that you had manually uploaded through Excel. Regions that you have created will be preserved, however, unless you choose 'Clear user-created data'.

**Calculations** - Built-in calculations are marked as such in Calculation Details. If you want to modify a calculation and not have it cleared when reloading data, make a copy of it first. Any calculation not marked as "built-in" will not be cleared unless you specify so.

**Groups** - Built-in groups are marked as such on the group type level. Make a copy of every group type that you have modified, if you do not want to lose changes you have made. Groups not marked "built-in" will only be deleted if you specify 'Clear user-defined data.'

**GDP Deflators** - Clears all stored GDP deflators and replaces them with the new ones. This is all or nothing. If you select 'All of the above', you will be given an opportunity to omit this step.

**Default Year Selection** - This will update the default year selection for each calculation type. This is all or nothing as well. You will also be prompted for this if you choose 'All of the above'.

**All of the Above** - Does all of the above steps, in order.
X. Troubleshooting

Q: The labels on my pie chart are displayed on top of each other. It makes it very difficult for me to read. How can I improve this?

A: You can always click on the labels that are stacked on top of each other and move them with the mouse. You may need to resize the chart itself and make it smaller.

However, it is not always necessary to make these adjustments. Look at Excel's print preview. Often, the labels are not readable on the screen, but look better when printed.

Q: When I load G.R.E.A.T. I get an error message saying that either my data file is too old or my data file is too new. Why does this happen?

A: When new versions of G.R.E.A.T. are released, they sometimes use a different database structure than previous versions of G.R.E.A.T. Your data files (datafile.mdb and local.mdb) must be of the appropriate version for the executable (great.exe) that you are using. Otherwise, the program will attempt to use fields that do not exist. The solution to this problem is to get a matching set of the program and the data file. An easy way of doing this would be to reinstall G.R.E.A.T. from the original CD.
Appendix A – Chart Types

Below is a list of the types of charts that you can create in G.R.E.A.T.

**ACTUAL**

The ACTUAL chart type will show the actual data, adjusted or not for inflation, depending upon your selection in creating the chart. This is useful if you want to find the magnitude of the values.

**BAR-FIELD**

The BAR-FIELD chart type expresses values as a percentage of the whole. These are comparable to PIE charts, only in a bar format. Place the cursor on the bar, or portions of the bar, to determine the percentage amount. This chart is useful in showing the selected local government against the comparison groups.
The BAR-PER-CAPITA chart type is a BAR-RATIO chart with the denominator preset to the population. PER-CAPITA charts show the value amount per person for revenues, expenditures, taxes, and property values. Per capita values are a means to "hold constant" the effect of population in some important ways. For example, the amount of taxes raised by a large urban center may seem high, but if it is put on a per capita basis, then the amount may be far less than per capita taxes raised in less populous areas. This chart is a composite series and has the advantage of seeing all values for each per capita comparison side-by-side. Place the cursor on the bar chart to determine the exact per capita value for each series.

BAR-RATIO

The BAR-RATIO chart type is similar to a RATIO chart type. The main difference between the types is that instead of showing a line graph over a range of years, a BAR-RATIO chart shows a bar for a selected year. A BAR-RATIO also allows charting multiple series or comparison groups onto one graph.

Currently, the program does not include any charts of this type. However, one example would be to calculate the property tax to total general obligation debt ratio.

BAR-STACK

Currently, the program does not include any charts of this type. However, one example would be to calculate the property tax to total general obligation debt ratio.
The BAR-STACK is a bar-chart version of a PIE chart. Instead of showing how each category is a percentage of the total pie by the size of a “slice,” this chart shows each category as a percentage of the bar. A BAR-STACK can contain three years on a single chart. Place the cursor on an area of the bar stack to determine the specific percentage amount, and tracing across, note the changes in composition over time.

INDEX

The INDEX chart type shows the percentage change of a value over time. The base year is defined as 100 and each subsequent year is expressed as a percentage of the first year. For example, a subsequent year may have a value of 221, which translates into a 121% increase over the base year of 100. INDEX charts are useful in showing real growth changes, after adjusting for inflation. The growth rates do not indicate, however, the level or amount of the value nor the proportionate share it makes up of the total.

MILL-RATE

The MILL-RATE chart type is the result of dividing the gross tax levy or net levy (minus tax credit) by the equalized value (less TIF value). The resulting figure is multiplied by $1000. Mill rates are thus expressed as a rate per $1000 of property value, such as a local tax of $3.50 per $1,000 of property value.
The PER-CAPITA chart type will show the dollar value of revenues, expenditures, property values, or taxes on a per capita basis, adjusted for inflation. G.R.E.A.T. will take the field(s) given in the numerator and it will divide it by the population.

**PIE**

The PIE chart depicts the composition of revenues, expenditures, values, or taxes in the form of a pie. The sizes of the pie “slices” reflect the percentage that each category makes of the total. Each percentage amount is designated under the category title. By moving the cursor over the pie slice, the dollar amount for that category will appear.

**RATIO**

The RATIO chart type will show a numerator divided by a denominator in a line graph over a period of years. If you plan to set the denominator to the population, use the PER-CAPITA chart type instead, which automatically does this. This trend line chart is useful in determining the relative proportion between two variables, such as what total general fund revenues to expenditures have been over time.
Appendix B – Menu Structure

Here are brief descriptions of each of the menu choices.

Data

Create Charts -- Perform calculations and create charts for local governments
View Data -- Shows the raw data and allows saving it to Excel

Exit -- Exits G.R.E.A.T.

Settings

Calculation – Manage or create calculations
Group -- Manage or create groups
Region -- Manage or create regions
GDP Deflator -- View/Modify GDP Deflator data

Tools

Upload Excel Data -- Adds new data to the program
Load Database -- Loads in latest data; resets data to factory defaults

Compact Database -- Optimizes the database for speed and space (Requires hard disk space of twice the size of the database)

Windows

Close All -- Closes all open windows.

Help

Using application -- Displays the contents of this help document
Data Information -- Displays information about the data

Troubleshooting -- Show workarounds for common problems

About -- Displays version number and copyright information
Appendix C – GDP Deflators

GDP deflators are used to remove inflationary effects from your calculations. You can view the GDP deflators that G.R.E.A.T. is using and modify them at Settings->GDP Deflators. A list of deflators will be shown.

Each deflator's value should be considered in relation to the values of the other years. For example, if 1998 had a deflator of 1.0300 and 1997 had a deflator of 1.017, and we had $1 in 1997, then due to inflation that one dollar is now worth $0.987 in 1998 dollars.

An excellent site for finding deflator values is http://www.jsc.nasa.gov/bu2/inflateGDP.html You will need to set 1996 as your start year. Note that the later years are only estimates and that the estimates will change as time progresses. To update the estimates, check this website (or other sources) for the latest numbers and update the program. If you receive yearly updates of the G.R.E.A.T. software, then the new GDP deflators will be entered for you.

To change an existing deflator, enter a new value in the correct cell.

To add another year, move your cursor to the bottom row and start typing.

To delete an existing deflator, put the cursor at the row that is to be deleted, then click the Delete button.

If you make a mistake, and you want to restore the GDP deflators back to how they were originally set, see Upgrading and Restoring Data.
Appendix D – Data Information

This appendix summarizes the four databases available in the G.R.E.A.T. software: revenues, expenditures, equalized property values and property taxes. The revenues and expenditures are organized by the chart of governmental accounts used in the mandatory financial report forms local governments must complete each year. For clarity, the account lines from the financial report forms are listed as well as items that may be individual to specific local governments.

Revenues Glossary

The revenues shown by category are for governmental funds, which include the revenues of the general fund, capital project fund, special revenue fund, and debt service fund.

Other revenue funds are summarized under the listing of proprietary funds, which include enterprise funds, trust funds and internal service funds.

Population is the resident population for the current year as estimated by the Department of Administration.

General Property Taxes are the property taxes levied in the previous year and collected in the current year for those on a modified accrual basis of accounting. They are the cash collections for those municipalities (mainly towns) that use cash accounting. For counties, these include special levies for highway and bridge, libraries, public health and so forth. (100-41110)

Tax Increments are the levies for tax incremental finance districts. (100-41120)

In Lieu of Taxes include taxes from regulated municipally owned utilities and other exempt entities. (100-41310 and 100-41320)

Other Taxes include revenues from occupational, mobile home fees, forest crop, woodland, motor vehicles, room taxes, general sales, premier resort area, race track admission, retailer's discount, real estate transfers, interest and penalties, and other taxes. Counties add in levy for handicapped schools. (100-41130, 100-41140, 100-41150, 100-41160, 100-41170, 100-41210, 100-41222, 100-41240, 100-41800, 100-41900)

Counties add in 100-41115, 100-41221, and 41230.

Total Taxes are the sum of the four lines above. (101-41000)

Special Assessments are those levied for collection in the previous year and assessments collected prior to being placed on the roll. (102-42000)

Federal Aids include grants and payments for public safety, transportation, sanitation, public housing, and other activities. (103-43211, 103-43211,103-43212, 103-43213, 103-43219, 103-43221,103-43227, 103-43231, 103-43239, 103-43271,103-43300)

Counties add in 103-43240*, 103-43250*, 103-43261*, and 103-43262. *Applicable to municipalities over 25,000 people.

State Shared Revenues are those received per Wisconsin Statutes (subch. 1, Ch.79), which includes the general shared revenue program, the expenditure restraint program, and the small municipalities shared revenue program. (103-43410)
**State Highway Aids** include aids for local transportation (general aids and local road improvement program, flood damage payments for roads, and other highway aid. (103-43531, 103-43532,103-43533, 103-43534)

**All Other State Aids** includes fire insurance tax, other state shared taxes (i.e., mining impact tax), public safety, transportation (excluding highways), sanitation, recycling, health, human services, public housing, in lieu of tax payments for computer exemption and state conservation lands and state and federal forestry lands, payments for municipal services, forestry aids, and other aids. (103-43545, 103-43549,103-43610, 103-43620,103-43630,103-43640, 103-43650, 103-43660, 103-43690)

Counties add in 103-43510*, 103-43550*, 103-43560*, 103-43571*, and 103-43572. *Applicable to municipalities over 25,000 people.

**Other Local Government Aids** include highway and bridge aids and other grants from local governments, such as those for libraries, parks, solid waste management and veterans graves. (103-43710, 103-43781, 103-43782, 103-43790)

**Total Intergovernmental Revenues** are the sum of federal aids through other local government aids above. (104-43000)

**Licenses and Permits** include business, other licenses, building permits, zoning permits, inspection fees, impact fees, and regulatory permits for such activities as parking. Business permits can include liquor and malt beverage, cigarette, soda pop, bartender, dance, peddler, mobile home court, cable television licenses and franchise fees, milk haulers, taxi, auction, going out of business, transient merchant, junk and theater. Nonbusiness permits and licenses can include those for occupational drivers license (municipal share), bicycles, cats, dogs and any other license that is not for the purpose of business or construction. (105-44100, 105-44200, 105-44300, 105-44400, 105-44900 or the total found in 106-44000)

**Fines, Forfeits, and Penalties** include law and ordinance violations, contract forfeitures, and judgments and damages awards. (107-45100, 107-45210, 107-45221, 107-45222, 107-45223, or the total found in 108-45000)


**Intergovernmental Charges for Services** are the revenues received from the federal, state, county, and other local governments for services provided by the given local government, such as monies for fire protection, ambulance, and highway maintenance. (111-47121, 111-47122, 111-47131, 111-47141, 111-47181, 111-47190, 111-47221, 111-47222, 111-47230, 111-47241, 111-47281, 111-47290, 111-47310, 111-47321, 111-47323, 111-47324, 111-47325, 111-47326, 111-47331, 111-47339, 111-47341, 111-47342, 111-47343, 111-47345, 111-47381, 111-47390, 111-47400, or the total found in 112-4700)

Counties add in 111-47349, 111-47350*, 111-47360*. *Applicable to municipalities over 25,000.
Interest Income includes interest on general investments and special assessments. (113-48110, 113-48130)

Other Revenues include rental income, sale of property, insurance recoveries, donations, refunds, and miscellaneous revenues, such as recovered delinquent personal property taxes. (113-48200, 113-48300, 113-48302, 113-48303, 113-48304, 113-48305, 113-48306, 113-48307, 113-48309, 113-48420, 113-48430, 113-48440, 113-48500, 113-48900)

Total Miscellaneous Revenues are the sum of the two lines above. (114-48000)

Subtotal-General Revenues include the total revenue received from the sources noted above.

Other Financing Sources include proceeds of long-term debt, interfund transfers, proceeds of refunding bonds, and sale of major general fixed assets. (115-49100, 115-49200, 115-49400, 115-49500, or the total found in 116-49000)

Total Revenues and Other Financing Sources include the Subtotal-General Revenues and Other Financing Sources. (117-40000)

Expenditures Glossary

Current expenditures include gross salaries and wages of employees, municipal contribution to health, life and disability insurance, unemployment compensation insurance, workers compensation insurance, social security, and contributions to other employee benefit programs such as the Wisconsin Retirement Fund. Also included are per diem payments, purchased materials and services, mileage, office supplies, repair of equipment, printing, licenses, postage, publication, gasoline, oil, small tools, equipment rental, payments on debt, interest payments, insurance premiums, and utility bills for water, sewer, heat, electricity and telephone.

Current expenditures, as listed here, also includes capital project expenditures. Capital outlays include the acquisition of, or addition to, fixed assets such as trucks, graders, and other equipment; land and buildings; capital improvements such as construction or reconstruction of roads, sewers, curbs, gutters, sidewalks, street or road signs, light poles, office machines, revaluation of property, engineering fees, and construction materials.

The expenditures listed below also include any contracts and payments with private providers or other governments to provide a specific service, such as fire protection.

Population is the resident population for the current year as estimated by the Department of Administration.

Expenditures-General Government includes the operating expenditures and capital outlay for board, clerk, treasurer, assessor, accounting, administration, election, legal counsel, municipal court, municipal buildings, purchasing, risk and property management, judgments and losses, uncollectible taxes and special assessments, and unallocated insurance. (118-51100, 118-51200, 118-51300, 118-51400, 118-51500, 118-51600, 118-51910, 118-51920, 118-51931, 118-51932, 118-51938, 118-51938, 118-51980 or the total found in 119-51000 plus capital outlays on 130-57140 and 130-57190)

Counties add in 118-51700 and 118-51930*. *Applicable to municipalities over 25,000.

Law Enforcement includes the operating expenditures and capital outlay for law enforcement services, such as for traffic patrol, criminal investigation, education, school crossing guards, community relations, crime prevention, and support services (communication). Other activities that may be included are water safety patrol and snow mobile law enforcement. (120-52100 plus capital outlays on 130-57210 and 130-57261)
Fire includes the operating expenditures and capital outlay for fire protection and related services, such as training, fire inspections, investigation of fire losses, hydrant rental payments to utilities, education, fire signs, and fire fighting. (120-52200 plus the capital outlay on 130-57220)

Ambulance includes the operating expenditures and capital outlay for providing ambulance related services, such as payments to first responders and ambulance service. (120-52300 and capital outlays on 130-57230)

Other Public Safety includes the operating expenditures and capital outlay for inspections (building, zoning, plumbing, electrical, etc.), emergency communication, correction and detention, civil defense, civil air patrol, and other miscellaneous public safety purposes (fence viewing, repair and restoration due to floods, wind or ice storms, and warning systems). (120-52400, 120-52601, 120-52609, 120-52700, 120-52900, or the total found in 12152000 plus capital outlays on 130-57269 and 130-57290) Municipalities over 25,000 and counties add in capital outlays on 130-57270.

Highway Maintenance and Administration includes operating expenditures and capital outlay for engineering, highway equipment and buildings, and highway maintenance. In counties, this entry will include depreciation for equipment and buildings. (122-53100, 122-53311, 122-53320, 122-53330 and capital outlays on 130-57324, 130-57327, 130-57332 and 130-57333)

Highway Construction includes the operating expenditures and capital outlay for constructing highways. (122-53315 plus capital outlays on 130-57331)

Road Related Facilities include operating expenditures and capital outlays for limited purpose roads, street lighting, sidewalks, storm sewers, and parking facilities. (122-53410, 122-53420, 122-53431, 122-53432, 122-53441, 122-53442, and 122-53450 plus capital outlays on 130-57341, 130-57342, 130-57343, 130-57344, 130-57345 and 130-57346)

Other Transportation includes operating expenditures and capital outlays for airports, mass transit, docks and harbors, and other transportation facilities. (122-53510, 122-53520, 122-53540, and 122-53580 plus capital outlays on 130-57351, 130-57352, 130-57354 and 130-57391)

Solid Waste Collection and Disposal includes operating expenditures and capital outlays for refuse and garbage collection, solid waste disposal (landfill) and recycling. (122-53620, 122-53631, and 122-53635 plus capital outlays on 130-57420, 130-57431 and 130-57435)

Other Sanitation includes operating expenditures and capital outlays for sewage service provided by a governmental fund type department, weed and nuisance control, water main construction by the governmental fund types and other sanitation. (122-53610, 122-53640, 122-53680 plus capital outlay on 130-57410 and 130-57490)

Health and Human Services includes operating expenditures and capital outlays for health officers, health inspections, mental health programs, general relief, cemetery, humane shelter, institution care, social programs, animal control, aging and veterans programs. (124-54100, 124-54420, 124-54600, 124-54910, 124-54980 or the total on 125-54000 plus capital outlay on 130-57510) Counties add in 124-54200, 124-54300, 124-54410, 124-54500, 124-54700, and 124-54920 and capital outlay under 130-57520*. *Applicable to municipalities over 25,000.

Culture and Education includes operating expenditures and capital outlays for libraries, museums, theater and other cultural activities, and handicapped schools operated by counties. (126-55110, 126-55120, 126-55190 plus the capital outlay on 130-57610) Counties add in 126-55600 and capital outlay on 130-57640.
Parks and Recreation includes operating expenditures and capital outlays for parks and zoo; recreation programs such as summer baseball and swimming lessons; events such as annual summer picnics, holiday decorations and parades; recreation facilities such as ice arenas, swimming pools, and baseball diamonds. (126-55200, 126-55300, 126-55300, 126-55400, and 126-55410 plus capital outlay on 130-57620 and 130-57630)

Conservation and Development includes operating expenditures and capital outlays for public housing, urban development, economic development, forestry and other conservation and development activities, and the administration of zoning and planning. (128-56500, 128-56600, 128-56700, 128-56900 or the total on 129-56000 plus capital outlay on 130-57710, 130-57721, 130-57725, 130-57730)

All Other Expenditures include operating expenditures such as refunds and contributions.

Subtotal-Operating and Capital Expenditures includes the sum of the lines General Government through All Other Expenditures.

Principal includes the amount paid on long-term debt for governmental fund type purposes. (132-58100)

Interest and Fiscal Charges include the interest paid on all debt incurred for governmental fund type purposes and the fiscal charges on these debt issues. (132-58211, 132-58212, 132-58213, 132-58221, 132-58222, 132-58227, 132-58230, 132-58290)

Total Debt Service is the sum of the two lines principal, and interest and fiscal charges on governmental fund type debt. (133-58000)

Subtotal-Expenditures include the total expenditures for the activities noted above.

Other Financing Uses include interfund transfer of funds, payments to refunding bond escrow agents, and funds applied to reduce tax levies of other taxing jurisdictions. (134-59200, 134-59500, 134-59800, 134-59900 or the total on 135-59000)

Total Expenditures and Other Financing Uses include the subtotal-expenditures; and other financing uses above.

Total General Obligation Debt includes bonds, notes, state trust fund loans, land contracts, installment purchases, etc., that mature more than one year after date of issue. General obligation debt is secured by an irrepealable tax levy and is subject to the statutory five (5) percent of equalized valuation limitation.

Proprietary Fund Types: This information is displayed to explain some of the differences that may occur between local governments because of their organizational structure.

Revenues (Proprietary Fund Types) include the revenues of the various activities such as sewer, water, electric, solid waste disposal, parking, airports, mass transit, county farm, nursing homes, mental health services, general hospital, cemetery, civic center, theater, and golf courses that are operated as an enterprise. Among the revenue sources included here are any tax contributions by the local government. This line also includes revenues of internal service funds and fiduciary/pension trust funds.

Expenses (Proprietary Fund Types) include the expenses of the various activities (see revenues above) that are operated as an enterprise. This line also includes expenses of internal service funds and fiduciary/pension trust funds.
Property Valuation Glossary

Different categories of property are split up in the database between the real property value and the improvement value. Real property consists of the land; improvements consist of buildings, pools, roads, lighting, and so forth to enhance the use of the land and the property.

Residential - Class 1
The residential class includes most land and improvements where the predominant use of a property is for living purposes. Included in this category are single family houses, mobile homes assessed as real property, condominiums and time-share units used as a residence, and apartments with three or less units. Farm homes that are part of an operating farm are classified as "other." Residential property also includes vacant land where the most likely use would be residential development, if the land in question does not meet the definition of agricultural use.

Commercial - Class 2
Commercial property consists of land and improvements for which the predominant use is the selling of merchandise or a service. Apartment buildings of four or more units, hotels, motels, summer resorts, and mobile home courts are classified as commercial property. This classification also includes vacant land for which the highest and best use is commercial.

Manufacturing - Class 3
Manufacturing property is any land or improvement used in the manufacturing, assembling, processing, fabricating, making or the milling of tangible personal property for profit. Establishments engaged in assembling component parts of manufactured products are considered manufacturing establishments if the new product is neither a structure nor other fixed improvement. Manufacturing property also includes warehouses, storage facilities and office structures when the predominant use of the warehouses, storage facilities or offices is in support of the manufacturing property.

Agricultural - Class 4
This class of property includes all unimproved land used for agricultural use, which includes cropland, pasture and specialty land. The farm buildings, residence and other improvements are classified within the "other" category of property. There are five types of agricultural land: (1) first grade tillable cropland, (2) second grade tillable cropland, (3) third grade tillable cropland, (4) pasture, and (5) specialty land. In order for land to be considered agricultural property, the land must be devoted primarily to agricultural use.

Wetlands (Swamp and Waste) Class 5
Swamp or wasteland is defined by statute to include bog, marsh, lowland brush, uncultivated land zoned as shoreland and shown as a wetland on a final map, or other non-productive lands not elsewhere classified. Land with buildings or improvements cannot be classified swamp or waste. Land that is not classified elsewhere is placed here. In addition, road right-of-way fronting agricultural land is classified swamp or waste if it is not in an agricultural use. Due to its restricted use, right-of-way is given a nominal value. Right-of-way fronting any other class of land remains in that class. For cities and villages, land was not placed in this classification until 1996 with the advent of agricultural use value assessment. In the charts and graphs, you may see the “all cities” and “all villages” average indicate values prior to 1996. This reflects the values of towns that have incorporated into cities or villages.

Forest - Class 6
Forest lands are productive woodlands; all non-productive lands are classified as swamp or waste. Land with buildings or improvements cannot be classified as forest property. The one exception to this are lands in state management programs with improvements. The improvements are then considered personal property.
Productive forest lands and related services in this classification are determined primarily by the use of the land. Forested areas used for hunting, fishing, recreation, or in the operation of a game preserve, are classified as forest unless clearly operated as a commercial enterprise or are tax exempt. Forest lands include those forested areas, not on farms or ranches, which are being managed or set aside to grow tree crops for "industrial wood" or to obtain tree products such as sap, bark, or seeds. Forested areas, including cutover areas, on farms, ranches, or estates, with no commercial use made of the trees are considered forest property. Cherry orchards, apple orchards, and Christmas tree plantations are classified as agricultural property.

For cities and villages, land was not placed in this classification until 1996 with the advent of agricultural use value assessment. In the charts and graphs, you may see the “all cities” and “all villages” average indicate values prior to 1996. This reflects the values of towns that have incorporated into cities or villages.

Other - Class 7
Agricultural buildings, improvements, and the land necessary for their location and convenience make up this category of property. This class was created in 1995 to accommodate agricultural improvements, and the land on which they are located, so that agricultural land could be assessed at its use value.

Personal Property
Personal property that is subject to taxation include boats and watercraft; furniture, fixtures and equipment; machinery, tools and patterns; mobile homes in parks or courts; buildings on forest land under a state management program; and other items not specifically exempt under property taxation. The property value database includes personal property designated as EVA and SAM. All of these categories are added together for a total personal property figure.

Property Taxes Glossary

Population is the estimate of the resident population as determined by the Wisconsin Department of Administration for the year shown.

Full Value is the full value of all taxable general property as determined by the Wisconsin Department of Revenue. This value is determined independently of the locally assessed value and is meant to reflect the actual market value. However, this value reflects corrections for prior year errors. If the value of a tax district were overstated (or understated) in the prior year, its value would be understated (or overstated) this year.

Percent Assessment Level is the locally assessed value divided by the full value (expressed as a percent). These levels vary substantially, from less than 47 percent to more than 123 percent.

Full Value Excluding TIF is the full value of taxable general property as determined by the Wisconsin Department of Revenue EXCLUDING the full value of improvements to property within Tax Increment Finance Districts (value increment). This full value is used for the apportionment of all taxes, except the state reforestation tax which is apportioned to local units according to the full value in Column 2.

TIF District is the number of Tax Increment Finance Districts having positive value increments in the tax district.

Total Property Tax includes state taxes and special charges on counties and tax districts, state trust fund loans, general county and county special purpose taxes, local taxes, county special charges, special purpose district taxes, and school taxes. It reflects the amount of surplus funds applied (if any) by a tax district to reduce any of the above apportionments or charges. It does not include special assessments
and charges to individuals, manufacturing penalties, delinquent and omitted taxes, forest crop taxes, managed forest land taxes, woodland taxes, or occupational taxes.

**State Property Tax Credits** is the total amount of general property tax credit PAID to the tax district. State tax credit is provided directly to taxpayers in the form of credits on property tax bills. Tax districts are notified by December 1 of the tax credit amount they will receive in the following years and are required to show the credits on tax bills. The credit is considered part of the tax payment. The state distributes the credits to tax districts in July. Note: The total amount of state tax credit placed on the tax roll by the tax district may differ slightly from the total certified to it due to overruns, under-runs, etc.

**Full Value Rates - Gross** is the total general property tax divided by the full value. This rate is preferred to the general property tax local rate (not shown) for making comparisons between tax districts because all taxable general property is valued at the same level; however, you must realize that this is an average rate, and that surplus funds may have been applied to reduce the rate.

**Full Value Rates - Effective** is the general property tax less state property tax credit (not including lottery credit) divided by the full value. The effective rate is an average rate.

**School District Taxes - Elementary/Secondary** is total gross school tax levied on general property including trust fund levies. It excludes technical college district taxes and taxes levied by counties for special education purposes. School taxes are apportioned to tax districts according to full value excluding TIF value increments.

**School District Taxes - Technical College** is the total gross technical college tax levied on general property. Technical college taxes are apportioned to tax districts according to full value excluding TIF value increments.

**County Tax** is the gross county tax. It includes state special charges for charitable and penal purposes, principal and interest on state loans, county taxes for special education purposes and that portion of the county budget financed by taxation of general property. County taxes are apportioned to tax districts according to full value excluding TIF value increments. Note: The calculated full value rates may vary among the tax districts within a county because special charges and county special purpose taxes may not have been applied uniformly to all tax districts within a county.

**Local Tax** is the tax for town, village, or city purposes including utility districts. It includes the balance of the money a tax district needed to meet its obligations, expenses, etc. and the state or county special charges to the tax district. It reflects reductions due to the application of surplus funds and any overrun or underrun on the tax roll.

**Other Taxes** includes the state reforestation tax which is apportioned to each county on the basis of its full value. Counties, in turn, apportion the tax to the tax districts within their borders on the basis of full value. It also includes any tax increments and taxes levied for special purpose districts such as metropolitan sewage districts, sanitary districts, public land lake protection districts.
Appendix E – Aggregates

Overview

When you verify calculations, create regions, or work with the database outside of G.R.E.A.T., you need to be aware of how the program uses aggregates to represent portions of the data. We define an aggregate code as a virtual municipality whose data represents the sum of data from other municipality codes. You can think of an aggregate as a region in which its members cease to be independently selectable.

We have created an aggregate for each local government that spans more than one county. This was done because the Wisconsin Department of Revenue assigns property tax and property value data to tax districts, and municipalities have a separate tax district for each county that they are a part of. We use aggregates in G.R.E.A.T. to combine these tax districts, so that when you select the city of Appleton you get data that represents the sum of the portions in Calumet, Outagamie and Winnebago counties.

You can recognize an aggregate by checking if it is not a region and its code is of the form 99xxx.

Aggregates in G.R.E.A.T.

We have created an aggregate for each of the following municipalities, since they are located in more than one county, and have assigned it to the county listed.

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Assigned County</th>
<th>Other Counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABBOTSFORD</td>
<td>CITY</td>
<td>CLARK</td>
<td>MARATHON</td>
</tr>
<tr>
<td>APPLETON</td>
<td>CITY</td>
<td>OUTAGAMIE</td>
<td>CALUMET, WINNEBAGO</td>
</tr>
<tr>
<td>BAYSIDE</td>
<td>VILLAGE</td>
<td>MILWAUKEE</td>
<td>OZAUKEE</td>
</tr>
<tr>
<td>BELLEVILLE</td>
<td>VILLAGE</td>
<td>DANE</td>
<td>GREEN</td>
</tr>
<tr>
<td>BERLIN</td>
<td>CITY</td>
<td>GREEN LAKE</td>
<td>WAUSHARA</td>
</tr>
<tr>
<td>BIRNAMWOOD</td>
<td>VILLAGE</td>
<td>SHAWANO</td>
<td>MARATHON</td>
</tr>
<tr>
<td>BLANCHARDVILLE</td>
<td>VILLAGE</td>
<td>LAFAYETTE</td>
<td>IOWA</td>
</tr>
<tr>
<td>BROOKLYN</td>
<td>VILLAGE</td>
<td>GREEN</td>
<td>DANE</td>
</tr>
<tr>
<td>BURLINGTON</td>
<td>CITY</td>
<td>RACINE</td>
<td>WALWORTH</td>
</tr>
<tr>
<td>CAMBRIDGE</td>
<td>VILLAGE</td>
<td>DANE</td>
<td>JEFFERSON</td>
</tr>
<tr>
<td>Cazenovia</td>
<td>VILLAGE</td>
<td>RICHLAND</td>
<td>SAUK</td>
</tr>
<tr>
<td>COLBY</td>
<td>CITY</td>
<td>CLARK</td>
<td>MARATHON</td>
</tr>
<tr>
<td>COLUMBUS</td>
<td>CITY</td>
<td>COLUMBIA</td>
<td>DODGE</td>
</tr>
<tr>
<td>CUBA CITY</td>
<td>CITY</td>
<td>GRANT</td>
<td>LAFAYETTE</td>
</tr>
<tr>
<td>DE SOTO</td>
<td>VILLAGE</td>
<td>VERNON</td>
<td>CRAWFORD</td>
</tr>
<tr>
<td>DORCHESTER</td>
<td>VILLAGE</td>
<td>CLARK</td>
<td>MARATHON</td>
</tr>
<tr>
<td>EAU CLAIRE</td>
<td>CITY</td>
<td>EAU CLAIRE</td>
<td>CHIPPEWA</td>
</tr>
<tr>
<td>EDGERTON</td>
<td>CITY</td>
<td>ROCK</td>
<td>DANE</td>
</tr>
<tr>
<td>GENOA CITY</td>
<td>VILLAGE</td>
<td>WALWORTH</td>
<td>KENOSHA</td>
</tr>
<tr>
<td>HARTFORD</td>
<td>CITY</td>
<td>WASHINGTON</td>
<td>DODGE</td>
</tr>
<tr>
<td>HAZEL GREEN</td>
<td>VILLAGE</td>
<td>GRANT</td>
<td>LAFAYETTE</td>
</tr>
<tr>
<td>HOWARD</td>
<td>VILLAGE</td>
<td>BROWN</td>
<td>OUTAGAMIE</td>
</tr>
<tr>
<td>KIEL</td>
<td>CITY</td>
<td>MANITOWOC</td>
<td>CALUMET</td>
</tr>
<tr>
<td>LIVINGSTON</td>
<td>VILLAGE</td>
<td>GRANT</td>
<td>IOWA</td>
</tr>
<tr>
<td>MARION</td>
<td>CITY</td>
<td>WAUPACA</td>
<td>SHAWANO</td>
</tr>
<tr>
<td>MARSHFIELD</td>
<td>CITY</td>
<td>WOOD</td>
<td>MARATHON</td>
</tr>
<tr>
<td>MENASHA</td>
<td>CITY</td>
<td>WINNEBAGO</td>
<td>CALUMET</td>
</tr>
<tr>
<td>MILLADORE</td>
<td>VILLAGE</td>
<td>WOOD</td>
<td>PORTAGE</td>
</tr>
<tr>
<td>MILWAUKEE</td>
<td>CITY</td>
<td>MILWAUKEE</td>
<td>WASHINGTON, WAUKESHA</td>
</tr>
<tr>
<td>MONTFORT</td>
<td>VILLAGE</td>
<td>GRANT</td>
<td>IOWA</td>
</tr>
<tr>
<td>MUKWONAGO</td>
<td>VILLAGE</td>
<td>WAUKESHA</td>
<td>WALWORTH</td>
</tr>
<tr>
<td>MUSCODA</td>
<td>VILLAGE</td>
<td>GRANT</td>
<td>IOWA</td>
</tr>
<tr>
<td>NEW AUBURN</td>
<td>VILLAGE</td>
<td>CHIPPEWA</td>
<td>BARRON</td>
</tr>
<tr>
<td>NEW LONDON</td>
<td>CITY</td>
<td>WAUPACA</td>
<td>OUTAGAMIE</td>
</tr>
<tr>
<td>NEWBURG</td>
<td>VILLAGE</td>
<td>WASHINGTON</td>
<td>OZAUKEE</td>
</tr>
<tr>
<td>PULASKI</td>
<td>VILLAGE</td>
<td>BROWN</td>
<td>OCONTO, SAUKAN</td>
</tr>
<tr>
<td>RANDOLPH</td>
<td>VILLAGE</td>
<td>DODGE</td>
<td>COLUMBIA</td>
</tr>
<tr>
<td>RIVER FALLS</td>
<td>CITY</td>
<td>PIERCE</td>
<td>ST. CROIX</td>
</tr>
<tr>
<td>SPRING VALLEY</td>
<td>VILLAGE</td>
<td>PIERCE</td>
<td>ST. CROIX</td>
</tr>
<tr>
<td>TURTLE LAKE</td>
<td>VILLAGE</td>
<td>VILLAGE</td>
<td>BARRON</td>
</tr>
<tr>
<td>UNITY</td>
<td>VILLAGE</td>
<td>MARATHON</td>
<td>CLARK, MARATHON</td>
</tr>
<tr>
<td>VIOLA</td>
<td>VILLAGE</td>
<td>RICHLAND</td>
<td>VERNON</td>
</tr>
<tr>
<td>WATERTOWN</td>
<td>CITY</td>
<td>JEFFERSON</td>
<td>DODGE</td>
</tr>
<tr>
<td>WAUPUN</td>
<td>CITY</td>
<td>DODGE</td>
<td>FOND DU LAC</td>
</tr>
<tr>
<td>WHITEWATER</td>
<td>CITY</td>
<td>WALWORTH</td>
<td>JEFFERSON</td>
</tr>
<tr>
<td>WISCONSIN DELLS</td>
<td>CITY</td>
<td>COLUMBIA</td>
<td>ADAMS, SAUK</td>
</tr>
</tbody>
</table>
Appendix F – Calculation List

Expenditures Analysis
GENERAL GOVERNMENT INDEX
LAW ENFORCEMENT INDEX
FIRE INDEX
AMBULANCE INDEX
OTHER PUBLIC SAFETY INDEX
HIGHWAY MAINTENANCE AND ADM INDEX
HIGHWAY CONSTRUCTION INDEX
ROAD RELATED FACILITIES INDEX
OTHER TRANSPORTATION INDEX
TOTAL TRANSPORTATION EXPENDITURES INDEX
SOLID WASTE COLL AND DISPOSAL INDEX
OTHER SANITATION INDEX
HEALTH AND HUMAN SERVICES INDEX
CULTURE AND EDUCATION INDEX
PARKS AND RECREATION INDEX
CONSERVATION AND DEVELOPMENT INDEX
ALL OTHER EXPENDITURES INDEX
SUBTOTAL OPER AND CAP INDEX
PRINCIPAL INDEX
INTEREST AND FISCAL CHARGES INDEX
TOTAL DEBT SERVICE INDEX
SUBTOTAL EXPENDITURES INDEX
OTHER FINANCING USES INDEX
TOTAL EXPENDITURES AND OTHER FIN USES INDEX
TOTAL GENERAL OBLIGATION DEBT INDEX
PRINCIPAL INDEX
GROSS ELEMENTARY/SECONDARY SCHOOL DISTRICT TAX INDEX
NET ELEMENTARY/SECONDARY SCHOOL DISTRICT TAX INDEX
TECHNICAL COLLEGE SCHOOL DISTRICT TAX INDEX
COUNTY TAX INDEX
LOCAL TAX INDEX
OTHER PROPERTY TAXES (INDEX)
PER CAPITA GROSS ELEMENTARY/SECONDARY SCHOOL DISTRICT TAX
PER CAPITA NET ELEMENTARY/SECONDARY SCHOOL DISTRICT TAX
PER CAPITA TECHNICAL COLLEGE SCHOOL DISTRICT TAX
PER CAPITA COUNTY TAX
PER CAPITA LOCAL TAX
PER CAPITA OTHER PROPERTY TAXES
TAXES (PIE, W/NET SCHOOL)
TAXES (PIE, W/GROSS SCHOOL)
TAXES (BAR-FIELD, W/NET SCHOOL)
TAXES (BAR-FIELD, W/GROSS SCHOOL)
TAXES (BAR-STACK, W/NET SCHOOL)
TAXES (BAR-STACK, W/GROSS SCHOOL)
PERCENT ASSESSMENT
GROSS ELEMENTARY/SECONDARY MILL RATE
NET ELEMENTARY/SECONDARY MILL RATE
TECH COLLEGE MILL RATE
COUNTY MILL RATE
LOCAL MILL RATE
OTHER TAXES MILL RATE

Property Valuation Analysis
COMMERCIAL IMPROVEMENTS INDEX
COMMERCIAL LAND INDEX
MANUFACTURING IMPROVEMENTS INDEX
MANUFACTURING LAND INDEX
OTHER IMPROVEMENTS INDEX
OTHER LAND INDEX
RESIDENTIAL IMPROVEMENTS INDEX
RESIDENTIAL LAND INDEX
TOTAL AGRICULTURE INDEX
TOTAL COMMERCIAL INDEX
TOTAL FOREST INDEX
TOTAL MANUFACTURING INDEX
TOTAL OTHER LANDS AND IMPROVEMENTS INDEX
TOTAL PERSONAL PROPERTY INDEX
TOTAL RESIDENTIAL INDEX
TOTAL WETLANDS INDEX
PER CAPITA COMMERCIAL IMPROVEMENTS
PER CAPITA COMMERCIAL LAND
PER CAPITA MANUFACTURING IMPROVEMENTS
PER CAPITA MANUFACTURING LAND
PER CAPITA OTHER IMPROVEMENTS
PER CAPITA OTHER LAND
PER CAPITA RESIDENTIAL IMPROVEMENTS
PER CAPITA RESIDENTIAL LAND
PER CAPITA TOTAL AGRICULTURE
PER CAPITA TOTAL COMMERCIAL
PER CAPITA TOTAL FOREST
PER CAPITA TOTAL MANUFACTURING
PER CAPITA TOTAL OTHER LAND AND IMPROVEMENTS
PER CAPITA TOTAL PERSONAL PROPERTY
PER CAPITA TOTAL RESIDENTIAL
PER CAPITA TOTAL WETLANDS

Property Tax Analysis
SHARED REVENUE PER CAPITA VALUE – COUNTY
SHARED REVENUE PER CAPITA VALUE - MUNICIPALITY
Revenues Analysis
GENERAL PROPERTY TAXES INDEX
TAX INCREMENTS INDEX
IN LIEU OF TAXES INDEX
REVENUES: OTHER TAXES INDEX
TOTAL TAXES INDEX
SPECIAL ASSESSMENTS INDEX
FEDERAL AIDS INDEX
STATE SHARED REVENUES INDEX
STATE HIGHWAY AIDS INDEX
ALL OTHER STATE AIDS INDEX
OTHER LOCAL GOVERNMENT AIDS INDEX
TOTAL INTERGOVERNMENTAL REVENUE INDEX
LICENSES AND PERMITS INDEX
FINES, FORFEITS AND PENALTIES INDEX
PUBLIC CHARGE FOR SERVICES INDEX
INTERGOVERNMENTAL CHARGE FOR SERVICES INDEX
INTEREST INCOME INDEX
OTHER REVENUES INDEX
TOTAL MISCELLANEOUS REVENUES INDEX
SUBTOTAL GENERAL REVENUES INDEX
OTHER FINANCING SOURCES INDEX
TOTAL REVENUE AND OTHER FINANCING SOURCES INDEX
PER CAPITA GENERAL PROPERTY TAXES
PER CAPITA TAX INCREMENTS
PER CAPITA IN LIEU OF TAXES
PER CAPITA OTHER TAXES
PER CAPITA TOTAL TAXES
PER CAPITA SPECIAL ASSESSMENTS
PER CAPITA FEDERAL AIDS
PER CAPITA STATE SHARED REVENUES
PER CAPITA STATE HIGHWAY AIDS
PER CAPITA ALL OTHER STATE AIDS
PER CAPITA OTHER LOCAL GOVERNMENT AIDS
PER CAPITA TOTAL INTERGOVERNMENTAL REVENUES
PER CAPITA LICENSES AND PERMITS
PER CAPITA FINES, FORFEITS AND PENALTIES
PER CAPITA PUBLIC CHARGE FOR SERVICES
PER CAPITA INTERGOVERNMENTAL CHARGE FOR SERVICES
PER CAPITA INTEREST INCOME
PER CAPITA OTHER REVENUES
PER CAPITA TOTAL MISCELLANEOUS REVENUES
PER CAPITA SUBTOTAL GENERAL REVENUES
PER CAPITA OTHER FINANCING SOURCES
PER CAPITA TOTAL REVENUE AND OTHER FIN SOURCES
REVENUE SHARES (PIB)
REVENUE SHARES (BAR-FIELD)
PER CAPITA REVENUES
REVENUE SHARES OVER TIME (BAR-STACK)