

Seneca County Parcel Data Hub Feasibility Study

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EXECUTIVE SUMMARY

The **eParcel Data Hub** collects and organizes parcel level real property tax information and stores it in a single internet website accessible location. The data is collected through normal Assessor and Tax Collector activities, converted from paper to data and images, then delivered on demand via the internet. The purpose is to reduce lag time processing tax collection and sales information to municipalities, the State, and the general public. The eParcel Data Hub is not new technology, rather a new application of database automation and data organization made possible by the increasing ubiquity of the internet as an information exchange medium, and the decreasing cost of high quality scanners and computers. The result is faster processing and reporting of tax collection and sales information, and the standardization of parcel information into a few, common data formats.

EXECUTIVE SUMMARY

The eParcel Data Hub system uses three Servers, supported by existing work stations and new, off-the-shelf desktop scanners to provide Tax Collectors, Assessors, and tax information users access to the data via the internet. Paper data, such as deeds, tax maps, and the RP 5217 are scanned as images for storage and retrieval, and the critical information from these forms are entered into the Hub's database for searching, sorting, and comparative reporting. By "digitizing" this real property parcel information, we can leverage the rapid communication capacity of the internet to reduce tax collection and parcel sales reporting processing time, increasing access to parcel data.

TAX COLLECTION.

The eParcel Data Hub Tax Collection module's purpose is to reduce tax collection reporting lag time. A secure desktop client program will provide the Tax Collector the same services as an over-the-counter tax collection software, but it will automatically update the Hub's database. This means that changes happen on the fly, not just when the Tax Collector updates RPS v4. Some tax collectors will refuse to change, or will have obsolete computers incompatible with the Hub. A secure web-form, emailing the data in a variety of supported text formats, or alternate-site data entry provide alternate means of entering data into the Hub. The amount of time saved will depend on the tax collector, but the eParcel Data Hub will at least provide a location to check a parcel's status without having to call various agencies to hunt down the information.

PROPERTY SALES

By scanning and indexing the RP5217 form, we can eliminate the weeks lost waiting for the scheduled pickup. The RP 5217 form, the Deeds, Tax maps, and other documentation are scanned, and critical data indexed. The indexes provide reports, searches, and comparison of parcel data, and the images allow visual collection of less critical data on demand. An electronic document package is assembled and emailed to the Assessor (automatically, or upon demand) rather than a physical package that will be held for several weeks

before the scheduled pick-up. After information is verified and/or corrected by the Assessor, the electronic package is emailed back to the hub through a secure connection.

INTEGRATION

The eParcel Data Hub integrates all county real property parcel level information into a single, searchable database that can be accessed through one web page. This includes assessment data, tax collection status, sale information, photographs, and even tax maps. More importantly, this information can be sorted, searched, compared, and downloaded in four different formats. The webpage will reside within the Seneca County Website, and some reporting features will be modifiable – such as permitting only registered high volume users to have access to automatic report generation and scheduling scripts.

CONSTRAINTS

In the past, bandwidth and data formats have created the technical constraint against such a system. Only one-half of Seneca County parcel data owners have access to high-speed internet cable or DSL connections, so data transfer need to assume users are accessing the data via low-speed Dial-up modems. Images are the primary problem. High quality images require large files and therefore huge bandwidth requirements. Data formats are the other issue, for not all users will be able to read or use all file formats. The eParcel Data Hub provides a means to convert data on demand into any of the most common text formats: fixed space (RPS v4), delimited text, XML, and Excel Spreadsheet. Documents such as Photographs, Tax Maps and the RP5217 and will be stored as TIFF files and converted into generic viewable PNG files on demand. Document Images will be indexed, recording only the critical data in the database. Together, this will solve much of the bandwidth and formatting problems for users with any computer system running Windows 2000 or higher.

In addition, this design assumes that some data owners will have obsolete (or nonexistent!) equipment, and will be unable to participate. The eParcel Data Hub will work without 100% participation, and will permit inclusion of new participants at a later date without complication.

SCALABILITY

The eParcel Data Hub is a spoke-hub system, meaning that the spokes – the local data owners (Tax Assessors, Tax Collectors, Real Property Tax Office) - all view and modify the data from a single database maintained at the County (the Hub). Because of this, the eParcel Data Hub can be replicated in any county, and a Master Hub structure developed in Albany as a collection point from each Hub. The Master Hub will obviously need to be more flexible than any individual county hub in order to accommodate the different data formats in different counties – but regardless of the format, the principle is the same.

INTRODUCTION

THE NEED

Across New York State, consumers (such as town planning departments, real estate agents, banks, and taxpayers) are unable to access and compare property tax parcel information from a convenient, centralized source. While some municipalities are able to provide parcel-specific property tax information in web-accessible format, there is no uniform method to provide and share deeds, maps, sales reporting forms (RP-5217), assessments, and other parcel related record information between the information owners and consumers.

In addition, much of this information is recorded, reviewed, stored, and disseminated by local governments manually, creating several month lag times after a sale is completed and recorded. And since different agencies own different information, carefully cross-checking and verification is required, which complicates access and adds to the lag.

For example, a real estate agent that needs sales, tax payment and other general parcel level information for one or more properties must contact 2-3 government agencies and to obtain the information.

Meanwhile, increasing access to high speed internet has called into question the age-old problem of bandwidth and document scanning. Ten years ago, most internet connections – particularly those used by the general public and small municipalities, were over dial-up modem systems. With a dial-up modem, a 5 megabyte image might take five to ten minutes to download if internet traffic was light, making transferring large numbers of high-quality photographs, document scans, and maps extremely inefficient. Today, high speed internet access from T1 lines, DSL, WiFi and Cable broadband connections are allowing these downloads to take seconds, rather than minutes.

Therefore, the goal of this study is three-fold:

1. To identify and assess the current stakeholder technical skill-sets and hardware inventories in order to develop a minimum skill and hardware threshold to optimally share data between these groups. By studying a small county with 17,603 parcels, we expected to uncover a broader set of issues (and solutions) than could be done in a larger, more populous county; and,

2. To determine whether a county-based hub system would provide a feasible means of reducing the sales information process lag time; increase the accessibility to parcel assessment, sales, and GIS information for public and private consumers; provide a web-accessible municipal and school district tax

collection interface to allow the viewing of all property tax information; and provide multi-parcel comparison within, and possibly outside the county; and,

3. Provide a high-level design for how such a parcel-hub system could be implemented, including addressing the technical and implementation issues of a “unified parcel data hub” system.

THE UNIFIED PARCEL - WHAT?

A **Unified Parcel Data Hub**, or **eParcel Data Hub**. Standard database management theory states that you never store the same “active” data in more than one place. That is, multiple agencies should not store a person’s address, for example, as an “original” simultaneously across many departments. For one thing, that redundancy takes up extra memory space. But more importantly, redundant data can quickly get out of sync, - for example the person moves and only contacts five out of ten agencies with his new address. The ideal method is to use a central database – a hub, also known as a relational database – and then request a copy of the information tied to a unique record ID (such as person’s Name, SSN, or a Parcel ID) upon demand.

The eParcel Data Hub would hold all parcel level tax information – RPS information, tax collection, copies of Deeds, tax maps and RP5217s in a single location at the county level. Consumers – both the general public, the high volume parcel data users – banks, real estate professionals, attorneys, and local government – Assessors, Tax Collectors, Towns and Villages, and the Real Property Tax Office would be able to access this information through a variety of internet based resources. A key benefit of this hub system would be the ability then to sort all the parcel data together and to search and compare properties in large numbers. In addition, the uniform data and central hub would allow process improvements that the current manual systems cannot, reducing the time lag between a property sale and the publishing of the sales information for months to weeks, for example.

The eParcel Data Hub would provide primary four functions – central data repository and analysis tool – the parcel databases; a streamlined electronic process for the RP 5217 allowing a faster reporting time plus capturing the sales data for property comparisons; and the ability to streamline the tax collection and reporting process through web-based and client-server desktop tax collection software; and, means to rapidly transmit parcel information to a NYS ORPS central database in a variety of formats. A fifth function would be to make this information available to the general public through a basic search, compare, and view website. Paired with Seneca County’s A2 Web Enablement project, that general public interface would be vastly improved, linking the RPS Assessment information including property photos to the eParcel Data Hub databases.

Physically, the eParcel Data Hub would use a trio of servers residing at the County level, securely storing images and indexes of deeds, tax maps, and RP5217 forms, RPS Assessment data, and tax collection transactions. The eParcel Data Hub would provide internal agency viewing of all information, as well as providing basic internet web-page access to viewing the data. Paired up with the A2 Web-Enablement project, the general user would have a single, one-stop web page for ALL property-tax information including the various municipal taxes and the public documents such as the 5217 forms and tax maps, allowing for search and compare functions.

A key strength of the parcel hub system would be that it would be scalable to any size county, and ultimately to the state. A particularly large county might require additional image storage capacity, but regardless, the three server Hub would work on any size county.

Traditionally a number of problems have prevented the realization of an eParcel Data Hub system:

- 1. Data Ownership** – Agencies own the data and do not wish to relinquish control of that information.
- 2. Data Formats** – Not everyone has the same needs, and the data has been formatted to suit their needs – not others, inadvertently making data-sharing difficult. Additionally, there are legacy formats - such as the fixed-space text format in the RPS v4 system that are still in use. Images provide a difficult problem with scanners creating large image files, but Databases are unable to read the “visual format” that human eyes can.
- 3. Access Constraints** – Bandwidth – the capacity of the entire Internet, and your own internet connections – to upload and download data has been a problem. Images require a great deal of storage space on hard drives, and can take considerable time to download and upload, particularly in small municipalities, rural areas, or in individual’s homes without high-speed internet access.
- 4. Lag Time** – finally, some processes – notably the 5217 and tax map review and update process have a considerable lag time between the transaction and when the updated materials have been manually verified.

These four issues represent the primary barriers that must be overcome in order for an eParcel Data Hub system to work.

Our study begins with an examination of these issues throughout our County.

THE PLAN OF WORK

The plan of work consisted of three general stages: data collection, data analysis and design, and reporting.

DATA COLLECTION

During the data collection stage, we contracted MPR Technologies (GSA# CMS128A) to conduct surveys and stakeholder meetings to educate the stakeholders on the issues, and then to interview them to determine what tax parcel information they use, how did they use it, to find out if they were an information owner or user, what would improve their processes, and importantly, what - if any – technology they used to access, analyze, keep, or utilize this information.

These surveys developed a picture of tax parcel data flow needs and capabilities. Specifically, the parcel data owners were surveyed to determine how parcel level data is collected, protected, disseminated, and used. Parcel data consumers were surveyed to determine how the data was used. Both were interviewed to discover the level of automation at each point in their workflow process.

Out of this survey data developed a picture of tax data life cycles and automation capacity in order to determine the best methods to share parcel level data with the consumers.

DATA ANALYSIS

During the data analysis and design stage, the information gathered in the surveys was evaluated to determine whether an eParcel Data Hub was even possible, if it was practical, and how it could be accomplished.

One primary issue that we anticipated for the data analysis portion was that one solution would likely not fit 100% of our needs, or a single method would not likely be acceptable to 100% of owners and consumers.

For example, we anticipated that not every parcel data owner would have reliable, broad-band access to the internet. In fact, in several cases - particularly for the Village Tax collectors - we are not even sure they have access to the internet at all.

During this stage, how to assure data security and accuracy were also evaluated, based upon the individual needs of communities.

REPORTING

Quarterly reports were submitted as surveys were developed, conducted, analyzed, and an eParcel Data Hub system architecture was defined and refined. This report is the end result of that process.

Survey Results

Overview

The data collected from all stake holders in Seneca County yielded an impressive amount of support for an eParcel Data Hub by the vast majority of those interviewed. As with any project, some valid concerns were raised, but these individuals expressed their enthusiasm once they learned that this was a collaborative effort, and that their input was vital to produce a successful outcome.

MPR Technologies, Inc. (MPR) was contracted to conduct the interviews and the analysis. MPR personnel met with staff and individuals from the County, Towns, Villages, and Schools. Their survey information has been recorded in a separate spreadsheet for reference purposes and will be provided under separate cover.

Seneca County is a rural area county with 33,000 people. Two-thirds live in the northern quarter of the county along the Routes 5 & 20 corridor in the Towns of Fayette, Waterloo and Seneca Falls. The remaining population lives in rural agricultural areas, from the flat marshlands around Montezuma Wildlife Refuge and the Barge Canal in the north, to the wineries along both Seneca and Cayuga Lakes, and the tidy Amish and Mennonite farms and the former Seneca Army Depot in central Seneca County, to the uplands and gorges of Finger Lakes National Forest along the southern county line.

Much of Seneca County has access to high speed internet service – particularly in the northern regions and around the school districts. However, many individuals and the smaller municipalities still use dial-up, or have no Internet access at all. Some data owners may not even have a PC. While these users have generally resigned themselves to updating their hardware, the modest financial cost of upgrading to a modern PC and internet access is a still a concern for a small municipality with a tiny, poor tax base.

Thus, any eParcel Data Hub system must accommodate users/owners unable, or unwilling, to participate. Some users/owners will only be able to participate with low-bandwidth connections and obsolete technology.

This survey also examined the technologies used in three related but separate data work flows. These work flows were the *5217 Real Property Transfer Form*, the *Assessment* process, and the *Real Property Tax Collection Process*. The work flows each have different time cycles and stake holders.

A common theme from the workflows is that the proper application of current technology can create the potential to remove the significant delays associated with disseminating information. For example, manual processes, such as the

verification of Assessment data, tax maps, deeds, and the RP5217 Real Property Transfer Report, can take up to sixty days to process from when it is filed with the County Clerk to when it is entered into the RPS system. This system can be sped up considerably for a modest cost in purchasing current off-the-shelf technology. This is due to the manual transport of the paper documents, and in a rural county the Town Assessor may pick up property packages only once a month.

Another example is the tax collection process. After the tax bills are printed updated payment information is retained at the local taxing authority and not relayed back to the county until the end of the payment cycle. This means that in some cases for a period of up to four months the county is not aware of payment status of taxes. Many owners have the technical means to alleviate this problem, it simply needs to be organized properly.

Thus, in addition to maintaining the property tax data in a single location, the ideal solution would use the eParcel Data Hub to streamline the RP 5217, tax assessment, and tax collection processes as it held the data.

Workflow Processes

5217 Real Property Transfer Form Workflow Analysis.

The 5217 Real Property Transfer Form work flow process starts when the form is filed at the County Clerks office with the property deed and survey. This set of information is then forwarded to the County Real Property Tax office. There the data on the form is verified and passed on to a tax map technician. The tax map technician verifies the property tax map information and if required updates the tax maps with any property splits.

The technician then assembles a document package that includes the 5217 form, deed, tax map and survey, and it is set aside for the Town Tax Assessor to pick up. This package, and all the information in it, is on paper format at this time.

In Seneca County, there are typically only a small number of parcel updates per town in a year. Tax Assessors typically pickup the RP5217 packages once a month. This presents a delay of **up to a month** while the information is sitting waiting to be picked up.

Once the Town Tax Assessor has picked up the package, he/she reviews the forms and keys in data into his/her desktop RPS v4 computer program. From there, once each Quarter, three copies (1 zipped file, 2 text files) RPS035 Sales Transmittal) report are generated and sent to ORPS via e-mail, and a paper copy is also filed. In addition, a CDROM or diskette with the update is sent to the County Real Property Tax Services Office for the public office copy.

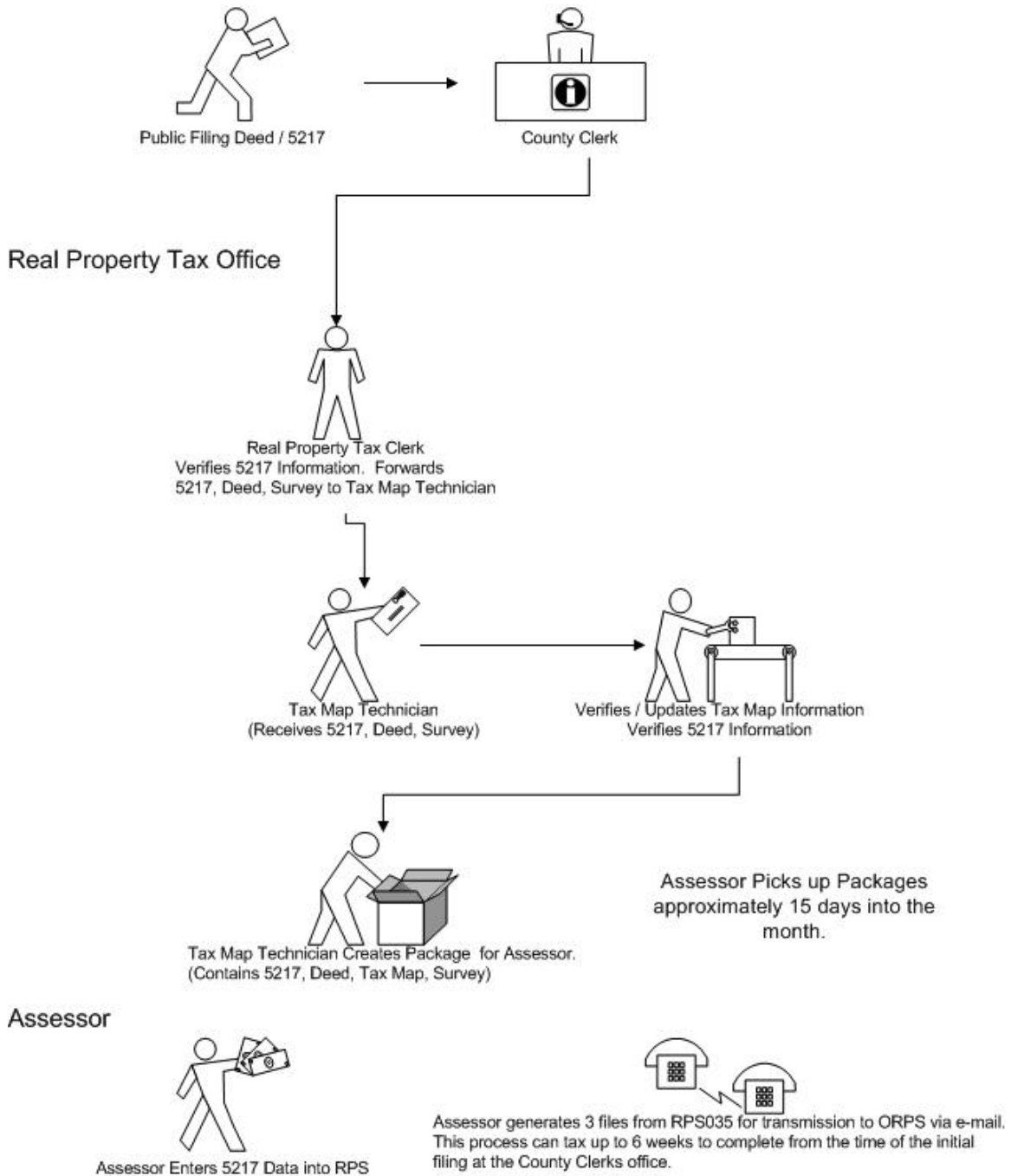
The assessor must follow the following schedule for submitting sales information to ORPS:

- January – March transactions due May 15
- April – June transactions due August 15
- July – September transactions due November 15
- October - December transactions due February 15

Thus, it is possible a sale filed on January 2nd might not be packaged until January 16th, and not picked up by the Tax Assessor until February 15th, and then the updated RPS file not emailed to NYS ORPS or the County until May 15th – four and half months later.

On the next page is a diagram that illustrates the RP-5217 work flow process:

Current 5217 Real Property Transfer Workflow



Property Tax Collection Workflow Analysis

In July of each year, the County Real Property Tax Services office receives the final property assessment values, and enters the School District tax data into the RPS software, and the tax bills for each School District are generated. The School Districts receive these bills and mail them out to property owners.

In Seneca County, tax payments are received and processed at a local bank rather than the School District, and the bank sends the District a daily report identifying the taxes paid that day. This information is then manually recorded by the District using off-the-shelf tax collection software, and daily tax collection reports are generated.

During this tax collection process, the County does not receive payment status report until the end of the payment cycle when the County Treasurer's Office receives a delinquency report prepared by the School District.

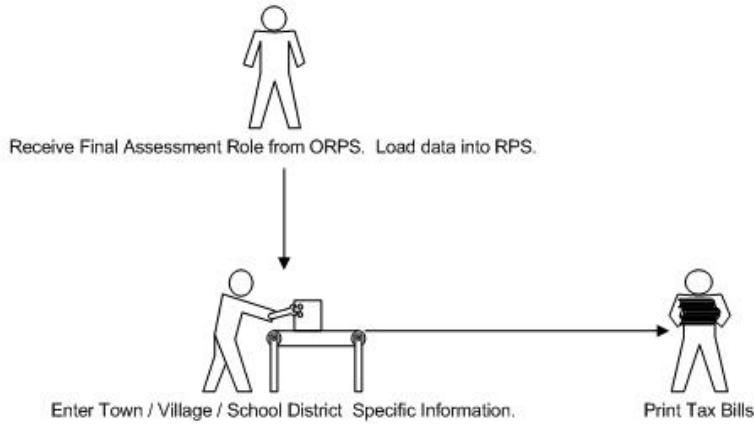
Inquiries from the public run into a problem here, as it is not obvious who owns the information. A person with a question on a property's tax payment status may have to ask at the County Real Property Tax Services Office, the County Treasurer, or to the School District in order to figure out the current status.

Furthermore, there is no automated process to help the County Treasurer's Office enter the delinquencies for reassessment with the town / county taxes, but after a property has been delinquent for two years, the County can start the foreclosure process.

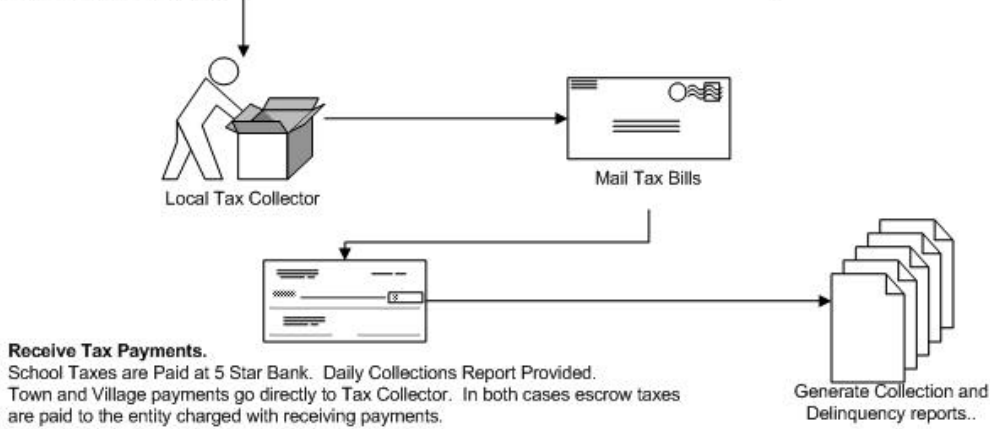
An illustration of the tax collectors work flow process is shown on the next page:

Property Tax Billing / Collection Workflow

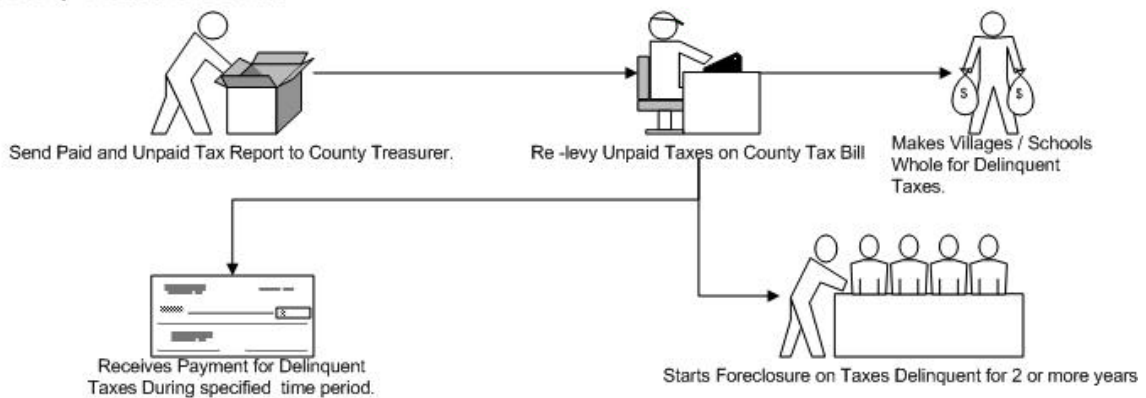
Real Property Tax Office



Local Tax Collector



County Treasurers Office



Technology Survey Summary

Before the survey was conducted, it was expected that there would be different hardware and software being used in different municipalities. Seneca County's traditional, rural nature also raised the suspicion that some tax collection was still being done completely manually – utilizing the “shoebox” and “mayonnaise jar” methods.

As it turned out, these suspicions proved correct.

Town Tax Assessors

All towns and villages were surveyed to ascertain the available technology to the assessors. Details of the technology survey are available in appendix A. All assessors had access to a computer and some type of Internet Connection.

Assessor	Towns	Internet Connection	Total No. of Parcels
Anne Morgan	Covert, Lodi, Ovid, Romulus, Varick	Dial Up	6430
Cynthia Loncosky	Fayette, Seneca	Broad Band	6395
Philip Griswold	Junius, Tyre	Dial Up	1541
Thomas Brown	Waterloo	Broad Band	3236

Percentage of Parcels by Internet Connection.

Connection	Total Parcels	Percentage of Parcels
Dial Up	8027	46%
Broad Band	8633	54%

This piece - the percentage of assessors using dial-up internet connections for 46% of the parcel data creates the critical limitation to the eParcel Data Hub design – **file size**.

Over a dial-up internet connection, 1 MB of information can take 3-4 minutes to transfer, compared to roughly ten seconds over a broadband connection. Pictures and maps could easily consume 2-5 MB of space depending on file type (digital bitmaps, and degree of detail), creating very long download times.

Small file sizes therefore, are imperative.

School District Tax Collectors

By contrast, nearly all School District tax collectors had access to a computer and had high speed Internet connections. While Interlaken and Lodi's connections are not known, we can surmise from Ovid (in the same school district) that their connections are likely broadband.

Village Tax Collectors

Village	Internet Connection	Total No. of Parcels
Interlaken	Unknown	304
Lodi	Unknown	160
Ovid	Broad Band	260
Seneca Falls	Broad Band	2600
Waterloo	Broad Band	2200

Percentage of Parcels by Internet Connection.

Connection	Total Parcels	Percentage of Parcels
Unknown	464	9%
Broad Band	5264	91%

Over 90% of parcels are covered by high speed connections. While that is a high percentage of parcels, there will be districts and tax collectors without an internet connection, so a manual system will be necessary in the overall design.

Town Tax Collectors

Town	Internet Connection	Total No. of Parcels
Covert	Broadband	1494
Fayette	Unknown	2402
Junius	Dial Up	864
Lodi	Dial Up	1188
Ovid	Dial Up	1404
Romulus	Broad Band	1222
Seneca Falls	Broad Band	3993
Tyre	Dial Up	677
Varick	Unknown	1122
Waterloo	Broadband	3236

Percentage of Parcels by Internet Connection.

Connection	Total Parcels	Percentage of Parcels
Unknown	3524	20%
Broad Band	9945	56%
Dial Up	4133	24%

Over half of the parcels are covered by a high speed connection but one quarter are dial up and 20% are unknown though most likely dial up.

The potential the roughly half of the users still use dial-up services underscores the need to ensure that data transfers are kept small. Failure to do so will present the dial-up clients with long delays and downloads.

Technology Analysis

As shown on the previous pages, municipalities operate across a wide variety of connection platforms. Not surveyed are the individual residential and high-volume information users. High volume users will likely have access to high speed broadband connections, but we can predict that residential usage will be as mixed as results of the data owner surveys.

Any implementation of a system that uses parcel data – text, photographs, maps, and copies of forms - must take into account problems such as data transfer and the different end user software and skill sets.

Some users and data owners do not have internet access, some not even computer access. A manual system of data entry and reporting will either need to be factored into the solution, or the Hub must be designed to operate with that information.

The “one-size fits all” solutions of the past, attempting to provide a uniform data collection and transfer system will not work. The results of the surveys illustrate that there is not uniformity in the systems employed by property tax data owners and data users. Mandating uniformity may not be possible, feasible, and will certainly be very expensive.

Instead, multiple solutions will need to be integrated together in order to cover the broad majority of users need and capabilities.

In this section, we look at the implications of this for an eParcel Data Hub system.

Data Transfer Options

The following sections will discuss the types of data that each owner/consumer will need access to and how the eParcel Data Hub is related to the solution. Afterward follows a discussion of the technical issues associated with data types

Town Tax Assessors

One of the goals of the parcel data hub is to reduce the time required to process real property transfer form data for the assessor. This lag time is caused by the combination of the physical packaging of the required maps, deeds, and 5217 form, and the scheduling of pick-up and delivery of these materials from the County Real Property Tax Office.

The key problem in the lag time is the pick-up and delivery problem. The monthly pickup and delivery occurs because of the amount of work already

shouldered by Tax Assessors, and not likely to be solved through policy mandate.

However, if the packages can be delivered electronically, either automatically by the Tax Office, or on demand by the Assessor, lag time could be reduced significantly without added process pressures on the Assessor. The problem from the electronic sides is bandwidth – the ability of the assessor to receive the packages and work with the data received.

The Assessor would need the RP-5217 form, the Deeds, and the Tax Maps. The RPS information they already have access to. The copies of Deeds, Tax Maps and the 5217 form would need to be in the form of scanned images or PDFs, and traditionally these types of files are quite large. The problem with image file formats is that there is always a trade-off between bandwidth and image quality. - the smaller the file size the easier to share it electronically, but also the poorer the quality and the less useful the product.

This problem is somewhat reduced with the increase in broadband usage, increasing availability of very inexpensive storage memory (hard drive and tape-drive space), and the decreasing cost and increasing quality of desktop peripheral scanners. Simply, we can do today very inexpensively what ten years ago would have been a major expense.

Property Tax maps and deeds could be scanned with a desktop scanner and converted to into a near-universal electronic format that balances quality for file size, such as a TIFF, PDF, or GIF. For example, a desktop scanner can scan and store a single page document as a type 4 TIFF (Tagged Image File Format) at 200 x 200 resolution, creating a standard document imaging format file with a file size of approximately 50 kilobytes per page. This size file will provide a transfer time of approximately 3-10 seconds per page.

The downside of a TIFF is its lack of universality. Most web-browsers will not be able to view or print TIFF images properly, and would require a conversion to a different format (such a PNG, Portable Network Graphics file). Another simple alternative would be a web-based TIFF image viewer built into the eParcel Data Hub Web interface to allow certain users to zoom in, rotate and print the image onto a standard size sheet of paper as required. Combining both strategies, the on demand TIFF to PNG web conversion and a web-based TIFF viewer, would probably provide a best solution covering nearly all eventualities.

The RP-5217 Form provides another challenge. While the Assessor needs only a legible copy of the form to view on screen or print, we want to be able to search and sort on fields from the RP-5217 to compare sales information. When we scan the RP-5217 form into a TIFF, the words are part of the image and unintelligible to the eParcel Data Hub.

There are three strategies to capture this information: Optical Character Recognition, Data Entry, and Indexing.

Optical Character Recognition requires using the scanner to capture not only the “graphic” information (the picture of the document), but to recognize and “extract” words and phrases from the form itself (but only the fields!), and putting it all into a database. Extracting text is an expensive and usually error-prone option. Documents need to be 100% square with the scanner platen, and fields to be captured should be typed rather than hand-written in order to be captured clearly. Once the text is captured it needs to be carefully and thoroughly reviewed by human eyes to catch and correct misspellings. For example, to the OCR software, a “cl” might be interpreted as a “d”.

On the other extreme, a Clerk could Data Enter all the information from the RP 5217 form. All eighty-five fields would be recorded, plus an additional field for the image filename and its directory location. The Form would still be scanned as an image for reference and to capture signatures. The upside of full data entry is that all information can be searched on and compared. The downside is time and staff cost, and also the more entry, the more numerous the data entry errors.

Indexing provides a middle course. The RP-5217 is still scanned as an image, but then a Data Entry clerk enters ONLY the thirty or so fields of information required for search/comparison and identification (the scanned image file name and location) purposes. This reduces the data entry time, the data error, keeps the important data in a searchable format, and makes original form in a format that can be download ad other information extracted on demand. New fields for entry can be added or removed later, as required.

Tax collection

Another goal of eParcel Data Hub is to reduce the lag time providing clear and up to date tax collection and parcel status information.

The Tax Collector’s primary need is receiving the 161 D1 extract file tax collection data at the start of the tax collection cycle, and again at the end of the collection cycle, when the tax collector transfers back paid and unpaid tax information.

For the tax information consumer, the issue is getting the information as soon as possible, that is, ensuring the that tax parcel payment status is as up to date and as close to real-time as possible.

Once the Tax collector has received the extract file, the collector typically uses some form of tax collection software to manage the collection and reporting tasks. During the survey, we found that there was a wide variety of tax collection

software in use in Seneca County, and in some cases the tasks were being completed manually. This system, while providing maximum local flexibility, also provides for minimal uniformity and will cause collecting, updating, and disseminating tax collection information at the county level to be more complicated.

The other issue is formatting the data so information is transferred in a usable form. Because this data is all text, bandwidth is not a major concern.

Ideally, the tax collection software would be configured to format its output in a common, standard text format – delimited, XML, Excel, etc. Alternatively the eParcel Data Hub would include a web-based Tax Collection form for updating the Data Hub directly, and a stand alone client software module.

Regardless, the tax collection component would have to have the:

- Ability to receive/record individual payments on tax bills.
- Ability to process payment information received from outside sources such as banks and other institutions that collect payments.
- Ability to reprint tax bills.
- Ability to print daily, monthly and total collection reports.
- Ability to print delinquent reports and if required generate delinquency letters.
- Ability to transfer payment data to the centralized parcel data hub.

Most tax collectors will prefer a stand-alone tax collection program because it will have faster response time compared to an internet web browser form. At the start of the tax cycle, tax collectors will be able to receive the tax roll data in a single XML-format file, and upload it into the stand-alone tax collection program. The program would schedule daily submissions of collection reports to the eParcel Data Hub, also in XML format, over the tax collector's internet connection.

In some cases tax collectors will have a small number of parcels, or will not have access to a dedicated computer for the tax collection software. For those with some access, a web-browser based interface to the eParcel Hub will allow for the updating of small amounts of tax collection information on a public computer, at the library or the Village Offices. Tax collectors using manual systems will still be able to maintain their systems, sending the handwritten reports to the County for periodic data entry.

The initial and final XML files represent the largest capacity requirements on the system posed by the tax collectors. The size of the data load file will vary based upon the number of parcels maintained, and in some cases this file will be several megabytes in size. XML formatted data compresses efficiently, and compressing the data file prior to transmission should reduce **its** size by 50% or

more. This will provide a significantly smaller file size for the collectors to download from the parcel data hub, even using a dial-up internet connection.

In the event that some tax collectors are still unable or reluctant to download the tax roll data file from the eParcel Data Hub, the Hub will need to be able to generate the file on demand and save it to a local computer to be transferred to mobile storage media, such as a CDROM or thumbdrive.

Data transfers between the county eParcel Data Hub and the Tax Collectors will be minor, even in a large county. The two primary load periods are the beginning tax roll data file transfer and the final delinquencies report at the end. These files will be relatively large compared to the daily emailed tax collection reports generated by the tax collection software, but still easily manageable and can follow the same general logic.

Regardless of the type of transfer, the selected records are assembled, and then stored in a XML-format file. The mode of transfer (automatic email, manual email, or floppy disk/CDROM/Thumbdrive) can be determined by the user.

Similarly, the frequency of the file transfers will need to be modifiable by the tax collector, particularly for those who do not have Internet access. Just as in the export process, the county tax collector's office will need to import transfer files both automatically to the parcel data hub, and manually from email, disk, or thumbdrive.

This degree of automation is not difficult to design and implement. The difficulty will lie in convincing tax collectors to use different software than they are familiar with. However, if their current tax collection software supports exporting records into XML files or similar text formats, the system can still work with a minimum of extra effort.

End Users: Intra governmental data transfer

General Consumer Data Files

One of the goals of the parcel level data hub is to provide a means for other government agencies and the general public to have the availability of a variety of parcel level data "on-demand".

Consumers want to be able to view the data, compare it to other parcels, search for similar parcels, verify information, and collect data and generate reports. Currently consumers must either come directly to the individual offices to collect the information, or call the offices. Either way, they tie up staff time. Access to

this information over the internet would provide the greatest access to the greatest number of people.

In this case, there are a couple of issues to be concerned about – image size, privacy, and formats.

As discussed before, images of the property take up considerable bandwidth. TIFFs converted to PNG formats would be an acceptable method to store the TIFFs on the Image server and convert them on demand to PNGs for viewing.

Privacy is another issue. With an SQL database, municipalities can create rules for displaying the information, so that, for example, the addresses of Police Officers are not shown if parcels are searched by owner, or names not shown if searched by address or parcel ID. With the centralized eParcel Data Hub, these settings can be managed easily by the IT department, making changes as directed by municipalities according to the law.

Format of the data will be the main concern, determined by the capabilities of the consumer and how they wish to consume the data. A web interface will allow individuals to search the parcel level data hub on standard criteria such as address, owner's name, building information and assessed value among other search factors, and view it as a simple text file on the screen, providing the simplest method to accomplish this goal.

However, consumers will often desire to transfer the data to their own computer to use in other applications. Based on the hardware and software available to most users, general text data – fields such as names, addresses, parcel identification numbers, sales amounts, assessed values and payment dates - should be made available in very common formats that are easiest to use for the general consumer. Data compression should also be an option rather than a default. Many users will be intra-governmental, and working with a high speed internet connection, and without the expertise – or need - to comfortably work with compressed files.

Thus we suggest using four common text formats - delimited, XML, fixed space, and Excel spreadsheet formats, plus the option to compress in ZIP file should be available in the eParcel Data Hub. This set of formatting options will produce a wide range of options usable anywhere across the state and across the county.

High Volume users such as banks and real estate professionals will need the same types information over and over again. Therefore in addition to obtaining data from the parcel data hub through web browser search forms, users should have the ability to generate scripts to automate the search and transfer of data.

For example a user should be able to create a query string to generate a list of all 5217 forms filled on a specific day and transfer the data on those forms using a

predetermined file format. The end user could set this up as a regularly scheduled job to be performed nightly. This would provide a means for an organization to create an automated daily update system of the latest real property transfer forms filed.

Images

The distinction – and difference - between the image and the information on the image cannot be over-stated. At its crux is the question – what is the image to be used for? Verifying information, or comparing to other information?

Images store data visually – generally accessible only by human eyes. To the computer, letters are no different than any other part of an image. Optical Character Recognition can pull some of this information off an image, but it is very expensive and error prone – and it cannot differentiate between form field identifiers and the fields themselves.

A much simpler approach is indexing. That is, scanning a document for archiving and transferring to consumers, but also data entering the critical information that people need to a) find it, and b) compare it to other documents.

For Deeds and Tax Maps, the indexing will likely be very minimal – Document ID, its filename and storage location, and perhaps the address or owners. For the RP-5217, the indexing will be more extensive – entering the date, sale price, and property use, for example. For non-comparative information, the image can be downloaded, and for comparative data, this can be extracted from the index via the eParcel Data Hub.

As stated before, Image formats usually balance image quality for file size. Documents containing text and images (such as the Deeds and the RP 5217) should be saved as TIFF files at resolutions between 200 and 300 PPI (pixels per inch/dots per inch) to maintain acceptable clarity while retaining small file sizes in the 30-50 kb per 8.5 x 11in range. Photographs and tax maps should be at slightly higher resolution (300 ppi) to maximum clarity. TIFF files handle graphics data very well with no information loss. However, not all browsers – particularly Macintosh platforms – are able to display TIFFs properly. Instead, TIFFs kept on the eParcel Data Hub Image Server should be converted to PNG file format by the Hub upon demand, so that all users can view the image in any web browser on any platform.

As the eParcel Data Hub is built, indexes of the parcel record IDs will associate all component data of a particular parcel. Because of this, consumers will be able to access all of this information through searches, including combined (multiple) search criteria. For example users could search on all property transfers for a specific town in a specified date range in order to get copies of

their tax maps. The search would produce a list of property transfers that meet the criteria and allow the user to select a specific form to view.

Public Access to Information

The public's primary access to the parcel level data hub information will be through a public web browser interface. The public will have search capabilities similar to the intra governmental user. End users will be able to access the public web interface for the parcel level data hub from a link on Seneca County's main web site, search for parcels based on location, owners name and structure information, and be able to access, with limitations, assessment and tax payment data. The general public will not have the ability to edit the original data stored on the hub.

Data Transfer Formats

There are hundreds of formats available to transfer data to end users computers. Each format has advantages and disadvantages. Primary among them is how common is the format and who can read it.

We suggest the following text formats for transferring information out of the eParcel Data Hub. These four formats (fixed space, delimited, XML and Excel Spreadsheet) are extremely common formats. Any user should be able to use at least one of them.

Fixed Space

Fixed space (or fixed width) record layout format is a traditional means of organizing and transferring data that is primarily used in legacy systems, though current generation software such as RPS v4 also use this format for the 161 D1 file. In a fixed space record layout the data is transferred in a text file with each line equating to one record. A specification is provided to identify where in the line the data is located. For example the layout may say that the first name is from column 1 to 40 and the second name is column 41-80. If the data in the field is less the number of columns assigned to field, blank spaces are added to fill out the field. This format is useful to legacy systems and programmers, but most parcel data consumers of the data will not have the expertise or software to work with this format. However, since the 161 D1 file is fixed width, this format should be kept.

Delimited

The delimited format is similar to the fixed space record layout in that the data is transferred as a text and each line represents a single record. In stead of a number of columns describing the size of a field, fields such as first name and

last name are separated by a delimiter such as a comma or pipe |. An example would be John,Smith,Anywhere Lane,Smalltown,NY,55555. Delimited text format has the advantage of flexible field size, and is an accepted standard. Several consumer software packages including MS Access and Excel are able to import/export data in this format. One drawback to this format is that the end user needs a key of some sort to tell them the field order. Without a record layout, the file can become confusing. However, this is the most bandwidth-efficient file format.

XML

The XML file layout is a relatively new format. XML files are self-describing in that the record structure is contained in the file itself. Unlike delimited or fixed space file layouts XML uses tags to represent the field names to separate fields, and looks like HTML coding used in Internet websites. XML provides the most robust means of transferring data between systems, in particular when the system operators do not know the schema of the database. While XML has many advantages as a data transfer format it is not yet widely implemented in consumer software, and most consumer based applications lack the ability to import XML data. However, XML would be useful as the internal data transfer format and made available to intra-governmental transfers. This is the most efficient file formation with regards to record layout and data specification.

MS Excel Spreadsheet

The Excel Spreadsheet has become a standard for ad hoc exchanges for transferring row based information. Most end users surveyed have the ability to read Excel spreadsheet files. Each row in the spreadsheet represents a record of data, such as an individual parcel. Each column on the spreadsheet will represent a field, such as Name of Parcel ID. Column headers will be added to identify each field. This is the most widely accepted method of transferring data by non technical users, but it is the least efficient format for file size and bandwidth.

Survey Analysis Conclusions

As illustrated by the surveys, the benefits of the eParcel Data Hub (EPDH) are fairly intangible - saving opportunity time, or increasing equity in property assessment.

Consumer and owners alike desire convenient access by consumers to real property information, including assessment data; town, village, and school district tax billing history; images of deeds, surveys, and tax maps, and the ability to compare their assessments with assessments and sales from other similar properties through a wide selection of field choices.

Consumers and owners desire reducing the time lost acquiring and verifying information inefficiently over the phone or in person, when these methods could be done electronically. This lost time is opportunity time - time that could be spent doing other important things.

Consumers and owners desire the ability to filter parcel data to protect their privacy and the privacy of critical elements of their community – such as police officers, or to control the access to information through a high-volume fee for service.

Consumers and owners desire the ability to access this information without resorting to a total local municipal computer overhaul to acquire the fastest machines. For Seneca County in particular, rural Towns and Villages may have access to high speed, broadband internet, but many of their residents do not.

Consumers and owners need to import and export data on demand in a variety of formats. At minimum, a system will need to allow users to export data in delimited and fixed space text formats. Additional formats such as Excel Spreadsheet and XML will facilitate the transfer of data from the parcel data hub to consumers in other useable formats.

These needs can be address by using a county-level eParcel Data Hub, storing all real property parcel data, kept in common, uniform formats at the county level and made accessible for review by consumers through a standard web-browser interface. A web interface would permit data owners to enter/ correct/ update the parcel data through a secure web interface. Electronic parcel data packages would automatically be sent to the Assessors to review, verify, and approve, significantly reducing the lag time for sales information approvals and transmission to ORPS.

In addition, the scalable, cellular hub structure of the eParcel Data Hub system permits municipalities to join the system later, as their political and technical situations dictate. By implementing this system first in a small county like Seneca, we believe the eParcel Data Hub design will further identify issues,

challenges, and benefits more readily than in a larger, more populous county. In addition, the common data and image file formats would allow the system to more easily interface with other, similar solutions.

Despite the benefits to the data owners and consumers, considerable education and engagement will be necessary to ensure its use.

Local municipalities will lose some physical control over the data if it is stored and accessed centrally at the county level. They will still have secure, protected access to modify the data, but the loss of actual control of the data as well as the change in process from manual to electronic will likely cause some discomfort.

On the other hand, the information will process faster, and assessors and collectors will be able to retrieve the packages without leaving their offices. The small package size that can transmit easily over dial-up connections will also permit faster transfer over broadband, and make the ePDH system feel faster to the data owners and viewers. In the end, the unified system should also make reporting and data analysis and tax payment auditing and reconciliation easier and quicker as well.

One other effect is worth noting. The eParcel Data Hub will enable consumers to more closely monitor changing property values - such as around volatile lakeshore market areas, enabling consumers to make better informed purchase/sale decisions.

eParcel Data Hub Impacts on Key Stakeholders

Stakeholder Groups	Negatively Impacted	Mixed Impact	Positively Impacted
<i>Data Consumers</i>			Banks/Lenders/Brokers General Public Real Estate Agents Lawyers High Volume Users
<i>Mixed Consumer/Owners</i>			NYS ORPS
<i>Data Owners</i>		County Clerk Village Tax Collectors Village Administrators School Districts Town Assessors	

Parcel Data Hub Design

Overview

Our proposed solution to the issues raised in the survey is a county-wide eParcel Data Hub. All data would be stored in database at the county level, public viewing access via internet website, and data owner viewing and maintenance via secure internet connections and web forms. The hub system would permit one hub per county (or possibly, multiple counties could share the same hub) and regardless of the size of the county, will have the same basic components and design. Very large communities might need to add more storage space, or very small communities might get by with one less server, but this base model will work in any county.

In terms of equipment, the eParcel Data Hub will require the installation of three new additional servers. The Web server will handle all internet website traffic and requests for data files and image conversions, serving as the access point between the eParcel Data Hub and the internet. In addition, all requests for information from users or from the other servers will be processed by the applications running on the Web server. The Image or Document Server will store the forms, photographs, and document image files and their associated indexes. The parcel data record files themselves would be kept on the Database Server. User authentication, firewall, and email services will be provided by the existing County IT services.

Additional equipment required will be minor. Desktop scanners in the County Clerk's office and in the County Tax Office will be needed. Such scanners are low cost, around \$600 a piece for a higher-end. Alternatively, many office copiers – such as Seneca County's Ricoh Copiers have network scanner capabilities at higher quality, size, and speed than desktop models - and at no additional cost.

The eParcel Data Hub's primary purpose is to provide a single point to aggregate Seneca County parcel data information into a relational database, and disseminate it on user-defined schedules, or on demand. With this aggregation come time and labor-saving process improvements. Document imaging allows easy electronic transmission of maps, deeds, sales forms, and other documents on demand, rather than the current physical pickup scheduling. Imaged Documents from which some information is needed – such as the RP5217 will be imaged and indexed – with only the comparative and identification information stored in a database.

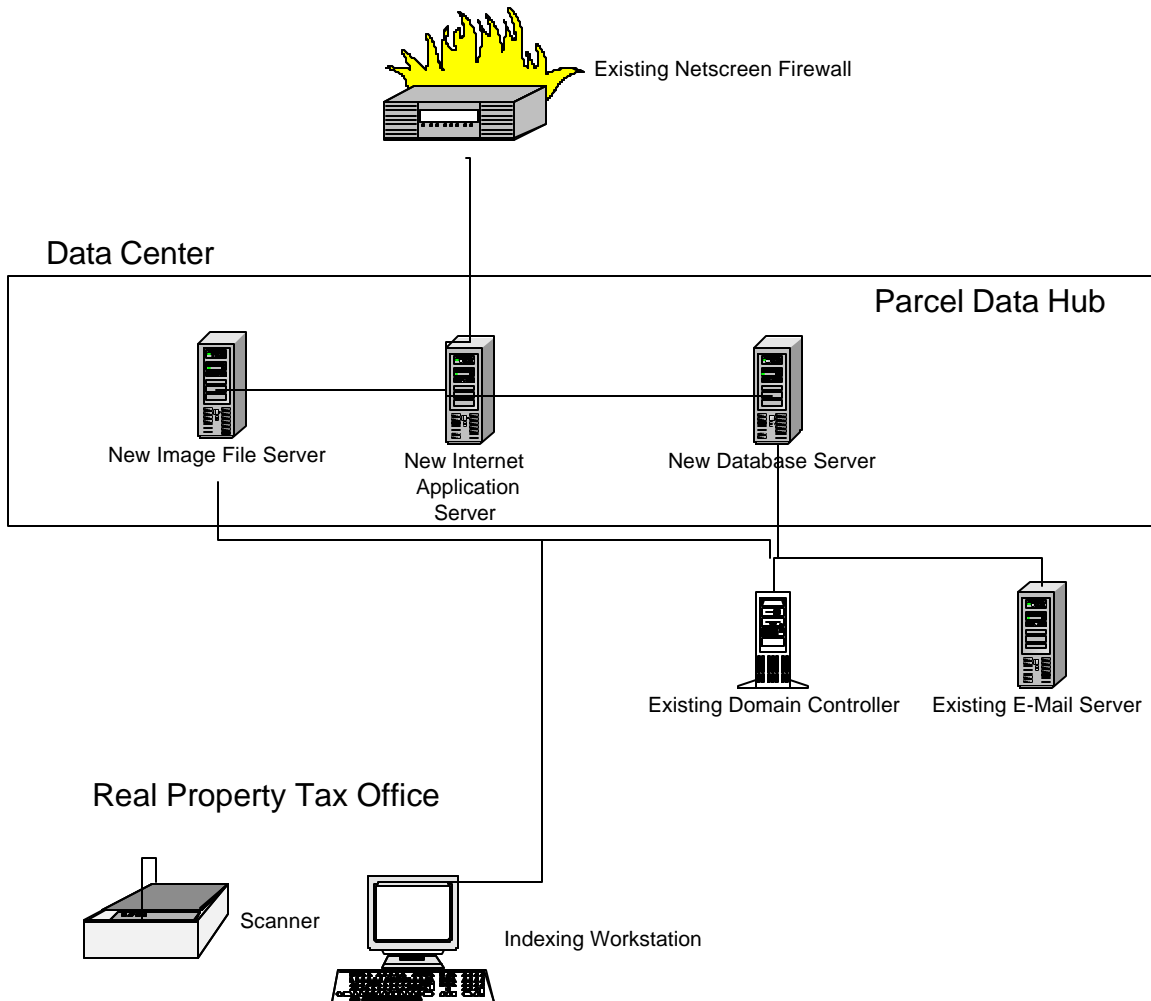
The information stored in the eParcel Data Hub will come from several different sources, from Town Assessors via RPS v. 4 files, from the County Clerk and

Real Property Tax Office via scanner and index, and from Tax Collectors via web interface or compatible stand-alone tax collection software.

The information will be accessible from both the stand-alone software components and the web interface. Both a private and public web interface will be created with different levels of access to the information based upon the user ID.

Parcel Data Hub Components

The parcel data hub has 3 primary components and integrates into Seneca counties existing infrastructure. See diagram below:



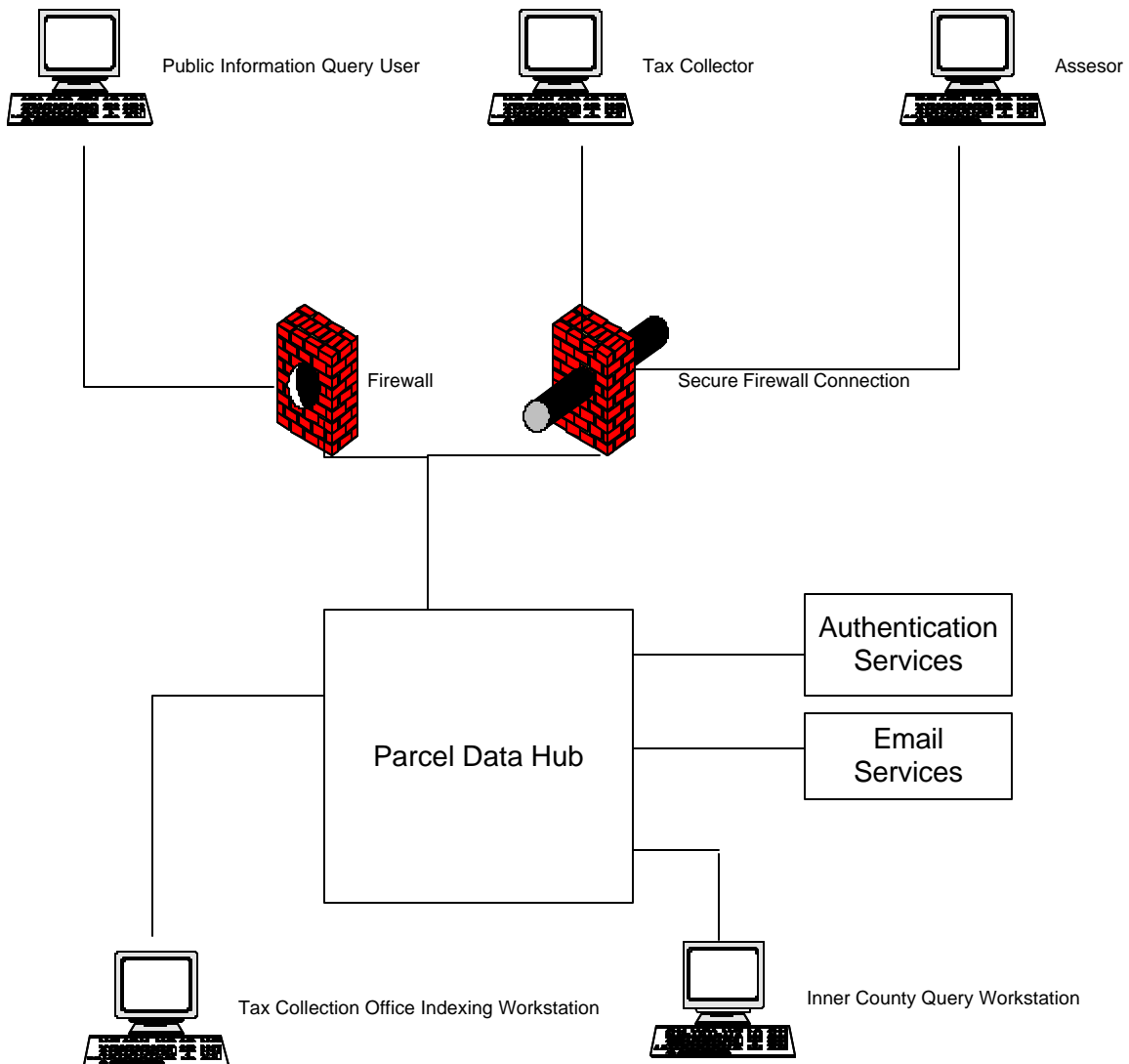
The County's existing infrastructure will provide the Netscreen Firewall for network security, and the domain controller and email servers. Three new

servers and their associated software will need to be purchased to establish the hardware for the eParcel Data Hub.

The Web Server will provide the access point from the network and internet to the Database and Image File servers, and will be the only server accessible from the Internet.

Note that this server is the same server that would be used for Seneca County's A2 Web Enablement project. In the A2 project, the web database programs require a web server to reside on. Once implemented, the A2 server would become the eParcel Data Hub web server. In addition, the A2's web pages and Property Tax Assessment data would replace the basic data viewing screens provided by the eParcel Data Hub, and both systems would be integrated together.

Logical Connection Layout



The image file server will consist of a file server to store the scanned TIFF images from the assessor packages. It is to be expandable so that other imaging tasks can be added later, as needed.

The database server is the central repository for the parcel level data. In addition to the data contained in RPS, the system will also manage the assessor's workflow and maintain historical assessment and tax collection data. The image scanning and indexing workstation will access the Parcel Data Hub from inside the County's network.

Tax collectors and Assessors will access the eParcel Data Hub via Internet connection using the existing firewall to connect to the Internet Application Server

Internal County users, such as the Real Property Tax Office will access the Parcel Data Hub using the existing internal network. The existing authentication server will handle user authentication where required. Requests to send data files via e-mail will use the existing e-mail server. A separate e-mail account will be created for the Parcel Data Hub. This account will be able to send e-mail. Any incoming email messages will be routed to an administrator. Some users, such as tax collectors, assessors and data file requests will require authentication and a SSL connection to the Internet Application Server.

The imaging workstations will be standard desktop computers and will require no additional equipment, though a "modern" PC running Windows 2000 Pro or higher is necessary to run the Windows clients that will be developed for the Hub, and at any rate— anything older will run too slow for modern software, with or without the eParcel Data Hub. The scanner may be attached directly as a peripheral to the workstation, or may be a network scanner (such as an officer copier).

Parcel Data Hub Internet Application Server Logical Design

The eParcel Data Hub Web Server software architecture consists of four primary web application modules. These modules are *Public Inquiry*, *Data Request*, *Tax Collection* and *Assessor Workflow*.

The *Public Inquiry* application requires a simple HTTP connection and no user authentication. A shared public user login will be created and encrypted on the web server for use by the public inquiry application when needed. The security on the database server will limit what the public user login will be able to access.

The *Data Request*, *Tax Collection* and *Assessor Workflow* applications will require authentication using the existing active directory server. These Internet applications will also use a secure SSL connection.

Public Inquiry Web Application	Data Request SSL Web Application	Tax Collection SSL Web Application	Assessor Workflow SSL Application
No User Authentication	Active Directory Authentication		
Data Access Component Modules			
Image Conversion (TIFF to PNG) Display Modules			
E-Mail Data Request Module			

All applications will use *the data access component modules* to interface with the database server. To view images the applications will use the image conversion

component. This will convert the images that are stored on the image file server from TIFF files to PNG files for display in a web browser.

The e-mail data request module will facilitate requests for data to be e-mailed in a file format selected from the four choices of Excel, Delimited, Fixed space, and XML.

This module will contain the query parameters for the data request, the specified file format and e-mail address. In some cases the security model will allow users to only e-mail files to a specified address. This information will be stored in a e-mail request table on the database server for further processing.

Database Server Logical Design

Database Connection From Web Server		Database Connection From Tax Office Application	
Public Access Login	Active Directory Authentication		
Database Objects Views and Stored Procedure Access Only			
E-Mail Data Request Schedule Stored Procedure			
XLS Data Conversion Module	XML Data Conversion Moduel	Fixed Space Text Conversion Modeul	Delimited Text Conversion Module
SMTP Interface to Existing E-mail Server			

The database server will handle the transactions from the web server, or from the direct connections from the Tax Collector web forms / stand alone tax collection software, and from the Real Property Tax Office packaging application. User authorization will be authenticated using the County's existing active directory server. All users will access data using views or stored procedures, with no direct table access allowed.

A separate e-mail request module will be created. This module will check the e-mail request table for new data requests on a scheduled basis. The requests module will retrieve the data and create a file of the specified type using one of the data conversion modules. The e-mail data request module will then interface with the existing e-mail server using SMTP to send the data file.

Implementation

Overview

The eParcel Data Hub will enhance real property tax administration by permitting property owners and high volume real property data consumers' access to multiple layers of parcel data, from assessments to sales information to tax payment history, all from a single location. The eParcel Data Hub system will generally increase assessment equity, parcel tax efficiency, and reduce the lag time between the point of sale and assessments being approved through the addition of more convenient parcel data package transmission system. By reducing the lag time, more accurate information will be made available more quickly to the RPS based Seneca County Real Property website.

The development of the parcel data hub will require coordination with the tax collection and assessment stakeholders to ensure minimal disruption in their work cycle. One of the primary measures for success of the eParcel Data Hub is the percentage of end users that utilize the system. To be successful, the information in the hub must be accurate and current, and will require that the majority of the County's parcels are being managed within eParcel Data Hub.

While the goal of all county parcel data being stored by eParcel Data Hub is desired, the reality is that there are significant differences in end-user technical and equipment capabilities. Not all users will have internet access, will use compatible platforms, will use even relatively modern computers, or even use computers at all.

The challenge of the implementation of the parcel level data hub will be to design and deploy a system that functions with most of the end user technology levels present in the user population. These topics are briefly addressed in the topics that follow.

Physical Systems

Implementation of the eParcel Data Hub will require the installation of three servers (Web SQL, Database SQL, and Image) within the County's LAN network. All three new servers will have a minimum of 3 GHz processing speed, 1 GB of Memory, 73 GB RAID 5 array disk storage, and a 100 MB Ethernet connection. Data transfer rate through our cable modem is 760 Kb/s. The Web Server would double as the A2 Web Enablement project server requested by Seneca County in the 2006 cycle.

The server software system will not be directly connected to the Internet. Seneca County's Firewall will protect the servers, which will be backed up daily using the existing DTL infrastructure. They will have fault tolerant memory, dual

power supplies, and SCSI Drives in a RAID 5 array for redundancy in case of hard drive, controller or power supply failure.

Depending on the size of the county, the image and database servers could be combined on a single server. For small, rural counties with small numbers of parcels and transactions, this might be appropriate. The Web Server should be a separate Web Application server, however. For the Seneca County implementation, three servers will be utilized, and they will be located in the County data center using the existing county network and network security.

All users will use their existing internet connected work stations to access the parcel data hub. Tax collector offices and the Real Property Tax Office will require a production grade document imaging scanner to be connected to at least one workstation, or to the network. For the volume of documents that Seneca County would need to scan, a low end document image scanner such as the Fujitsu fi-5015C would be sufficient, and can be acquired locally for less than six hundred dollars. For counties with larger volumes of information, a larger, faster scanner may be used.

System Security

Seneca County's existing Netscreen NS-25 hardware firewall and Symantec Anti-Virus Corporate Edition network security systems will provide protection to the eParcel Data Hub.

Viewing public information will be possible through a web page application requiring no authorization as it is simply a read-only process. Other access will depend upon the user's network access and a secondary authorization to the data server.

Windows Client

Some users such as tax collectors and internal users will require a Windows client application. Clients are small programs designed to spread the computing power between the local desktop computer ("client") and the server. The effect is a sharing of the computing tasks which speeds up processes such as automated tasks, generating reports, and updating the databases.

The Client issue is complicated a little by the disparate varieties of computer systems deployed to the end user population. Not all end users have high-speed Internet connections, PCs, or use the most current or recent operating systems. As a result, any client application developed must be designed to support older systems running Windows 2000 Pro or above, and limit the bandwidth requirements (using smaller packets of data) of data transfers for low-bandwidth users on dial-up.

End users with slower connections will inevitably see slower performance but by using client server technology and minimizing the datasets transferred over the

network connections the applications can limit the performance issues associated with a slow Internet connection.

Web Interface

Most general public users will use a web browser to access the parcel data server through the eParcel Data Hub website on the County web server. Because a significant percentage of end users do not have high speed Internet connections, the web interface (pages and scripts) will be designed with, compatibility, functionality and speed over aesthetics.

Ideally, all pertinent tax information for a property will be displayed on a single web page so that users do not have to toggle between multiple pages for their information. In addition, it is intended that the eParcel Data Hub will be integrated into Seneca County's proposed Property Tax Web Enablement project, which will take the RPS v4 data and make it publicly available via a web-page.

Deployment

The technical expertise of the end user community varies significantly. One of the goals of the deployment of the parcel data hub is that the support requirements for Seneca County be minimal. To that end users requiring a Windows Client application should be provided with an installation disk that installs using the same tools, such as Install Shield, as commercial software. The installation process should create all required directories, registry entries and install and dependant software.

Web based users will also be able to use standard browser technology to access the application with no additional installations required.

In Seneca County's case, it is possible to run the eParcel Data Hub on only two servers, with the Database and Image Servers combined into one machine. However, they will fill up quickly, and we would not suggest it for larger counties and communities.

Conclusions

Based upon the stakeholder surveys and the technology analysis, the eParcel Data Hub is feasible within the constraints of today's technology. The eParcel Data Hub will meet Seneca County's Primary objectives of **Assessment Equity** by creating a product that links and allows comparison between parcel assessment and sales in a more inclusive, accessible manner; **Efficiency** by significantly reducing RP5217 and tax collection records filing delays; **Security** by providing the means to ensure the personal privacy of property owners while at the same time ensuring access to data; **Collaboration** by providing property data that is mutually accessible and usable by agencies and consumers alike;

and, **Compatibility** by ensuring universality of the web browser interface and data file formats. It also meets Seneca County's secondary objectives of Scalability and GIS compatibility.

Appendix 1: End User Survey Document

The following survey form was used to gather information for this project.

Seneca County Parcel Level Data Hub Survey

Date: _____

Completed By: _____

User Survey:

Name: _____

Address: _____

Telephone: _____

Fax: _____

E-Mail: _____

Title: _____

Organization: _____

Role: *Consumer/Owner/Both*

Describe: _____

Data Life Cycle: *Annual/Seasonal/Both*

Describe:

Technology Survey

Hardware

Computer: *Yes / No*

OS: *98 / 2000 / XP / MAC*

Internet: *Yes / No* *Dial Up/ Broadband/Network*

Firewall: *Yes / No*

Network Description: _____

Parcel Level Data Software

Parcel Level Data Specific Software *Yes / No*

Describe:

Non Specific Software Use: *Excel / Word / Access / Other*

Describe

Appendix 2: Survey Results

Seneca County eParcel Data Hub Survey

<u>County</u>	Position	Role	OS	Internet	Firewall	Network	Software	
Sharon Secor	County Manager	Owner	XP	BB	Yes	Yes	NA	
Robert Shipley, Jr.	Chairman BoS						NA	
Jim Bastian	RPT Director	Owner	XP	BB	Yes	Yes	RPS V4, Tax printing	
Mary Williamson	RPT	Owner	XP	BB	Yes	Yes	RPS V4,	
Michael Karlsen	Tax Map Technician	Both	XP	BB	Yes	Yes	RPS V4,	
Peter Brown	Planning	Consumer	XP	BB	Yes	Yes		
Nick Sciotti	Treasurer	Both	XP	BB	Yes	Yes	System East	
Colleen Stein	Deputy Treasurer	Both	XP	BB	Yes	Yes	System East	
Kathy Stein	Asst. Deputy Treasurer	Both	XP	BB	Yes	Yes	System East	
Christina Lotz	County Clerk	Both	XP	BB	Yes	Yes	ACS – Real-Time (Deed indexing)	
Joan Keebler	IT	Owner	XP	BB	Yes	Yes	RPS V4, Tax printing, Excel	
<u>ORPS</u>								
Kathryn Bohascek	CIO	NA	NA	NA	NA	NA	NA	
<u>Towns</u>								
Town of Covert								
Michael Reynolds	Supervisor							
Judith Boyes	Clerk – Tax Collector	Both	XP	BB	?	?	Williamson Law Books but now MS Works Spreadsheet	1494
Anne Morgan	Assessor (5 towns)							
Town of Fayette								
Edward Barto	Supervisor							
Deborah Kelly	Clerk							
Cynthia Loncosky	Assessor (2 towns)							2402
Barbara Trickler	Tax Collector	Both	NA	NA	NA	No	No software – 3 box system	

Prepared by MPR Technologies

Interview notes and comments have been removed to protect the individual's privacy.

Seneca County eParcel Data Hub Survey

Town of Junius

Dale Smith	Supervisor							
Mary Prosser	Clerk							
Philip Griswold	Assessor (2 towns)							864
Linda Cordovani	Tax Collector	Both	XP	Dial	?	No	MS Excel only	

Town of Lodi

J. Barry O'Neil	Supervisor	Owner	XP	Dial	No	No		
Angela Champion	Court Clerk		?	Dial	No	No		
Anne Morgan	Assessor (5 towns)							1188
Martin David	Tax Collector							

Town of Ovid

David Dresser	Supervisor							
James Vangalio	Clerk							
Anne Morgan	Assessor (5 towns)	Both	XP	Dial	Yes		RPS V4, Excel, Word	1404
Lucille Slike	Tax Collector							

Town of Romulus

	Position	Role	OS	Internet	Firewall	Network	Software	
David Kaiser	Supervisor							
Mary Fransworth	Clerk	Owner	XP	BB	Yes	Yes		
Angel Lawrence	Clerk – Deputy	Owner	XP	BB	Yes	Yes	BAS – Tax Collection, EOS – Accounting (1996)	
Anne Morgan	Assessor (5 towns)							1222
Elizabeth Wyckoff	Tax Collector							

Town of Seneca Falls

Peter Same	Supervisor	User	XP	BB	Yes	Yes	
Chuck Lafler	Asst. Supervisor	User	XP	BB	Yes	Yes	
Nicolette Greer	Clerk	User	XP	BB	Yes	Yes	

Prepared by MPR Technologies

Interview notes and comments have been removed to protect the individual's privacy.

Seneca County eParcel Data Hub Survey

Cynthia Loncosky	Assessor (2 towns)	Both	XP	BB	Yes	Yes	RPS V4, APEX, SDG – iMate, ASAP, Excel & Word	3993
Janet Camp	Tax Collector	Owner	XP	BB	?	Yes	Phelps – Tax Collection (DOS), Word, Excel	

Town of Tyre

Patsy Amidon	Supervisor							
Elizabeth Sutterby	Clerk	Owner	No	No	No	No		
Philip Griswold	Assessor (2 towns)							
Linda Worden	Tax Collector							677

Town of Varick

Joan Teichner	Supervisor							
Donna Karlsen	Clerk – Tax Collector							
Anne Morgan	Assessor (5 towns)							1122

Town of Waterloo

James Mooney	Supervisor							
Louise Van Nostrand	Clerk							
Thomas Brown	Assessor	Both	XP	BB	?	Yes	RPS V4, Phelps – Tax Collection (DOS), Word, Excel	3236
Grace Murray	Tax Collector							

Villages

Interlaken

	Position	Role	OS	Internet	Firewall	Network	Software	
William Larsen	Mayor							
Jeanette Viegelmann	Clerk							304

Lodi

Terry Potts	Mayor							
Jane Taylor	Clerk							160

Ovid

Seneca County eParcel Data Hub Survey

David Terry	Mayor								
Cathy Kerns	Clerk – Treasurer	Owner	XP	BB	?	Yes	No Tax Collection Software, Excel & Word	260	
Seneca Falls									
Diana Smith	Mayor								
Constance Sowards	Clerk – Treasurer								
Martha Dygert	Deputy Clerk	Owner	XP	BB	Yes	Yes	Williams Law Books – tax collection DOS, not integrated	2600	
Waterloo									
Lee Patchen	Mayor	Both	XP	BB	Yes	Yes			
Gary Westfall	Clerk – Treasurer	Both	XP	BB	Yes	Yes		2200	
Schools									
Romulus Central									
Sue	Administrator	Owner	XP	BB	Yes	Yes			
Linda	Tax Collector							2045	
Seneca Falls Central									
Bob Boulware	Business manager	Owner	XP	BB	Yes	Yes	Excel		
Linda	Tax Collector	Owner						4517	
Kathy Harrison	Sr. Account Clerk	Owner	XP	BB	Yes	Yes			
South Seneca Central									
Sue Albro	Treasurer	Owner	XP	BB	Yes	Yes	Excel	4000	
Sandy Hauf	Tax Collector	Owner	XP	BB	Yes	Yes	Excel		
Waterloo Central									
Tim Lincoln		Owner	XP	BB	Yes	Yes			
Linda Wadem (Susie)	Tax Collector	Owner	XP	BB	Yes	Yes	Excel, Word	5408	

Survey Comments

Board of Supervisor meeting. Explained that we are trying to create an electronic eParcel data hub that would provide a more efficient process for obtaining data from different departments and from the towns and villages. We discussed the County Clerk application (ACS _Real-Time) and I was informed that the contract expires this year. They are looking at ACS 20/20 Perfect Vision in October.

County has TW Road Runner. The town assessors (4) send RPT updated RPS files four times year. The updates are: Tentative roll – Feb., Final roll – May, School – Aug, Town & County – November. ORPS does the merge for RPT. The Assessor updates come from the Clerk 5217 deed transfers and tax collectors that have updated escrow information when bills are received and they get a phone call. Utilities – The treasurer sends out these Tax bills – Z codes that are sorted at the very end of the tax bill printing. We discussed the automating of parcel data. One issue would be online updates to the master RPS file by assessors, how would you freeze data and if mistakes how would you track? Tax bills have pre-printed information on the back of the bill. The tax bills are given to the towns, villages and schools for them to mail. One issue with z-fold or stuffing machines is that they can't stuff but one tax bill per envelope. How would it recognize that a person has 5 tax bills. There are PCs in the Seneca County Building for assessors or tax collectors to use, but if they have their own applications how would they use them on the County PCs? Half the 5217s are filled out wrong! The abstractor delivers the 5217, deed, survey to the Clerk, the Clerk forwards to RPT for verification and tax map changes if required, after verified and or changed, RPT sends back to the clerk for filing. The Clerk sends the 5217 and deed back to RPT and the Assessor picks up one a month. NYS has a Datawarehouse of Inventory information???

Ten (10) towns are merged for tentative and then final – June billing, Sept. billing and January billing. All re-lvy come through RPT. RPT keeps a copy of the 5217. RPT gets the 5217 then, one (1) day later the deed? 5217 – two white copies – Clerk mails one, RPT gets one, the Pink and blue copies to the assessor.

March 1 the tax maps are locked – taxable day. Anything after march 1 goes to the next year. The Clerk keeps the deed and survey maps. GIS doesn't have backup of the tax maps. Survey maps – (1) milar, (2) paper copies – one for public use, one for map technician that sends his paper survey map to the assessor. Weiler is converting all Tax maps to digital. GIS would also like all survey maps in digital and may do. The County RPT provides Tax map CDs for \$25.00 to anyone that wants one. The Tax maps are updated annually but once digital they can be published for consumption for fee or free. RPT keeps a hard copy of the deed and survey map for six years then discard.

MPR was introduced me to the majority of the Supervisors. MPR will present a solid Cost / Benefit analysis and timeline to help the Supervisors understand what can be done with an eParcel Data hub.

Treasurer office now handles the delinquencies that come back from the towns and that the Systems East Software applies the penalties and generates the delinquency letters. IT assembles all delinquencies into a spreadsheet, adds the penalties and then gives this to the Treasurer's office.

Delinquent tax penalty process – System East and IT update Systems east from RPS, they were three years out of sync with RPS. Treasure office manually enters the unpaid County & Town delinquencies that come back from the tax collectors rolls into Systems East, Systems East calculates the penalties and then the treasurer office prints and sends out the delinquency letters. Bounced checks - the tax and any fees associated with the bounced check are re-levied. Seneca waits three years before publishing an auction notice for unpaid taxes, the auction takes place the next March.

The County Clerk uses ACS Real-Time and will be going to ACS in October to see a demo of 20/20 Perfect Vision – (Imaging to replace film). The contract with ACS expires this year but even if they started all digital storage and paper reproduction as needed how would they handle the history that ACS controls? The imaging can have either paper backup or paperless. ACS records the deeds and sends back a book to the clerk, the film is sent to Dallas for archival. Check this info – the 5217s are held to month end, then all go to (RPT) where they review for accuracy of information. GIS would also handle the tax maps for splits or merge situations. The County Clerk doesn't need a copy of the 5217.

There is no file maintenance at the county level, they merge all assessor (RPS V4) files into the RPS V4 which is the master record. The delinquent bills come back to the County via floppy disk or hard copy, then IT enters into Excel, applies the penalties, then gives to the Treasurer to be entered into Systems East. The treasurer uses the System East Delinquency Tax Processing software that is not RPS V4 compatible. Once a year IT has to run a conversion to create a 995T1 file (RPS V3) of owners names and addresses to make Systems East in sync with the RPS V4 master record. RPS V4 has been out 5 years and System East has not upgraded for RPS V4. IT creates customer reports and labels for outside sources such as Utilities, Real Estate, Volunteer Fire and Supervisors. These reports are generated from RPS but manipulate in Excel to provide the information requested. Outside sources are charged for this work by the County. No charge

ORPS will find out about upcoming changes to RPS and whether it will be improved to provide better comparative analysis. We also discussed the SDG iMate and that it acts as a clearing house for different information and that too many copies of information could hurt the integrity of the data. ORPS knows there is work to change the 5217 but doesn't know if it would be feasible or legal to use entirely in electronic form. MPR attended the RPS governance meeting on Sept.27, 2006.

The Town of Covert combines the Clerk and Tax Collector roles. She uses the Tax roll – assessment roll daily for address, Tax map #s amount of land, etc for development permits. Planning, code enforcement need the info. She was not happy with Williamson Law Books and started doing her own record keeping in MS Works. Reconciliation is accomplished with her spreadsheets and the County going through the books. No issues with the Tax bill but the receipts are too small for window envelopes. Payments are made to the Town whenever she gets \$100,000. She pays the County the first of each month along with her dog licenses. She receives tax payment questions once a week and has six years of tax payment history that is mandated by law. She believe the Web would be a great way of showing paid taxes. She had customers and had to stop our conversation.

All Tax Collections by hand. Use the 3 box manual tax collection method. She understands that everything will become computerized and she has no problem with that but she will retire when happens. In December her brother and sister help sort and mail the tax bills which takes one day. Bank codes come sorted but she still has to find those escrows that have transferred to another bank / mortgage company. *Utilities are handled by the County.* She sends the delinquencies back to the County the first of April. *She has never sent a delinquency letter.* Collections – pays Fayette the middle of January, end of January. Sends a periodic check 3 or times to the county before April. The County reviews her books and reconciles her accounts. Tax bill is stamped at the top for the County, the stamp at the bottom is the tax payer's receipt. The County RPT eliminated the second copy of the tax bill and she believes this works better. The tax bill receipt stub has not assessment detail and is too little.

Junius has no town office and she has to use her own computer for tax collection. Dial-up the Web applications are very slow. Would love to help more but she has no access to parcel data. Escrows call with Parcel #s and she only has the print-outs from the County. Tax Bill – She sends the whole tax bill back as the receipt, she has her copy. Since the address is at the top and bottom of the tax bill she refolds with the address at the top to use with window envelopes. One issue is that the stub receipt contains no assessment information. She batches tax bills since some owners have 10 – 15 properties. Tax bills are sorted by private pay (A-Z), Escrow. County does the utilities. When Escrows change she sends the updated information to the Assessor so that they can update the RPS V4. Deposits – She pays the town 4 or 5 times between Jan. and Feb., the town gets paid off by middle of Feb. She pays the County after paying off the Town and when she has a substantial amount. Delinquencies – She send a deliquent notice.

Town of Lodi is very much in favor of consolidating all services, tax collection, assessment, etc. at the County. They believe their assessor does excellent work. The Town computers are networked and those that need internet access use dial-up via CapitolNet. She indicated that in the future they may be able to get high speed from Empire Telephone. There is no e-mail, they use their personal. Tax collector has been ill

The Town of Ovid was busy in the middle of a re-assessment. Currently does tri-annual but she feels bi-annual would be best for tax payers due to the escalating values. Assessor is on the Wayne Finger Lakes Board / Romulus School Board. She loves RPS and has no issues with it for comparative or cost analysis. She talked about getting digital tax maps. She said that she has never been late filing the RPS035 sales info. Her office is Main street, Ovid. Dial-up and she wouldn't go to RoadRunner due to budget constraints. The RPS file is a single file that gets merged with the County. The five towns are treated like a single entity (RPS Law ???) but the data can be pulled anyway it is needed.

The Town of Romulus has a computer network with high speed (RR) internet access. They have e-mail.

The Clerk has a very good understanding of the processes. She likes the BAS software and would recommend it. BAS – Business Automation Solutions – Software Solutions out of Clifton Park, NY. They also like EOS – Executive Office Systems for the general accounting. They have used for ten years. They have two school taxes – Romulus and South Seneca. They send out two (2) delinquency letters – end of Sept., Oct. The county does the publishing of the delinquencies. They collect Water and Sewer but almost never have to re-levy since they can turn off the service when not paid. Tax collections are kept for 10 years. They got a grant to have they paid tax histories reviewed and proper disposal of those outside the mandated time to retain. BAS cost \$650 otc, \$1200 annual support, \$300 clerk update. The EOS cost was \$16,75 in 1996, annual maint \$?.

The Town of Seneca Falls has an Assessor that is very computer knowledgeable She and a clerk are in a separate office from the rest of the Town. They have RR and an ethernet for the two computers. No pictometry but has multiple pictures of all 6900 properties in the town. These pictures are used with SDG and viewable from the town's website. She uses APEX for her digital drawings but has issues with the lack of manuals and help. Tax maps & GIS are handled by the county – GIS. The tax maps are getting converted to digital, Weiler is working on the GIS. She exports information from RPS to Excel for analysis. SDG is used for comparative analysis since this is weak in RPS (too general). Sales in RPS are imported into iMate (SDG Database) and then she runs ASAP (SDG sales analysis module) to do comparative analysis. ASAP allows for very specific or general searches and analysis. Also used for determining 500' radius contact info since SDG can search from any property point, where RPS is centroid (center of property) and would not show any adjoining neighbors when the primary property is larger than 500' to the adjoining properties.

Town of Seneca Falls biggest problem is with Tax Collection software by _____ out of Phelps (can't handle apportionments – no receipts, hand done in triplicate), second problem, the County uses paper – original copy of the bill to the county, roll book has to be stamped and dated, tax bill not collector or owner friendly, receipts don't fit envelopes, have to write in two places on bill.

The Town of Tyre work from home. The supervisor, assessor have computers but she believes the Tax collector doesn't use a computer. The Town doesn't have high speed access

Town of Waterloo, no major concerns! Uses the Internet for e-mail and visiting the Seneca County & ORPS site. RPS V4 is not very useful for Comparative property analysis, the GIS is very good. He is interested in application integrating with GIS, such as the data overlaying the GIS maps. His data (5217) flows from County Clerk to RPT to him, the 5217, surveys and wills come in hard copy. He distributes his data (Assessments) to property owners, he has some issues with exemptions for Star, veterans, etc. Apportionments – The county mapper makes changes to the maps, then the assessments are changed. Another minor problem is tax payers not getting their bills, but it is the tax payers responsibility to notify them of the changes. There is a time lag in getting the information after sales.

Village of Lodi returns the top portion of the tax bill for a customer receipt. It's the only portion that contains all the information and this is what the property owners want to keep on file.

Village of Ovid is now located at 2136 Brown Street in Fire house. The Clerk has DSL via the firehouse network. The current Tax bill is costing the Village money! The tax payer keeps the top section for their records and sends in the stub or the tax payer request a full copy for their records so the Village makes the copy and sends in the mail. The Village get hit with the postage. Property information is always one year behind due to just getting the approved roll in July, but she also has direct access to Assessor when she has questions. They would love having current information because they find themselves sending information to the wrong owner due to having back level information.

The Village of Waterloo very much against putting parcel level data on the Internet for public consumption. Tax collection once a year and he shares the parcel data with the Health Department annually, they would like it more often. *The village assessments are done by three assessors since the village is in three Towns.* Williamson Law Books is used for General Ledger and Tax collections. First Priority out of Phelps handles the Village computer needs. Village fiscal years are different from Towns and county – budgets out of sync for County or Town tax collections, assessment prior 1.5 years for current year payment.

Seneca Falls School staff had just discussed this morning with his tax collector that they need an application to track paid / unpaid taxes due to the large number of phone calls received requesting tax information current and history. He would like a web-based application that would allow tax payers to view their bills, print them, e-mail receipts or fax a copy to them. At this time they use a lock box using Five-Star Bank. Five-Star delivers them a daily report on the paid taxes in hard copy. They have no software to record the paid taxes. The general ledger is simply recording the general receipt of payment. If history is needed by a tax payer, title company, etc. they produce the hard copy and then copy or fax. Delinquent taxes are sent to the County and the County makes the School whole on April 1. The County prints all tax bills. Staff would like to see an application that would allow the School and the Five-Star lock box to share the receipt information. I will call Five-Star to get additional information.

South Seneca Fall School explained that the tax information process is very labor intensive due to it being manual. They operate just like the Seneca Falls Central. All four schools are manual and use Five-Star lock box but get everything in hard-copy. Not sure how many years of hard-

copy they keep but ten is the usual number.

Waterloo Central School's office is located in the Main Street mall. The office located on the second floor does have a high speed connection to the internet. Very nice and very helpful. *The Tax Collector brought up an interesting point – How do you handle tax bill revisions? She would like a blank form to fill-out so that she can get it to the tax payer, but how do we keep integrity of the data? Corrections should go to the assessor and any major changes require verified proof of the change, since estate changes sometimes are contested, just one example.* Things typically wrong with tax bills are: market value, assessment value, escrow left off, payment schedule, etc. The tax bill could be better, Linda liked the multiple copies so that one could be used as the receipt and it contained all information versus the tear off slip. She and her staff fold, stuff and mail the tax bills, the county prints the bills. *All taxes are delivered to the Five-star lock box.*