

# **An Evaluative Approach for Creating Digital Torrens Abstract Boundaries: A Case Study for Hennepin County, MN**

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## **Abstract**

As the center of this case study research, Hennepin County, Minnesota currently utilizes two forms of land records management, Torrens registration, and abstract land title. With a population of nearly 1.2 million and over 400,000 parcels, efficient and accurate management of these records is extremely important. Most land records data for the county are already being managed with Geographic Information Systems (GIS). Torrens land record information, however, by in large is not managed with GIS. Therefore, Torrens data are not easily accessible, and they cannot be cross-referenced with other land record information without significant effort. This research catalogs current Torrens record management practices in Hennepin County to realize best practices, suggesting areas better managed by using GIS, and designing processes for transitioning those areas to GIS.

## **Introduction**

### ***Term Definitions***

Abstract: Collection of legal documents recorded against a property.

Cadastre: Comprehensive details of taxable land divisions.

Certificate of Possessory Title (CPT): An administrative process to register properties that have uncontested titles.

Certificate of Real Estate Value (CRV): Required in Minnesota to document property sales.

District Court Case Number: Court file numbering used for modern registrations.

eCRV: Electronic CRV

eRecording: Electronic recording through submitting scanned documents.

MNCIS: Minnesota Court Information System, electronic version of MN District Court records.

PID: Parcel ID, unique identification number assigned to each tax parcel.

PINS: Software used to maintain the Hennepin County Auditor property owner and taxpayer records.

RecordEASE: Software used by the Hennepin County Recorder's office to record and index real property documents.

Tax parcel: Spatial representation of taxable land area.

Torrens Case Number: A special court file number assigned to some of the first registered properties in the county.

Torrens parcel: Spatial representation of originally registered land area.

## ***Torrens History and Use***

Sir Robert Richard Torrens was appointed registrar-general for South Australia in 1852 (Holl Jr., Rabley, Monacelli and Ewan, 2010). In only six years, Torrens published an outline of a Torrens bill, introduced it as a member of the House of Assembly, and it was adopted in 1858 (Holl Jr. *et al.*). The Torrens system became popular quickly because of its simplicity and the protection that it offered all interested parties (Holl Jr. *et al.*). Its simplicity stemmed from the ability to rely on the contents of the title. Interests and encumbrances on land are fully represented on the certificate of title and research beyond the contents of the title is not necessary (Holl Jr. *et al.*). The protection comes from the fact that registration removes the possibility of adverse possession and the state provides guarantee of title (Holl Jr. *et al.*).

### **Torrens Throughout the World**

Not long after the creation of the Torrens system in South Australia, it was adopted in New Zealand with the first land registration laws being passed in 1860 (Knowles, 2008). Today, all land in New Zealand that are not native Maori lands are registered Torrens land, and the registration system has changed very little since its adoption (Knowles). The system was also quickly adopted throughout British Commonwealth countries, Canada, and Europe (Landmark, 2010).

### **Torrens in the United States**

Torrens came to the United States early in its history as well. The first adoption was in Illinois in 1895 (Holl Jr. *et al.*, 2010). Shortly thereafter, it was used in California, Massachusetts, Colorado,

Minnesota, Washington, Ohio and New York (Holl Jr. *et al.*). In recent years it has only maintained consistent use in Colorado, Georgia, Hawaii, Massachusetts, Minnesota, North Carolina, Ohio, and Washington. Of those, statewide use only exists in Hawaii, Massachusetts, and Minnesota (Holl Jr. *et al.*).

### **Torrens in Minnesota**

Very few states in the United States actively use the Torrens land registration system today (Foster, 2013). Of those that do, Minnesota is one of the few that has seen successful widespread use of it (Foster). Within Hennepin County specifically, nearly half of the parcels are registered (Foster).

Land registration in Minnesota started with the three most populous counties in 1901 and has expanded to some degree of use in nearly every county (Holl Jr. *et al.*, 2010). Hennepin County was an early adopter and now nearly half of its property is managed as Torrens registered property (Foster, 2013). Nearly all counties in Minnesota are still utilizing the Torrens system today for at least some of their properties (Holl Jr. *et al.*).

### ***Research Problem Description***

The purpose of this research was to examine potential benefits, and possible hindrances, of using GIS for historic record keeping, data processing, and data analysis. Through research observations, a majority of cadastral information in Minnesota and Hennepin County is being managed with GIS, but currently only a small portion of Torrens land record information is represented in GIS.

## Methods

Data collection and background information for this study was gathered principally from qualitative research observations and informational interviews with members of the Hennepin County government staff. To this end, data and information was obtained primarily from within Hennepin County, but other counties and agencies in Minnesota were also consulted. Departments consulted included GIS, Survey, Recorder, and Registrar of Titles. Information gathered from Hennepin County included digital document processes, content of digital cadastral data, coverage of Torrens property, location and content of Torrens information, and the current registration process. Information requested from other counties and agencies was limited to how they manage Torrens records.

Information was gathered through personal observation, researching records and software on site, and through government staff interviews and email requests. Firsthand accounts were necessary to acquire information relating to this research, as little formal literature exists related to the topic. Similarly, many internal processes are not well documented, with staff knowledge being the most complete source of information. Thematic summaries of data collection are provided in subsequent headings.

### *Assess the Current Methodologies of Other Counties*

In preparation for this research, staff members from each county and tribal government in Minnesota were contacted; 98 agencies in all. This was composed of 87 counties and 11 tribal agencies. A self-designed survey was used to acquire information from counties/agencies.

Responses were received from 68 respondents, a 69% return. Survey questions asked if the county/agency has a Torrens parcel layer in GIS, and if so which department manages it. Of the 68 respondents, only 9 said they are using GIS for Torrens records. The department managing the Torrens layer varied between survey, GIS, public works and the Recorder's office.

Those 9 respondents were provided with two additional questions. The first question requested the number of tax parcels existing under the agency's governance, and secondly, how many of those are affected by Torrens registration. Responses were received from 5 of the 9. The response indicated an average of 22,880 total parcels per county, and roughly 12% of those parcels were affected by Torrens registration.

Survey goals were to draw a comparison between Hennepin County parcel data, and parcel data of those counties/agencies most similar to it. Survey findings suggest Hennepin County is somewhat unique. In Hennepin County, roughly half of the 400,000 tax parcels are influenced by Torrens registration. This is substantially more than other counties responding to the survey.

Respondents also gave information about the relationship between Torrens registered land and tax parcels. In responding counties where Torrens registration is utilized, respondents indicated, in most cases, Torrens parcels were a one to one match with tax parcels. In Hennepin County, a tax parcel can match a Torrens parcel, contain multiple Torrens parcels, or be only partially affected by a Torrens parcel. Similarly, a single Torrens parcel can be split into many tax parcels.

Given the unique nature of Hennepin County, scarce literature exists

that speaks directly to a solution for managing Torrens land records in GIS. Therefore, other land records management systems were assessed to draw parallel conclusions.

### ***Assess the Current Methodologies of Hennepin County***

Many departments and county staff interact with land records and Torrens information on a daily basis. Some of their work overlaps, but most of what they do is specific to their individual office or job. They are all subject matter experts (SME's), but are largely unaware of specifics regarding how other offices interact with the information. Prior to this research, no evidence was observed nor found to detail current locations of all Torrens information at the county and the responsibilities and workflows of various offices that work with that information.

#### **Document Imaging/Indexing**

Further observation and collected research revealed land records in Hennepin County and Minnesota are transferred, modified and managed through the recording of documents. Historically, this has been a process dominated by paper. However, Hennepin County has slowly been transitioning from paper recording to digital. From research collected and observed, the transition occurred in several steps.

- First, a computer program was created that generated sequential numbers to assign to recorded documents (Jorgenson, 2014).
- Next, the capability to attach index information to the document number was added.

- Then index data and document numbers were attached to legal descriptions.
- Currently, RecordEASE connects document number, index data, and legal description to digital scans of recorded documents.
- Also, in 2011 eRecording was introduced and presently nearly half of the county's daily workload of documents are recorded without paper through eRecording (Jorgenson, 2014).

#### **Digital Cadastre**

Data collection found that much of the current GIS infrastructure at the county started with creating a digital cadastre. At the time of data collection, all survey and cadastral data was being maintained in GIS. These data include:

- Tax parcels and related tables with current property identification numbers (PID) and tax information. Tax information includes owner and taxpayer details, property and building specifics, and some assessor's data including a field to indicate whether a parcel is abstract, Torrens or both.
- Geodetic control points including the monument name, coordinates and original survey data sheet.
- Public land survey monuments including name, coordinates, and inspection information.
- Plats are scanned and digitized after recording. The GIS plat layer has the

name, addition number, lots, and blocks.

- There are additional point and line files containing coordinate geometry for the entire cadastral system, which is made available through online web-mapping applications.

### Torrens Land Area

In examining the digital cadastral system for this research using GIS, tax parcel areas were checked against the total area of the county. The goal of this comparison was to approximate land area affected by Torrens registration (Table 1).

Table 1. Area in square miles for all parcel types and the percentage of the total area of the county those types cover.

GIS Features	GIS Area	% of Total
Hennepin County	606.175	100.0%
All Parcels	475.435	78.4%
Abstract Only	286.404	47.2%
Torrens Only	141.185	23.3%
Abstract/Torrens	47.846	7.9%
Roads, Water, Other	130.74	21.6%

### Torrens Data Location and Content

Data collection discovered information on Torrens properties currently exists in several formats, and portions of the information are held in several locations throughout the county. No one source has all of the information. It is spread between the offices of the Registrar, Recorder, Surveyor, and GIS.

- Parcel and plat GIS data contains an attribute indicating abstract, Torrens or both. It does not have any information related to the certificate of title, court files, or other documentation. When a parcel/plat is both abstract and

Torrens, the data does not indicate where the separation occurs.

- The Registrar of Titles maintains a set of hard copy map books. These books contain the original court case number written into the tax parcel boundary and sometimes contain sketches of the Torrens parcel boundary as described in the original application.
- The Recorder's office maintains a set of hard copy maps that have sketches of the final registered Torrens parcel boundary. They include the document date and district court file or CPT number.
- The Recorder's office also maintains a hard copy first certificate ledger, which contains the district court file or CPT number along with the first certificate number for each registered property.
- Torrens court documents are available in hard copy, and some may be found through MNCIS.
- All recorded documents are indexed by legal description, and available through RecordEASE. A value of abstract, Torrens or both is also assigned to legal descriptions and documents in RecordEASE.

### Current Torrens Registration Process Without GIS

When an application to register a property as Torrens is submitted, the Registrar of Titles office opens a court case file and research is conducted. Property research includes using the legal description from

the application to find the PIDs, compile a complete abstract history for the property, find any existing Torrens certificates, and determining if any previous applications for registration were filed. At this point the property is drawn, by hand, into the set of books the Registrar's office maintains, and the court file number is written in the boundary (Figure 1).



Figure 1. A clipped sample of a page from the Hennepin County Registrar of Title's Torrens map books. Torrens parcels and related information are shown in red.

Depending on the details of the application and complexity of the legal description, the survey division may be called in to actually survey the property in question. After all initial research is completed, the application goes through one of two processes: 1) the traditional court process, or 2) the administrative CPT process. Once approved, an Order of Court or Examiner's Directive is issued instructing the registration to take place. This document is then sent to the Recorder's office.

After recording the document, the Recorder's office staff draw the property being registered on their Torrens maps. The date and district court file or CPT number are also copied onto the map

(Figure 2). Their next step is to change the property type to Torrens in RecordEASE, PINS and the GIS parcel layer. RecordEASE is changed by the Recorder's office staff and notification is sent to the surveyor and assessor so they might update the other systems. Figures 3 through 5 depict elements of the process.

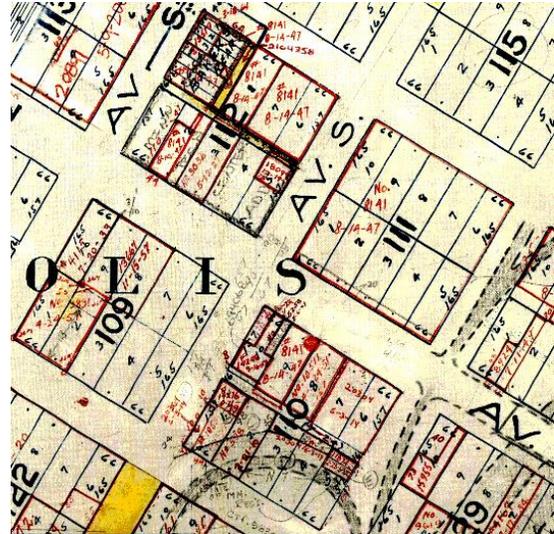


Figure 2. A clipped sample of a Hennepin County Recorder's office Torrens map. Torrens parcels and related information are shown in red.

Kind	Block	Lot	Creation Date	Vol/Page	Certificate No	District Court No	Creation Doc. No	CPT	Legal Desc	Creation Doc. Test
Lot	111	1	06/14/1967	399	119768	2143			False	

Figure 3. Graphic of the RecordEASE form where property descriptions are designated as being abstract, Torrens or both.

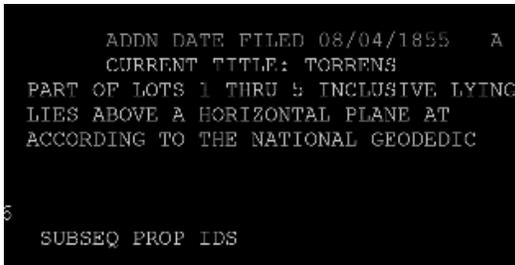


Figure 4. Graphic of PINS showing the land type associated with the legal description.



TORRENS_TYP	HOUSE_NO	FRAC_HOUSE_NO	STREET_NM
A	<Null>	<Null>	<Null>
T	<Null>	<Null>	<Null>
T	<Null>	<Null>	<Null>
T	<Null>	<Null>	<Null>
A	<Null>	<Null>	<Null>
T	<Null>	<Null>	<Null>
T	<Null>	<Null>	<Null>
T	<Null>	<Null>	<Null>
A	<Null>	<Null>	<Null>
B	<Null>	<Null>	<Null>

Figure 5. Graphic showing the tax parcel table field 'TORRENS\_TYP', which indicates abstract (A), Torrens (T), or both (B).

### Searching for Torrens Property

When searching for information on Torrens property, either related to a new registration application or an existing property, several systems must be cross-referenced. PINS is used to check the Assessor's tax records to get the PID, confirm owner and taxpayer information, and it has an indicator stating whether the property is abstract, Torrens or both. Next, RecordEASE is checked to confirm the property type, to determine if any recent changes have been made to the property and to verify the legal description. It is through RecordEASE the current certificate can be found. When a property

is Torrens, the Recorder's maps, both hard copy and digital, are used to confirm the Torrens portion of the legal description that is being researched.

### Evaluation

The idea of transferring paper processes and information management to a digital format is not new. However, as digital data, the information becomes more useful and more widely used (Hasanzadeh, 2010). Based on the information gathered and observations documented, recommendations were developed to highlight best-practice approaches to designing an effective digital Torrens layer. These best practices are highlighted with a more descriptive interpretation in subsequent headings:

1. Create a Torrens parcel layer using the Recorder's office Torrens maps as the starting point.
2. Digitize the Recorder's office first certificate ledgers and add that data to the Torrens parcel table.
3. Use the Registrar's Torrens map books and missing first certificate numbers in the Recorder's ledger to help fill in missing data.
4. Modify the Torrens registration process to use the Torrens parcel layer instead of hard copy maps to display Torrens areas.
5. Add the Torrens parcel layer to the Property Interactive Map to simplify searches for Torrens data.

### *Torrens Layer Creation*

#### Existing Maps

Currently, the most comprehensive source of spatial information for Torrens property in Hennepin County is at the Recorder's

office on hard copy maps. These maps contain the boundaries, registration dates, and court file numbers.

The Recorder's maps are each a half section, sections being split either North/South or East/West. According to current GIS data, there are roughly 650 sections in the county, which means there are likely to be approximately 1300 maps.

When comparing tax parcels affected by Torrens registration to the sections in the county, nearly all sections contained at least some Torrens property. When comparing the county boundary area to current tax parcels in GIS, the county was approximately 606 square miles, and parcels affected by Torrens registration cover nearly one-third of that area (Figure 6; Table 1).

### Map Scanning

As Torrens registered lands are distributed throughout the county, time estimates presented were based on time necessary to scan all maps. According to County Recorder's staff, the time to scan, name, and sort a map varies greatly. The variations depend mostly on the quality of the content on the map and making sure the content is legible on the image. A single map can take as much as ten minutes to scan and name the file if there are difficulties (Francart, 2014).

Batch processing significantly reduces processing time. Scanning all maps first, then naming them, and then sorting them can potentially cut the time needed by half. For purposes of this research, time to scan, name and sort the maps was estimated to be 217 hours (1300 maps x 10 minutes/map).

Naming conventions of images were also important consideration, as maps are stored in a single folder to facilitate easier sorting and searching.

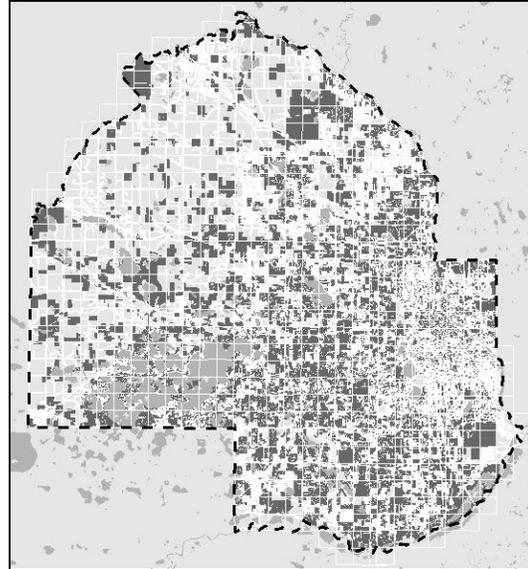


Figure 6. The dark grey areas are parcels that were found to be either partially or fully Torrens.

For example, scanned files are typically named to a standardized convention consisting of the Township, Range, Section numbers, and ending with the half directional. A sample is shown here:

T118R24Sec35\_N  
T118R24Sec35\_S

### Georeference, Digitize, and Attribute

Recommended processes to follow scanning the materials would then consist of creating the digital Torrens layer. The first recommended step would be to georeference maps that have been scanned so they can be digitized. Only maps with an abundant number of Torrens parcels, or Torrens parcels having complex boundaries would be recommended for georeferencing. These maps are useful to the digitization process, whereas maps containing little or no Torrens land are not. Use of existing GIS data with landmarks, section boundaries, or plat data to help serve as reference locations for georeferencing is recommended.

Data collected for this study found that some Torrens parcels match current tax parcel polygons. In this case, the digital file of the tax parcel can be copied to the digital file of Torrens to capture the spatial features. Where a Torrens parcel does not match the tax parcel, several GIS base-layers are recommended for use for reference. When digitizing the Torrens layer, base-layer data may then be traced to ensure Torrens parcel boundaries follow already verified point and line data.

Once Torrens polygons are digitized, recommendations are to then attribute each file. Sample attribute considerations consist of court file numbers, date of original registration, and any hardcopy map information the user finds important to document.

Lastly, recommendations to complete the digital Torrens layer are to then join the Torrens parcel layer to the digital version of the Recorder's first certificate ledger. This join might best be based on the court file number common between the ledger and the Torrens parcel table in this case study. For other case studies beyond this research, the attributes and joining information may be different. Following this, the first certificate number can be auto filled in the Torrens parcel layer as shown in Figure 7.

#### First Certificate Ledgers

In this case study, where hard copy maps contain the registration date and district court file or CPT number, there are hard copy ledgers that links court file numbers to the first certificate number. In all, there were approximately 21,000 records for Hennepin County. Examples of the three types of entries are shown in Figures 8 through 10.

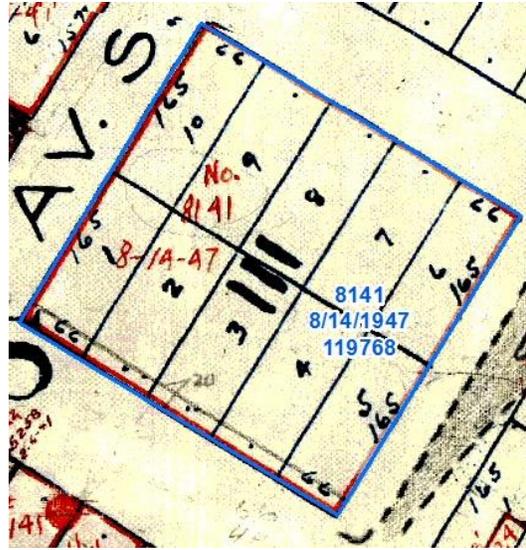


Figure 7. The GIS Torrens parcel is shown in blue, labeled with court file number, registration date, and first certificate number. A georeferenced map is shown underneath.

241	381
242	476
243	441
244	442
245	443
246	394
247	444 pt entered

Figure 8. The left column contains the Torrens case number and the right column contains the first certificate number. These ledgers document the link between the Torrens case numbers written on maps to the first certificate number issued for the registered property.

27-ET-CV-09-1974	1328112
27-ET-CV-09-31355	1330344
27-ET-CV-09-1133	1330809
27-ET-CV-09-1463	1332208
27-ET-CV-10-1759	1337744
27-ET-CV-10-1233	1336918
27-ET-CV-10-1945	1338712
27-ET-CV-08-1998	1339545
27-ET-CV-11-11	1339546
27-ET-CV-11-11	1339547
27-ET-CV-10-522	1339687
27-ET-CV-11-0206	1341368
11-0206	1341369
27-ET-CV-10-1114	1342386
27-ET-CV-10-1114	1342387

Figure 9. The left column contains the modern District Court Case number and the right column contains the first certificate number. These ledgers document the link between the court file numbers written on maps to the first certificate number issued for the registered property.

30	
31	809950
32	806421
33	808101.5
34	810549
35	812870
36	822690
37	816889
38	816890
39	820024
40	818571
41	818837
42	820248
43	823448
44	821622.5
45	
46	

Figure 10. The left column contains the CPT number and the right column contains the first certificate number. These ledgers document the link between the Torrens CPT case number written on maps to the first certificate number issued for the registered property.

It is next recommend ledgers be converted to Excel spreadsheets. An accurate estimate of the time needed for this process was 17.5 hours for the county. A time approximation was made based on the following rationale:

- Each entry has two columns and each column is a string of numbers ranging from four to ten digits.
- Staff typing 40 words per minute = 20 entries per minute or a total of 17.5 hours (21,000 entries x 3 seconds/entry).

### Torrens Layer Sample

In order to make case study recommendations, a sample Torrens layer was created. To this point, recommendations for creating a digital Torrens layer was for a single purpose – preserving original registered boundaries of Torrens parcels. Therefore, attributes included in the attribute table were only those necessary to capture the original history of Torrens parcels. This was done with three columns, one for Torrens case numbers, one for district court case decree numbers, and a third for CPT numbers.

Additionally, as shown in Figure 11, the sample Torrens attribute layer contains several additional fields. Two separate date fields are included: the first is the date of original application for registration and the second contains the date of final approved registration. The next column highlighted in Figure 11 illustrates the first certificate number, again only showing the original registration record. Lastly, a notes column exists for specific or unique information.

T_CASE_NUM	DIST_CT_NUM	CPT	APP_DATE	REG_DATE	FIRST_CERT	NOTES
16039	<Null>	<Null>	<Null>	5/4/1966	<Null>	<Null>
8141	<Null>	<Null>	<Null>	8/14/1947	<Null>	<Null>
10927	<Null>	<Null>	<Null>	12/18/1952	<Null>	<Null>
15339	<Null>	<Null>	<Null>	11/6/1963	<Null>	<Null>

Figure 11. A sample Torrens parcel layer attribute table.

### ***Backfill of Missing Information***

After developing recommendations and sample data for evaluation in this case study, it is expected there will be some gaps in the greater data beyond what is outlined here. A sample of gaps in data is illustrated in Figure 10. For these records, the original report issued by the Registrar's office will need to be cross-referenced with the Registrar's books. This will add Torrens parcels that have had applications but no final registration or it will reveal first certificate numbers that were not entered by mistake.

### ***Torrens Registration with GIS***

Recommended workflow for registering new Torrens properties should not change drastically after adding a Torrens parcel layer to the process. Instead, a few of the steps might require modification to improve overall streamlining.

Highlights of the registration process are provided here:

- The initial application coming from the property owner will not change.
- An ArcGIS Online web map will contain tax parcels, Torrens parcels, and an editable point file.
- Users may use this to determine if a property has ever had a registration application filed on it.
- At this point, Registrar's staff should now mark the property on the web map and add court file number and application date.
- This will then prompt the survey division to add polygons to the Torrens parcel layer.
- The final registration document will be sent to the Recorder's office staff for recording. After recording, ArcGIS Online web

map can be used to find the Torrens parcel polygon that was created when the initial application was first received.

- Polygon verification should then take place to match the legal description and registration information, etc.

### ***Searching for Torrens Properties***

With a digital Torrens parcel layer created, data will serve both as a tabular record of applications, registrations, and first certificates, and secondly, a spatial representation. Torrens information can be then visualized on the Property Interactive Map along with tax parcels and other data.

### **Discussion**

#### ***Electronic Benefits***

There are many benefits to electronic records management. Vast amounts of information are available at the click of a button. Information can be accessed quickly, is easily cross-referenced with other data, and update processes can be automated. With more and more services becoming available through the web, information can also be accessed from anywhere, at any time.

#### ***Immediate Layer Uses***

After developing and evaluating sample digital Torrens information for this case study research, anticipated current and future benefits and uses are very encouraging. Should the county decide to carry forth with recommendations provided herein, benefits will far outweigh development costs. For example, in the first iteration of data developed, the Torrens layer allows the automation of

assigning the abstract/Torrens/both attribute to other GIS layers, including parcels and plats. It provides a single authoritative source for Torrens parcel boundaries providing a single source of information access for county staff or the public.

### ***Future Uses***

It is anticipated the Torrens digital layer will become more useful as GIS is integrated with other systems at the county, specifically RecordEASE. Once the two systems are linked, clicking a tax parcel will allow access to recorded document index information. The Torrens layer will contain first certificate number, district court number and original registration date. In RecordEASE, this information is carried forward to all subsequent certificates. Therefore, through this connection, a click on the tax parcel map will also allow direct access to a current certificate number, and any related information.

### ***Stakeholders***

Land records, tax records, and related information are used by a wide variety of government departments, private companies, and individuals. The Recorder and Registrar of Titles take in documents affecting land ownership, land use, and boundaries. Surveyors inspect and approve, or deny, parcel boundary changes when necessary. When changes are approved, surveyors also modify tax parcel and plat layers. The GIS office then updates the central data warehouse and all related applications. Land information including ownership, boundaries, hindrances, and other details are also needed by planners, public works, and others to perform their jobs.

Outside of the county, these same details are sought out by many on a daily basis. Real estate companies and banks need detailed information to organize property sales. Construction companies and contractors need related information to properly file plats, permits, easements, liens and other documents. Perhaps most importantly, the easier it is for property owners to access information, the better informed there will be about property they own.

### ***Difficulties Converting to Electronic***

Despite the demonstrated benefits of other electronic systems and potential added benefits of digitizing Torrens parcels, there are still many possible complications this project could face. There are a large number of maps and documents that need to be scanned, and a large number of Torrens parcels that need to be digitized. This will take a significant amount of time and money to accomplish.

There are also several departments that will need to be involved. They each have their own use for the information and may have differing ideas of how it should be represented. In order for data to be utilized to its greatest potential, these same departments may have to alter some of their workflows, and some new technologies may need to be implemented. Approval for, and acceptance of, new processes and technologies is always difficult.

### ***Summative Conclusions***

Beyond staff and technological capability, government is evolving in the way that it provides information to the public. Open data initiatives have increased the push to digitize information and make it available in a variety of formats. Land records are a

big part of this, and nearly all aspects of Hennepin County land records are already available in digital format, with GIS data freely and openly available to the public. Torrens parcels are a major component that have not yet been transferred. Consolidating the information into a single location, keeping scans of the maps for historic preservation, and making the digital data available, all falls in line with the county's efforts towards government transparency.

Initial work conducted on this research approach has attracted interest from the county to carry forth. From the work processes outlined, the Recorder's office now has protocol and training to begin the larger scale process of scanning all of the Torrens hardcopy maps. Additionally, the Survey office has the staff, technology, and experience to convert the maps into a digital Torrens layer benefitting stakeholders across the board.

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