

**Jurisdictional Boundary
Update and Maintenance
for Watershed
Management Organizations
Washington County**

Spring 2006

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A watershed management organization (wmo) means a watershed district or a joint powers entity established wholly or partly within the metropolitan area by special law or by agreement that performs some or all of the functions of a watershed district for a watershed. This report distinguishes between those that are established by law (watershed districts or wds) and those established by agreement (jpawmos). (Minnesota Statutes 103B.205.)

Jurisdictional Boundary and Maintenance Update for Watershed Management Organizations in Washington County

Executive Summary

Project Purpose

In May 1997, MetroGIS, a regional initiative that promotes sharing of geospatial data, identified jurisdictional boundaries as one of thirteen priority business information needs requiring a regional data solution. MetroGIS entered into a contract with Washington County to develop digital jurisdictional boundary coverages that would be accurate, up-to-date and compatible with the county's parcel base map. Of highest priority to both the county and MetroGIS were municipalities (completed in 1998), school districts (completed in 2000) and watershed districts. *The main purpose of the project described in this report was to develop accurate jurisdictional boundaries for watershed management organizations (wmos) that are legally correct and in alignment with the county's digital parcel database.*

In funding this project, MetroGIS was interested in two outcomes:

1. A recommendation on which organization should be the primary source of digital data and maps for jurisdictional boundaries of wmos.
2. A recommendation on which organization should compile a region wide map for wmo jurisdictional boundaries.

The county's interest in this project was two-fold:

1. To have taxes going to the correct organization.
2. To provide accurate information to organizations working on water issues.

The following document describes the process that the county went through to achieve these outcomes and recommends actions to keep the data accurate.

Project Goals

Primary Goals

1. To create an accurate digital jurisdictional boundary coverage that is compatible with the parcel map.
2. To clean up the county tax records so that all parcels are assigned the tax code for the organization where they are geographically located.
3. To establish a process to maintain the accuracy of the jurisdictional boundary map over time.
4. To determine an efficient process to react to requests for information related to boundary changes and to respond to boundary changes ordered by the Board of Water and Soil Resources (BWSR).

Secondary Goals

1. To determine the need for a legal description defining the jurisdictional boundary.
2. To modernize the legal descriptions incorporating current reference points.
3. To recommend the primary custodian of the data.
4. To recommend the regional custodian for compiling a regional digital boundary map.

Future Goal

To work with wmos to create jurisdictional boundaries that better fit the hydrologic boundary.

Project Team

Because of the various functions performed, five departments are involved when the boundaries of a watershed management organization change. The departments and their roles are:

Administration Department

- receives petitions and orders from BWSR (and routes them to PHE)

Public Health and Environment Department (PHE)

- maintains primary contact with wmos
- oversees the boundary change process

Survey and Land Management, Transportation and Physical Development Department (Survey)

- maintains legal descriptions
- creates shape file for use in GIS

GIS Support Unit, Information Technology Department (GIS)

- attaches attributes to GIS coverage
- creates list of parcel numbers for affected parcels
- updates wmo map in the county's Intranet
- maintains county map of wmo boundaries

Assessment, Taxpayer Services and Elections Department (ATSE)

- receives petitions and orders from BWSR
- maintains tax records
- provides tax impact information

General Steps

The following steps were taken in conducting this study.

- Step 1: Determine how boundary decisions are made.
- Step 2: Locate and evaluate sources of data and maps.
- Step 3: Update legal descriptions.
- Step 4: Identify boundary discrepancies – gaps and overlaps between watershed districts and jpawmos.
- Step 5: Describe problems encountered and decide best way to handle each problem.
- Step 6: Work with watershed districts and jpawmos to resolve boundary discrepancies.
- Step 7: Align tax system records with the updated legal descriptions using the 50% rule.
- Step 8: Establish a process to maintain the updated jurisdictional boundary map and to respond to requests for information related to boundary changes.

Findings

1. Digital and hard copy maps being used by different agencies are not always the same.
2. The paper maps and digital maps being used by many organizations do not match the legal descriptions.
3. Most digital maps do not align precisely with the county's digital parcel map.
4. Most legal descriptions are out of date.
 - a. Legal descriptions have not been rewritten when boundary changes were made.
 - b. Legal descriptions have not been rewritten to account for land subdivision occurring along the boundary.
5. The shared jurisdictional boundaries between adjacent watershed districts is not always described the same in the legal descriptions resulting in many gaps and overlaps between adjacent watershed districts. In Washington County, 773 parcels containing 5250 acres were not mapped within any water management organization.
6. Many parcels within watershed districts are miscoded in the tax system. In Washington County, 1380 parcels were being taxed to the wrong watershed district. Typical situations are:
 - a. A parcel in one district is coded to another district;
 - b. A parcel is not coded to any district; and
 - c. A parcel on the border of two districts is not coded to the district that contains 50% of the parcel area.
7. In some cases, the jurisdictional and the hydrologic boundaries are poorly correlated.

Recommendations

Below is a list of recommendations for the 11 issues studied in this project. For each issue, this report describes the options that were considered and discusses rationale for the preferred option.

Recommendation 1: Primary Data for Determining Jurisdictional Boundary

- That a legal description continues to be used to describe the jurisdictional boundary of both watershed districts and jpawmos.
- That the county works with the watershed management organizations to maintain the legal descriptions and files a copy with the BWSR any time there is an update to the legal description.
- That the BWSR be the custodian of the official legal description.
- That the BWSR evaluate using an “official map” as defined by a GIS coverage, rather than a legal description, to describe the jurisdictional boundary of watershed management organizations within the metropolitan area where GIS technology is commonly used and digital parcel data is readily available.

Recommendation 2: Maintaining Up-to-Date Legal Descriptions

Washington County is willing to maintain the legal description to ensure that taxes are being accurately levied. The county has developed an annual update process to address this issue. (See Appendix A: Washington Management Organization Jurisdictional Boundary Change Process for Washington County.)

- That the county updates the legal descriptions on an annual basis to include changes from the BWSR Boundary Change Orders and changes to reflect parcel splits and platting activity.
- That the county provides each watershed management organization a map that identifies plats or parcel splits that have occurred within ¼ mile of the boundary within the past year so that the wmo can determine if any boundary changes are needed due to a change in the local hydrology. That this update be done at the time that an organization is updating its watershed management plan.

Recommendation 3: Legal Descriptions for Joint Powers Agreement WMOS

- That the BWSR require jpawmos to include a legal description, as well as a map, in its joint powers agreement and that the BWSR send the county a copy of any revised joint power agreement.

Recommendation 4: Information in Petitions and BWSR Boundary Change Orders

- That the BWSR require all petitions that affect the boundary of a watershed management organization to include the following information prepared or reviewed by the county surveyor’s office:

-
1. A map that clearly delineates the current and proposed boundary and the affected parcels;
 2. A list of parcel numbers for the affected parcels, and
 3. A legal description for the affected area.

Recommendation 5: Unique Identification Number

- That the county considers using an abbreviated description in the “district code” field within the tax system to reference watershed districts and jpwamos.

Recommendation 6: Hydrologic Data and Jurisdictional Boundaries

- That the watershed management organizations use the most accurate data available to update their legal boundary to better fit the hydrologic boundary.
- That this update is done, at a minimum, whenever the wmo updates its watershed management plan.

Recommendation 7: Hydrologic Boundary Fit

- That, for parcels less than 5 acres in size, the 50% rule be used so that the legal boundary line coincides with the parcel line; and
- That, for parcels greater than 5 acres in size, the legal boundary line be drawn to coincide with the actual hydrology.

Recommendation 8: Official County Wide Map

- That the county’s GIS shape file be recognized as the official geographic representation of the legal boundaries of the watershed districts and jpwamos within Washington County.
- That the county makes this map available free to anyone who requests it and that it be made available on line.
- That this shape file be the building block for compiling a region wide watershed district boundary map.

Recommendation 9: Frequency of Updating County Wide Map

- That the county recompiles the countywide map annually after completing the annual update. (No later than July 1. See Appendix A for the recommended work process and timeline for accomplishing this.)

Recommendation 10: Region Wide Jurisdictional Boundary Map

- That the BWSR, because of its business need, compiles a region wide jurisdictional boundary map for wmos using GIS shape files received from each county.
- That the BWSR recompiles the map annually after the county’s annual update of the county wide map (after July 1).

Issues and Recommendations

Data

Issue 1: Primary Data for Determining Jurisdictional Boundary

What data should be used as the primary data for deriving the geographic representation of watershed district boundaries?

Where should this data reside?

Currently, the primary data accepted by the Board of Water and Soil Resources is a legal description. However, some watershed districts and jpwmos do not have legal descriptions (e.g. South Washington Watershed District and Lower St. Croix Water Management Organization).

Option 1: Legal Description

Are legal descriptions necessary? What is the legal requirement for a legal description? In what situations have legal descriptions been considered?

Who writes the legal description?

Where is the original filed?

The first two questions are addressed in Appendix B: Legal Requirements for Watershed District Boundary Changes. The others are addressed below.

A legal description is the most precise method to describe the legal jurisdictional boundary. Although not required by statute, the BWSR usually requires that a legal description accompany any action that results in a jurisdictional boundary change. To maintain an accurate tax system, the legal description needs to be updated regularly to incorporate land subdivisions that occur along the boundary. Regular updates allow for a closer match of the legal description, parcel boundaries and hydrologic boundaries.

Who writes the legal description?

watershed district - lacks internal expertise, usually needs help from the county or consultant to write

or

county - has internal expertise and has the most current parcel map and parcel numbers needed to write the legal description, has a business need for an accurate and up-to-date legal description

Where would the original legal description be filed and available?

BWSR – includes the legal description as part of all Boundary Change Orders

or

county – has a business need for the information for mapping and tax records

or

watershed district – has a business need for the information for mapping and water management

Option 2: Parcel Numbers

Would the jurisdictional boundaries be more accurate and easier to maintain if they coincided with the parcel map and were defined by a list of parcel numbers?

Parcel numbers are constantly changing as land ownership changes and land development occurs. Records of past parcel numbers are not kept, once a new one is assigned. Whenever an existing parcel number changes it would trigger a change to the legal boundary. The official documentation of the jurisdictional boundary would need to be rewritten with every parcel split; otherwise, the legal boundary would reference outdated parcel numbers and would be nonsensical. Maintaining an updated jurisdictional boundary description in fast developing areas would be very cumbersome and time consuming. To use parcel numbers rather than a legal description would require a policy change by the BWSR.

What agency would maintain the list of parcel numbers?

watershed district - does not have access to county's parcel data without purchasing it, generally are not involved in the platting process at which time parcel numbers are assigned

or

county - has expertise and responsibility for assigning all parcel numbers, has most current parcel data in digital format, has a business need for an accurate and up-to-date description of the watershed district boundaries

Where would the original list be filed and available?

BWSR – has a business need for the information to fulfill oversight responsibility; currently only has parcel numbers for a few small areas involved in the most recent boundary changes, withdrawals of territory or enlargements

or

county – has a business need for the information for mapping and tax records

or

watershed district – has a business need for the information for mapping and water management

Option 3: Official Map

This is a common approach used for mapping park boundaries and is used as the jurisdictional boundary for school districts. Few watershed districts currently use official maps. This is not a very precise method for describing a jurisdictional boundary, especially in a highly developed area.

Recommendation 1:

- That a legal description continues to be used to describe the jurisdictional boundary of both watershed districts and jpawmos.
- That the county works with the watershed management organizations to maintain the legal descriptions and files a copy with the BWSR any time there is an update to the legal description.
- That the BWSR be the custodian of the official legal description.
- That the BWSR evaluate using an “official map” as defined by a GIS coverage rather than a legal description to describe the jurisdictional boundary of watershed management organizations within the metropolitan area where GIS technology is commonly used and digital parcel data is readily available.

Issue 2: Maintaining Up-To-Date Legal Descriptions

Who is responsible for maintaining an up-to-date legal description?

Part A:

Who is responsible for changing the legal description when a boundary change is ordered?

In the past this has not always been done.

Part B:

How often should they be updated to reflect parcel splits and platting activity?

Legal descriptions quickly become outdated in areas where land subdivision is active.

Recommendation 2

Washington County is willing to maintain the legal description to ensure that taxes are being accurately levied. The county has developed an annual update process to address this issue. (See Appendix A: Washington Management Organization Jurisdictional Boundary Change Process for Washington County.)

- That the county updates the legal descriptions on an annual basis to include changes from the BWSR Boundary Change Orders and changes to reflect parcel splits and platting activity.
- That the county provides each watershed management organization a map that identifies plats or parcel splits that have occurred within ¼ mile of the boundary within the past year so that the wmo can determine if any boundary changes are needed due to a change in the local hydrology. That this update be done at the time that an organization is updating its watershed management plan.

Issue 3: Legal Descriptions for Joint Powers Agreement WMOS

How are jpawmo boundaries described and who has that information?

The Lower St. Croix Watershed Management Organization is the only one of three jpawmos in Washington County that doesn't have a legal description. For that organization, the GIS shape file contains all the land outside of the legal description of the adjacent watershed district.

Recommendation 3

- That the BWSR require jpawmos to include a legal description, as well as a map, in its joint powers agreement and that the BWSR send the county a copy of any revised joint power agreements.

Issue 4: Information in Petitions and BWSR Boundary Change Orders

The information and maps included with petitions and orders issued by the BWSR do not give enough detail to identify the parcels affected and to adjust the jurisdictional boundary map. Much guessing as to where the line should be drawn has occurred in the past.

In recent years, the county received three orders containing different types of information.

Type 1:

Order included only a generalized map with no parcel lines (e.g. Carnelian/Marine, fall 2001). This information was not detailed enough to derive the correct line.

Type 2:

Order included only a list of parcel numbers; some parcel numbers no longer existed (e.g. Valley Branch/Browns Creek, August 2002). No map was available to ascertain the intent of the order.

Type 3:

Order included a map and a list of parcel numbers (e.g. Ramsey Washington Metro/Valley Branch, February 2002). The information in the order was complete enough to be able to change the legal description and to derive an “accurate” digital line.

Recommendation 4

- That the BWSR require all petitions that affect the boundary of a watershed management organization include the following information prepared or reviewed by the county surveyor’s office:
 1. A map that clearly delineates the current and proposed boundary and the affected parcels;
 2. A list of parcel numbers for the affected parcels, and
 3. A legal description for the affected area.

Issue 5: Unique Identification Number

No statewide unique identification number exists for watershed management organizations. In lieu of this, staff explored whether or not a unique code for all wmos could be maintained within the county tax system. Washington County uses the special taxing district field to identify watershed districts that levy taxes. The codes in this field are assigned by the Department of Revenue and are used for state reporting. The tax system can only be used for districts that levy taxes. The county cannot make up a code and assign it to a non-levying watershed district or jpawmo. No field has been set aside to identify parcels that are within a jpawmo.

Recommendation 5

- That the county considers using an abbreviated description in the “district code” field within the tax system to reference watershed districts and jpawmos.

Issue 6: Hydrologic Data and Jurisdictional Boundaries

What data should be used to identify the hydrologic boundary?

Does any hydrologic boundary data incorporate the post development changes in hydrology?

Washington County has two-foot contour data and many watershed management organizations have precise data from projects that could be used to derive a watershed district legal boundary that better fits the hydrologic boundary.

Recommendation 6

- That the watershed management organizations use the most accurate data available to update their legal boundary to better fit the hydrologic boundary.
- That this update be done, at a minimum, whenever the wmo updates its watershed management plan.

Issue 7: Hydrologic Boundary Fit

How can the legal boundary be drawn both to be easily administered and to be a good fit with the hydrology?

Should the 50% rule for determining which district a parcel belongs in for tax purposes also be used to fit the hydrologic boundary to the parcels to define the legal boundary?

Recommendation 7

- That, for parcels less than 5 acres in size, the 50% rule be used so that the legal boundary line coincides with the parcel line; and
- That for parcels greater than 5 acres in size, the boundary line be drawn to coincide with the actual hydrology.

MAPPING

Issue 8: Official County Wide Map

In the past, much confusion has resulted from different offices maintaining, using and distributing different versions of the jurisdictional boundary map of water management organizations. One organization needs to be the keeper of the data and the map that serves as the official geographic representation of the watershed district boundaries.

Option 1: County

In order to maintain accurate tax records, the county has a business need for a GIS shape file that is accurate to the parcel level; it has a need to keep the data/map current.

Option 2: BWSR

The BWSR has a business need for a general map but not for a map at the level of detail needed by the county to maintain accurate tax records.

Recommendation 8

- That the county's GIS shape file be recognized as the official geographic representation of the jurisdictional boundaries of the watershed districts and jpwamos within Washington County.
- That the county makes this map available free to anyone who requests it and that it be made available on line.
- That this shape file be the building block for compiling a region wide watershed district boundary map.

Issue 9: Frequency of County Wide Map Update

How often should a county wide map be updated?

Option 1: Regularly

Whenever an order is issued by BWSR that affects a jurisdictional boundary. This may not be the most efficient interval and may be more frequent than necessary.

Option 2: Annually

Annually, after the primary data (legal descriptions - if necessary) has been updated. (See Issue 2 above.) This would be the necessary frequency to align the tax records with any boundary changes that have occurred during the year.

Recommendation 9

- That the county recompiles the countywide map annually after completing the annual update (No later than July 1. See Appendix A for the recommended work process and timeline for accomplishing this.)

Issue 10: Region Wide Jurisdictional Boundary Map

Which organization should compile a digital jurisdictional boundary map for wmos within the metropolitan region and how often should the map be updated?

Option 1: BWSR

As the oversight agency for wmos, BWSR has a business need for this type of map. Each county could submit a GIS shape file for a countywide map that the BWSR could use to assemble a regional map.

Option 2: Metropolitan Council

This option was not explored in great depth. It is unlikely that the Metropolitan Council has a business need to maintain an up-to-date, accurate map.

Recommendation 10

- That the BWSR, because of its business need, compile a region wide jurisdictional boundary map for wmos using GIS shape files received from each county.
- That the BWSR recompile the map annually after the county's annual update of the county wide map (after July 1).

Update Process

Determine the Characteristics and Scope of the Problem Using a Pilot Area

STEP 1: Determine the Problem with the Current Shape File

Map the existing jurisdictional boundary GIS shape file with the DNR major and minor hydrologic watersheds and the county tax records to identify the scope and magnitude of issues. Three broad types of problems occurred.

1. Boundary discrepancies between adjoining watershed districts show up as gaps or “unclaimed” areas. (773 parcels encompassing 5,250 acres existed)

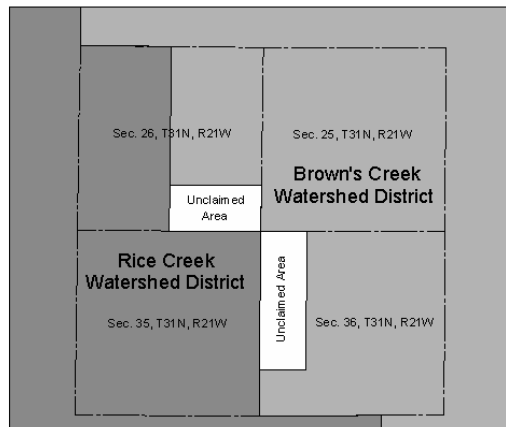


Figure 1: Unclaimed Areas

2. In some cases, poor correlation between the watershed district jurisdictional boundary and the hydrologic boundary exists. This can be expected since the DNR major and minor watersheds are based on old, not very accurate data. In some cases, where the DNR data appears accurate, the poor correlation between the legal and hydrologic boundaries, has occurred because subdivisions of land on or near the watershed district boundary changed the hydrology of the area without a corresponding change in the hydrologic boundary map or the watershed district jurisdictional boundary.

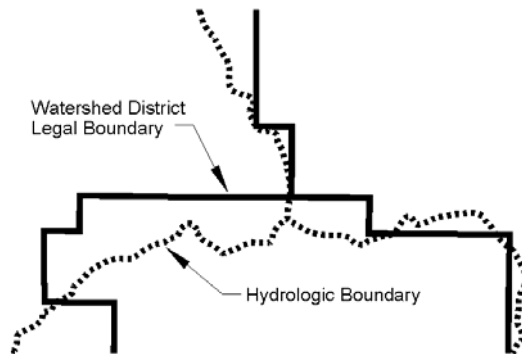


Figure 1: Comparison of Legal and Hydrologic Boundaries

3. Many parcels within watershed districts are miscoded in the tax system, resulting in taxes going to the wrong organization. This occurred for 1380 parcels. Typical situations that occur include:
 - a. a parcel in one district is coded to another district;
 - b. a parcel within a district is not coded to any district; and
 - c. a parcel on the border of two districts is not coded to the district that contains 50% of the area of the parcel.

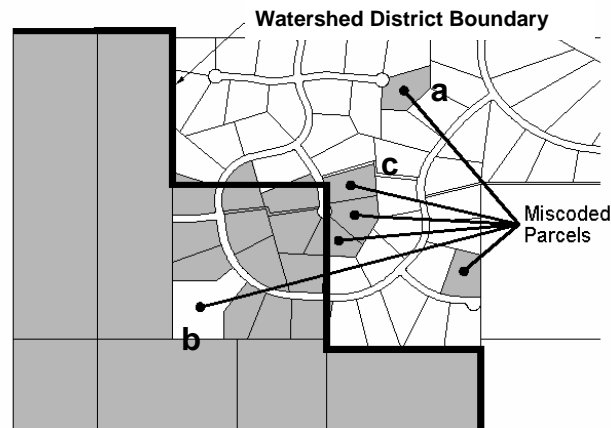


Figure 3: Parcels Miscoded in Tax System

STEP 2: Update the Legal Description

Rewrite the legal description referencing new subdivision and replacing parcel numbers that are no longer in use with metes and bounds descriptions or the current parcel number where a metes and bounds description is too cumbersome.

An example going from a metes and bounds parcel to a plat:

Old language: ... thence westerly to the east line of the NW 1/4 of the SE 1/4...

New language: ... thence westerly to the east line of Jane's First Addition...

An example of a replatted outlot:

Old language: ... thence westerly to the east line of Outlot A, Jane's First Addition...

New Language: ... thence westerly to the east line of Block 1, Jane's Second Addition...

STEP 3: Compare the Legal Description and GIS Shape File in a Pilot Area

Map the existing jurisdictional boundary GIS shape file with the updated legal descriptions and the county parcel map in a pilot area and note the discrepancies.

The Valley Branch Watershed District was chosen as a pilot area because it shares boundaries with six other organizations. The line that was computed from the legal description differed slightly from the line contained in the existing jurisdictional boundary shape file maintained by the GIS Support Unit, especially in the heavily platted areas such as Oakdale. These differences were not large enough to require removing or adding parcels to the district. However, some parcels were added or removed because of obvious coding errors.

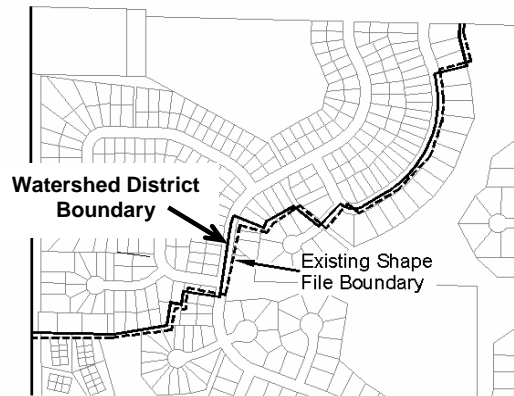


Figure 4: Comparison of Legal Description and GIS Shape File

Identify Types of Jurisdictional Boundary Discrepancies

STEP 4: Create an Accurate Jurisdictional Boundary Shape File From Legal Descriptions

Accurately draw the jurisdictional boundary from the legal description using the county's parcel map as the base and create a new shape file for use within the county's GIS.

STEP 5: Identify Boundary Discrepancies

Using the new, accurate shape file, identify boundary discrepancies between adjoining watershed districts. The following types of discrepancies occurred.

1. Unclaimed parcels lie between two watershed district boundaries. (See Figure 1.)
2. The jurisdictional boundary line needs to be updated due to development. The existing legal boundary appears to follow former property lines, however, those underlying parcels have now been platted and subdivided. As a result, the watershed district boundary line now goes through some of the platted lots. In addition, the original parcel number, referenced in the legal description, no longer exists after the subdivision process.

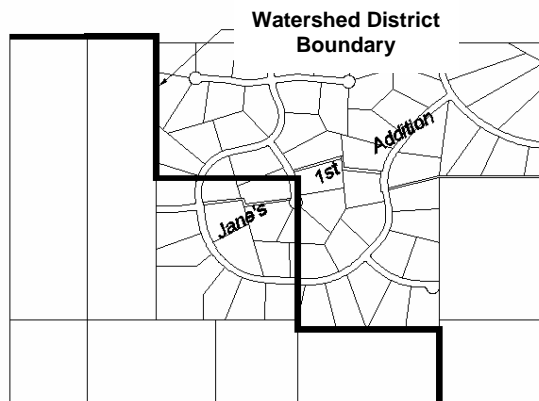


Figure 5: Outdated Parcel Lines

3. In some cases, the legal description is ambiguous (e.g. two dimensions are given but are inconsistent).

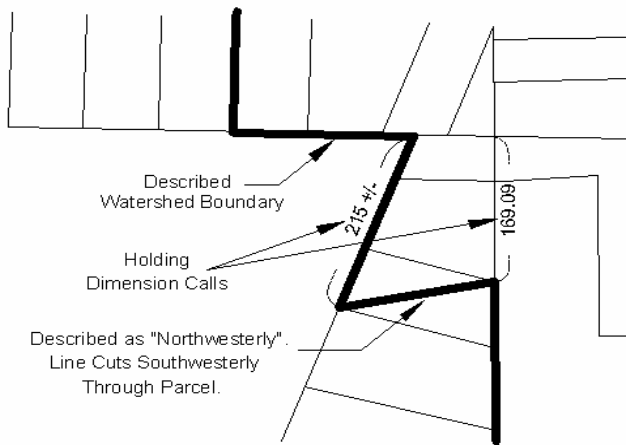


Figure 6: Ambiguous Legal Description

4. In the river areas, the legal descriptions are written in a variety of ways: along the shoreline, along a physical feature like the centerline of a railroad running near to and parallel with the river, or to the thread of the river. The county's current convention is to write all the legal descriptions to run along the thread of the river. This allows the county to include all land within the county and to include all islands within the jurisdiction.

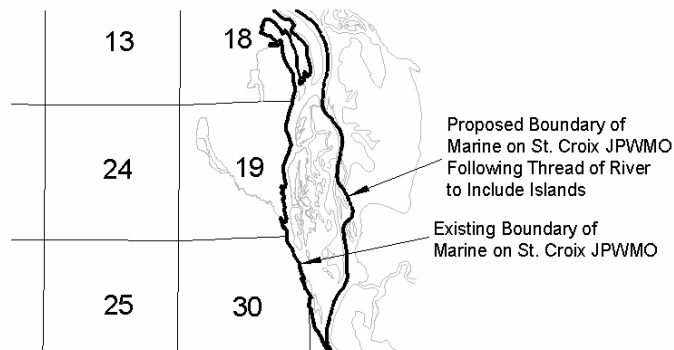


Figure 7: Legal Description References to Shoreline Boundary

5. The BCWD/VBWD recent boundary change was defined by a list of parcel numbers and a general map depicting the new boundary. This was done to save the watershed districts the expense of preparing a metes and bounds legal description. The BWSR allowed this type of legal boundary change. There were some areas where the parcel number list did not match the map, and some areas where the map was difficult to follow.

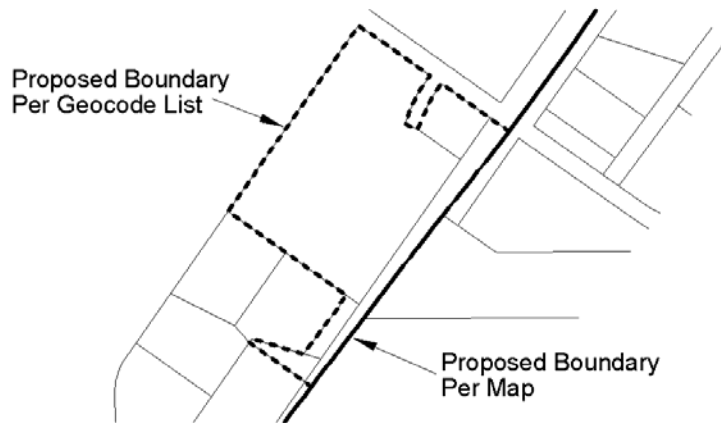


Figure 8: Inconsistencies in Data Included in Boundary Petition

6. There are many inconsistencies between the legal boundary and the DNR major and minor watershed boundary map. Many parcels within the hydrologic boundary are not included within the legal boundary and many parcels outside of the hydrologic boundary are included in the legal boundary. This can be expected since the DNR watershed boundaries are based on old, less-detailed data than available from individual watershed districts.

Resolve Problems

STEP 6: Resolve Boundary Discrepancies

Work with watershed districts to resolve boundary discrepancies.

1. Get agreement from all affected parties. Maps illustrating the discrepancies were sent to the affected watershed management organizations along with a request that they work with the adjoining wmos to fix the boundary discrepancies.
2. The wmo files with the BWSR the necessary petition or amended joint powers agreement to make the boundary change.
3. Upon receipt of a Boundary Change Order or an approved revised joint powers agreement the county revises the legal description, changes the GIS shape file, and changes the tax record.

STEP 7: Align Tax System Records with The New Shape File

Compare the jurisdictional boundary to the county tax records in a pilot area to illustrate the nature of the problem and note the discrepancies (areas where taxes are distributed to a different district than the one in which the land is geographically located). The county uses the 50% rule when assigning a tax code to a parcel: Parcels are assigned, for tax purposes, to the watershed district containing more than 50% of the area of the parcel. In the Valley Branch Watershed District pilot, 77 parcels were flagged to be removed from the district and 534 parcels were flagged to be added to the district.

The GIS Support Unit used the new shape file (derived from the updated legal descriptions) and the 50% rule to create a list of parcels that are taxed incorrectly. This list indicates the current tax district and the correct tax district for each errant parcel. The Assessment, Taxpayer Services and Elections Department changed the tax code. The alignment was done in 2 steps:

Step a: For parcels that were miscoded as islands within another watershed district, the tax code was changed to that of the surrounding district; and

Step b: For parcels near the boundary, the tax code was changed after receiving direction from the adjoining watershed districts.

Ongoing Maintenance

STEP 8: Establish a Process to Maintain the Updated Data.

The ideal time to submit changes is between February 1 and July 1. July 1 is the deadline for notifying the tax department of any changes to a watershed district boundary to be effective for taxes payable the following year and all changes must be reflected on the assessment abstract sent to the State in September of each year. Changes made after February 1 would reflect the year-end subdivision activity.

The county established an internal process to respond to the boundary change orders received by BWSR. The process will assure that the BWSR Boundary Change Orders are handled in a timely manner. The county's goal is to make changes prior to the following tax cycle, working within all legal deadlines.

1. Change legal description and file new copy with the BWSR.
2. Change "official" boundary map layer within the GIS system.
3. Change tax records.

The county has also developed a process to update the legal descriptions and the boundary map on an annual basis. (See Appendix A: Watershed Management Organization Boundary Change Process.)

Refine the Hydrologic Fit of the Jurisdictional Boundary

STEP 9: Future Boundary Improvements

Each watershed district realigns the watershed district jurisdictional boundary to be positionally accurate (i.e. to create digital jurisdictional boundary maps that best fit the appropriate hydrologic boundary). Washington County now has 2000 two-foot interval contour data that was not available when the watershed district boundaries were originally drawn. This data should be used to refine the watershed district boundaries to reflect current conditions. Development plans should be used to refine watershed district boundaries where the development will change the topography and drainage. Because construction does not always match the development plans post development verification is needed. The county would like to have the water management organizations go through this process, at a minimum, whenever the organization is updating its watershed management plan.

Research

Establishment of Water Management Organizations

1955 Recognizing the need to manage water on a broader basis than municipal or county boundaries, the Minnesota State Legislature established the Watershed Act. This act provides the means to create watershed districts anywhere in the state.

1959 – 1981 The Water Resources Board (now the BWSR) received petitions requesting the formations of watershed districts and the appointment of managers for the districts. After considering the petitions and public testimony, the Water Resources Board established watershed districts. Ten watershed districts were created in the metro area to address flood control issues.

1982 The Minnesota Legislature approved the Metropolitan Surface Water Management Act, Minnesota Statutes Chapter 103B. This Act required local units of government in the seven-county metropolitan area to prepare and implement comprehensive surface water management plans through membership in a watershed management organization. Wmos are based on watershed boundaries and can be organized in one of three ways:

1. With a joint powers agreement (jpawmos) between the cities and townships within the watershed;
2. As a watershed district, or
3. As a function of county government.

1983 46 wmos (10 watershed districts and 36 jpawmos) were created. The MN DNR and the Metropolitan Council determined the watershed district boundaries.

1987 The BWSR was established and given the authority to make boundary changes. A watershed district boundary change is initiated by filing a petition with BWSR. A jpawmo can change its boundary through agreement of its members.

Present 36 wmos (13 watershed districts and 23 jpawmos) and 3 counties (Carver, Dakota, and Scott) do water management.

Changing Watershed District Boundaries

- Changes in watershed district boundaries within the metropolitan area are governed by Minnesota Statutes Chapter 103B, the Metropolitan Surface Water Management Act or Minnesota Statutes Chapter 103D, the statewide watershed district law.
- Minnesota law gives the BWSR the authority to determine changes in watershed district boundaries, as well as the authority to take other actions that affect watershed district boundaries such as establishments, terminations, consolidations, enlargements and withdrawal of territory. The requirements for each of these processes related to boundary changes are

summarized in Appendix B. Refer to the applicable statute for more detailed information on each process.

103B.215	Watershed District Boundary Change
103B.221	Watershed District Termination
103D.205	Establishment of Watershed District
103D.251	Watershed District Boundary Change
103D.255	Withdrawal of Territory
103D.261	Enlargement (Attaching new area)
103D.265	Consolidation of Districts
103D.271	Watershed District Termination

- The procedure for each of these actions begins by filing a valid petition with the BWSR. Each process has somewhat different requirements for who files the petition and the petition content. In most cases, options are given that allow petitions to be filed by citizens, local units of government or watershed districts.
- All petitions culminate in the BWSR distributing notice of receipt of a petition and the public hearing and making a final ruling (order). A notice of filing or a notice of public hearing is published in local newspapers and is mailed to the county auditors, DNR, Soil and Water Conservation Districts, cities, towns, watershed districts and other interested parties in the affected area.
- All orders are filed with the Secretary of State. The effective date of a boundary change is the date the order is filed with the Secretary of State's Office.

Changing Joint Powers Agreement Watershed Management Organization Boundaries

- A jpawmo can change its boundary through agreement of its members and need not get approval from the BWSR.
- A jpawmo is not required to notify the county when it makes a change to its boundary. The BWSR sometimes receives a copy of the amended joint powers agreement that includes a new description of the territory governed by the organization.

Evaluation of Sources of Data and Maps

Legal Descriptions

BWSR

The BWSR has legal descriptions on file for most watershed districts (the South Washington Watershed District does not have a legal description). However, not all of the legal descriptions have been updated as boundary changes and land subdivision occurred.

County

In the past, the county has not had, on file, legal descriptions for watershed districts or

jpawmos. The BWSR provided the county with all the legal descriptions involving the county that it had on file at the start of this project.

Watershed Districts

Each watershed district may have a copy of its legal boundary description on file.

Hydrologic Data

Board of Water and Soil Resources

The BWSR does not maintain hydrologic data. It uses the DNR major and minor watershed map, for reference.

Department of Natural Resources

The DNR delineated the major and minor watersheds, drawn from 10-foot or 20-foot interval contour quadrangle United States Geologic Survey (USGS) maps, during the late 1970s. In 1993, a scanned version of the major and minor watersheds map was developed in vector format. The DNR Waters Division is responsible for maintaining the digital GIS coverage. The DNR has established a procedure for updating portions of this coverage. Updates generally fall into the following three categories:

- a. Obvious errors based on re-delineation using the USGS 7.5 minute topographic maps;
- b. Re-delineation based on more detailed data such as 2 foot contour maps or field surveys;
and
- c. Physical changes to the landscape such as outletting a landlocked basin.

Washington County

Washington County uses its 2000 two-foot interval contour data to determine where the water is flowing. The data is available for the entire county. The County also has as-built drawings, which often times contain storm sewer data, for County road projects.

Watershed Districts

Some of the Washington County watershed districts have purchased the County's 2000 two-foot interval contour data for their entire districts. Others have only purchased the data as needed for projects and therefore, only have partial coverage with the County's topography. Some watershed districts have detailed topography mapping and storm sewer data from site-specific studies, projects, and development reviews.

Metropolitan Council

The Metropolitan Council does not maintain hydrologic data. It uses the DNR major and minor watershed maps, drawn from 10' quad maps, for reference.

Jurisdictional Boundary

Board of Water and Soil Resources

The BWSR maintains a digital map of the watershed districts and the jpawmos within the Twin Cities Metropolitan Area. The map is color coded according to the three ways watersheds are managed:

- a. watershed district
- b. joint powers agreement among member municipalities

c. county government

This map reflects the general boundaries of each organization but is not suitable for defining the legal boundary. The map is updated periodically but is not completely current.

Office of the Secretary of State (SOS)

The SOS does not maintain a digital copy of each watershed district or a composite of all watershed districts. The SOS does not have legal descriptions of each watershed district. The SOS only has on file what is contained in orders filed by the BWSR (usually a hard copy map and/or a list of affected parcels).

Watershed Districts

Information that is available from watershed districts varies by district. Some maintain their own hard copy and digital map (Valley Branch, South Washington and Ramsey/Washington Metro watershed districts). Others rely on maps from Washington County or the Washington Conservation District. For example, Valley Branch Watershed District had the original 1968 boundary hand-drawn on maps until the early 1990s when it was digitized into AutoCAD. In the mid- to late-1990s, the AutoCAD file was converted to ArcView. Valley Branch Watershed District tries to update changes as they happen. While the maps in the general watershed management plan are only updated when the plan is updated (once every 10 years), maps for specific studies or reports generally are more current and reflect the most current boundary.

Joint Power Agreement WMOs

The joint powers agreement contains a map and description of the territory governed by the JPAWMO. Marine and the Middle St. Croix WMOs have a legal description; the Lower St. Croix WMO does not have a legal description. When mapping the territory governed by this organization, the county takes a default approach and includes all the area outside the adjoining watershed district boundary. Before approving a management plan update for these organizations, the BWSR requires them to have an approved, current joint powers agreement that contains a legal description of the jurisdictional boundary.

Washington County

Washington County maintains a digital map of the watershed districts. This map is a shape file that has been derived from the legal descriptions. It is maintained in the County's GIS system and is compatible with the digital parcel base map. This shape file is updated whenever the county becomes aware of an official boundary change.

Metropolitan Council

The Metropolitan Council has hard copy maps of the original watershed district and jpawmo boundaries created as a result of the 1982 Metropolitan Surface Water Management Act.

Washington Conservation District

The Washington Conservation District uses the digital jurisdictional boundary map maintained by the county.

Appendix A

Watershed Management Organization Jurisdictional Boundary Change Process Washington County

Purpose

To maintain an efficient and responsive process to deal with changes to the jurisdictional boundaries of watershed management organizations.

County Role

When the State Board of Water and Soil Resources (BWSR) orders a boundary change:

1. Change legal description.
2. Change boundary map in GIS system (GIS shape file).
3. Change tax records.

When a watershed management organization requests information to prepare a boundary change petition or a joint powers agreement:

1. Provide list of parcel numbers for affected parcels.
2. Provide tax impact information.
3. Provide map, legal description and parcel numbers to be included in the petition.

Departmental Roles

Administration Department

- receives petitions and orders from BWSR (and routes them to PHE)

Public Health and Environment Department

- maintains primary contact with wmos
- oversees the boundary change process

Survey and Land Management, Transportation and Physical Development Department

- produces and maintains legal descriptions
- creates shape file for use in GIS

GIS Support Unit, Information Technology Department

- attaches attributes to GIS coverage
- creates list of parcel numbers for affected parcels
- updates wmo map in the county's Intranet

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- maintains county map of wmo boundaries

Assessment, Taxpayer Services and Elections Department

- receives petitions and orders from BWSR
- maintains tax records
- provides tax impact information

Boundary Change Process

In order to maintain an accurate GIS shape file, the county will update the watershed management district jurisdictional boundaries annually. The following steps outline the necessary actions and the responsible office for each.

Part 1: Incorporate boundary changes contained in the BWSR boundary change orders and joint powers agreements. Steps 1-7 are to be completed by July 1. Step 8 and 9 are to be completed by September 1.

Step 1: PHE (Amanda Goebel) forwards all boundary change orders from BWSR to Survey (Chris Neperud) with a copy to ATSE (Joanne Helm) and GIS (Adam Snegosky).

- a. For orders received between July 1 and March 1 changes are made as part of the annual update process.
- b. For orders received between March 1 and June 30 changes are made as soon as possible.

Step 2: Survey (Neperud) changes the legal description to incorporate the ordered boundary change. Survey (Neperud) changes the GIS shape file to be consistent with the revised legal description.

Step 3: Survey (Neperud) sends shape file to GIS (Snegosky) and PHE and sends the legal description to PHE (Goebel). ATSE (Helm) is copied on the correspondence.

Step 4: PHE (Goebel) forwards the shape file to the affected watershed management organization, the Washington Conservation District, and the BWSR. PHE (Goebel) forwards the legal description to the affected watershed management organization and the BWSR.

Step 5: GIS (Snegosky) attaches attributes and generates a list of parcel numbers for affected parcels.

Step 6: GIS (Snegosky) sends file of affected parcel numbers to ATSE (Helm).

Step 7: GIS (Snegosky) changes the watershed management organization boundary map on the Washington County Intranet.

Step 8: ATSE (Helm) changes tax records for affected parcels and reports back to PHE (Goebel), GIS (Snegosky) and Survey (Neperud) that the process is complete.

Step 9: GIS (Snegosky) verifies the accuracy of the changes in the tax records so as to avoid creating errand parcels. If miscodings occur, repeat steps 6 – 9. If no miscodings occur the process is complete. GIS notifies PHE, ATSE, and Survey that the process is complete.

Part 2: In order to maintain accurate tax records, the county will identify any errant parcels and correct miscoding in the tax records. Steps 1-2 are to be completed by July 1. Step 3 and 4 are to be completed by September 1.

Step 1: GIS (Snegosky) compares the jurisdictional boundary to the county tax records to identify any errant parcels (parcels that are miscoded in the tax records).

Step 2: GIS (Snegosky) generates a list of parcel numbers for affected parcels and sends a file of affected parcel numbers to ATSE (Helm).

Step 3: ATSE (Helm) changes tax records for affected parcels and reports back to PHE (Goebel), GIS (Snegosky) and Survey (Neperud) that the process is complete.

Step 4: GIS (Snegosky) verifies the accuracy of the changes in the tax records so as to avoid creating errand parcels. If miscodings occur, repeat steps 1-4. If no miscodings occur the process is complete. GIS notifies PHE, ATSE, and Survey that the process is complete.

Part 3: In order to preserve the correlation between the hydrology and the jurisdictional boundaries the county will work with watershed management organizations and the BWSR to make appropriate adjustments to the boundaries to coincide with parcel splits and platting activity. Complete annually after mapping is completed for Part 1.

Step 1: GIS (Snegosky) sends PHE (Goebel) a map for each watershed management organization, overlaying the jurisdictional boundary file, the digital parcel base map and the two-foot contours. The new maps will highlight any new parcels from the preceding year that are within ¼ mile of the boundary.

Step 2: PHE (Goebel) sends the maps to each watershed management organization and works with them to determine if any changes to the jurisdictional boundary are necessary due to parcel splits and platting or to better align with the hydrology of the area.

Step 3: PHE (Goebel) encourages the watershed management organizations to realign the boundaries at the time of a watershed management plan update.

Part 4: In order to maintain current legal descriptions, the county will change the wording of legal descriptions to incorporate parcel splits and platting that has occurred along the boundary, without changing the physical location of the boundary.

Step 1: Annually , Survey (Neperud) will review , and update if necessary, the language in the legal descriptions to reference parcel splits and platting.

Step 2: Survey (Neperud) sends the legal description to PHE (Goebel).

Step 4: PHE (Goebel) forwards the legal description to the affected watershed management organization and the BWSR.

Petition Information Process

Step 1: PHE (Goebel) receives the initial request for information and sends to GIS (Snegosky).

Step 2: GIS (Snegosky) works with ATSE (Helm) to generate the information requested and reports back to the watershed district with a copy to PHE (Goebel).

Step 3: Survey (Neperud) prepares/reviews map, legal description, and shape file to be included in the boundary change petition. GIS (Snegosky) prepares/reviews list of affected parcel numbers to be included in the petition.

Policy Guidelines

Tax Codes

1. The county will use the 50% rule to assign tax codes. Any parcel of land located within two or more watershed districts will be assigned the tax code of the district containing 50% or more of the geographic area of the parcel.
2. For parcels that are miscoded as islands within another watershed district, ATSE will automatically reassign the tax code to that of the surrounding watershed district.

Recommendations

The county will recommend to the BWSR

1. That all boundary change petitions and joint powers agreements include:
 - a. A map that clearly delineates the current and proposed boundary and the affected parcels; and
 - b. A list of parcel numbers for the affected parcels that has been created or reviewed by the County Surveyor.
2. That it encourage all watershed management organizations to review their jurisdictional boundary at the time that it updates its watershed management plan.

APPENDIX B

LEGAL REQUIREMENTS FOR WATERSHED DISTRICT BOUNDARY CHANGES

Action Affecting Boundary Change*	Statutory Authority	Legal Notification Required**		Legal Documentation Required							
				BWSR's Common Practice - Denoted By An X***							
				General Description		Legal Description****		Map		Parcel List	
		Petition	Order	petition	order	petition	order	petition	order		
METROPOLITAN SURFACE WATER MANAGEMENT - CHAPTER 103B											
WD Boundary Change	103B.215	county auditor cities, towns	Sec of State	yes	no	no	no	no	no	no	no
WD Termination	103B.221	county auditor cities	Sec of State	no	no	no	no	no	no	no	no
WATERSHED DISTRICTS - CHAPTER 103D											
Establishment of WD	103D.205	county auditor DNR cities	Sec of State county auditor DNR watershed district	yes	yes	no	no	yes	no	no	no
WD Boundary Change	103D.251	Same as Establishment	Same as Establishment	yes	yes	no	no	yes	no	no	no
Withdrawal of Territory	103D.255	county auditor DNR cities watershed district	Same as Establishment	yes	no	no	no	no	no	no	no
Enlargement	103D.261	Same as Withdrawal	Same as Establishment	no	no	no	no	yes	no	no	no
Consolidation of Districts	103D.265	Same as Establishment	Same as Establishment	x	x	x	x		x	x	x
WD Termination	103D.271	county auditor	Sec of State	yes	no	no	no	no	no	no	no
<p>* The MN Board of Water and Soil Resources (BWSR) was established in 1987 and was given the authority to make watershed district boundary change decisions, as well as to take a number of other actions that affect watershed district boundaries such as establishments, terminations, consolidations, enlargements and withdrawal of territory. All these actions are initiated upon the filing of a valid petition with BWSR. Joint Power Water Management Organizations (JPWMO) change their boundaries through agreement of their members, and need not get approval from BWSR.</p> <p>** When BWSR receives a petition, a notice of filing or notice of hearing is published in local newspapers. In addition, the legal notice is mailed to the county auditors, DNR, SWCD's, cities, affected WD's, interested parties, and towns within the Metro Area. When BWSR makes a decision on a petition, a copy of the order is mailed to the county auditors, DNR, SWCD's, cities, affected WD's, interested parties and towns in the Metro Area.</p> <p>*** BWSR usually requires maps and either legal descriptions or parcel lists for those activities denoted by an X, although not stated as an explicit requirement in statute.</p> <p>**** Legal descriptions are required before a WD can levy a tax. 103D.729 provides for WDs to establish water management districts for the purpose of collecting revenues and paying for projects. These districts are established by an amendment to the WD management plan which describes the area to be included in the district. The adopted amendment is filed with the county auditor and county recorder. For JPWMO's, legal descriptions are required in the joint powers agreement. Cities or towns acting as a member of a JPWMO may (1) levy an ad valorem tax under MS Chapter 426-435, (2) establish a special taxing district and (3) charge a stormwater utility fee under MS Chapter 444.075. A special taxing district is established by ordinance adopted after a public hearing. The ordinance describes the territory or area to be included in the district. After adoption, the ordinance is filed with the county auditor and county recorder (MS Chapter 103B.245).</p>											