# DIGGING FOR PLS CORNERS

Patrick Veraguth, Douglas County Surveyor

2018 MACS Seminar

October 30, 2018

~~1996~~

1785

# CERTIFICATE OF LOCATION OF GOVERNMENT CORNER

5 and 6 105 9

COMMON Corner of Section 31 and 32 ,Township 106 ,Range 9 ,5TH P.M.

STATE OF MINNESOTA, County of Winona

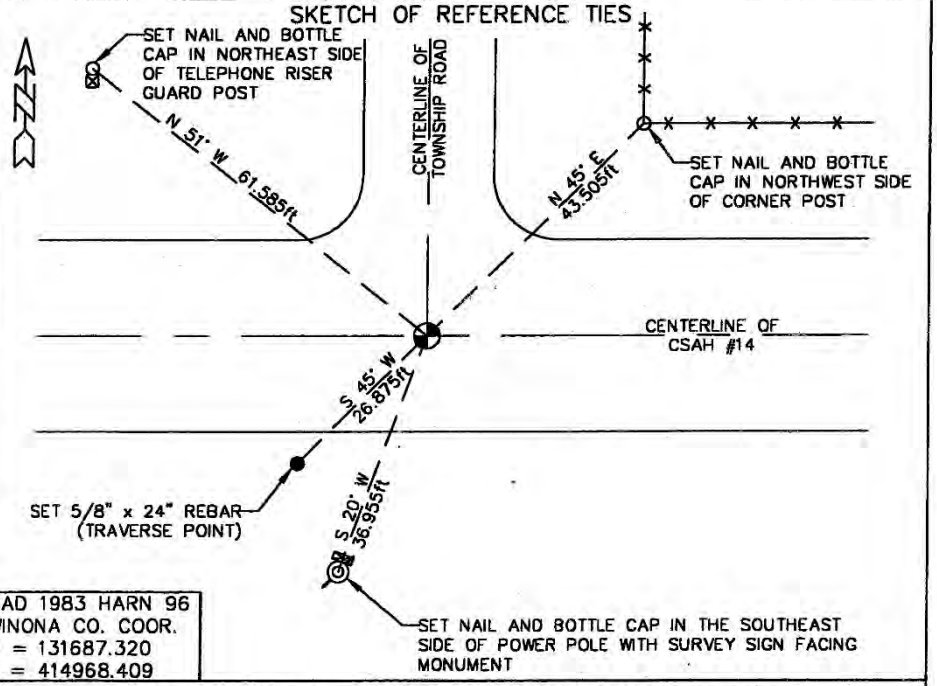
At the corner location shown on the sketch:

☐ On: JULY 12, 2000 (DATE) found a NOTHING WHEN WE DUG CORNER WITH HYDROSCOOP DUG A 13 FOOT X 13 FOOT X 5 FEET DEEP CENTERED ON CENTERLINES

☐ left monument as found, ☐ lower monument, ☐ removed monument (explain)

☒ On: JULY 12, 2000 (DATE) placed a 2" x 30" BREAKOFF PIPE WITH BRASS CAP AND BASE DOWN 6" IN THE CENTERLINE OF ROADS NORTH-EAST-WEST

## SKETCH OF REFERENCE TIES




NAD 1983 HARN 96
WINONA CO. COOR.
N = 131687.320
E = 414968.409

Statement of evidence relative to this corner location is on page 2.

I hereby certify that this document and the data contained herein was prepared by me or under my direct supervision.

Patrick D. Veraguth 3/16/01

PATRICK D. VERAGUTH Date
Winona County Surveyor

Registration No: 26396

W: \SURVEY\CERTS\UTICA\F6932SW.DWG

442687

# CERTIFICATE OF LOCATION OF GOVERNMENT CORNER

Common Corner of Section 5, 6 / 31, 32, Township 105 / 106, Range 9 / 9, 5TH P.M.

STATE OF MINNESOTA, County of Winona

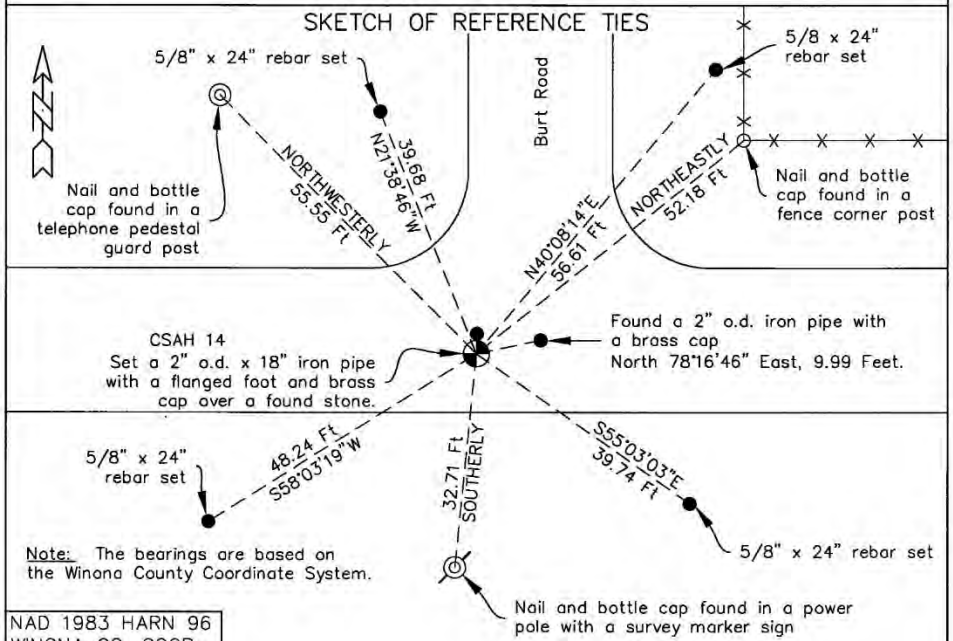
At the corner location shown on the sketch:

☒ On: April 24, 2009 (DATE) found a 2" o.d. iron pipe with a brass cap set previously and a 7" x 7" stone with the top broken off, down 2 Feet.

☒ left monument as found, ☐ lower monument, ☐ removed monument (explain)

☒ On: April 24, 2009 (DATE) placed a 2" o.d. x 18" iron pipe with a flanged foot and brass cap over the found stone.

## SKETCH OF REFERENCE TIES




Note: The bearings are based on the Winona County Coordinate System.

NAD 1983 HARN 96
WINONA CO. COOR.
N = 131685.291
E = 414958.629

Statement of evidence relative to this corner location is on page 2.

I hereby certify that this document and the data contained herein was prepared by me or under my direct supervision.

Patrick D. Veraguth 3/30/2011

PATRICK D. VERAGUTH, Winona County Surveyor — Date

License No: 26396



W:\Land Survey\SURVEY\CERTS\Utica\F6932sw_b.dwg

# Digging for Section Corners

- To Dig or not to dig, that is the question.
- How many students have dug for Section Corners?
- I have dug hundreds of holes over my 25 year career.
- Shovel is the most valuable tool in your truck.
- Wait till at least May 1st to dig in the road!
- Let the frost come out.
- Do it right the first time!

# Digging for Section Corners

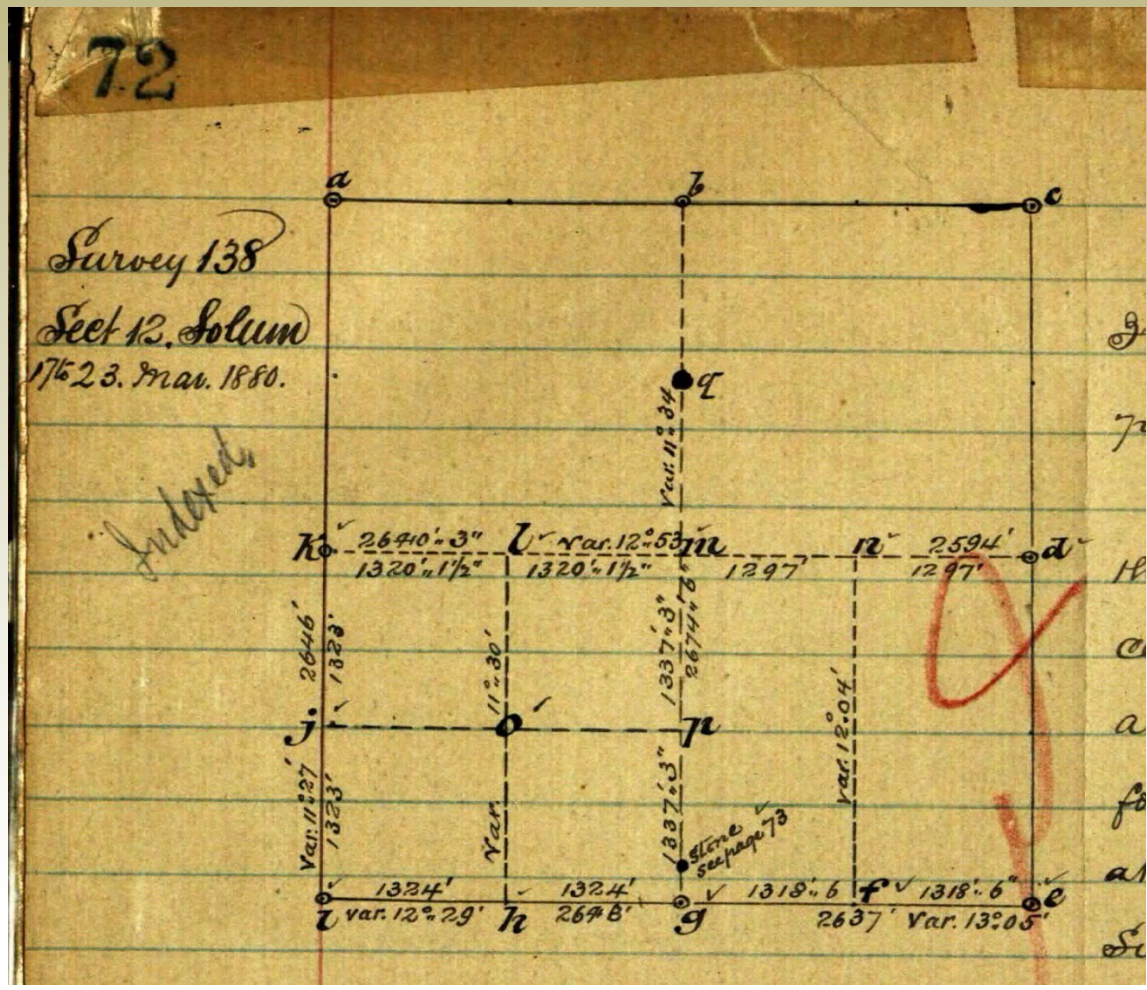
- Land Surveyors wear many hats:
  - Archeologist, Soil Scientist, Historian, Forester, Equipment Operator, Lawyer and Judge
- And you get to play in the dirt!
- Finding an old monument is like finding **GOLD**.

THE CURSE OF
OAK ISLAND

# Does a Section Corner need to be dug?

# Most crucial Step: Research

- Old measurements, ties and monuments
- Check your Corner Certificates and history. See how they were set.
- If you don't do your **Research** you might as well stay home!
- Talk to other surveyors, they are a wealth of information!
- You should know what you are looking for before you dig.



- You should have your Statement of Evidence prepared before you go out in the field!
- Once you have one started for a corner it is easy to update it.
- Check with the county you are working in.

**DOUGLAS COUNTY SURVEYOR'S OFFICE**
Statement of Evidence:

**NORTH QUARTER CORNER, SECTION 23, TOWNSHIP 128 NORTH, RANGE 39 WEST, 5TH P.M.**

1861 This corner was originally established by the U.S. General Land Office survey and marked with a post and witness by two Aspen bearing trees.

1869 Survey No. 23 – An unknown surveyor subdivided parts of the S1/2 of Section 14. No information is included for this corner. A point for this corner is shown 39.25 chains east and 40.37 chains west of the section corners.

1869 Survey No. 24 - An unknown surveyor subdivided the NE1/4 of Section 23. No information is included for this corner. A point for this corner is shown 40.30 chains west of the section corner and 40 chains north of the C1/4 corner.

1890 Survey No. 244 - County Surveyor John Abercrombie subdivided parts of the NW1/4 of Section 23 and found a stake set by County Surveyor Blackwell for this corner. Abercrombie proved it correct with a Witness Tree. It measured 2664 feet north of the established center of section.

1915 Survey No. 1106 for Plat No. 250, OLSON'S SUBDIVISION OF LOT 6 SECTION 14-128-39 - County Surveyor John Abercrombie found an old stake with a newer one beside it, but the bearing trees were gone. He placed a 1" iron pipe and made two new bearing trees: 10" Popple NE 5.8 feet and 5" Ash NE 22.8 feet. The pipe measured 2621 feet east of the SW section corner.

1921 Survey No. 1295 - County Surveyor Harry S. Todd surveyed a town road along the north side of Section 23. The sketch shows an "I.M." at this corner.

1935 Plat No. 366, Subdivision of the East Half of Lot 6 of Section 14 surveyed by County Surveyor Axel Wester platted the remaining portion of Government Lot 6, east of Plat No. 250. Additional iron pipes were set along the south line of said Government Lot at the Lot corners. This ¼ corner is not shown.

1970 County Surveyor Richard D. Howe, LS6933, set a Harrison type cast iron monument for this corner from "record of section subdivision" and filed a Certificate of Location of Government Corner on 7/8/70 that was later recorded as Document No. 88761 on 2/5/88. The Certificate shows the corner in the center of east-west road, 2619.50 east of the section corner.

2000 Corner Maintenance Record shows the County Surveyor's field crew found a cast iron monument in east-west road. The Douglas County Surveyor's field crew recovered 7 iron monuments along the north line of the NW ¼ of Section 23 set during the early surveys. The obliterated NW section corner was recovered at 2619.59 feet west of the HTM. A 5/8" iron pin found at the 1/16th corner measured fell just 0.16 foot from the computed corner. An old iron monument at the 1/16th corner measured 1332.86 feet south of the CIM.

County Coordinates to Point No. 19582
NAD 83 (1996 Adj.)
N- 148323.509
E- 629642.137

NOTE: It is not know how Howe reestablished this corner in 1970, but the position does agree with monuments from early surveys. Corner should be checked for the pipe set by Abercrombie.

2014 On May 28 the County Surveyor's crew visited the corner site and found the HTM in good condition. The corner falls in a cut-section of the road and the pipe set by Abercrombie was certainly obliterated during road construction after the 1921 survey.

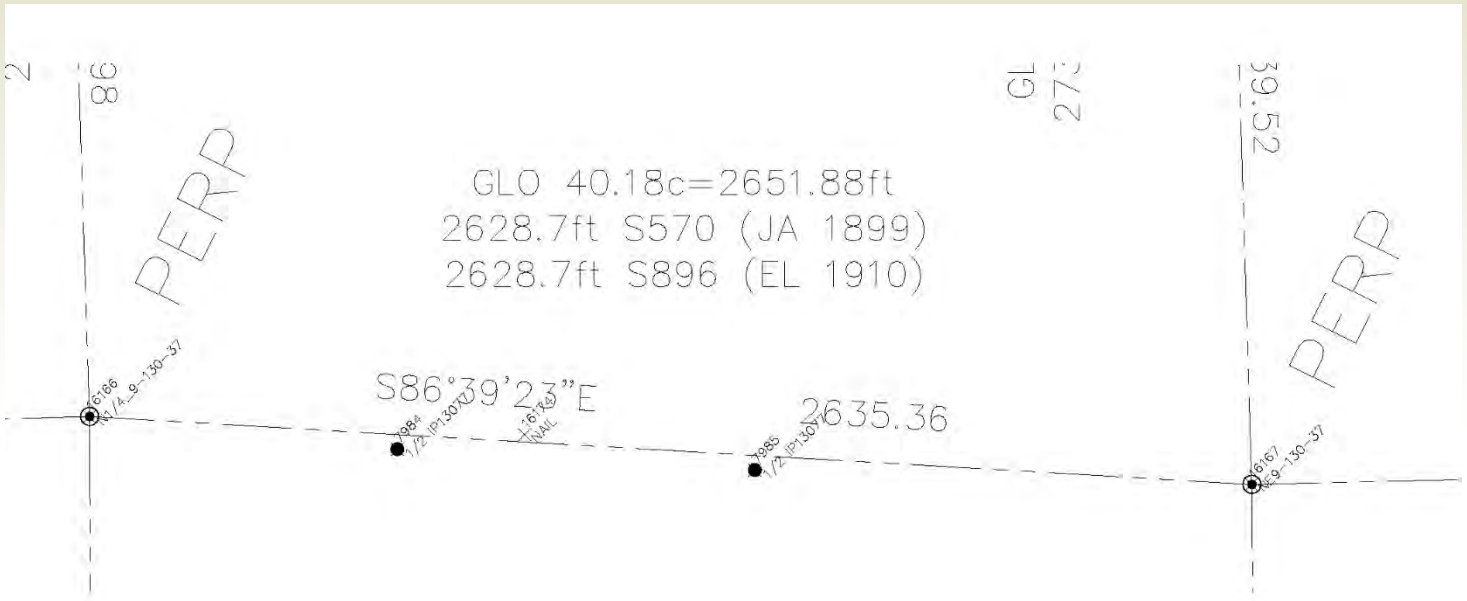
On October 8 the crew visited the corner site and found the top of the HTM had broken off the base. The top was removed and the base, which remained plumb in good condition 6" below grade, was left as found. A Corner Maintenance Record was prepared and signed by County Surveyor Patrick D. Veraguth, L.S. 26396.

# Measure Measure Measure

- Second most important step. YOU HAVE TO KNOW WHERE YOU ARE!
- Measure into existing monuments (at least a mile in each direction)
- It is nice to compare measurements in a whole township but not everyone has that kind of time to spend on these.
- Road centerlines
- Fence lines
- 1/16$^{th}$ occupation lines
- Property lines or any occupation
- Old descriptions
- Bearing Trees and GLO calls

# Measure as much as you can before you dig.

- Compare new and old measurements
- Some surveyors good, some bad measuring
- Talk to other surveyors, see if they have any insight into old Surveyor work.
- Talk to Land Owners
- Make sure no else has dug in your location.



# Corners in the Road

- Blacktop, Concrete or Gravel
- Check corner area to see if it is cut or fill.

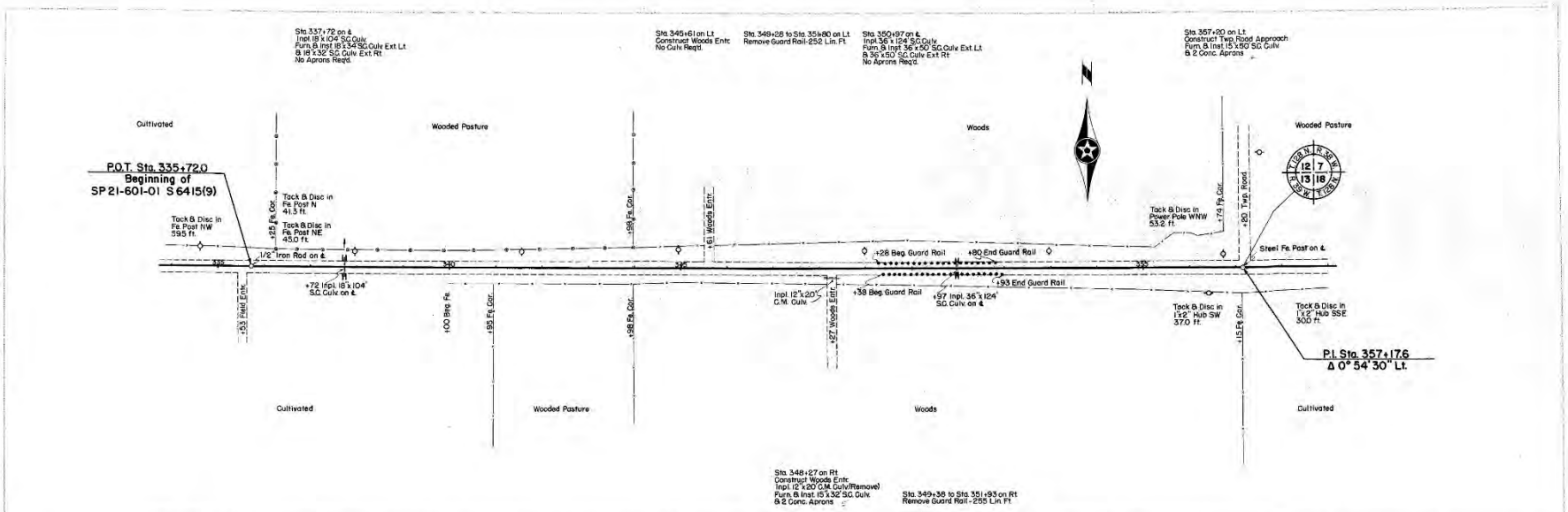
# Corners in the Road

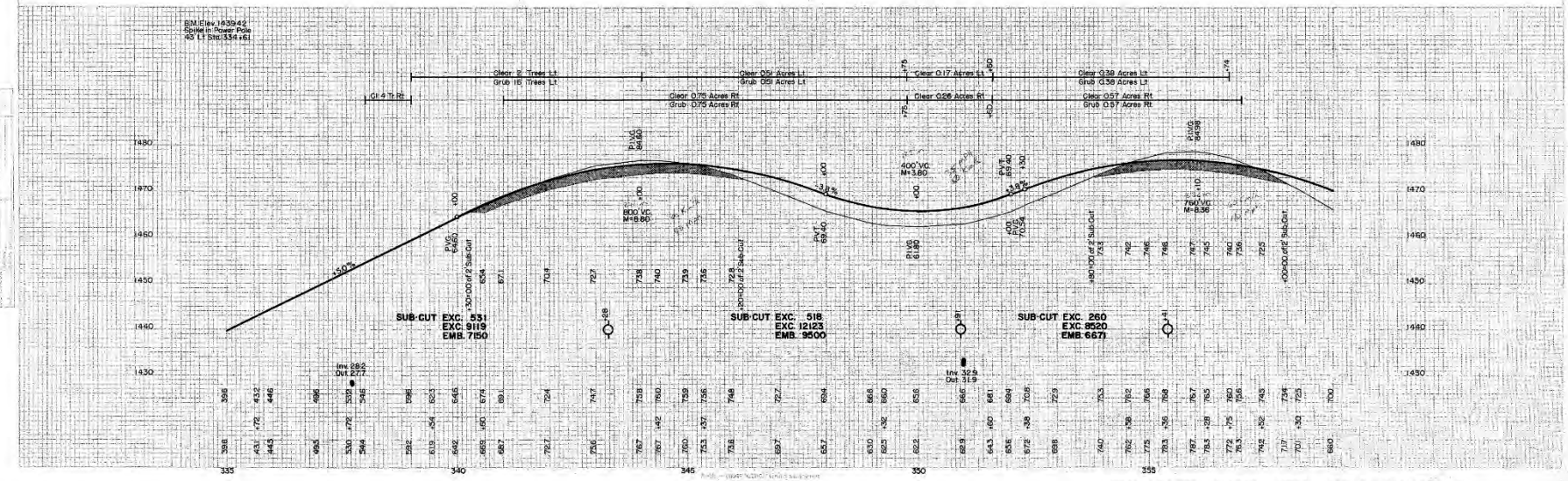
- Look for culverts/cattle passes.
- Look for WATER!

# Corners in the Road

- Check all old highway construction plans.
- Check for sub cutting
- Sometimes it is hard to tell
- When in doubt, dig
- Cut area can be Fill and Fill area can be Cut
- Ask for permission to dig!

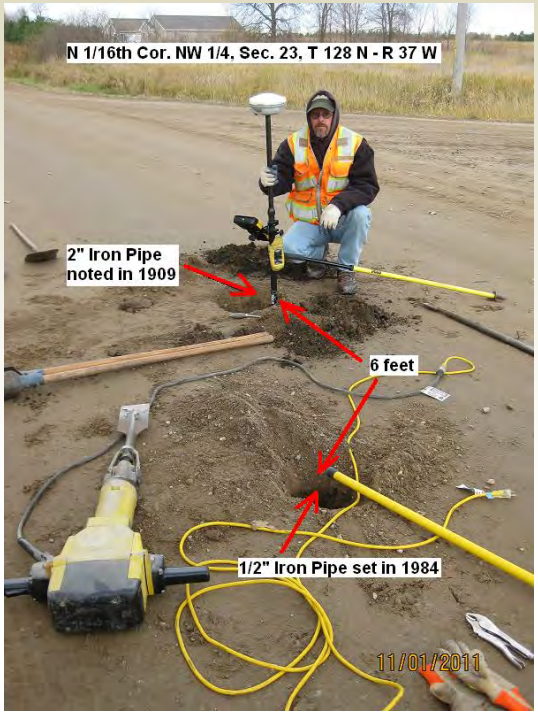
# Corners in the Road



# Stake out Computed Positions

- Stake out area where you believe corner falls.
- Use old and new measurements to compute position
- The original GLO monuments never fall at a lost position
- Always cover apparent corner locations.
  - Centerlines and fence intersections



# Minnesota 811

- Before you dig call 811
- They usually will locate it in 48 hours

811®

Know what's **below.**
**Call** before you dig.

# OSHA

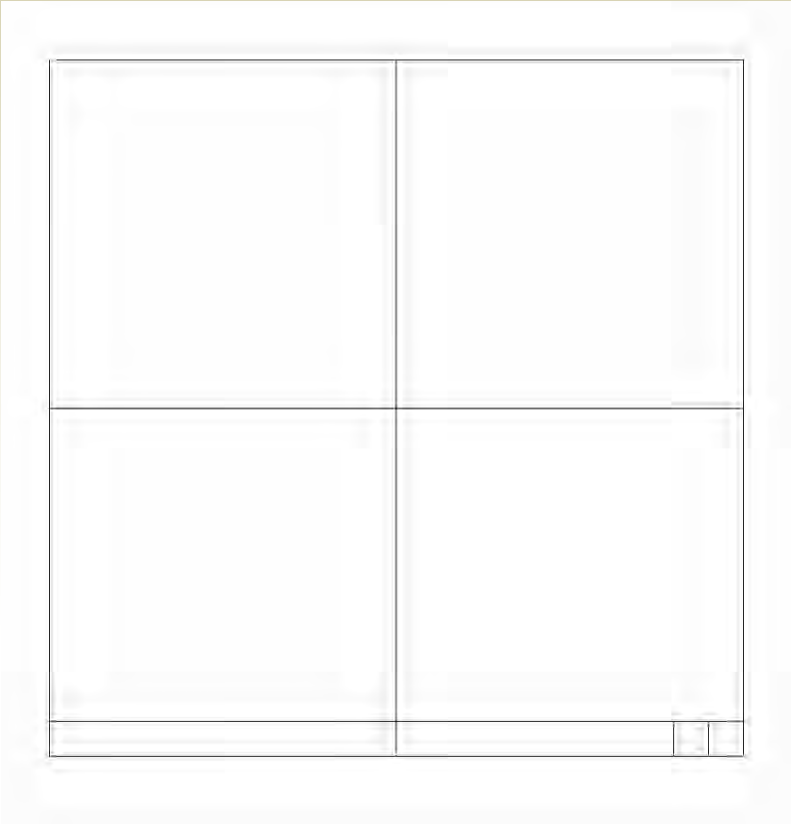
- OSHA Standards for digging trenches
- Over 4 feet you must bench or slope the sides
- Or use a Trench box (metal bad for locating)
- If you pack part of a hole and dig next to it, be very careful, fresh walls may collapse on you.

# Digging Day Essentials

- You will need signs and flagmen to control traffic
- The more traffic the more effort you need to keep work area safe
- Use County or State backhoe operator if possible
- They will usually dig for free
- You may have to work around their schedule
- Otherwise you may have to hire a private backhoe.
- Let him know that this is important work, someone you can trust.
- Use straight edge bucket to dig
- No teeth
- Easier to see monuments or changes in the hole.

# Cut Black Top

- Saw blacktop at least a day before you dig.
- Open hole without jack hammer



# Cut Black Top

- **<u>Wider is better</u>** (8x8 foot hole minimum)
- Adjust hole according to your backhoe digs
- Dig from opposite side of hole if you have too.

# Danger

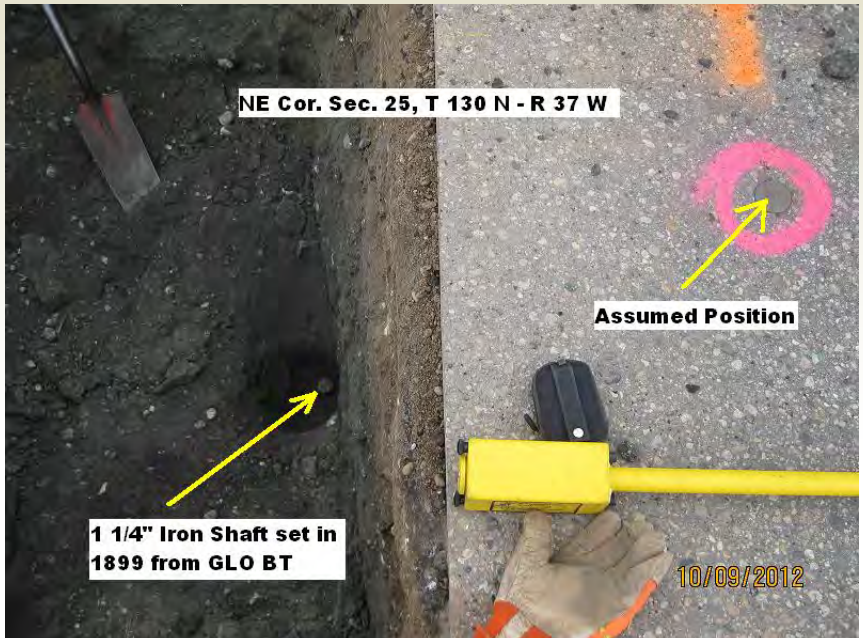
- Communicate with backhoe operator.
- Use hand signals
- Watch back of bucket as they scrap dirt out
- Watch yourself, this is a very dangerous situation, Stay out of the way!
- Bucket won't stop if it hits you. You will not win.

# Digging

- Take a little material out at a time
- Keep whole level, no gouging
- Keep an eye out for old roads
- Township roads were built up by pushing the ditch up onto the road.
- Dig shallow after getting though old road. Make backhoe operator take smaller cuts

# Looking for Monuments

- Locate with Magnetic Locator often
- It may help to move the Backhoe out of the way to get a good Metal Location
- You never know what you may find.



# Looking for Monuments

- Wood stake, pipe, stone, etc…
- Watch the type of material coming out.
- If there are no stones in the soil and you hit one you better take a good look at it.
- Probe if you have record of a stone.

# Looking for Monuments

- You can probe the sides of the hole to see if there is anything there.
- You may have to peal a layer of soil off by hand to see what is there.
- Look for Rust spot, stone hole or original post.

# Backhoe Work

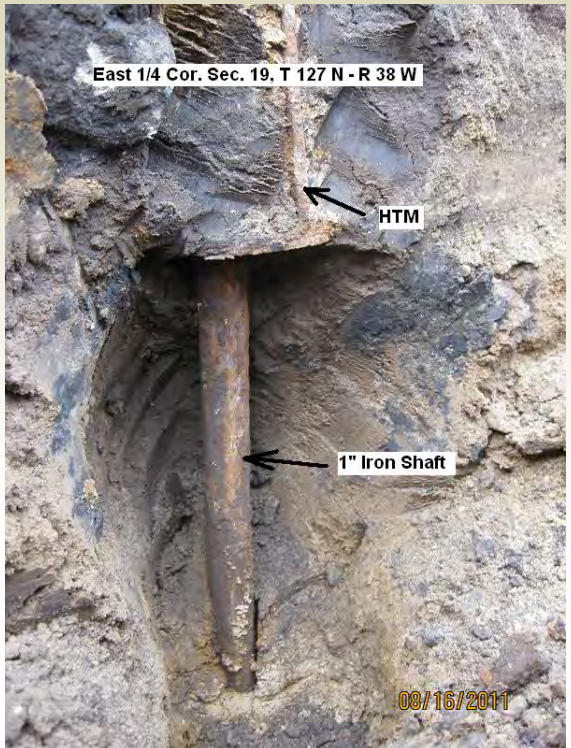
- A good backhoe operator can feel when they hit something and stop
- Watch each bucket coming out
- Watch for monuments as the bucket dumps material
- Take plenty of pictures
- Sometimes that extra bucket will make all the difference, don’t quit too early!
- If you find 50% of your corners you are doing well. 25% is good
- Some days you can find them all and somedays you will find none!

# Find your monument or not?

- Sometimes not finding anything isn't all that bad
- But you found the Holy Grail! Tie out, measure into and document it!
- Take pictures

# Find your monument or not?

- Look for additional monuments
- Monuments will be stacked on top of each other most of the time if you are at the corner
- I usually will take the lowest monument depends on the record



# Finish Digging

- Dig down to clean clay or clean soil
- If you don't find anything make sure you have covered the hole you are currently digging.
- Check your measurements, see if you should dig in one direction or the other.
- Note where you have dug.

# Filling the hole back in

- Pack in every foot
- Use bucket to pack
- Use jumping jack to pack

# Filling the hole back in

- May depend where you are digging
- If you don't pack it, monument may settle after you set it.
- You will never get all the dirt back in the hole.
- Leave room to put gravel back in for base.
- You may have to truck gravel in for base.
- Some counties like to finish the black top off right-a-way.

# Develop County or Project Excavation Plan

- Digging in black top a year before new black top is constructed
- 5-year plan from County Engineer
- This will give it a year to settle through winter
- If you can wait a year to set a monument wait
- Otherwise set a temporary monument and then set permanent later
- My rule is if I dig and find a monument within 3 feet of an existing certified corner, I leave it at the certified position.
- If you are working on a whole township you may want to do your initial digs and then look at the data to see if you should dig again.

# Corners off the Road

- **Dig with back hoe**
- Digging around corner post
- May take some time, but remove fence and post, do a good search
- Dig out in open
- Ask for Permission
- Don't get stuck!

# Excavating corners by hand

- Always Dig around corner post, they may be there for a reason.
- Put a tarp down to put dirt on.

# Excavating corners by hand

- Do a good job measuring, try to keep search area and hole, small
- If you dig by hand you must fill hole back in by hand
- Peal 6 inches of top soil
- Clean layer off to see if there are any disturbances.
- Keep doing this until you get down to clean clay

# Excavating corners by hand

- Always check for bearing trees in the woods.
- Tree roots and stones make it hard to dig for monuments in the woods.
- This could be another presentation.

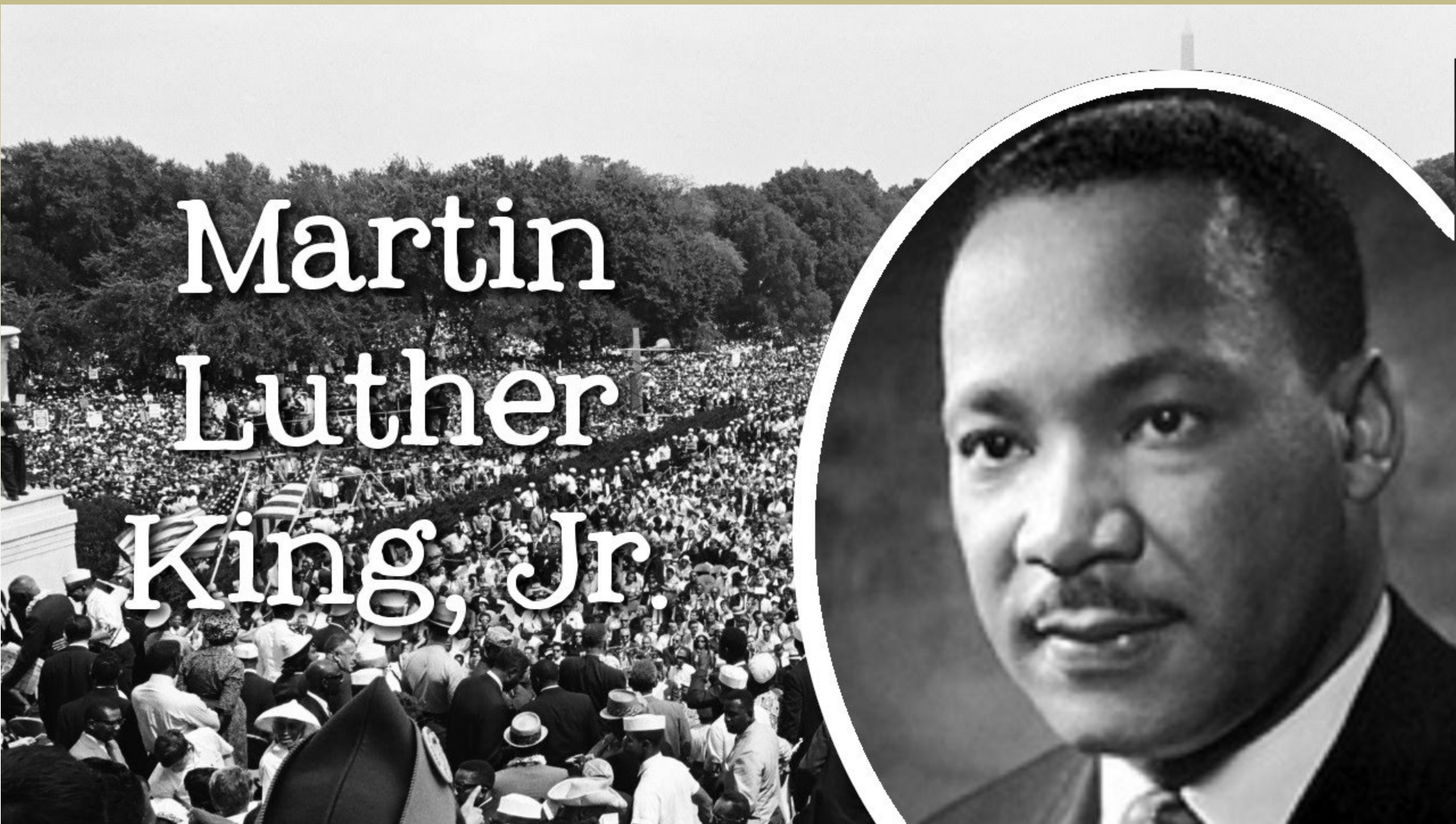
# Conclusion

- When in doubt dig
- Document and take pictures
- Finding a monument is always exhilarating!
- Don’t forget to set a monument back and certify it.
- A monument at the surface is not always the corner!!
- DIG IT!!

# Questions/Discussion

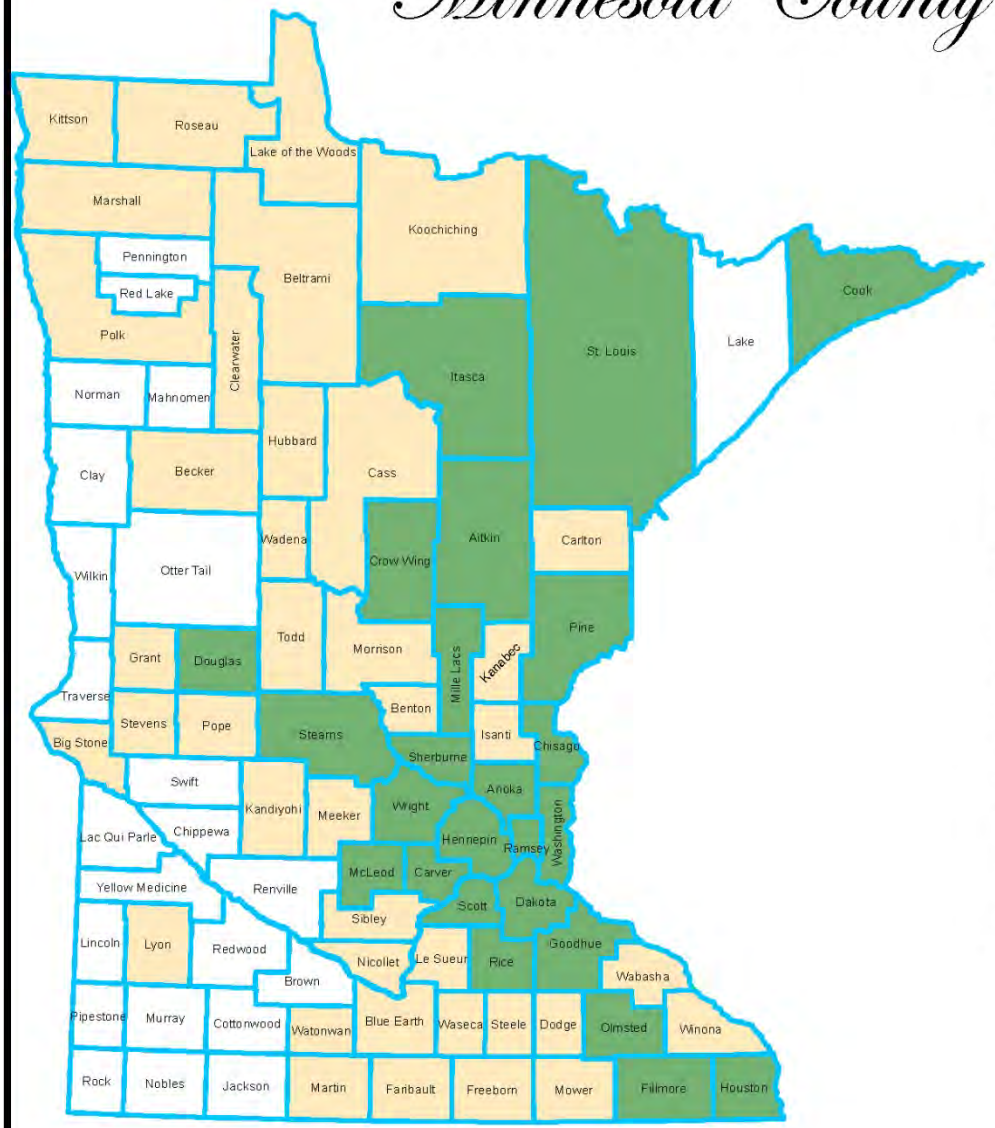
Thank You for listening!

# I have a dream



# Does your County have a County Surveyor?

## Minnesota County Surveyors




| County | Status | Surveyor |
|---|---|---|
| Aitkin | Full | Randy Quale |
| Anoka | Full | Larry Holum |
| Becker | Part | Roy Smith |
| Beltrami | Part | Robert Murray |
| Benton | Part | Jay Wittstock |
| Big Stone | Part | Brad Nyberg |
| Blue Earth | Part | Mike Eichers |
| Brown | None | |
| Carlton | Part | William Hayden |
| Carver | Full | Brian Praske |
| Cass | Part | Terry Freeman |
| Chippewa | None | |
| Chisago | Full | Paul Gibson |
| Clay | None | |
| Clearwater | Part | Robert Murray |
| Cook | Full | Wayne Hensche |
| Cottonwood | None | |
| Crow Wing | Full | Paul Herkenhoff |
| Dakota | Full | Todd Tollefson |
| Dodge | Part | Lisa Hanni |
| Douglas | Full | Pat Veraguth |
| Faribault | Part | Joseph Haefner |
| Fillmore | Full | Jeffrey Brand |
| Freeborn | Part | Steven Thompson |
| Goodhue | Full | Lisa Hanni |
| Grant | Part | Pat Veraguth |
| Hennepin | Full | Chris Mavis |
| Houston | Full | Eric Schmitt |
| Hubbard | Part | George Coulombe |
| Isanti | Part | Don Hansen |
| Itasca | Full | Guy Carlson |
| Jackson | None | |
| Kanabec | Part | Tyler Kroschel |
| Kandiyohi | Part | Duane Bonnema |
| Kittson | Part | Dan Fischer |
| Koochiching | Part | Robert Murray |
| Lac Qui Parle | None | |
| Lake | None | |
| Lake of the Woods | Part | Don Rasmussen |
| Le Sueur | Part | Rory Jensen |
| Lincoln | None | |
| Lyon | Part | Dan Bueltel |
| Mahnomen | None | |
| Marshall | Part | Gerald Pribula |
| Martin | Part | John Madsen |

| County | Status | Surveyor |
|---|---|---|
| McLeod | Full | Jeffrey Rausch |
| Meeker | Part | Douglas Huhn |
| Mille Lacs | Full | Warren Delles |
| Morrison | Part | Sam Deleo |
| Mower | Part | Steve Thompson |
| Murray | None | |
| Nicollet | Part | Janele Fowlds |
| Nobles | None | |
| Norman | None | |
| Olmsted | Full | Mark Severtson |
| Otter Tail | None | |
| Pennington | None | |
| Pine | Full | Robin Mathews |
| Pipestone | None | |
| Polk | Part | Garrett Borowicz |
| Pope | Part | Rodney Eldevik |
| Ramsey | Full | Craig Hinzman |
| Red Lake | None | |
| Redwood | None | |
| Renville | None | |
| Rice | Full | Mike Fangman |
| Rock | None | |
| Roseau | Part | George Coulombe |
| Scott | Full | James Hentges |
| Sherburne | Full | Kenneth Holmbeck |
| Sibley | Part | Avery Grochow |
| St. Louis | Full | Nick Stewart |
| Stearns | Full | Scott Marlin |
| Steele | Part | John Hosfield |
| Stevens | Part | Brad Nyberg |
| Swift | None | |
| Todd | Part | Mark Jahner |
| Traverse | None | |
| Wabasha | Part | Marcus Johnson |
| Wadena | Part | George Coulombe |
| Waseca | Part | Mike Eichers |
| Washington | Full | Michael Welling |
| Watonwan | Part | John Madsen |
| Wilkin | None | |
| Winona | Part | Brian Wodele |
| Wright | Full | Steven Jobe |
| Yellow Medicine | None | |

**County Surveyor Status**

| | |
|---|---|
| Full | 24 |
| Part | 39 |
| None | 24 |

July 2017

How many Section Corners are in Minnesota?

How many Township Corners are in the state?

2840 Township Corners

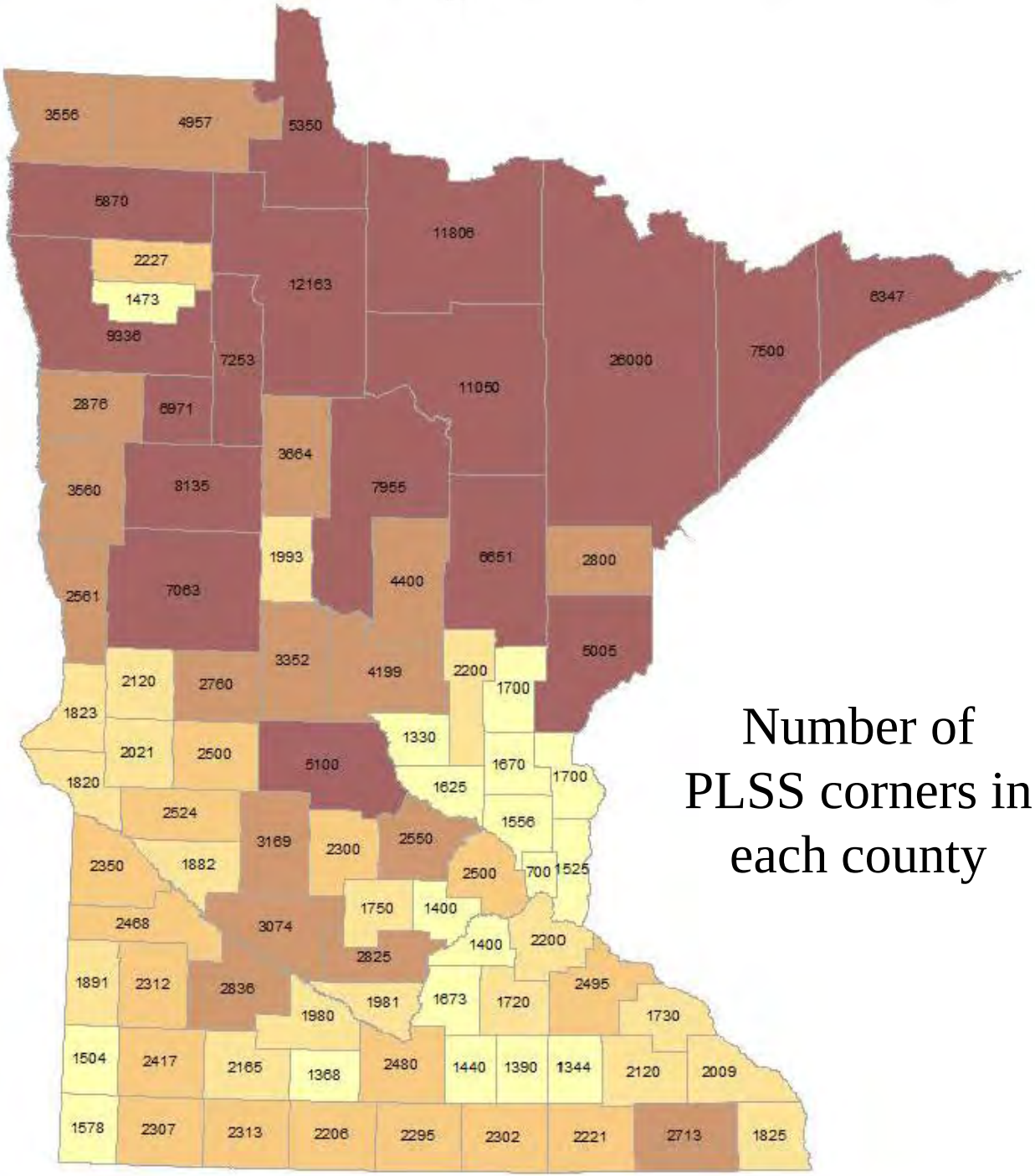
# MACS PLS Survey Results

How many PLS corners are in your County?

| COUNTY | Population (2010) | Area (Sq. Miles) Wikipedia | Density (people per square mile) | Number of computed Townships | new email | Appointed, #Elected or *Contracted Surveyor | E-mail | CURRENT MACS Member | LS # |
|---|---|---|---|---|---|---|---|---|---|
| Aitkin | 16,202 | 1,819 | 8.9 | 51 | x | Randy Quale | randy.quale@co.aitkin.mn.us | | 42630 |
| Anoka | 330,844 | 424 | 780.3 | 12 | | Larry Holum | larry.holum@co.anoka.mn.us | X | 18165 |
| Becker | 32,504 | 1,310 | 24.8 | 36 | | | | | |
| Beltrami | 44,442 | 2,505 | 17.7 | 70 | | Robert Murray | bmurray@paulbunyan.net | X | 15483 |
| Benton | 38,451 | 408 | 94.2 | 11 | | Jay Wittstock | jay.wittstock@westwoodps.com | X | 19552 |
| Big Stone | 5,269 | 497 | 10.6 | 14 | | Brad Nyberg | brad@nybergsurveying.com | X | 42620 |
| Blue Earth | 64,013 | 752 | 85.1 | 21 | | Mike Eichers | mikee@bolton-menk.com | | 46564 |
| Brown | 25,893 | 611 | 42.4 | 17 | x | *Ben Madsen | madsenlandsurveying@hotmail.com | | 50875 |
| Carlton | 35,386 | 860 | 41.1 | 24 | | William Hayden | haydensurveying@hotmail.com | | 17517 |
| Carver | 91,042 | 357 | 255.0 | 10 | | Brian Praske | bpraske@co.carver.mn.us | | 44646 |
| Cass | 28,567 | 2,018 | 14.2 | 56 | | Terry Freeman | cass.surveyor@co.cass.mn.us | X | 21367 |
| Chippewa | 12,441 | 583 | 21.3 | 16 | | | | | |
| Chisago | 53,887 | 418 | 128.9 | 12 | | Paul Gibson | pmgibso@co.chisago.mn.us | X | 40987 |
| Clay | 58,999 | 1,045 | 56.5 | 29 | | None at this time | | | |
| Clearwater | 8,695 | 995 | 8.7 | 28 | | Robert Murray | bmurray@paulbunyan.net | X | 15483 |
| Cook | 5,176 | 1,451 | 3.6 | 40 | | Wayne Hensche | ctmile@boreal.org | | 16457 |
| Cottonwood | 11,687 | 640 | 18.3 | 18 | | | | | |
| Crow Wing | 62,500 | 997 | 62.7 | 28 | | Paul Herkenhoff | paul.herkenhoff@crowwing.us | X | 45875 |
| Dakota | 398,552 | 570 | 699.2 | 16 | | Todd Tollefson | todd.tollefson@co.dakota.mn.us | | 42305 |
| Dodge | 20,087 | 440 | 45.7 | 12 | | *Lisa Hanni | lisa.hanni@co.goodhue.mn.us | X | 23048 |
| Douglas | 36,009 | 634 | 56.8 | 18 | | Patrick Veraguth | patv@co.douglas.mn.us | X | 26396 |
| Faribault | 14,553 | 714 | 20.4 | 20 | | Joe Haefner | joeha@bolton-menk.com | | 43909 |
| Fillmore | 20,866 | 861 | 24.2 | 24 | | Jeff Brand | jbrand@co.fillmore.mn.us | | 26371 |
| Freeborn | 31,255 | 708 | 44.1 | 20 | x | Steve Thompson | SteveT@ilseng.com | | 22705 |
| Goodhue | 46,183 | 758 | 60.9 | 21 | | Lisa Hanni | lisa.hanni@co.goodhue.mn.us | X | 23048 |
| Grant | 6,018 | 546 | 11.0 | 15 | | *Patrick Veraguth | patv@co.douglas.mn.us | X | 26396 |
| Hennepin | 1,152,425 | 557 | 2,069.0 | 15 | | Chris Mavis | Chris.Mavis@Hennepin.us | X | 46569 |
| Houston | 19,027 | 558 | 34.1 | 16 | | Eric Schmitt | eric.schmitt@co.houston.mn.us | | 53135 |
| Hubbard | 20,428 | 922 | 22.2 | 26 | | Ryan Miller | rmiller@co.hubbard.mn.us | | 54898 |
| Isanti | 37,816 | 439 | 86.1 | 12 | | Don Hansen | dhansen@hansensurveying.com | | 9260 |
| Itasca | 45,058 | 2,665 | 16.9 | 74 | | Guy Carlson | guy.carlson@co.itasca.mn.us | X | 40991 |
| Jackson | 10,266 | 702 | 14.6 | 20 | | | Looking at doing a Remon project 2018 | | |
| Kanabec | 16,239 | 525 | 30.9 | 15 | x | Tyler Kruschel | tyler@kruschelsurvey.com | | 44490 |
| Kandiyohi | 42,239 | 796 | 53.1 | 22 | | Duane Bonnema | duaneb@bonnemasurveys.com | X | 14895 |
| Kittson | 4,552 | 1,097 | 4.1 | 30 | | Dan Fischer | dfischer@utma.com | X | 26037 |
| Koochiching | 13,311 | 3,102 | 4.3 | 86 | | Robert Murray | bmurray@paulbunyan.net | | 15483 |
| Lac Qui Parle | 7,259 | 765 | 9.5 | 21 | | | | | |
| Lake | 10,866 | 2,099 | 5.2 | 58 | | | | | |
| Lake of the Woods | 4,045 | 1,297 | 3.1 | 36 | x | Don Rasmussen | donn.rasmussen@wsn.us.com | | 16102 |
| Le Sueur | 27,703 | 449 | 61.7 | 12 | | Rory Jensen | roryje@bolton-menk.com | | 19789 |
| Lincoln | 5,896 | 537 | 11.0 | 15 | | None at this time | | | |
| Lyon | 25,857 | 714 | 36.2 | 20 | x | Dan Bueltel | dan@bmsurveys.com | | 11943 |
| Mahnomen | 5,413 | 556 | 9.7 | 15 | | | | | |
| Marshall | 9,439 | 1,772 | 5.3 | 49 | | Gerald Pribula | jpribula@wiktel.com | X | 13468 |
| Martin | 20,840 | 709 | 29.4 | 20 | x | #Ben Madsen | madsenlandsurveying@hotmail.com | | 50875 |
| McLeod | 36,651 | 492 | 74.5 | 14 | x | Jeff Rausch | jrausch@hutchtel.net | | 24329 |
| Meeker | 23,300 | 609 | 38.3 | 17 | x | Douglas Huhn | ns_doug@qwestoffice.net | | 43808 |
| Mille Lacs | 26,097 | 574 | 45.5 | 16 | | Warren Delles | warren.delles@co.mille-lacs.mn.us | | 41890 |
| Morrison | 33,198 | 1,125 | 29.5 | 31 | x | Sam Deleo | deleo@kldland.com | | 40341 |
| Mower | 39,163 | 712 | 55.0 | 20 | | | | | |
| Murray | 8,725 | 704 | 12.4 | 20 | | | | | |
| Nicollet | 32,727 | 452 | 72.4 | 13 | | Janele Fowlds | janelefo@bolton-menk.com | X | 26748 |
| Nobles | 21,378 | 715 | 29.9 | 20 | | None at this time | | | |
| Norman | 6,852 | 876 | 7.8 | 24 | | | | | |
| Olmsted | 144,248 | 653 | 220.9 | 18 | | Mark Severtson | severtson.mark@CO.OLMSTED.MN.US | X | 18887 |
| Otter Tail | 57,303 | 1,980 | 28.9 | 55 | | None at this time | | | |
| Pennington | 13,930 | 617 | 22.6 | 17 | | | | | |
| Pine | 29,750 | 1,411 | 21.1 | 39 | | Robin Mathews | Robin.mathews@co.pine.mn.us | X | 41038 |
| Pipestone | 9,596 | 466 | 20.6 | 13 | | None at this time | | | |
| Polk | 31,600 | 1,970 | 16.0 | 55 | x | Garrett Borowicz | garrett.borowicz@wsn.us.com | | 45365 |
| Pope | 10,995 | 670 | 16.4 | 19 | | Rod Eldevik | eldevik@rea-alp.com | X | 19845 |
| Ramsey | 508,640 | 156 | 3,260.5 | 4 | | Craig Hinzman | craig.hinzman@co.ramsey.mn.us | X | 20261 |
| Red Lake | 4,089 | 432 | 9.5 | 12 | | | | | |
| Redwood | 16,059 | 880 | 18.2 | 24 | | | | | |
| Renville | 15,730 | 983 | 16.0 | 27 | | | Looking at getting a County Surveyor | | |
| Rice | 64,142 | 498 | 128.8 | 14 | | Mike Fangman | mfangman@co.rice.mn.us | X | 48332 |
| Rock | 9,687 | 483 | 20.1 | 13 | | None at this time | | | |
| Roseau | 16,201 | 1,676 | 9.7 | 47 | | George Coulombe | gcoulomb@paulbunyan.net | X | 15810 |
| Scott | 129,928 | 357 | 363.9 | 10 | | James Hentges | JHentges@co.scott.mn.us | X | 26370 |
| Sherburne | 88,499 | 436 | 203.0 | 12 | | Russell Heiling | russ.heiling@co.sherburne.mn.us | X | 44529 |
| Sibley | 15,226 | 589 | 25.9 | 16 | x | Avery Grochow | ssincavery@mchsi.com | | 15475 |
| St. Louis | 200,226 | 6,225 | 32.2 | 173 | | Nick Stewart | StewartN@stlouiscountymn.gov | X | 43816 |
| Stearns | 150,642 | 1,345 | 112.0 | 37 | | Scott Marlin | scott.marlin@co.stearns.mn.us | X | 49988 |
| Steele | 36,576 | 430 | 85.1 | 12 | x | #John Hosfield | john.hosfield@yahoo.com | | 15231 |
| Stevens | 9,726 | 562 | 17.3 | 16 | | Brad Nyberg | brad@nybergsurveying.com | X | 42620 |
| Swift | 9,783 | 744 | 13.1 | 21 | | | | | |
| Todd | 24,895 | 942 | 26.4 | 26 | | Mark Jahner | mark@mnsurveying.com | X | 44493 |
| Traverse | 3,558 | 574 | 6.2 | 16 | | | | | |
| Wabasha | 21,676 | 525 | 41.3 | 15 | | Marcus Johnson | MarcusJ@islmail.com | | 47460 |
| Wadena | 13,843 | 535 | 25.9 | 15 | | George Coulombe | gcoulomb@paulbunyan.net | X | 15810 |
| Waseca | 19,136 | 423 | 45.2 | 12 | | Mike Eichers | mikee@bolton-menk.com | | 46564 |
| Washington | 238,136 | 392 | 607.5 | 11 | | Michael Welling | Michael.Welling@co.washington.mn.us | X | 26004 |
| Watonwan | 11,211 | 435 | 25.8 | 12 | x | Ben Madsen | madsenlandsurveying@hotmail.com | | 50875 |
| Wilkin | 6,576 | 751 | 8.8 | 21 | | | | | |
| Winona | 51,461 | 626 | 82.2 | 17 | | Brian Wodele | brianw@islmail.com | | 46559 |
| Wright | 124,700 | 661 | 188.7 | 18 | | Steven Jobe | steve.jobe@co.wright.mn.us | X | 41000 |
| Yellow Medicine | 10,438 | 758 | 13.8 | 21 | | | | | |
| Total Count | 87 | 87 | | | 14 | 69 | 65 | 33 | |
| Total | 5,304,497 | 79626 | | 2,212 | | | | | 2033782 |
| Average | 60,971 | 915 | | | | | | | 29475 |
| Survey Monkey | 22 | | | | | | Full time County Surveyor | 24 | |
| | | | | | | | Part-time County Surveyor | 37 | |
| | | | | | | | No County Surveyor | 26 | |

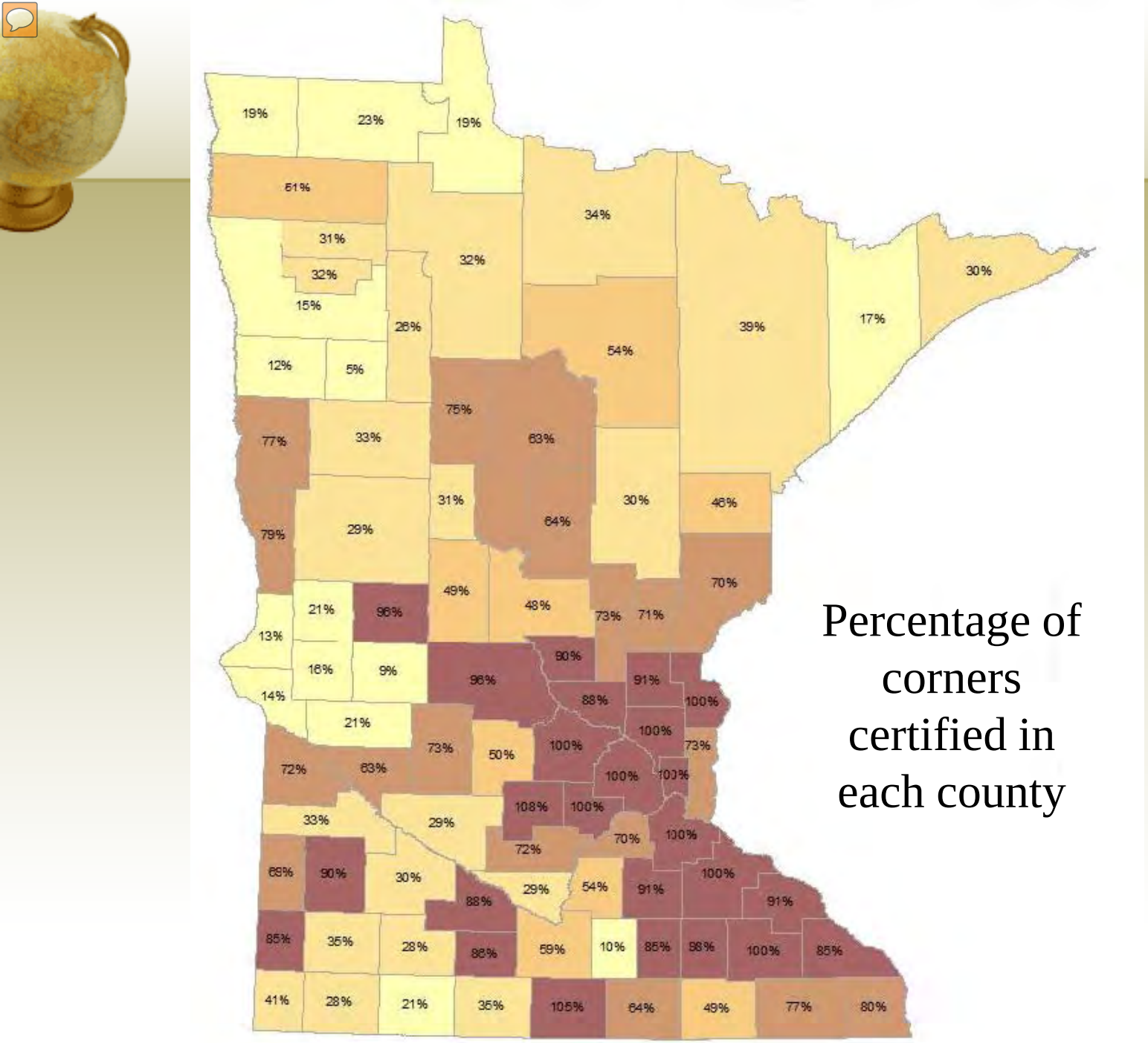
| COUNTY | Corner Certs Stored by County Recorder | Corner Certs Stored by County Surveyor | Corner Certs Stored by Highway Depart. | Corner Certs Stored by other | Number of Town-ships | Number of PLS Corners | Average PLS corners per Township | Number of Certified PLS Corners | Percent age | Coordin-ates on PLS Certs | Coordin-ates by Surveyor | Coordinates from other Sources | Total Number of PLS Corners with Survey Grade Coordinates | Percenta ge |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aitkin | X | | | | 60.0 | 6651 | 111 | 2000 | 30% | | 1000 | 200 | 1200 | 18% |
| Anoka | | X | | | 12.0 | 1556 | 130 | 1556 | 100% | 1556 | | | 1556 | 100% |
| Becker | | | | | 40.0 | 8135 | 203 | 2674 | 33% | | | | 0 | 0% |
| Beltrami | | X | | | 84.0 | 12163 | 145 | 3910 | 32% | | | | 0 | 0% |
| Benton | X | | | | 11.0 | 1330 | 121 | 1200 | 90% | 1300 | | | 1300 | 98% |
| Big Stone | | | | | 14.0 | 1820 | 130 | 259 | 14% | | | | 0 | 0% |
| Blue Earth | | | | X | 23.0 | 2480 | 108 | 1455 | 59% | 705 | | | 705 | 28% |
| Brown | X | | | | 18.0 | 1980 | 110 | 1743 | 88% | 1287 | | | 1287 | 65% |
| Carlton | X | | | | 24.0 | 2800 | 117 | 1300 | 46% | 50 | | | 50 | 2% |
| Carver | | X | | | 10.0 | 1400 | 140 | 1400 | 100% | 1400 | | | 1400 | 100% |
| Cass | | X | | | 75.0 | 7955 | 106 | 4994 | 63% | 3500 | | | 3500 | 44% |
| Chippewa | | | | | 18.0 | 1882 | 105 | 1181 | 63% | | | | 0 | 0% |
| Chisago | | X | | | 12.0 | 1700 | 142 | 1700 | 100% | | 1700 | | 1700 | 100% |
| Clay | X | | | | 29.0 | 3560 | 123 | 2726 | 77% | | 3560 | | 3560 | 100% |
| Clearwater | | | | | 28.0 | 7293 | 259 | 1900 | 26% | | | | 0 | 0% |
| Cook | | | | | 40.0 | 6347 | 159 | 1901 | 30% | | | | 0 | 0% |
| Cottonwood | | | | | 18.0 | 2165 | 120 | 608 | 28% | | | | 0 | 0% |
| Crow Wing | | | | | 31.0 | 4400 | 142 | 2800 | 64% | | 3300 | | 3300 | 75% |
| Dakota | | X | | | 20.0 | 2200 | 110 | 2200 | 100% | 2200 | | | 2200 | 100% |
| Dodge | X | | | | 12.0 | 1344 | 112 | 1320 | 98% | 100 | 800 | 50 | 950 | 71% |
| Douglas | | X | | | 20.0 | 2760 | 138 | 2661 | 95% | 2661 | 99 | | 2760 | 100% |
| Faribault | x | | | | 20.0 | 2295 | 115 | 2407 | 105% | | | | 0 | 0% |
| Fillmore | X | X | | | 24.0 | 2713 | 113 | 2082 | 77% | 718 | | | 718 | 26% |
| Freeborn | | | | | 20.0 | 2302 | 115 | 1467 | 64% | | | | 0 | 0% |
| Goodhue | | X | | | 22.0 | 2495 | 113 | 2495 | 100% | 2171 | | | 2171 | 87% |
| Grant | X | | | | 16.0 | 2120 | 133 | 452 | 21% | | 100 | | 100 | 5% |
| Hennepin | | X | | | 19.0 | 2500 | 132 | 2500 | 100% | 2500 | | | 2500 | 100% |
| Houston | X | X | | | 16.0 | 1825 | 114 | 1469 | 80% | | 707 | 863 | 1570 | 86% |
| Hubbard | | | | | 28.0 | 3664 | 131 | 2744 | 75% | | 2603 | | 2603 | 71% |
| Isanti | x | | | | 12.0 | 1670 | 139 | 1516 | 91% | | 1525 | | 1525 | 91% |
| Itasca | | X | | | 91.0 | 11050 | 121 | 6000 | 54% | | | 8400 | 8400 | 76% |
| Jackson | | | | | 20.0 | 2313 | 116 | 496 | 21% | | | | 0 | 0% |
| Kanabec | | | | | 15.0 | 1700 | 113 | 1200 | 71% | | 1200 | | 1200 | 71% |
| Kandiyohi | X | X | | | 24.0 | 3169 | 132 | 2320 | 73% | 2200 | | | 2200 | 69% |
| Kittson | X | | | | 30.5 | 3556 | 117 | 671 | 19% | | | | 0 | 0% |
| Koochiching | | | | | 87.6 | 11806 | 135 | 4065 | 34% | | | | 0 | 0% |
| Lac Qui Parle | | | | | 21.0 | 2350 | 112 | 1699 | 72% | | | | 0 | 0% |
| Lake | | | | | 58.0 | 7500 | 129 | 1250 | 17% | | | | 0 | 0% |
| Lake of the Woods | X | | | | 36.0 | 5350 | 149 | 990 | 19% | | | | 0 | 0% |
| Le Sueur | | | | | 12.0 | 1673 | 139 | 910 | 54% | | 1296 | | 1296 | 77% |
| Lincoln | X | | | | 15.0 | 1891 | 126 | 1314 | 69% | | | | 0 | 0% |
| Lyon | | | | | 20.0 | 2312 | 116 | 2084 | 90% | | | | 0 | 0% |
| Mahnomen | | | | | 16.0 | 6971 | 436 | 350 | 5% | | | | 0 | 0% |
| Marshall | | | | | 50.0 | 5870 | 117 | 2965 | 51% | | | | 0 | 0% |
| Martin | x | | | | 20.0 | 2206 | 110 | 770 | 35% | 110 | 2096 | | 2206 | 100% |
| McLeod | | | | | 14.0 | 1750 | 125 | 1885 | 108% | | | | 0 | 0% |
| Meeker | X | | X | | 17.5 | 2300 | 131 | 1150 | 50% | 0 | | | 0 | 0% |
| Mille Lacs | X | | | | 16.0 | 2200 | 138 | 1600 | 73% | | 1400 | 100 | 1500 | 68% |
| Morrison | | | | | 31.0 | 4199 | 135 | 2009 | 48% | | | | 0 | 0% |
| Mower | | | | | 20.0 | 2223 | 111 | 1087 | 49% | | | | 0 | 0% |
| Murray | | | | | 20.0 | 2417 | 121 | 851 | 35% | | | | 0 | 0% |
| Nicollet | X | | | | 13.0 | 1981 | 152 | 571 | 29% | 257 | | | 257 | 13% |
| Nobles | X | | | | 20.0 | 2307 | 115 | 654 | 28% | | 1000 | | 1000 | 43% |
| Norman | | | | | 25.0 | 2876 | 115 | 343 | 12% | | | | 0 | 0% |
| Olmsted | | X | | | 18.5 | 2120 | 115 | 2120 | 100% | | 2120 | | 2120 | 100% |
| Otter Tail | X | | | | 62.0 | 7063 | 114 | 2077 | 29% | 2077 | | 2784 | 4861 | 69% |
| Pennington | | | | | 17.3 | 2227 | 129 | 681 | 31% | | | | 0 | 0% |
| Pine | | X | | | 42.0 | 5005 | 119 | 3479 | 70% | 1000 | 1500 | | 2500 | 50% |
| Pipestone | x | | | | 13.0 | 1504 | 116 | 1282 | 85% | | | | 0 | 0% |
| Polk | X | | | | 55.0 | 9336 | 170 | 1447 | 15% | | | | 0 | 0% |
| Pope | | | | | 20.0 | 2500 | 125 | 228 | 9% | | | | 0 | 0% |
| Ramsey | | X | | | 4.0 | 700 | 175 | 700 | 100% | 700 | | | 700 | 100% |
| Red Lake | | | | | 12.0 | 1473 | 123 | 474 | 32% | | | | 0 | 0% |
| Redwood | | | | | 24.0 | 2836 | 118 | 850 | 30% | | | | 0 | 0% |
| Renville | | | | | 27.0 | 3074 | 114 | 883 | 29% | | | | 0 | 0% |
| Rice | X | | | | 15.0 | 1720 | 115 | 1560 | 91% | 250 | 1368 | | 1618 | 94% |
| Rock | X | | X | | 13.0 | 1578 | 121 | 643 | 41% | 483 | | | 483 | 31% |
| Roseau | X | | | | 45.0 | 4957 | 110 | 1133 | 23% | | | | 0 | 0% |
| Scott | X | X | | | 12.0 | 1400 | 117 | 982 | 70% | | 1180 | | 1180 | 84% |
| Sherburne | X | | | | 12.0 | 1625 | 135 | 1425 | 88% | 1425 | | | 1425 | 88% |
| Sibley | | | | | 16.5 | 2825 | 171 | 2034 | 72% | | 2034 | | 2034 | 72% |
| St. Louis | X | | | | 193.0 | 26,000 | 135 | 10,100 | 39% | | 5000 | 2800 | 7800 | 30% |
| Stearns | | X | | | 38.0 | 5100 | 134 | 4890 | 96% | | 4790 | 100 | 4890 | 96% |
| Steele | X | | | | 12.0 | 1390 | 116 | 1184 | 85% | | 909 | | 909 | 65% |
| Stevens | X | | | | 16.0 | 2021 | 126 | 320 | 16% | | 1052 | | 1052 | 52% |
| Swift | | | | | 21.0 | 2524 | 120 | 533 | 21% | | | | 0 | 0% |
| Todd | | | | | 28.0 | 3352 | 120 | 1637 | 49% | 1260 | | | 1260 | 38% |
| Traverse | | | | | 19.0 | 1824 | 96 | 244 | 13% | | | | 0 | 0% |
| Wabasha | | X | | | 17.0 | 1730 | 102 | 1569 | 91% | | 1569 | | 1569 | 91% |
| Wadena | | | | | 16.0 | 1393 | 125 | 617 | 31% | | | | 0 | 0% |
| Waseca | | | | | 12.0 | 1440 | 120 | 150 | 10% | | | | 0 | 0% |
| Washington | | X | | | 11.0 | 1525 | 139 | 1108 | 73% | | 1500 | | 1500 | 98% |
| Watonwan | x | | | | 12.0 | 1368 | 114 | 1176 | 86% | 205 | 665 | | 870 | 64% |
| Wilkin | | | | | 21.0 | 2561 | 122 | 2029 | 79% | | | | 0 | 0% |
| Winona | X | | | | 17.0 | 2009 | 118 | 1716 | 85% | 1229 | | | 1229 | 61% |
| Wright | | X | | | 18.0 | 2550 | 142 | 2550 | 100% | | 2550 | | 2550 | 100% |
| Yellow Medicine | | | | | 21.0 | 2468 | 118 | 812 | 33% | | | | 0 | 0% |
| Total Count | 33 | 21 | 2 | 1 | 87.0 | 87 | 87 | 87 | | 26 | 28 | 8 | 62 | |
| Total | | | | | 2348.9 | 307230 | | 148488 | 48.33% | 31344 | 48623 | 15297 | 95326 | 31% |
| Average | | | | | | | 131 | | | | | | | |
| | | | | | | | 2212 | | | | | | | |
| | | | | | 2775.0 | PV Count | 289,273 | | | | | | | |
| | | | | | | 34 | [illegible] | | | | | | | |

| COUNTY | Survey Work on Remon | Survey Work on Maint. | Survey Work on Both | No Survey Work | How much does county Pay for Corner Certs with Coor | How much does county Pay for corner Certs with no Coor | No Reimburse ment | PLS Work Funded by Surveyor | PLS Work Funded by Recorder | PLS Work Funded by Public Works | PLS Work Funded by Land and Minerals | PLS Work Funded by Right-of-way | PLS Work Funded by Private | PLS Work Funded by Others | Full-time Appointed | Part-time Appointed County Employee | Contract with Another Government Entity | Part-time Private Contracted Appointed | Part-time Private Contracted duties | Multiple firms | None |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aitkin | | | X | | | | | | | | X | X | | X | X | | | | | | |
| Anoka | | X | | | | | X | X | | | | | | | X | | | | | | |
| Becker | | | | | | | | | | | | | | | | | | | | | X |
| Beltrami | | | | X | | | X | | X | | | | | X | | | | X | | | |
| Benton | | | X | | | | X | | | X | | | | | | | | X | | | |
| Big Stone | | | | | | | | | | | | | | | | | | X | | | |
| Blue Earth | | | | X | | | X | | | | | | | | | | | | | | X |
| Brown | | | X | | | | X | | X | | | | | | | | | | | X | |
| Carlton | | | | X | | | X | | | | | | X | | | | | X | | | |
| Carver | | X | | | | | X | | | X | | | | | X | | | | | | |
| Cass | | | | X | | | X | | | X | X | | | | | | | X | | | |
| Chippewa | | | | | | | | | | | | | | | | | | | | | X |
| Chisago | | | | | | | | | | | | | | | X | | | | | | |
| Clay | | | | | | | X | | | | | | | | | | | X | | | |
| Clearwater | | | | | | | | | | | | | | | | | | X | | | |
| Cook | | | | | | | | | | | | | | | | | | X | | | |
| Cottonwood | | | | | | | | | | | | | | | | | | | | | X |
| Crow Wing | | | | | | | | | | | | | | | X | | | | | | |
| Dakota | | | X | | | | X | | | | | | | X | X | | | | | | |
| Dodge | | | X | | | | X | X | X | | | | | | | | X | | | | |
| Douglas | | | X | | | | X | | | X | | | | | X | | | | | | |
| Faribault | | | | x | | | x | | | X | | | | | | | | X | | | |
| Fillmore | | | X | | | $250 | | X | X | | | | | | X | | | | | | |
| Freeborn | | | | X | | | | | | | | | | | | | | X | | | |
| Goodhue | | | X | | | | X | X | | | | | | | X | | | | | | |
| Grant | X | | | | | | | | | X | | | | | | | X | | | | |
| Hennepin | | X | | | | | X | | X | | | | | | X | | | | | | |
| Houston | | | X | | $500 | 0% | | X | | | | | | | X | | | | | | |
| Hubbard | | | | | | | | | | | | | | | X | | | | | | |
| Isanti | | | X | | $200 | $200 | | X | | | | | | | | | | X | | | |
| Itasca | | | X | | | | X | X | | | | | | | X | | | | | | |
| Jackson | | | | | | | | | | | | | | | | | | | | | X |
| Kanabec | | | | | | | | | | | | | | | | | | X | | | |
| Kandiyohi | | | X | | | | X | X | | X | | | | | | | | X | | | |
| Kittson | | | | | | | X | | | | | | X | | | | | X | | | |
| Koochiching | | | | | | | | | | | | | | | | | | X | | | |
| Lac Qui Parle | | | | | | | | | | | | | | | | | | | | | X |
| Lake | | | | | | | | | | | | | | | | | | | | | X |
| Lake of the Woods | | | X | | $300 | | | | | X | | X | | | | | | X | | | |
| Le Sueur | | | | | | | | | | | | | | | | | | X | | | |
| Lincoln | | | | X | | | X | | | | | | | | | | | | | | X |
| Lyon | | | | | | | | | | | | | | | | | | X | | | |
| Mahnomen | | | | | | | | | | | | | | | | | | | | | X |
| Marshall | | | | | | | | | | | | | | | | | | X | | | |
| Martin | | | | | | | x | | | | | | | | | | | X | | | |
| McLeod | | | | | | | | | | | | | | | | | | X | | | |
| Meeker | | | X | | | | X | | X | | | | | | | | | X | | | |
| Mille Lacs | | | X | | | | X | X | | | | | | | X | | | | | | |
| Morrison | | | | | | | | | | | | | | | | | | X | | | |
| Mower | | | | | | | X | | | | | | | | | | | | | | X |
| Murray | | | | | | | | | | | | | | | | | | | | | X |
| Nicollet | X | X | | | $1,500 | | X | | | X | | | | X | | | | X | | | |
| Nobles | | | | X | | | X | | | | | | | | | | | | | | X |
| Norman | | | | | | | | | | | | | | | | | | | | | X |
| Olmsted | | X | | | | | X | X | | | | | | | X | | | | | | |
| Otter Tail | | | | X | | | X | | | | | | | | | | | | | | X |
| Pennington | | | | | | | | | | | | | | | | | | | | | X |
| Pine | | | X | | $350 | $200 | | | | X | | | | | X | | | | | | |
| Pipestone | | | | X | | | X | | | | | | | | | | | | | | X |
| Polk | X | | | | | | X | | X | | X | | | | | | | X | X | | |
| Pope | | | | | | | | | | | | | | | | | | X | | | |
| Ramsey | | X | | | | | X | X | | X | | X | | | X | | | | | | |
| Red Lake | | | | | | | | | | | | | | | | | | | | | X |
| Redwood | | | | | | | | | | | | | | | | | | | | | X |
| Renville | | | | | | | | | | | | | | | | | | | | | X |
| Rice | | X | | | | | X | X | X | | | | | | X | | | | | | |
| Rock | | | | | | | | | | | | | | | | | | | | | X |
| Roseau | | | | | | | | | | | | | | | | | | X | | | |
| Scott | | | X | | | | X | X | | | | | | | X | | | | | | |
| Sherburne | | X | | | | | X | X | | | | | | | X | | | | | | |
| Sibley | | | | | | | | | | | | | | | | | | X | | | |
| St. Louis | | | X | | $400 | $150 | $2,000 | X | | X | X | | | | X | | | | | | |
| Stearns | | | x | | | | X | X | | | | | | | X | | | | | | |
| Steele | | | | | | | | | | | | | | | | | | X | | | |
| Stevens | | | | | | | | | | | | | | | | | | X | | | |
| Swift | | | | | | | | | | | | | | | | | | | | | X |
| Todd | | | | | | | | | | | | | | | | | | X | | | |
| Traverse | | | | | | | | | | | | | | | | | | | | | X |
| Wabasha | X | | | | $500 | | | X | | | | | | | | | | X | | | |
| Wadena | | | | | | | | | | | | | | | | | | X | | | |
| Waseca | | | | | | | | | | | | | | | | | | | | | X |
| Washington | | X | | | | | X | X | | | | | | | X | | | | | | |
| Watonwan | | | | | | $80 | | | | | | | | | | | | | | | X |
| Wilkin | | | | | | | | | | | | | | | | | | | | | X |
| Winona | X | | | | $400 | | | | | X | | | | | | | | X | | | |
| Wright | | | X | | | | | X | | | | | | | X | | | | | | |
| Yellow Medicine | | | | | | | | | | | | | | | | | | | | | X |
| Total Count | 5 | 9 | 20 | 10 | 8 | 6 | 36 | 19 | 8 | 13 | 4 | 3 | 2 | 4 | 24 | 0 | 2 | 34 | 1 | 1 | 26 |




Number of PLSS corners in each county

# How many Corners are Certified in your County?




Percentage of corners certified in each county

# County PLSS Percentage

| Number | COUNTY | Population (2010) | Area (Sq. Miles) Wikipedia | Density (people per square mile) | Number of PLS Corners | Number of Certified PLS Corners | Percentage |
|---|---|---|---|---|---|---|---|
| 68 | Renville | 15,730 | 983 | 16.0 | 3074 | 883 | 29% |
| 69 | Nobles | 21,378 | 715 | 29.9 | 2307 | 654 | 28% |
| 70 | Cottonwood | 11,687 | 640 | 18.3 | 2165 | 608 | 28% |
| 71 | Clearwater | 8,695 | 995 | 8.7 | 7253 | 1900 | 26% |
| 72 | Otter Tail | 57,303 | 1,980 | 28.9 | 8458 | 2077 | 25% |
| 73 | Roseau | 16,201 | 1,676 | 9.7 | 4957 | 1133 | 23% |
| 74 | Jackson | 10,266 | 702 | 14.6 | 2313 | 496 | 21% |
| 75 | Grant | 6,018 | 546 | 11.0 | 2120 | 452 | 21% |
| 76 | Swift | 9,783 | 744 | 13.1 | 2524 | 533 | 21% |
| 77 | Kittson | 4,552 | 1,097 | 4.1 | 3556 | 671 | 19% |
| 78 | Lake of the Woods | 4,045 | 1,297 | 3.1 | 5350 | 990 | 19% |
| 79 | Lake | 10,866 | 2,099 | 5.2 | 7500 | 1250 | 17% |
| 80 | Stevens | 9,726 | 562 | 17.3 | 2021 | 320 | 16% |
| 81 | Polk | 31,600 | 1,970 | 16.0 | 9336 | 1447 | 15% |
| 82 | Big Stone | 5,269 | 497 | 10.6 | 1820 | 259 | 14% |
| 83 | Traverse | 3,558 | 574 | 6.2 | 1823 | 244 | 13% |
| 84 | Norman | 6,852 | 876 | 7.8 | 2876 | 343 | 12% |
| 85 | Waseca | 19,136 | 423 | 45.2 | 1440 | 150 | 10% |
| 86 | Pope | 10,995 | 670 | 16.4 | 2500 | 228 | 9% |
| 87 | Mahnomen | 5,413 | 556 | 9.7 | 6971 | 350 | 5% |
|  | Total | 5,304,497 | 79,626 | 129.2 | 309468 | 148949 | 48% |

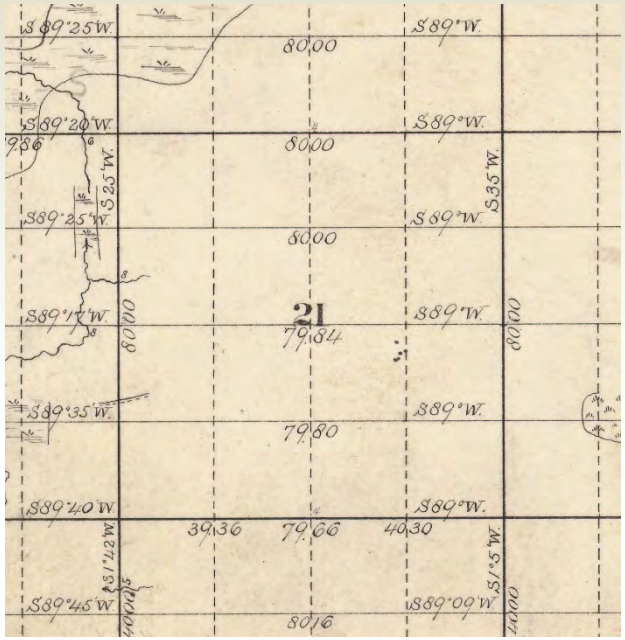
# What do these numbers tell us?

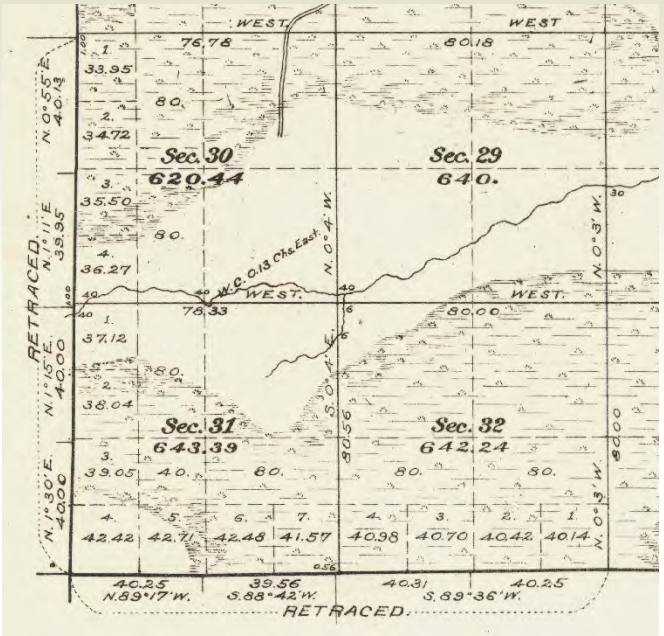
- We have +/-300,000 PLS corners in the State.
- Over the last 160 years we have certified 149,000 PLS corners.
- We have more than 50% of the PLS corners to Remonument.
- Finish by 2178
- At $1000/Corner that would give us a price tag of

- $150,000,000.00.

# Problem with the Corner Numbers

- Total Cost and Cost per corner
- Most numbers are just rough estimates
- Common County Boundary Corners
- Some counties don't count meander corners
- 3-mile method (8 to 25 corners per Section)
- Double Range and Township corners



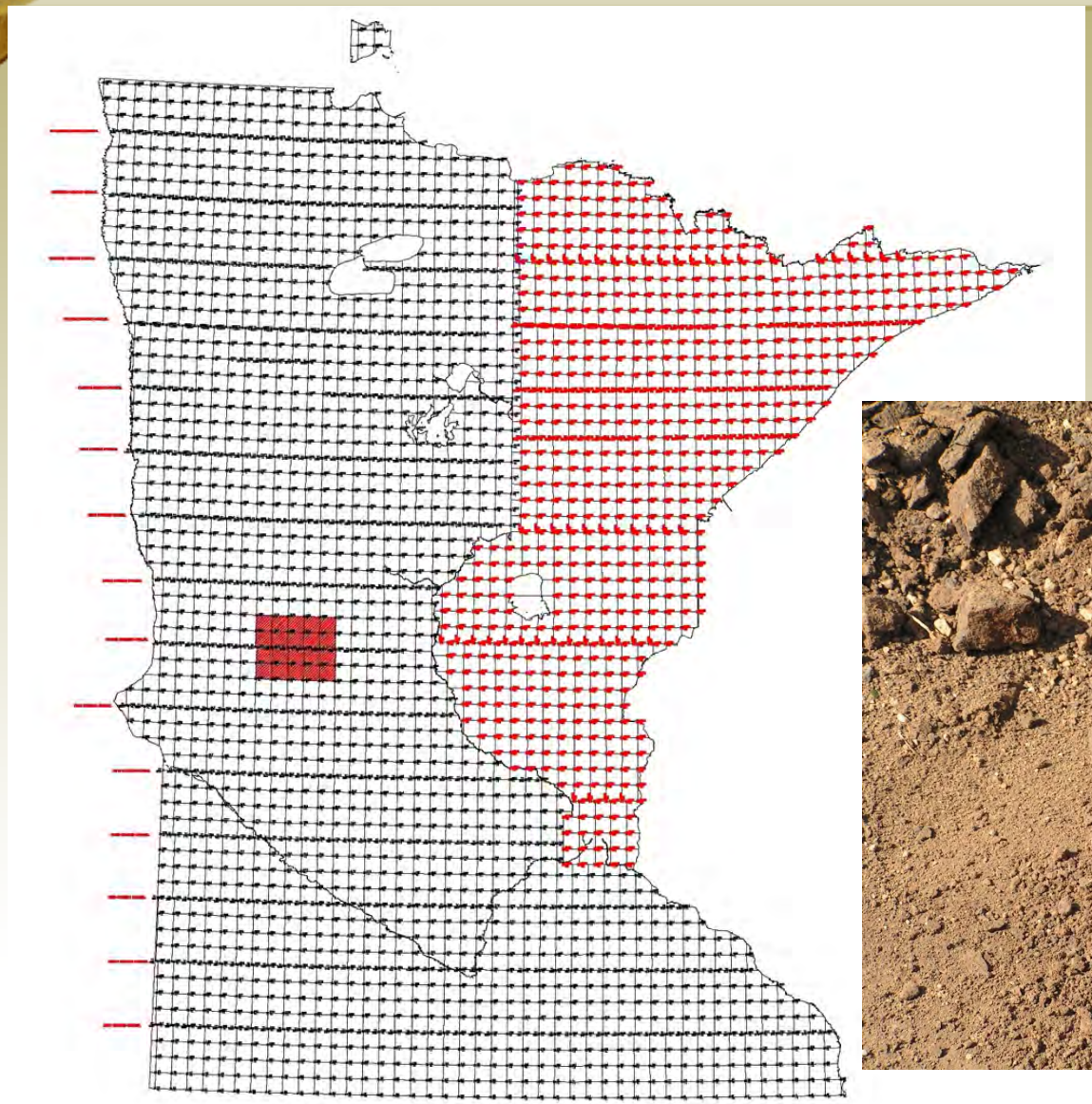
# Problems with Remonumentation the State

- Number of Corners
- Evidence is disappearing every day!
  - Fence lines disappearing
  - Roads regraded
  - Erosion
  - Survey Records
- Multi monument corners
- Questionable corner certs
- Some counties are <u>done</u>
- Some are working on them
  - Don't break what isn't broke!
- Some are doing nothing
- MONEY
  - Feds-State-Counties

# Why do we need to Remonument Minnesota

- Original Monuments gone
- Increased risk of Property disputes
- Inequitable Taxation
- Disagreements about resource rights
- Confusion over Easement location
- Unnecessary expenditures by citizens and local governments
- Foundation for all property descriptions in Minnesota
- Develop high accuracy Geo-referenced Parcel Map (GIS apps need higher accuracy)

# How do we Remonument the State of Minnesota?



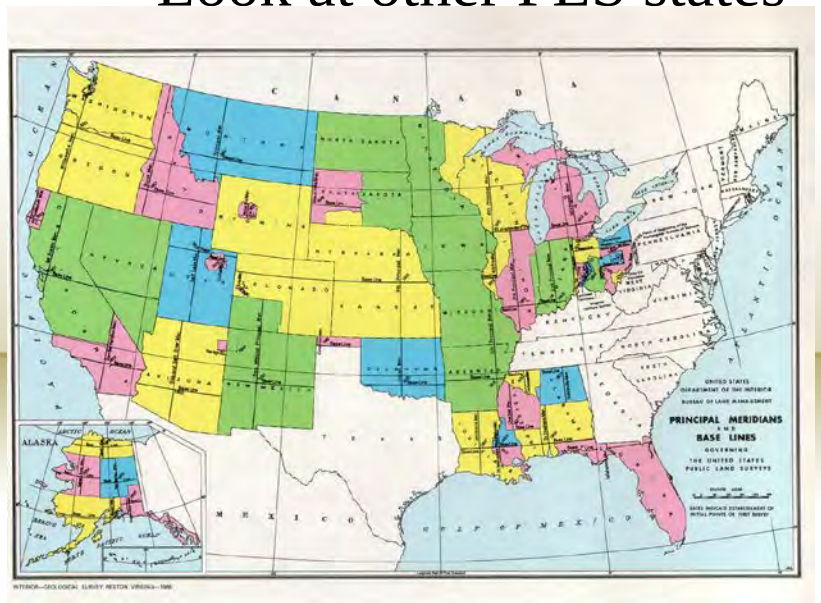
How do we pay for this?

Who is going to run this?

Full time/ Part time County Surveyor

Share County Surveyor between counties

Look at other PLS states



# Proposed 1977 Minnesota Legislation

A bill for an act

relating to land surveying; authorizing counties to contract for the preservation and remonumentation of the United States public land survey; appropriating money; amending Minnesota Statutes 1978, Sections 287.21, Subdivision 2; 287.25; 287.28; 287.29, Subdivision 1, 389.011, Subdivision 2; and Chapter 287, by adding a section.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. [LEGISLATIVE FINDINGS.] The legislature finds that it is in the public interest that the public records and the monuments established by the United States public land survey be perpetuated and preserved, and that in those instances where the monuments have been destroyed, obliterated, or obscured to an extent that they are difficult to locate, that they be reestablished with permanent monuments and their positions perpetuated. The legislature further finds that the preservation of the records and monuments and remonumentation is of statewide significance.

Sec. 2. [DEFINITION.] Unless the language or context clearly indicates that a different meaning is intended, as

# PLS State Solutions

| State | Principal Meridians | PLS Payment Program | Fees per Document | Recorder Fees used for PLS | Recorder fees used for other things | State Statute for PLS Payment | PLS Payment Name | State Statute requiring to file PLS Corner Certificates | Name |
|---|---|---|---|---|---|---|---|---|---|
| Alabama | St. Stephenson and Huntsville | | | | | | | 35-2-20 | Created division of Land surveys (State of Alabama Ownes Section corner Monuments) |
| Alaska | Multiple | | | | | | | 34-65-040 | Record of Monument |
| Arizona | Gila and Salt River | | | | | 33-101 | Petition county board to establish | 33-103 and 33-106 | Remon of PLS corners |
| Arkansas | 5 | | | | | | | 15-21-101, 15-21-206 | Restoration of General Land Office corners |
| California | San Bernardino, Mt Diablo and Humboldt | Yes | Max $10 County Board Approves | Yes | No | Gov, title 3, Div 2, Part 3, Chapter 11, 27584, 27585 | Survey Monument Preservation Fund | BPC, Div 3, Chapter 15, Article 5, 8773 through 8773.4 | Survey Practice |
| Colorado | 6, New Mexico | | | | | 6/4/2002 | Colorado Monument Records App | | |
| Florida | Tallahassee | | | | | | | Chapter 472 | Land Surveying and Mapping |
| Idaho | Boise | | | | | | | 54-12 | |
| Illinois | 3 and 4 | | | | | | | 225-330 | Land Surveyor Act |
| Indiana | 2 | | | | | 36-2-12-11 | County Surveyor Corner Perpetuation Funds | | County Surveyor checks 5% of all monuments every year |
| Iowa | 5 | | | | | | | 355.11 | Survey Standards |
| Kansas | 6 | | | | | | State land office | 58-2011 | Land Surveys |
| Louisiana | Louisiana | | | | | | | 50:121 | Register of the State Land Office |
| Michigan | Michigan | | | | | Chapter 54.261-54.279 | Office of Land Survey State Survey and Remonumnetation Program | 54.251 54.253 | Land Corner Recordation General Rules |
| Minnesota | 4 and 5 | No | $10.00 | Yes | Yes | 357.18 | County Recorder Fees can be used for PLS | Chapter 381 | PLS Standards |
| Mississippi | Multiple | | | | | | | 19-27-15 | Reestablishing original marks |
| Missouri | 5 | | | | | | | Title 2 CSR 90-61.010 | Dept of Ag houseing statewide corner certs |
| Montana | Principal | | | | | | | 24.183.1002 | Remon and Rehab of PLS corner and monuments |
| Nebraska | 6 | | | | | | | 23-1908 | State Surveyor's Office |
| Nevada | Mt Diablo | | | | | | | Chapter 329 | Corner Perpetuation and Recording Law |
| New Mexico | New Mexico | | | | | ? | | | |
| North Dakota | 5 | | | | | | | 47-20.1 | Survey and corner Recordation Act |
| Ohio | Multiple | | | | | ? | Early PLS state | | |
| Oklahoma | Indian and Cimarron | | | | | | | title 65, okl. Sup 1978, 3-116 through 3-123 | file with Oklahoma Dept of Libraries, Archives and Records Division within 90 of survey |
| Oregon | Willamette | Yes | $10.00 Max | Yes | No | 203.148 | Public Land Corner Preservation Fund | | |
| South Dakota | 5, 6 and Black Hills | | | | | | | 20:38:37:05 | file certified land corner records |
| Utah | Salt Lake | Yes | County establish fee | Yes | No | 17-23-19 | Public Land Corner Preservation Fund | | |
| Washington | Willamette | | $64.00 to PLSO | | | 332-150-030 | Monument Preservation | Application to remove or destroy a survey | |
| Wisconsin | 4 | Yes | $7.00/document | Yes | Yes | 59.72(3)(b) | Land Information Fund | | |
| Wyoming | 6 and Wind River | | | | | | | 33-29-901 | Corner perpetuation and filling act |

# Michigan

Established the Office of Land Survey
State Survey and Remonumentation in 1990.
$4.00 per document recording fee for all counties put in one pot.
Generate 5-10 Million dollars a year.
Set over 8000 corners in 2016.
Each County submits a plan for grants for remonumentation.
http://www.michigan.gov/lara/0,4601,7-154-10575_17394_17565---,00.html

TABLE A

| Grant Year | Remonumentation Fee (in $) | FY Deposits into Remonumentation Fund (in Millions of $) | Funds Appropriated for Remonumentation Grants (in Millions of $) | Funds Expended for Remonumentation Grants (in Millions of $) |
|---|---|---|---|---|
| **1991** | $2.00 | $1.29 | N/A | N/A |
| **1992** | $2.00 | $3.42 | N/A | N/A |
| **1993** | $2.00 | $3.87 | $4.00 | $4.00 |
| **1994** | $2.00 | $4.26 | $5.00 | $5.00 |
| **1995** | $2.00 | $3.30 | $3.00 | $3.00 |
| **1996** | $2.00 | $3.72 | $4.00 | $4.00 |
| **1997** | $2.00 | $3.83 | $4.00 | $4.00 |
| **1998** | $2.00 | $4.78 | $4.00 | $4.00 |
| **1999** | $2.00 | $5.48 | $4.00 | $4.00 |
| **2000** | $2.00 | $5.10 | $4.50 | $4.50 |
| **2001** | $2.00 | $4.78 | $5.00 | $5.00 |
| **2002** | $2.00 | $6.50 | $6.00 | $5.91 |
| **2003** | $4.00 | $8.67 | $6.00 | $5.75 |
| **2004** | $4.00 | $14.49 | $10.00 | $9.69 |
| **2005** | $4.00 | $10.71 | $10.00 | $9.60 |
| **2006** | $4.00 | $10.02 | $10.00 | $9.71 |
| **2007** | $4.00 | $8.47 | $10.00 | $9.79 |
| **2008** | $4.00 | $6.95 | $7.50 | $7.29 |
| **2009** | $4.00 | $6.08 | $4.00 | $3.82 |
| **2010** | $4.00 | $5.83 | $5.30 | $5.00 |
| **2011** | $4.00 | $5.92 | $5.30 | $4.85 |
| **2012** | $4.00 | $6.45 | $5.30 | $5.21 |
| **2013** | $4.00 | $7.85 | $5.30 | $5.13 |
| **2014** | $4.00 | $6.47 | $7.30 | $7.13 |
| **2015** | $4.00 | $6.78 | $7.30 | $7.12 |
| **2016** | $4.00 | $6.63 | $5.13 | $5.06 |
| **Total** | | $161.65 | $141.93 | $138.56 |

| County | Total Remon Corners In County | Remon Corners Completed thru 2016 Grant Cycle | Percent Remon Corners Completed thru 2016 Grant Cycle | Average Spent per Corner Completed | Total State Grants Awarded thru 2016 Grant Cycle | Total State Grants Earned thru 2016 Grant Cycle |
|---|---|---|---|---|---|---|
| Monroe | 2,362 | 1,467 | 62.11% | $1,038.32 | $1,564,471.67 | $1,523,218.85 |
| Montcalm | 2,632 | 2,115 | 80.36% | $778.46 | $1,650,409.73 | $1,646,447.12 |
| Montmorency | 2,054 | 1,367 | 66.55% | $596.78 | $819,799.20 | $815,794.40 |
| Muskegon | 2,012 | 2,012 | 100.00% | $804.62 | $1,712,682.11 | $1,618,897.33 |
| Newaygo | 3,368 | 2,842 | 84.38% | $613.80 | $1,744,455.71 | $1,744,405.54 |
| Oakland | 4,406 | 4,334 | 98.37% | $2,263.04 | $9,908,765.18 | $9,808,015.13 |
| Oceana | 2,025 | 1,637 | 80.84% | $544.03 | $891,109.85 | $890,578.30 |
| Ogemaw | 1,986 | 949 | 47.78% | $954.28 | $910,292.87 | $905,613.26 |
| Ontonagon | 6,159 | 3,028 | 49.16% | $538.74 | $1,687,072.33 | $1,631,310.59 |
| Osceola | 2,180 | 2,091 | 95.92% | $492.48 | $1,029,828.85 | $1,029,774.23 |
| Oscoda | 2,240 | 1,691 | 75.49% | $473.79 | $801,177.03 | $801,177.03 |
| Otsego | 2,073 | 1,030 | 49.69% | $748.76 | $833,483.25 | $771,222.29 |
| Ottawa | 2,186 | 2,245 | 102.70% | $1,024.64 | $2,481,697.81 | $2,300,318.87 |
| Presque Isle | 2,424 | 1,424 | 58.75% | $665.13 | $947,141.68 | $947,140.95 |
| Roscommon | 2,155 | 1,618 | 75.08% | $745.81 | $1,210,621.55 | $1,206,725.59 |
| Saginaw | 3,080 | 1,846 | 59.94% | $1,054.56 | $2,035,819.88 | $1,946,726.40 |
| Sanilac | 3,480 | 2,075 | 59.63% | $723.07 | $1,500,722.68 | $1,500,364.28 |
| Schoolcraft | 4,980 | 2,120 | 42.57% | $733.43 | $1,555,183.35 | $1,554,872.94 |
| Shiawassee | 1,838 | 1,590 | 86.51% | $866.05 | $1,377,833.77 | $1,377,021.46 |
| St. Clair | 2,753 | 1,491 | 54.16% | $1,554.70 | $2,325,976.09 | $2,318,056.88 |
| St. Joseph | 2,224 | 1,369 | 61.56% | $828.08 | $1,135,360.64 | $1,133,647.36 |
| Tuscola | 2,900 | 1,567 | 54.03% | $927.55 | $1,454,337.48 | $1,453,473.49 |
| Van Buren | 2,304 | 1,391 | 60.37% | $1,209.57 | $1,716,779.31 | $1,682,517.06 |
| Washtenaw | 2,722 | 2,178 | 80.01% | $1,290.85 | $2,853,498.20 | $2,811,473.08 |
| Wayne | 3,017 | 2,292 | 75.97% | $4,939.72 | $11,952,568.79 | $11,321,831.77 |
| Wexford | 2,144 | 1,357 | 63.29% | $689.14 | $935,226.94 | $935,156.77 |
| Total | 225,218 | 146,897 | | | $141,554,828.92 | $138,564,310.95 |
| Average | | | 67.38% | $932.08 | | |

# Oregon

Public Land Corner Preservation Fund
Voluntary Recording fee up to $10 a document for remonumentation in that county.

Smaller counties have tough time generating funds for Remonumentation.

# Wisconsin

Working on a Statewide Digital Parcel Database.

Funding comes from an $8.00 per document recording fees.

$151,000 base budget to each county

Wisconsin has 4 benchmarks the county has to meet before they can use money for <u>integration</u> of PLSS.

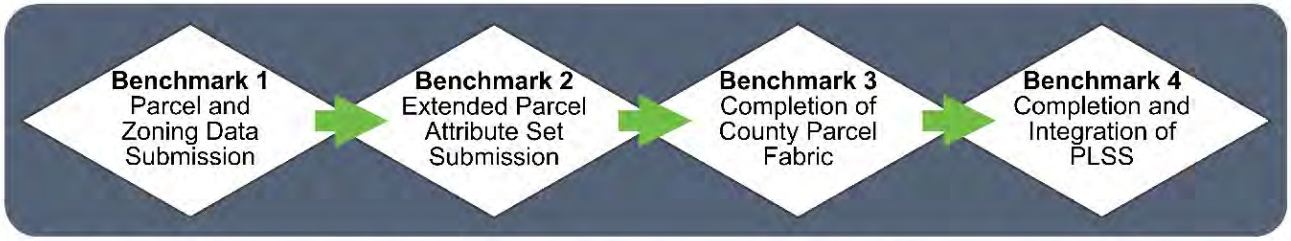
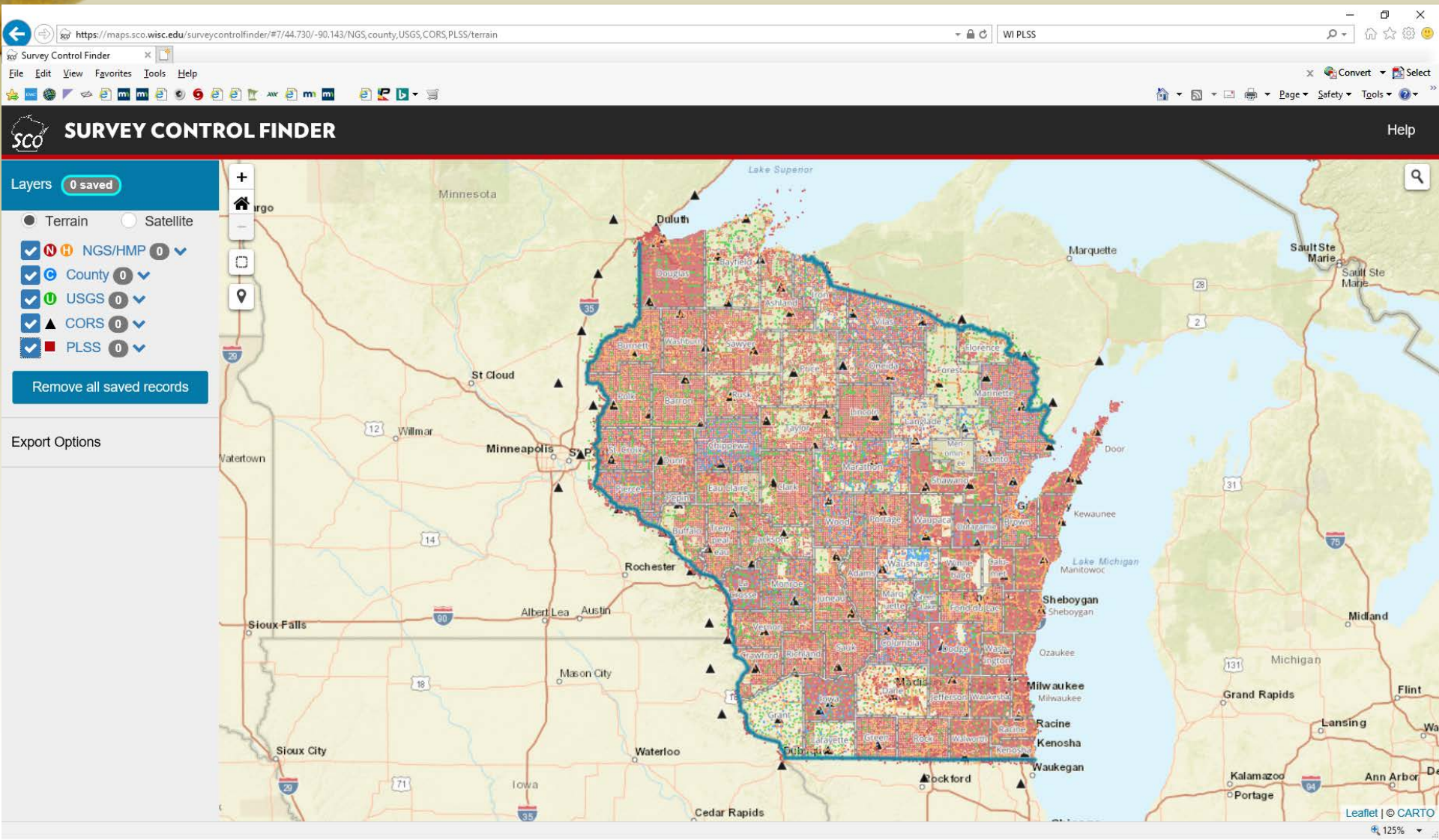



Figure 7. The four benchmarks for parcel dataset development from the 2016 WLIP grant application

# Wisconsin PLSS Finder




https://maps.sco.wisc.edu/surveycontrolfinder/#7/44.730/-90.143/PLSS,CORS,USGS,county,NGS/terrain

# Wisconsin

- Wisconsin Land Information Program (WLIP) strategic grants program.
- 72 counties in Wisconsin.
- 34 full, 27 Part-time, 11 No County Surveyor
- 200,000 Plus corners in the state

- Over 50 counties were either 80%-100% remonumented.
- 17 counties being 40%-80% complete.

- However, about 40 counties reported having between 60%-100% survey grade coordinates on their corners
- 14 counties only having 0%-20% survey grade coordinate values

# How do we Remonument All the PLSS Corners in Minnesota?

- Communicate with each county and affected organizations.
- MACS to develop guidelines for grant program
  - Model RFP
- Money to do work
  - Keep it fair for all counties
  - Help less populated counties
  - State/Federal money
  - Legacy Money
    - GLO Plats/Notes (350,000 pages)
  - Existing Recorder money
    - Maybe the easiest option to pursue?
    - $46/document, $10 to technology fund, $25.50 county general fund
    - $10.50/Document Recorder fee sent back to the state
    - 1 million+ documents recorded in Minnesota each year
  - County money

# Where do we start?

- MACS formed PLSS committee
- Pilot Projects
- Pilot Township Project
- Township corner project (2840 Corners, $2,840,000)
- Fulltime/Part-time County Surveyors
- Model RFP for county PLSS work.
- State-wide PLSS database

# Legacy Funds and Trust Funds

## Find projects near you

Search by city, zip or address for nearby projects

***Note:** Location data was recently added to the site. Projects will be added to the map as data is collected.*

## Allocations by Fund

**Based on FY 2010 - FY 2017 appropriations.** Learn more about the funds.

LEGACY FUND

**Arts & Cultural Heritage Fund**

About the fund

LEGACY FUND

**Clean Water Fund**

About the fund

LEGACY FUND

**Outdoor Heritage Fund**

About the fund

LEGACY FUND

**Parks & Trails Fund**

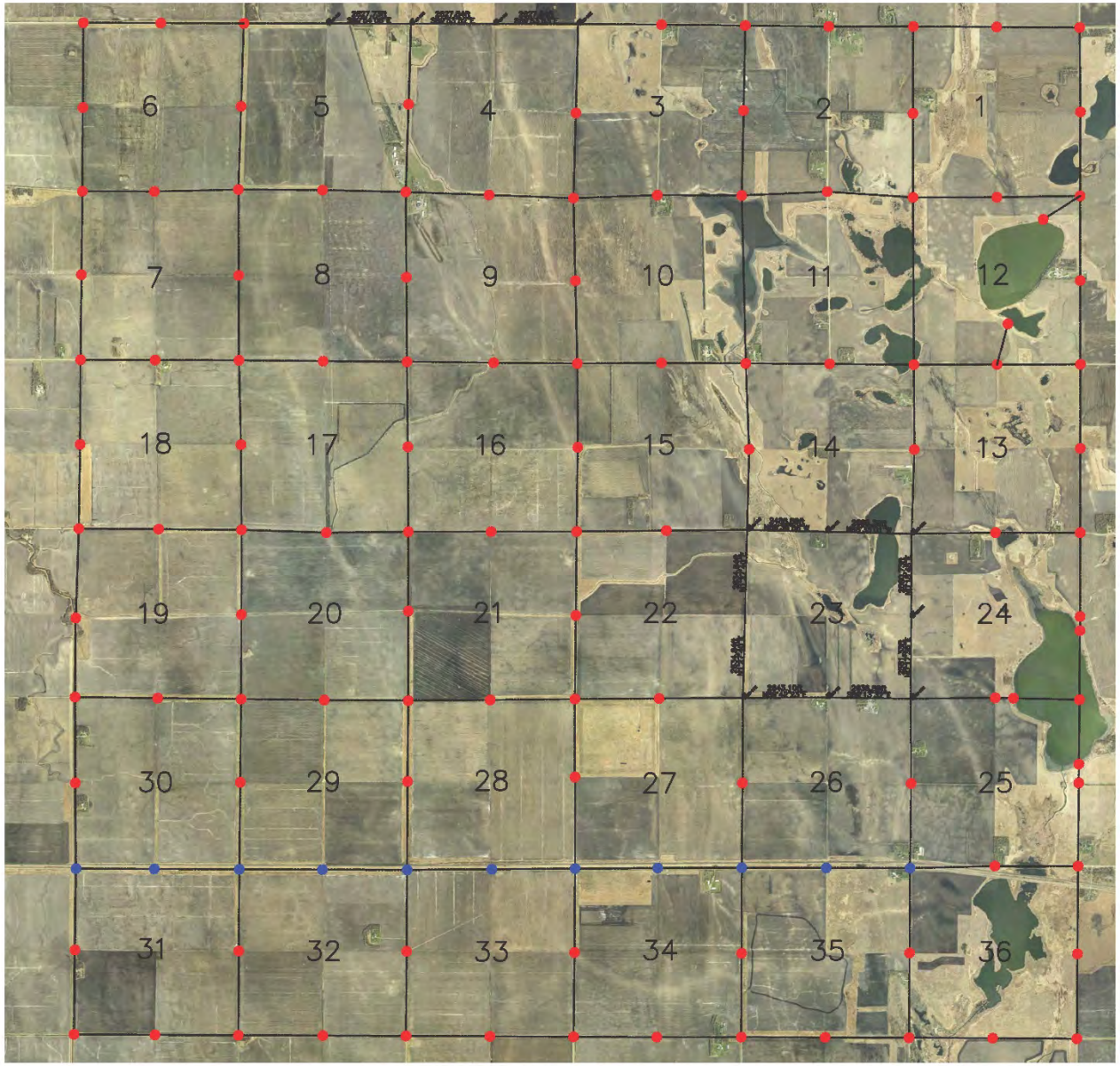
About the fund

TRUST FUND

**Environment & Natural Resources Trust Fund**

About the fund

# LCCMR Grant County Project




Grant County MN
Lawrence Township
T130N R44W

Red dots are corners that will be remonumented by this project

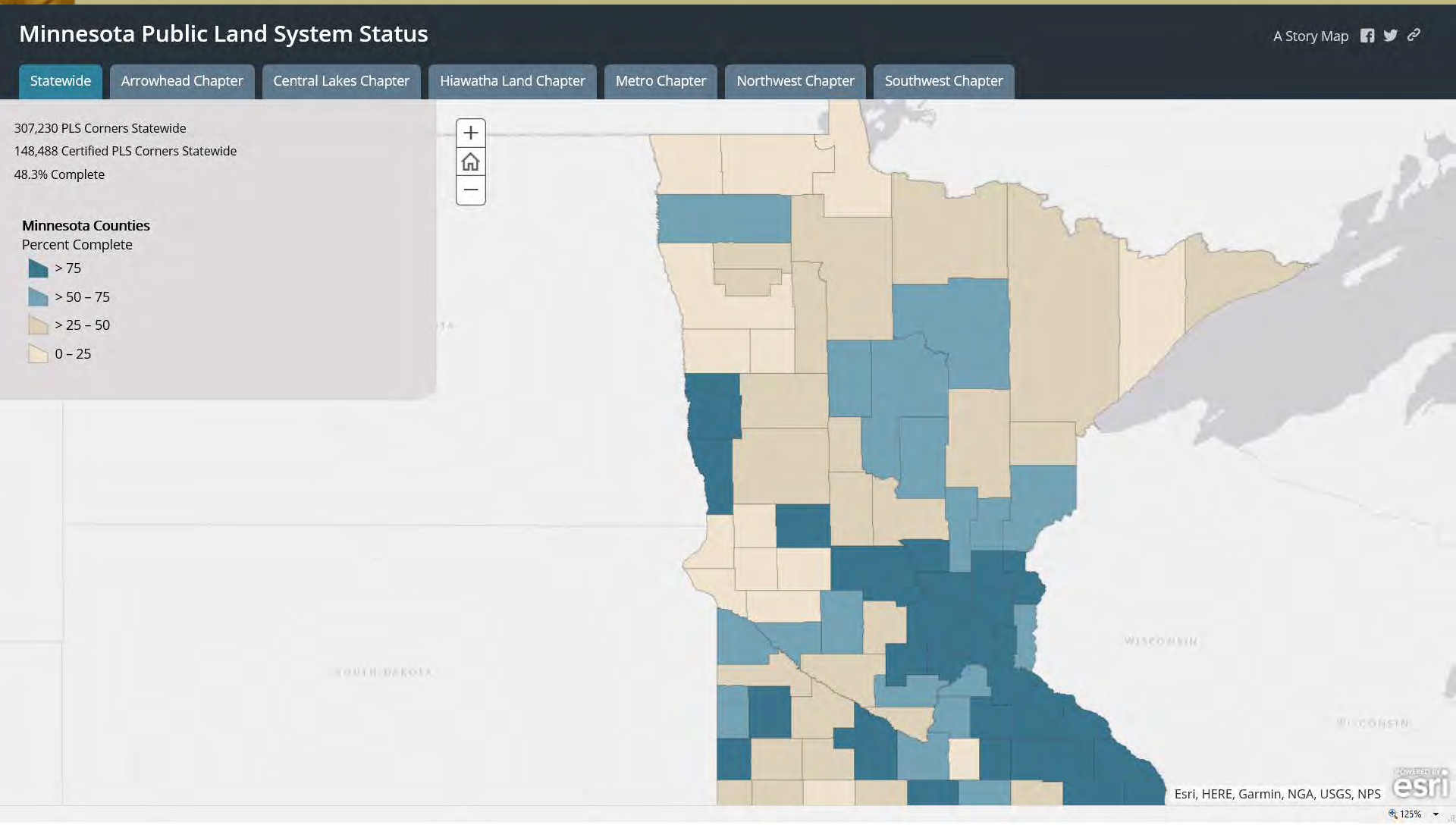
Blue Dots are corners that Mndot will remonument

No dots represent a corner that is certified already

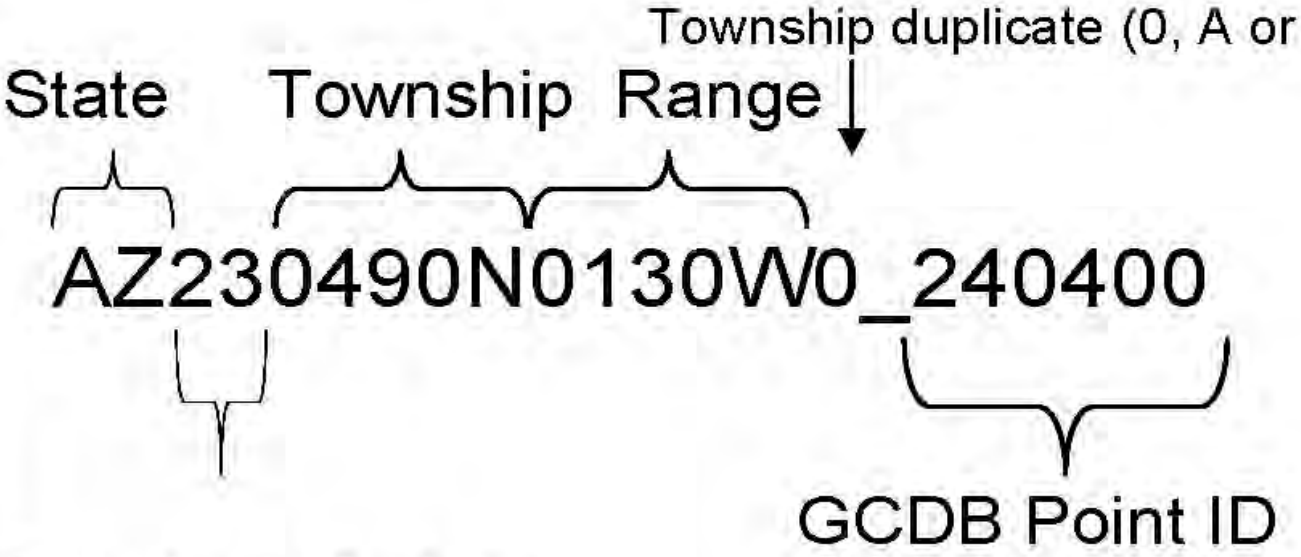
MACS
Established 1983
Minnesota Association
of County Surveyors

# Township Corner Pilot Project

# Minnesota PLSS Map

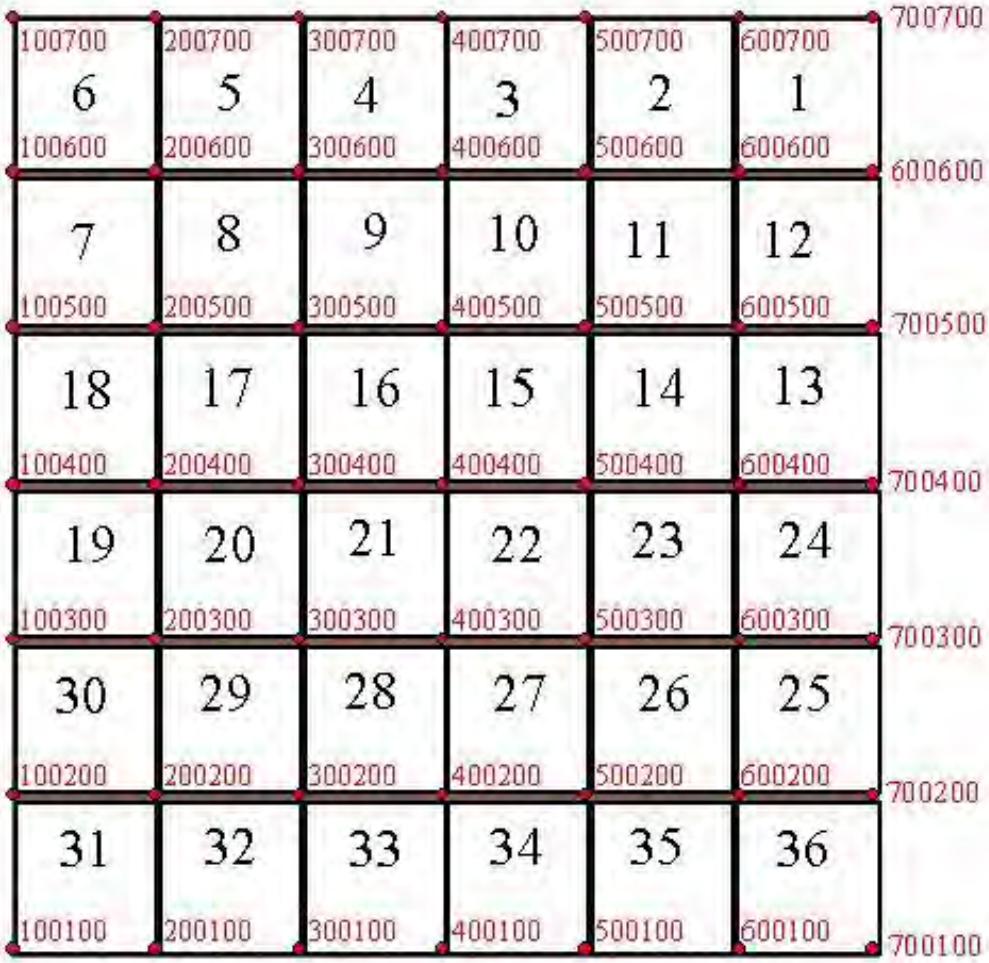



http://slcgis.maps.arcgis.com/apps/MapSeries/index.html?appid=2755f3c5c1d043198c069d95d4544f37




Township and Range ( 5 characters)

- 3 digits for Township or Range number
- 1 digit for fraction
  - 0 for no fraction, 1 for ¼ township, 2 for ½ township, 3 for ¾ township
- 1 letter for direction




Due to this naming convention, four adjacent townships will name the same corner four different ways (100100, 100700, 700700, 700100). Each corner number should have the exact same coordinate values because this is in fact the same corner.

The following picture shows an example of the point duplication at township corners and township lines where sections subdivisions are coincident.

# Problems to deal with

- MONEY - SUPPORT
- Communicating and Coordinating 87 counties
- Which corner Monuments are good.
- To dig or not to dig corners
  - Dig if there is any question of the corner position
- Maintain Existing Monuments
- Central Database for all Corner Certificates?
  - Coordinate System
  - Standard naming convention
  - Corner certificate scanning and indexing
- Any Volunteers for our PLSS Committee?

# Questions/Discussion

Thank You for listening!