Mapping Session

VBA Macros in ArcGIS?

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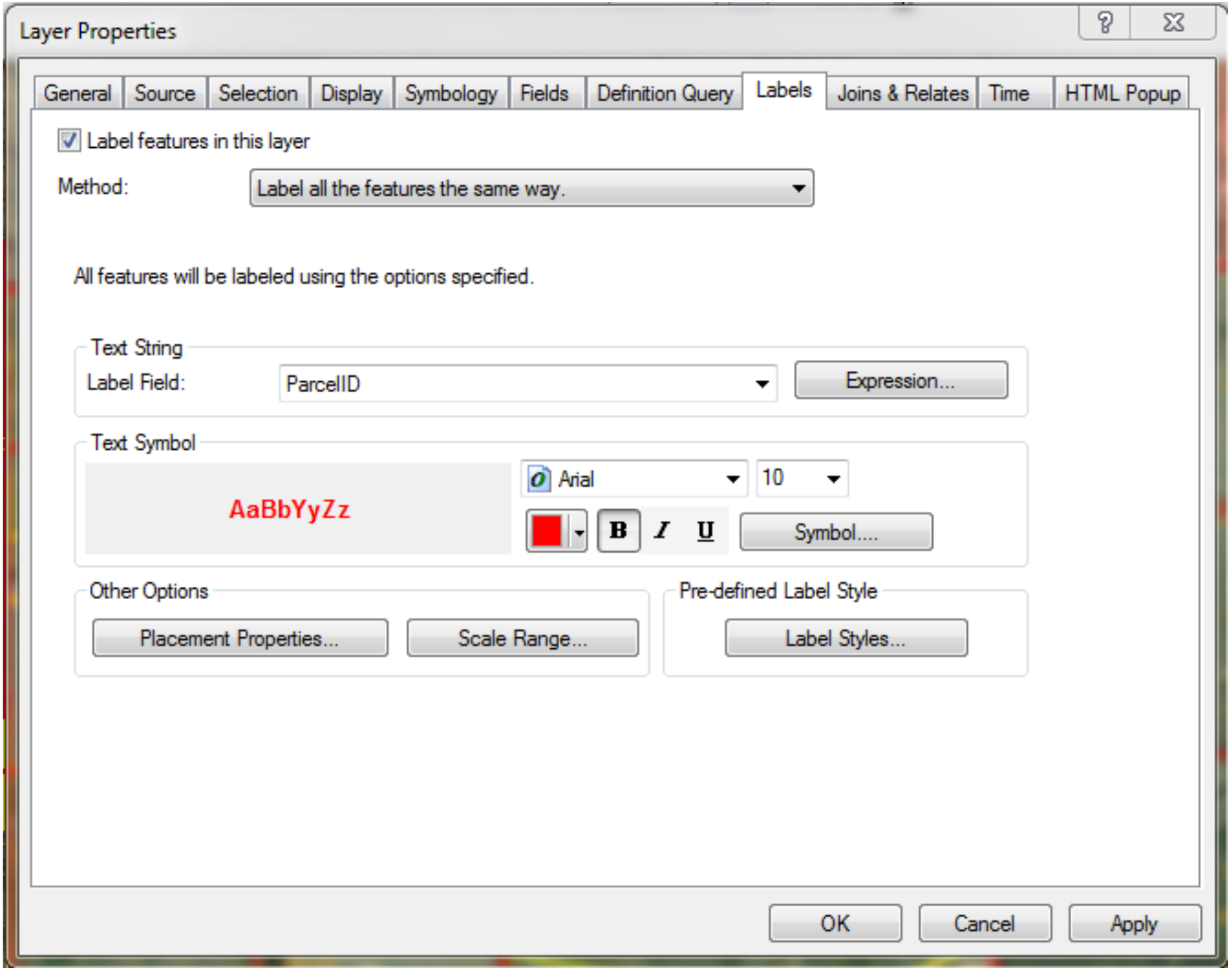
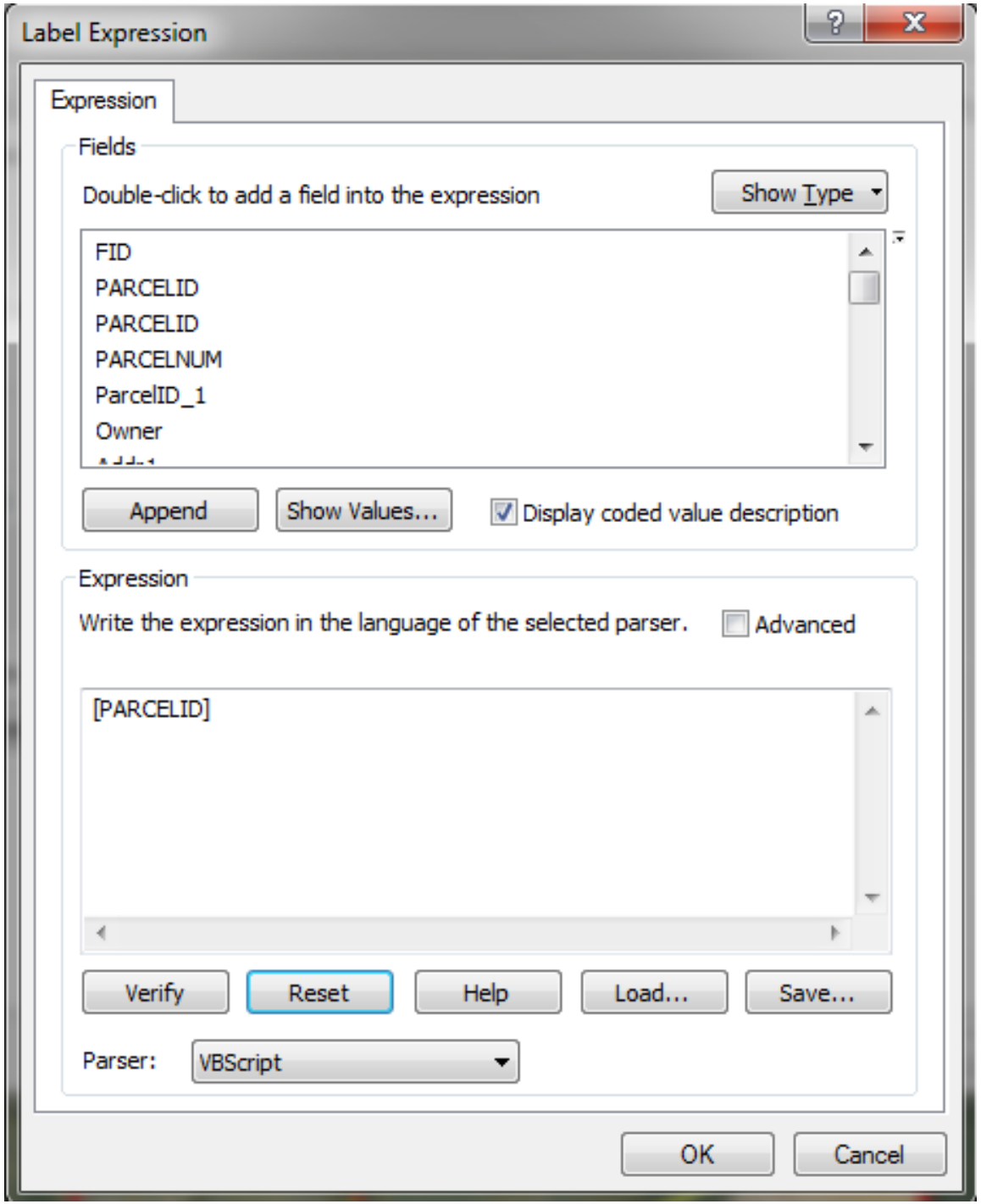
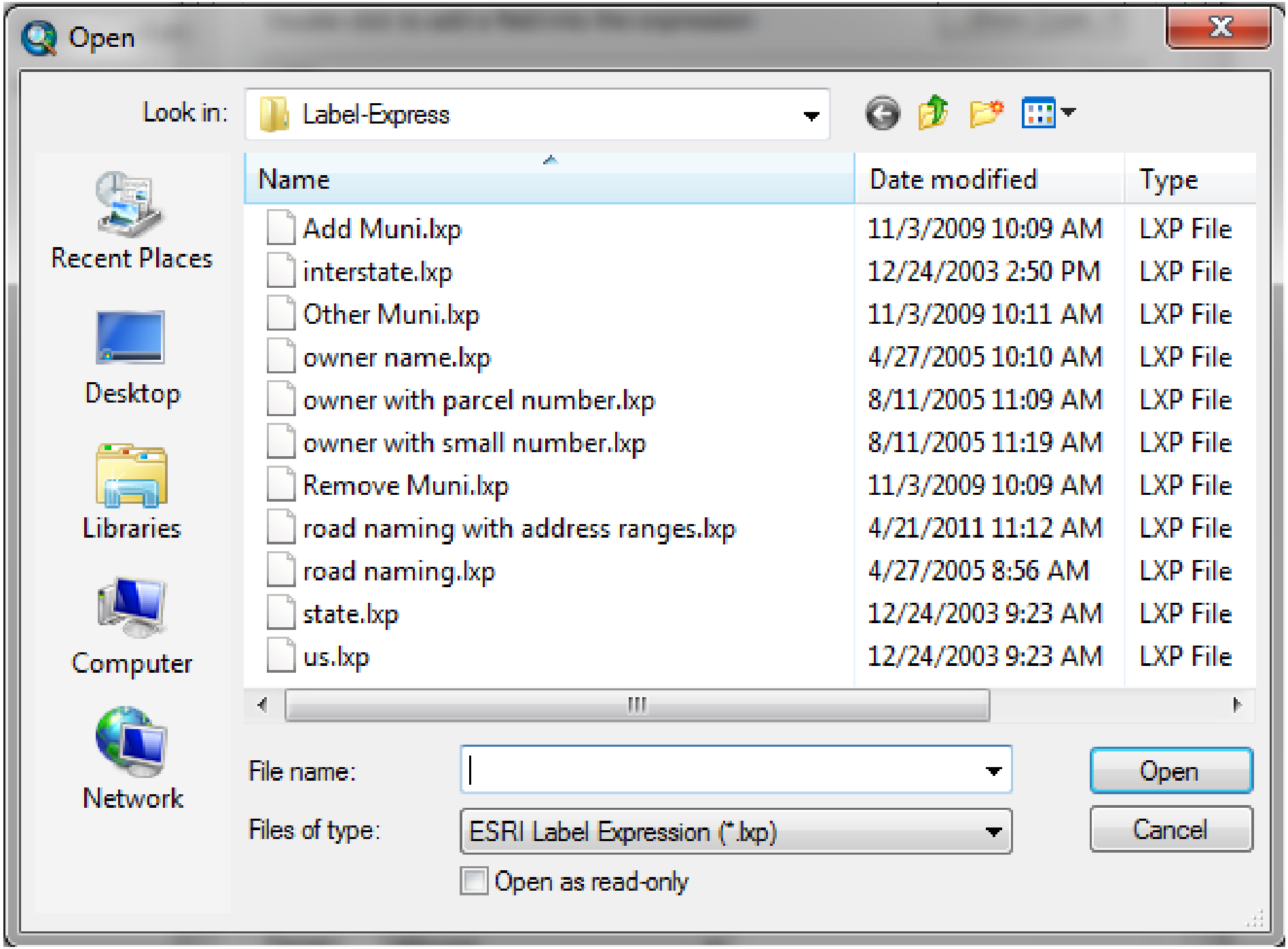
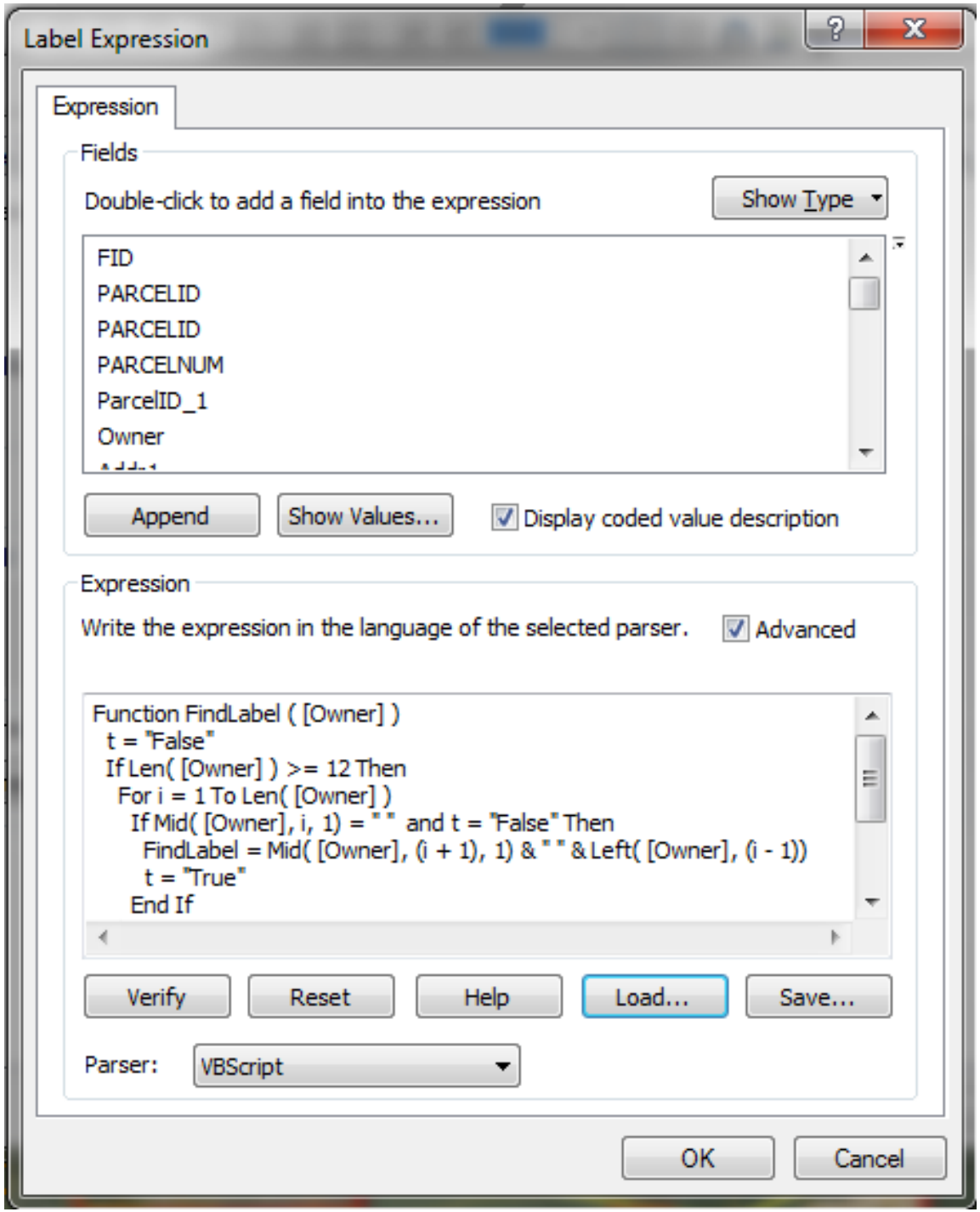
Using VBA in…

Labeling


Layer Properties
General
Source
Selection
Display
Symbology
Fields
Definition Query
Labels
Joins & Relates
Time
HTML Popup
Label features in this layer
Method:
Label all the features the same way.
All features will be labeled using the options specified.
Text String
Label Field:
ParcelID
Expression...
Text Symbol
AaBbYyZz
Arial
10
B
I
U
Symbol....
Other Options
Placement Properties...
Scale Range...
Pre-defined Label Style
Label Styles...
OK
Cancel
Apply


Label Expression
Expression
Fields
Double-click to add a field into the expression
Show Type
FID
PARCELID
PARCELID
PARCELNUM
ParcelID_1
Owner
Append
Show Values...
Display coded value description
Expression
Write the expression in the language of the selected parser.
Advanced
[PARCELID]
Verify
Reset
Help
Load...
Save...
Parser:
VBScript
OK
Cancel


Open
Look in:
Label-Express
Recent Places
Desktop
Libraries
Computer
Network
Name
Date modified
Type
Add Muni.lxp 11/3/2009 10:09 AM LXP File
interstate.lxp 12/24/2003 2:50 PM LXP File
Other Muni.lxp 11/3/2009 10:11 AM LXP File
owner name.lxp 4/27/2005 10:10 AM LXP File
owner with parcel number.lxp 8/11/2005 11:09 AM LXP File
owner with small number.lxp 8/11/2005 11:19 AM LXP File
Remove Muni.lxp 11/3/2009 10:09 AM LXP File
road naming with address ranges.lxp 4/21/2011 11:12 AM LXP File
road naming.lxp 4/27/2005 8:56 AM LXP File
state.lxp 12/24/2003 9:23 AM LXP File
us.lxp 12/24/2003 9:23 AM LXP File
File name:
Files of type:
ESRI Label Expression (*.lxp)
Open
Cancel
Open as read-only


Label Expression
Expression
Fields
Double-click to add a field into the expression
Show Type
FID
PARCELID
PARCELID
PARCELNUM
ParcelID_1
Owner
Append
Show Values...
Display coded value description
Expression
Write the expression in the language of the selected parser.
Advanced
Function FindLabel ([Owner])
t = "False"
If Len([Owner]) >= 12 Then
For i = 1 To Len([Owner])
If Mid([Owner], i, 1) = " " and t = "False" Then
FindLabel = Mid([Owner], (i + 1), 1) & " " & Left([Owner], (i - 1))
t = "True"
End If
Verify
Reset
Help
Load...
Save...
Parser:
VBScript
OK
Cancel

Labeling by 1st initial, last name:

```
Function FindLabel ( [Owner] )
 t = "False"
 If Len( [Owner] ) >= 12 Then
  For i = 1 To Len( [Owner] )
   If Mid( [Owner], i, 1) = " "  and t = "False" Then
    FindLabel = Mid( [Owner], (i + 1), 1) & " " & Left( [Owner], (i - 1))
    t = "True"
   End If
  Next
 Else
  FindLabel = [Owner]
 End If
End Function
```

The “Function FindLabel” command allows the user to create any type of label desired created from the data available for that layer. The command has to list, separated by commas, every field wanted for display just as it is listed in the “Fields” window above the “Expression” window with brackets on each end. (A cheat is to simply double-click on the fields, one at a time, and then to manually add the commas.) The function has to end with the “End Function” command.

Labeling by 1st initial, last name:

```
Function FindLabel ( [Owner] )
  t = "False"
  If Len( [Owner] ) >= 12 Then
    For i = 1 To Len( [Owner] )
      If Mid( [Owner], i, 1) = " "  and t = "False" Then
        FindLabel = Mid( [Owner], (i + 1), 1) & " " & Left( [Owner], (i - 1))
        t = "True"
      End If
    Next
  Else
    FindLabel = [Owner]
  End If
End Function
```

The t = “False” line creates a variable named “t” and sets it to “False”. We are going to use this variable to tell us the first occurrence of something.

The “If… Then… Else” command allows us to create a conditional statement for two courses of action. If the conditions are met… do something, if not… do something else. In this example, if the length (“Len” command) of the Owner field (“[Owner]”) is as long or longer “>=“ than 12 characters then do the 1st option, if not the 2nd option.

Labeling by 1st initial, last name:

```
Function FindLabel ( [Owner] )
  t = "False"
  If Len( [Owner] ) >= 12 Then
    For i = 1 To Len( [Owner] )
      If Mid( [Owner], i, 1) = " "  and t = "False" Then
        FindLabel = Mid( [Owner], (i + 1), 1) & " " & Left( [Owner], (i - 1))
        t = "True"
      End If
    Next
  Else
    FindLabel = [Owner]
  End If
End Function
```

In the 1st option, the first command is a “For… Next” command. This command allows the user to tell the computer to repeat a step for so many times. In this example, the computer is told to repeat for as many times as there are characters in the “Owner” field (“[Owner]”).

The “If… Then” command has a conditional statement. Using the “Mid” command to search the “Owner” field one “, 1” character at a time (starting with character “i”), the computer is searching for blanks “ “. If it finds a blank in the owner name, is the “t” variable still “False”?

Labeling by 1st initial, last name:

```
Function FindLabel ( [Owner] )
  t = "False"
  If Len( [Owner] ) >= 12 Then
    For i = 1 To Len( [Owner] )
      If Mid( [Owner], i, 1) = " "  and t = "False" Then
        FindLabel = Mid( [Owner], (i + 1), 1) & " " & Left( [Owner], (i - 1))
        t = "True"
      End If
    Next
  Else
    FindLabel = [Owner]
  End If
End Function
```

The “FindLabel = “ line actually establishes the text that will be displayed on the map.

For the 1st option, the label will be (using the “Mid” command) the first letter beyond the first found blank, followed by a blank, and followed by the complete name before the first blank. In theory, this should give us 1st initial, last name.

The next line changes the “t” variable from “False” to “True”. This change and the “If… Then” command should keep the code from doing anything more with any other blanks in “Owner”.

Labeling by 1st initial, last name:

```
Function FindLabel ( [Owner] )
  t = "False"
  If Len( [Owner] ) >= 12 Then
    For i = 1 To Len( [Owner] )
      If Mid( [Owner], i, 1) = " "  and t = "False" Then
        FindLabel = Mid( [Owner], (i + 1), 1) & " " & Left( [Owner], (i - 1))
        t = "True"
      End If
    Next
  Else
    FindLabel = [Owner]
  End If
End Function
```

The 2nd option just simply sets the “FindLabel = “ to the “Owner” field. This is a “fail-safe” label that will be used if the length of the owner name “Len([Owner])” is less than 12 characters or if there are no blanks in the owner name.

Labeling by 1st initial, last name, with the full parcel id number:

```
Function FindLabel ( [Owner] , [ParcelID] )
  t = "False"
  If Len( [Owner] ) >= 12 Then
    For i = 1 To Len( [Owner] )
      If Mid( [Owner], i, 1) = " "  and t = "False" Then
        FindLabel = Mid( [Owner], (i + 1), 1) & " " & Left( [Owner], (i - 1)) & vbNewLine & [ParcelID]
        t = "True"
      End If
    Next
  Else
    FindLabel = [Owner] & vbNewLine & [ParcelID]
  End If
End Function
```

This is the same as the previous example in every way except that the parcel id number has been added. The “, [ParcelID]” was added to the “Function FindLabel” line. This has to be done! Then “ & vbNewLine & [ParcelID]” was added to the end of each “FindLabel = “ line.

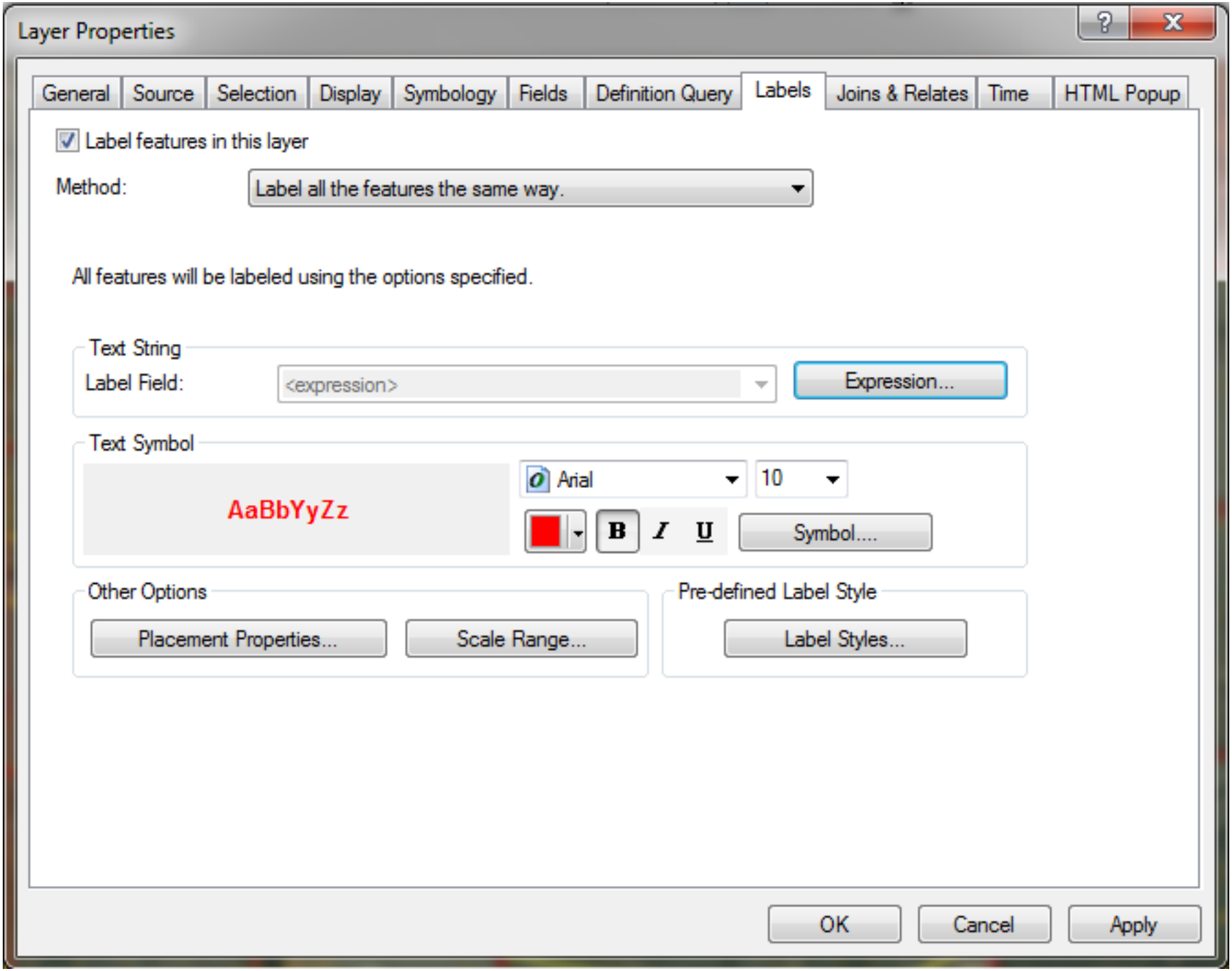
When adding together multiple fields and/or text, use the “&” character. Unless you want the label text to run together, separate each with an additional “7” and a space “ “ or “vbNewLine” (forces a new line to the labeling) between them.

Labeling by 1st initial, last name, with a small part of the parcel id number:

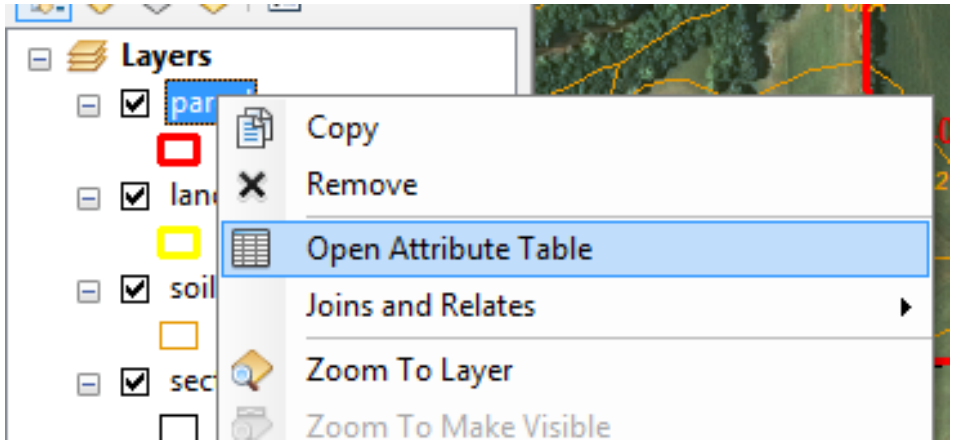
```
Function FindLabel ( [Owner] , [ParcelID] )
  t = "False"
  If Len( [Owner] ) >= 12 Then
    For i = 1 To Len( [Owner] )
      If Mid( [Owner], i, 1) = " "  and t = "False" Then
        FindLabel = Mid( [Owner], (i + 1), 1) & " " & Left( [Owner], (i - 1)) & vbNewLine & mid([ParcelID],19,3)
        t = "True"
      End If
    Next
  Else
    FindLabel = [Owner] & vbNewLine & mid([ParcelID],19,3)
  End If
End Function
```

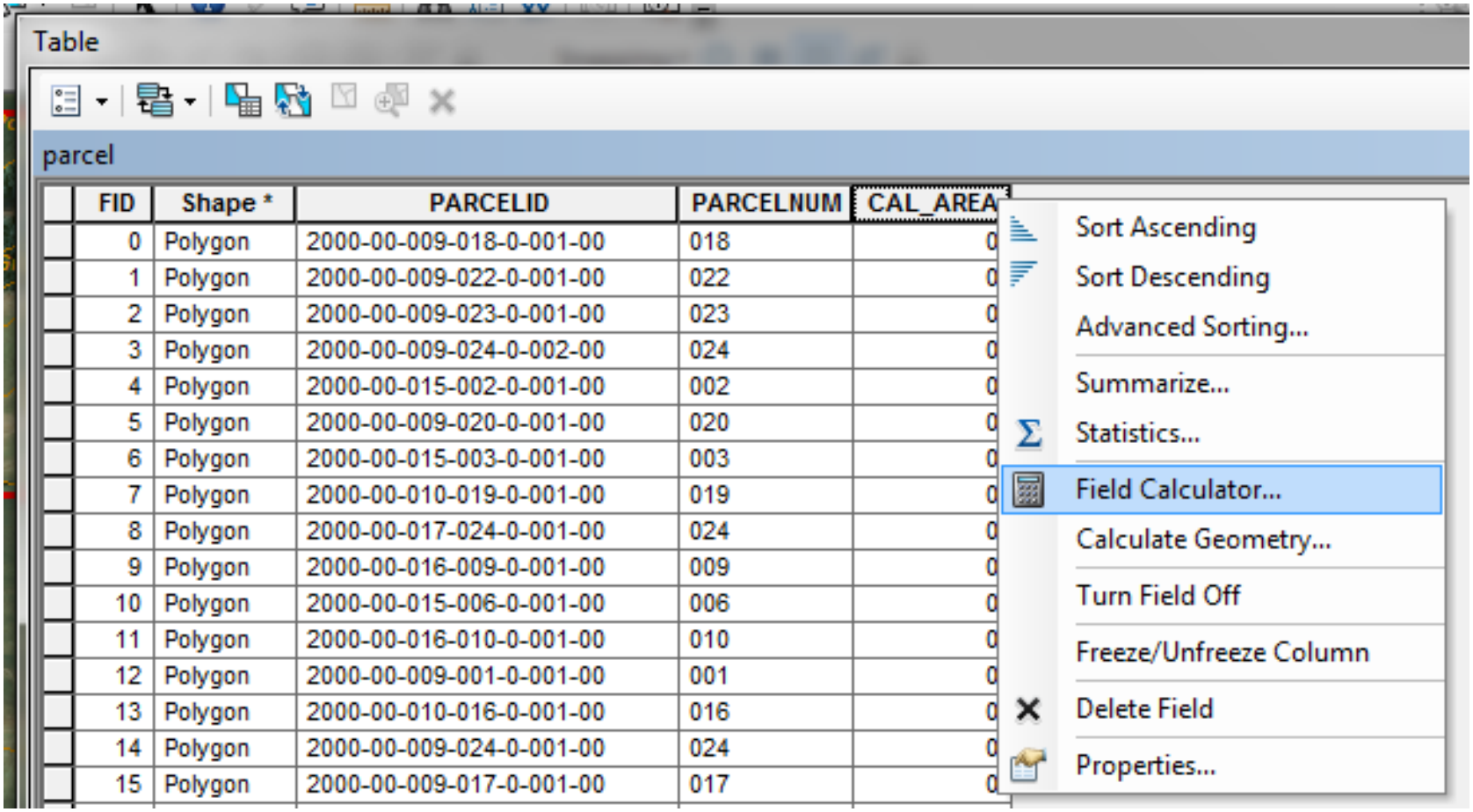
This is the same as the previous example in every way except that the parcel id number portion has been changed using the “mid” function.

The “mid” function contains inside its parathensis three items. 1st, it has the field used for the source text (in this example “[ParcelID]”). 2nd, it has the first character used from the source text (in this example 19 is the starting point). 3rd, it has the length of the text used from the source text (in this example 3 is the length). **0000-00-000-000-0-000-00**

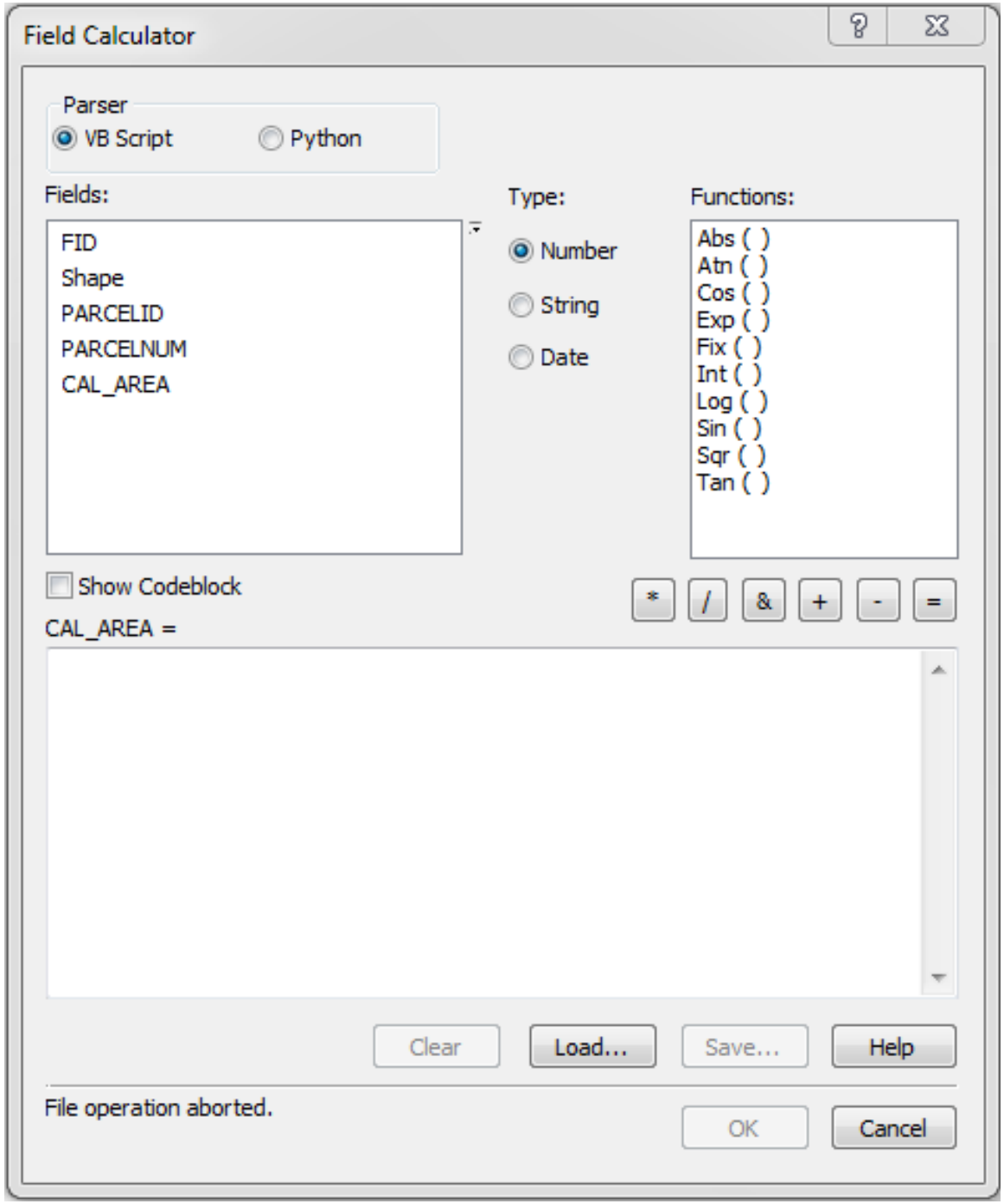

Layer Properties
General
Source
Selection
Display
Symbology
Fields
Definition Query
Labels
Joins & Relates
Time
HTML Popup
Label features in this layer
Method:
Label all the features the same way.
All features will be labeled using the options specified.
Text String
Label Field:
<expression>
Expression...
Text Symbol
AaBbYyZz
Arial
10
B
I
U
Symbol....
Other Options
Placement Properties...
Scale Range...
Pre-defined Label Style
Label Styles...
OK
Cancel
Apply

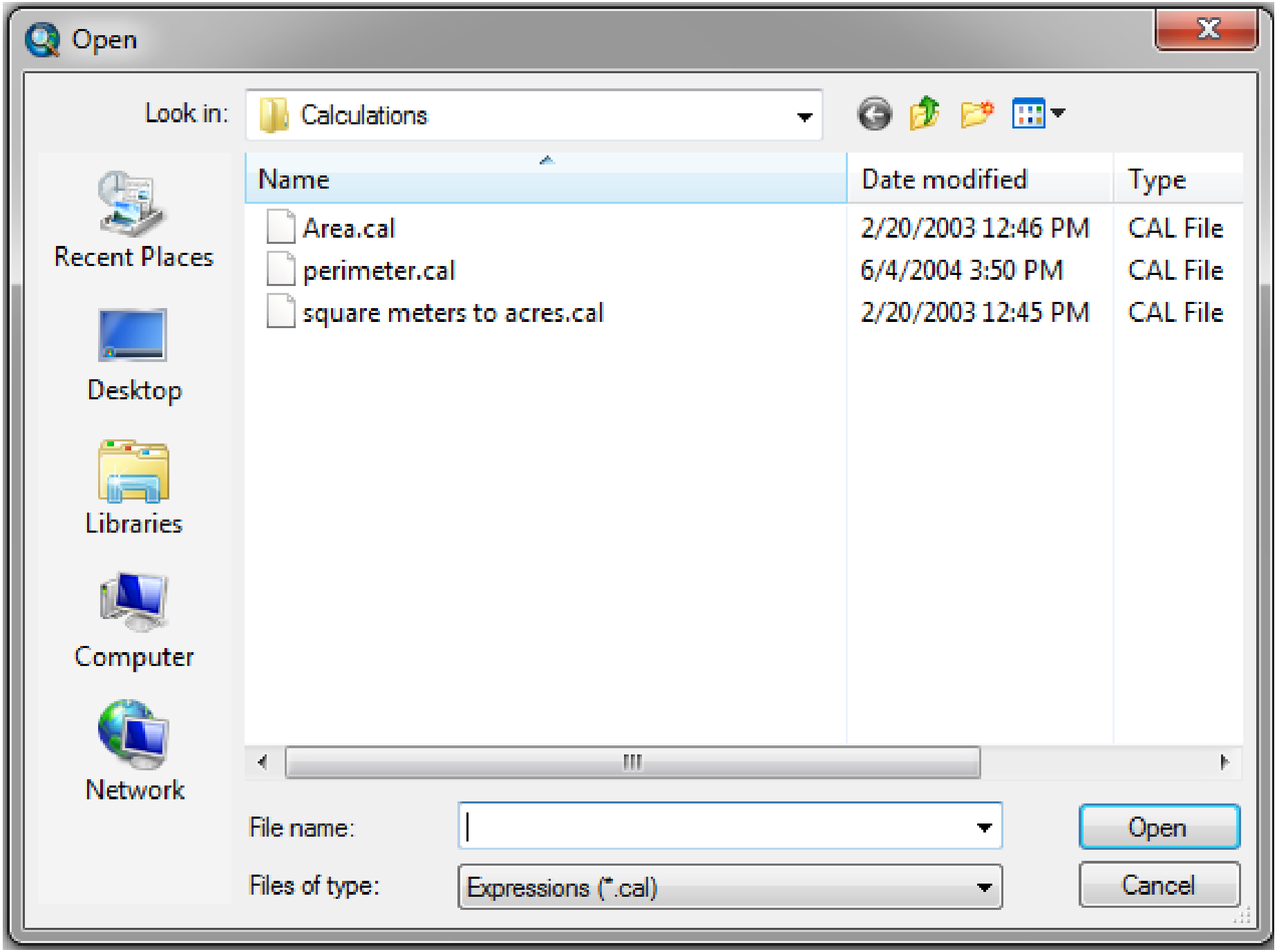
Using VBA in...
Table Calculations

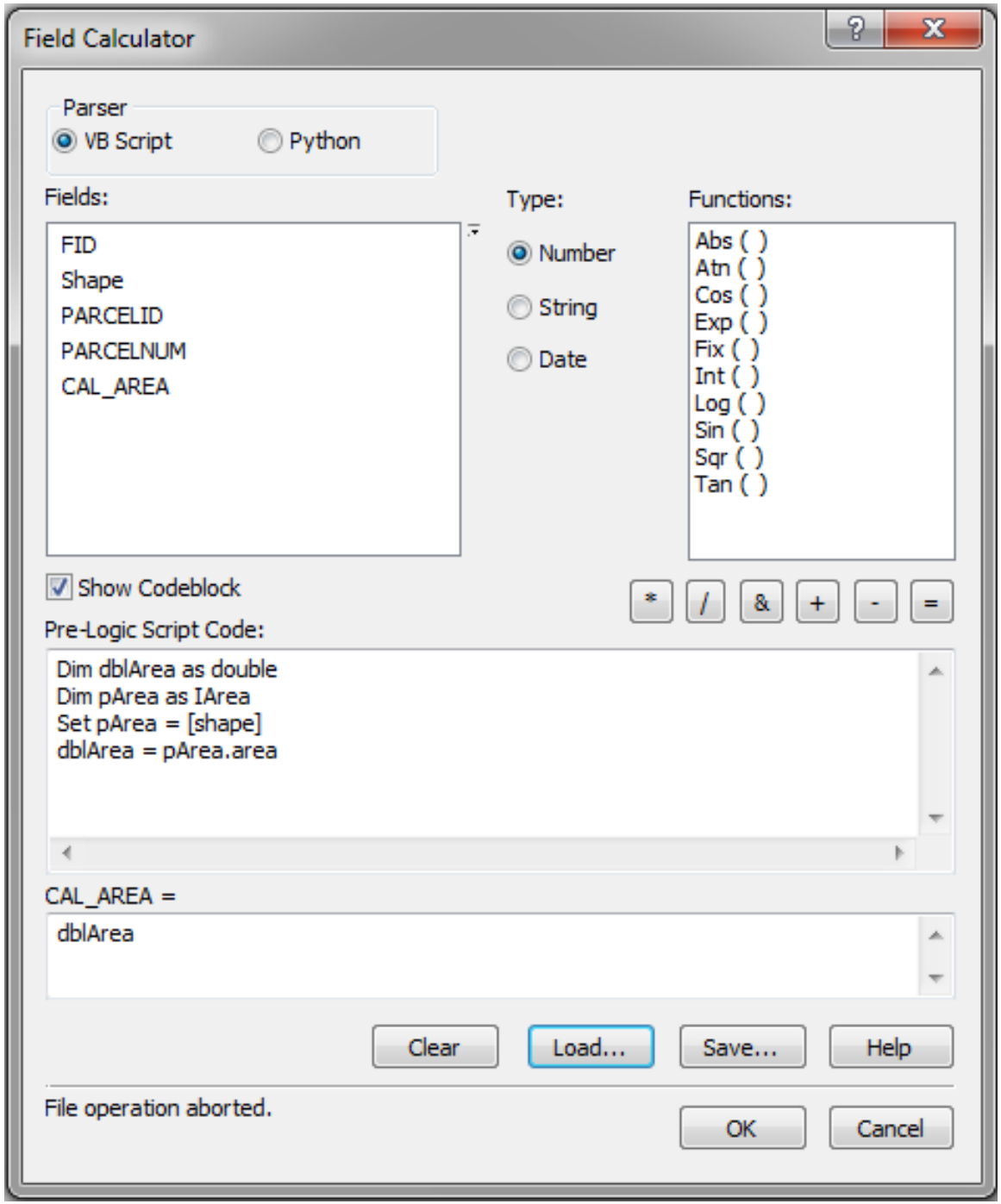




FID	Shape *	PARCELID	PARCELNUM	CAL_AREA
0	Polygon	2000-00-009-018-0-001-00	018	0
1	Polygon	2000-00-009-022-0-001-00	022	0
2	Polygon	2000-00-009-023-0-001-00	023	0
3	Polygon	2000-00-009-024-0-002-00	024	0
4	Polygon	2000-00-015-002-0-001-00	002	0
5	Polygon	2000-00-009-020-0-001-00	020	0
6	Polygon	2000-00-015-003-0-001-00	003	0
7	Polygon	2000-00-010-019-0-001-00	019	0
8	Polygon	2000-00-017-024-0-001-00	024	0
9	Polygon	2000-00-016-009-0-001-00	009	0
10	Polygon	2000-00-015-006-0-001-00	006	0
11	Polygon	2000-00-016-010-0-001-00	010	0
12	Polygon	2000-00-009-001-0-001-00	001	0
13	Polygon	2000-00-010-016-0-001-00	016	0
14	Polygon	2000-00-009-024-0-001-00	024	0
15	Polygon	2000-00-009-017-0-001-00	017	0


Field Calculator
Parser
VB Script
Python
Fields:
FID
Shape
PARCELID
PARCELNUM
CAL_AREA
Type:
Number
String
Date
Functions:
Abs ( )
Atn ( )
Cos ( )
Exp ( )
Fix ( )
Int ( )
Log ( )
Sin ( )
Sqr ( )
Tan ( )
Show Codeblock
* / & + - =
CAL_AREA =
Clear
Load...
Save...
Help
File operation aborted.
OK
Cancel


Open
Look in:
Calculations
Recent Places
Desktop
Libraries
Computer
Network
Name
Date modified
Type
Area.cal
2/20/2003 12:46 PM
CAL File
perimeter.cal
6/4/2004 3:50 PM
CAL File
square meters to acres.cal
2/20/2003 12:45 PM
CAL File
File name:
Files of type:
Expressions (*.cal)
Open
Cancel


Field Calculator
Parser
VB Script
Python
Fields:
FID
Shape
PARCELID
PARCELNUM
CAL_AREA
Type:
Number
String
Date
Functions:
Abs ( )
Atn ( )
Cos ( )
Exp ( )
Fix ( )
Int ( )
Log ( )
Sin ( )
Sqr ( )
Tan ( )
Show Codeblock
* / & + - =
Pre-Logic Script Code:
Dim dblArea as double
Dim pArea as IArea
Set pArea = [shape]
dblArea = pArea.area
CAL_AREA =
dblArea
Clear
Load...
Save...
Help
File operation aborted.
OK
Cancel

Using the Field Calculator to measure area (in native map units):

```
Dim dblArea as double
Dim pArea as IArea
Set pArea = [shape]
dblArea = pArea.area
```

The “Dim” commands initialize each variable needed. As the command initializes the variable, it defines what type of a variable it is. Each variable name is made up by the user/code writer. The types of variables beginning with “I” are specific with ArcGIS. The “IArea” variable gets areas of polygons from the map.

The “Double” type is a numeric variable able to handle decimals. The default value is zero.

The “Set” command assigned the “pArea” variable to each shape’s, “[shape]”, geometry. This “[shape]” was added to the code by double-clicking on “shape” in the “Fields” window.

The 4th line places the mapped area of each shape into the “dblArea” variable.

```
dblArea
```

The box under the “CAL_AREA = “ assigns the values to fill the “Attribute Table” to come from the “dblArea” variable.

Using the Field Calculator to measure area (converting from meters to acres):

```
Dim dblArea as double
Dim pArea as IArea
Set pArea = [shape]
dblArea = pArea.area/0.0929/43560
```

The “Dim” commands initialize each variable needed. As the command initializes the variable, it defines what type of a variable it is. Each variable name is made up by the user/code writer. The types of variables beginning with “I” are specific with ArcGIS. The “IArea” variable gets areas of polygons from the map.

The “Double” type is a numeric variable able to handle decimals. The default value is zero.

The “Set” command assigned the “pArea” variable to each shape’s, “[shape]”, geometry. This “[shape]” was added to the code by double-clicking on “shape” in the “Fields” window.

The 4th line places the mapped area of each shape into the “dblArea” variable. The convertions of “/0.0929/43560” convert from square meters to square feet to acres.

```
dblArea
```

The box under the “CAL_AREA = “ assigns the values to fill the “Attribute Table” to come from the “dblArea” variable.

Using the Field Calculator to measure perimeter:

```
Dim dblPerimeter as double
Dim pCurve as ICurve
Set pCurve = [Shape]
dblPerimeter = pCurve.Length
```

The “Dim” commands initialize each variable needed. As the command initializes the variable, it defines what type of a variable it is. Each variable name is made up by the user/code writer. The types of variables beginning with “I” are specific with ArcGIS. The “ICurve” variable gets perimeters of polygons from the map.

The “Double” type is a numeric variable able to handle decimals. The default value is zero.

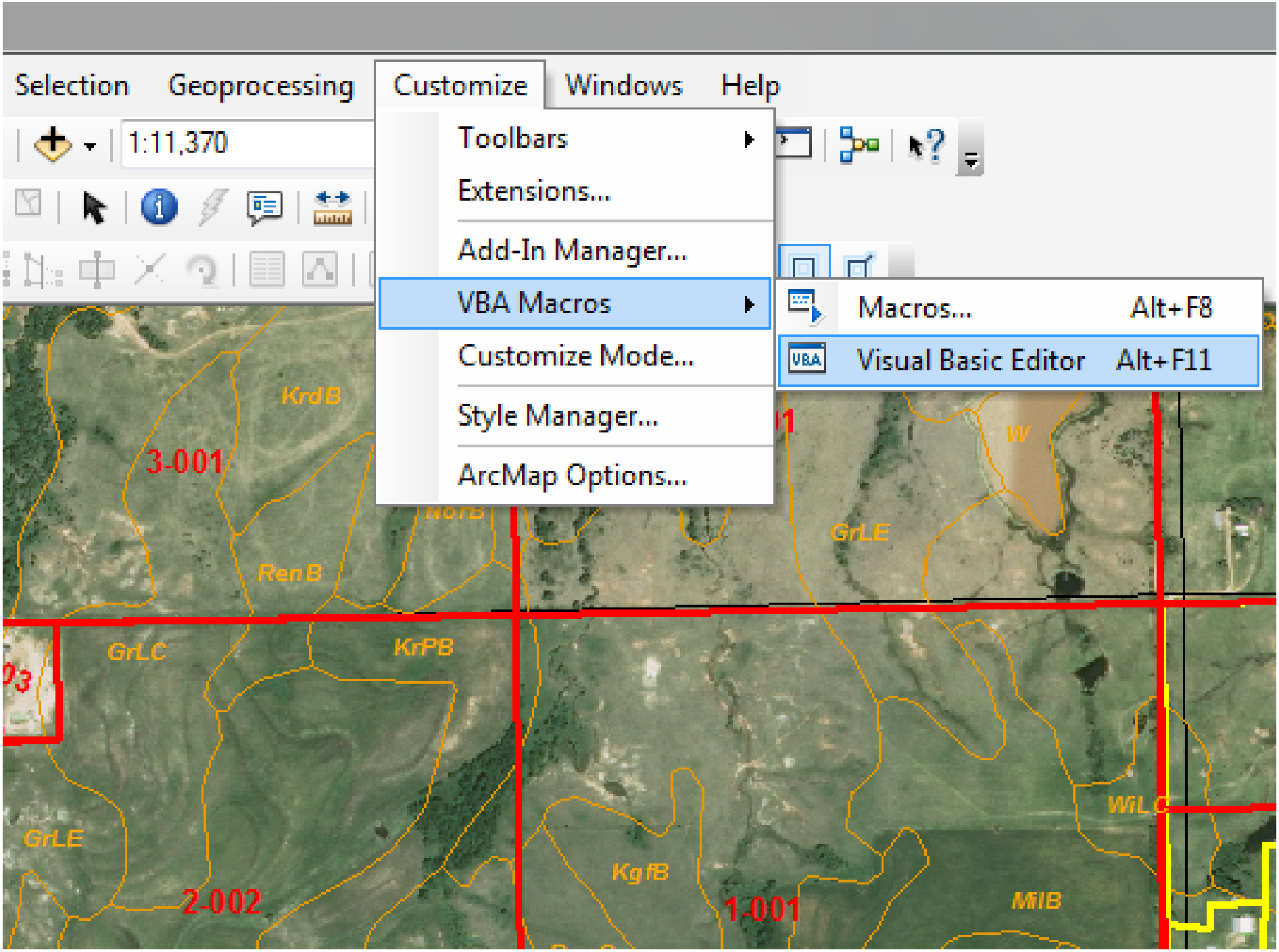
The “Set” command assigned the “pCurve” variable to each shape’s, “[shape]”, geometry. This “[shape]” was added to the code by double-clicking on “shape” in the “Fields” window.

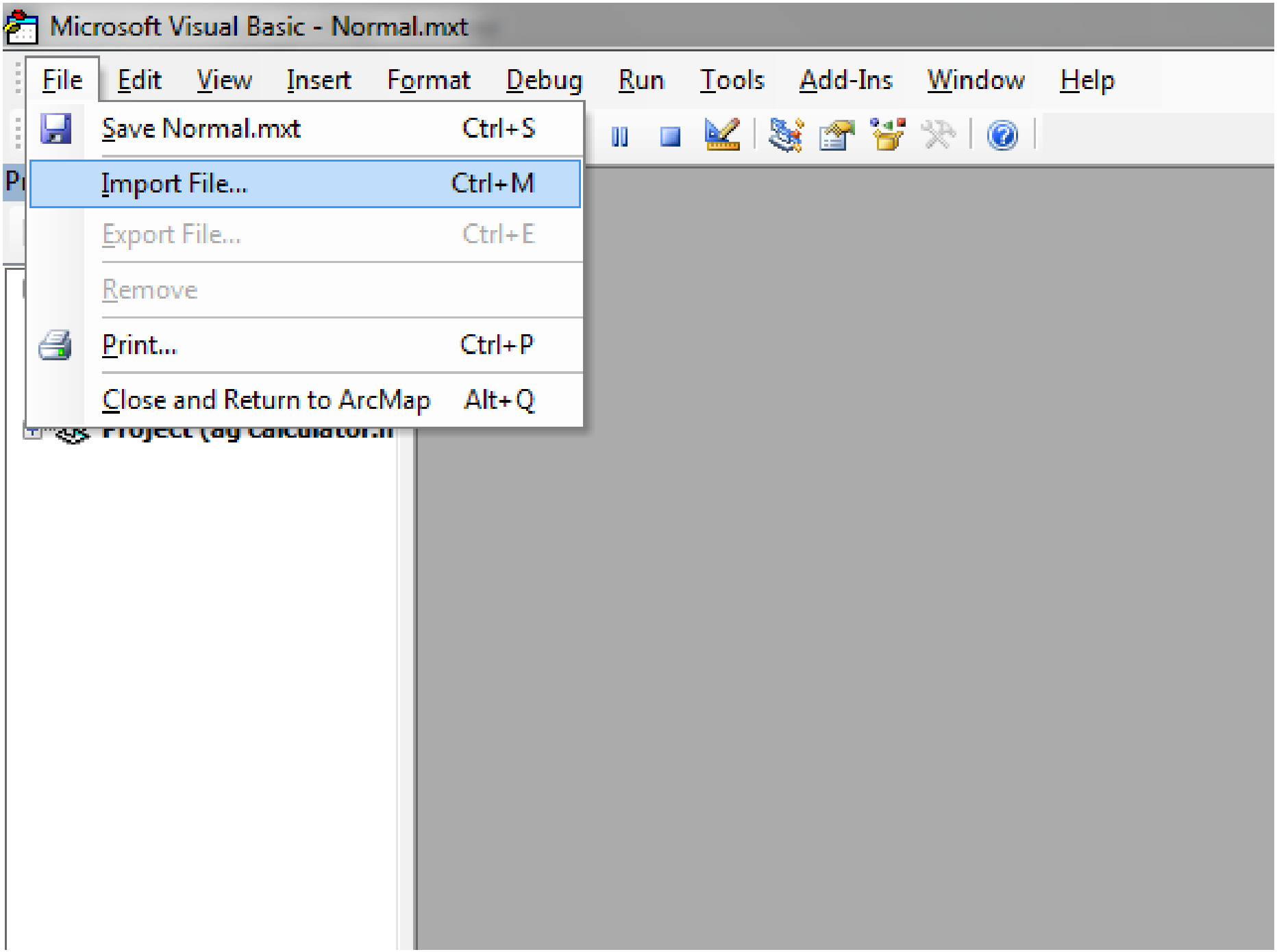
The 4th line places the mapped perimeter of each shape into the “dblPerimeter” variable.

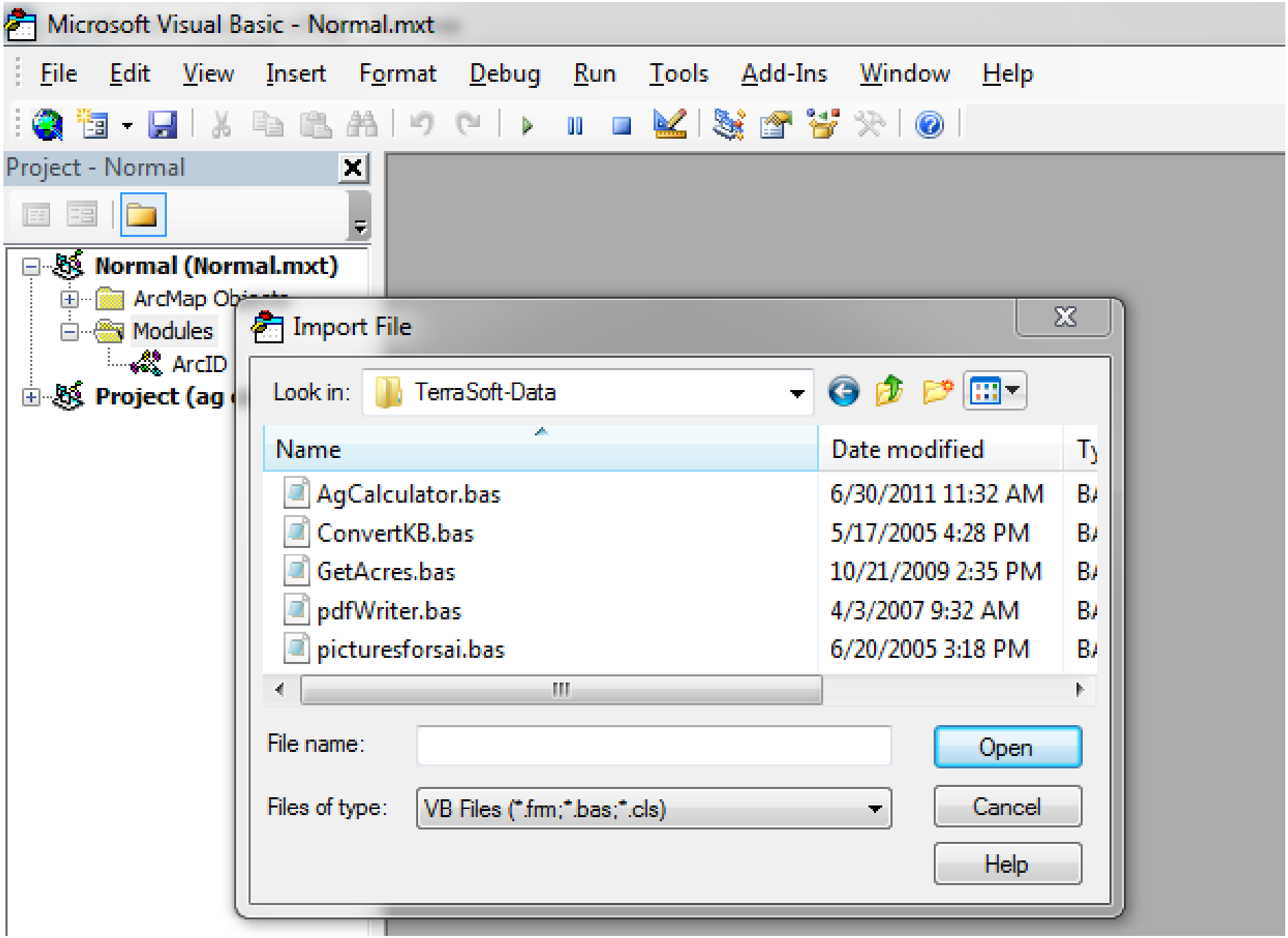
```
dblPerimeter
```

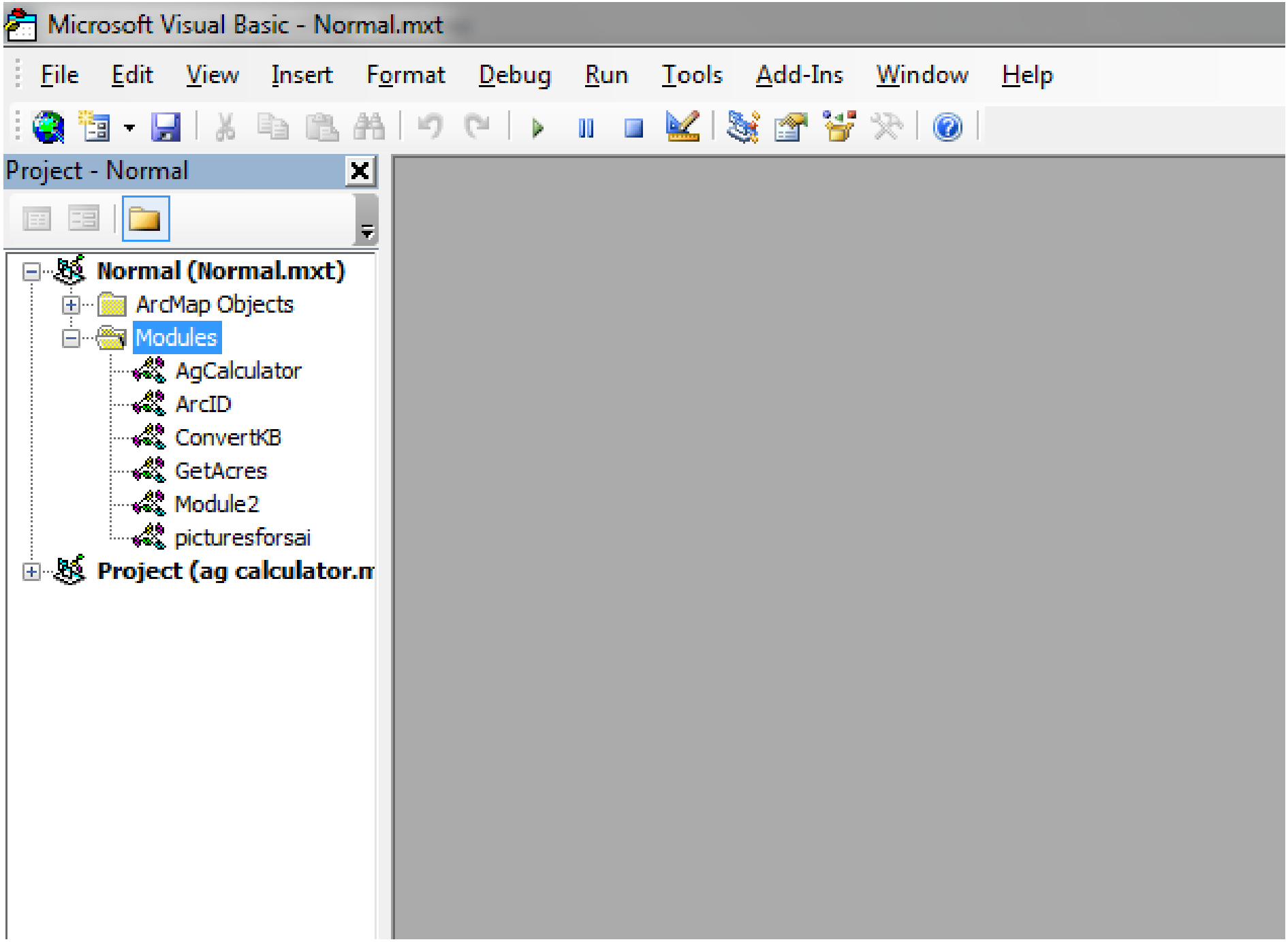
The box under the “CAL_PERIM = “ assigns the values to fill the “Attribute Table” to come from the “dblPerimeter” variable.

Using VBA in...
Creating New Tools


Selection
Geoprocessing
Customize
Windows
Help
1:11,370
Toolbars
Extensions...
Add-In Manager...
VBA Macros
Customize Mode...
Style Manager...
ArcMap Options...
Macros... Alt+F8
Visual Basic Editor Alt+F11
KrdB
3-001
RenB
GrLE
W
GrLC
KrPB
GrLE
2-002
KgfB
1-001
MlB
WiLC


Microsoft Visual Basic - Normal.mxt
File
Edit
View
Insert
Format
Debug
Run
Tools
Add-Ins
Window
Help
Save Normal.mxt Ctrl+S
Import File... Ctrl+M
Export File... Ctrl+E
Remove
Print... Ctrl+P
Close and Return to ArcMap Alt+Q


Microsoft Visual Basic - Normal.mxt
File Edit View Insert Format Debug Run Tools Add-Ins Window Help
Project - Normal
Normal (Normal.mxt)
ArcMap Objects
Modules
ArcID
Project (ag
Import File
Look in: TerraSoft-Data
Name
Date modified
AgCalculator.bas 6/30/2011 11:32 AM
ConvertKB.bas 5/17/2005 4:28 PM
GetAcres.bas 10/21/2009 2:35 PM
pdfWriter.bas 4/3/2007 9:32 AM
picturesforsai.bas 6/20/2005 3:18 PM
File name:
Files of type: VB Files (*.frm;*.bas;*.cls)
Open
Cancel
Help


Microsoft Visual Basic - Normal.mxt
File
Edit
View
Insert
Format
Debug
Run
Tools
Add-Ins
Window
Help
Project - Normal
Normal (Normal.mxt)
ArcMap Objects
Modules
AgCalculator
ArcID
ConvertKB
GetAcres
Module2
picturesforsai
Project (ag calculator.m

(General) GetAcres_Click

```
Public Sub GetAcres()
    Call GetAcres_Click
End Sub

Private Function GetAcres_ToolTip() As String
     GetAcres_ToolTip = "Calc Acres(Ac)"
End Function

Private Sub GetAcres_Click()
    Dim pMxDoc As IMxDocument
    Dim pArea As IArea
    Dim pAcres, pFeet, pFeetTotal As Double
    Dim i, Looper As Integer
    Dim pPoly As IFeature
    Dim pMap As IMap
    Dim pFSelection As IEnumFeature
    Dim pActiveView As IActiveView
    Dim pContentsView As IContentsView

    Set pMxDoc = ThisDocument
    Set pMap = pMxDoc.FocusMap
    Set pActiveView = pMap
    Set pContentsView = pMxDoc.CurrentContentsView
    Set pFSelection = pMap.FeatureSelection
    i = pMap.SelectionCount

    If i = 0 Then '-- Make sure a parcel is selected
        MsgBox "Please select one or more parcels"
        Exit Sub
    End If

    Do Until Looper = i
        Set pPoly = pFSelection.Next
        Looper = Looper + 1
        Set pArea = pPoly.Shape
        pFeet = pArea.Area * 3.280839895 * 3.280839895 / 43560 '-- converts from map units of meters to feet then acres
        pFeetTotal = pFeet + pFeetTotal
    Loop

    MsgBox "Total Acres: " & Format(pFeetTotal, "#,###.##") & "ac"
End Sub
```

(General)

```
Public Sub GetAcres()
    Call GetAcres_Click
End Sub
```

In each VBA module, there are a collection of different segments. Each segment of code starts and stops with a “Sub” or “Function” declaration line and an “End Sub” or “End Function” line.

In each VBA module, there should only be one “Public Sub”. This component of the code identifies the module to ArcGIS. You would look for “GetAcres” to add this tool to your ArcGIS toolbars.

The “Call” command initiates any “Private Sub”routines. In this case, the “Public” subroutine initiates the “Private Sub GetAcres_Click()” subroutine.

```
End Sub

Private Function GetAcres_ToolTip() As String
     GetAcres_ToolTip = "Calc Acres(Ac)"
End Function
```

The “Private Function GetAcres_ToolTip() As String” function sets the text box that accompanies the mouse cursor to read “Calc Acres(Ac)”.

```
Private Sub GetAcres_Click()
    Dim pMxDoc As IMxDocument
    Dim pArea As IArea
    Dim pAcres, pFeet, pFeetTotal As Double
    Dim i, Looper As Integer
    Dim pPoly As IFeature
    Dim pMap As IMap
    Dim pFSelection As IEnumFeature
    Dim pActiveView As IActiveView
    Dim pContentsView As IContentsView
```

For this example, the “Private Sub GetAcres_Click()” subroutine actually contains all the “guts” of the “GetAcres” code.

The “Dim” commands initialize each variable needed. As the command initializes the variable, it defines what type of a variable it is. Each variable name is made up by the user/code writer. The types of variables beginning with “I” are specific with ArcGIS. Any code using the mapping to create results need the “IMxDocument”, “Imap”, “IActiveView”, and “IContentsView” variables. The “IArea” variable gets areas of polygons from the map. The IFeature” variable gets selected shapes from the map.

The “Double” type is a numeric variable able to handle decimals. The default value is zero.

The “Integer” type is a numeric variable that only handles whole number (examples: 1, 2, 3, 4, etc.). The default values are zero.

```
Set pMxDoc = ThisDocument
Set pMap = pMxDoc.FocusMap
Set pActiveView = pMap
Set pContentsView = pMxDoc.CurrentContentsView
Set pFSelection = pMap.FeatureSelection
i = pMap.SelectionCount
```

The “Set” commands ties each variable to its map component.

The “i = pMap.SelelctionCount” line sets the “i” variable value by counting the number of selected shapes from the map.

```
If i = 0 Then '-- Make sure a parcel is selected
    MsgBox "Please select one or more parcels"
    Exit Sub
End If
```

“If... Then” commands allow the code writer to create conditional commands. In this case, if no shapes in the map are selected “If i = 0” then pop up a message box stating “Please select one or more parcels”. The “Exit Sub” command then exits the code returning the user back to the map to try again. The “End If” line ends the conditional command.

```
Do Until Looper = i
    Set pPoly = pFSelection.Next
    Looper = Looper + 1
    Set pArea = pPoly.Shape
    pFeet = pArea.Area * 3.280839895 * 3.280839895 / 43560 '-- converts f
    pFeetTotal = pFeet + pFeetTotal
Loop
```

The “Do Until… Loop” command allows the coder writer to make the computer repeat a set of steps until a conditional statement is met. In this case, the conditional statement is to repeat until the “Looper” variable (originally defaulted to zero) equals the “i” variable (set to the number of selected shapes).

The next line sets “pPoly” the current shape (feature) being considered. The “pFSelection” is the complete set of selected shapes (features). The “Next” command moves from the first shape (feature) in the set to the next shape each time the command is repeated.

The “Looper = Looper + 1” line just adds 1 to the Looper variable (originally defaulted to zero) each time the command is repeated.

The “Set pArea = pPoly.Shape” line gets the area of the “pPoly” variable assigned from the “pFSelection” set of selected shapes (features).

The next line places the area from the “pArea.Area” after converting it from square meters to acres into the “pFeet” variable. The next line adds that area from the “pFeet” variable to a running subtotal stored in the “pFeetTotal” variable.

The “Loop” command line forces the code to repeat until the conditional statement in the “Do Until” line is met.

```
    MsgBox "Total Acres: " & Format(pFeetTotal, "#,###.##") & "ac"
End Sub
```

“MsgBox” is a very handy command. It allows the code writer to pop up on the screen a window filled with any text wanted. In this case, the message is “Total Acres: “ followed by the number of calculated acres which is followed by the “ac”. The calculated acres is formatted to have commas for thousands of acres and can have up to two decimal points.

SACRIFICE

YOUR ROLE MAY BE THANKLESS, BUT IF YOU'RE WILLING TO GIVE IT YOUR ALL,
YOU JUST MIGHT BRING SUCCESS TO THOSE WHO OUTLAST YOU.

www.despair.com

An introduction to the current version

(and current issues)

MapServer – County Map Viewer

A free internet browser based map viewing program

Presenter: Troy Frazier, OTC

MapServer – a short history

MapServer was originally developed by the University of Minnesota "ForNet" project in cooperation with NASA and the Minnesota Department of Natural Resources. Later it was hosted by the "TerraSIP" project, a NASA sponsored project between the university and a consortium of land management interests.

MapServer is now a project of the Open Source Geospatial Foundation. The OSGeo was "created to support and build the highest-quality open source geospatial software." As such, MapServer is currently being supported by nearly 20 developers world-wide. This group is continually making improvements to MapServer. We are using version 6.2.1.

MapServer – and the Oklahoma Tax Commission

As a part of our continuing effort to support the assessor mapping, we look for ways to supply you with free mapping software. So far, all such software has been for viewing only.

This process started in 2000 with ESRI's ArcExplorer 2. ArcExplorer allowed you to view your mapping on top of the digital aerial photography. For many of you, this was the first time that this could be done! However, ArcExplorer 2 was written before the latest versions of Mr. SID aerial photo compression were created, and ESRI has not updated this "stand alone" program. (ESRI has newer versions of a web-based ArcExplorer which requires a live connection to ESRI to run.)

MapServer – and the Oklahoma Tax Commission

In the mid-2000's we found TatukGIS. This free map viewer is written and supported by a company in Poland. We found this program as we were looking at federal mapping sites for more mapping data for you.

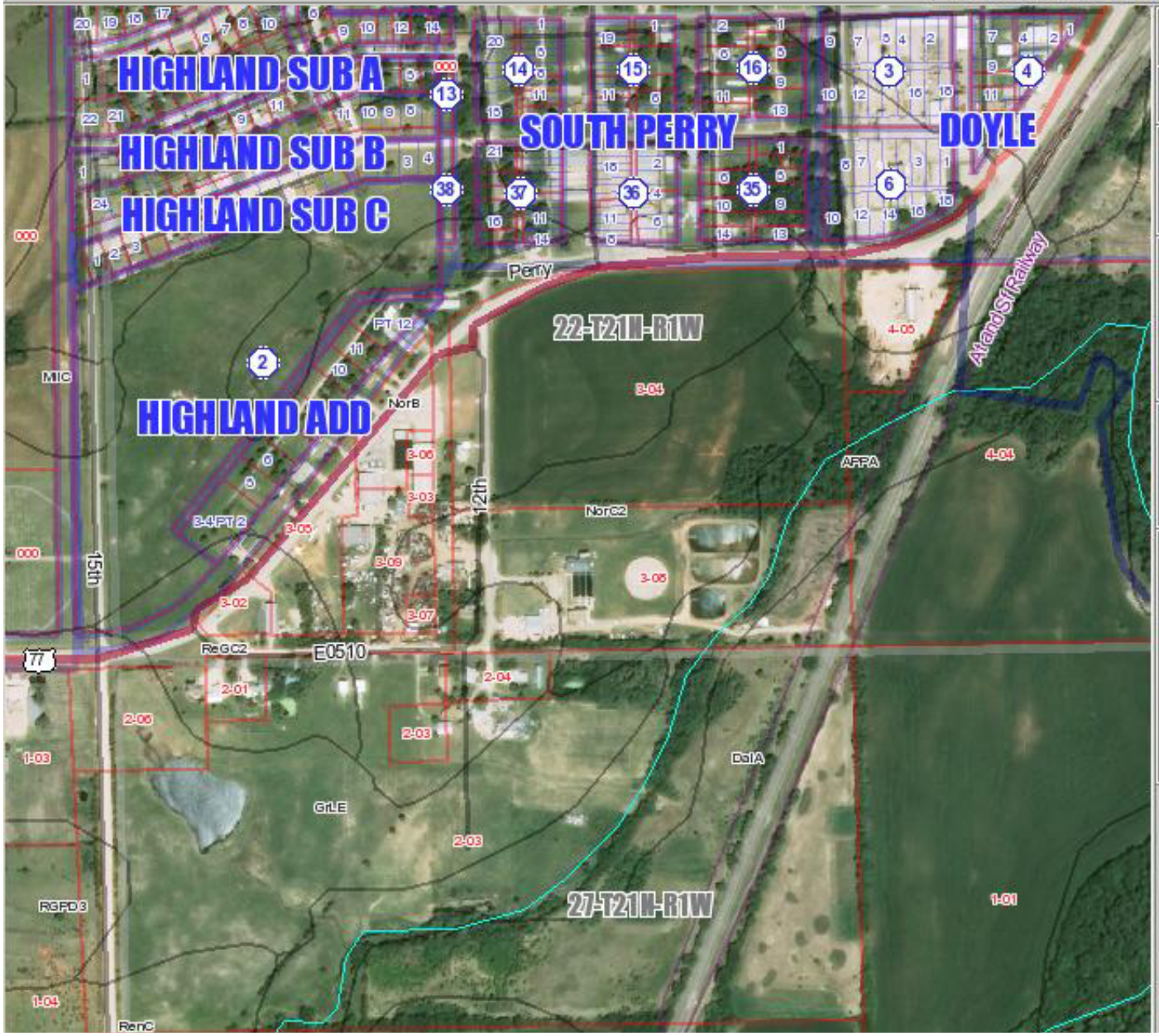
The TatukGIS is a very powerful program. It allows data from different projections without the need of re-projecting. It allows for "halo'ing" text on the map. It prints in full color.

The problem is that it is hard to search data with (by section, parcel id, etc.). Only a couple of counties ever became comfortable with this viewer.

MapServer - County Map Viewer

open source web mapping

MapServer 5.2.1 © 1996-2008 Regents of the University of Minnesota
Viewer as designed © 2010 Ad Valorem Division - Oklahoma Tax Commission



Displayed aerial photo is: 2010

Change to: 2010

Search by: City with:

Search

Set Scale

Current Results:

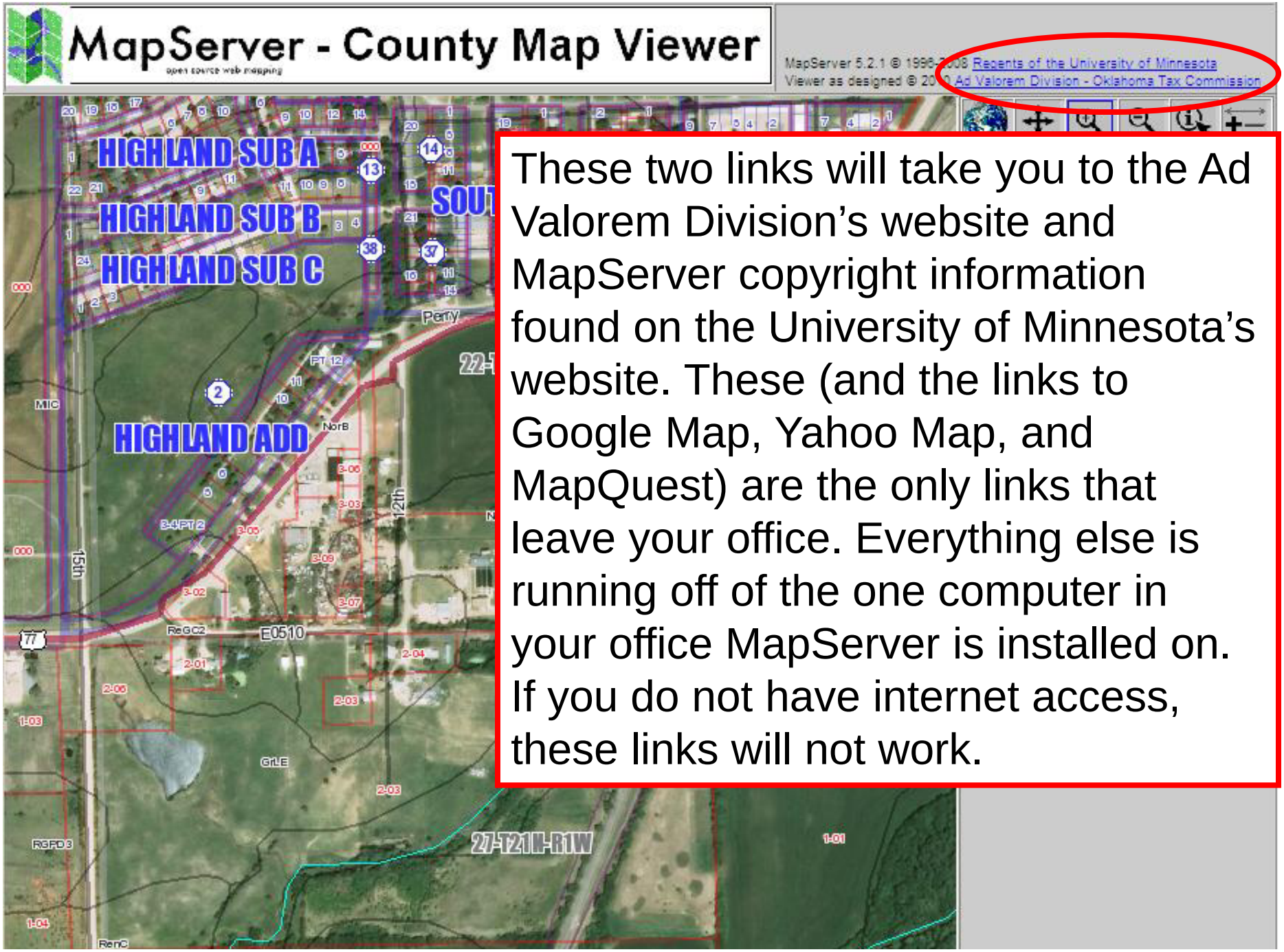
UTM Coordinates:

36.2753 deg (4015845 m.) North

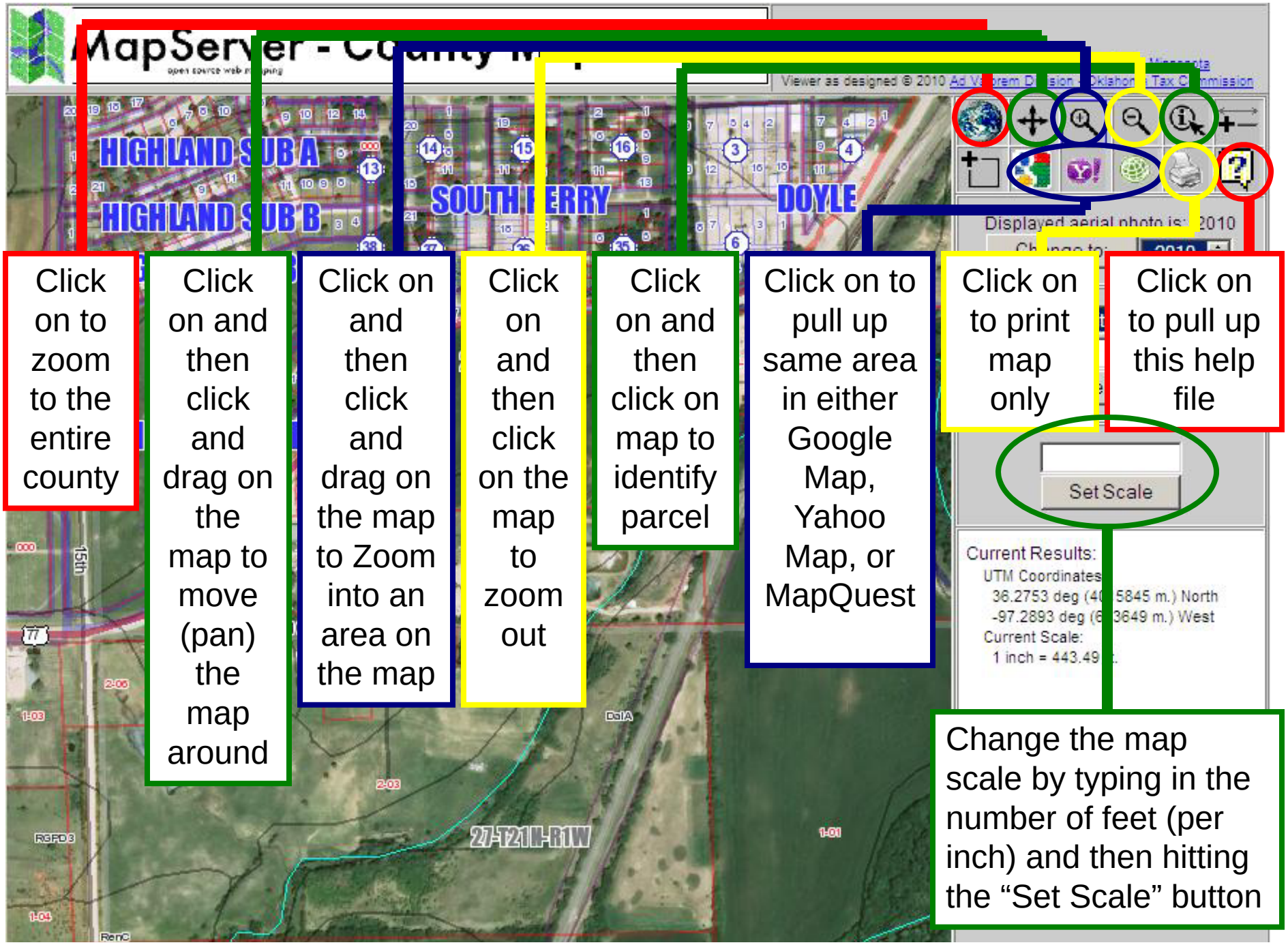
-97.2893 deg (653649 m.) West

Current Scale:

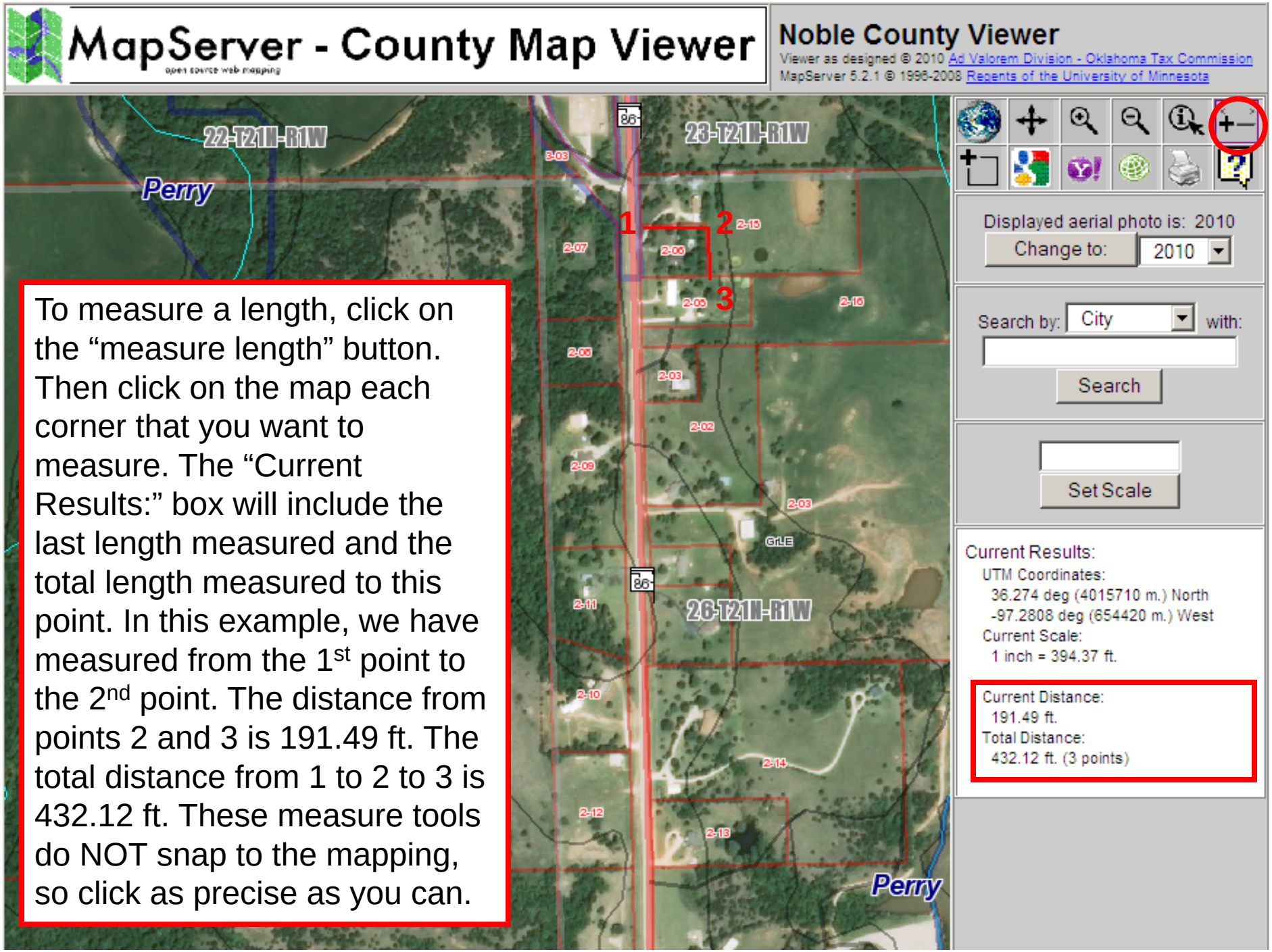
1 inch = 443.49 ft.



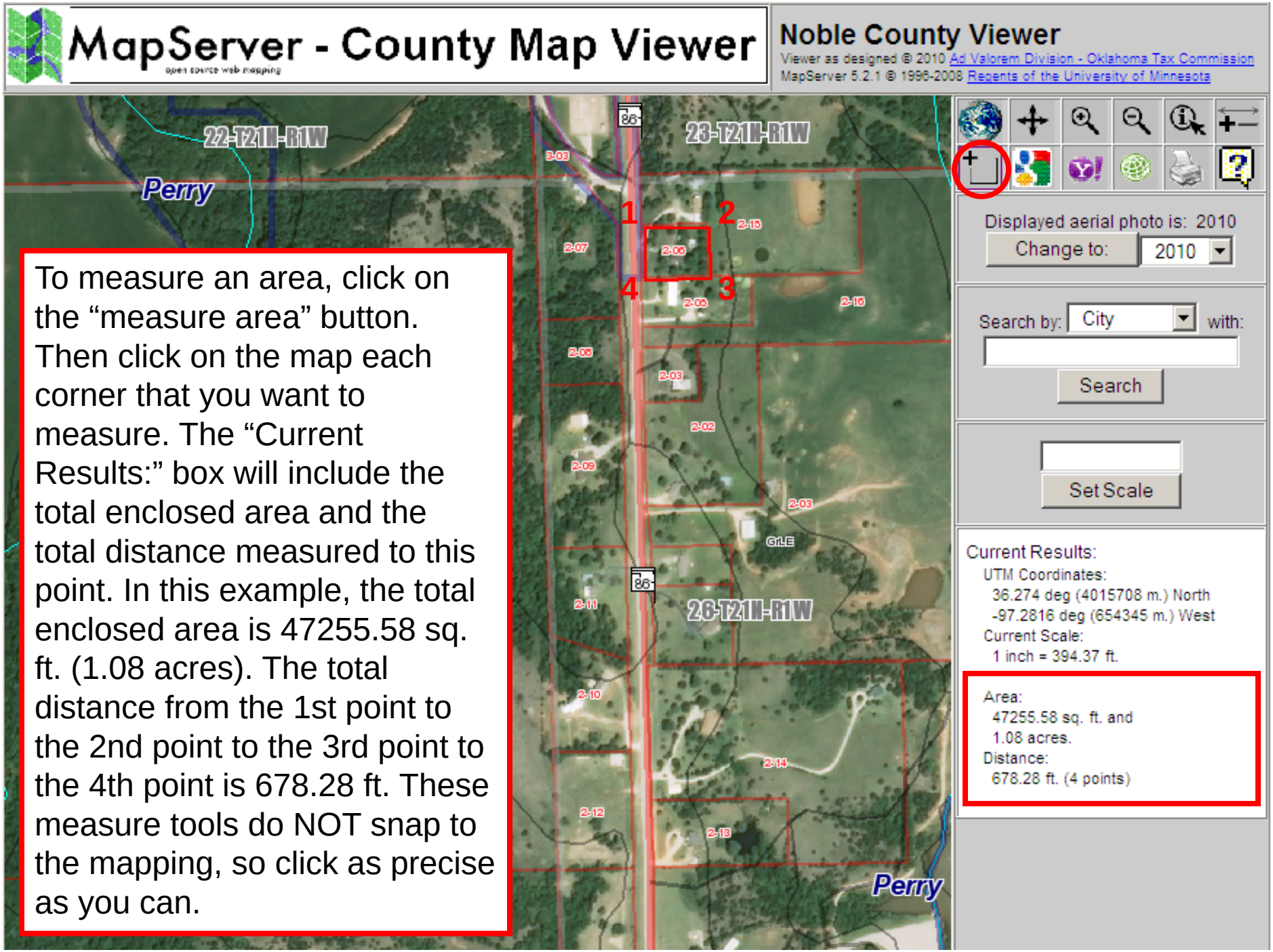
These two links will take you to the Ad Valorem Division's website and MapServer copyright information found on the University of Minnesota's website. These (and the links to Google Map, Yahoo Map, and MapQuest) are the only links that leave your office. Everything else is running off of the one computer in your office MapServer is installed on. If you do not have internet access, these links will not work.


MapServer - County
Viewer as designed © 2010
HIGHLAND SUB A
HIGHLAND SUB B
SOUTH FERRY
DOYLE
Displayed aerial photo is: 2010
Set Scale
Current Results:
UTM Coordinates
36.2753 deg (4 5845 m.) North
-97.2893 deg (6 3649 m.) West
Current Scale:
1 inch = 443.49
27-T21N-R1W
Click on to zoom to the entire county
Click on and then click and drag on the map to move (pan) the map around
Click on and then click and drag on the map to Zoom into an area on the map
Click on and then click on the map to zoom out
Click on and then click on map to identify parcel
Click on to pull up same area in either Google Map, Yahoo Map, or MapQuest
Click on to print map only
Click on to pull up this help file
Change the map scale by typing in the number of feet (per inch) and then hitting the “Set Scale” button

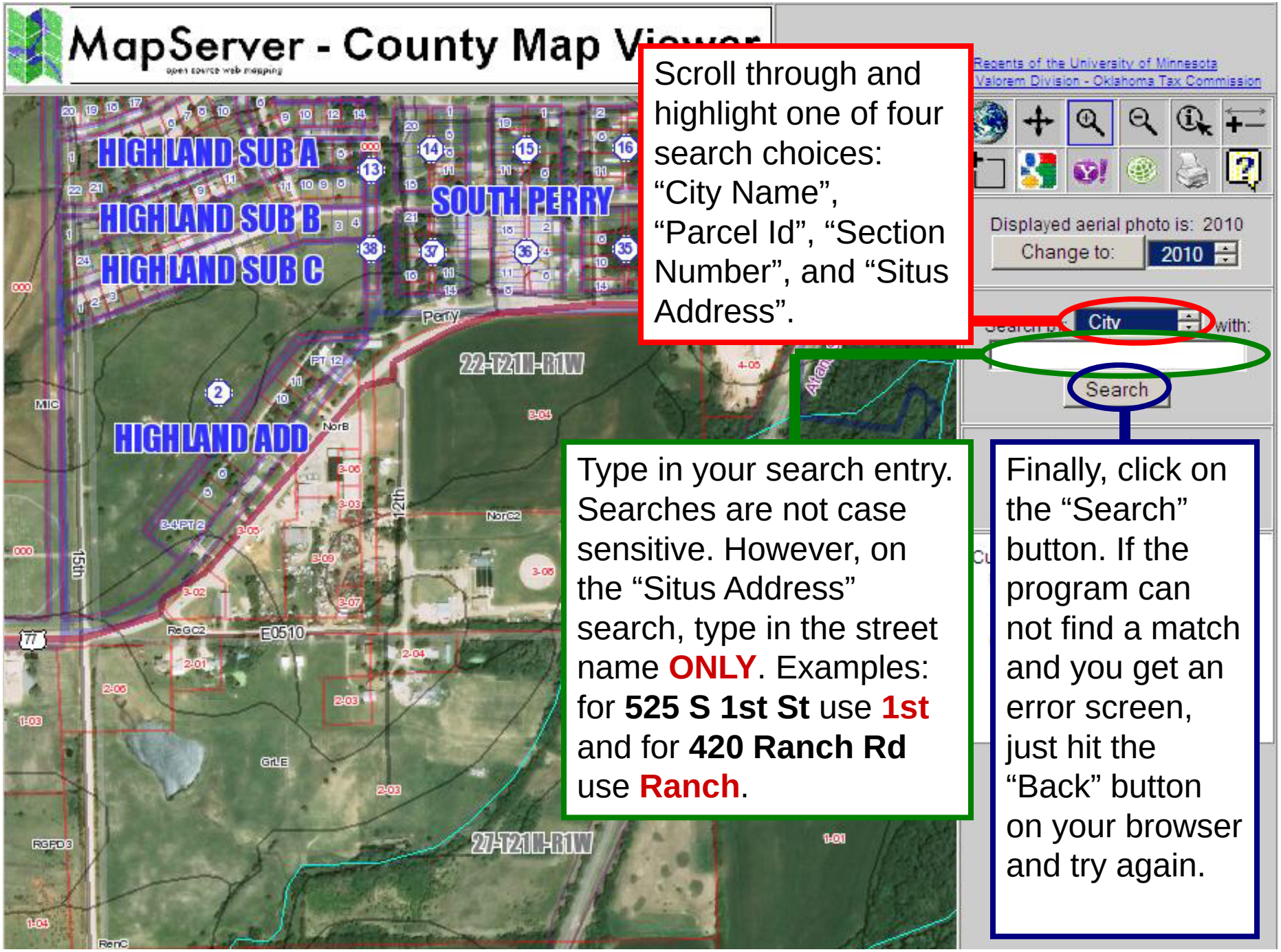
After successfully identifying a parcel on the map, you will have the primary mapping screen replaced by this one. If you look at the bottom of the parcel results screen, you will see parcel information listed. To get back to the primary mapping screen, just click the “Return to Main Map” button.



To measure a length, click on the “measure length” button. Then click on the map each corner that you want to measure. The “Current Results:” box will include the last length measured and the total length measured to this point. In this example, we have measured from the 1st point to the 2nd point. The distance from points 2 and 3 is 191.49 ft. The total distance from 1 to 2 to 3 is 432.12 ft. These measure tools do NOT snap to the mapping, so click as precise as you can.



To measure an area, click on the “measure area” button. Then click on the map each corner that you want to measure. The “Current Results:” box will include the total enclosed area and the total distance measured to this point. In this example, the total enclosed area is 47255.58 sq. ft. (1.08 acres). The total distance from the 1st point to the 2nd point to the 3rd point to the 4th point is 678.28 ft. These measure tools do NOT snap to the mapping, so click as precise as you can.



Scroll through and highlight one of four search choices: “City Name”, “Parcel Id”, “Section Number”, and “Situs Address”.

Type in your search entry. Searches are not case sensitive. However, on the “Situs Address” search, type in the street name **ONLY**. Examples: for **525 S 1st St** use **1st** and for **420 Ranch Rd** use **Ranch**.

Finally, click on the “Search” button. If the program can not find a match and you get an error screen, just hit the “Back” button on your browser and try again.

Address Range	Direction	Street Name	Type	Zip Code	Go To
0 - 0		15th	St	73077	<-- this road segment

Address Range	Direction	Street Name	Type	Zip Code	Go To
1601 - 1799	N	15th	St	73077	<-- this road segment

Address Range	Direction	Street Name	Type	Zip Code	Go To
1501 - 1599	N	15th	St	73077	<-- this road segment

Address Range	Direction	Street Name	Type	Zip Code	Go To
1401 - 1499	N	15th	St	73077	<-- this road segment

Address Range	Direction	Street Name	Type	Zip Code	Go To
1367 - 1399	N	15th	St	73077	<-- this road segment

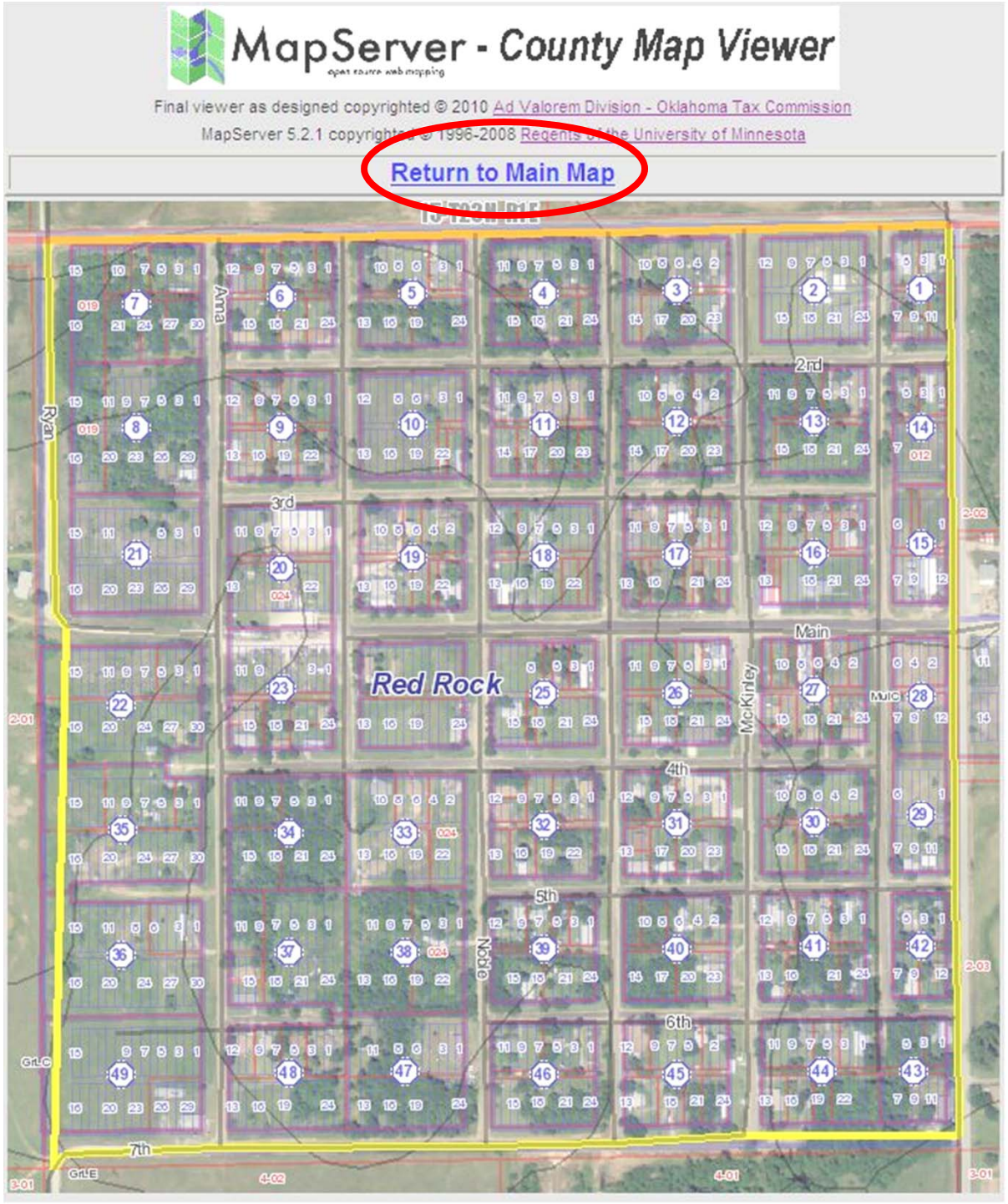
Address Range	Direction	Street Name	Type	Zip Code	Go To
1301 - 1365	N	15th	St	73077	<-- this road segment

Address Range	Direction	Street Name	Type	Zip Code	Go To
1201 - 1299	N	15th	St	73077	<-- this road segment

Address Range	Direction	Street Name	Type	Zip Code	Go To
1101 - 1199	N	15th	St	73077	<-- this road segment

Address Range	Direction	Street Name	Type	Zip Code	Go To
1001 - 1099	N	15th	St	73077	<-- this road segment

After searching by street name with the “Situs Address” search, you will have the primary mapping screen replaced by this one. The screen will listed all of those street name segments mapped. Scroll down the list until you find the correct address range and zip code. Once you find the address you want, click on the “← this road segment” button. You will be taken to the search results map screen. From there, you can return to the primary mapping screen.



After successfully searching by “City Name”, “Parcel Id”, “Section Number”, or “Situs Address”, you will have the primary mapping screen replaced by this one (in this example, zoomed into the town of Red Rock). To get back to the primary mapping screen, just click on the “Return to Main Map” link. You will return to the primary mapping screen zoomed into the same location as on this screen. If you searched by parcel id number, there will be parcel information listed at the bottom of the screen.

MapServer – in conclusion

MapServer can give all your computers map viewing capability with installation on only one computer. Any computer connected to your network can access this mapping (public view stations, computers in connected offices like county treasurers or clerks). It is even possible to share this viewer directly to the internet.

MapServer actually only runs on the computer it is installed on. It creates pictures and "servers" them up through the browser. At no time is any other computer getting direct access to your actual mapping layers!

Unfortunately, MapServer can not use MIMS layers or dxf layers well. We have a "clunky", free dxf to shapefile converter.

Remember, MIMS counties always have the option of buying Dr. Paul Bendt's MIM2SHP conversion program.

MapServer – in conclusion

Unfortunately, we are starting to have serious trouble utilizing MapServer.

In order for Windows 7 computers to be used as “host” computers, they have to be “tweaked” to allow other computers in the office to see it.

Starting with Internet Explorer 10, internet browsers settings have hindered the use of Java Script with “intranet” applications. It seems that the browser industry has decided that their browers should only be used with external, “internet” based applications.

MapServer can still be used without the Java Script, but this removes all measuring functionality…

ACHIEVEMENT

You Can Do Anything You Set Your Mind to When You Have Vision, Determination, and an Endless Supply of Expendable Labor.

www.despair.com

U.S. Geological Survey, National Geospatial Program (NGP): *The National Map* 2013 Activities

Oklahoma Tax Commission, Sixty-Ninth Annual Ad Valorem Education Conference for Oklahoma Assessing Officers
August 7, 2013

Darryl S Williams
USGS Geospatial Liaison for Oklahoma
U.S. Geological Survey
Oklahoma City, OK

USGS

Presentation Outline

- *The National Map (TNM): http://nationalmap.gov/*
  - 2013 US Topo Map Revisions Statewide for Oklahoma
  - Historical Topographic Map Collection (HTMC)
  - 3DEP: 3D Elevation Program – Planned Nationwide Hi-Resolution Elevation Initiative
  - The National Map Corps (TNMCorps): VGI – Volunteer Geographic Information
  - Transition from states focus to focusing on Communities of Use (COU)

USGS

2013 US Topo Map Coverage for Oklahoma

- Press Release 1/31/2013 - Start of second round
- Revised with 2010 NAIP as orthoimagery base map.
- 2010 US Topo Maps (2008 NAIP) added to Historical Topographic Map Collection (HTMC)
- New Content/Features Added
- 2013 NAIP recently flown for Oklahoma

USGS

US Topo Content Layers in 2010

Orthoimagery (NAIP)
Roads
Names
Contours
Hydrography

Additional New Content Layers/Features in 2013:

Woodland - tint derived from the National Land Cover Dataset
Structures - Fire stations
Hospitals
Schools
Boundaries - State and county boundaries
Forest Service boundaries

Commercial roads in lieu of U.S Census roads
Forest Service roads and road numbers

USGS

Data Sources

- ***The National Map***

  Transportation – Tele Atlas (2011)

  Boundaries – National Boundaries Dataset

  Names - Geographic Names Information System (GNIS)

  Orthoimagery – National Agriculture Image Program (NAIP)

  Elevation – National Elevation Dataset (NED)

  Hydrography – National Hydrography Dataset (NHD)

  Structures – National Structures Dataset

  Woodland – National Land Cover Dataset (NLCD)

- **Other Sources**

  Grids and quadrangle level metadata - generated

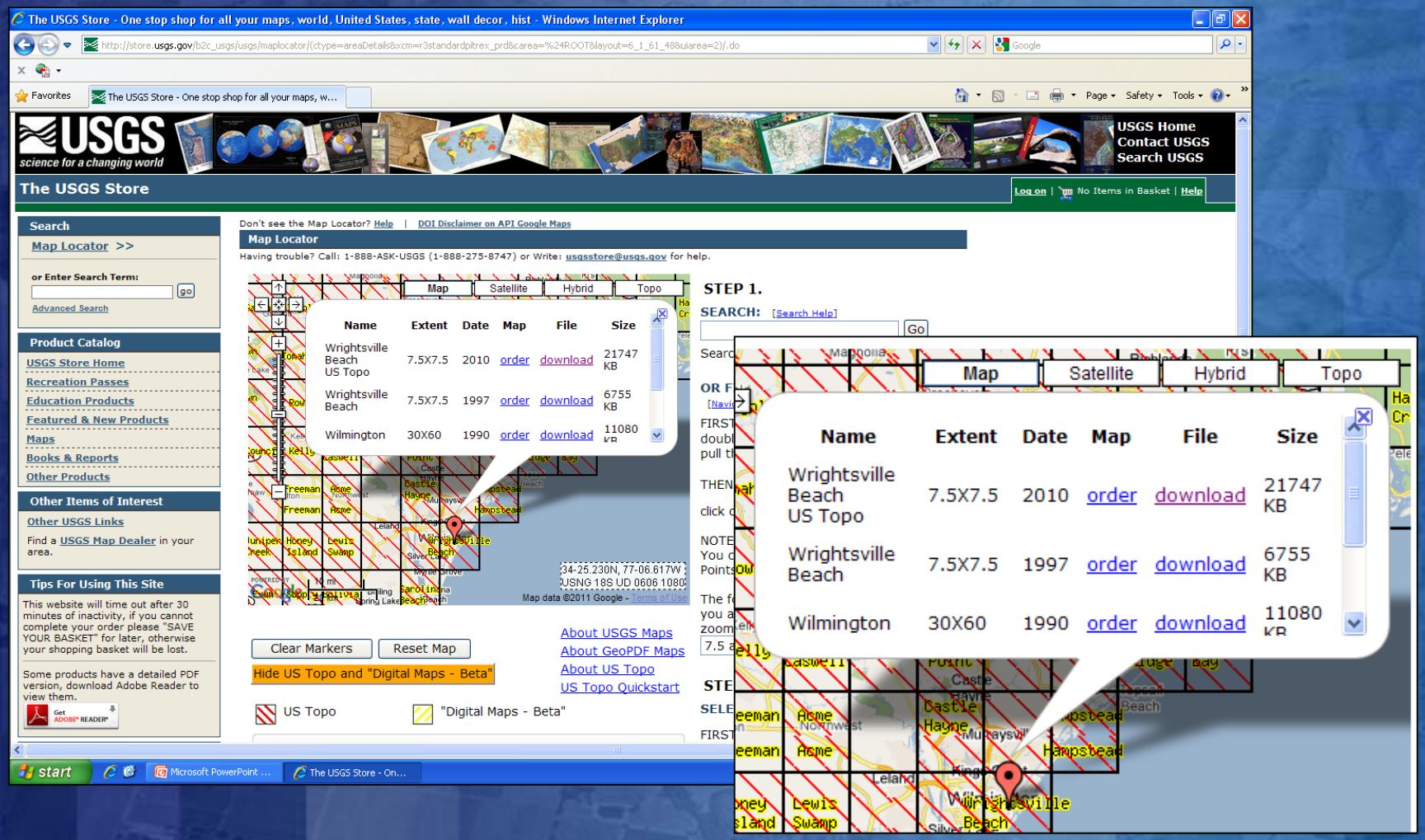
USGS

Key Advantages

- Easily accessible on line from a personal computer
- Interactive & enhanced
- Superior functionality
- Will be improved over time
- Plot / print ready
- Authoritative content from authoritative source
- Quality assured to standards
- Public domain (except Tele Atlas roads)
- Free download (except Tele Atlas data)

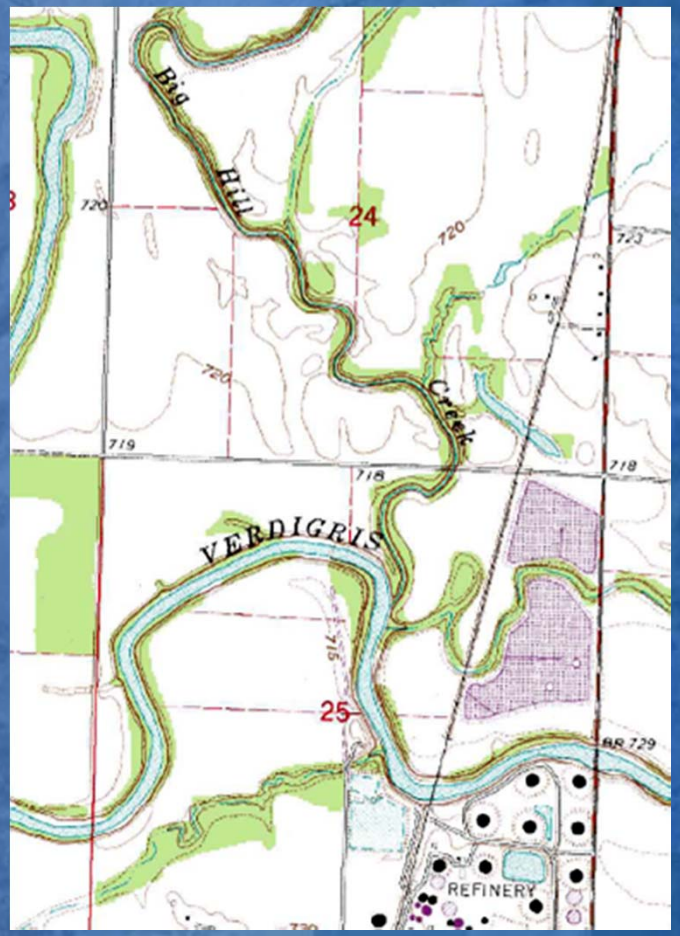
USGS

USGS Store - Download



Historical Topographic Map Collection

- Scan approximately 180,000 printed quadrangles – all maps, all scales; “as is” .
- Historical quads include all printed maps prior to US Topo and now US Topos as these maps are revised
- Consistent, high quality specifications archive 400 - 600 DPI resolution scans
- Georeference all maps and provide metadata
- Release through the USGS Store and *The National Map* Viewer



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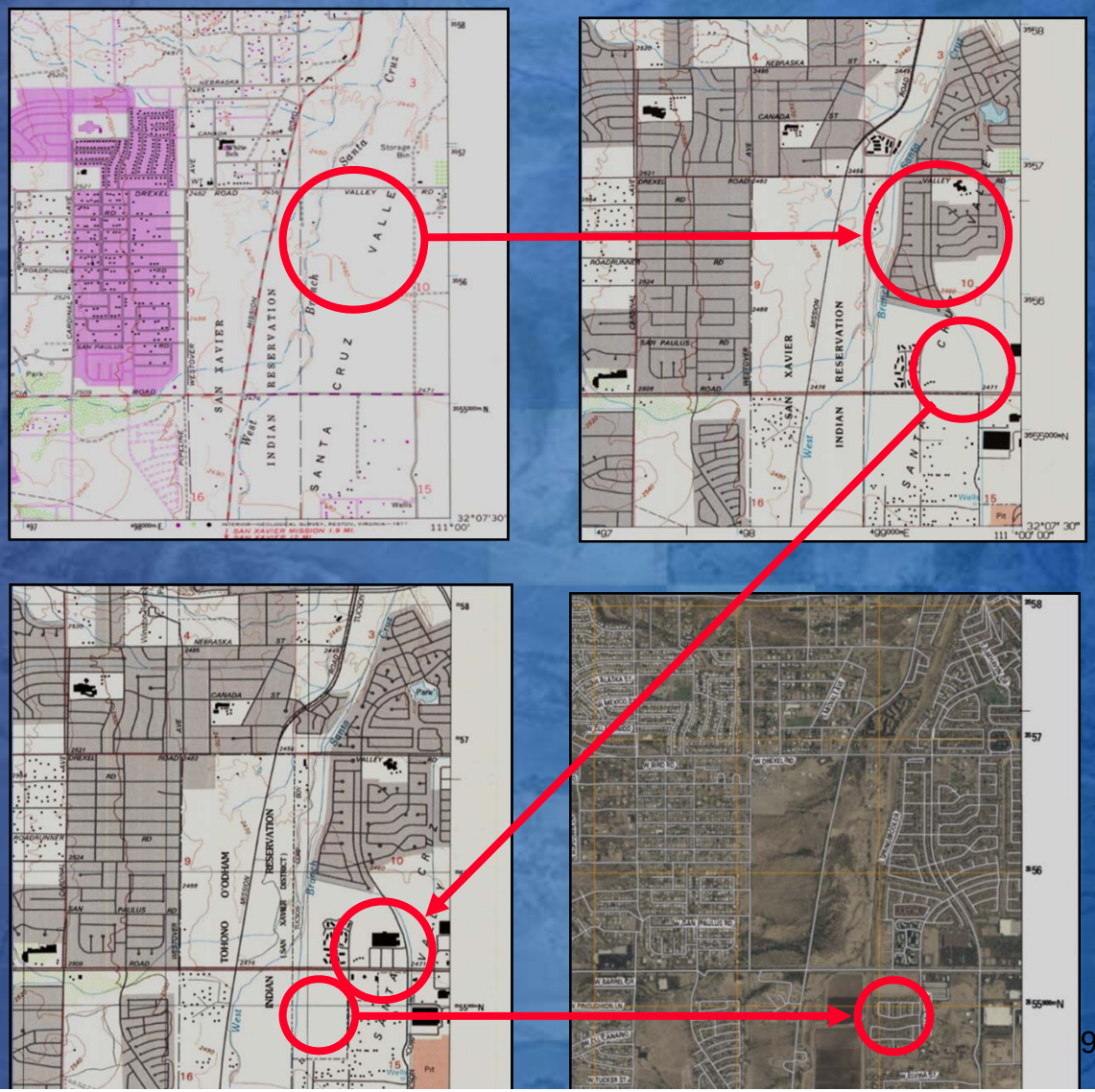
Historical Topographic Map Collection (HTMC)

Historical quadrangles can serve as chronological layers that supplement the US Topos & documents changes over time.

For more than 130 years, the USGS topographic mapping program has accurately portrayed the complex geography of our nation

Provide Long-term record and documentation of the natural, physical and cultural landscape.

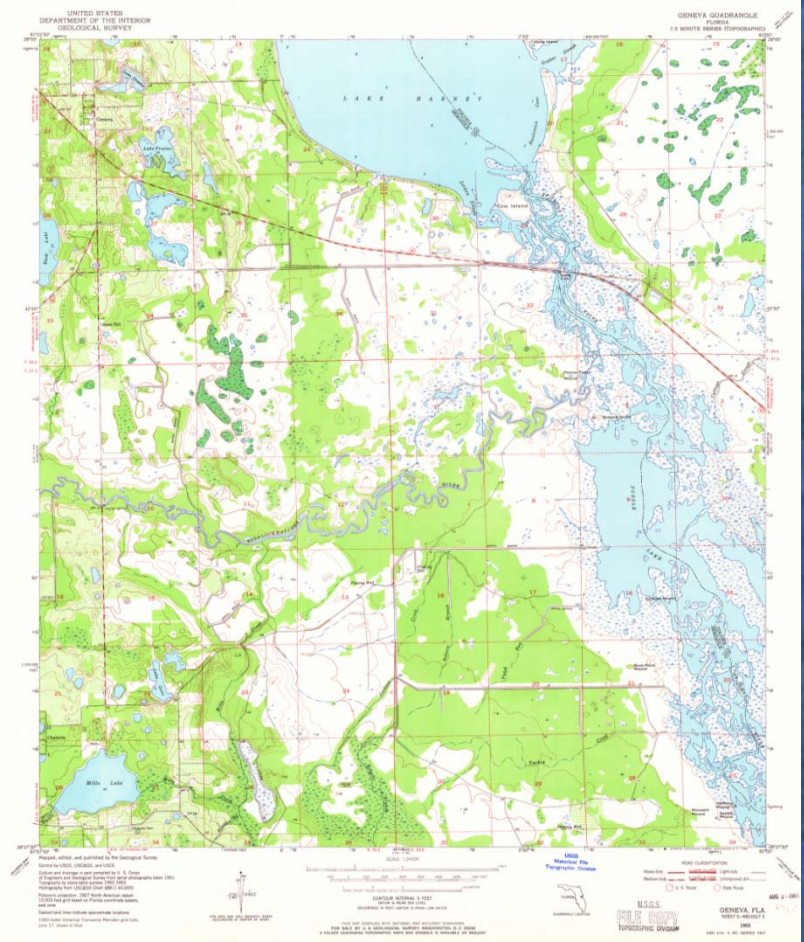
The potential for analysis of distribution and spatial patterns is invaluable throughout the sciences and non-science disciplines



Completed Product

Single File, containing:

1. GeoPDF
2. Neatline
3. Metadata



USGS

The USGS Store - One stop shop for all your maps, world, United States, state, wall decor, hist - Windows Internet Explorer

http://store.usgs.gov/b2c_usgs/usgs/maplocator/(xcm=r3standardpitrex_prd&layout=6_1_61_48&uiarea=2&ctype=catalogEntry&carea=%24ROI

Search: Austin, TX | Address or Place | Go | [Search Help] or

Map | Satellite | Hybrid | Topo

BUY	Size	Date	View	DOWNLOAD
Austin East US Topo	7.5X7.5	2010	view	18.6MB
Austin East	7.5X7.5	1988	view	19.2MB
Austin East	7.5X7.5	1988	view	18.9MB
Austin East	7.5X7.5	1966	view	15.0MB
Austin East	7.5X7.5	1966	view	17.4MB
Austin East	7.5X7.5	1966	view	15.7MB
Austin East	7.5X7.5	1954	view	14.9MB
Austin	15X15	1955	view	8.2MB
Austin	30X30	1910	view	9.2MB

Find a place on the map [Navigation Help]

NAVIGATE:
Double click to re-center, click and drag to pull the map around, zoom in and out.

MARK POINTS:
Click on a place to add a marker.

NOTES:
Switch between Navigate and Mark Points at any time.

The following map footprints appear when you are in the Mark Points mode and zoomed in:
7.5 and 15 Minute

SELECT AND GET YOUR MAPS:
Click marker to see an information bubble showing maps available, then click on "order", "download", or add maps your download cart.

View Download Cart

Clear Markers | Reset Map

Show US Topo and "Digital Maps - Beta"

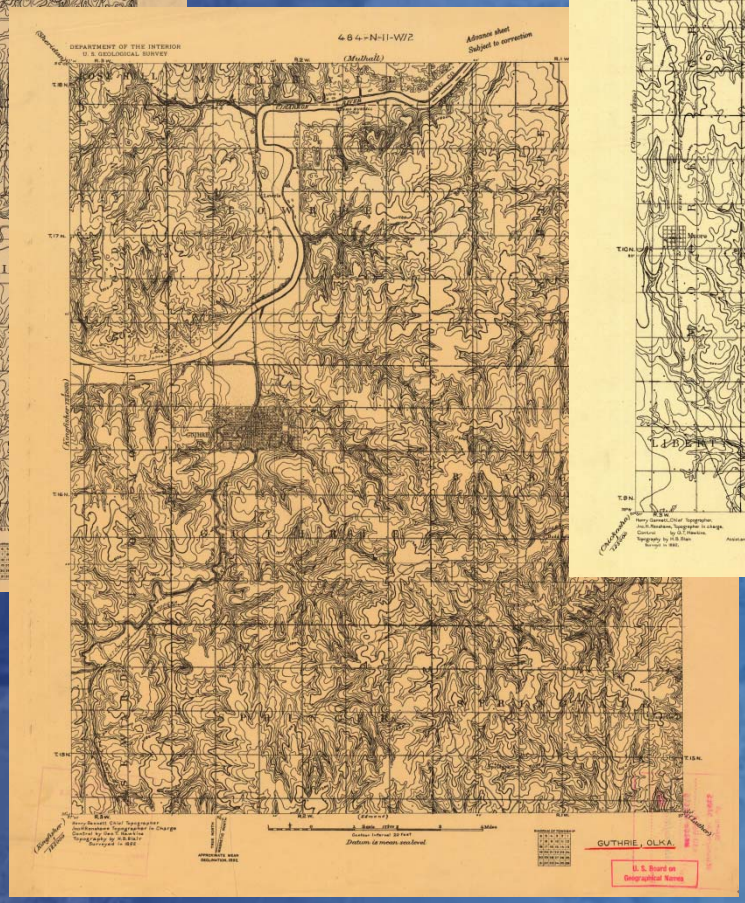
Do more with GeoPDF

Unknown Zone (Mixed) | Protected Mode: Off | 100%

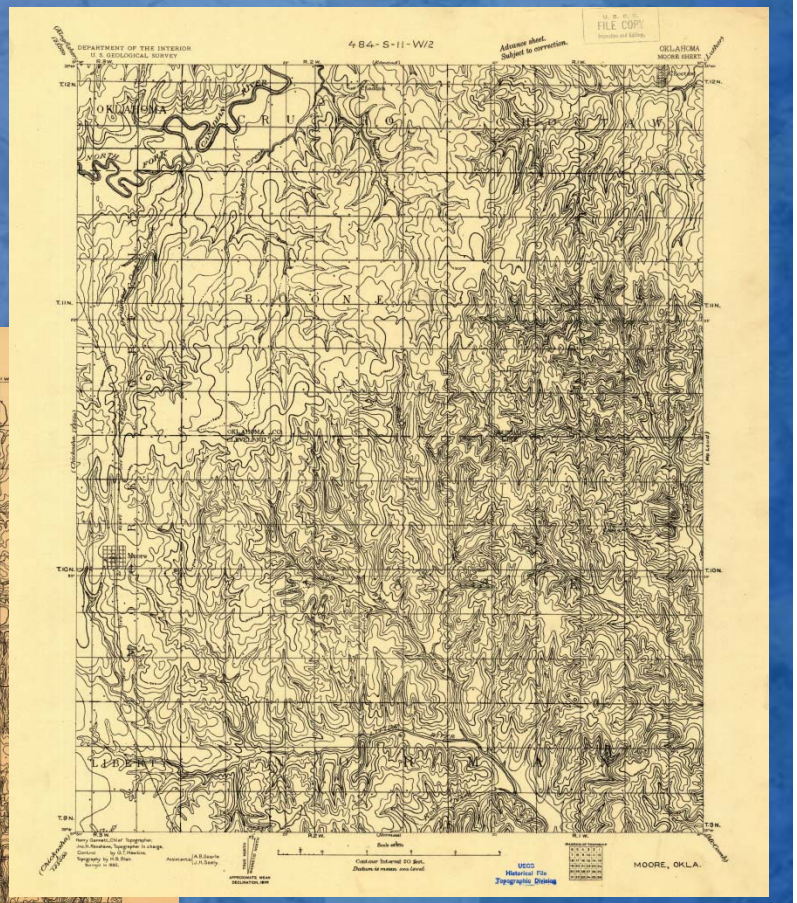
Oklahoma's Oldest Maps

Published 1892, 1:62,500

Edmond



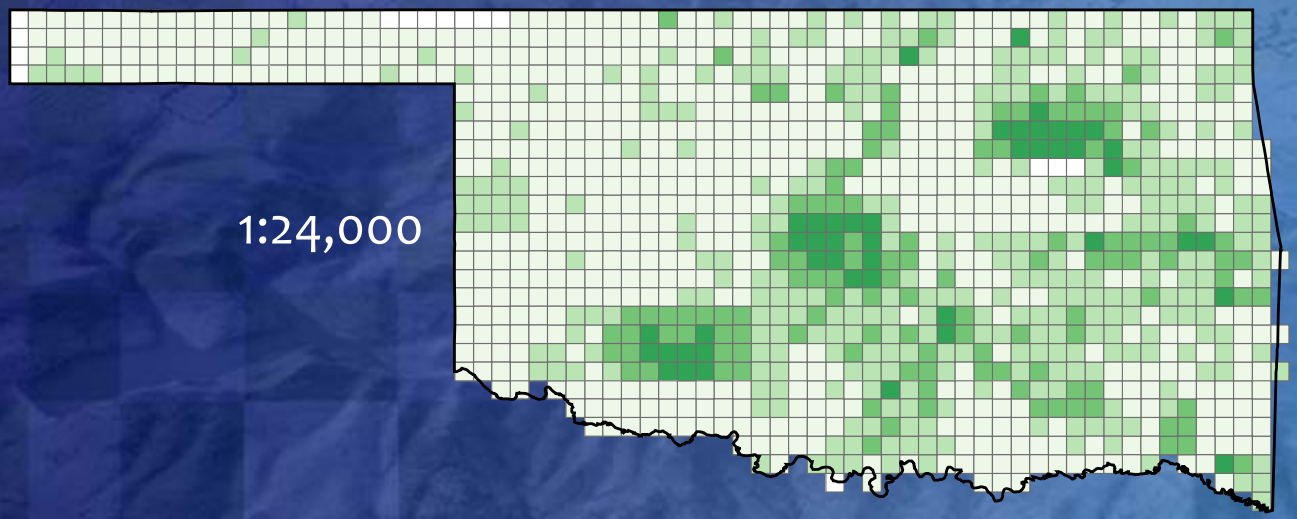
Guthrie

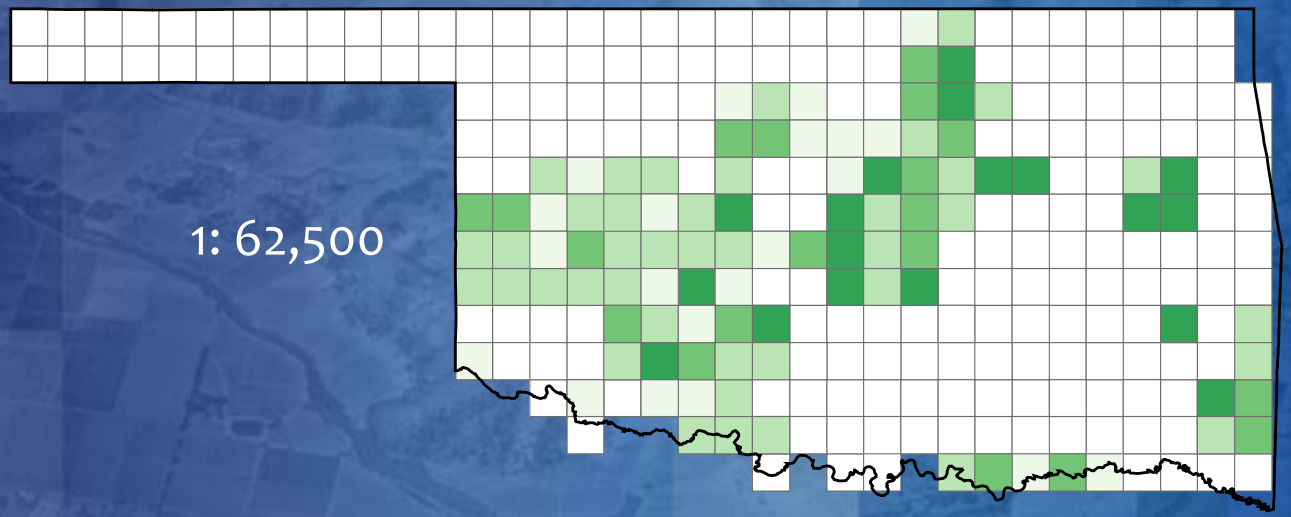


Moore

USGS

Number of Maps by Scale





Maps per Cell

	0		3
	1		4-9
	2		10+

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NGP Digital Elevation Program (NDEP) Transition to 3D Elevation Program (3DEP)

3DEP is a new program initiative that implements recommendations resulting from the National Enhanced Elevation Assessment (NEEA) study completed in December 2011.

The USGS is developing 3DEP with a goal to implement an operational program in FY14

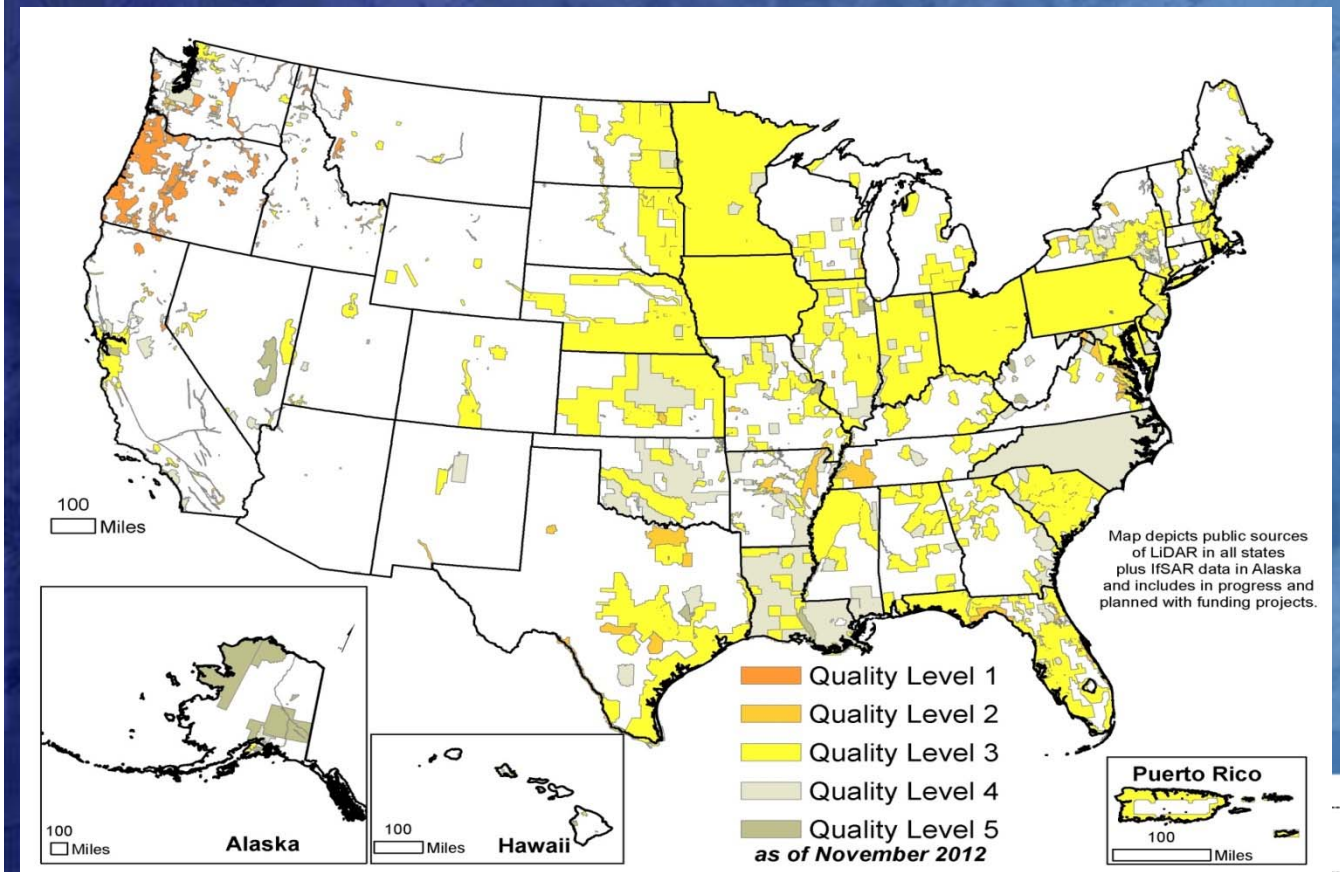
Key 3DEP goals:

- Acquire LiDAR data over the conterminous United States, Hawaii, and the territories on an eight-year cycle. IFSAR data over Alaska
- LiDAR point cloud data to be publically accessible
- Multiple derivative products will be supported as services and will be freely available

USGS

Transitioning to 3D Elevation Program (3DEP)

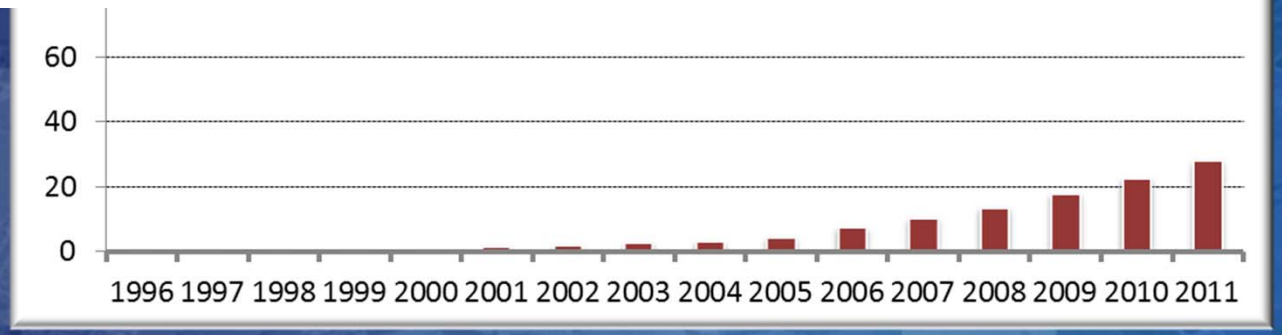
Where are we now?



Approx. 32 % LiDAR coverage since 1996
Primarily QL 3 data

Remaining 68% is 30 or more years old
Currently adding ~3% per year, but not all to common Guidelines and Specifications

Current and emerging needs require much higher quality data!



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Top Business Uses

Business Use #	Business Use Name	Enhanced Elevation Data Annual Benefits	
		Conservative Benefits	Potential Benefits
14	Flood Risk Management	$295M	$502M
21	Infrastructure and Construction Management	$206M	$942M
1	Natural Resources Conservation	$159M	$335M
8	Agriculture and Precision Farming	$122M	$2,011M
2	Water Supply and Quality	$85M	$156M
16	Wildfire Management, Planning and Response	$76M	$159M
9	Geologic Resource Assessment and Hazard Mitigation	$52M	$1,067M
5	Forest Resources Management	$44M	$62M
3	River and Stream Resource Management	$38M	$87M
20	Aviation Navigation and Safety	$35M	$56MTotal
18	Land Navigation and Safety	$0.191M	$7,124.875M
	Total for all Business Uses (1 – 27)	**~$1.18B/yr**	**~$13.B/yr**

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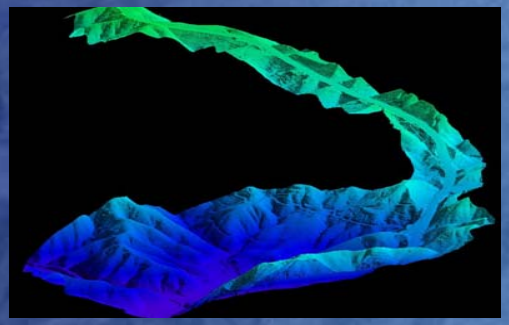
Example Functional Activities

602 Functional Activities documented from 34 Federal agencies, 50 States and Territories, Tribes, and from sampled non-profit/industry, and local governments

Precision Farming



Land Navigation and Safety

Geologic Resources and Hazards Mitigation

Natural Resource Conservation

Infrastructure Management

Flood Risk Mitigation

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Data Quality Level Choices

Quality Levels	Data Source	Horizontal Resolution	Vertical Accuracy	
		Point Density	**RMSEz in Open Terrain**	Equivalent Contour Accuracy
QL 1	LiDAR	**8 points/m^2**	**9.25 cm**	1 foot
QL 2	LiDAR	**2 points/m^2**	**9.25 cm**	1 foot
QL 3	LiDAR	**1 – 0.25 points/m^2**	**≤18.5 cm**	2 feet
QL 4	Imagery/ LiDAR	**1 – 0.04 points/m^2**	**46.3 – 139 cm**	5 – 15 feet
QL 5	Imagery/ IFSAR	**0.04 points/m^2**	**92.7 – 185 cm**	10 – 20 feet

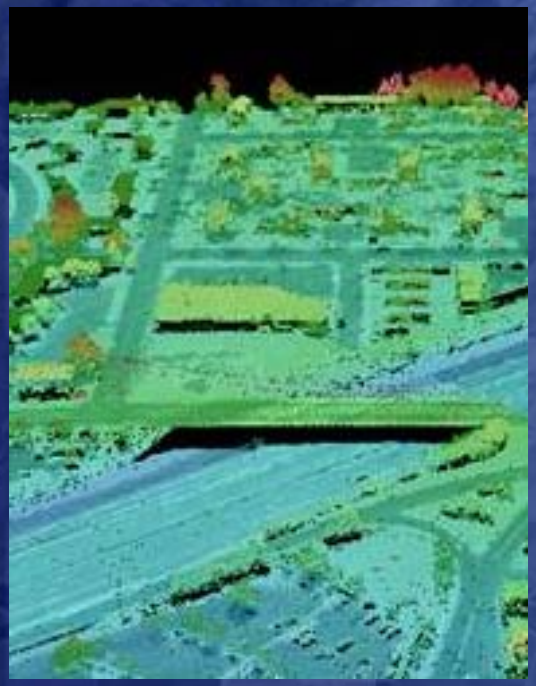
Bathymetric LiDAR requirements assessed for three Quality Levels to include Low, Standard and High. Standard Quality Level (3-5 meter post spacing; RMSEz ~ 20 cm)

Note: USGS LiDAR Base Acquisition Specification version 1.0 is for QL3 data

USGS

LiDAR at Three Quality Levels

- Simulated Quality Levels based on resampled QL1 data



0.35 meter point spacing (QL1)

0.7 meter point spacing (QL2)

1.4 meter point spacing (QL3)

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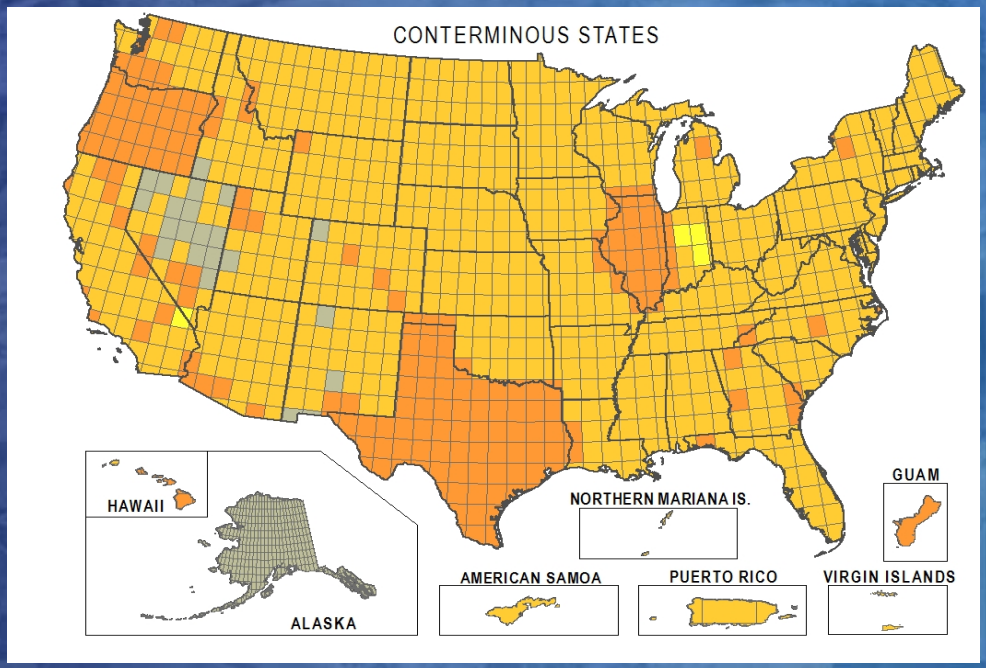
Quality Level Data Requirements

Federal, State and non-governmental requirements

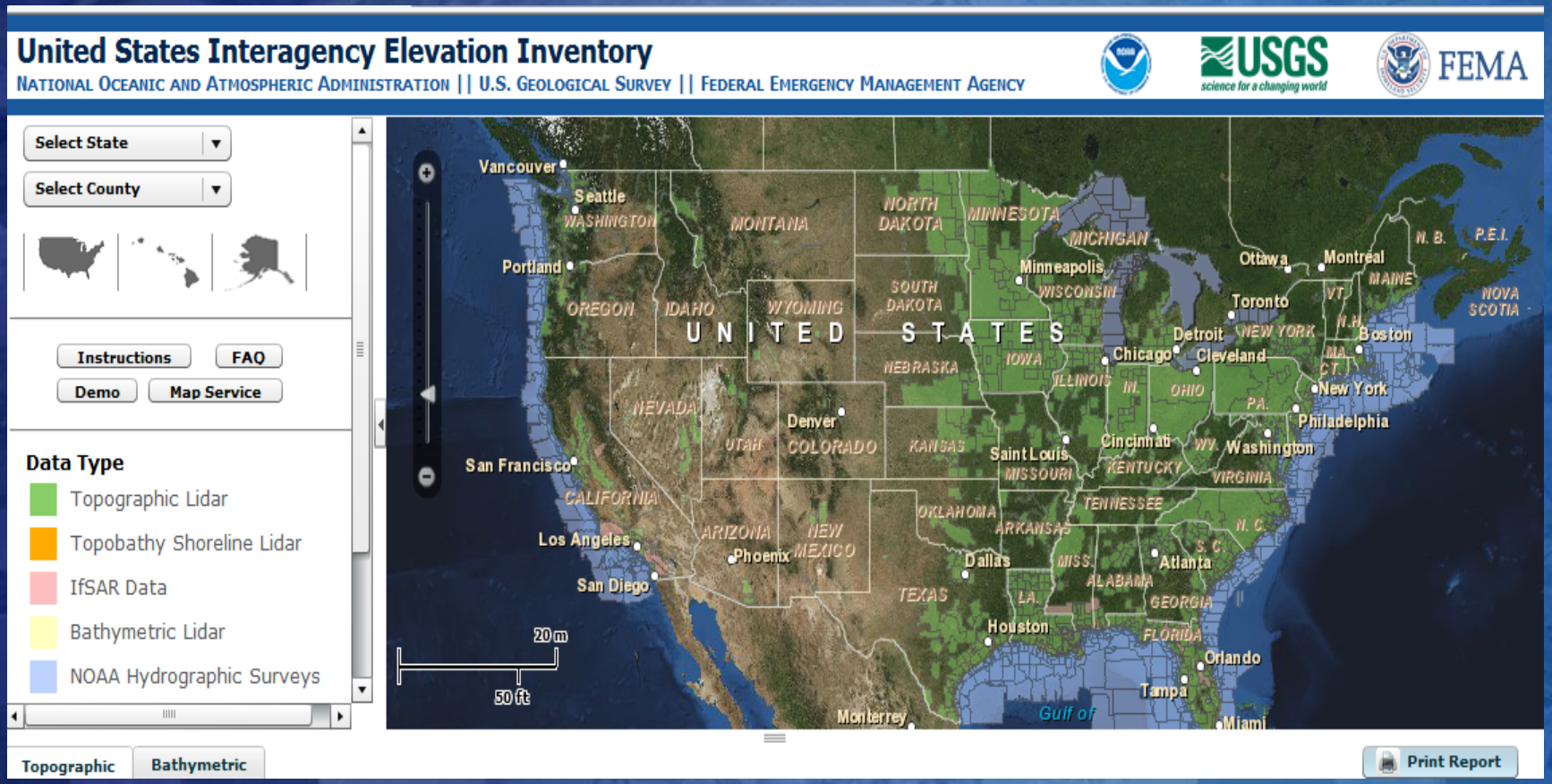
Quality
Levels



USGS

Online Inventory Viewer

NOAA Coastal Services Center:
http://www.csc.noaa.gov/inventory



USGS

http://www.csc.noaa.gov/inventory/ - Windows Internet Explorer

http://www.csc.noaa.gov/inventory/#

Favorites | MCMC Internal Webb Site | Remote Access Portal | Government Lodging & P... | http--environ.okstate.edu... | http--store.usgs.gov-b2c_... | Internet Start | National Geospatial Tech... | OneInterior Home

@The Core - USGS Employ... | http://www.csc.noaa.g...

Page | Safety | Tools

United States Interagency Elevation Inventory

Oklahoma

Cleveland

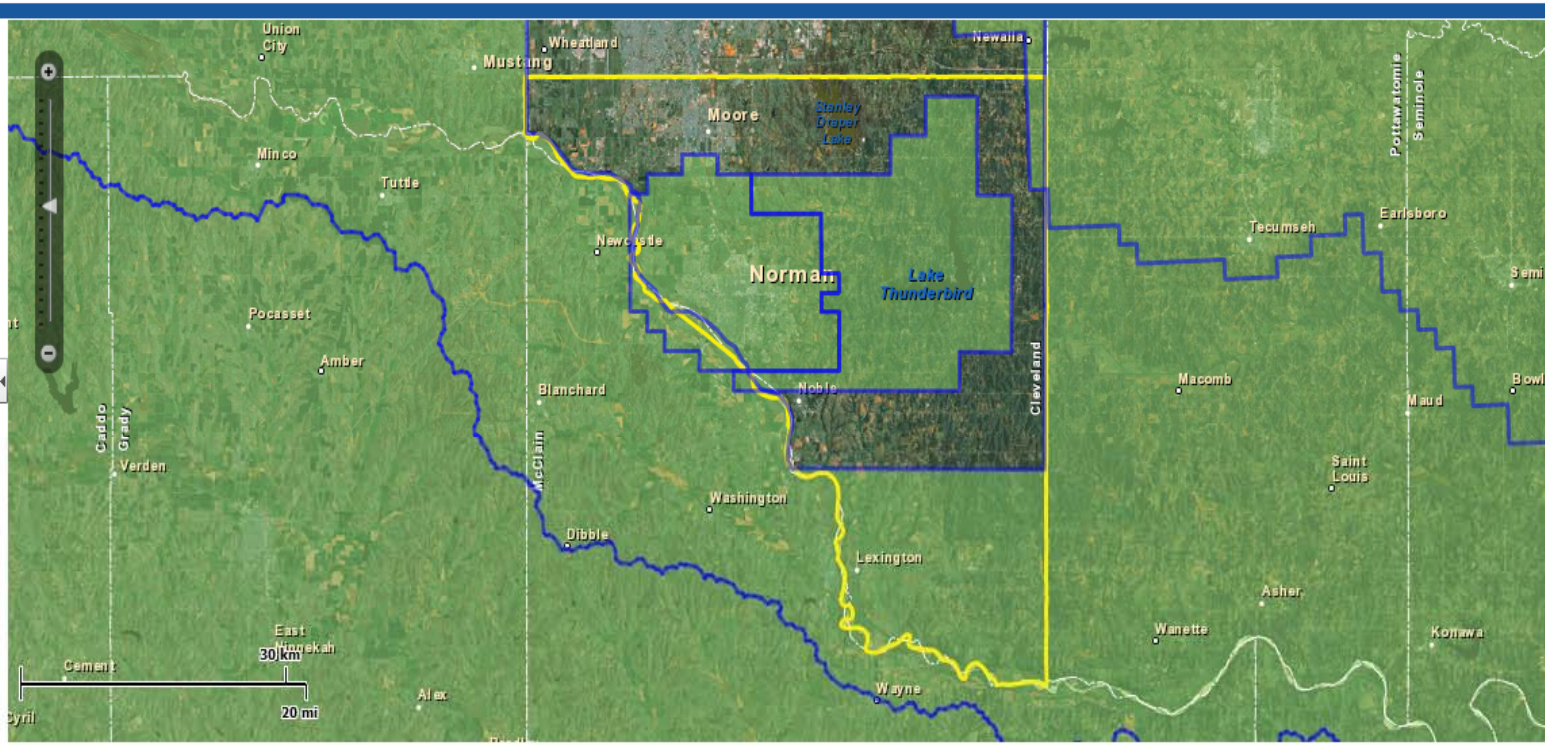
Instructions | FAQ

Download Inventory | Metadata

Map Service | More Information

Data Type

- Topographic Lidar
- Topobathy Shoreline Lidar
- IfSAR Data
- Bathymetric Lidar
- NOAA Hydrographic Surveys
- Other Bathymetric Surveys
- USACE Dredge Surveys
- Trackline Bathymetry



Topographic | Bathymetric | Clear Data

Current Location: Cleveland, Oklahoma

Print Report

Data Set Name	Data Access	Metadata Access	Collection Date	Project Status	Restrictions	Data Type	Vertical Accuracy	Horizontal Accuracy	Point Spacing	Vertical Datum	Horizont
2011 Lower North Canadian Region_ Pottaw	Will be in USGS Earth	Not Provided	8 & 10 Dec, 2011	Complete	Public	Lidar-Topo	12.5 cm	Not Provided	2 m	NAVD88	NAD83
2012 OK LiDAR - NRCS Priority Project	USDA, NRCS, Oklahor	Unknown	Not provided yet	In Progress	Public	Lidar-Topo	18.5 cm	Not Provided	Unknown	Unknown	Unknowr
2007 Norman Rural Contour Lidar Project, C	Manager, GIS Service:	Not provided	Feb-07	Complete	Other	Lidar-Topo	30.0 cm	Not Provided	0.50 m	WGS84	NAD83 H
2007 Norman Urban Contour Lidar Project,	Manager, GIS Service:	Not provided	Feb-07	Complete	Other	Lidar-Topo	18.5 cm	Not Provided	0.35 m	WGS84	NAD83 H

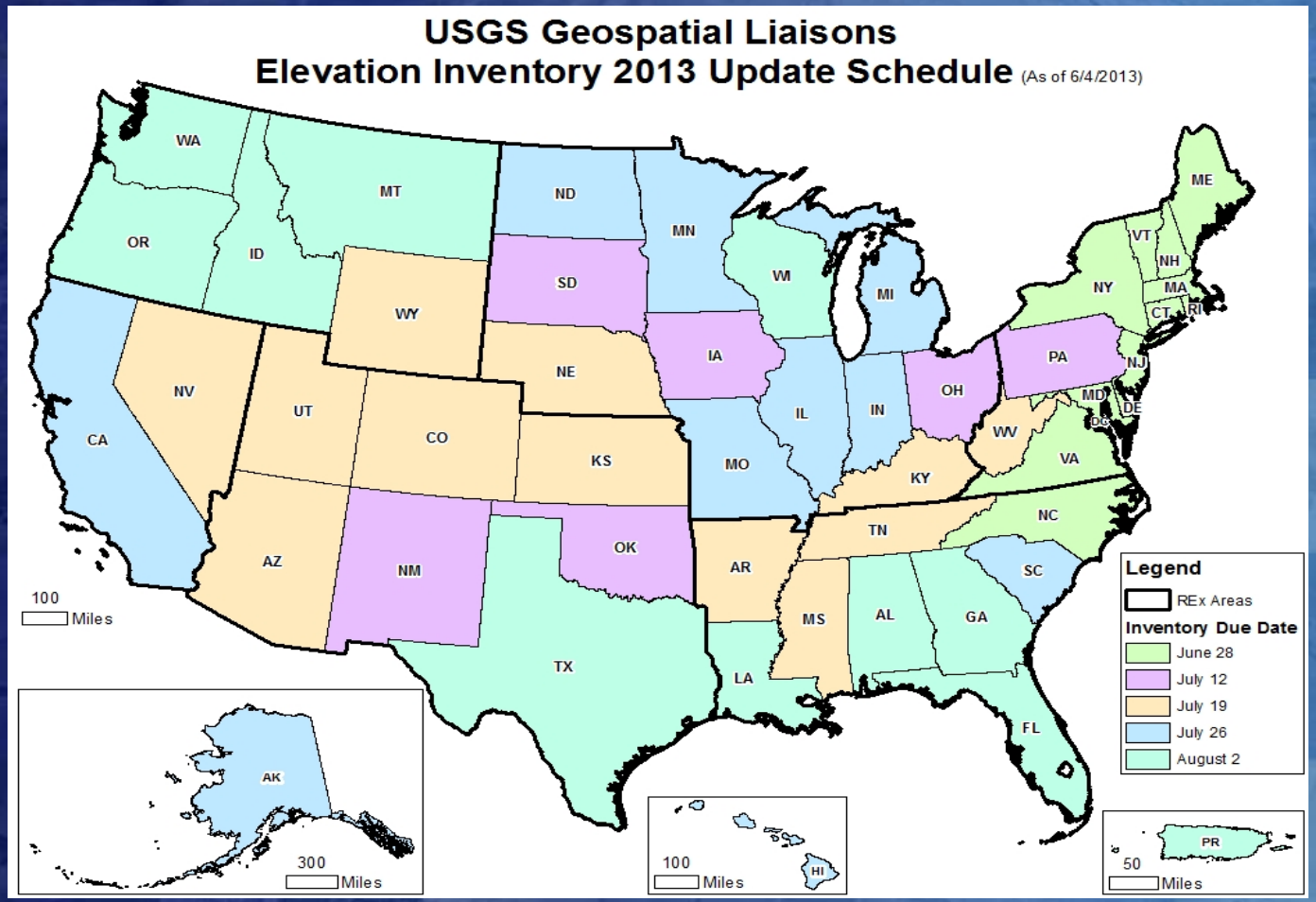
United States Department of Commerce | National Oceanic and Atmospheric Administration | National Ocean Service

Contact Us | Privacy Policy | Link Disclaimer | USA.gov

Trusted sites | Protected Mode: Off

100%

-- NOAA, USGS, and FEMA collaboration to maintain the inventory
-- USGS Liaisons currently gathering data for the FY13 update
-- Inventory is critical to assessing progress towards 3DEP goals



6/28/2013 – CT, DC, DE, MD, MA, RI, ME, NH, NJ, VT, VA, NC

7/12/2013 – IA, NH, NM, OH, OK, PA, SD

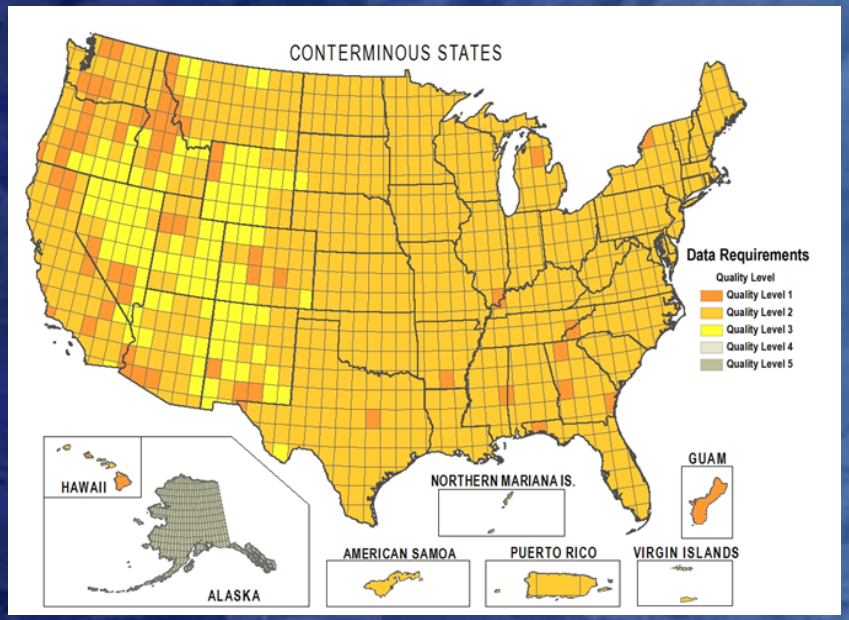
7/19/2013 - AR, AZ, CO, KS, KY, MS, NE, NV, TN, UT, WV, WY

7/26/2013 - AK, CA, IL, IN, MI, MN, MO, ND, SC, HI

8/2/2013 - AL, FL, GA, ID, LA, MT, NY, OR, TX, WA, WI, PR, USVI, Pacific Basin Territories

USGS

8-year acquisition



Optimize Federal benefits

Avg. Annual Costs: $147.9M

Avg. Annual Benefits: $698.9M

Avg. Annual Net Benefits: $551.0M

B/C Ratio: 4.726

Total Possible Benefits Satisfied: 59.2%

USGS

Summary NEEA Report Findings and Conclusions

- Status quo program relatively efficient but meets less than 10% of measured needs
- Investment in IT infrastructure needed to manage data
- No technical barriers to moving ahead
- Major dollar benefits are realized from high quality data

USGS

The USGS Volunteer Mapping Program

Also known as The National Map Corps (*TNM*Corps)

- History of the Volunteer program

- Crowd Sourcing: Volunteered Geographic Information (VGI)
  - Colorado Structures Pilot Projects: Exceeded USGS quality standards
  - 2010 workshop led to the experimental project: the OpenStreetMap Collaborative Project (OSMCP)

- Evolved into a phased, nation-wide expansion of the crowd sourcing VGI project
  - 35 states are currently available for updating
  - By the end of 2013 all 50 states will be included in TNM Structures data collection

USGS

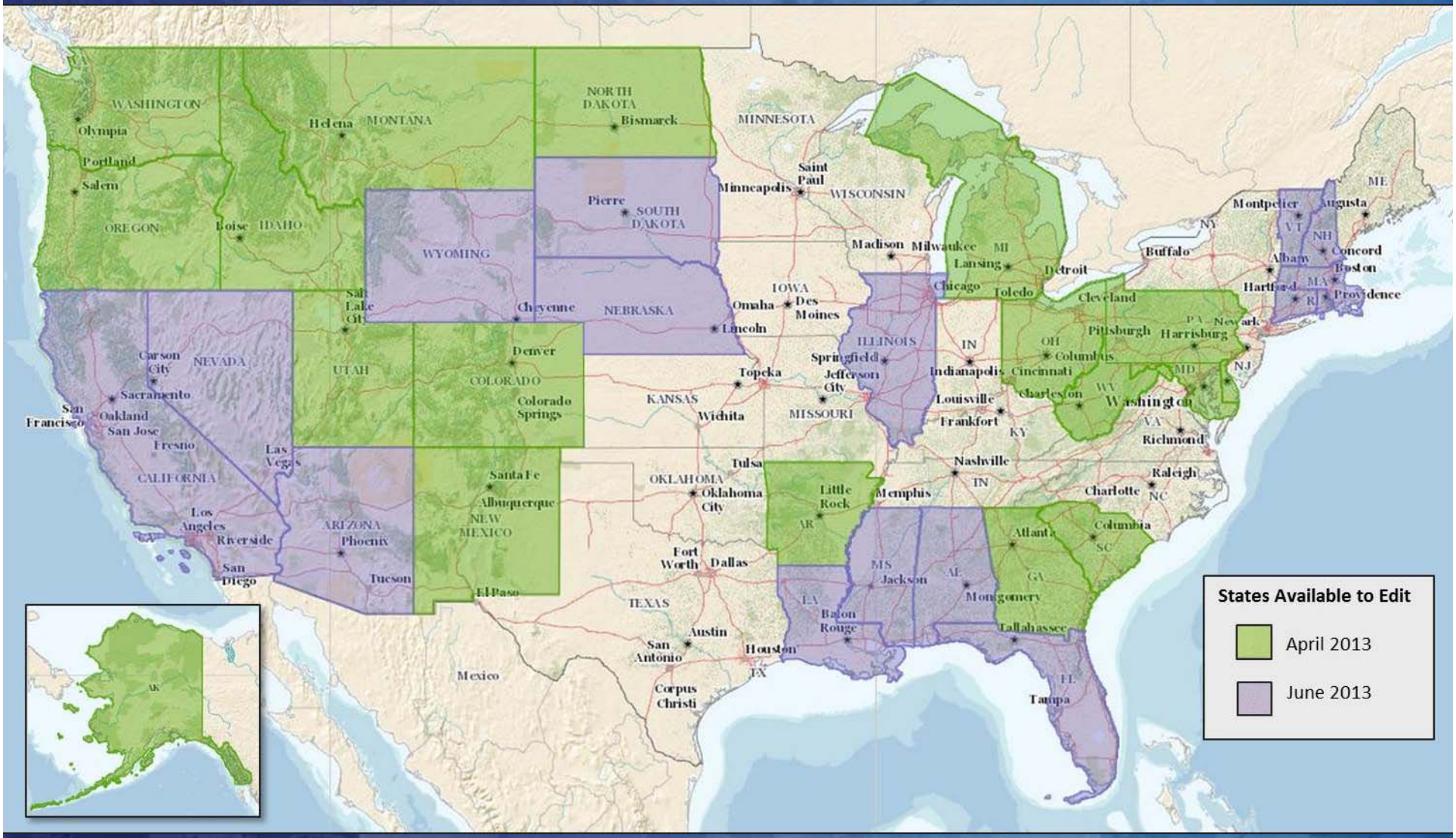
The National Map Corps (*TNM*Corps) Crowd Sourcing

http://nationalmap.gov/TheNationalMapCorps/index.html

- **Collect and Update Structures data regardless of where you live**
- **Structure features are buildings and their descriptions (name, address, & type of feature); include schools, hospitals, fire stations, post offices, police stations, EMS, etc.**
- **35 available states as of June 2013**
  - **AL, AK, AR, AZ, CA, CO, CT, DE , FL, GA, ID, IL, LA, MA MD, MI, MS, MT, ND, NE, NH, NJ, NM, NV, OH, OR, PA, RI SC, SD, UT, VT, WA, WV, WY**

USGS

Available States



USGS

Navigator - Windows Internet Explorer

http://navigator.er.usgs.gov/help/vgistructures_userguide.html

Favorites | MCMC Internal Webb Site | Remote Access Portal | Government Lodging & P... | http--environ.okstate.edu... | http--store.usgs.gov-b2c_... | Internet Start | National Geospatial Tech...

Navigator

Page ▾ Safety ▾ Tools ▾

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science for a changing world

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The National Map Corps

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User Guide for Contributing Structures to
Getting Started
Editing
Resources
Examples
Quick Reference Guide
The National Map Corps Web Site
Online Editor

User Guide for Contributing Structure Data to *The National Map*

Version 2.0 (last updated June 21, 2013)

Watch the Video on this Subject: Overview of *The National Map* Corps

The USGS is currently testing procedures for volunteers to collect and update USGS geographic data. Similar to how OpenStreetMap allows anyone to collect, edit, and use geographic data through an online map editor, the USGS has developed a prototype online editor customized to our data to allow volunteers to contribute data to *The National Map* and *The National Structures Dataset*.

We are looking for people like you to work with us to collect structures for the USGS. The data you will collect during this project will be loaded into *The National Map*. If you have access to the Internet and are willing to dedicate some time editing map data we hope you will consider participating!

For the past year volunteers have been updating data in Colorado with great results. As we get close to finishing Colorado we are opening up editing in more states! Volunteers can now contribute data for **Alabama, Arizona, Arkansas, Alaska, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Montana, Nebraska, Nevada, New Hampshire, North Dakota, New Jersey, New Mexico, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Utah, Vermont, Washington, West Virginia and Wyoming**. You do not need to live in available states to participate. Our editing guidelines explain how you can contribute data from anywhere.

As the project progresses additional states will be released.

Volunteer Recognition Program - The National Map Corps - myUSGS 4.0 - Windows Internet Explorer

https://my.usgs.gov/confluence/display/nationalmapcorps/Volunteer+Recognition+Program

Favorites | MCMC Internal Webb Site | Remote Access Portal | Government Lodging & P... | http--environ.okstate.edu... | http--store.usgs.gov-b2c_... | Internet Start | National Geospatial T

@The Core - USGS Employ... | Volunteer Recognition ...

USGS
science for a changing world

The National Map Corps

Home View Edit

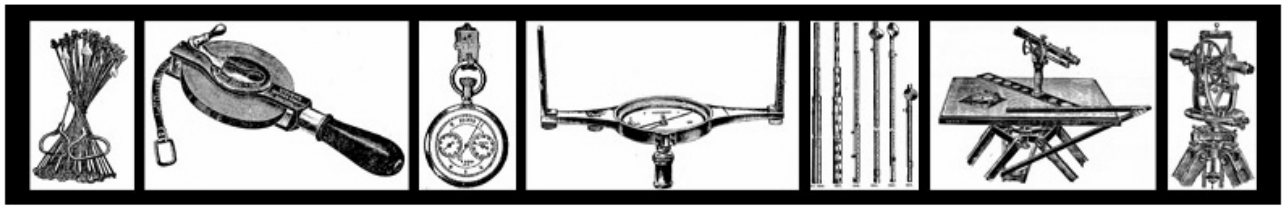
1 Added by Korris, Erin M., last edited by Korris, Erin M. on Jun 17, 2013 (view change)

Search

- Home
- Start Here - Editing Guidelines
- The Editor - Potlatch 2
- Peer Review (AAQ)
- Videos
- Status Maps
- Volunteer Recognition Program
- Editing Challenges
- Project Updates
- FAQ
- Social Media
- Calendar
- Filing Cabinet
- Bookmarks
- Sitemap
- Contact Us

Dashboard The National Map Corps Home Volunteer Recognition Program

Volunteer Recognition Program

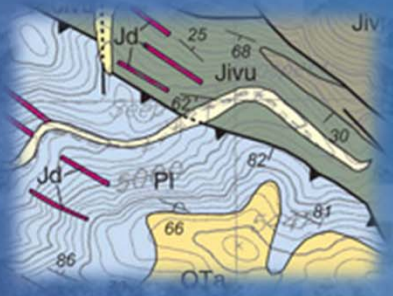


Click here to learn more

National Geospatial Program (NGP) Strategic Direction

Transition to focusing on Communities of Use (COU)

- Emphasis on meeting user needs & requirements
- NGP Priority communities of use
  - Water resources
  - Natural resources conservation
  - Geologic mapping
  - Geologic hazards

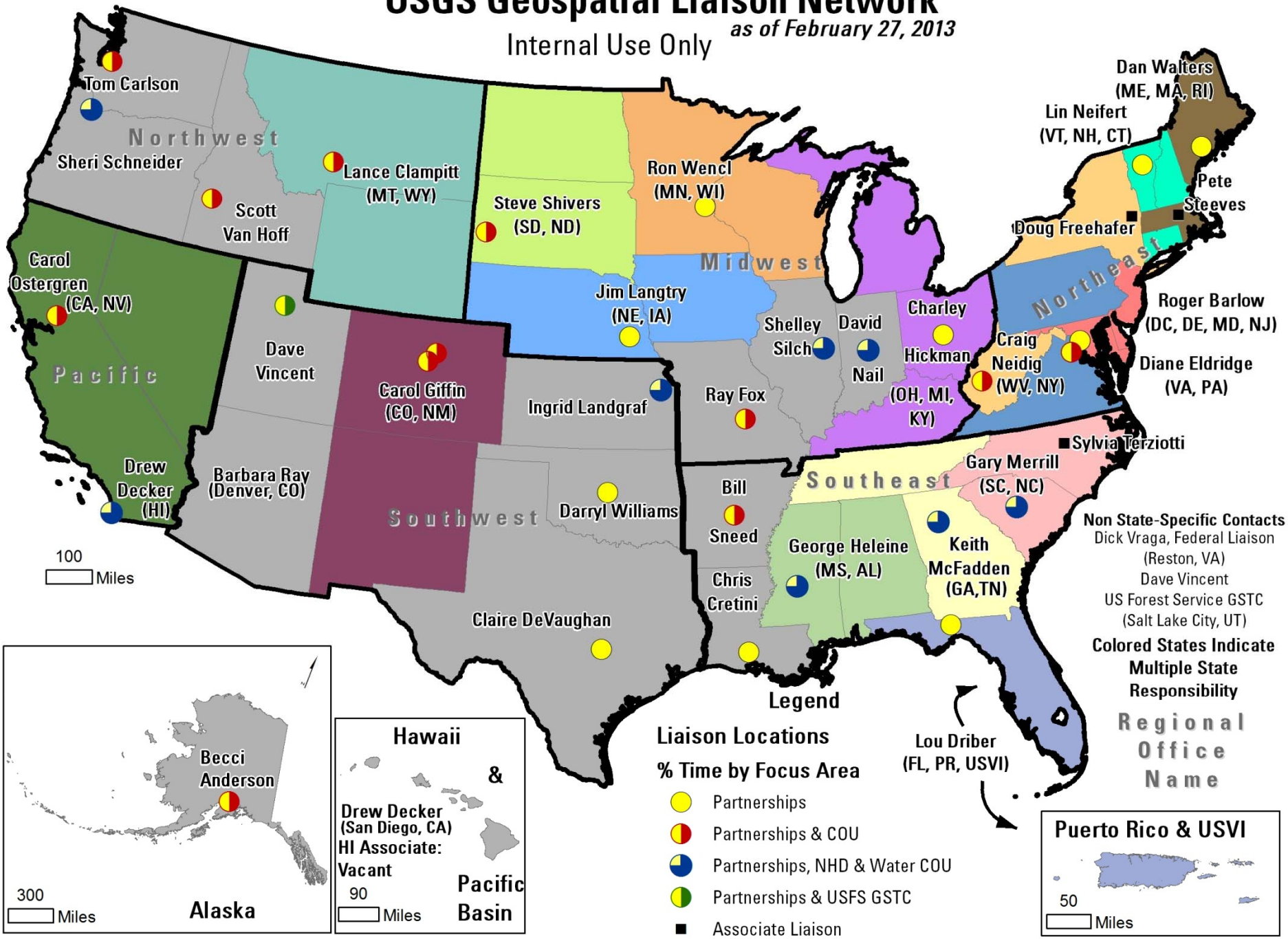


USGS

USGS Geospatial Liaison Network

Internal Use Only

as of February 27, 2013



Questions & Comments?

Darryl S Williams
USGS Geospatial Liaison for Oklahoma
U.S. Geological Survey
dwilliams@usgs.gov
405-810-4403

USGS

The State GI Council

Who, What, Why….

Creation of the State GI Council

- Authorized in 1994 by SB 722
  - ✓ Consisted of 11 member agencies and university representatives
  - ✓ Designated the OK Conservation Commission as the Chair of the Council
  - ✓ Original mission was to assist the Conservation Commission in the preparation of a strategy for the development of a statewide GIS and the submission of that strategy to the Legislative leadership

Creation of the State GI Council

- HB 1964 in 1995
  - ✓ Added three additional members to the Council
    - State Finance, OK Tax Commission, Regional Universities
  - ✓ Created Digital Orthophoto Base Mapping Fund
- Amendment in 2001
  - ✓ Added additional member to the Council
    - OK Wildlife Conservation Commission

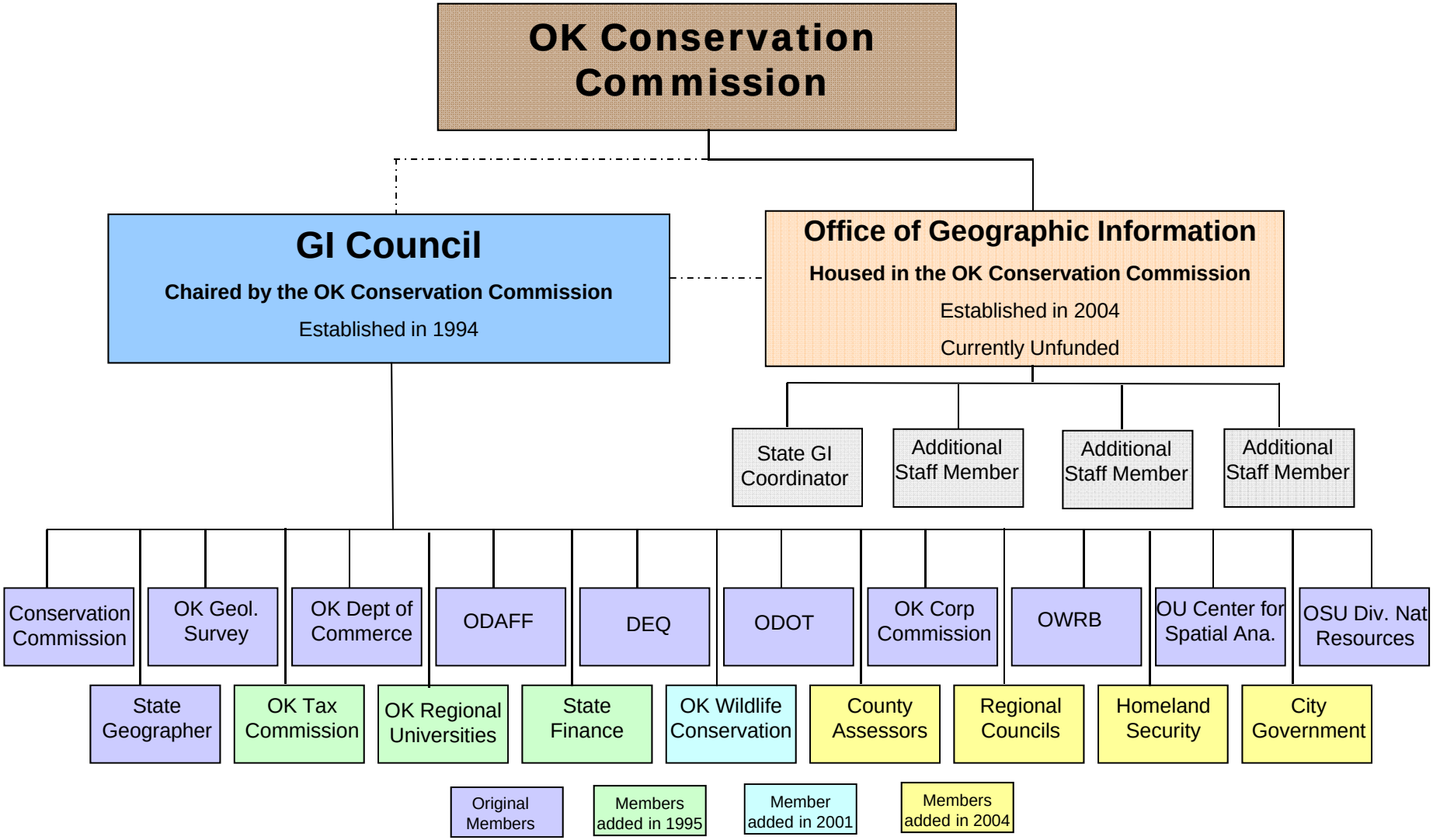
Changes to the State GI Council

- Legislative Interim Study H2003-105
  - ✓ Presented December 4, 2003
  - ✓ Issues for Consideration
    - Add Public Safety/County/Local Members
    - Designate a State-wide Coordinator
    - Authority to Set Policy & Standards

Changes to the State GI Council

- HB 2457 in 2004
  - ✓ Changed the name from State GIS Council to State GI Council
  - ✓ Added 4 new members to the Council
    - Homeland Security, County Assessors, City Government, OK Association of Regional Councils
  - ✓ Specified Duties for the Council
  - ✓ Created the Office of Geographic Information
    - Specified Duties for the Office
  - ✓ Created the State Geographic Information Coordinator Position

Structure of the State GI Council



Goals of State GI Council

- Reduce Duplication of Efforts
- Enhanced Homeland Security
- Awareness of Available Data
- Data Works Across Jurisdictional Lines
- Data Reliability
- Agency Coordination & Involve More People
- Cost Savings to Taxpayers

Activities of the State GI Council

- Monthly Meetings
  - September 6, 2013
    - New Online Viewing Options
      - http://www.okmaps.onenet.net/meetings.htm
- GIS Day at the Capitol
  - March 27, 2014
- GI Council Website
  - www.okmaps.onenet.net
- OK GIS List Serve (In Cooperation with CSA)
  - www.csa.ou.edu
- Address Standards
  - In progress

Office of Geographic Information

- Office and State Coordinator Position Currently Unfunded
- Volunteer Staff
- Projects include:
  - ✓ Strategic Plan Grant completed in 2007
  - ✓ Serving up NAIP Photography (in cooperation with CSA)
  - ✓ Homeland Security Grant
  - ✓ Oklahoma Broadband Mapping Grant
  - ✓ Tornado Response
  - ✓ E-911 Collaboration Project

Office of Geographic Information Mission

The OK Office of Geographic Information provides geographic information services to governments, academia, industry, and the public.

The Office:

- Supports the GI Council with technical assistance.
- Coordinates and promotes geographic information awareness, activities, data, and training.
- Develops standards, policies, and operating procedures.
- Maintains a centralized statewide clearinghouse of accurate and timely data while protecting data security.
- Facilitates data development, sharing and access.
- Fosters the values and benefits of GIS technology to ensure good stewardship of the State's resources.

Strategic Direction and Goals

- Building a Sustainable Future
  - ✓ Annually prepare three-year budget
  - ✓ Develop state coordinator and GI job classifications and descriptions for approval
  - ✓ Conduct awareness campaign with agency directors and legislative leaders

- Marketing GI as an Important Decision Making Tool
  - ✓ Develop pilot project to increase awareness of GIS need
  - ✓ Increase website utility

- Maximize Geographic Information Benefits for the State
  - ✓ Participate in national multi-state GI organizations
  - ✓ Participate in regional and national coordination efforts
  - ✓ Initiate data sharing/stewardship agreements among specific stakeholders
  - ✓ Leverage existing national organization participation
  - ✓ Develop partnerships for data sharing and stewardship
  - ✓ Establish official statewide information clearinghouse

NAIP Photography

- Available for Download on FTP Site
  - Data Available Includes
    - ✓ 1 meter Full Color Leaf On
      - 2003 – 2005, 2008, 2010
      - 2013 in Progress
    - ✓ 2 meter Full Color Leaf On
      - 2006

ftp://ftp.okcc.state.ok.us/gis/County/

OKMAPS

- Funded by OK Dept of Homeland Security
- On Line Mapping Application for Public Use
  - Allows Viewing and Downloading of Data
  - Secure Log In for Sensitive Data

http://ogi.state.ok.us/ogi/search.aspx

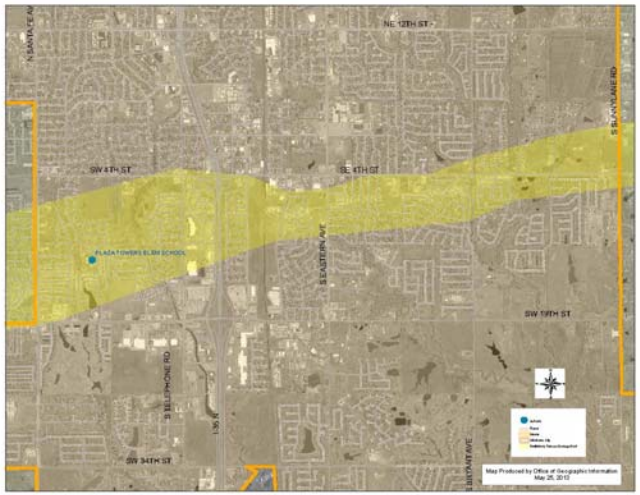
OK Broadband Mapping Grant

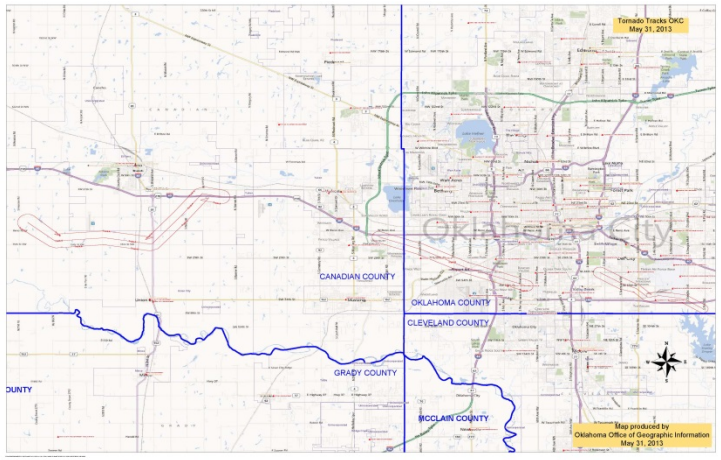
- Locate areas that are served with broadband Internet services and those that are underserved or unserved.
  - Areas determined by:
    - Provider Data
    - Community Anchor Institution Input
    - Community Involvement

http://broadbandmapping.ok.gov

Moore/ El Reno Tornado Response

- Provided GIS services during the May Severe Weather Outbreak
  - Moore:
    - Provided GIS Services in Incident Command
  - El Reno:
    - Provided GIS Services to Emergency Management





E-911 County Collaborative Effect

- E-911 Initiative to Make Data Available
  - 9 Counties in Southern Oklahoma
  - Using OKMAPS to host Data
    - Data Available over the Web
    - Secure Login
    - No cost to Counties

http://ogi.state.ok.us/ogi/search.aspx

Questions

For More Information

Shellie Willoughby
OK Conservation Commission
Office of Geographic Information

Shellie.willoughby@conservation.ok.gov
405.521.4828

Mapping Session

What Can I Use All This Mapping For?

Presented by Troy Frazier, OTC

Troy Frazier, CMS

Cartographer

Ad Valorem Division

Phone: (405) 319-8200

Facsimile: (405) 521-0166

E-mail: tfrazier@tax.ok.gov

Mailing Address:

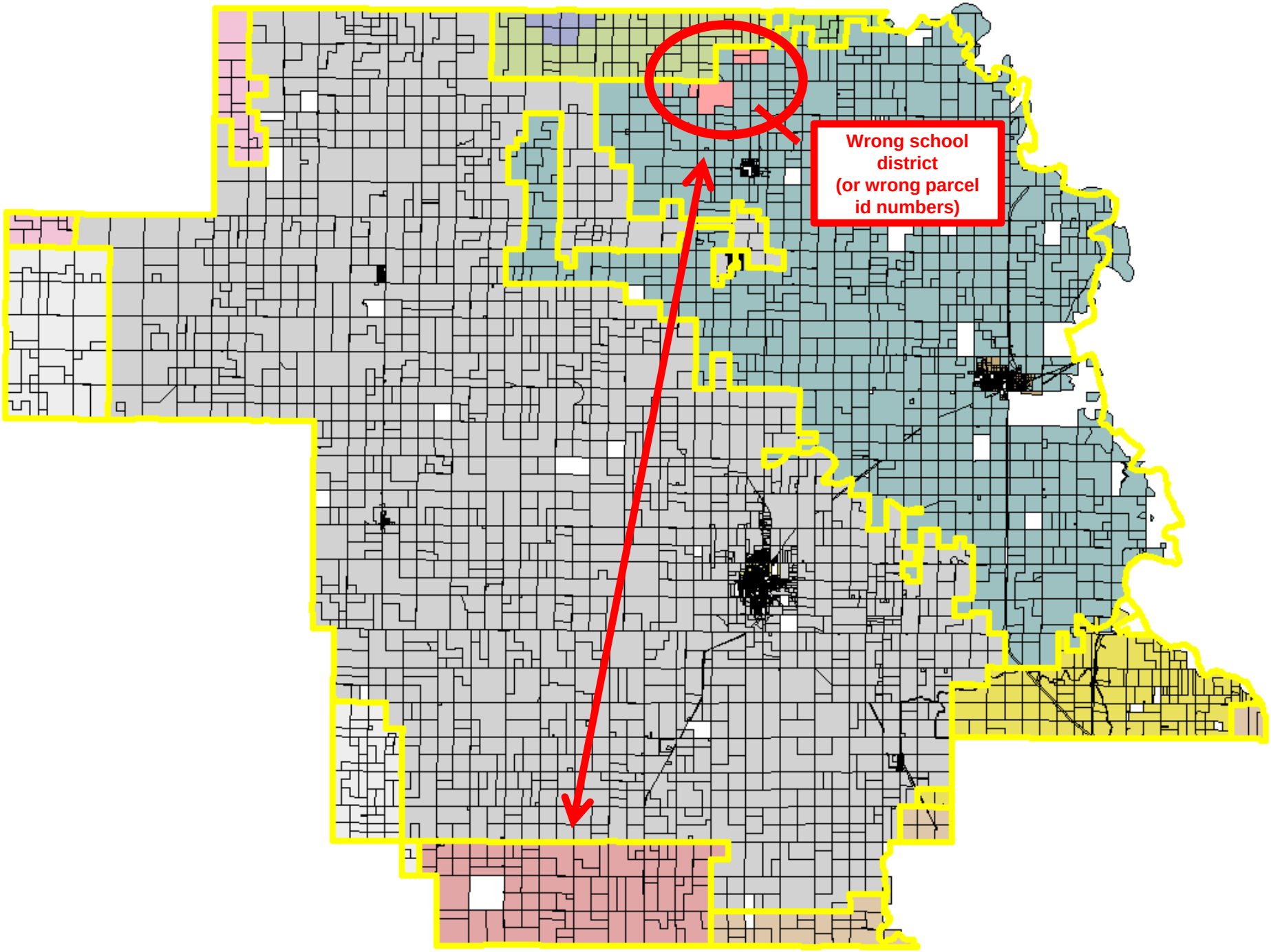
PO Box 269060, Oklahoma City, Ok 73126-9060

Why do you map and what can you do with it?

Check School District and City Codes on Parcels

§2815.2. County Assessor Maintain Current Boundary Description of School Districts.

The county assessor shall maintain and use the current boundary descriptions of each and every school district or part of a district in the county furnished by the State Department of Education pursuant to Section 4-104 of Title 70 of the Oklahoma Statutes.


Wrong school district (or wrong parcel id numbers)

Title 11
Article 21. Cities and Towns

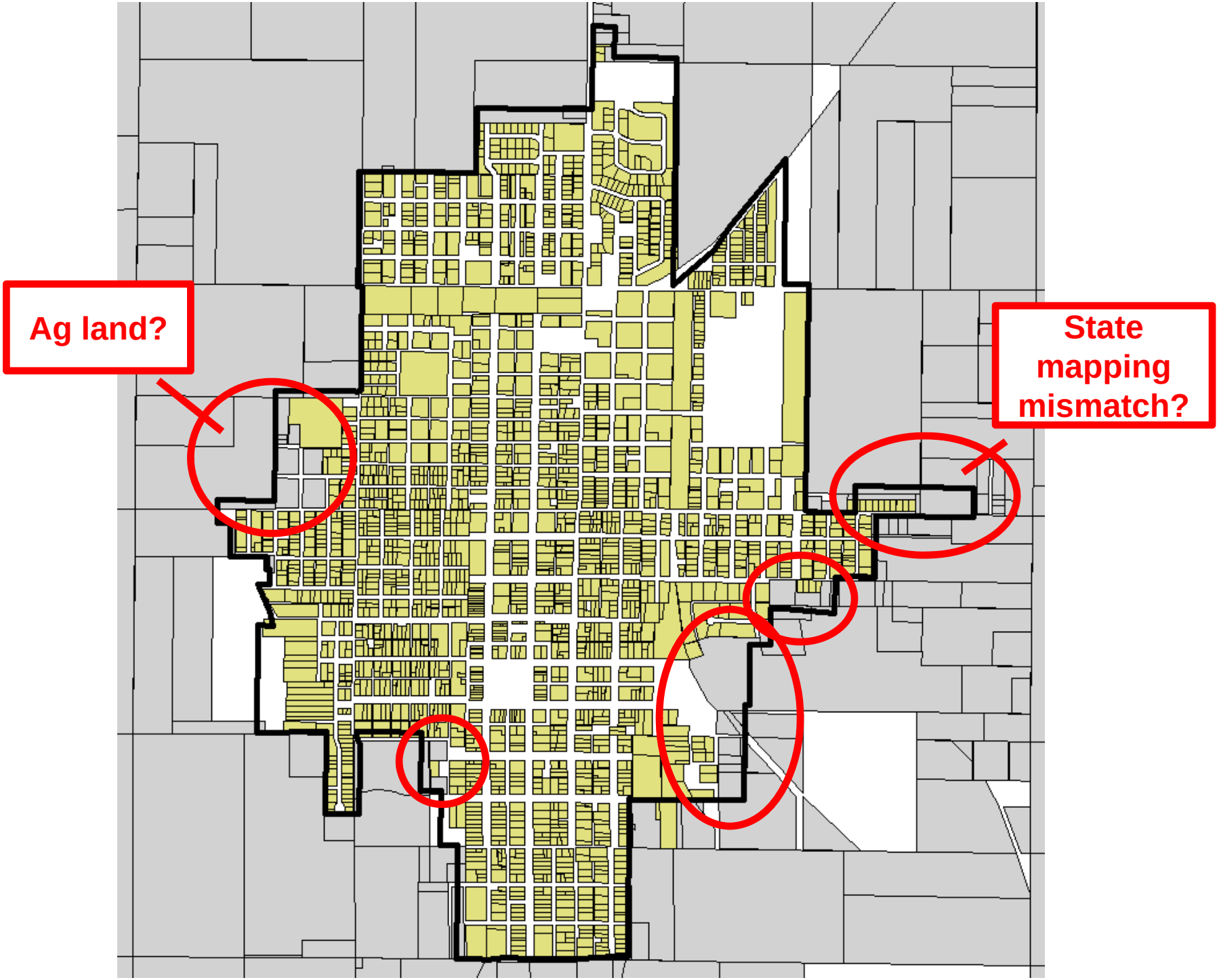
§21-109. Taxation of Annexed Territory

A. Tracts of land in excess of forty (40) acres which are annexed to a municipality and used for industrial or commercial purposes shall not be subject to ad valorem taxes at the municipal rate. Tracts of annexed land in excess of five (5) acres which are used by persons engaged in farming or ranching, and all farm animals and livestock, and all agricultural implements and machinery and household goods located on the land, shall not be subject to municipal taxes unless the municipality furnishes services to these tracts as are ordinarily furnished to municipal residents. Tracts of land with an area of width no greater than three hundred twenty-six (326) feet at the widest point which are annexed to a municipality shall not be subject to municipal taxes, unless such tracts are annexed pursuant to paragraph 2 of subsection A of Section 21-103 of this title. No land which is used for agricultural purposes may be taken within the limits of a town and taxed at a greater rate than land which is adjacent to but outside the town limits.

B. On any annexation after July 1, 1998, the revenue and taxation ordinances of any municipality and the licensing and regulatory authority of any municipality shall not apply or extend to any military installation located on federal property which has been annexed in part or in whole by a municipality.

§21-112. Record Regarding Territory Annexed or Detached.

When any territory is annexed to or detached from a municipality, whether by ordinance or court order, the mayor shall file and record a duly certified copy of the ordinance or court order, together with an accurate map or plat of the territory, in the office of the county clerk of the county in which the territory, or the greater portion of it, is located and with the Ad Valorem Division of the Oklahoma Tax Commission. The record in the office of the county clerk shall be conclusive evidence of such annexation or detachment.


Ag land?
State mapping mismatch?

Assist With Fair and Equitable Valuation of Property

Title 68
Article 28. Ad Valorem Taxes

§2821. Physical Inspection of Real Property - Recording of Information – Comprehensive Sales File - Drafting Facilities.

A. Each county assessor shall cause real property to be physically inspected as part of the visual inspection cycle and shall require such examination as will provide adequate data from which to make accurate valuations.

B. The information gathered from the physical inspection shall be relevant to the type of property involved, its use category, the valuation methodology to be used for the property, whether the methodology consists of the cost approach, an income and expense approach or sales comparison approach, and shall be complete enough in order to establish the fair cash value of the property in accordance with accepted standards for mass appraisal practice.

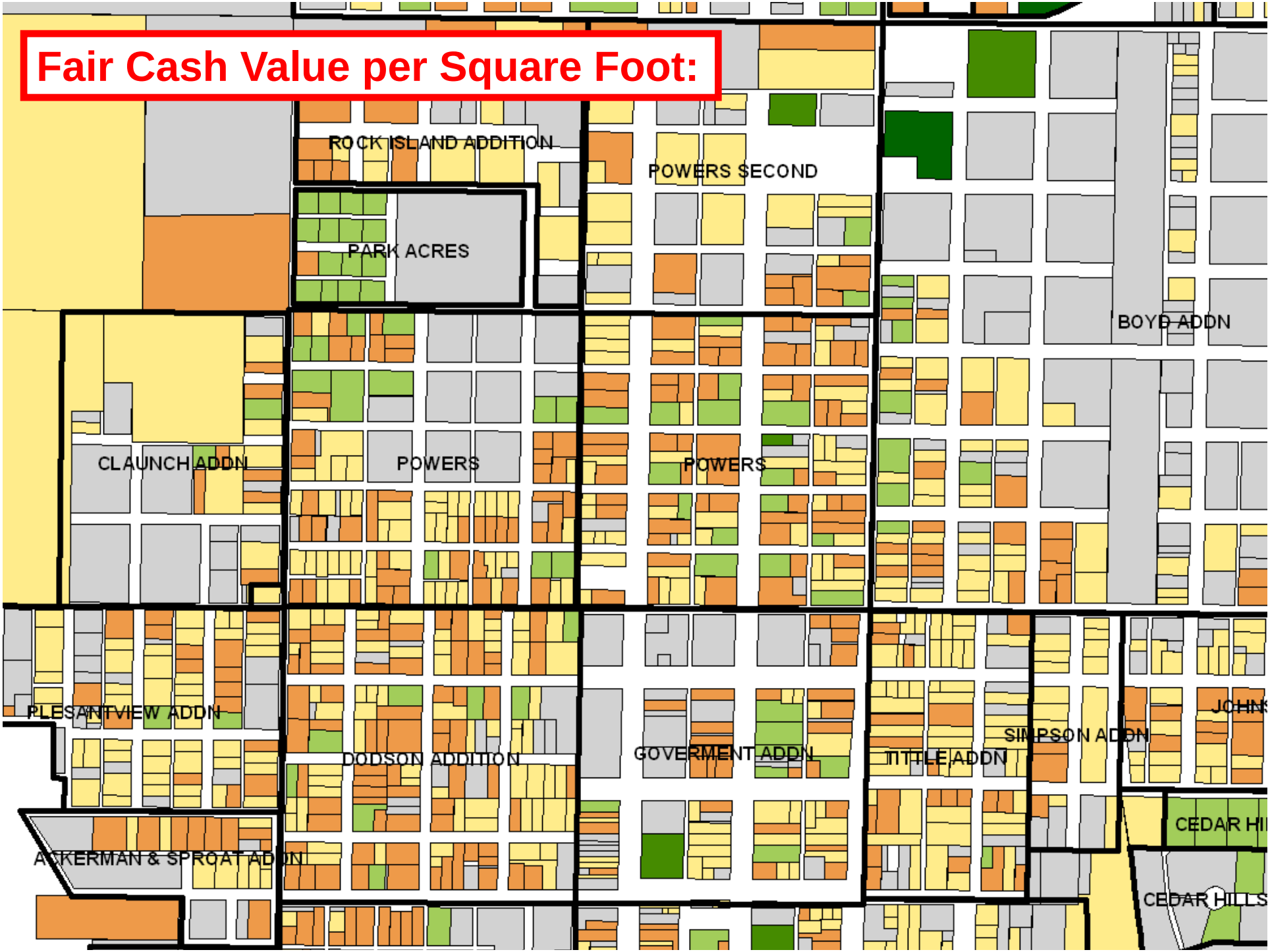
C. Information gathered during the physical inspection shall be recorded using a standard method as prescribed by the Oklahoma Tax Commission in computerized or noncomputerized form. The information may include property ownership, location, size, use, use category, a physical description of the land and improvements or such other information as may be required.

D. In order to conduct the visual inspections of real property during the four-year cycle, **each county assessor shall acquire and maintain cadastral maps** and a parcel identification system. **The standards for the cadastral maps** and the parcel identification system **shall be uniform for each county of the state and shall be in such form as developed by the Ad Valorem Task Force.**

E. The county assessor shall maintain a comprehensive sales file for each parcel of real property within the county containing relevant property characteristics, sales price information, adjustments to sales price for purposes of cash equivalency, transaction terms and such other information as may be required in order to establish the fair cash value of taxable real property.

Each county assessor shall ensure that the office is equipped with adequate drafting facilities, tools, equipment and supplies in order to produce or update maps, sketches or drawings necessary to support the proper administration of the ad valorem tax and such other tools or equipment as may be required to perform duties imposed by law for the discovery and valuation of taxable property.

Fair Cash Value per Square Foot:



Help With the Purchase of Computer Hardware and Software (related to mapping)

Title 68
Article 28. Ad Valorem Taxes

§2829.1. County Assessor Fee Revolving Fund.

There is hereby created in the office of the county treasurer a revolving fund for the office of the county assessor, to be designated the **"County Assessor Fee Revolving Fund"**. The fund shall be a continuing fund, not subject to fiscal year limitations, **and shall consist of all fees collected by the assessor and all monies accruing to the fund**. Monies deposited to the fund shall be expended by the county assessor and **shall not be transferred to any other account for a purpose other than**:

1. **For maintenance, replacement and upgrade of computer hardware and software associated with county assessor databases and geographic information systems; and**

2. **To provide products and services generated from the database and geographic information system to both public and private parties.**

The intent of this section is to increase the net funding level available to the county assessor to maintain electronic databases and geographic information systems as required pursuant to Section 2829 of this title.

Title 28
Section 60. Ad Valorem Taxes

§60. County Assessor Fee Guide.

All county assessors **shall charge and collect the following flat fees** to be uniform throughout the state, and the county assessor shall not be required to itemize or charge these fees pursuant to any other schedule, except as specifically provided by law:

For furnishing all records available for copying; in paper form and in a size 8 1/2" x 14" or smaller, and in one color on white paper, per page the fee shall be as provided in the Oklahoma Open Records Act, Section 24A.1 et seq. of Title 51 of the Oklahoma Statutes;

For furnishing standard maps; in paper form and **in one color on white paper or blue line**, per map and in the following standard sizes when available:

1. 'A' size approximately 8 1/2" x 11"..... $5.00

2. 'B' size approximately 11" x 17"
   'C' size approximately 17" x 22"
   'D' size approximately 22" x 34"..... $7.00

3. 'E' size approximately 34" x 44"..... $10.00

Individual property owners obtaining records for their own records shall be exempt from the provisions of this section.

Title 68
Article 28. Ad Valorem Tax Code

§2864. State Board of Equalization – Members – Examination of Assessments – Equalization, Correction, and Adjustments to Assessments

…

F. The Board shall set a fee or schedule of fees to be used by county assessors for the search, production and copying in electronic and/or digital format of property data, administration files, sketches and pictures for the real property maintained within the county assessors' computer systems for commercial purposes. Such fee or schedule of fees shall be uniform across the state to the extent possible with variances between the counties permitted to allow for the ability of various counties to produce data based on available technology, personnel and budget resources. The fee or schedule of fees shall not apply or be charged to individual property owners obtaining information on the owner's property for the owner's use. After establishing the fee or schedule of fees each year at its December 1 meeting, the Board shall review the fee or schedule of fees and make adjustments necessary to ensure uniform application to the extent possible across all counties and to take into account technological changes that may occur over time. The Board may direct that a county assessor's compliance with the fee or schedule of fees be considered when the county assessment examination is performed pursuant to the requirements of this section. Fees collected pursuant to this subsection shall be deposited in the applicable county assessor revolving fund, as provided in Section 2829.1 of this title, and the expenditure of such funds shall be subject to the provisions of such section. The fee or schedule of fees applicable to a county assessor shall be posted within its principal office and with the county clerk. The Board shall only establish fees or a fee schedule wherein the custodian shall charge reasonable costs for the retrieval of an existing record, regardless of format. Reasonable costs shall not exceed the actual cost of duplication of the record. As used in this section, "actual cost of duplication" means the cost of materials and supplies used to duplicate or reproduce the record. Costs for labor may only be charged when the request requires the custodian to compile data, extract data or redact information in order to create a new document to comply with a public record request. Records not readily available at the time of request shall be provided by the custodian of records within a reasonable time after receipt of the request. A reasonable time shall be presumed to be three (3) working days or less. The period may be extended by the custodian if extenuating circumstances exist. The period of extension shall not exceed seven (7) working days, unless:

1. The period of extension is agreed to by both parties;

2. The request is voluminous; or

3. Fulfilling the request would impair the custodian's ability to discharge its duties.

The custodian shall notify the person requesting the records within seven (7) working days of the reason why the request cannot be fulfilled within the time period requested by the requestor and when the custodian will provide the records.

Did Not Release One for 2013!

The yearly Mapping Support DVD-ROM's

Will Have the 2013 Aerials on the Next One!

Did Not Release One for 2013!

2011 Mapping Support DVD-ROM for the OKFUSKEE COUNTY ASSESSOR

Created by the Ad Valorem Division of OTC, February, 2011
Jeff Spelman, CAE, Director - Phone (405) 319-8200

This DVD-ROM contains:
- 2010aerials and 2008aerials (FSA 1 meter mosaic color aerials)
- 2006aerials, 2005aerials, and 2004aerials (FSA 2 meter color aerials)
- 2003aerials (NRCS/FSA 1 meter mosaic color aerials)
- 1995aerials (USGS/OK 1 meter mosaic black and white aerials)
- ROADS (OU updated Census Road Layer)
- HIGHWAYS (derived from the OU updated Census Road Layer)
- RAILROAD (2002 Census Railroad Layer (if applicable))
- SECTIONS and TOWNSHIP (Digital Atlas of Oklahoma)
- WATER (pre-2000 Census Hydrology (Water) Layer)
- SOILS (NRCS Digitized Soil Map Layer)
- OTC-SCH ("official" school district boundaries)
- OTC-PREC ("official" precinct boundaries)
- OTC-CITY ("official" incorporated city limits)
- OTC-FEMA (FEMA flood map "FIRM" boundaries (if available))
- TatukGIS (a free mapping display program)

There may be three directories on this DVD-ROM:

First, in the "TatukGIS" directory is an installation program, TatukGIS_VWR_1_12_0_365.exe, for a free map viewer. There is also a TatukGIS user manual in pdf.

Second, the "UTM" directory contains the above mentioned layers. This set of mapping layers is in "shapefile" format to be used in the TatukGIS viewer and ESRI products.

Third (if available), the "TOWNSHIPS" directory contains scanned government fractional lot surveys from the U.S. Bureau of Land Management. More counties will be available as they are downloaded.

All of these layers are the most current available.

Will Have the 2013 Aerials on the Next One!

File Edit View Favorites Tools Help

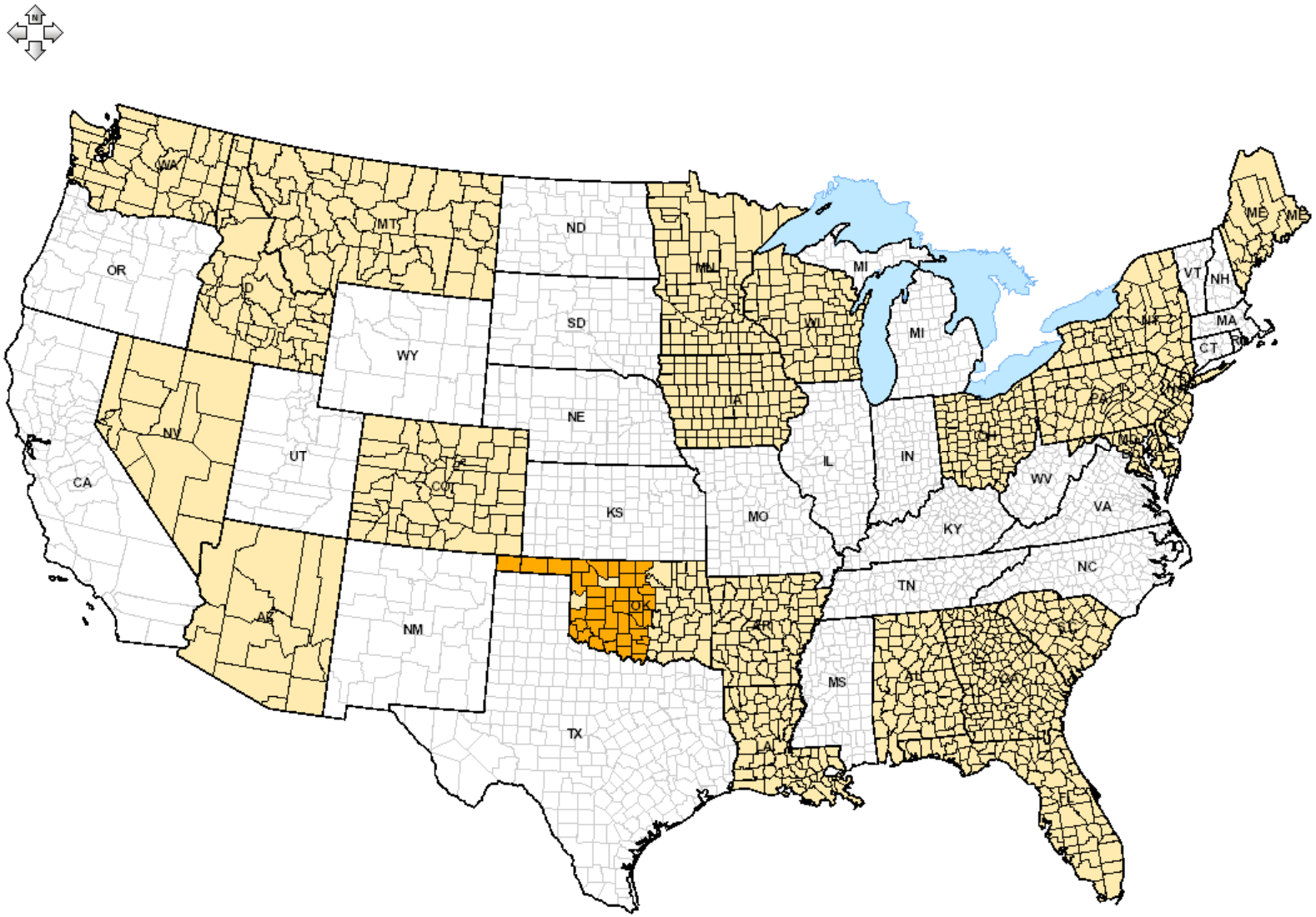
NAIP Status 2013

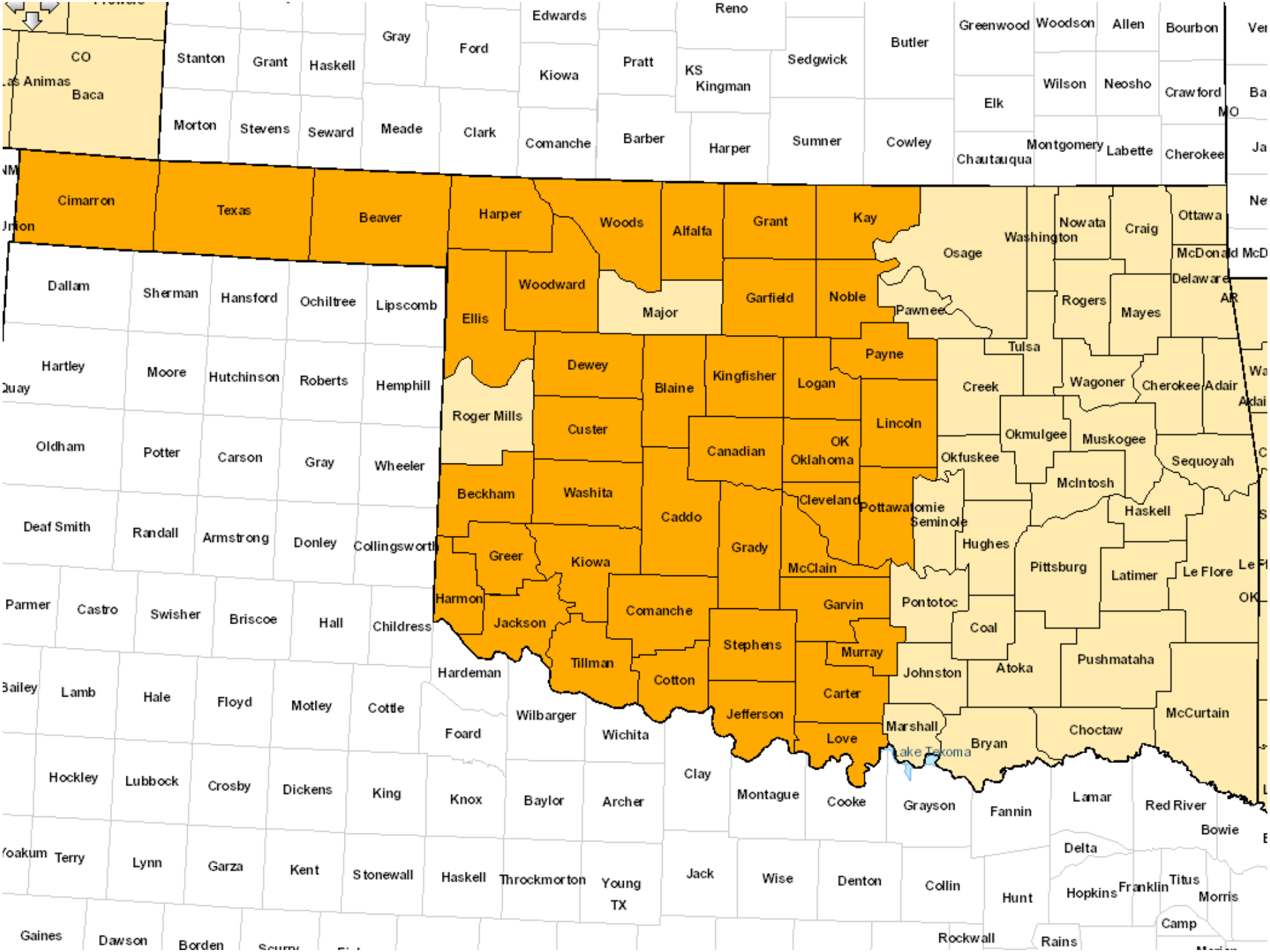
Print 1:16,722,613 Go

Results

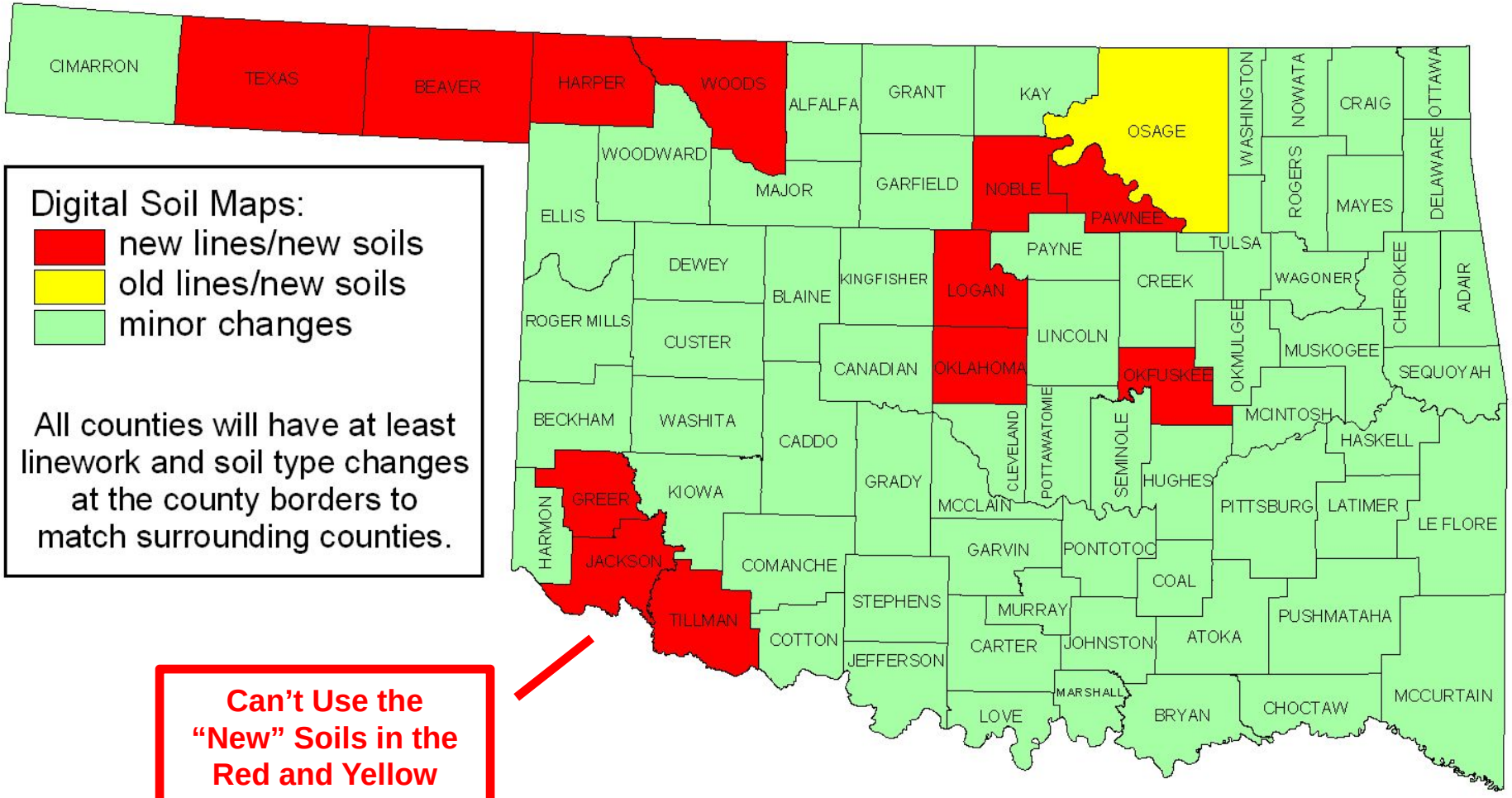
Map Contents

- NAIP_Status_2013
  - Boundary
  - NAIP Planned Coverage
  - DOQQ Status
  - NAIP Inspection Status
    - Contracted
    - Received
    - Phase 1 Started
    - Phase 1 Completed
    - Phase 2 Started
    - Phase 2 Completed
    - Random Started
    - Random Completed
    - Completed Counties
    - Accepted Counties
    - Not Contracted
  - Water




CO
Las Animas
Baca
Stanton
Grant
Haskell
Gray
Ford
Edwards
Kiowa
Pratt
Reno
KS
Kingman
Sedgwick
Butler
Greenwood
Woodson
Allen
Bourbon
Wilson
Neosho
Crawford
Elk
Morton
Stevens
Seward
Meade
Clark
Comanche
Barber
Harper
Sumner
Cowley
Chautauqua
Montgomery
Labette
Cherokee
MO
Cimarron
Texas
Beaver
Harper
Woods
Alfalfa
Grant
Kay
Osage
Washington
Nowata
Craig
Ottawa
McDonald
Delaware
AR
Dallam
Sherman
Hansford
Ochiltree
Lipscomb
Ellis
Woodward
Major
Garfield
Noble
Pawnee
Rogers
Mayes
Tulsa
Payne
Hartley
Moore
Hutchinson
Roberts
Hemphill
Dewey
Blaine
Kingfisher
Logan
Creek
Wagoner
Cherokee
Adair
Roger Mills
Custer
Lincoln
Okmulgee
Muskogee
Oldham
Potter
Carson
Gray
Wheeler
Canadian
OK
Oklahoma
Okfuskee
Sequoyah
McIntosh
Beckham
Washita
Caddo
Cleveland
Pottawatomie
Seminole
Haskell
Deaf Smith
Randall
Armstrong
Donley
Collingsworth
Grady
Hughes
Greer
Kiowa
McClain
Pittsburg
Latimer
Le Flore
Parmer
Castro
Swisher
Briscoe
Hall
Childress
Harmon
Jackson
Comanche
Garvin
Pontotoc
Coal
Stephens
Murray
Tillman
Cotton
Johnston
Atoka
Pushmataha
Hardeman
Bailey
Lamb
Hale
Floyd
Motley
Cottle
Carter
Jefferson
Marshall
Bryan
Choctaw
McCurtain
Foard
Wilbarger
Wichita
Love
Lake Texoma
Hockley
Lubbock
Crosby
Dickens
King
Knox
Baylor
Archer
Clay
Montague
Cooke
Grayson
Fannin
Lamar
Red River
Bowie
Delta
Terry
Lynn
Garza
Kent
Stonewall
Haskell
Throckmorton
Young
TX
Jack
Wise
Denton
Collin
Hunt
Hopkins
Franklin
Titus
Morris
Camp
Gaines
Dawson
Borden
Rockwall
Rains

Status of Soil Maps



Digital Soil Maps:

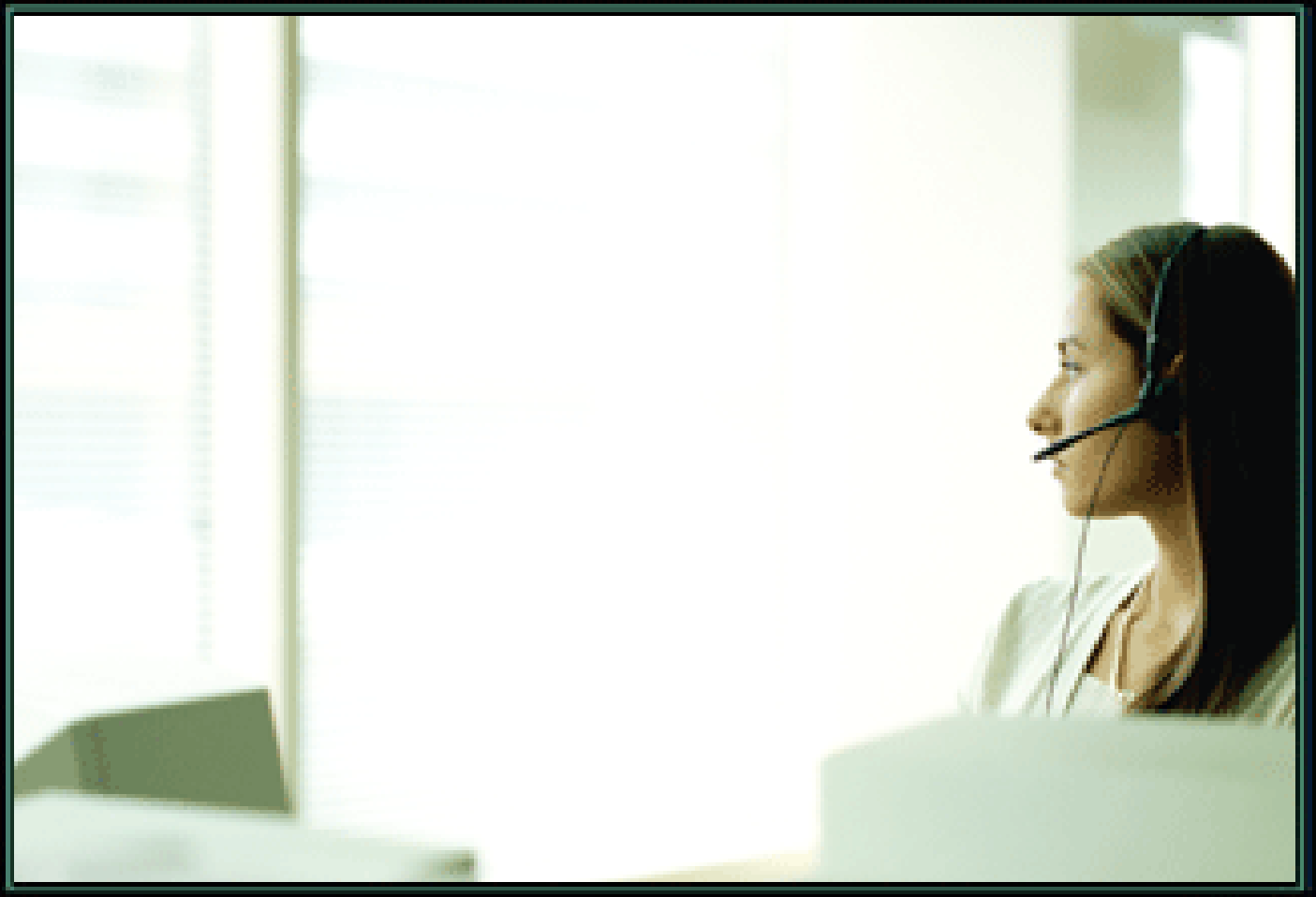
- new lines/new soils
- old lines/new soils
- minor changes

All counties will have at least linework and soil type changes at the county borders to match surrounding counties.

Can't Use the "New" Soils in the Red and Yellow Counties

Map created by the Ad Valorem Division of OTC, June 24, 2008
Jeff Spelman, CAE, Director - Phone (405) 319-8200

Remember...



CUSTOMER DISSERVICE

BECAUSE WE'RE NOT SATISFIED UNTIL YOU'RE NOT SATISFIED.

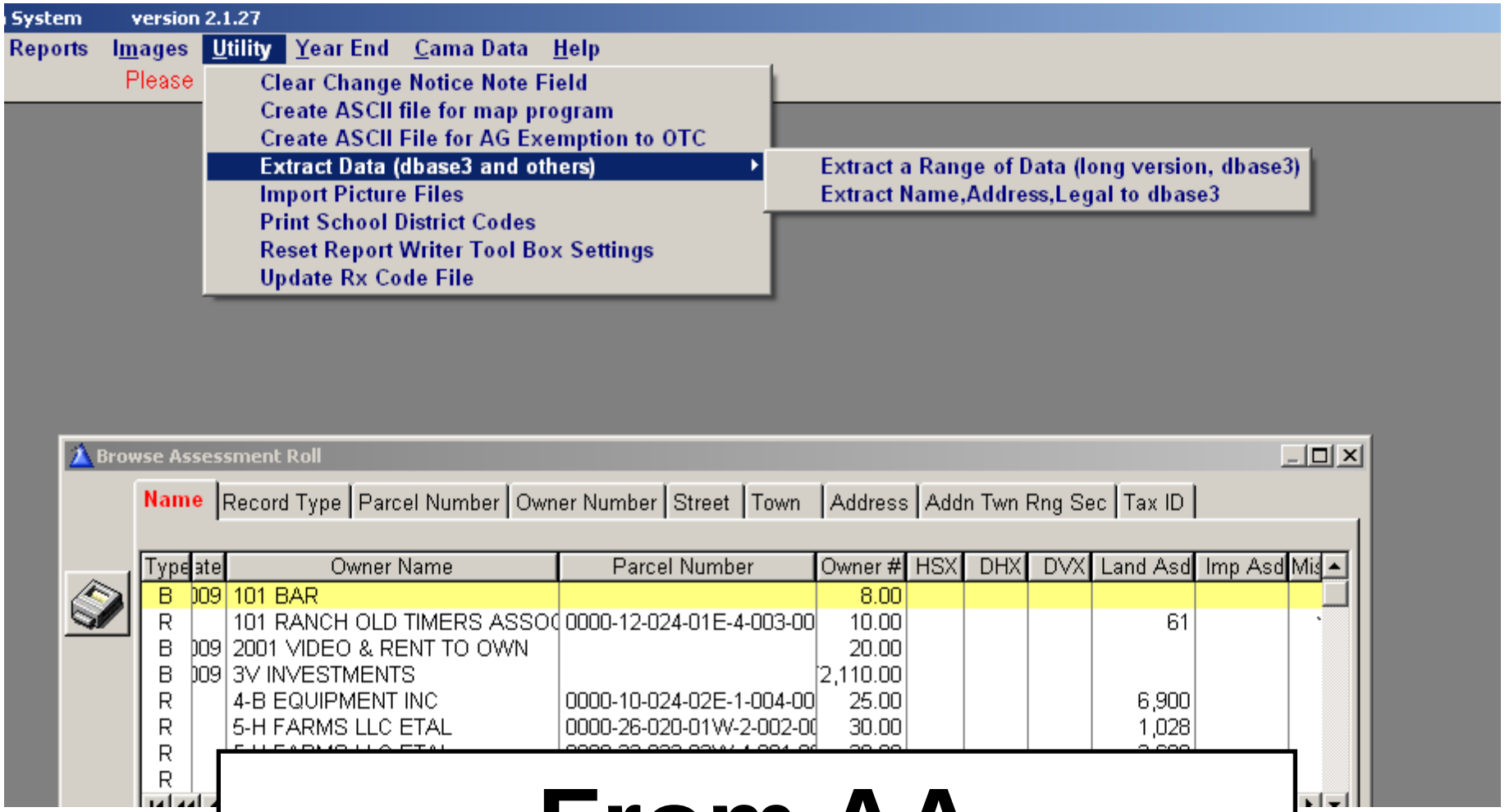
www.despair.com

Advanced ArcGIS – Data Mining

2013 Assessors' Educational Conference

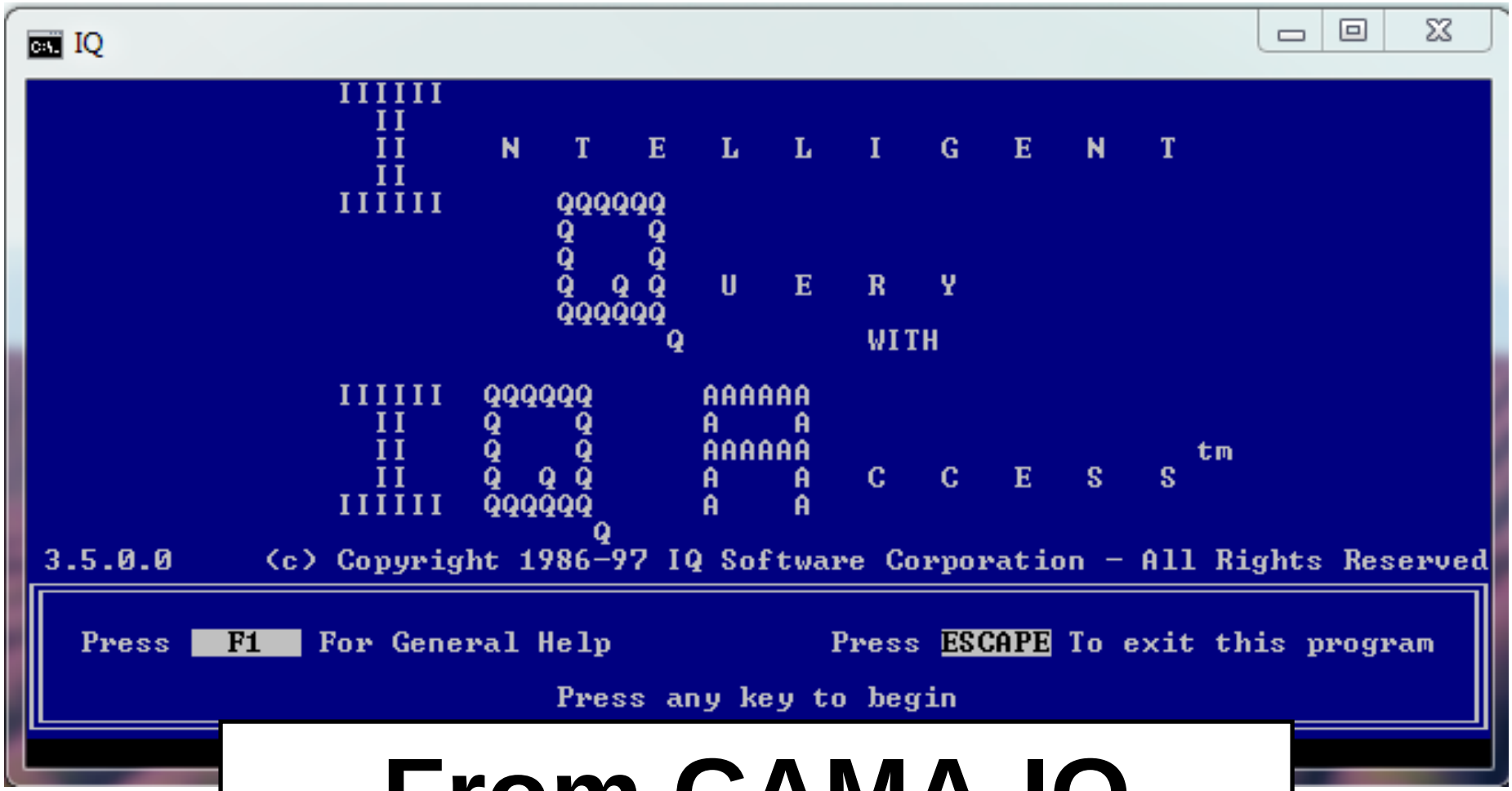
Presenter: Troy Frazier, OTC

First question: what data do you want to use and where will it come from?



From AA

(if on state system)?



From CAMA-IQ

(if on state system)?

ArcGIS can use data from Access, Excel, dbf, and text files. However, I prefer to use dbf files.

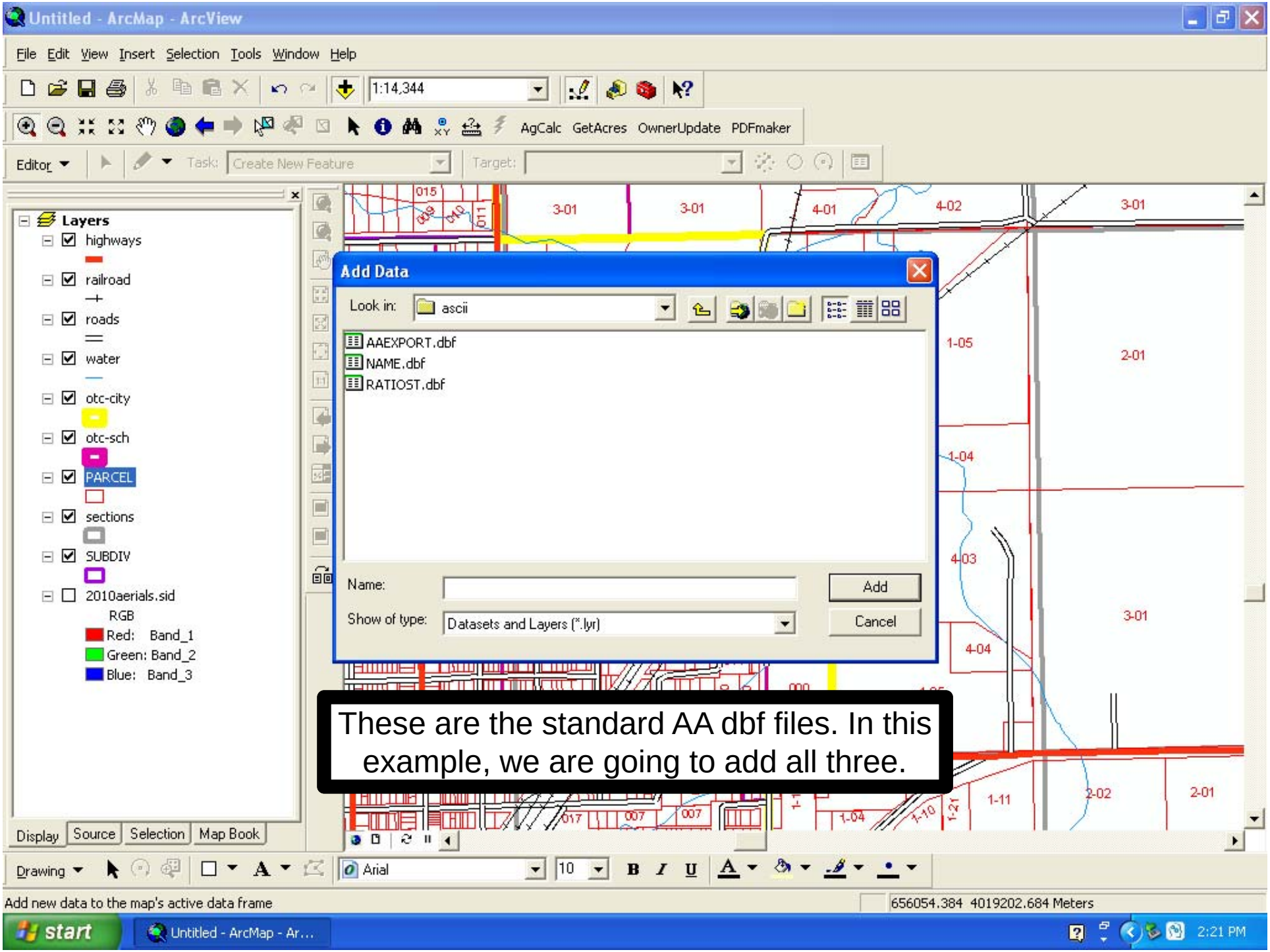
AA produces at least three different dbf files. It produces the ratiost.dbf file that the OTC uses for ratio studies. It also produces name.dbf and aaexport.dbf. Each of these three files contain various data fields for each real property account in AA. These files are created in the "F:\ASCII" directory.

CAMA – IQ can produce any combination of property record data as a dbf file. However, many people have forgotten how to create export files with IQ. These are generally created in the "H:\" drive.

For this exercise, we will use the "canned" dbf exports from the state AA package.

Using State System AA Data

(F:\ASCII\AAEXPORT.DBF)



These are the standard AA dbf files. In this example, we are going to add all three.

Untitled - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help

Editor Task: Create New Feat

Layers
- C:\mapping\UTM
  - highways
  - railroad
  - roads
  - water
  - otc-city
  - otc-sch
  - PARCEL
  - sections
  - SUBDIV
- C:\mapping\UTM\
  - 2010aerials.sid
    - RGB
    - Red: Band_1
    - Green: Band_2
    - Blue: Band_3
- C:\ascii
  - AAEXPORT
  - NAME
  - RATIOST

Display Source Selection Map Book

Drawing

Attributes of AAEXPORT

OID	ADDN	TOWNSH	RANGE	SECT	QTRSEC	PARNUM	PROPSPL	FULLPID	PIDSORT
0	0000	020	01E	01	1	001	00	0000-01-020-01E-1-001-00	000002001E01100100
1	0000	020	01E	01	2	001	00	0000-01-020-01E-2-001-00	000002001E01200100
2	0000	020	01E	01	3	001	00	0000-01-020-01E-3-001-00	000002001E01300100
3	0000	020	01E	01	3	002	00	0000-01-020-01E-3-002-00	000002001E01300200
4	0000	020	01E	01	3	003	00	0000-01-020-01E-3-003-00	000002001E01300300
5	0000	020	01E	01	3	004	00	0000-01-020-01E-3-004-00	000002001E01300400
6	0000	020	01E	01	4	001	00	0000-01-020-01E-4-001-00	000002001E01400100
7	0000	020	01E	02	1	001	00	0000-02-020-01E-1-001-00	000002001E02100100
8	0000	020	01E	02	2	001	00	0000-02-020-01E-2-001-00	000002001E02200100
9	0000	020	01E	02	3	001	00	0000-02-020-01E-3-001-00	000002001E02300100
10	0000	020	01E	02	4	001	00	0000-02-020-01E-4-001-00	000002001E02400100
11	0000	020	01E	02	4	002	00	0000-02-020-01E-4-002-00	000002001E02400200
12	0000	020	01E	03	1	001	00	0000-03-020-01E-1-001-00	000002001E03100100
13	0000	020	01E	03	1	002	00	0000-03-020-01E-1-002-00	000002001E03100200
14	0000	020	01E	03	2	001	00	0000-03-020-01E-2-001-00	000002001E03200100
15	0000	020	01E	03	3	001	00	0000-03-020-01E-3-001-00	000002001E03300100
16	0000	020	01E	03	3	002	00	0000-03-020-01E-3-002-00	000002001E03300200
17	0000	020	01E	03	3	003	00	0000-03-020-01E-3-003-00	000002001E03300300
18	0000	020	01E	03	4	001	00	0000-03-020-01E-4-001-00	000002001E03400100
19	0000	020	01E	04	1	001	00	0000-04-020-01E-1-001-00	000002001E04100100
20	0000	020	01E	04	2	001	01	0000-04-020-01E-2-001-01	000002001E04200101
21	0000	020	01E	04	2	001	02	0000-04-020-01E-2-001-02	000002001E04200102
22	0000	020	01E	04	2	002	00	0000-04-020-01E-2-002-00	000002001E04200200
23	0000	020	01E	04	3	001	00	0000-04-020-01E-3-001-00	000002001E04300100
24	0000	020	01E	04	4	001	00	0000-04-020-01E-4-001-00	000002001E04400100
25	0000	020	01E	05	1	001	00	0000-05-020-01E-1-001-00	000002001E05100100
26	0000	020	01E	05	2	001	00	0000-05-020-01E-2-001-00	000002001E05200100
27	0000	020	01E	05	3	001	00	0000-05-020-01E-3-001-00	000002001E05300100
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0000-05-020-01E-3-002-00	000002001E05300200
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	000-05-020-01E-4-001-00	000002001E05400100
30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	000-05-020-01E-4-002-00	000002001E05400200
31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	000-05-020-01E-4-003-00	000002001E05400300
32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	000-06-020-01E-1-002-00	000002001E06100200
33	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	000-06-020-01E-1-003-00	000002001E06100300
34	0000	020	01E	06	2	001	00	0000-06-020-01E-2-001-00	000002001E06200100

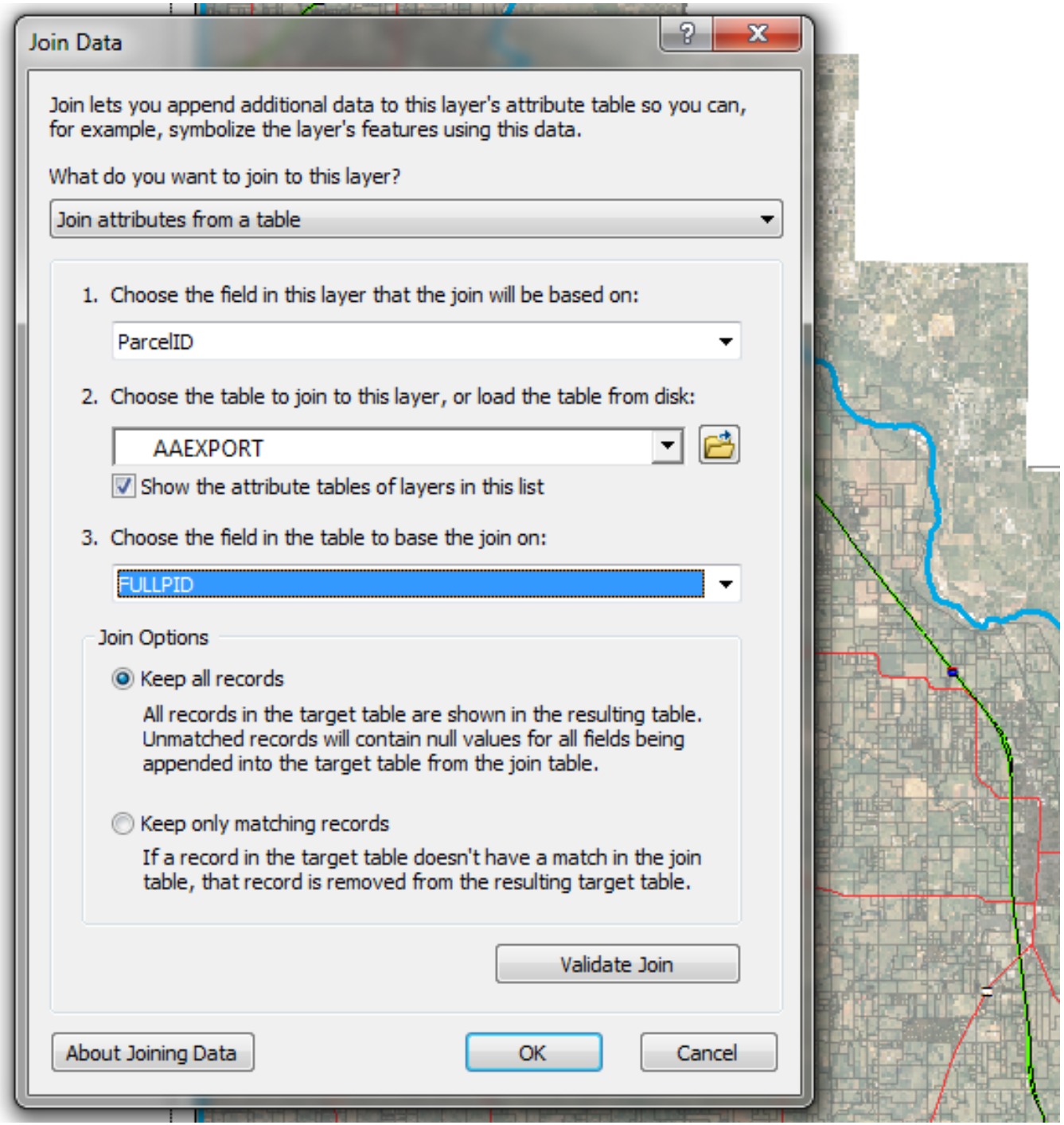
This is the “attribute table” of the “AAEXPORT.DBF”

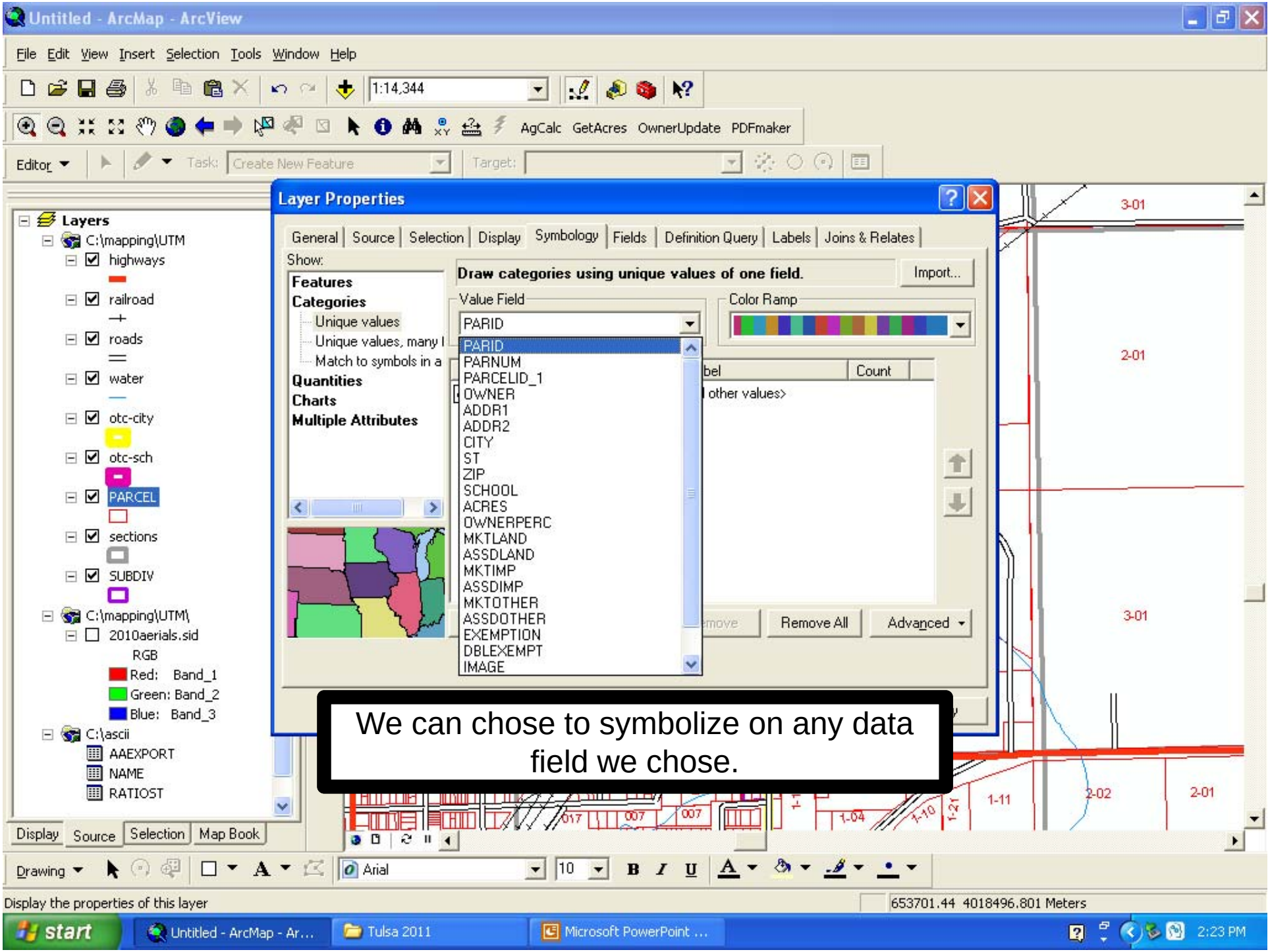
Record: 1 Show: All Selected Records (0 out of 10214 Selected) Options

653701.44 4017999.647 Meters

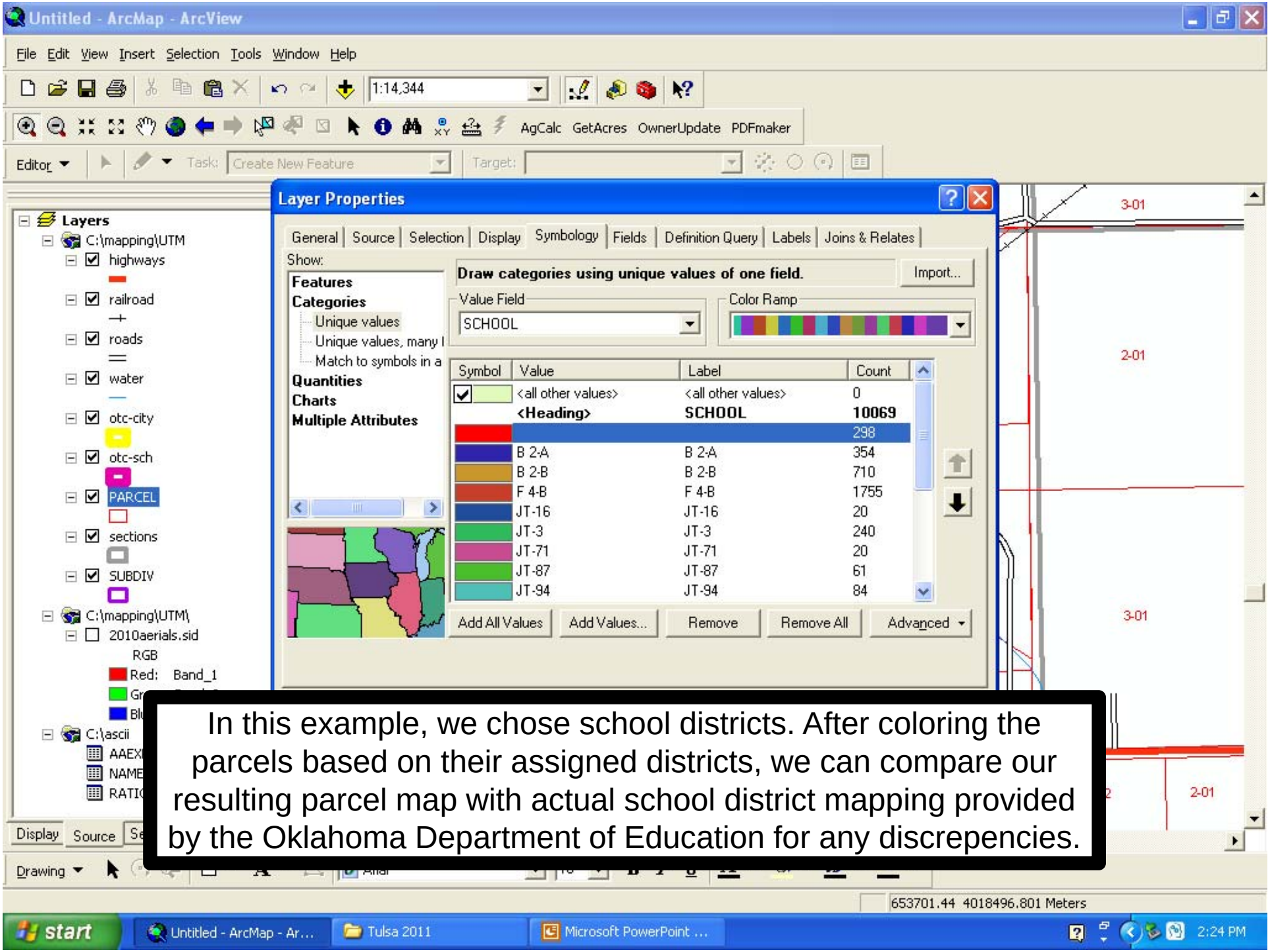
start Untitled - ArcMap - Ar... Tulsa 2011 Microsoft PowerPoint ... 2:22 PM

Now, we are going to “join” the “AAEXPORT.DBF” file with the parcel layer.

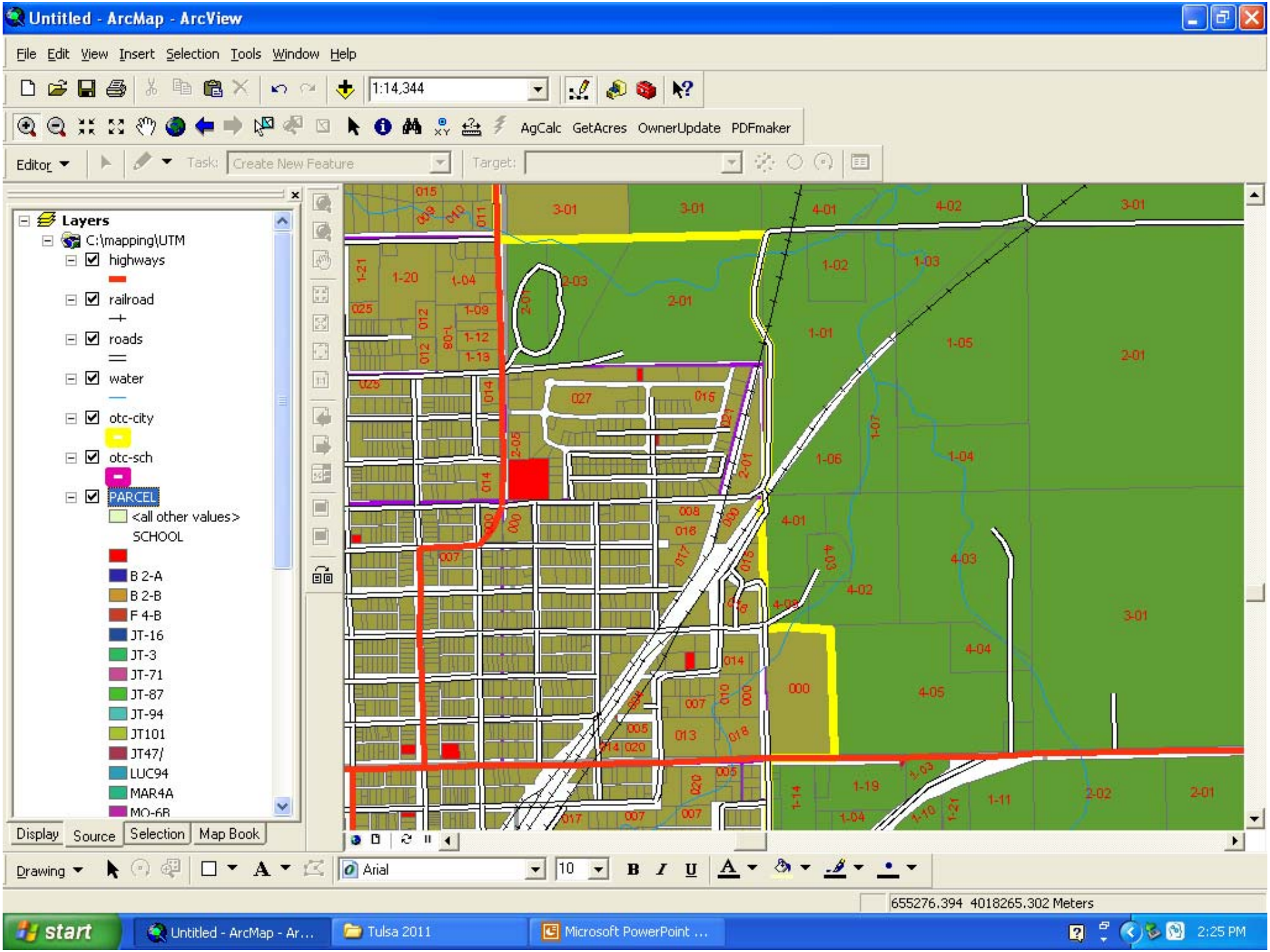




We can chose to symbolize on any data field we chose.



In this example, we chose school districts. After coloring the parcels based on their assigned districts, we can compare our resulting parcel map with actual school district mapping provided by the Oklahoma Department of Education for any discrepencies.


Untitled - ArcMap - ArcView
File Edit View Insert Selection Tools Window Help
1:14,344
AgCalc GetAcres OwnerUpdate PDFmaker
Editor
Task: Create New Feature
Target:
Layers
C:\mapping\UTM
highways
railroad
roads
water
otc-city
otc-sch
PARCEL
<all other values>
SCHOOL
B 2-A
B 2-B
F 4-B
JT-16
JT-3
JT-71
JT-87
JT-94
JT101
JT47/
LUC94
MAR4A
Display
Source
Selection
Map Book
Drawing
Arial
10
655276.394 4018265.302 Meters
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Untitled - ArcMap - Ar...
Tulsa 2011
Microsoft PowerPoint ...
2:25 PM

Untitled - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help

1:14,344

AgCalc GetAcres OwnerUpdate PDFmaker

Editor Task: Create New Feature Target:

Layers
C:\mapping\UTM
highways
railroad
roads
water
otc-city
otc-sch
PARCEL
<all other values>
SCHOOL
B 2-A
B 2-B
F 4-B
JT-16
JT-3
JT-71
JT-87
JT-94
JT101
JT47/
LUC94
MAR4A
MO-6R

Display Source Selection Map Book

Layer Properties

General | Source | Selection | Display | Symbology | Fields | Definition Query | Labels | Joins & Relates

Show:
Features
Categories
Quantities
Graduated colors
Graduated symbols
Proportional symbols
Dot density
Charts
Multiple Attributes

Draw quantities using color to show values.

Import...

Fields
Value: none
Normalization:

none
ACRES
OWNERPERC
MKTLAND
ASSDLAND
MKTIMP
ASSDIMP
MKTOTHER
ASSDOTHER
EXEMPTION
DBLEXEMPT

Classification
Manual
Classes:
Classify...

Color Ramp:

Symbol | Ran | Label

Show class ranges using feature values

Advanced

OK Cancel Apply

Drawing Arial 10

653693.849 4017384.845 Meters

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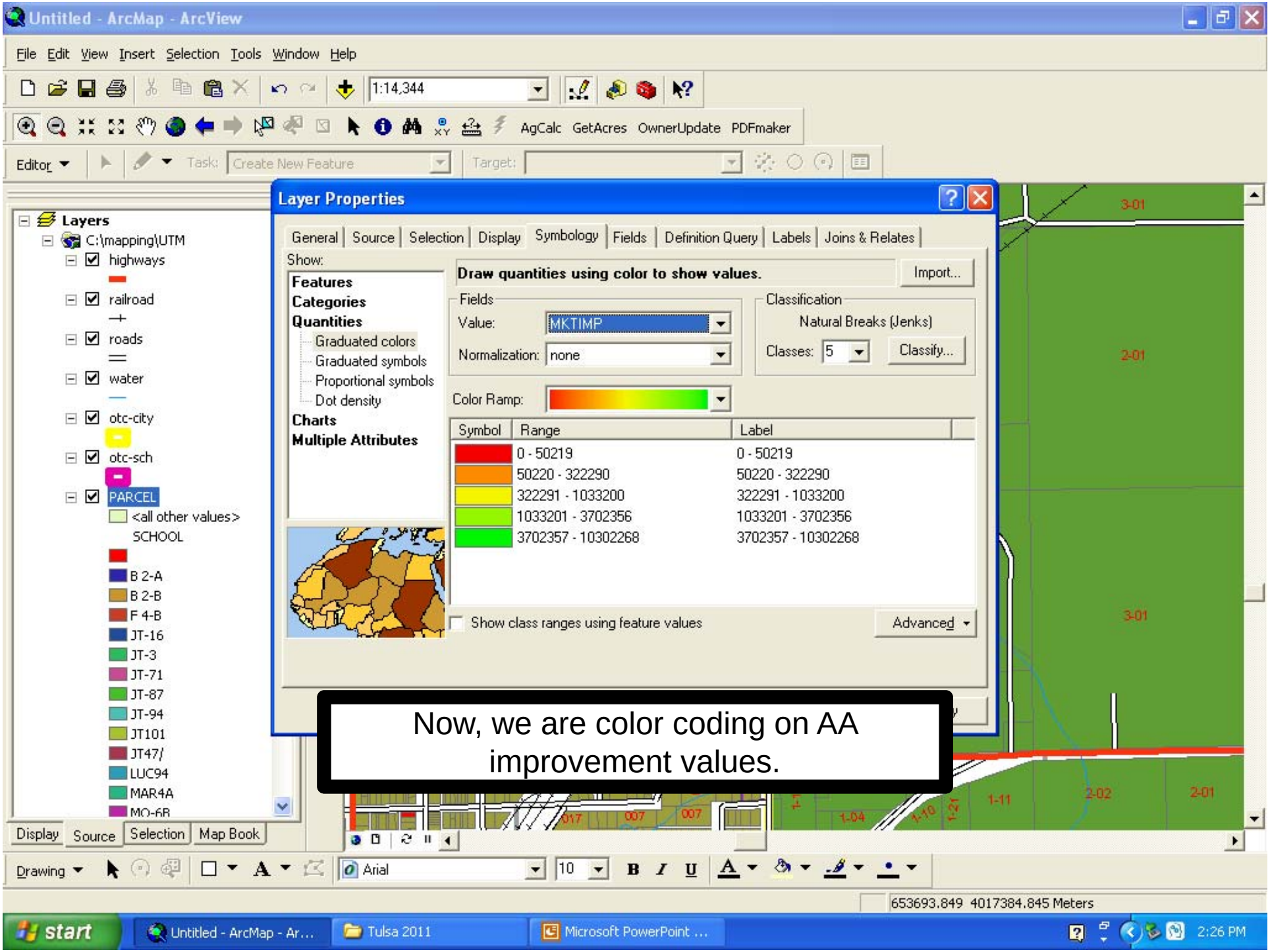
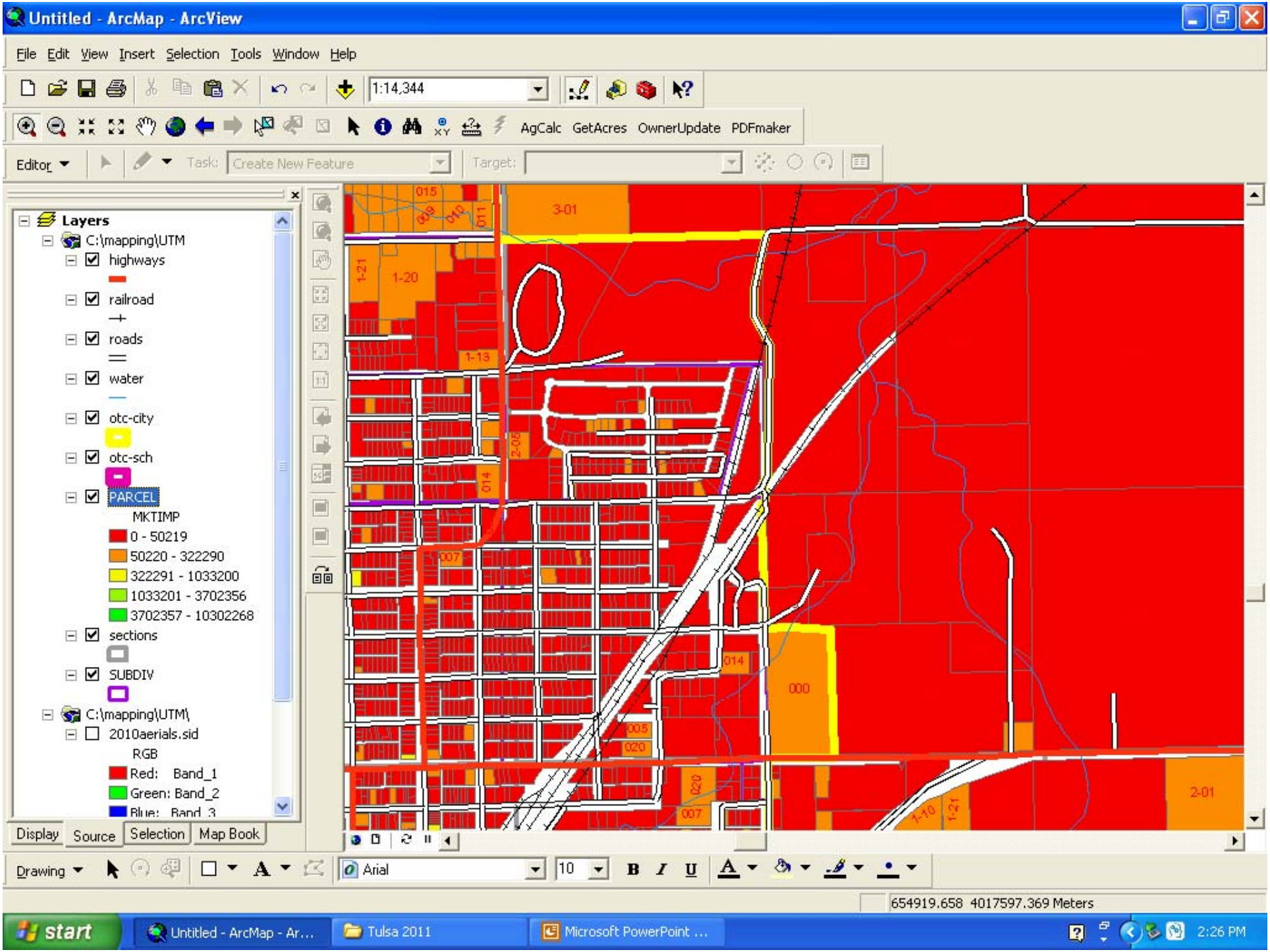


Now, we are color coding on AA improvement values.


Untitled - ArcMap - ArcView
File Edit View Insert Selection Tools Window Help
1:14,344
AgCalc GetAcres OwnerUpdate PDFmaker
Editor
Task: Create New Feature
Target:
Layers
C:\mapping\UTM
highways
railroad
roads
water
otc-city
otc-sch
PARCEL
MKTIMP
0 - 50219
50220 - 322290
322291 - 1033200
1033201 - 3702356
3702357 - 10302268
sections
SUBDIV
C:\mapping\UTM\
2010aerials.sid
RGB
Red: Band_1
Green: Band_2
Blue: Band_3
Display
Source
Selection
Map Book
3-01
1-21
1-20
1-13
2-05
014
007
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020
2-01
1-10
Drawing
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Untitled - ArcMap - Ar...
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Microsoft PowerPoint ...
2:26 PM

Untitled - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help

1:14,344

AgCalc GetAcres OwnerUpdate PDFmaker

Editor Task: Create New Feature Target:

Layers
- C:\mapping\UTM
  - highways
  - railroad
  - roads
  - water
  - otc-city
  - otc-sch
  - PARCEL
    - MKTIMP
    - 0 - 50219
    - 50220 - 322290
    - 322291 - 1033200
    - 1033201 - 3702356
    - 3702357 - 10302268
  - sections
  - SUBDIV
- C:\mapping\UTM\
  - 2010aerials.sid
    - RGB
    - Red: Band_1
    - Green: Band_2
    - Blue: Band_3

Display Source Selection Map Book

Layer Properties

General | Source | Selection | Display | Symbology | Fields | Definition Query | Labels | Joins & Relates

Show:
- Features
- Categories
- Quantities
  - Graduated colors
  - Graduated symbols
  - Proportional symbols
  - Dot density
- Charts
- Multiple Attributes

Draw quantities using color to show values. Import...

Fields
Value: MKTIMP
Normalization: ACRES

Classification
Natural Breaks (Jenks)
Classes: 5 Classify...

Color Ramp:

Symbol	Range	Label
	0.000000000 - 13452.5316	0.000000000 - 13450
	13452.5317 - 53324.5614	13460 - 53320
	53324.5615 - 135634.000	53330 - 135600
	135634.001 - 279435.714	135700 - 279400
	279435.715 - 645126.471	279500 - 645100

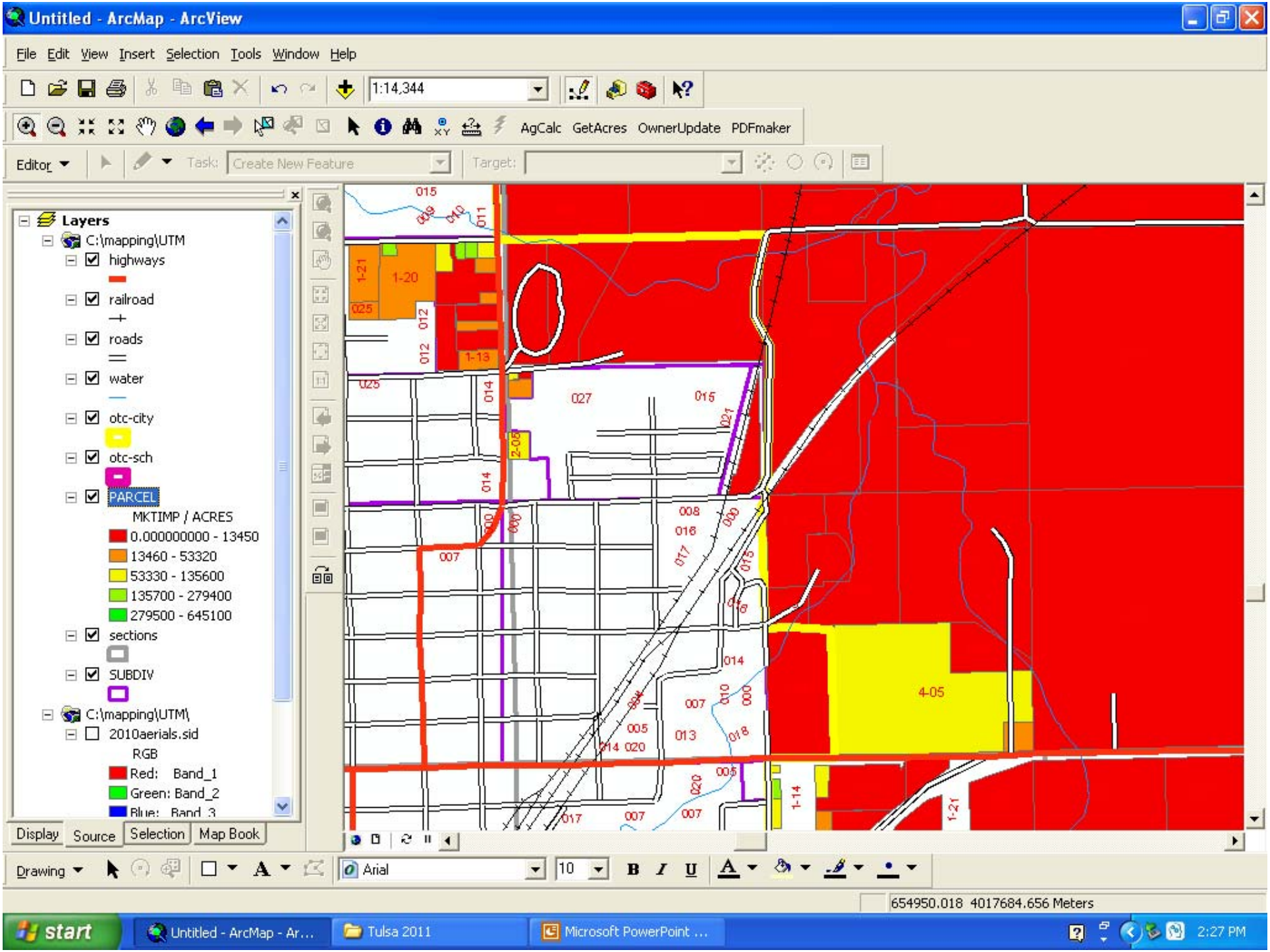
Show class ranges using feature values Advanced

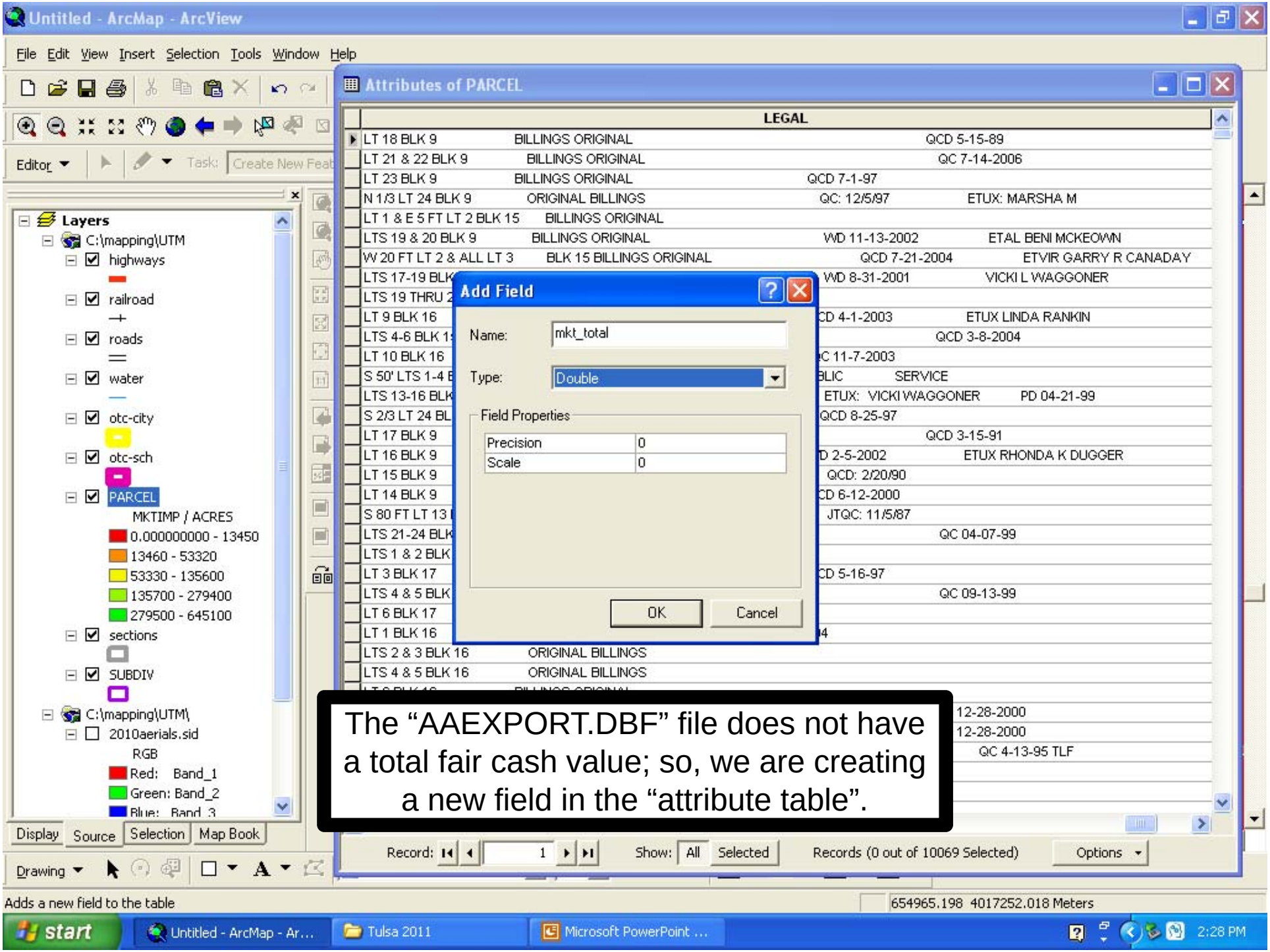
OK Cancel Apply

Drawing Arial 10

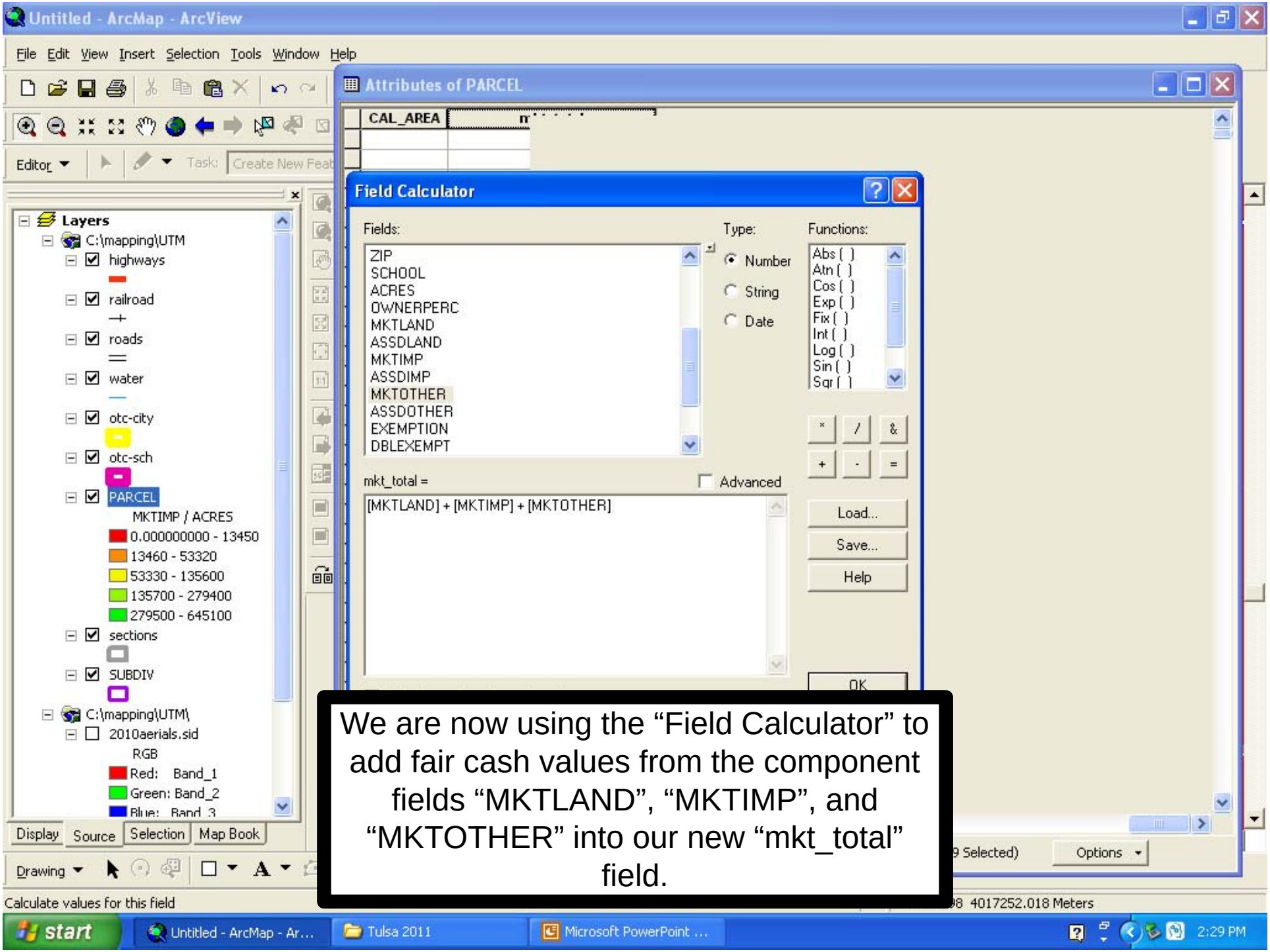
653697.644 4017893.385 Meters

start Untitled - ArcMap - Ar... Tulsa 2011 Microsoft PowerPoint ... 2:27 PM

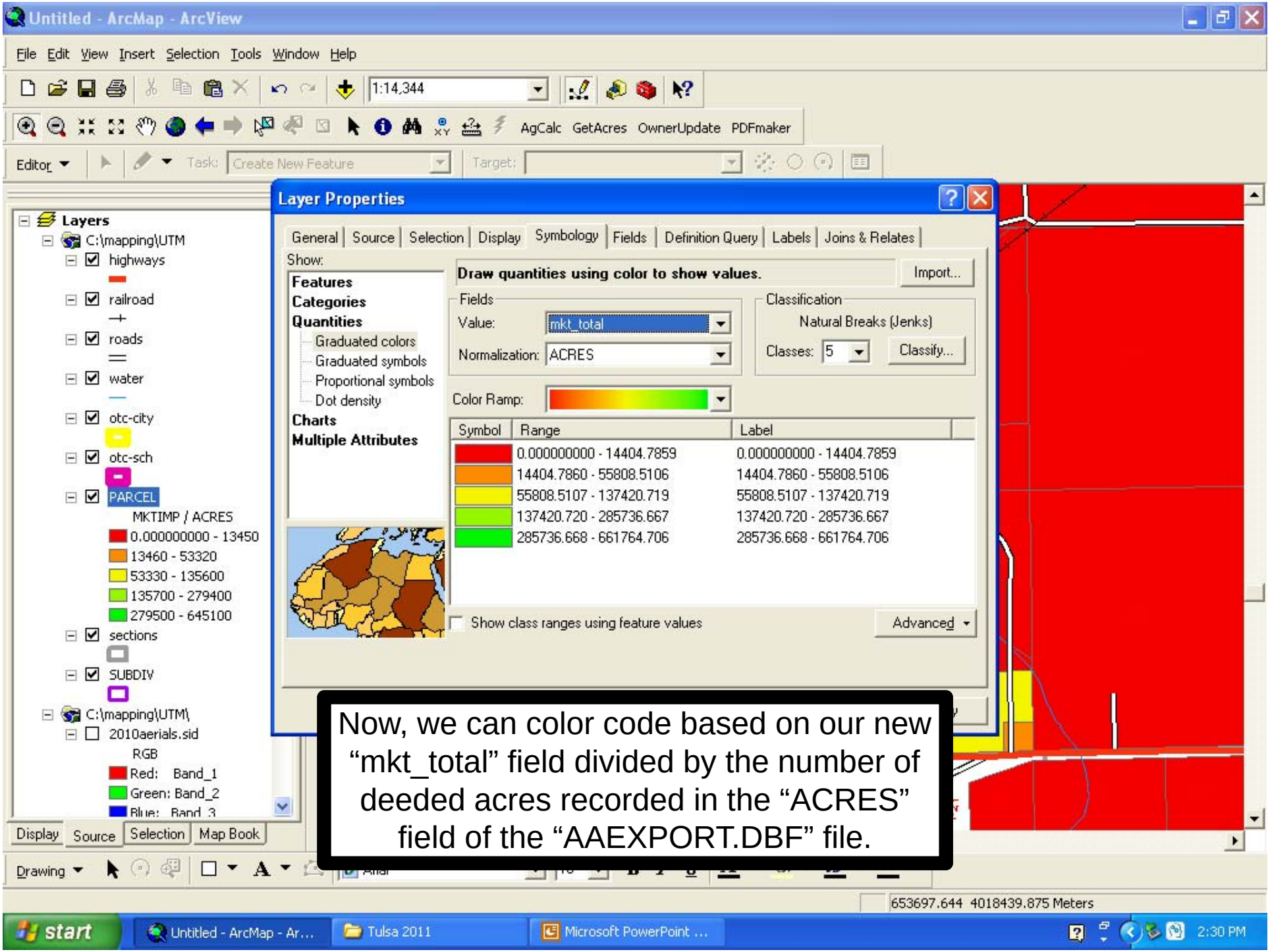

Untitled - ArcMap - ArcView
File Edit View Insert Selection Tools Window Help
1:14,344
AgCalc GetAcres OwnerUpdate PDFmaker
Editor
Task: Create New Feature
Target:
Layers
C:\mapping\UTM
highways
railroad
roads
water
otc-city
otc-sch
PARCEL
MKTIMP / ACRES
0.000000000 - 13450
13460 - 53320
53330 - 135600
135700 - 279400
279500 - 645100
sections
SUBDIV
C:\mapping\UTM\
2010aerials.sid
RGB
Red: Band_1
Green: Band_2
Blue: Band_3
Display
Source
Selection
Map Book
Drawing
Arial
10
654950.018 4017684.656 Meters
start
Untitled - ArcMap - Ar...
Tulsa 2011
Microsoft PowerPoint ...
2:27 PM



The “AAEXPORT.DBF” file does not have a total fair cash value; so, we are creating a new field in the “attribute table”.



We are now using the “Field Calculator” to add fair cash values from the component fields “MKTLAND”, “MKTIMP”, and “MKTOTHER” into our new “mkt_total” field.

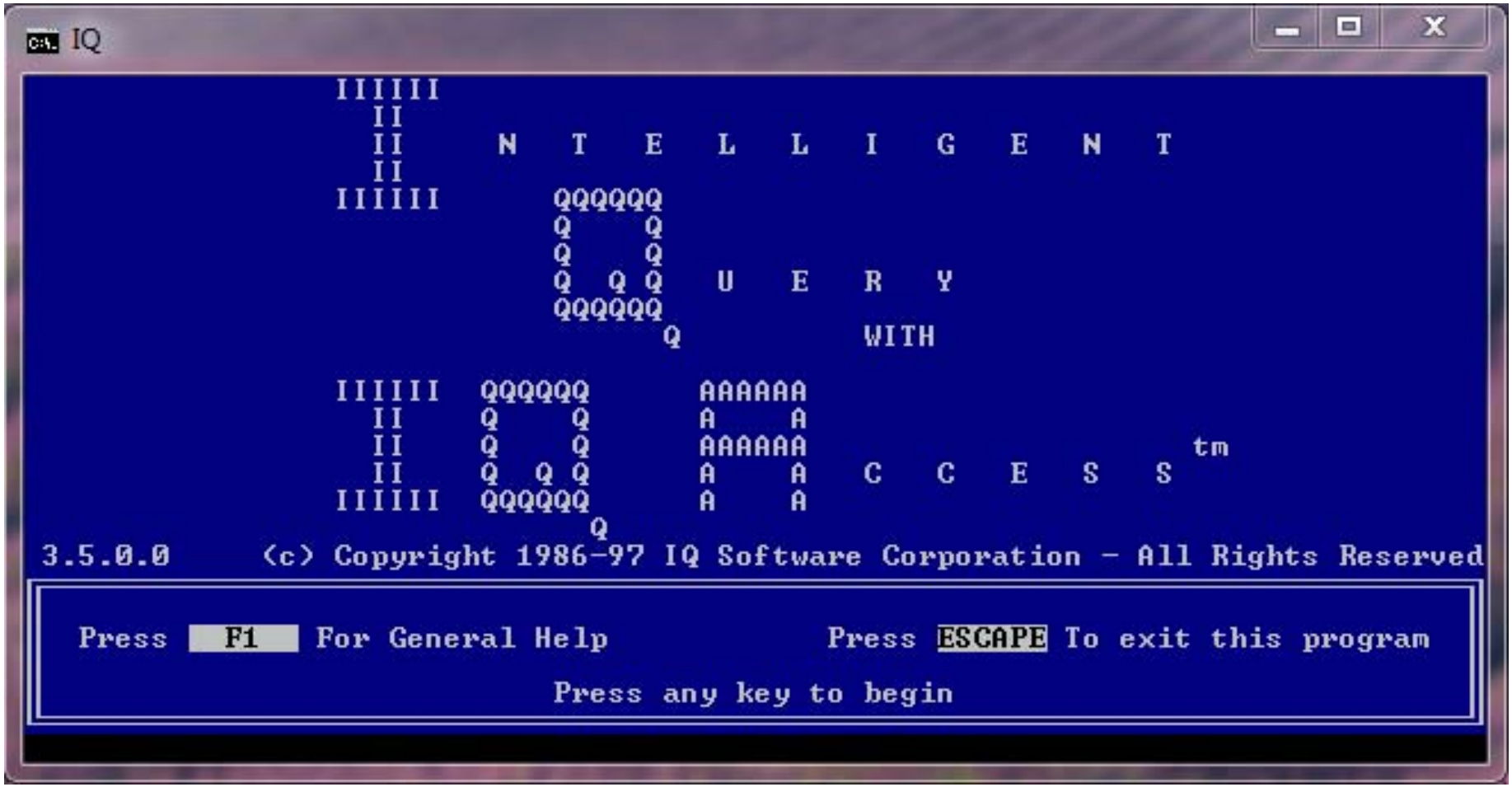


Now, we can color code based on our new "mkt_total" field divided by the number of deeded acres recorded in the "ACRES" field of the "AAEXPORT.DBF" file.

Extracting State System

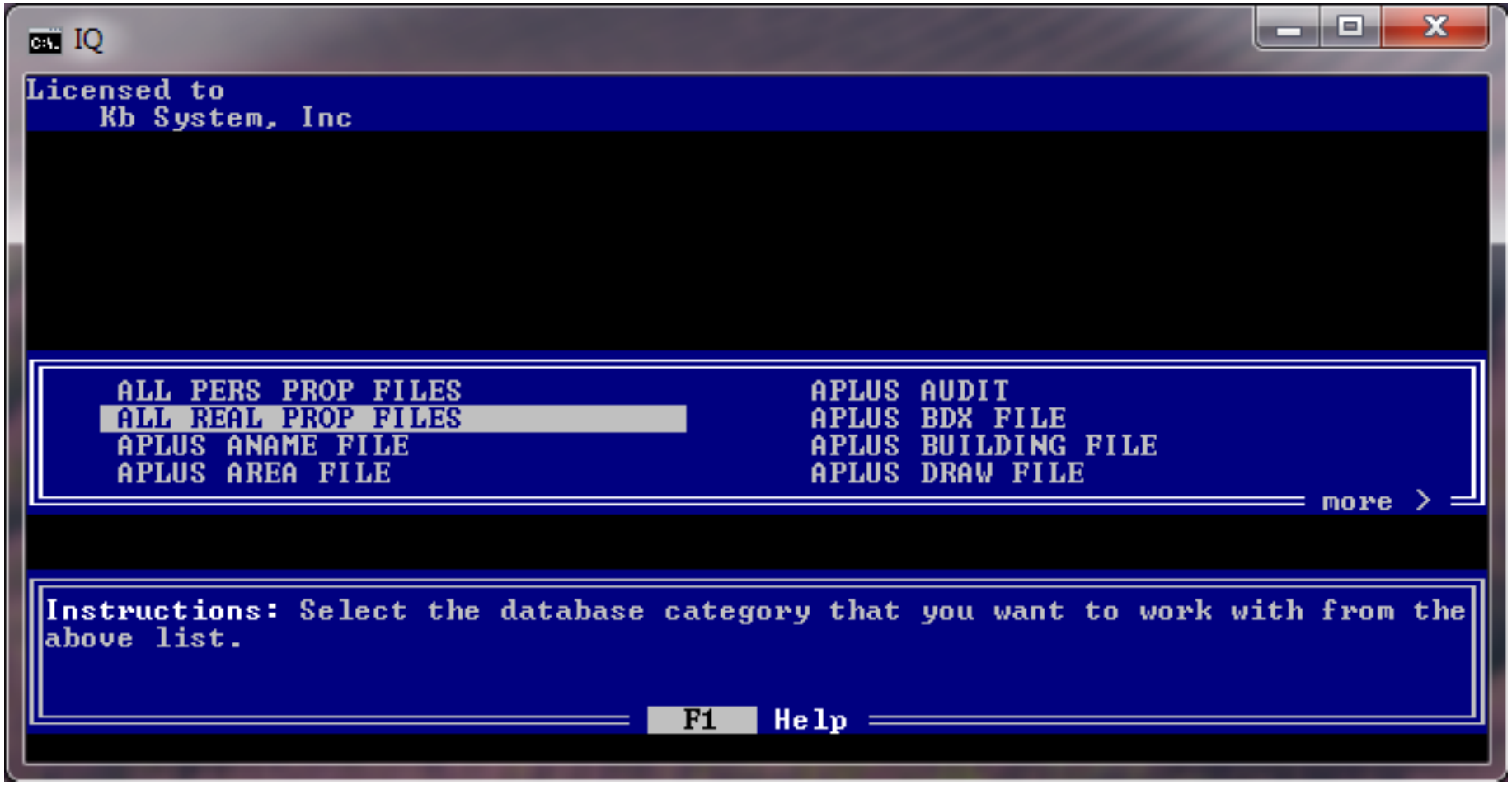
CAMA Data

(using IQ)



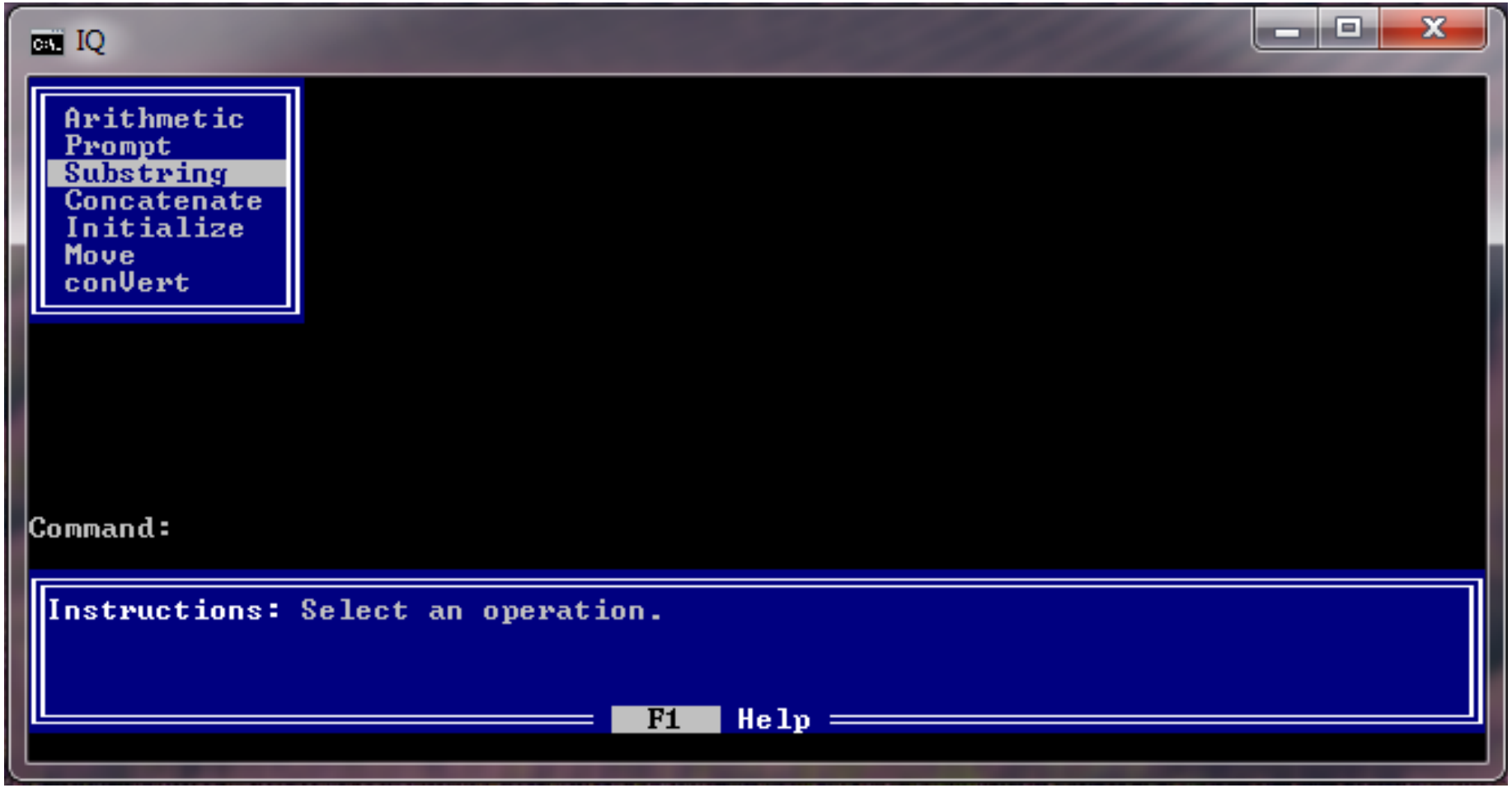
IQ allows us to extract any tabular data from the state system CAMA and save it into almost any file format.

Double-click on your IQ icon or go to a dos prompt and run f:\casemenu\z.bat. Then “Press any key to begin”.

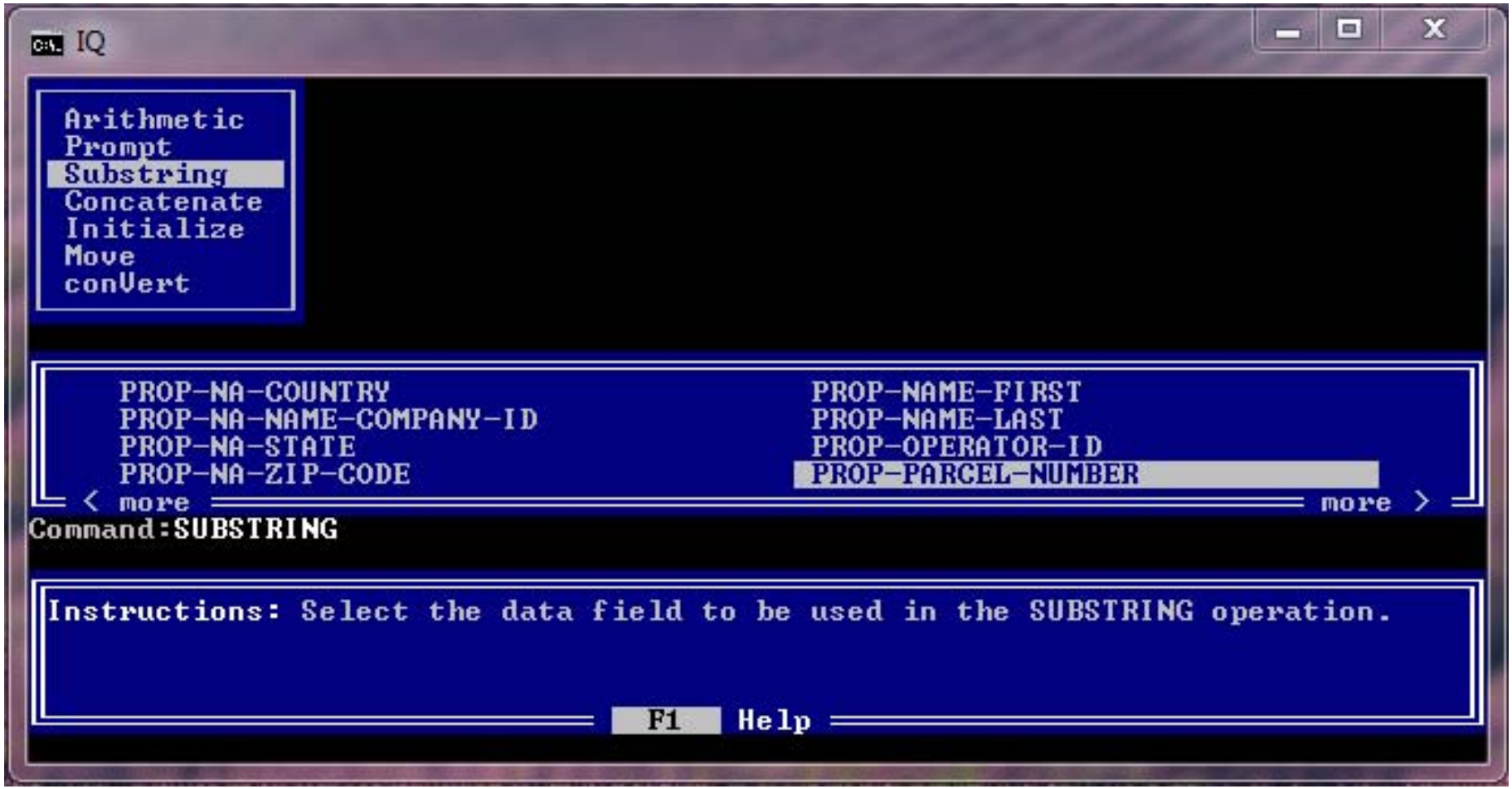


When using ArcView, we will generally use information from the real estate side. If we are using just a single subset of data such as sales info or building info, we can choice just that categories. In this example, we will use “ALL REAL PROP FILES”.

In this example, we are creating a new IQ procedure and wanting to export the results as a dbf file that we can then join to our mapping. Dbf files like short field names 12 characters or shorter. The state CAMA system also stores the parcel numbers in addition-township-range-section format. This makes us use the “Temporary field functions”.

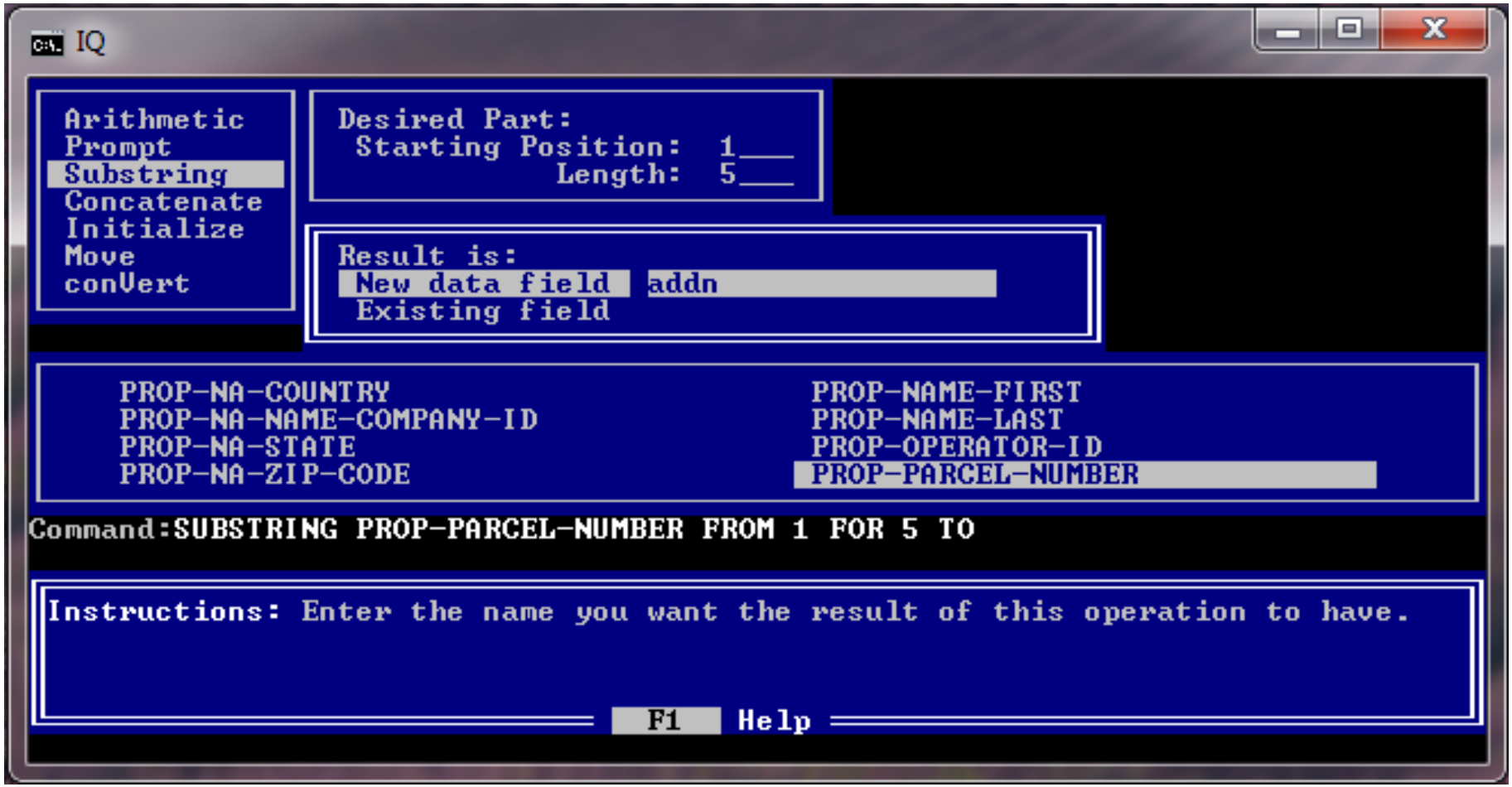


To reformat the parcel id number to match the addition-section-township-range format we are used to, we will use the “Substring” command.

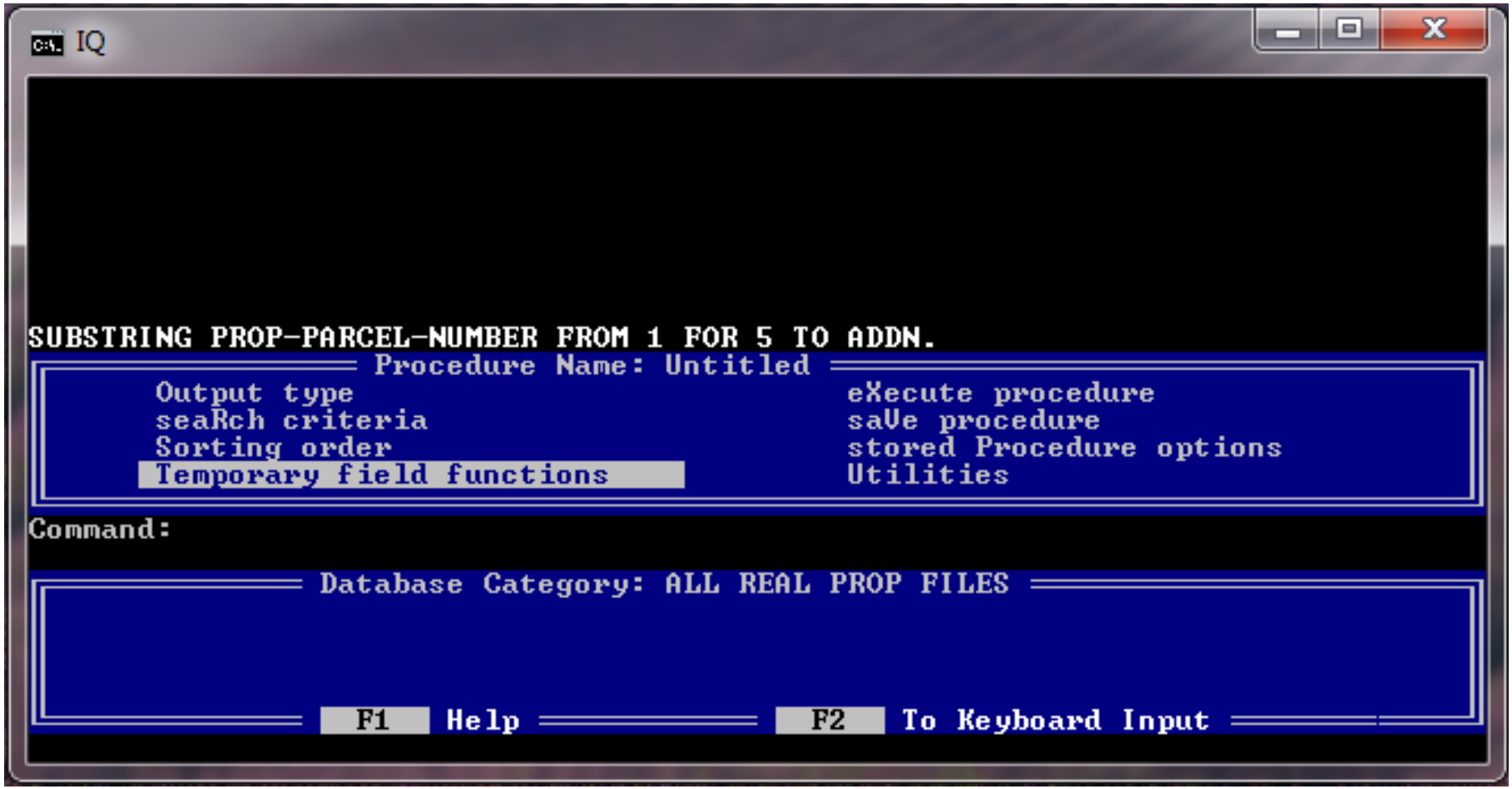


Then, we will highlight “PROP-PARCEL-NUMBER”.

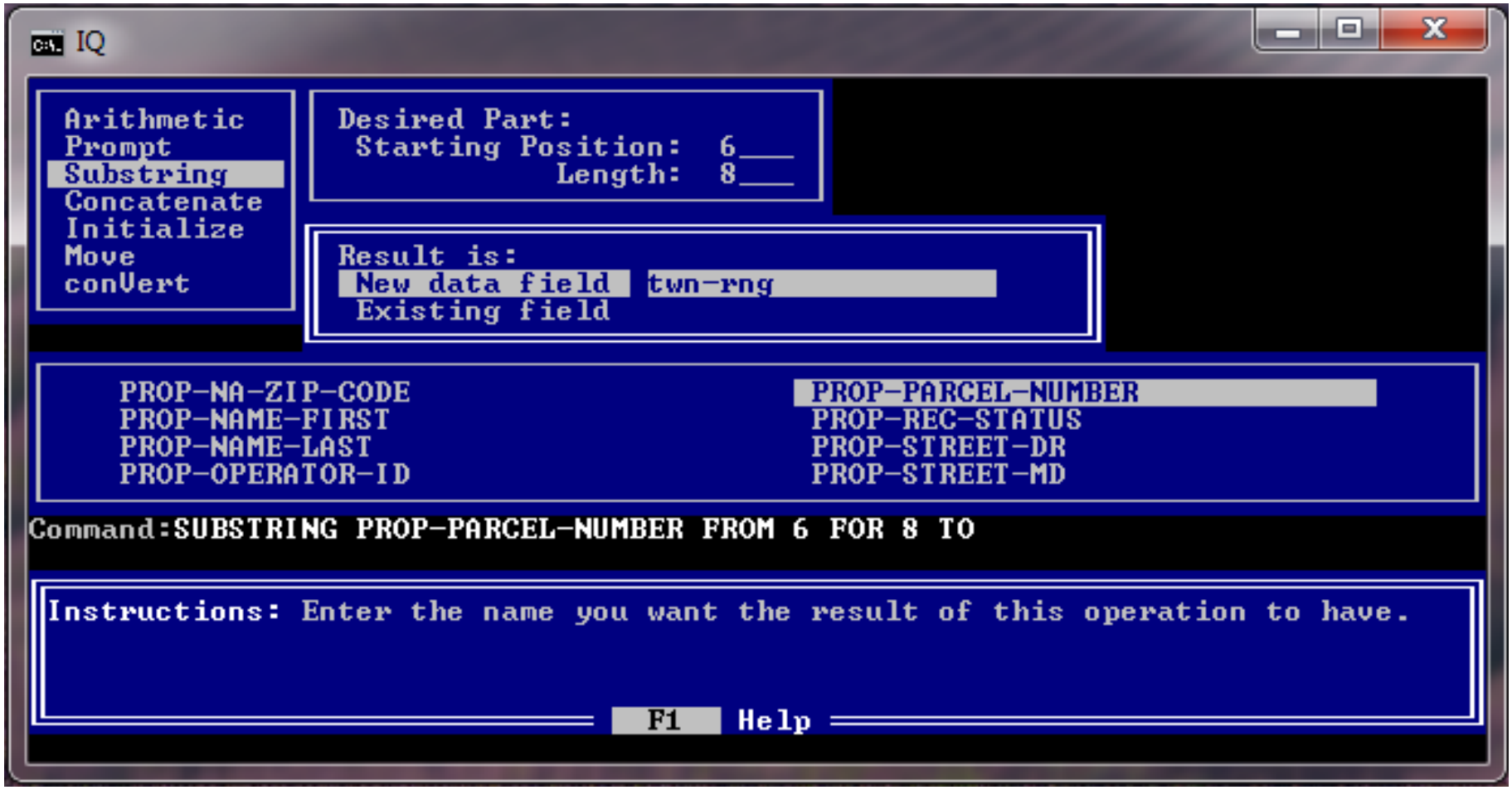
(If you type PR, the cursor will move to the “PROP” subset of fields.)



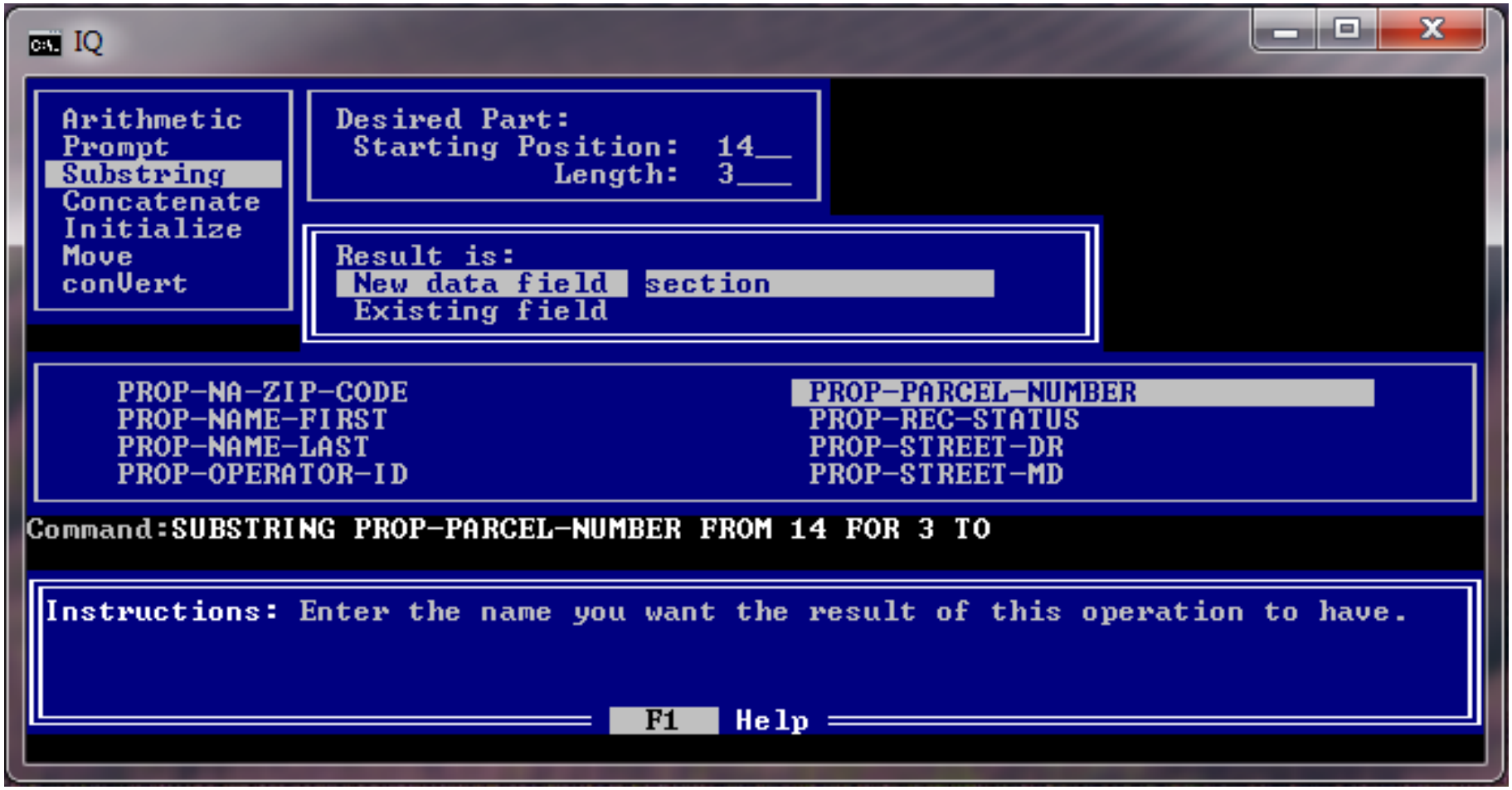
Since the 1st five characters contains the addition number and the first dash, we will include them in the creation of a new field we will temporarily use to re-build the parcel id number.



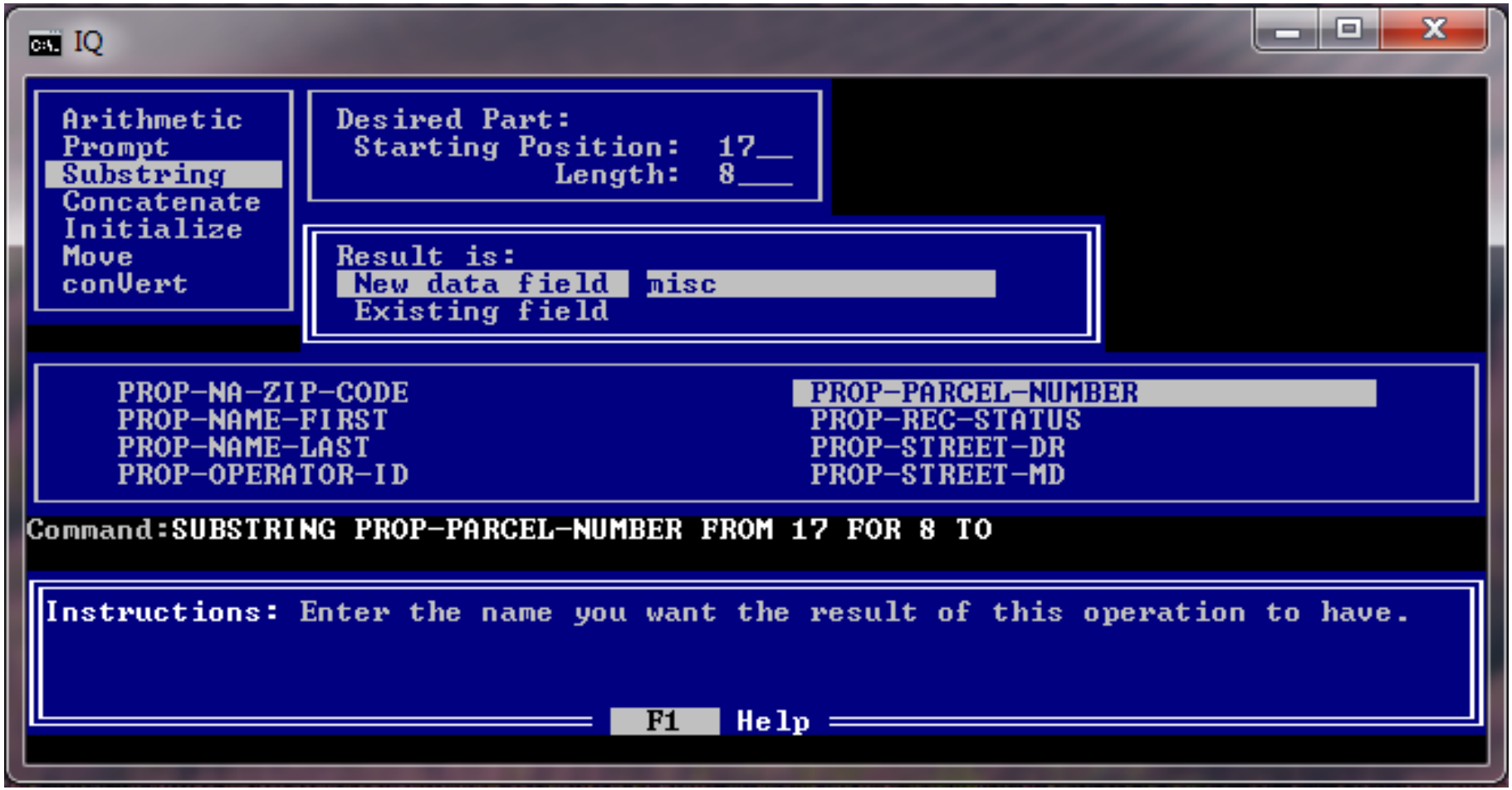
After completing the 1st “substring” command, we have to go back to the “Temporary field functions” option to continue.



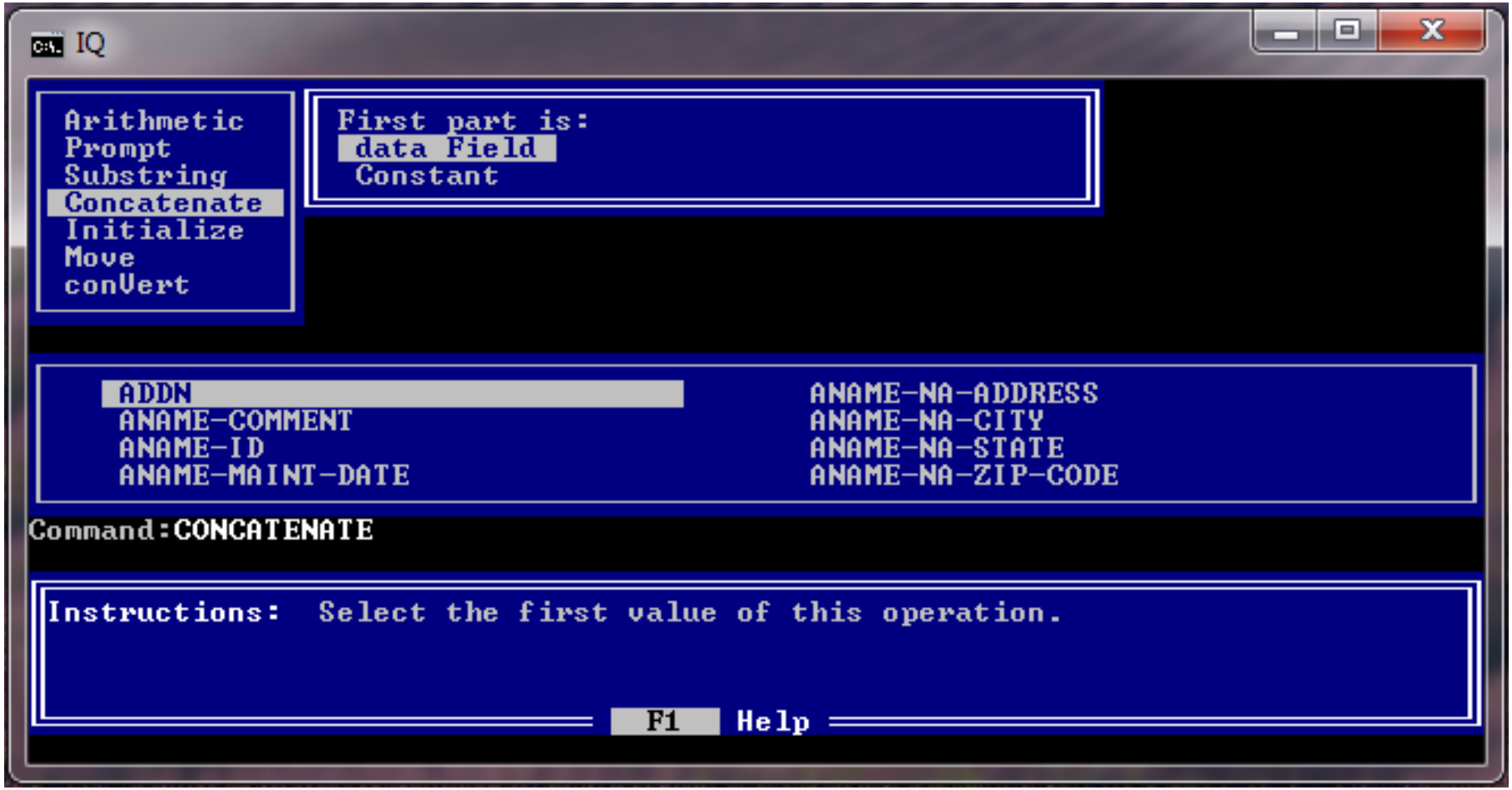
Now, we build the 2nd “Substring” command to isolate the township and range portion of the parcel id number with the trailing dash.



Continuing to use the “Temporary field functions” and the “Substring” command, we separate the section number component of the parcel id number into a new field called “section”.

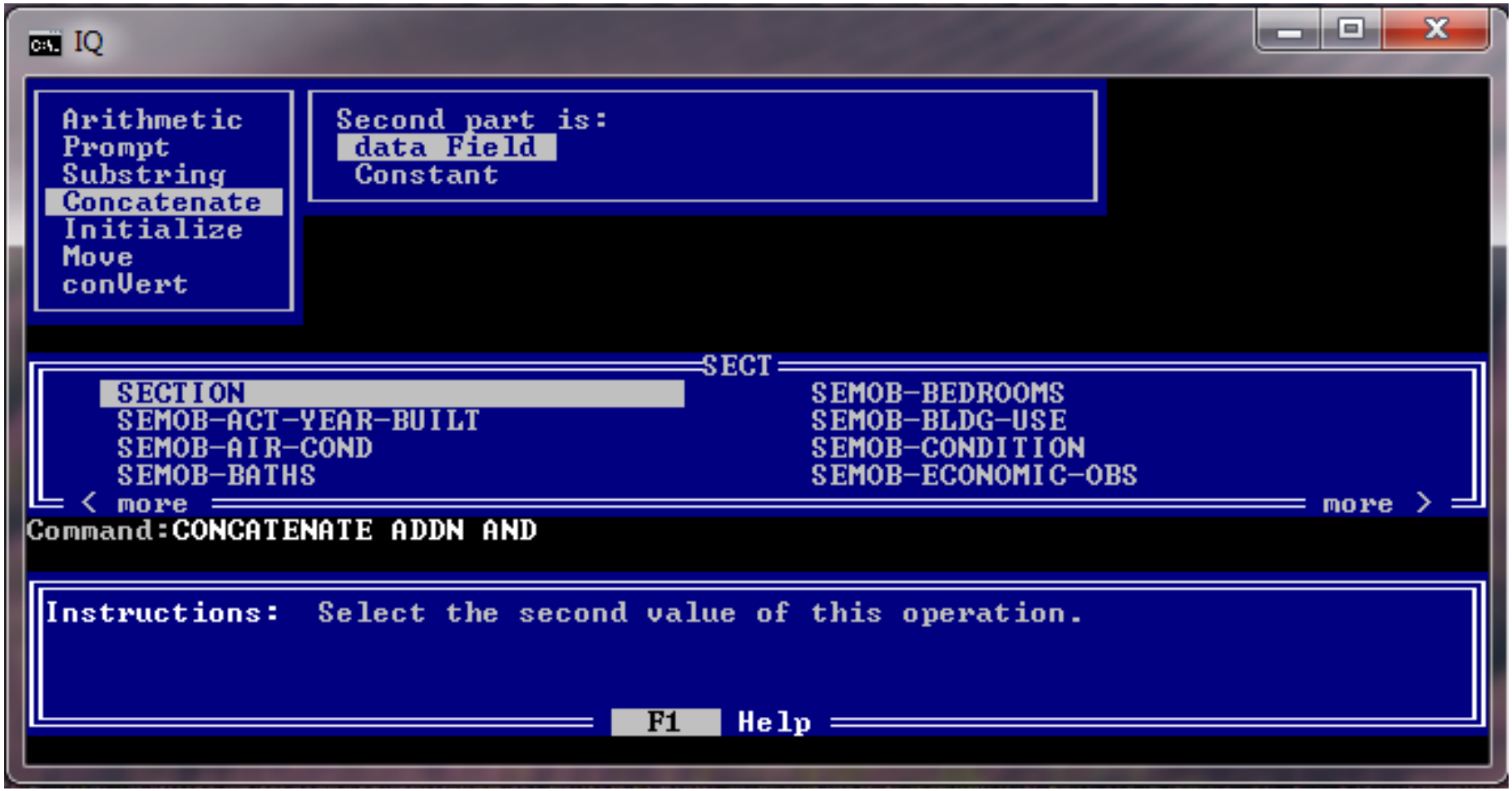


Then, we create the “misc” for everything else in the parcel id number.



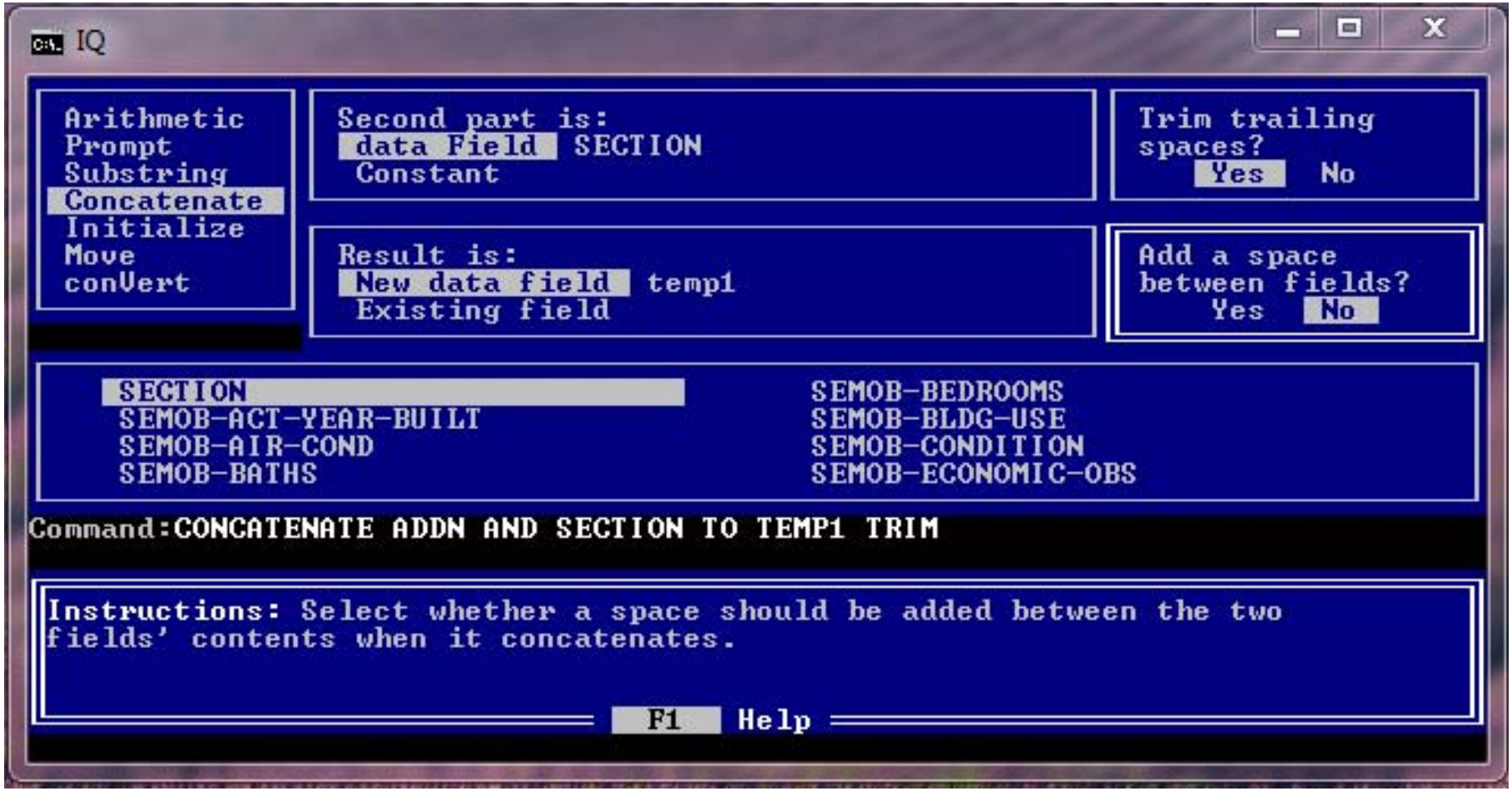
Now we start putting the pieces back together into the format we are used to seeing and to match the parcel id numbers in our mapping. Again, we use the “Temporary field functions”, but this time we chose the “Concatenate” command.

Selecting “data Field”, we find, highlight, and click enter on the “ADDN” field.



Again, we chose the “data Field” option, find our next field “SECTION” and hit enter.

(If you type SECT, the cursor is placed on the “SECTION” field.)



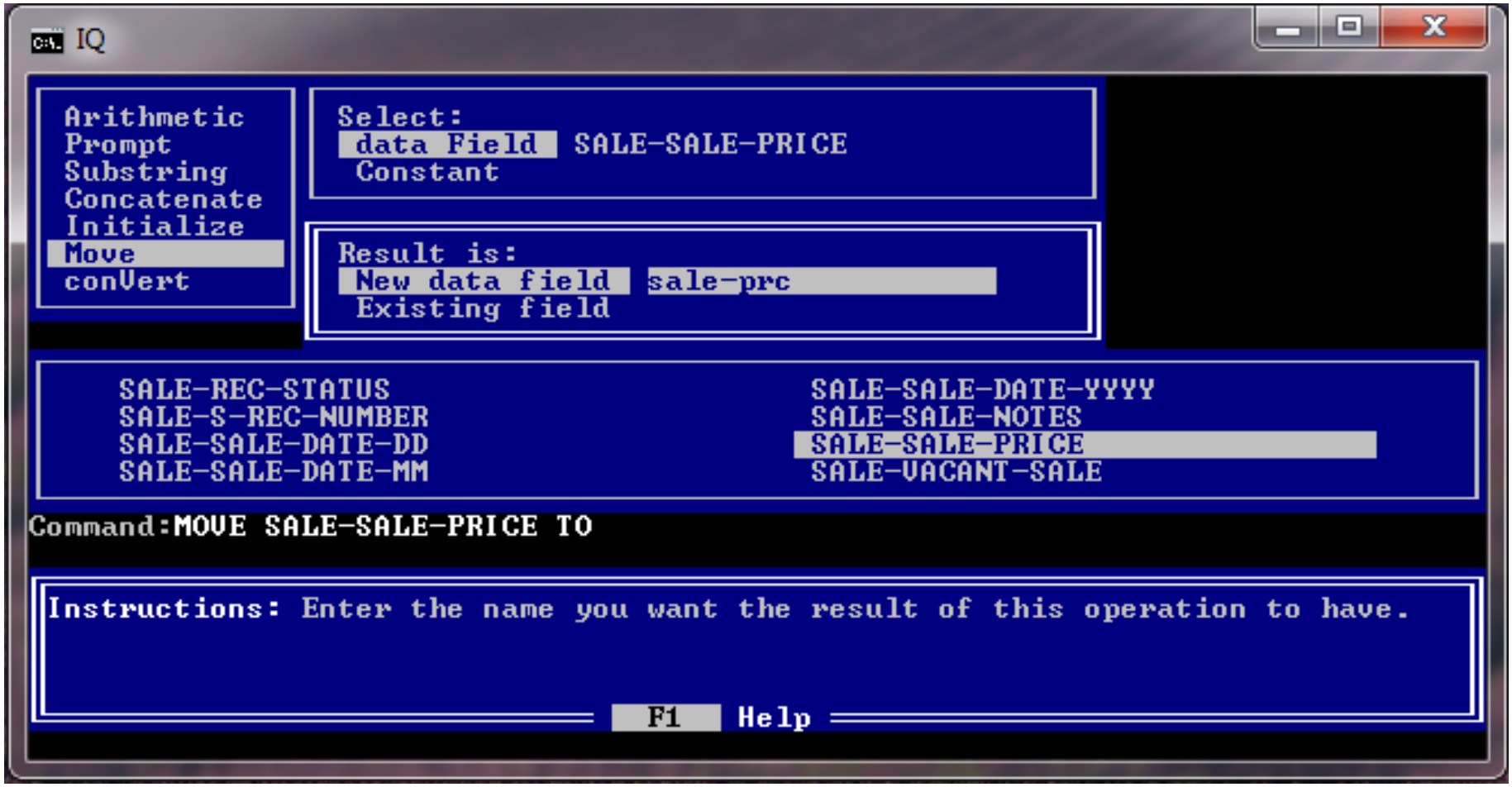
After selecting the “SECTION” field, you can create a new field or place the merged data into an existing field. In this case, we will create a new field called “temp1”.

Whenever you “Concatenate”, you have the option to “Trim trailing spaces?” and to “Add a space between fields?” In general, the answers are first “Yes” and then “No”.

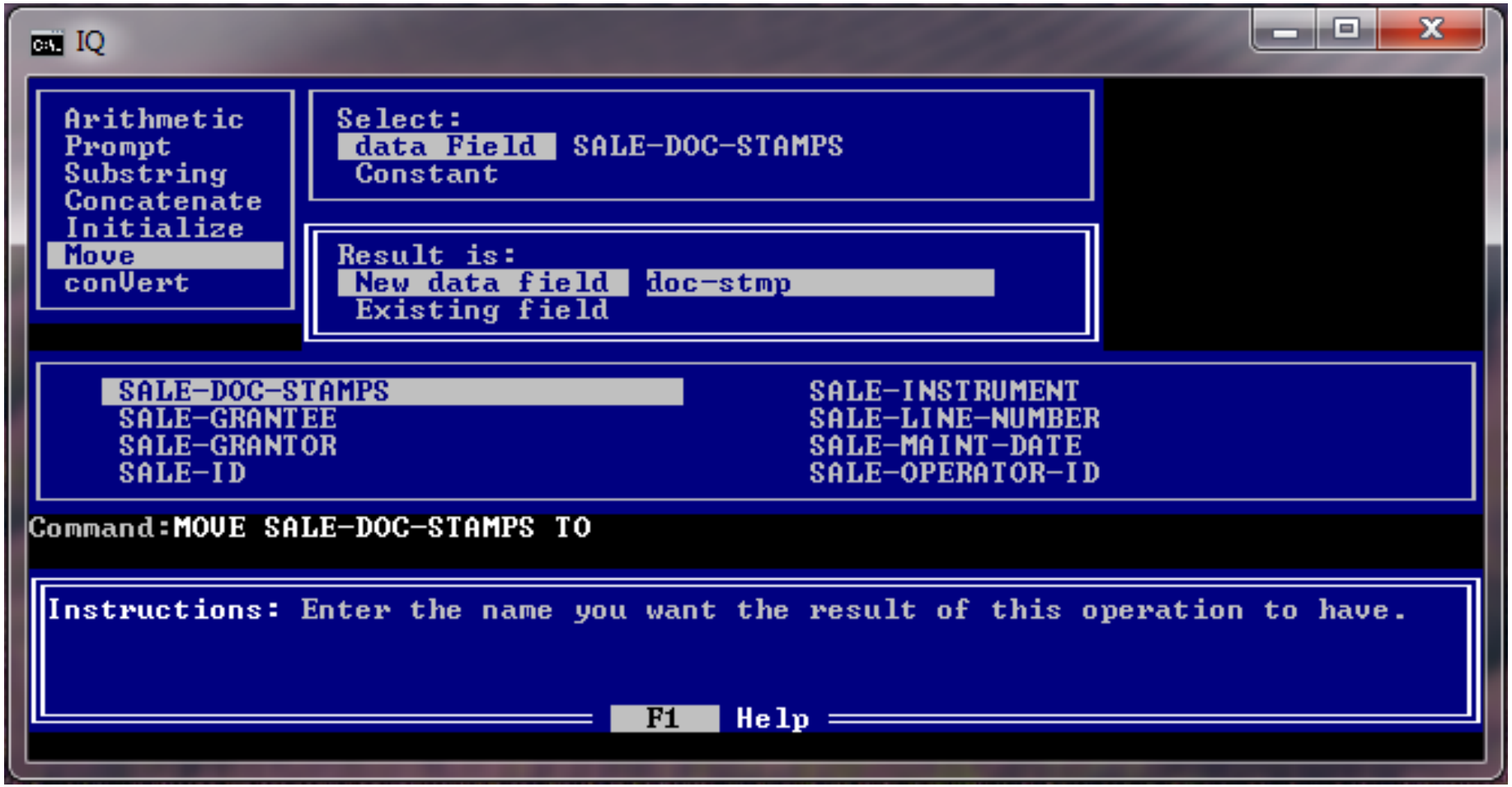
Now, we repeat the steps to join the “TWN-RNG” field and the “MISC” field. The resulting field will be named “temp2”.

(The “Concatenate” command only allows two fields to be merged at a time.)

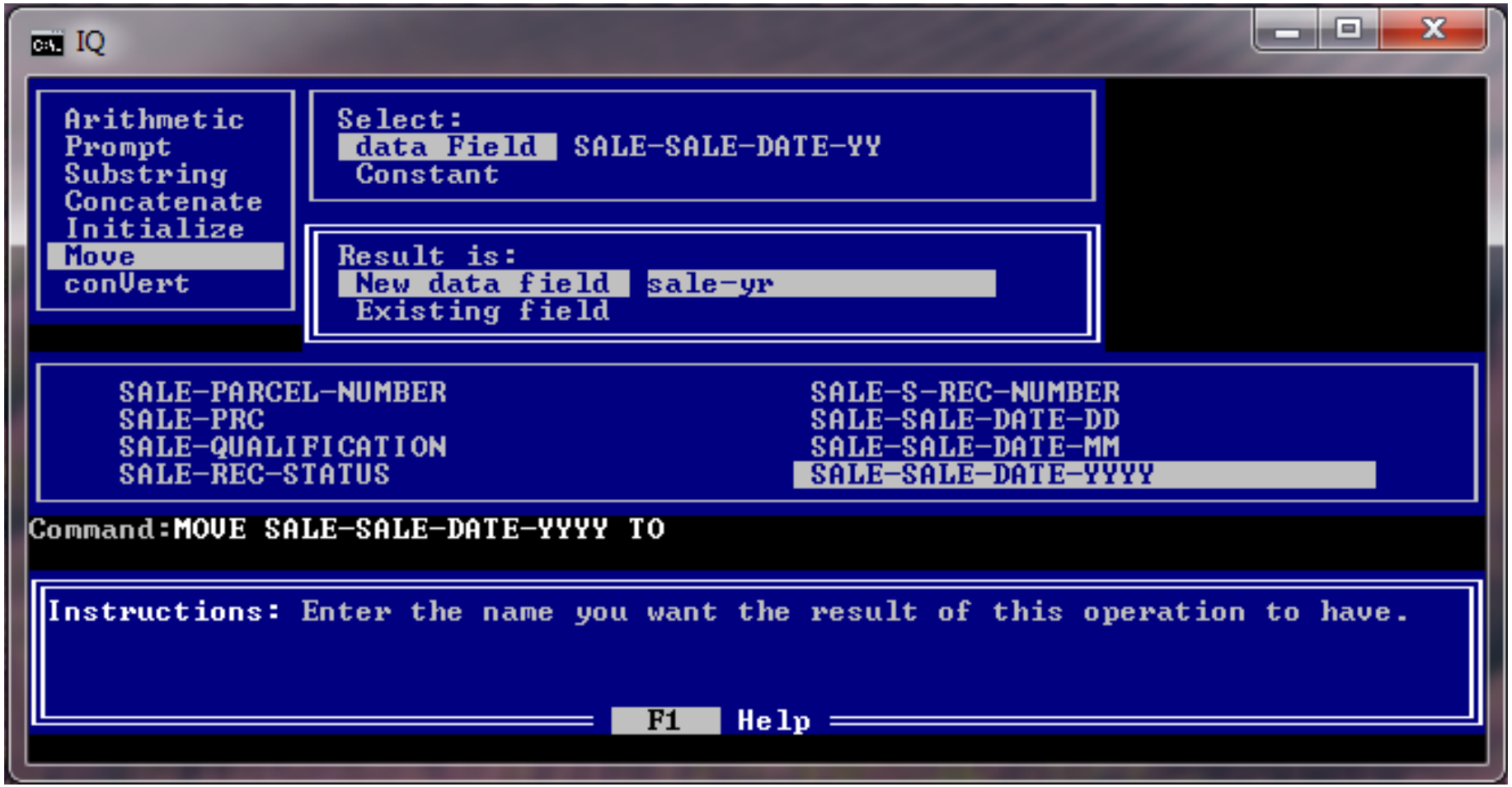
Now, we merge the “TEMP1” and “TEMP2” fields creating the final, reformatted field named “PARCELID”.



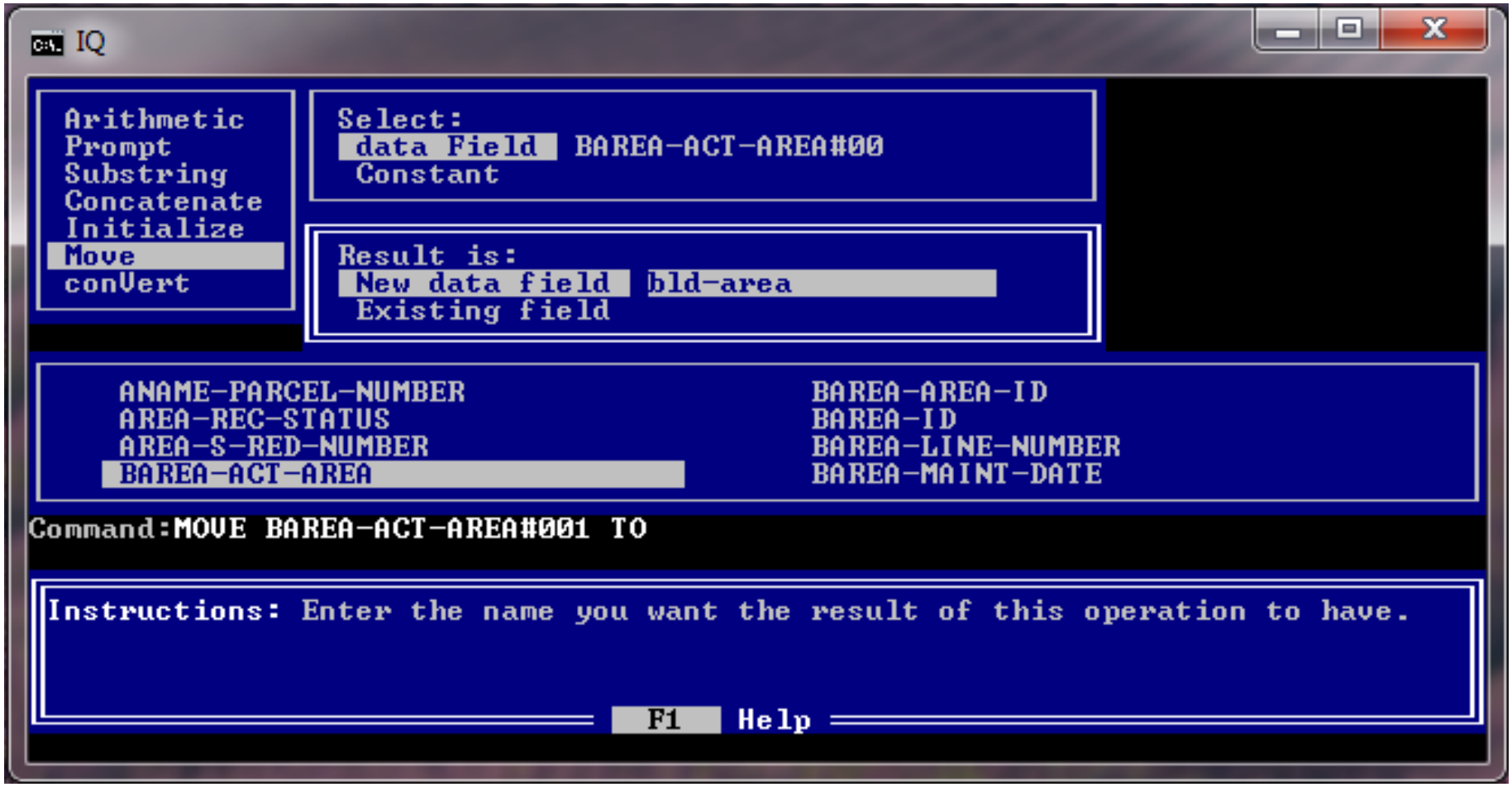
Still using “Temporary field functions”, we start to create shorter named fields to comply with restrictions of the dbf file format. The “Move” command creates a new field. It also allows us to set the new field equal to an existing field. In this example, we create a new field named “SALE-PRC” containing CAMA sales prices.



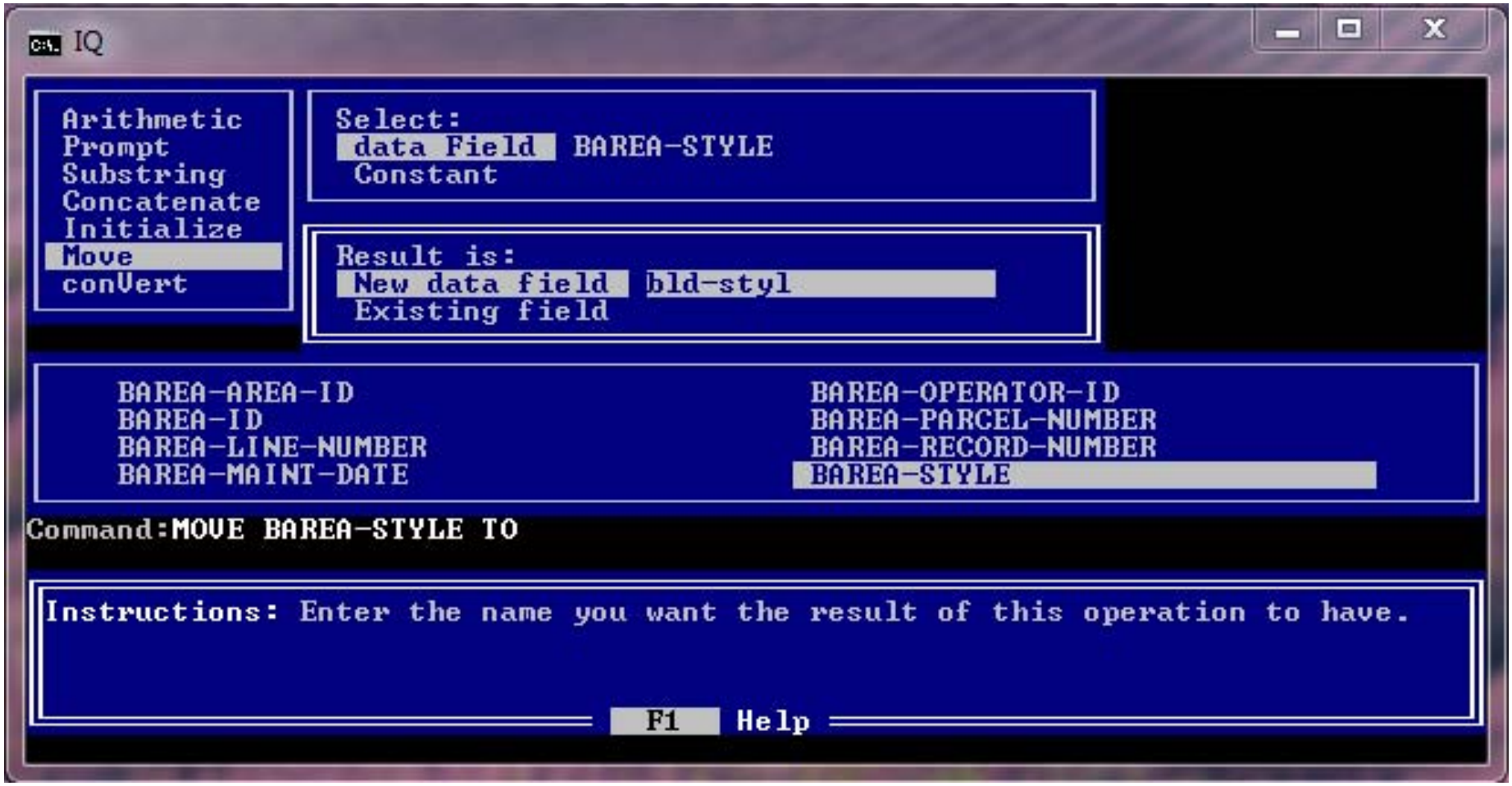
Now, we do the same thing to document stamps.



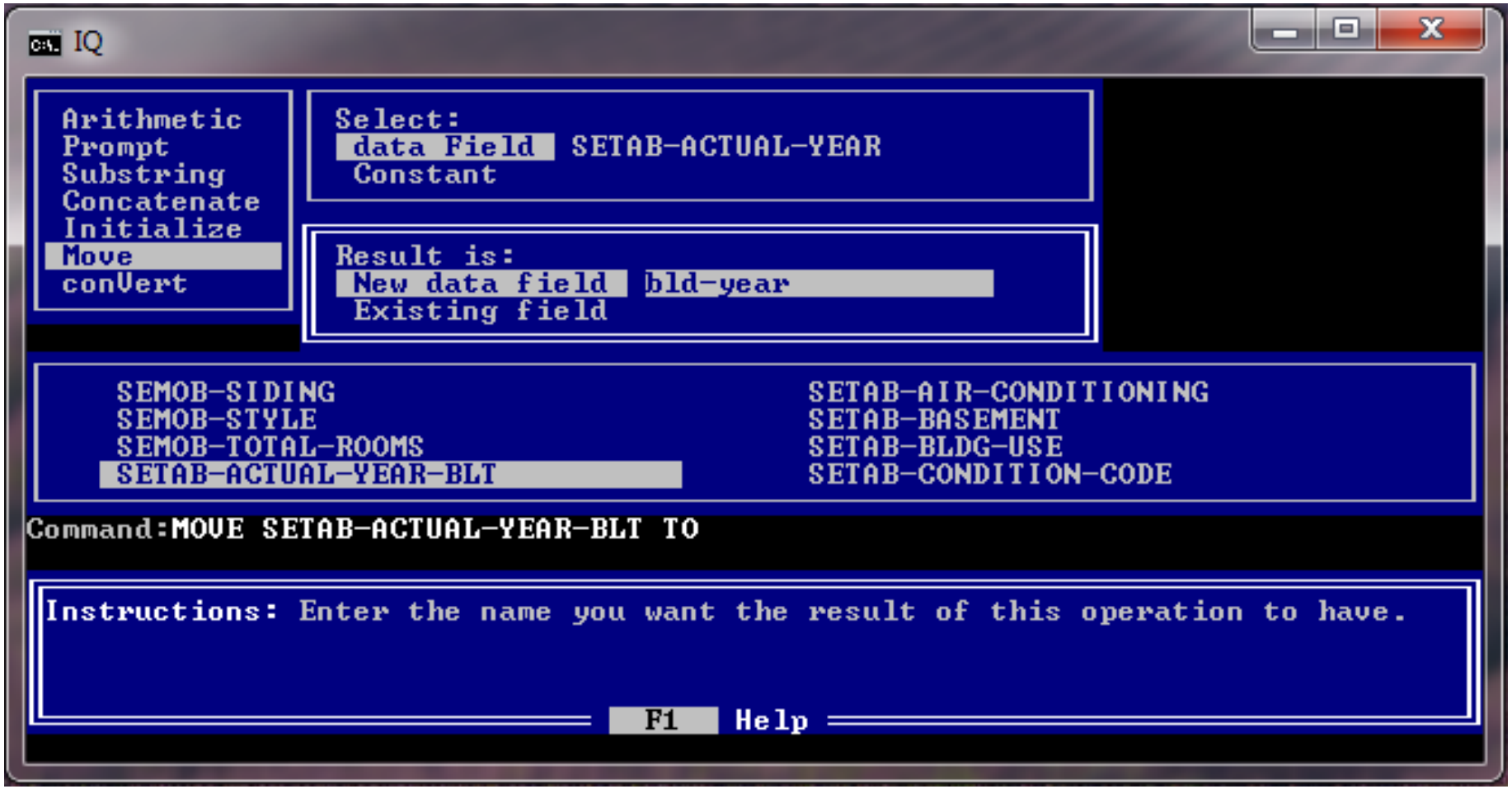
… and the same thing to sales date…



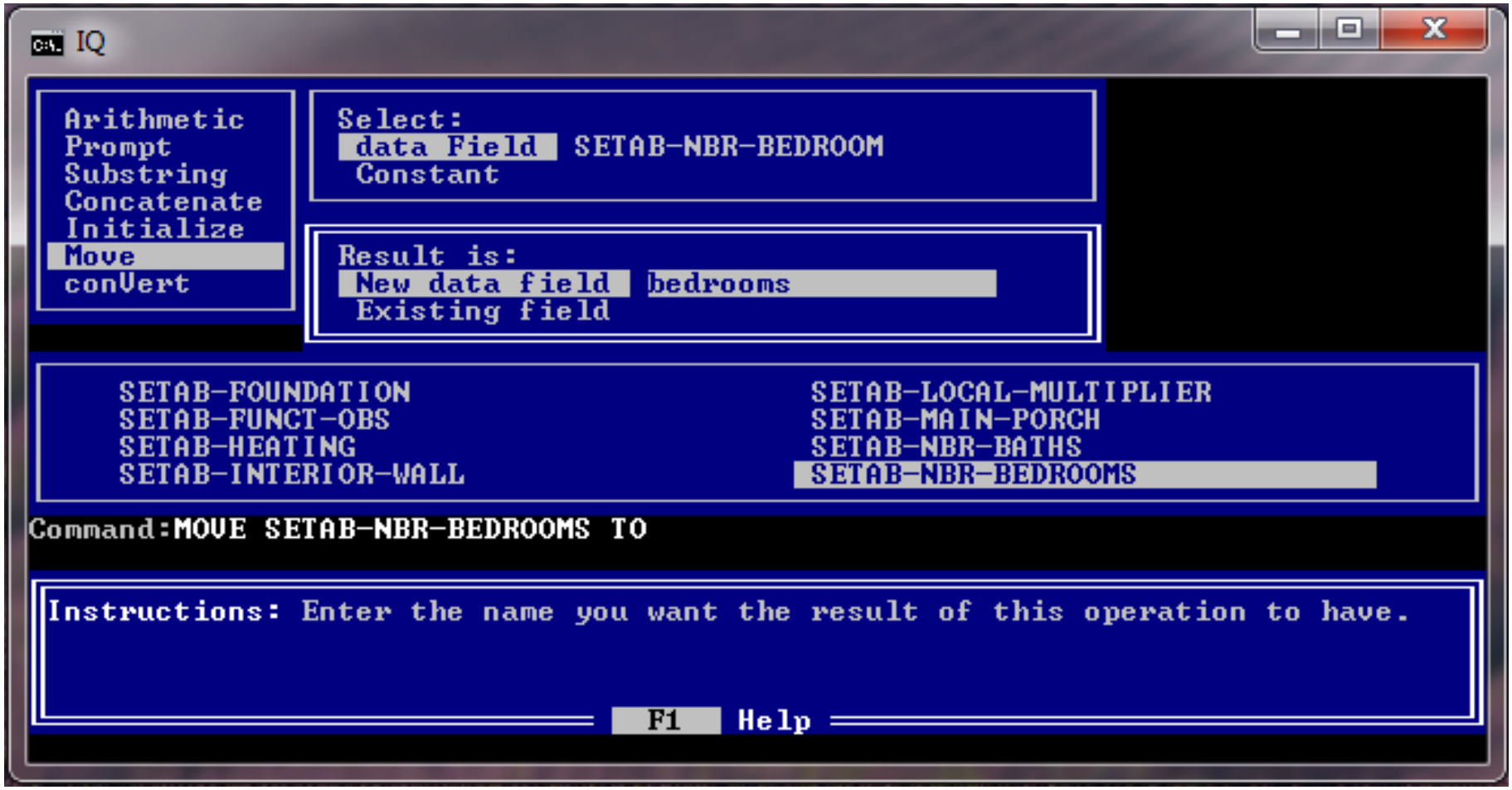
… and the same thing to our 1st primary building's square foot area…



… and to the 1st primary building style…



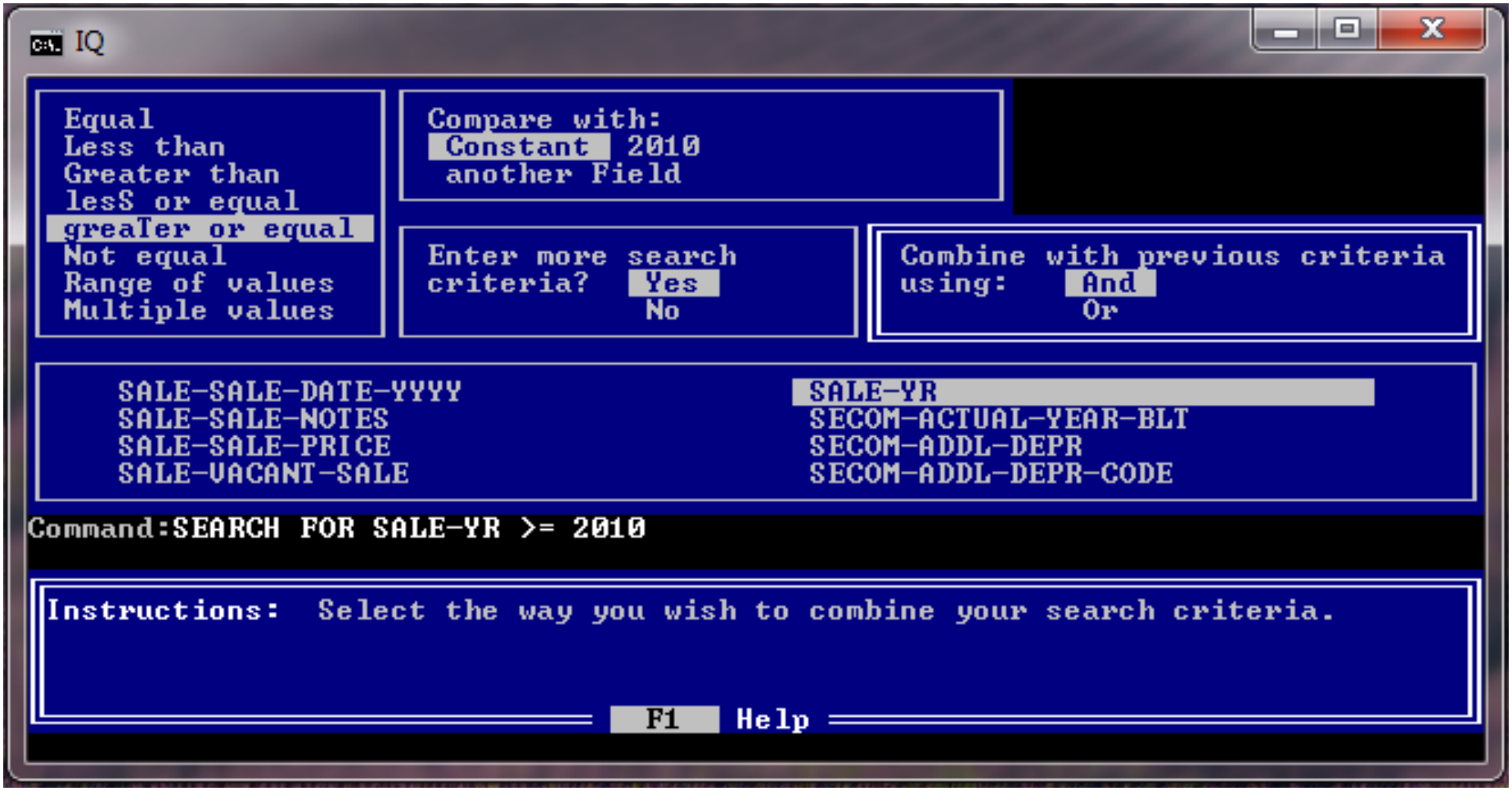
… and its year built if a residence…



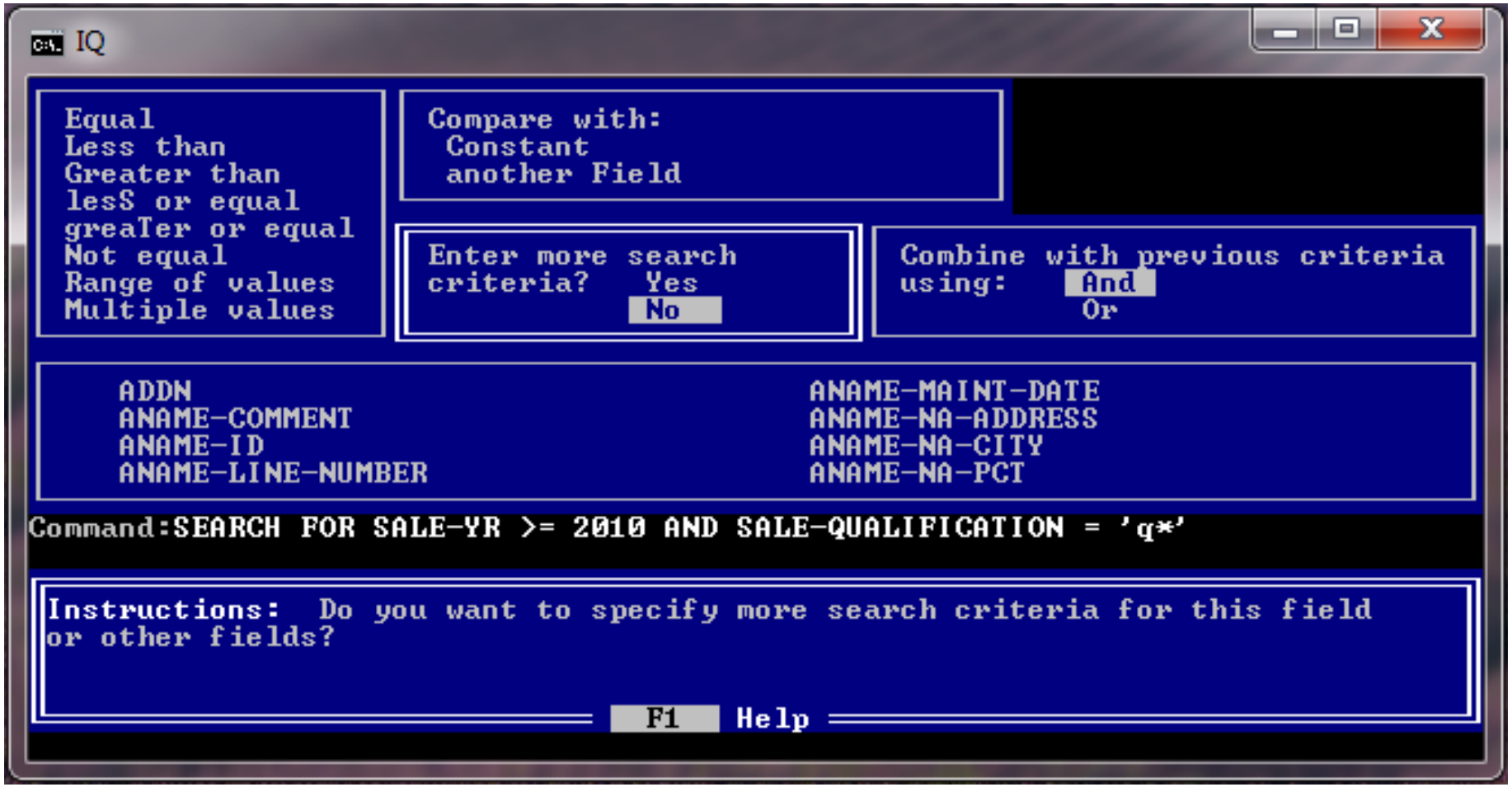
… number of bedrooms, if a residence…

After using the “Move” command to create “BATHS” and “BLD-QUAL” fields, we are ready to create search criteria using “seaRch criteria”.

(Instead of using the arrow keys to highlight and then hit the enter key to activate a process, just type in the capitalized letter of the option.)

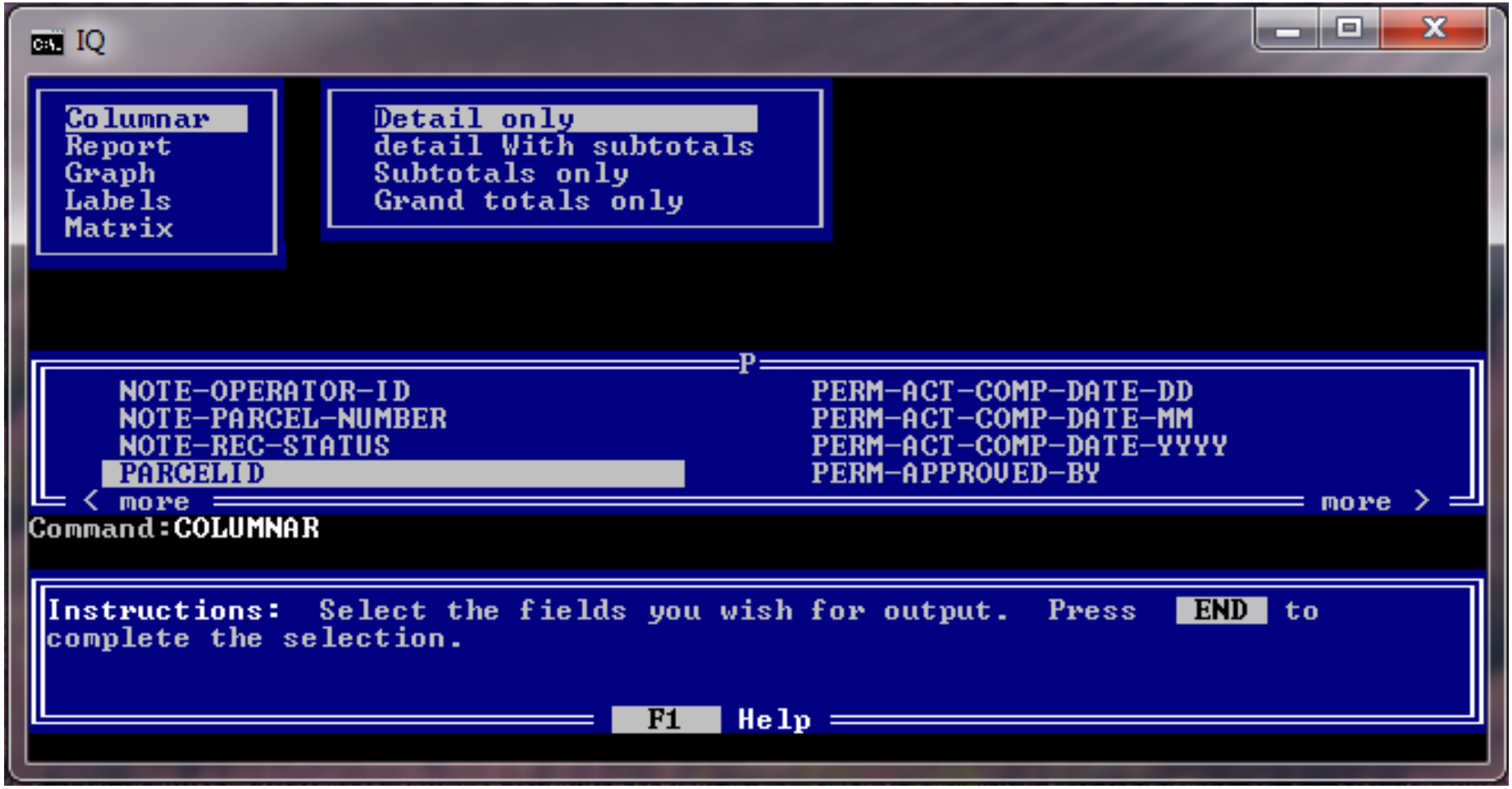


We are going to start our search by limiting it to sales 2010 or newer… and…

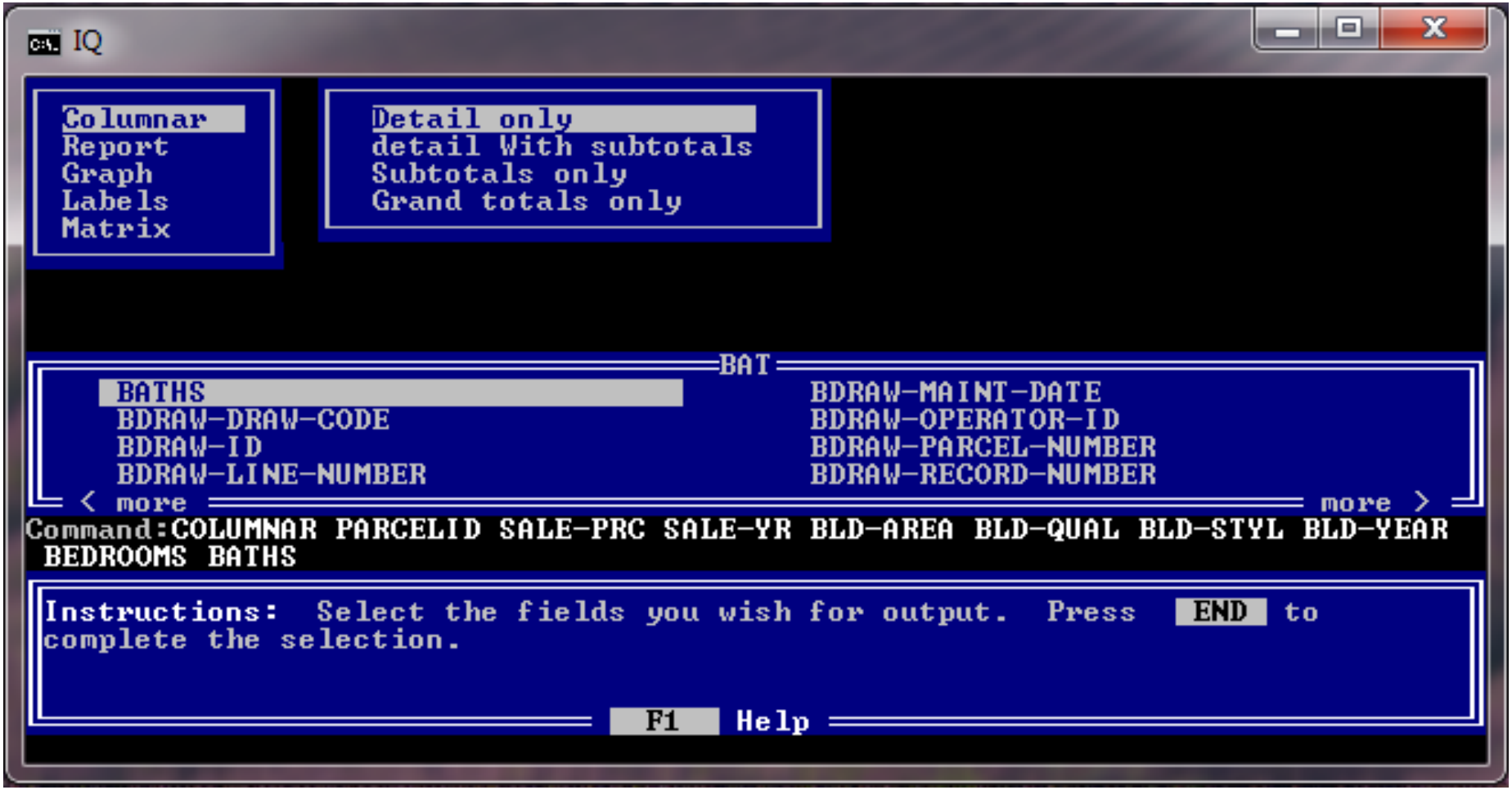


… sales qualification beginning with “Q”. This will include both “Q” qualified and “QV” qualified, verified sales.

We now create the “Output type”. For our example, we will use the best format for creating a dbf file.



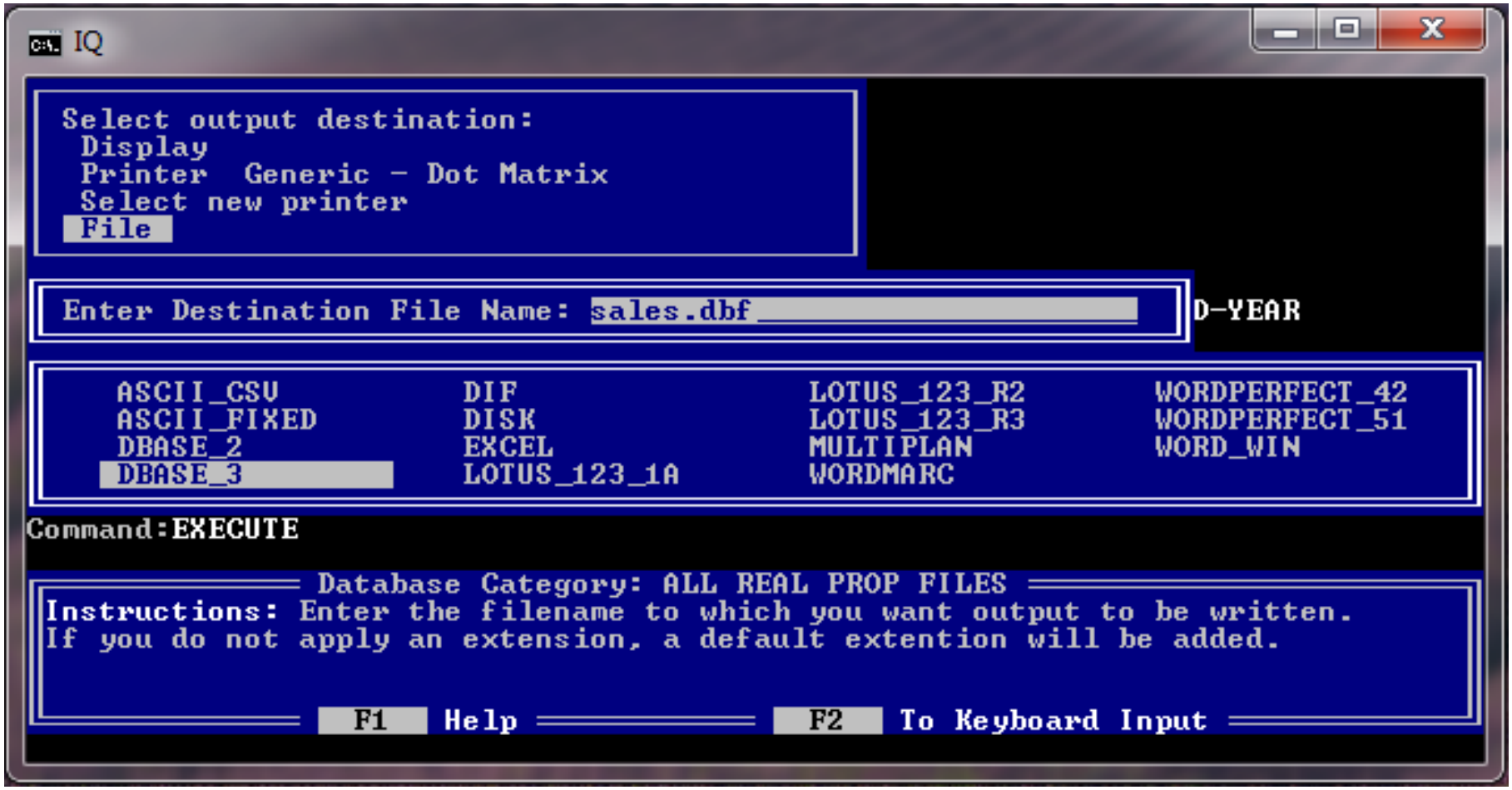
For data file creation, the best format is “Columnar” “Detail only”.



Now, you chose each field to add by highlighting and hitting enter on each field one-at-a-time. When you are finished, hit the “END” key on the keyboard.

With everything set, we can now “eXecute” the IQ “procedure”.

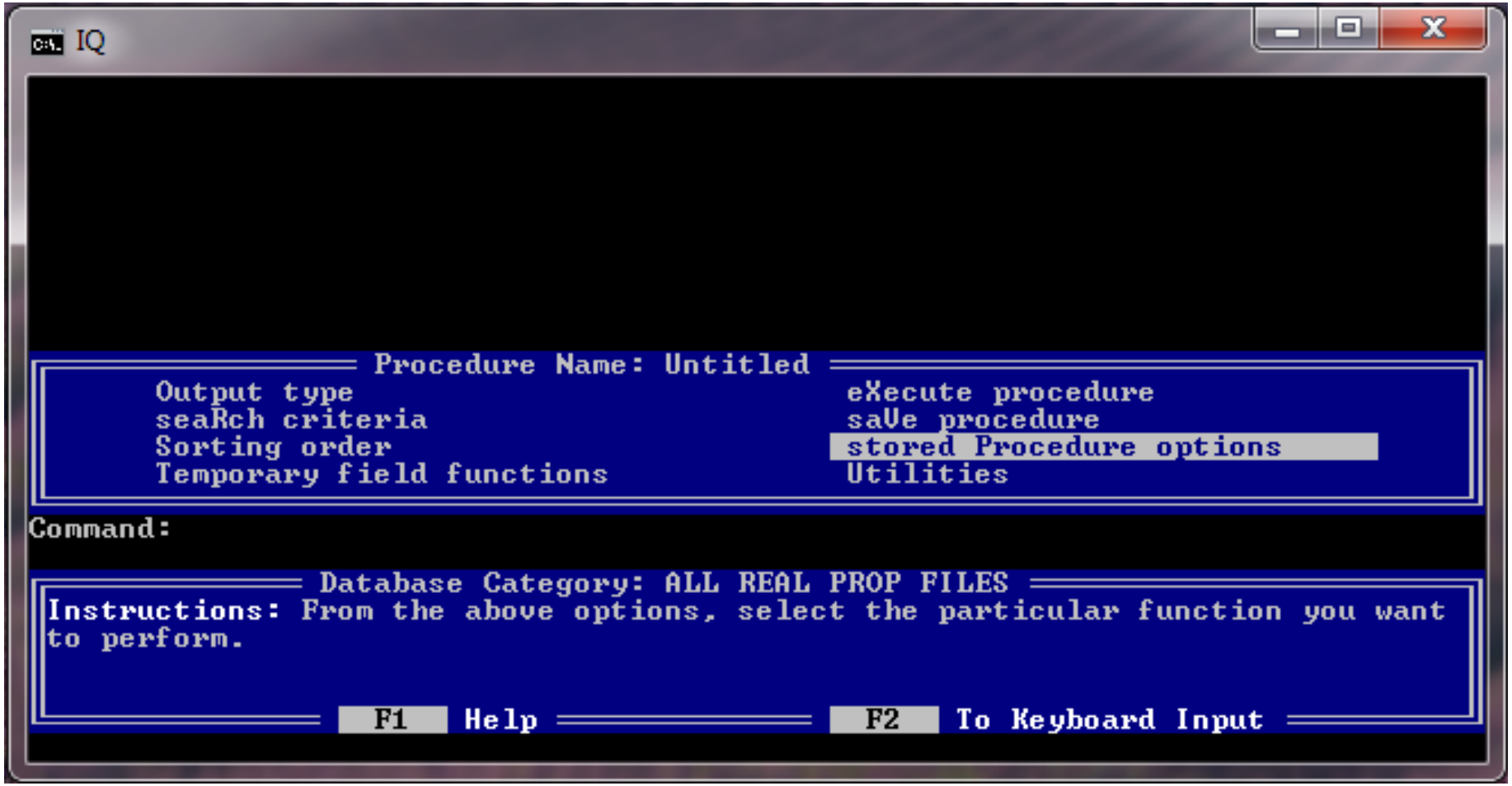
With the mirgation of printers from parrelel port to USB port, IQ no longer directly prints. *(You can create a text file and then print.)* In our example, we are creating a dbf file. So, we will chose the “File” option.



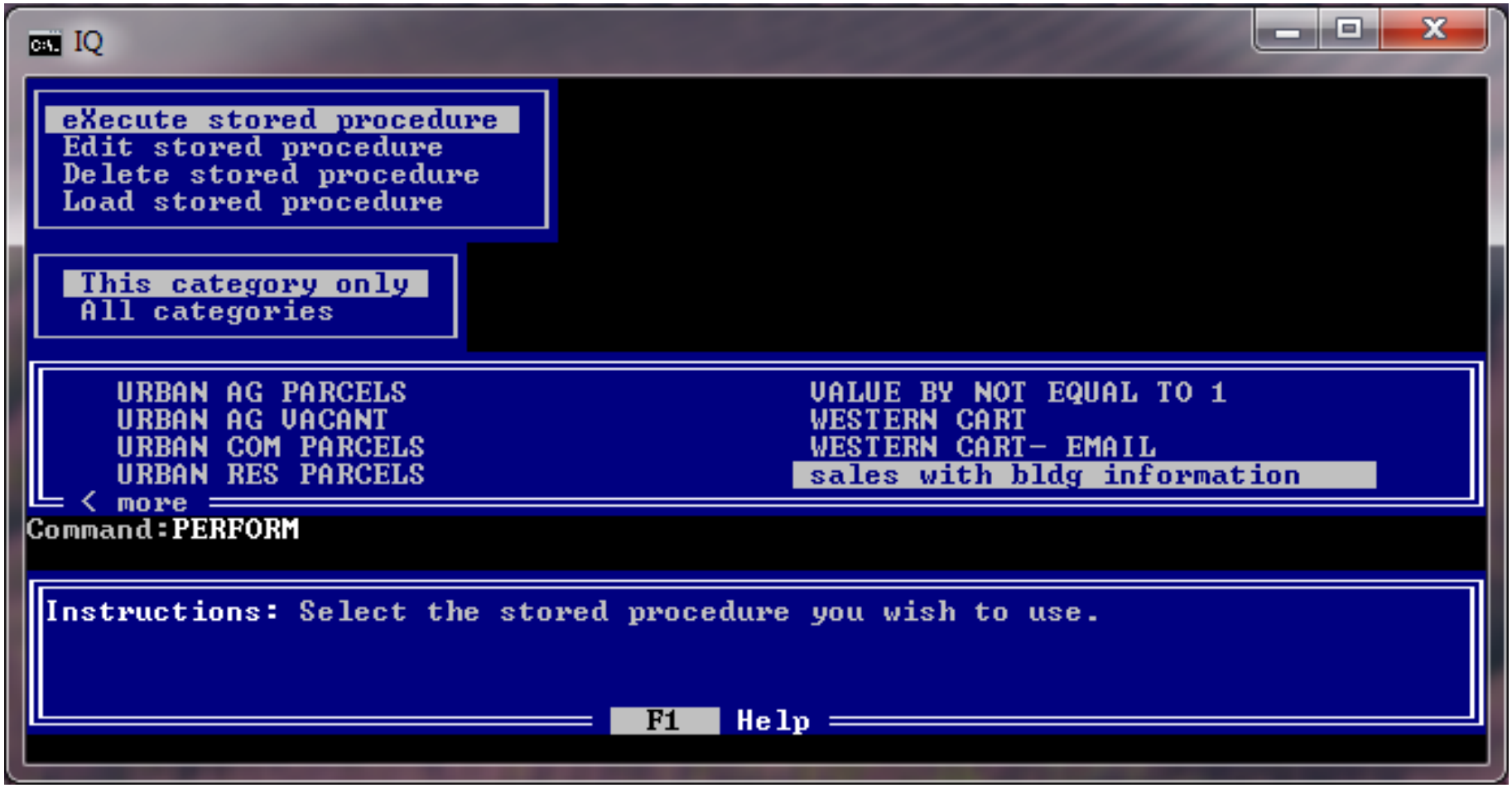
Now, we chose our format. With ArcVIew, we will generally chose “DBASE_3”. Then, we give the file a name. In this example, we will use “sales.dbf”. If this file already exists in the H:\ drive, we will be prompted to weither we want to overwrite it or not.

After all this work, if we want to save this procedure, we chose “saVe procedure”.

In this screen, we can overwrite an existing procedure or create a new one..



After saving the procedure, to find it, use the “stored Procedure options” and…



… chose your action (“eXecute stored procedure”), your category (“This category only”), and your procedure.

Remember, if you know the name of the procedure, you can start typing it in. This will move the cursor to it.

Mapping Session

Mapping Government Lots

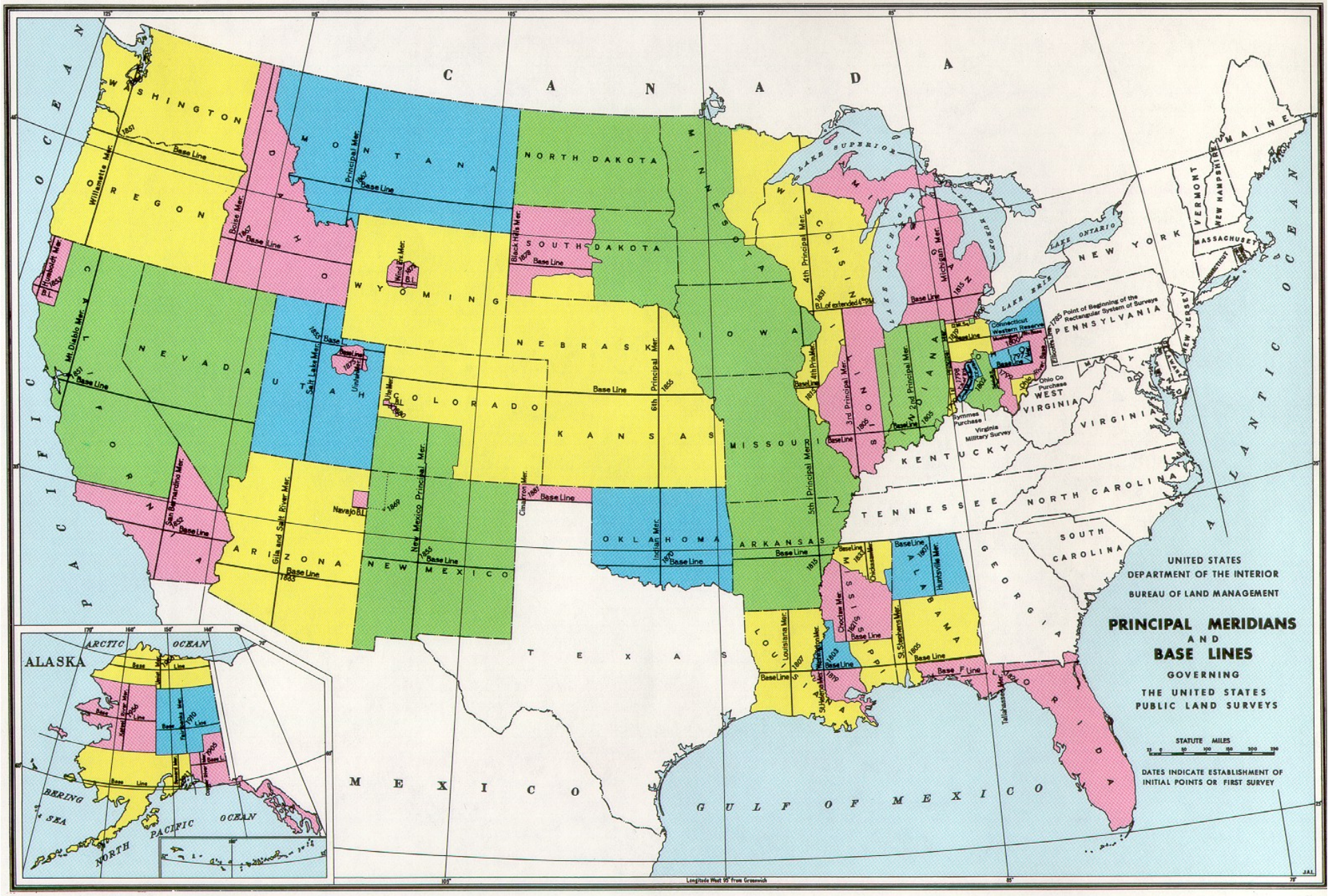
Presented by Troy Frazier, CMS, OTC

The Public Land Survey System:

The Public Land Survey System (PLSS) is a way of subdividing and describing land in the United States. All lands in the public domain are subject to subdivision by this rectangular system of surveys, which is regulated by the U.S. Department of the Interior, Bureau of Land Management (BLM).

The PLSS actually consists of a series of separate surveys. Most PLSS surveys begin at an initial point, and townships are surveyed north, south, east, and west from that point. The north-south line that runs through the initial point is a true meridian and is called the Principal Meridian. There are 37 Principal Meridians, each is named, and these names are used to distinguish the various surveys. The east-west line that runs through the initial point is called a base line. This line is perpendicular to the Principal Meridian.

Taken from: http://www.nationalatlas.gov/articles/boundaries/a_plss.html



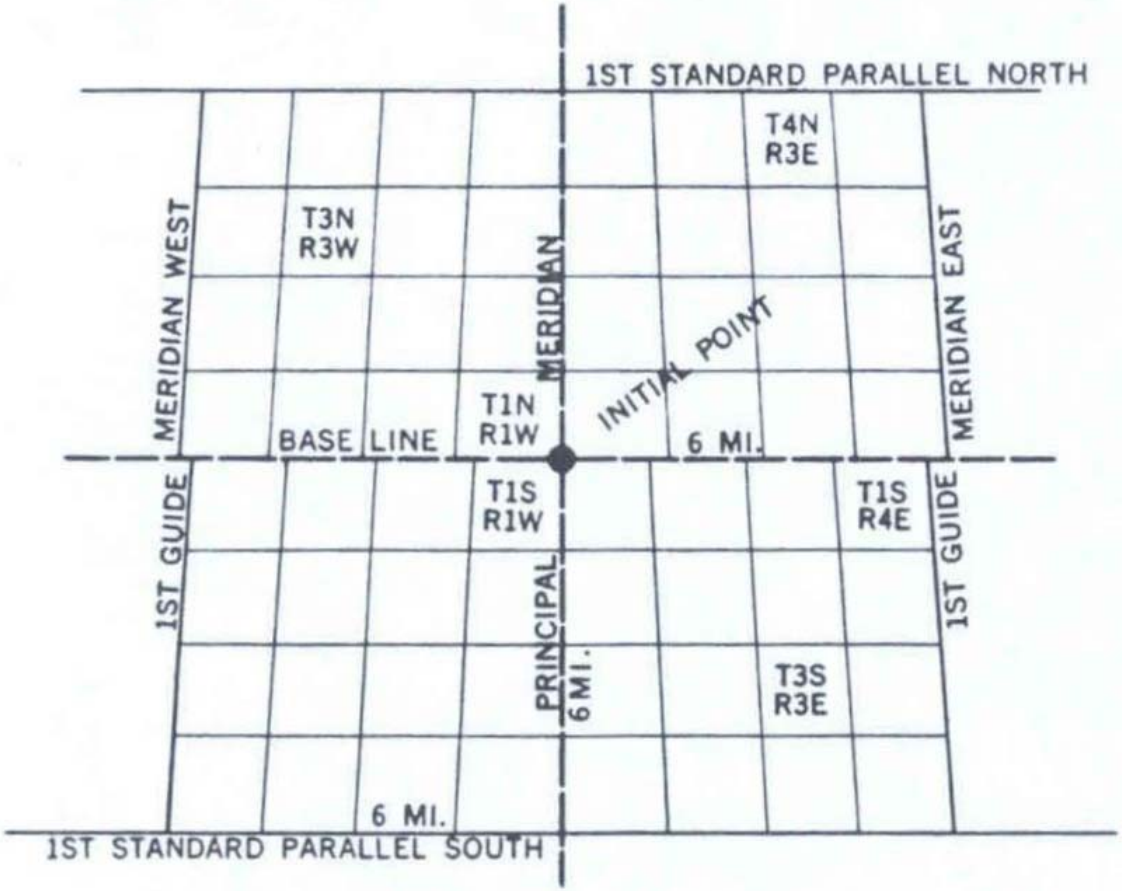
INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1988

Taken from: http://www.nationalatlas.gov/articles/boundaries/a_plss.html

Originally proposed by Thomas Jefferson, the PLSS began shortly after the Revolutionary War, when the Federal government became responsible for large areas west of the thirteen original colonies. The government wished both to distribute land to Revolutionary War soldiers in reward for their service, as well as to sell land as a way of raising money for the nation. Before this could happen, the land needed to be surveyed.

The Land Ordinance of 1785 which provided for the systematic survey and monumentation of public domain lands, and the Northwest Ordinance of 1787 which established a rectangular survey system designed to facilitate the transfer of Federal lands to private citizens, were the beginning of the PLSS. Under Congressional mandate, cadastral surveys (surveys of the boundaries of land parcels) of public lands were undertaken to create parcels suitable for disposal by the Government. The extension of the rectangular system of surveys over the public domain has been in progress since 1785, and, where it applies, the PLSS forms the basis for most land transfers and ownership today.

Taken from: http://www.nationalatlas.gov/articles/boundaries/a_plss.html



The second division of land divides each quadrangle into sixteen 6-mile square townships as shown in the above diagram.

Each east-and-west row of townships is called a tier and is numbered north or south of the base line as: T3N, or T3S. Each north-and-south row of townships is called a range and is east or west of the principal meridian as: R3W, or R3E. A township is identified by reference to its tier number, range number, and principal meridian, as T1S, R4E, Indian Principal Meridian. The letter T in this designation actually stands for tier, but it has become the custom to refer to it as township instead of tier.

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

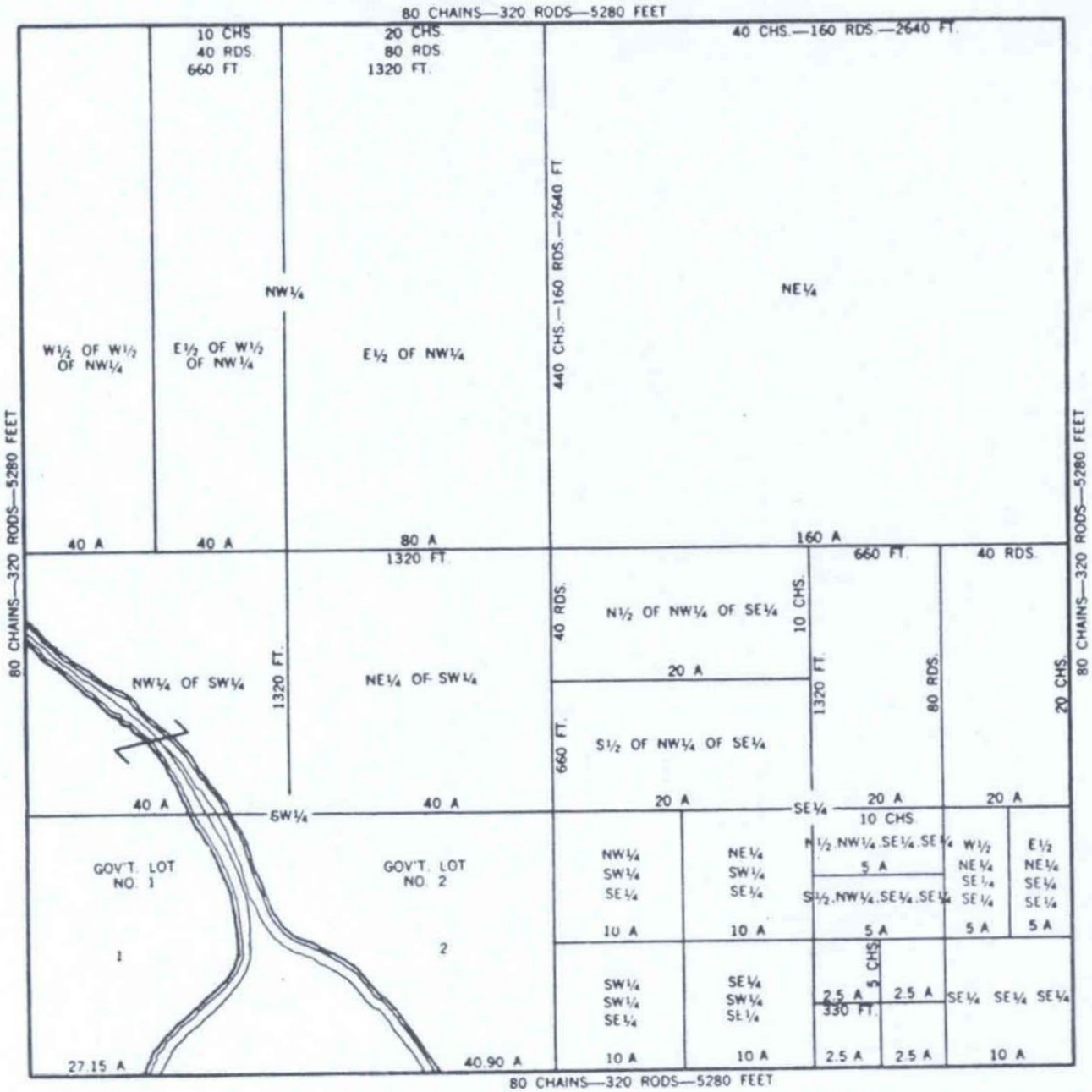
The third division of land further divides the townships by parallel north-and-south lines and parallel east-and-west lines at one-mile intervals. This is intended to create 36 squares measuring one mile on each side and containing one square mile of 640 acres each. These squares are called sections. They are always numbered in the same pattern, starting in the northeast corner of the township as shown in the above diagram.

Each section is further divided into half sections, or quarter sections or half-quarter sections and so on as desired. These subdivisions are described by their geographic position within a section as shown in the diagram on the next page.

A typical description of a 20-acre site might read as follows: W½-NE¼-SE¼, Section 6, T2N, R3E, Indian Principal Meridian. The best way to read a land description based on this system is to start at the end with the meridian and to work back through, locating in order the township, section, quarter, quarter-quarter, etc.

Parcels of land along the shore of a lake or river not large enough to be considered sections were called government lots and usually identified by number.

An adjustment was necessary because the earth's meridians (north-and-south imaginary lines) are not parallel but converge at the north and south poles. All discrepancy was put into the quarter-quarter sections along the north and west boundaries of a township and these irregular parcels are commonly identified as fractional sections or government lots. A typical description would be Government Lot 3, Section 12, T7N, R9E, Indian Principal Meridian.



The above figure illustrates a section of land 640 acres divided first into quarters of 160 acres each, shown as NE¼, SW¼, SE¼, and then into various other divisions.

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The Official Federal Land Records Site

Welcome to the **Bureau of Land Management**(BLM), **General Land Office** (GLO) **Records Automation** web site. We provide live access to Federal land conveyance records for the Public Land States, including image access to more than five million Federal land title records issued between 1820 and the present. We also have images related to survey plats and field notes, dating back to 1810. Due to organization of documents in the GLO collection, this site ***does not*** currently contain every Federal title record issued for the Public Land States.

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Land Patents

Federal Land Patents offer researchers a source of information on the initial transfer of land titles from the Federal government to individuals. In addition to verifying title transfer, this information will allow the researcher to associate an individual (Patentee, Assignee, Warrantee, Widow, or Heir) with a specific location (Legal Land Description) and time (Issue Date). We have a variety of Land Patents on our site, including

Survey Plats and Field Notes

Survey plats are part of the official record of a cadastral survey. Surveying is the art and science of measuring the land to locate the limits of an owner's interest thereon. A cadastral survey is a survey which creates, marks, defines, retraces or re-establishes the boundaries and subdivisions of Federal Lands of the United States. The survey plat is the graphic drawing of the boundaries involved with a particular survey project, and contains

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State: OKLAHOMA

County: Noble

Land Description

Township: --- /

Range: --- /

Meridian: ----- Any Meridian -----

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1. Start by selecting the state.
2. **You do not have to fill in all fields**, but provide *at least* one additional field.
3. Click the **Search Surveys** button.
4. You will be switched to the "*Search Results*" page.

You can get a brief description of what each field means by hovering your mouse over it. You can get more detailed information by checking the Glossary in the Reference Center. For more tips and help, check out our Survey Search Overview.

Miscellaneous

Survey Type: ------ Any Survey Type ------

Contract/Group Nr:

Survey Nr:

Surveyor: ----- Any Surveyor -----

Approved Date: -- to --

Search Surveys

Note: This site does not cover every state. We do have resource links, though, for most states.

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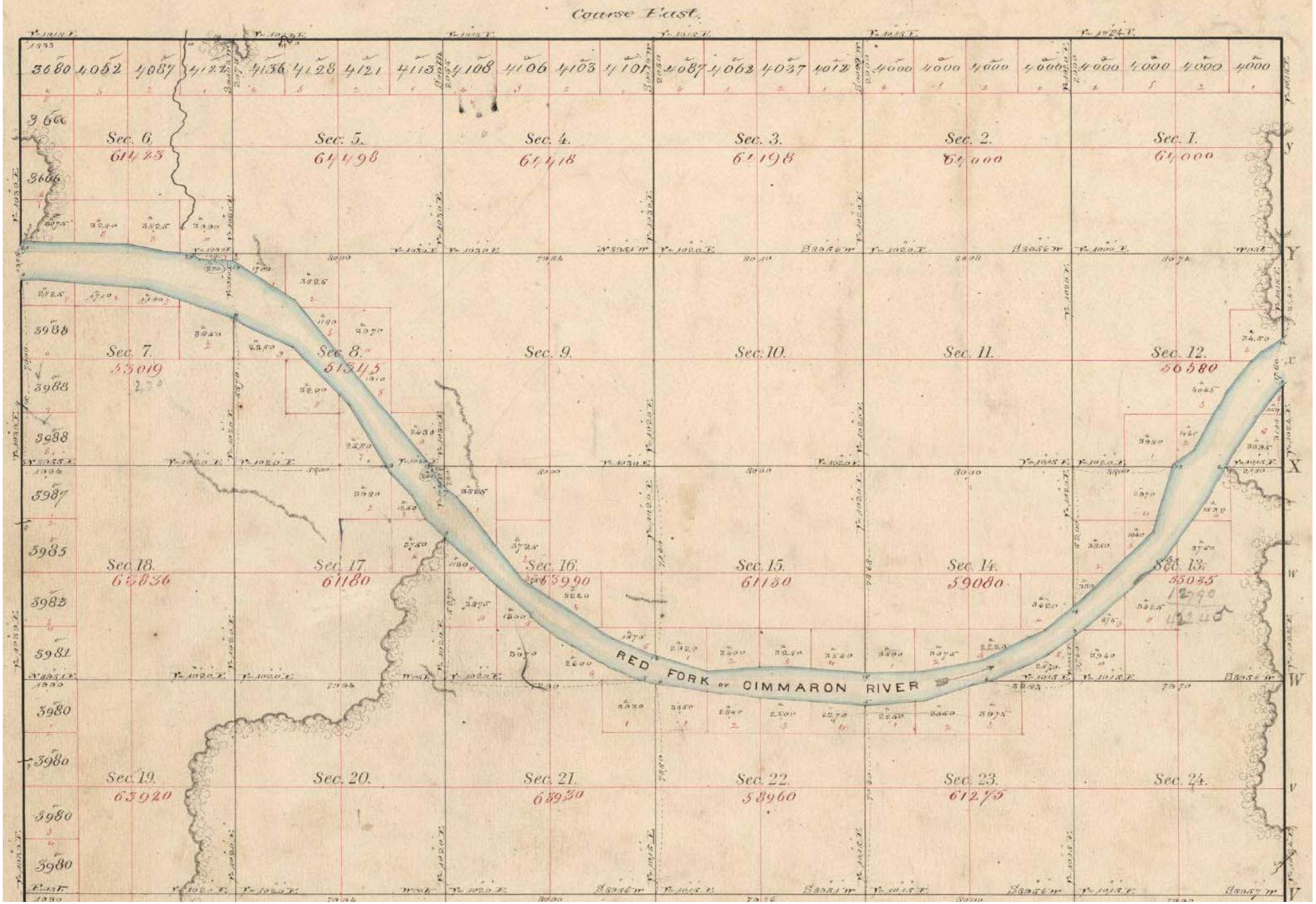
Surveys ▸

Survey	Approved / Accepted	State	Meridian	Twp - Rng	Boundaries / Subdivisional	County		Field Notes
Original Survey	5/4/1872	OK	Indian	020.0N - 001.0E	Subdivisional	Noble	Plat Image	00025
Original Survey	3/30/1872	OK	Indian	021.0N - 001.0E	Subdivisional	Noble	Plat Image	00024
Original Survey	3/30/1872	OK	Indian	022.0N - 001.0E	Subdivisional	Noble	Plat Image	00024
Original Survey	3/30/1872	OK	Indian	023.0N - 001.0E	Subdivisional	Noble	Plat Image	00024
Original Survey	3/30/1872	OK	Indian	024.0N - 001.0E	Subdivisional	Noble	Plat Image	00024
Dependent Resurvey and Subdivision of Sections	10/21/1975	OK	Indian	024.0N - 001.0E	Subdivisional	Noble	Plat Image	-
Original Survey	5/4/1872	OK	Indian	020.0N - 001.0E	W	Noble	Plat Image	00022
Original Survey	3/30/1872	OK	Indian	021.0N - 001.0E	W	Noble	Plat Image	00022
Original Survey	3/30/1872	OK	Indian	022.0N - 001.0E	W	Noble	Plat Image	00022
Original Survey	3/30/1872	OK	Indian	023.0N - 001.0E	W	Noble	Plat Image	00022
Original Survey	3/30/1872	OK	Indian	024.0N - 001.0E	W	Noble	Plat Image	00022

TOWNSHIP No. 17 NORTH RANGE No. 1 EAST of the INDIAN MERIDIAN



§36. Change in Watercourse Bounding Counties as not Changing Taxable Situs of Property

After the first day of January, 1963, where any county is bounded by the middle of the channel of any stream or watercourse, any change of such channel, whether by accretion, reliction, or avulsion, shall not bring about a change in the taxable situs of the property, and for all county and state purposes the boundary line will remain as originally shown on the tax rolls. Provided, that, as to such property which may have become subject to litigation as a result of being carried on the tax rolls of two or more counties prior to the enactment of this section, or shall subsequently become subject to litigation as a result of being carried on the tax rolls of two or more counties without either being prior in point of time, such dispute shall be resolved by final decree of the court.

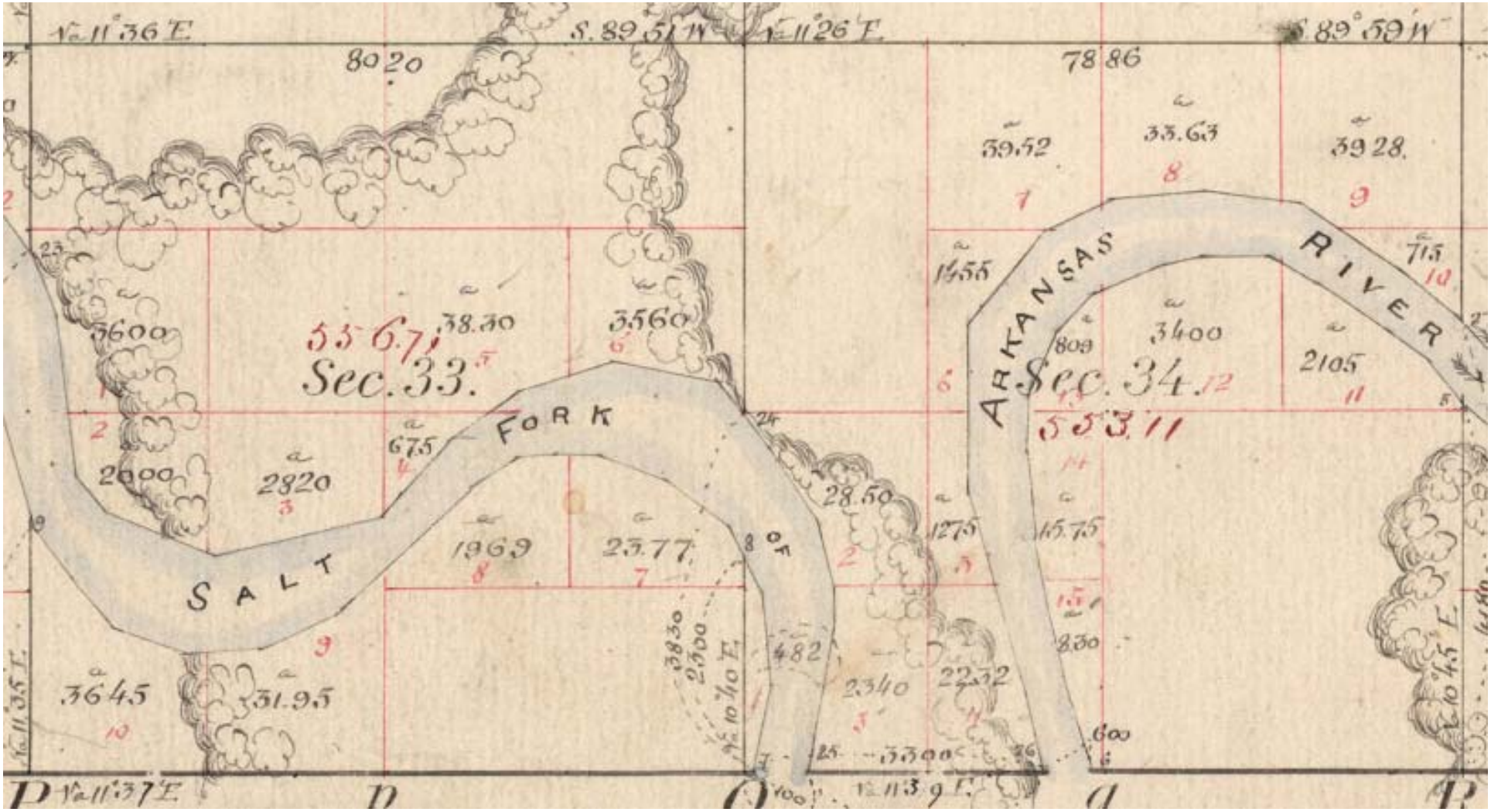
§335. Riparian Accretions

Where from natural causes land forms by imperceptible degrees upon the bank of a river or stream, navigable or not navigable, either by accumulation of material or by the recession of the stream, such land belongs to the owner of the bank, subject to any existing right of way over the bank.

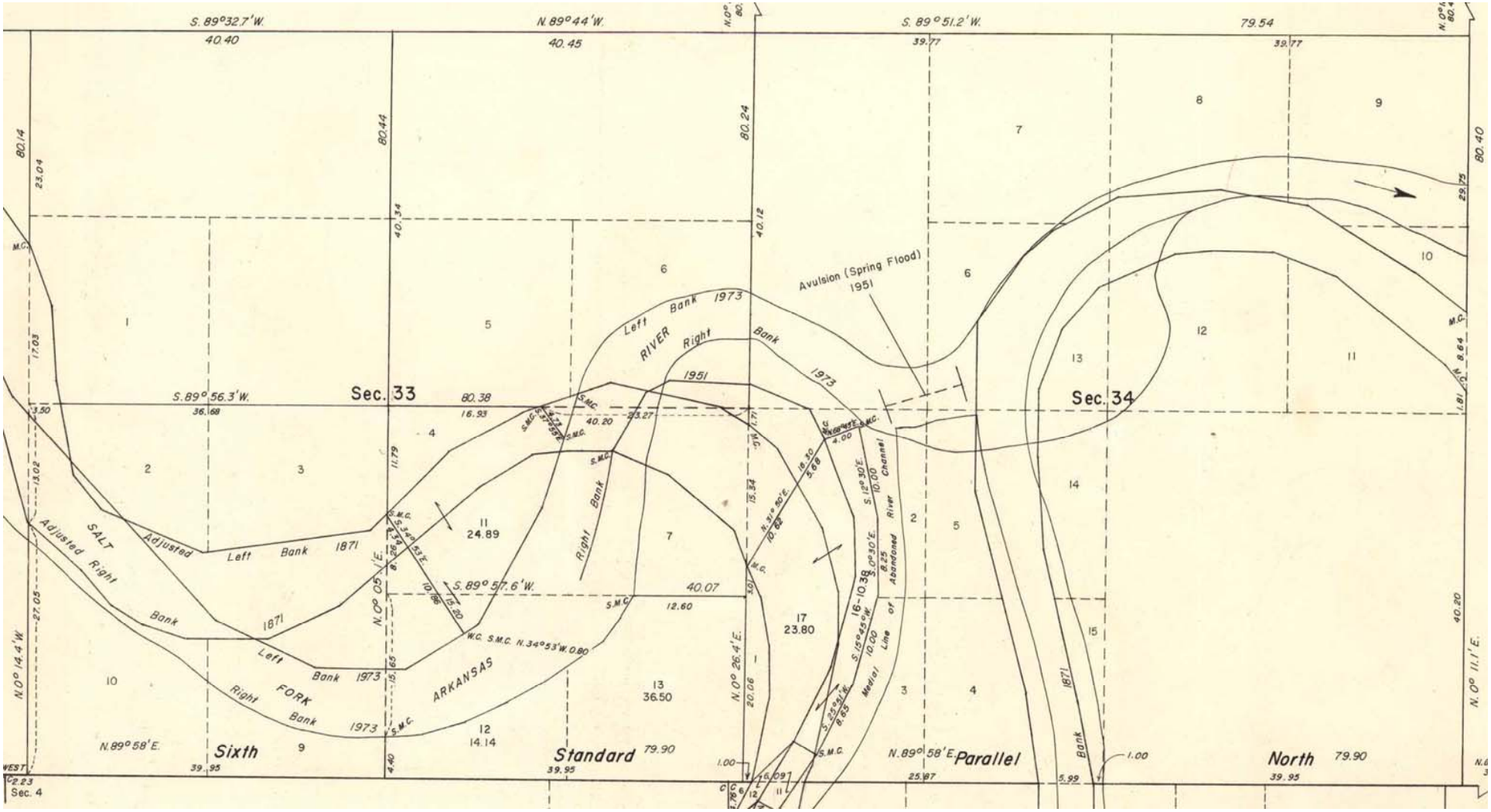
§336. Removals in Mass May be Reclaimed

If a river or stream carries away, by sudden violence, a considerable and distinguishable part of a bank, and bears it to the opposite bank, or to another part of the same bank, the owner of the part carried away may reclaim it within a year after the owner of the land to which it has been united takes possession thereof.

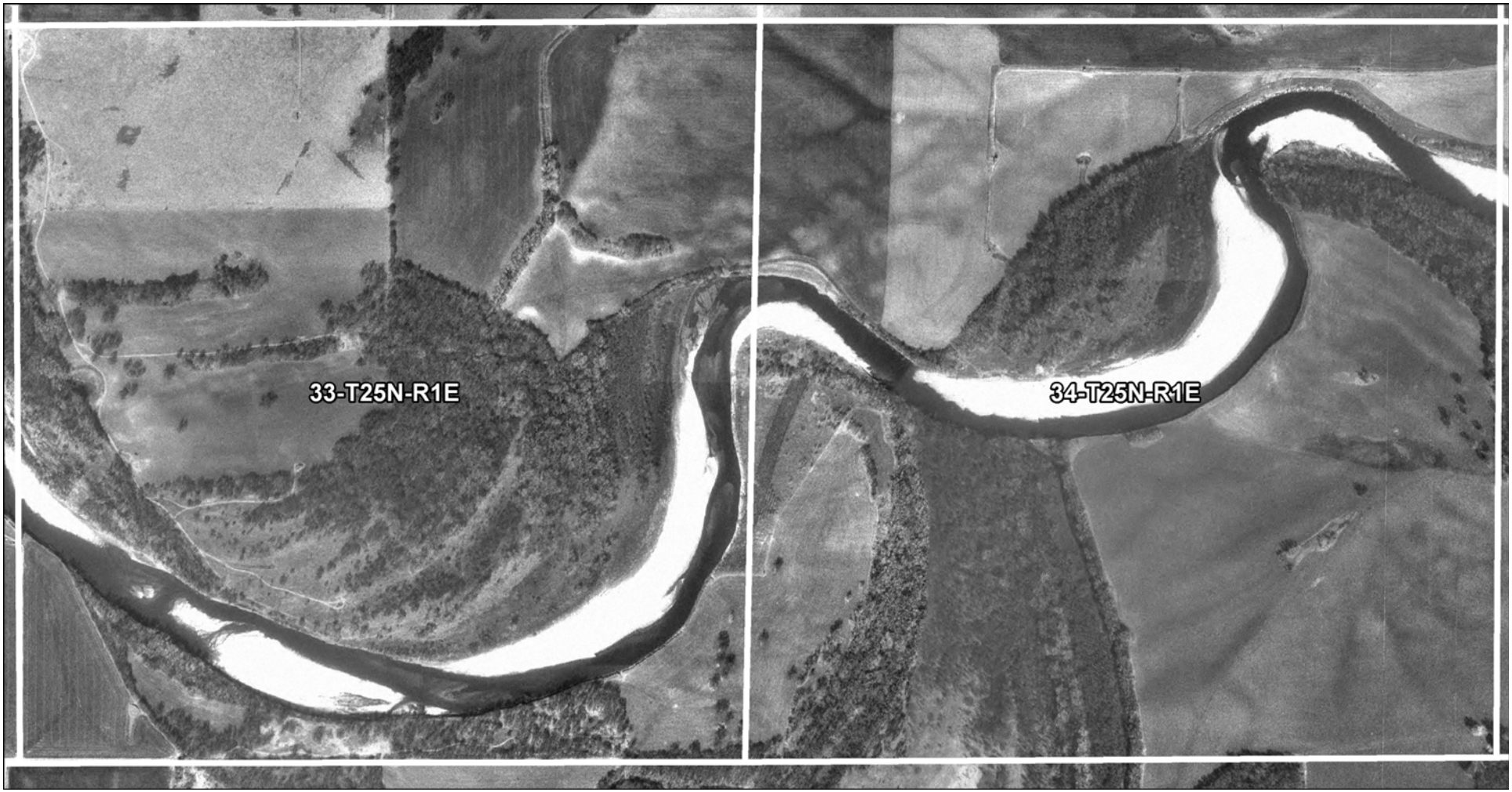
Original PLSS Survey
Approved: September 16, 1872



Supplemental Survey
Approved: October 21, 1975

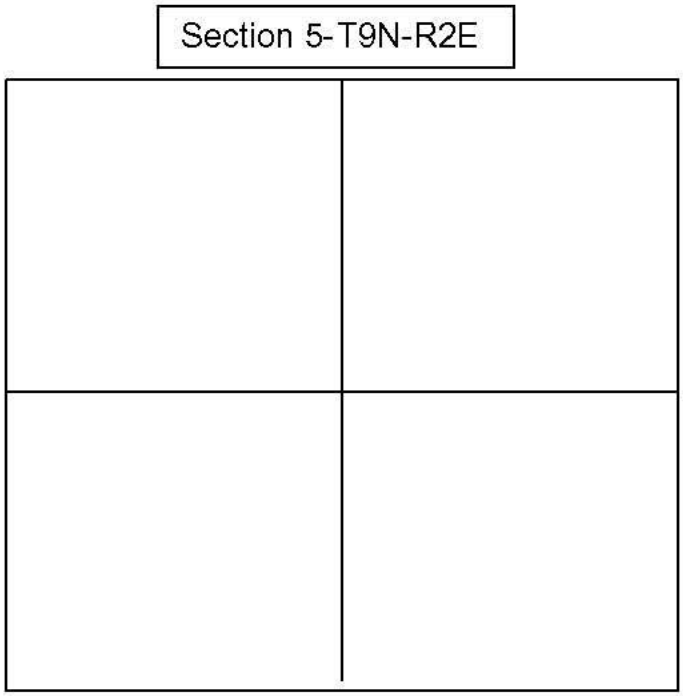


Aerial Photo
Flown: Early 1995

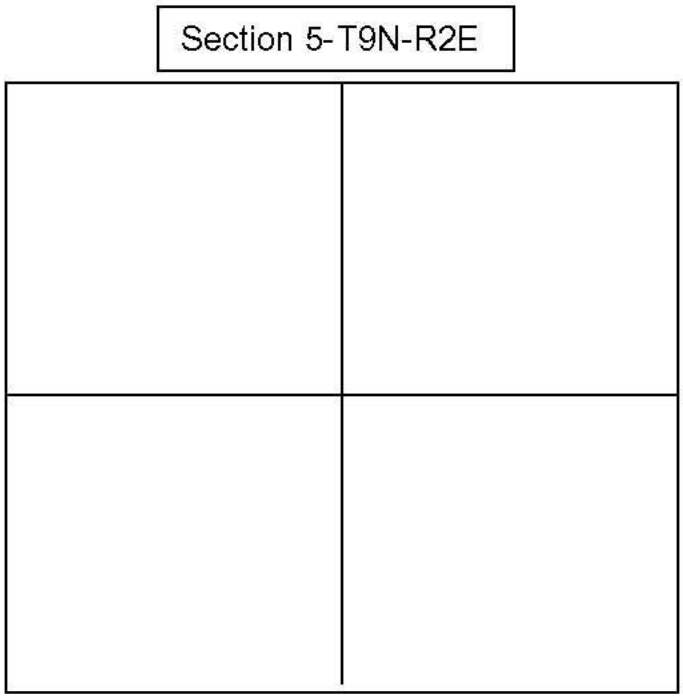


Aerial Photo
Flown: Mid 2010

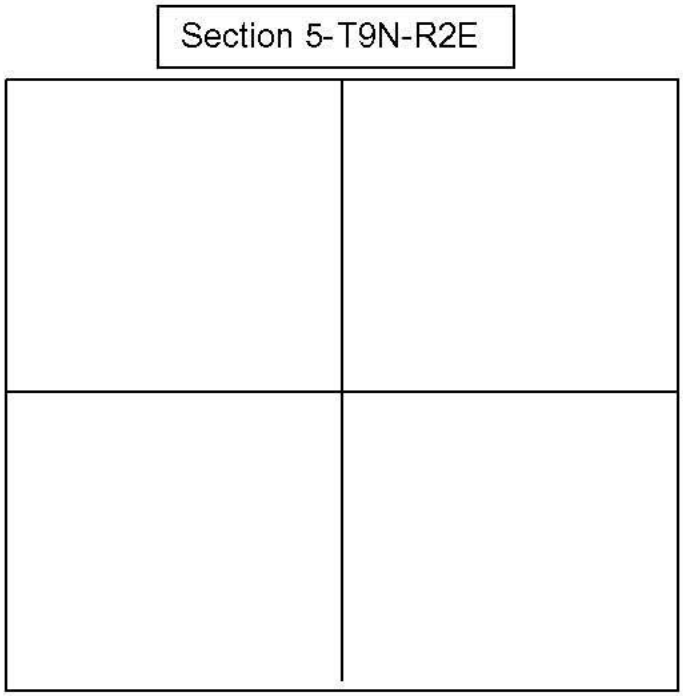
1. The Northeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M.



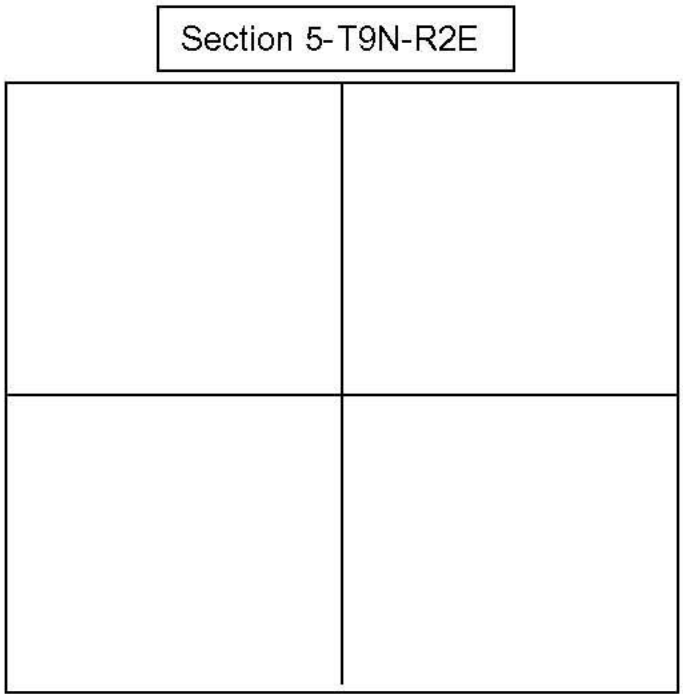
2. Lots 1 and 2 and the South half of the Northeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M.



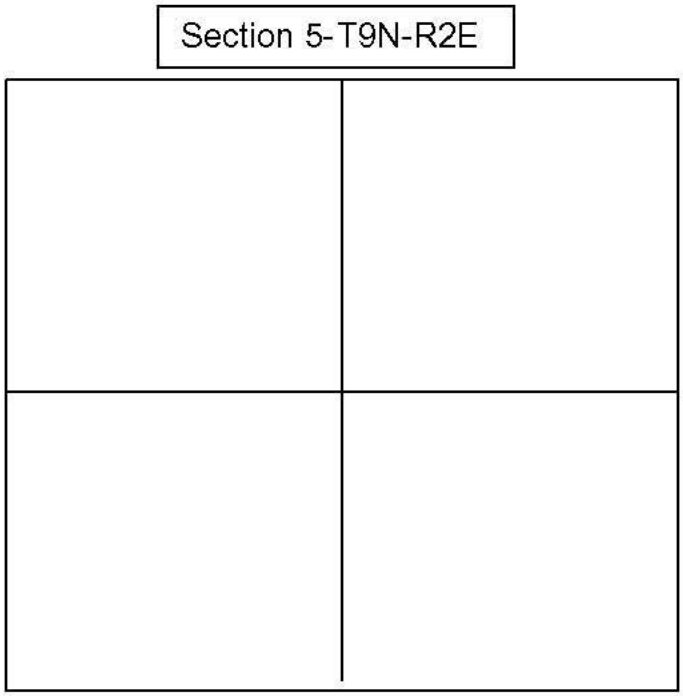
3. The Northeast Quarter of the Northeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M.



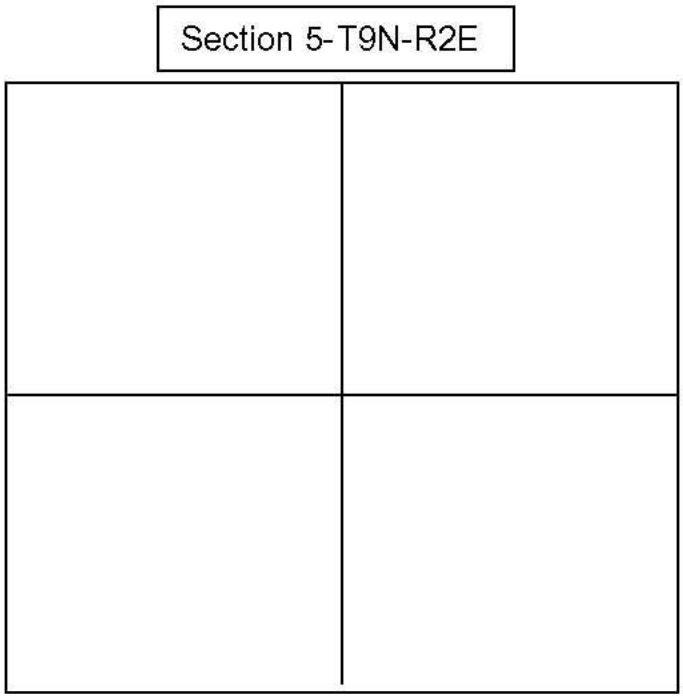
4. Lot 1 of the Northeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M.



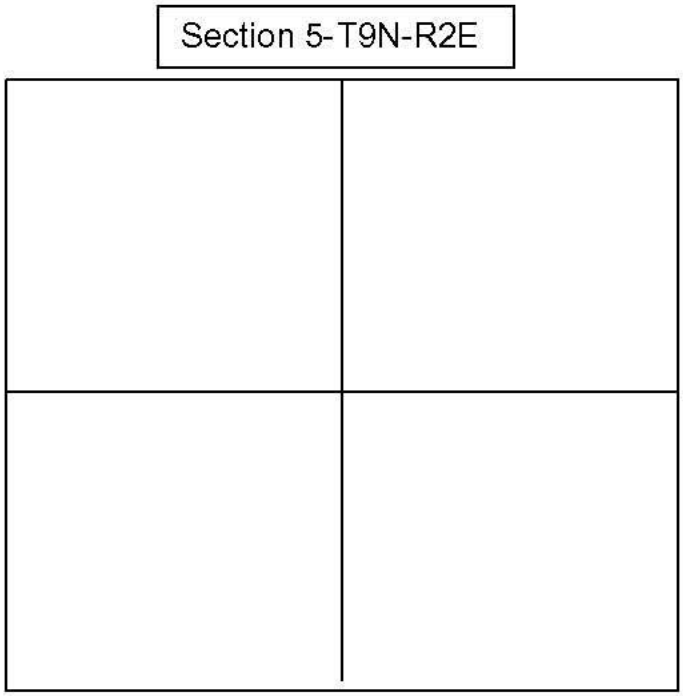
5. The Northeast Quarter of the Northeast Quarter of the Northeast Quarter of the Northeast Quarter of the Section 5, Township 9 North, Range 2 East of the I.M.



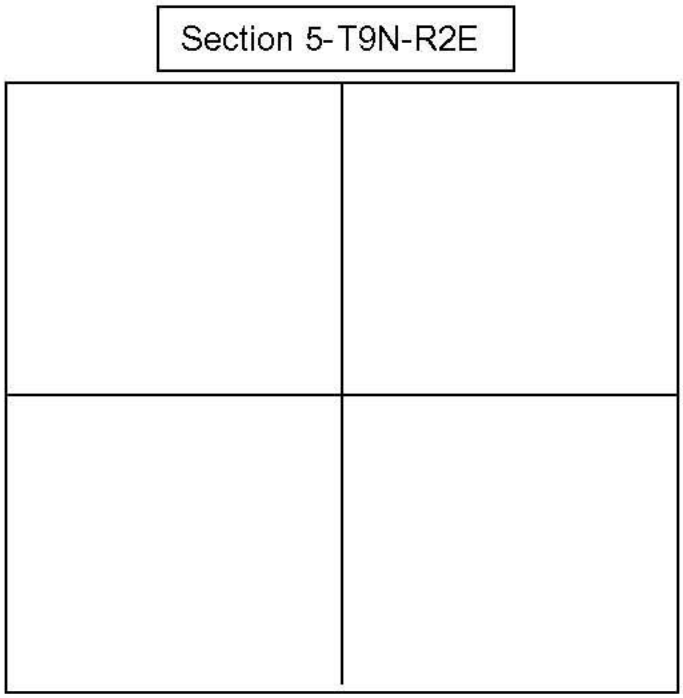
6. The North 52 acres of the Northeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M.



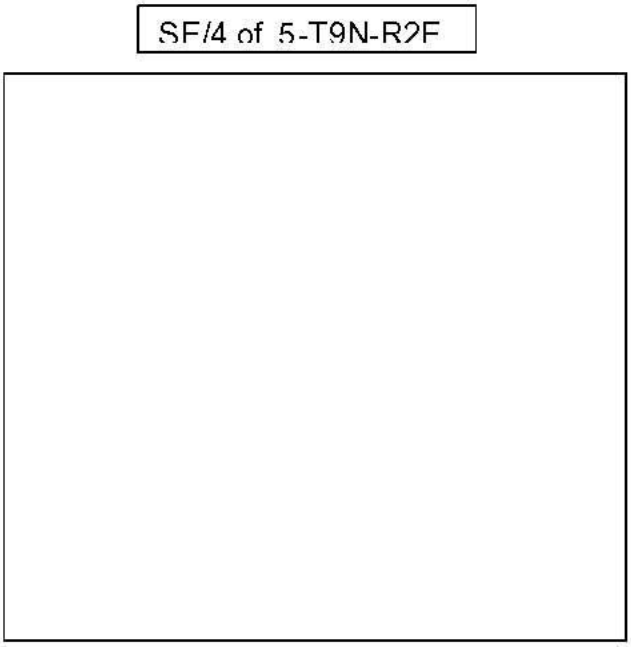
7. The North 10 acres of the South half of Northeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M.



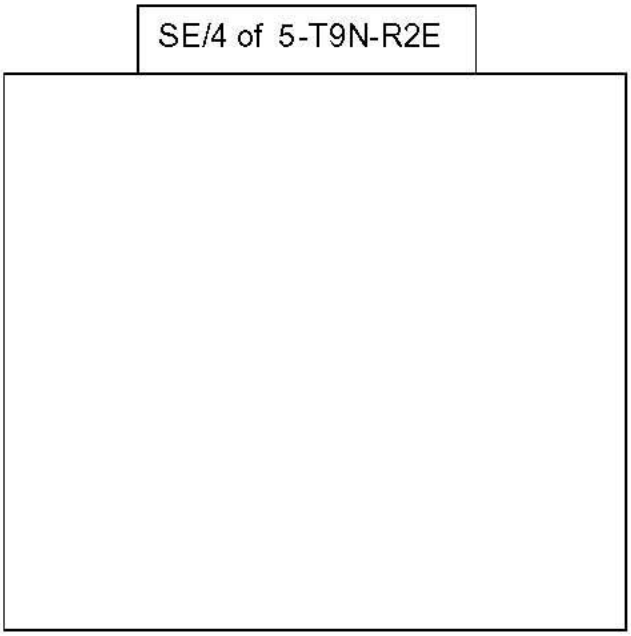
8. The North 10 acres of the South 40 acres of the South half of the Northeast Quarter of Section 5, Township 9 North, Range 2 East of the I.M.



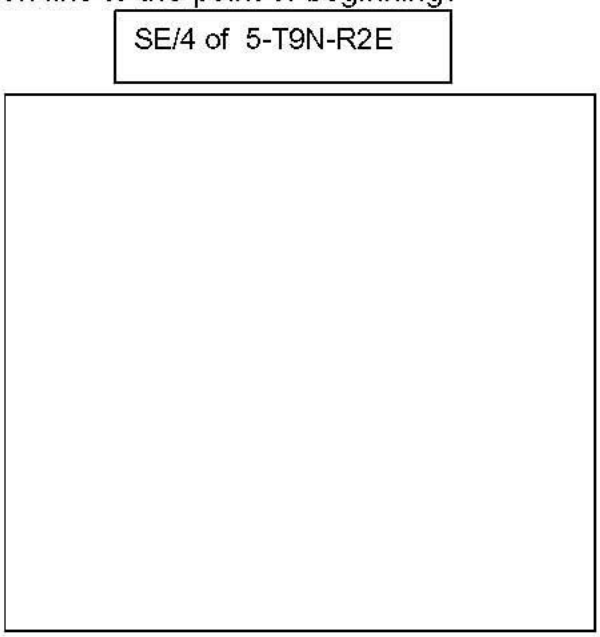
9. The North 208.71 Feet of the East 208.71 Feet of the Southeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M.



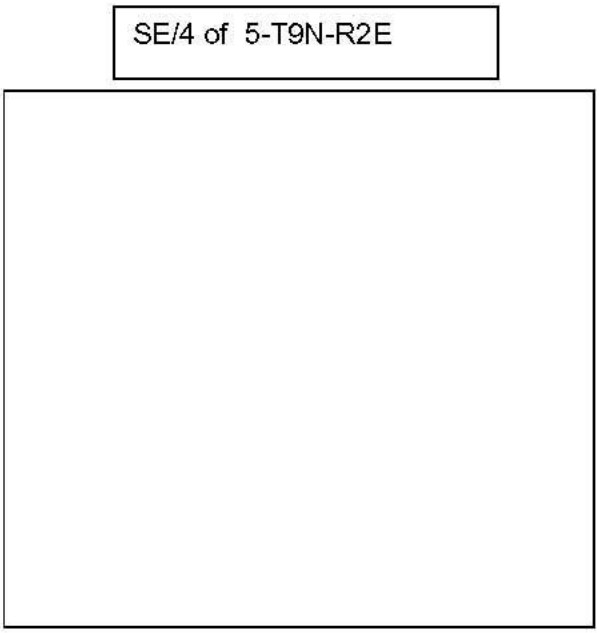
10. A tract of land in the Southeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M. described as: beginning at the Northeast corner, thence South 208.71 Feet, thence West 208.71 Feet, thence North 208.71 Feet, thence back East to the point of beginning.



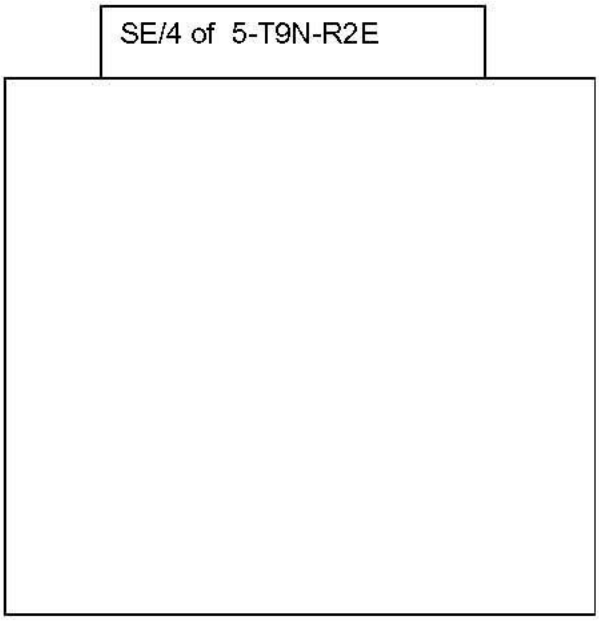
11. A tract of land in the Southeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M. described as: beginning at the Northeast corner, thence Southwesterly to a point, thence North 208.71 Feet, thence back East along the quarter-section line to the point of beginning.



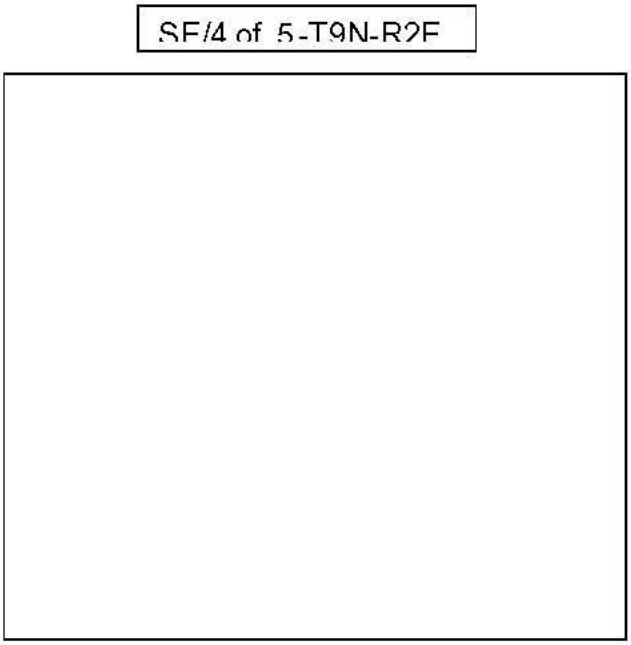
12. A tract of land in the Southeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M. described as: beginning at the Northeast corner, thence South 900 Feet to the true point of beginning, thence West 208.71 Feet, thence North 208.71 Feet, thence back East to the point of beginning.



13. A tract of land in the Southeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M. described as: beginning at the Northeast corner, thence South 900 Feet to the true point of beginning, thence South 208.71 Feet, thence West 208.71 Feet, thence North 208.71 Feet, thence back East to the point of beginning.



14. A tract of land in the Southeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M. described as: beginning at the Northeast corner, thence South 900 Feet to the true point of beginning, thence South 45 degrees West 295.16 Feet, thence North 208.71 Feet, thence back East to the point of beginning.



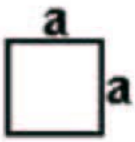
15. A tract of land in the Southeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M. described as: beginning at the Northeast corner, thence South 208.71 Feet, thence West 208.71 Feet, thence on a curve to the right 327.84 Feet with a radius of 208.71 Feet, thence 536.55 Feet East to the point of beginning.

SE/4 of 5-T9N-R2E

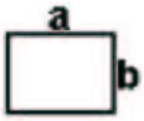
16. A tract of land in the Southeast Quarter of Section Five (5), Township Nine (9) North, Range Two (2) East of the I.M. described as: beginning at the Northeast corner, thence South 208.71 Feet, thence West 208.71 Feet, thence on a non-tangent curve to the right with a radius of 500 Feet and a chord length of 295.16 Feet and a chord Bearing of North 45 degrees West, thence 417.42 Feet East to the point of beginning.

SE/4 of 5-T9N-R2E

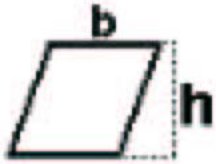
Area of a square: since each side is the same length, just multiple a side by itself



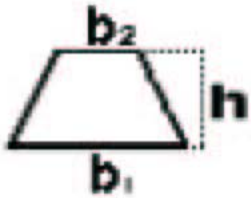
Area of a rectangle: just multiple two adjoining side together



Area of an "unsquare" rectangle the opposing sides are same length: multiple the base length times the height (NOT the side length)

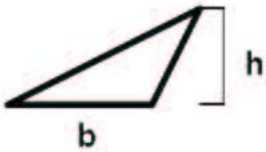


Area of an really "unsquare" rectangle the opposing sides are NOT same length: multiple the average of the two base lengthes times the height (NOT the side length)

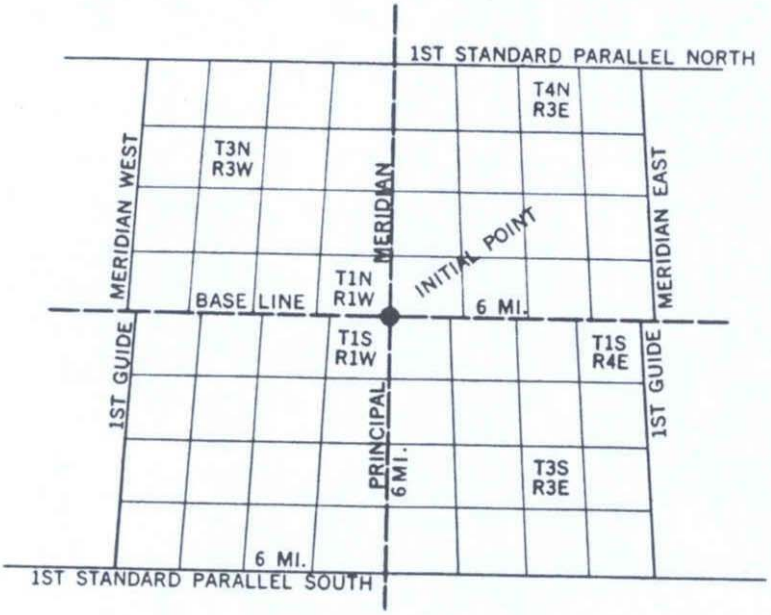


Area of a circle: multiple *pi* (3.1416 etc) times the radius length times the radius length (pi x r x r)

Area of a triangle: multiple the half the base length times the height



SECOND DIVISION OF LAND (TOWNSHIPS)



The second division of land divides each quadrangle into sixteen 6-mile square townships as shown in the above diagram.

Each east-and-west row of townships is called a tier and is numbered north or south of the base line as: T3N, or T3S. Each north-and-south row of townships is called a range and is east or west of the principal meridian as: R3W, or R3E. A township is identified by reference to its tier number, range number, and principal meridian, as T1S, R4E, Indian Principal Meridian. The letter T in this designation actually stands for tier, but it has become the custom to refer to it as township instead of tier.

THIRD DIVISION OF LAND (SECTIONS)

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

The third division of land further divides the townships by parallel north-and-south lines and parallel east-and-west lines at one-mile intervals. This is intended to create 36 squares measuring one mile on each side and containing one square mile of 640 acres each. These squares are called sections. They are always numbered in the same pattern, starting in the northeast corner of the township as shown in the above diagram.

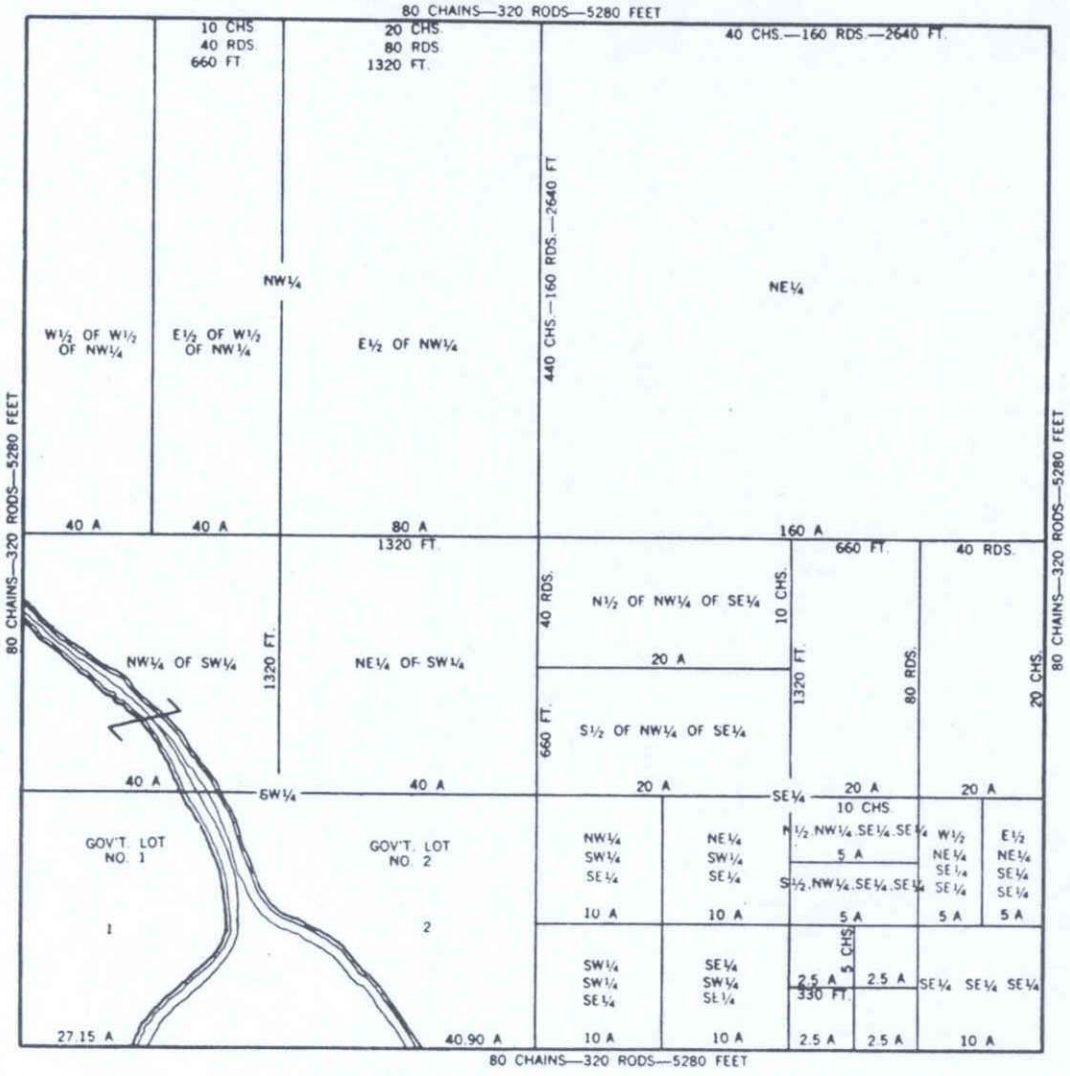
Each section is further divided into half sections, or quarter sections or half-quarter sections and so on as desired. These subdivisions are described by their geographic position within a section as shown in the diagram on the next page.

A typical description of a 20-acre site might read as follows: W½-NE¼-SE¼, Section 6, T2N, R3E, Indian Principal Meridian. The best way to read a land description based on this system is to start at the end with the meridian and to work back through, locating in order the township, section, quarter, quarter-quarter, etc.

Parcels of land along the shore of a lake or river not large enough to be considered sections were called government lots and usually identified by number.

An adjustment was necessary because the earth's meridians (north-and-south imaginary lines) are not parallel but converge at the north and south poles. All discrepancy was put into the quarter-quarter sections along the north and west boundaries of a township and these irregular parcels are commonly identified as fractional sections or government lots. A typical description would be Government Lot 3, Section 12, T7N, R9E, Indian Principal Meridian.

ONE SECTION—1 MILE SQUARE—640 ACRES



The above figure illustrates a section of land 640 acres divided first into quarters of 160 acres each, shown as NE¼, SW¼, SE¼, and then into various other divisions.

MEASUREMENTS

LINEAL MEASURE

1 mile	=	5,280	feet
	=	1,760	yards
	=	320	rods
	=	80	chains
1 chain	=	66	feet
	=	100	links
	=	4	rods
1 rod	=	25	links
	=	16.5	feet
	=	1	perch
	=	1	pole
1 link	=	7.92	inches

Millimeter	=	0.001 Meter
Centimeter	=	0.01 Meter
Decimeter	=	.01 Meter
Meter	=	39.3685 Inches
Kilometer	=	1000 Meters

ARPENT

The Arpent is a unit of measure common to parts of Canada, mainly Quebec, where land was originally granted under seigniorial tenure. Surveys currently made in these areas now use the English units, but the Arpent may be encountered.

This unit is also in use in parts of the State of Louisiana. The basis of the Arpent is the "Old French Foot" having the following equivalents.

French Foot	=	12.789 English Inches
	=	1.06575 English Feet
English Foot	=	12 English (U.S.) Inches
	=	0.938306 French Feet
Square French Foot	=	1.135823 Square English Feet
Lineal Arpent	=	180 French Feet
	=	191.835 English Feet
	=	10 Old French Perches
Square Arpent	=	36800.667 Square English Feet
	=	4088.89 Square English Yards
	=	32,400 Square French Feet
	=	0.845 U.S. Acre

The Old French Perch is equivalent to 18 French Feet or 19.1835 English Feet.

AREA MEASURE

1 township	=	36	sections
1 full section	=	640	acres
1 sq. mile	=	640	acres
	=	1	full section
1 acre	=	43,560	sq. feet
	=	4,840	sq. yards
	=	160	sq. rods
	=	10	sq. chains
1 sq. chain	=	10,000	sq. links
1 sq. rod	=	30.25	sq. yards
1 sq. yard	=	9	sq. feet
1 sq. foot	=	144	sq. inches

Square Centimeter	=	0.0001 Square Meter
Square Decimeter	=	0.01 Square Meter
Area	=	100 Square Meters
Hectare	=	10,000 Square Meters
	=	2.471 Acres
Square Kilometer	=	247.1 Acres
	=	0.386 Square Mile

VARA

The Vara is a unit of measurement originally used by the Spanish and is still in common use throughout Central and South America.

The exact length of the Vara range varies from 32.9931 to 34.1208 inches with each country using a variation within this range.

Within the United States, two areas still make use of this measurement unit.

California

Vara is equal to 33 inches.

Many lots in San Francisco and other areas were laid out on the basis of multiples of 50 Varas (137'6").

Texas

Vara is equal to 33.33333 inches.

Early deeds used "Leagues" and "Labors" having the following values:

League	=	4428.4 Acres
	=	5000 Varas Square
	=	25,000,000 Square Varas
Labor	=	177.1 Acres
	=	1000 Varas Squares
	=	1,000,000 Square Varas

Conversion of these two variations of the Vara in standard United States units can be found in the conversion tables.

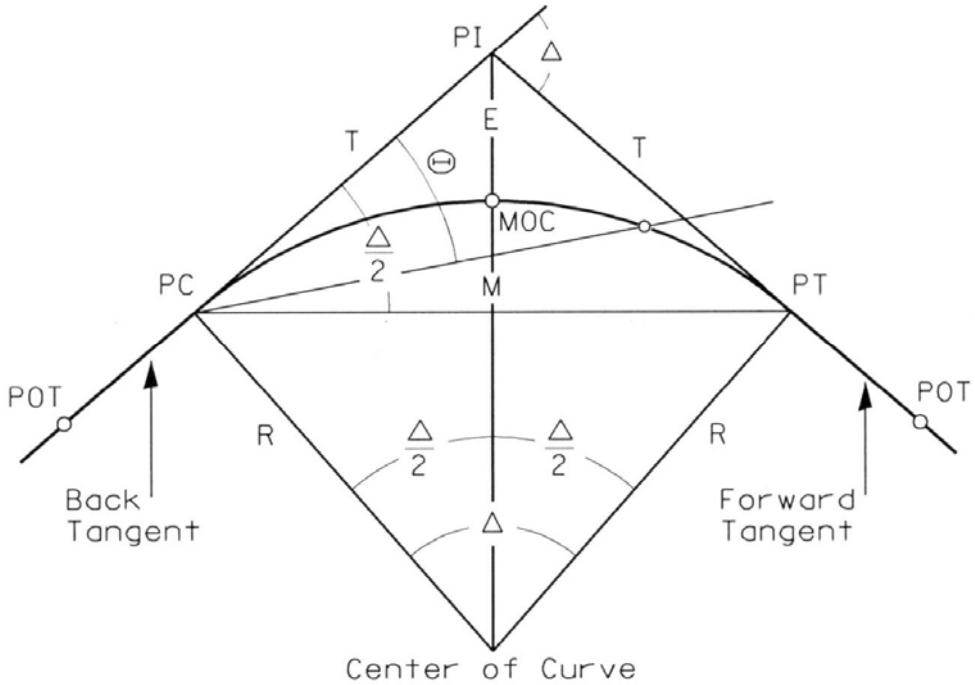
LINEAL CONVERSION FACTORS

	Inch	Link	Foot	Vara (Calif.)	Vara (Texas)	Yard	Meter	Rod, Pole or Perch	Chain	Furlong	Kilo-meter	Mile (Statute)
Inch	1	0.12626	0.08333	0.03030	0.03	0.02778	0.02540	0.00505	0.00126			
Link	7.92	1	0.66	0.24	0.2376	0.22	0.20117	0.04	0.01	0.001		
Foot	12	1.51515	1	0.36364	0.36	0.33333	0.30480	0.06061	0.01515	0.00152		
Vara (Calif.)	33	4.16667	2.75	1	0.99	0.91667	0.8382	0.16667	0.04167	0.00417		
Vara (Texas)	33.333	4.20875	2.7778	1.01010	1	0.92583	0.84667	0.16835	0.04209	0.0042		
Yard	36	4.54545	3	1.09091	1.08	1	0.9144	0.18182	0.04545	0.00455		
Meter	39.37	4.97096	3.28083	1.19303	1.1811	1.09361	1	0.19884	0.04971	0.00497	0.001	
Rod, Pole, or Perch	198	25	16.5	6	5.94	5.5	5.02921		0.25	0.025	0.00503	0.00313
Chain	792	100	66	24	23.76	22	20.11684	4	1	0.1	0.02012	0.0125
Furlong	7920	1000	660	240	237.6	220	201.168	40	10	1	0.20117	0.125
Kilometer	39370	4970.96	3280.83	1193.03	1181.1	1093.61	1000	198.838	49.7096	4.97096	1	0.62137
Mile (Statute)	63360	8000	5280	1920	1900.8	1760	1609.35	320	80	8	1.60935	1

AREA CONVERSION FACTORS

	Square Inch	Square Link	Square Foot	Square Vara (Calif.)	Square Vara (Texas)	Square Yard	Square Meter	Sq. Rod., Pole, or Perch	Square Chain	Rood	Acre	Square Kilo-meter	Square Mile (Statute)
Square Inch	1	0.01594	0.00694										
Square Link	62.7264	1	0.4356	0.0576	0.05645	0.0484	0.04047	0.0016					
Square Foot	144	2.29568	1	0.13223	0.1296	0.11111	0.0929	0.00367					
Square Vara (Calif.)	1089	17.3611	7.5625	1	0.9801	0.84028	0.70258	0.02778	0.00174				
Square Vara (Texas)	1111.11	17.7136	7.71605	1.0203	1	0.85734	0.71685	0.02834	0.00177				
Square Yard	1296	20.6612	9	1.19008	1.1664	1	0.83613	0.03306	0.00207				
Square Meter	1549.80	24.7104	10.7639	1.42332	1.395	1.19599	1	0.03954	0.00247				
Sq. Rod, Pole, Perch		625	272.25	36	35.2836	30.25	25.2930	1	0.0625	0.025	0.00625		
Square Chain		10000	4356	576	564.538	484	404.687	16	1	0.4	0.1		
Rood		25000	10890	1440	1411.34	1210	1011.72	40	2.5	1	0.25	0.00101	
Acre		100000	43560	5760	5645.38	4840	4046.87	160	10	4	1	0.00405	0.00156
Square Kilometer							1000000	39536.7	2471.044	988.418	247.104	1	0.3861
Square Mile (Statute)								102400	6400	2560	640	2.59	1

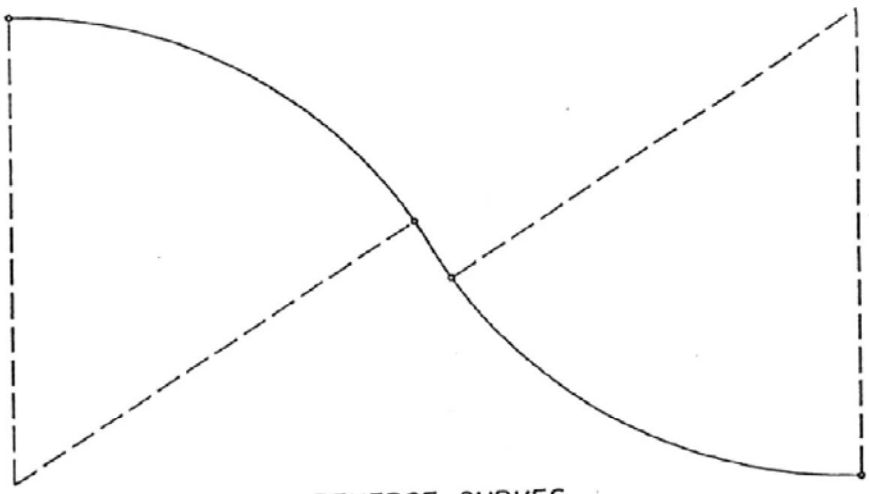
FORMULAS & EXAMPLES - SIMPLE CIRCULAR CURVE



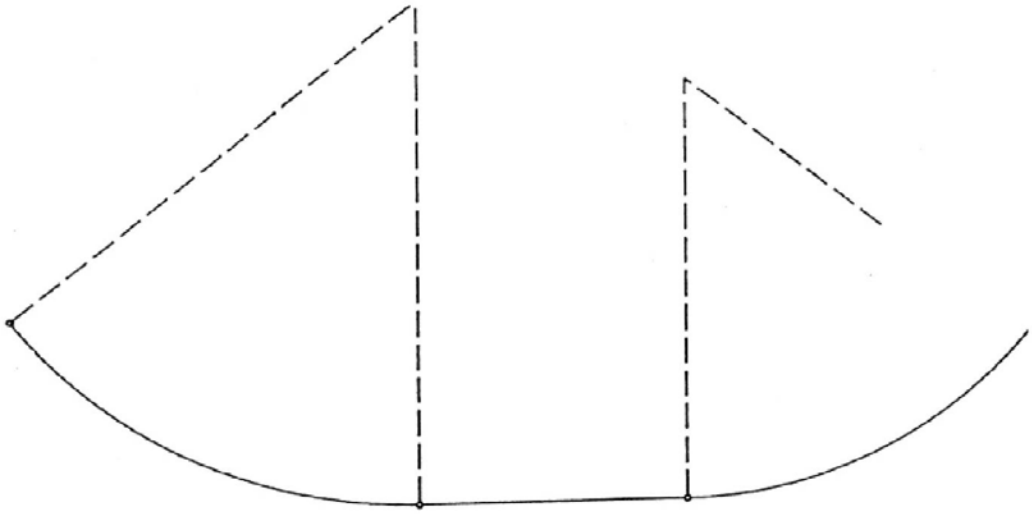
DEFINITIONS Be sure the instrument and carrying case are kept dry. If they become wet, allow them to air dry before closing the carrying case. Extend level rod and let air dry overnight.

Back Tangent	=	Tangent from which the curve starts
Forward Tangent	=	Tangent on which the curve ends
POT	=	"Point on Tangent" - Any point on the tangent portion where the curve starts or ends
PC	=	"Point of Curvature" - Station on centerline where the curve starts
T	=	"Tangent" - The distance on a straight line from the PC to the PI or the PT to the PI
MOC	=	"Mid-Point of Curve"
PT	=	"Point of Tangency" - Station on centerline where the curve ends
L	=	"Length of Curve" - The distance <u>along the curved centerline</u> from the PC to the PT
PI	=	"Point of Intersection" - The point where the back tangent and the forward tangent intersect
R	=	"Radius of the Curve"
E	=	"External Distance" - Distance from the MOC to the PI
M	=	"Middle Ordinate" - Distance from the MOC to the mid-point of the straight line between the PC and the PT (the LC)
LC	=	"Long Chord" - Straight line distance from the PC to the PT
Δ	=	The Central Angle of the Curve - The angle between a radial line from the center of the curve to the PC and a radial line from the center of the curve to the PT; also equals the angle of intersection of the forward tangent with the back tangent

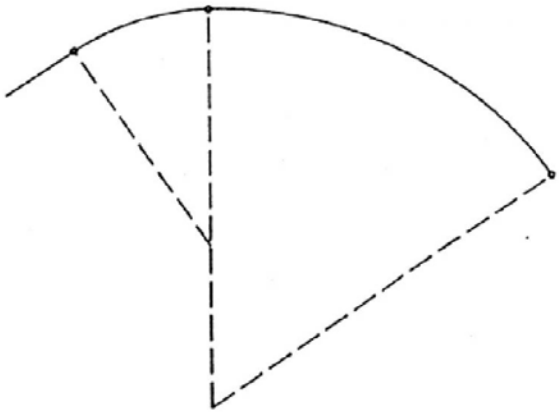
TYPES OF CURVES



REVERSE CURVES

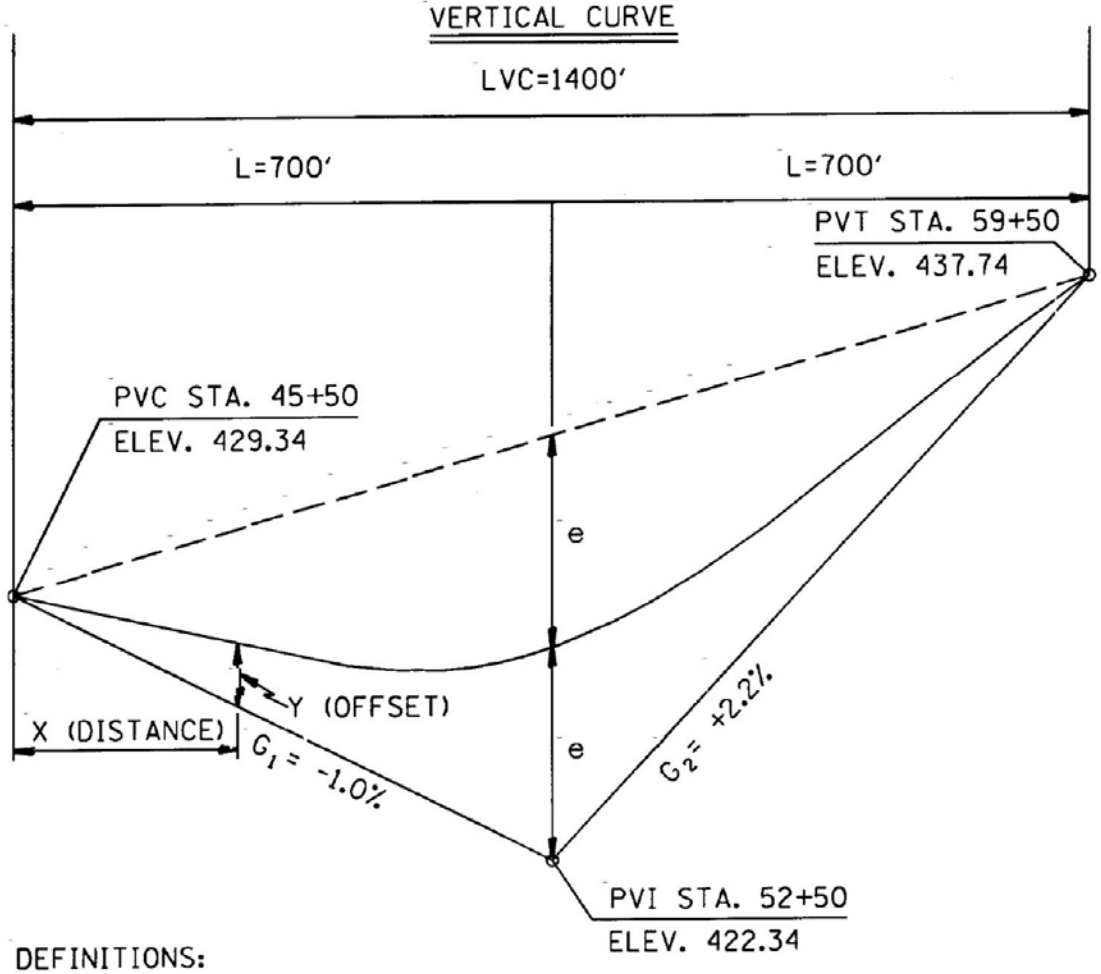


BROKEN-BACK CURVES



COMPOUND CURVES

VERTICAL CURVE



DEFINITIONS:

"POINT OF VERTICAL CURVE" - STATION ON CENTERLINE WHERE THE VERTICAL CURVE STARTS

"POINT OF VERTICAL INTERSECTION" - STATION AT WHICH THE TWO TANGENT GRADE LINES INTERSECT

"POINT OF VERTICAL TANGENCY" - STATION ON CENTERLINE WHERE THE VERTICAL CURVE ENDS

= "LENGTH OF VERTICAL CURVE"

OFFSET = THE VERTICAL DISTANCE FROM THE TANGENT GRADE LINE TO THE VERTICAL CURVE

e = A MATHEMATICAL CONSTANT WHOSE VALUE IS DETERMINED BY THE GRADES OF THE TWO INTERSECTING TANGENTS AND THE LENGTH OF THE VERTICAL CURVE

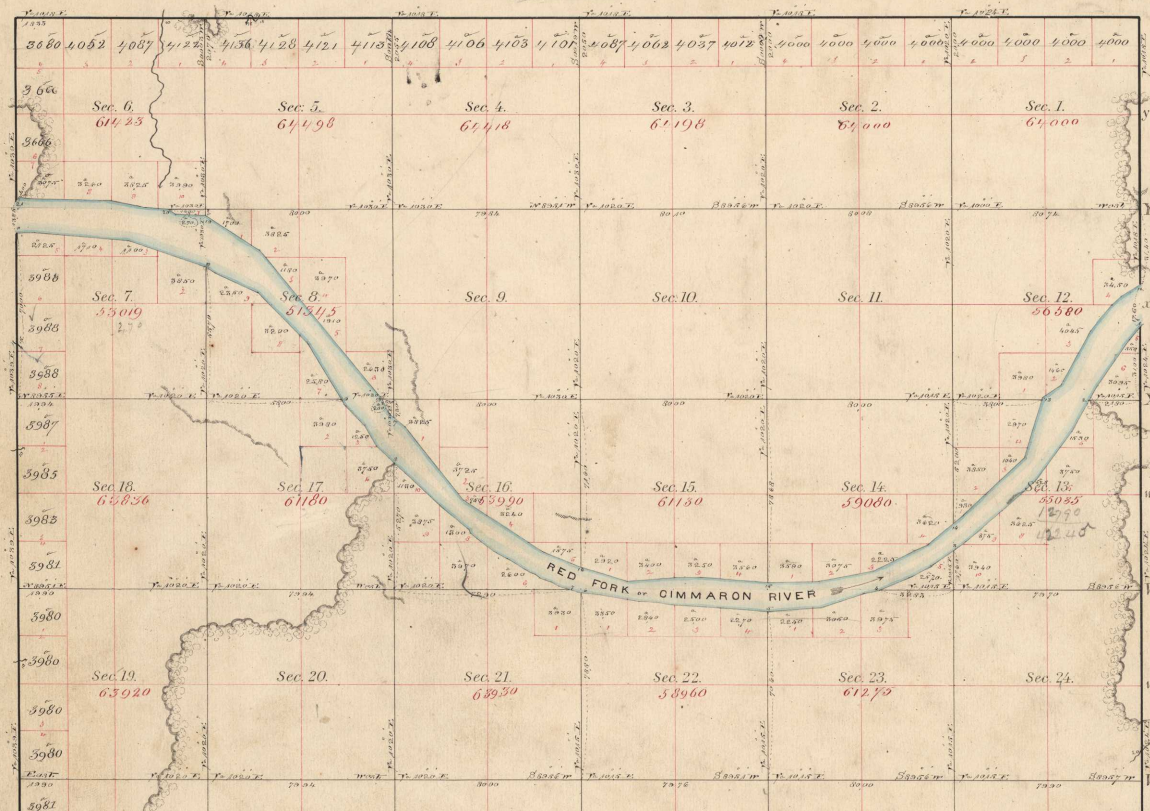
$$e = \frac{\text{GRADE \#2 (\%) - GRADE \#1 (\%) X LVC (STATIONS)}}{\text{8 (CONSTANT)}}$$

℄ ELEVATION = TANGENT ELEV. ± OFFSET

HIGH POINT/LOW POINT LOCATION

DISTANCE FROM PVC = G_1 X LVC (STATIONS)/G_2-G_1

TOWNSHIP No. 17 NORTH RANGE No. 4 EAST of the INDIAN MERIDIAN



Oklahoma Data Warehouse:

www.csa.ou.edu

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Center for Spatial Analysis

University of Oklahoma
Norman, OK
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Oklahoma Data Warehouse

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What is the Center for Spatial Analysis?

The Center for Spatial Analysis (CSA) at the University of Oklahoma is a multidisciplinary university research center specializing in the study and application of geospatial science and technology.

CSA is composed of three working units:

1) Research and Development

2) Outreach and Training

3) Applications and Services

CSA provides services to state and local governments to promote applications and workforce development in geospatial information science and technology. Through efforts in each of these units, CSA seeks to advance the geospatial vision of the University and contribute to education, research, and economic development in the State of Oklahoma.

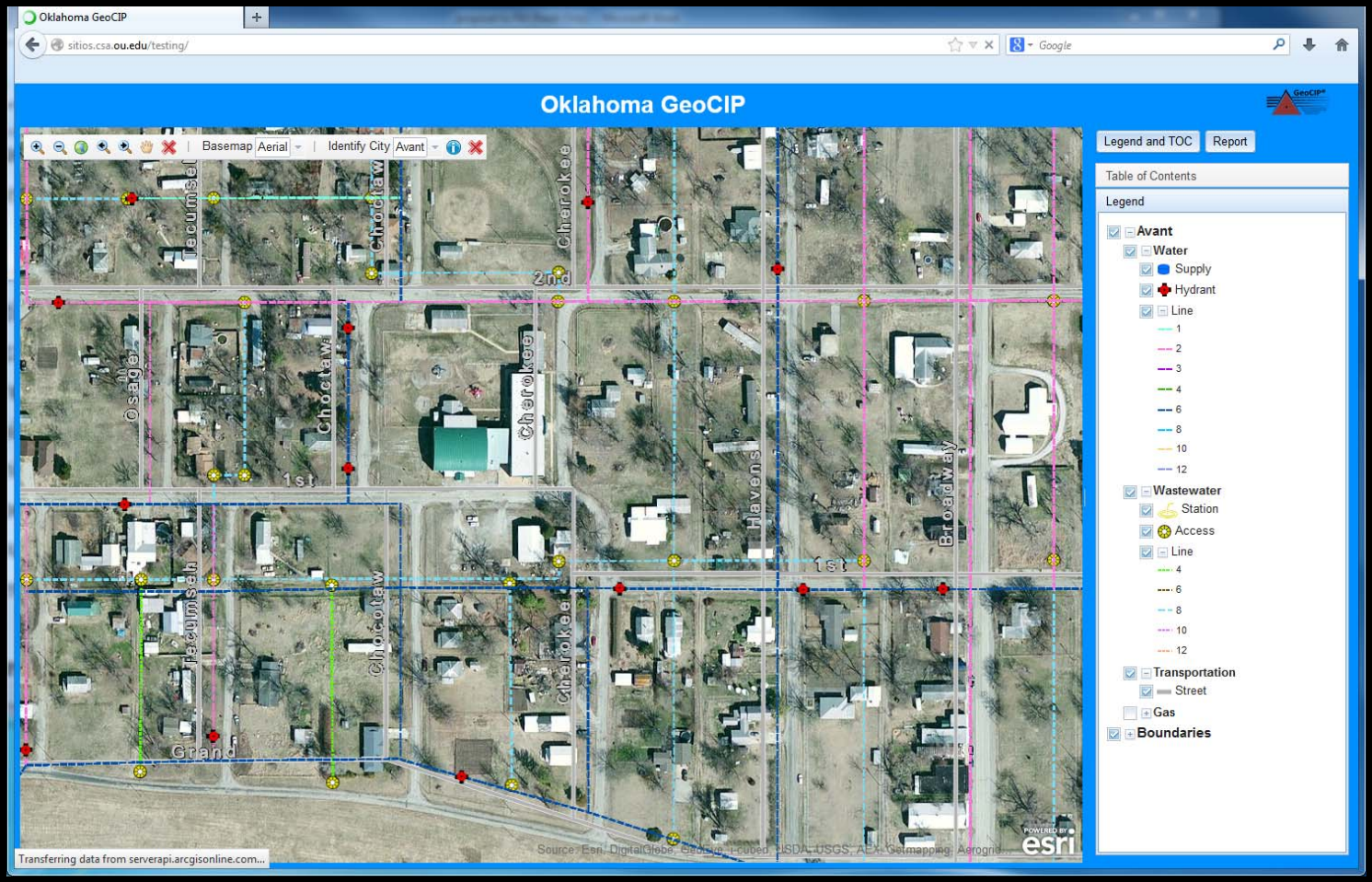
Housed within the College of Atmospheric and Geographic Sciences, CSA is a member of the State Geographic Information Council, the National Weather Center program and the OU Research Campus, an affiliate member in the Oklahoma NASA Space Grant Consortium, and a partner to the Center for Applied Social Research.

State Projects

CSA works closely with the Oklahoma Tax Commission, State Election Board, Oklahoma Department of Commerce, Oklahoma Department of Education, Oklahoma Department of Wildlife and Fishery, and various cities to develop GIS databases and applications. Through these projects, CSA has developed unique programs for education and research developments in Oklahoma's higher education in Geographic Information Science and Technology, as well as strong partnerships with state government, councils of government, and government offices of cities and counties across the state.

- ***Oklahoma State Election Board***: Long-term On-going Geo-Referencing Maintenance For the Oklahoma Voter Registration System with the Oklahoma State Election Board
- ***Oklahoma State Board of Education***: On-going Processing of School and Career Technical District Updates for the Oklahoma Department of Education
- ***Oklahoma Tax Commission:*** A Long-term On-going Project with the Oklahoma Tax Commission to update and maintain municipal boundaries within the state of Oklahoma as well as provide a sales tax calculation database
- ***Oklahoma Department of Corrections:*** Developing a GIS toolkit and conducting analysis for the GPS offender monitoring program
- ***Oklahoma Broadband Initiative:*** Developing a map of high-speed broadband internet service availability in Oklahoma to improve accessibility in unserved and underserved areas

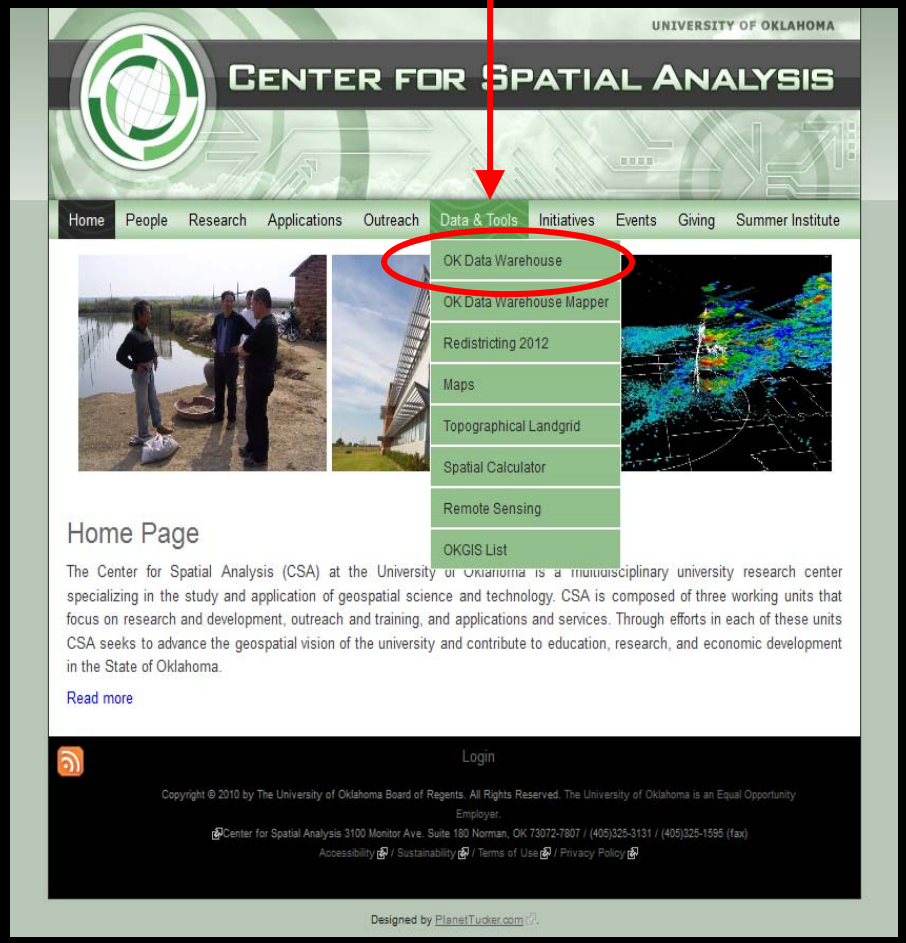
- ***Oklahoma Department of Commerce***: Developing a state-wide GIS to support asset inventory and management for local governments across the state of Oklahoma over the web through collaboration with ODOC, COG, and CSA.



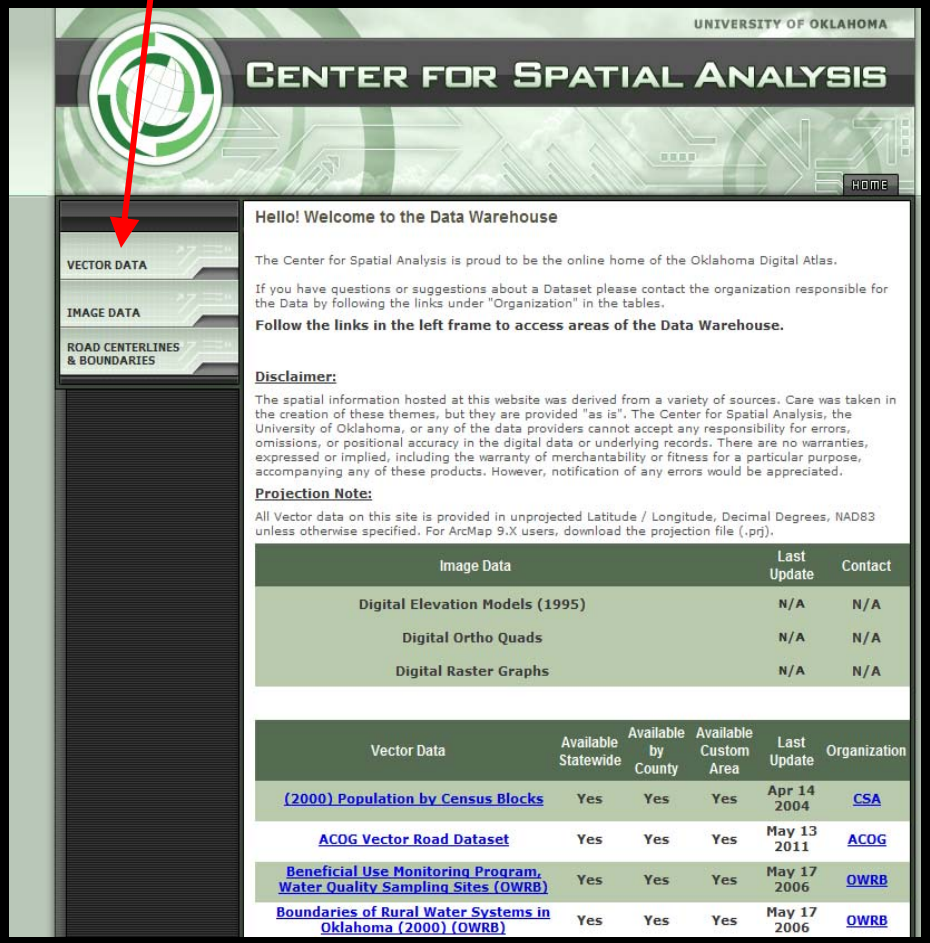
- ***University of Oklahoma FMGIS*** : Developing a utilities/space management and maintenance web-based GIS application for Facilities Management (FMGIS Online) at the University of Oklahoma.

Oklahoma Data Warehouse

- Click on the *"DATA & TOOLS"* tab
- Click on *OK DATA WAREHOUSE*

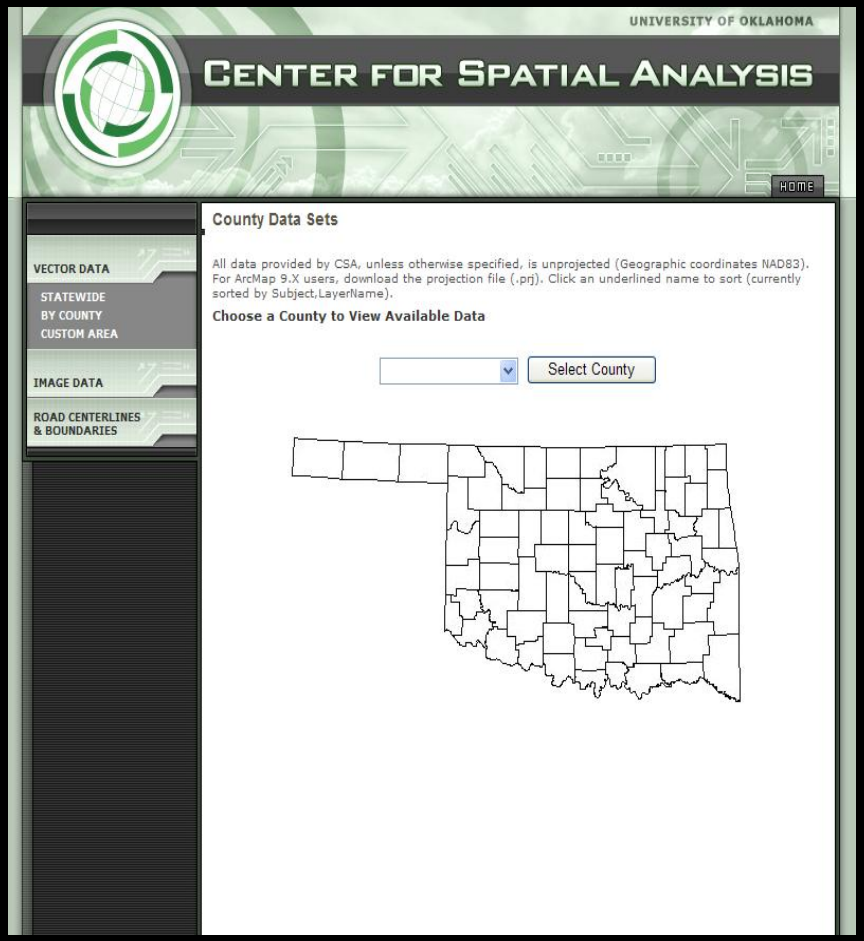


- Click on the *"VECTOR DATA"* tab to view and download shapefiles



Oklahoma Data Warehouse

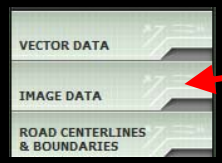
- Choose to download vector data by *STATEWIDE*, *COUNTY* or *CUSTOM AREA*



- Watch for new and updated layers

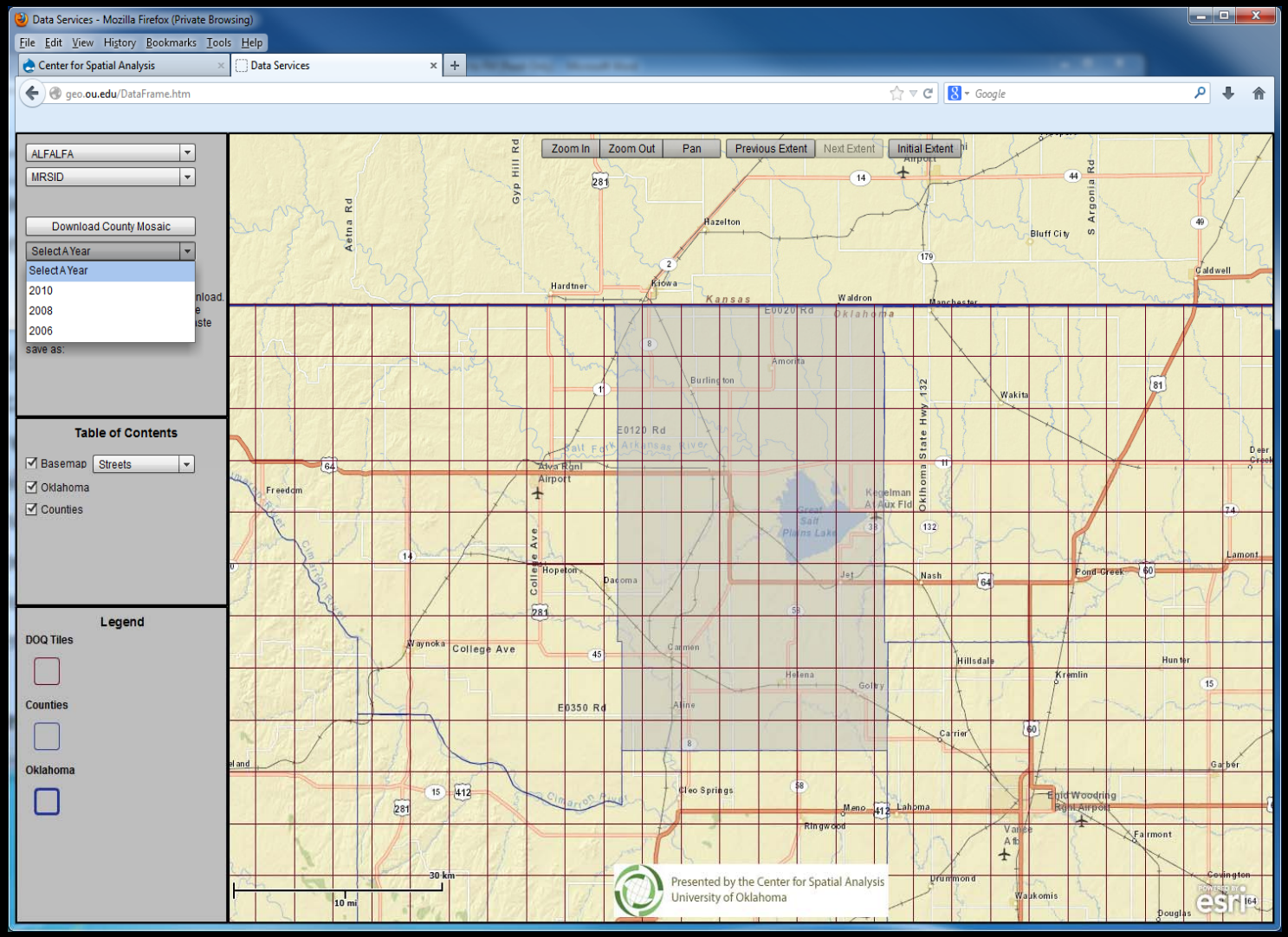
Vector Data	Available Statewide	Available by County	Available Custom Area	Last Update	Organization
(2000) Population by Census Blocks	Yes	Yes	Yes	Apr 14 2004	CSA
ACOG Vector Road Dataset	Yes	Yes	Yes	May 13 2011	ACOG
Beneficial Use Monitoring Program, Water Quality Sampling Sites (OWRB)	Yes	Yes	Yes	May 17 2006	OWRB
Boundaries of Rural Water Systems in Oklahoma (2000) (OWRB)	Yes	Yes	Yes	May 17 2006	OWRB
Career Technology Districts	Yes	Yes	Yes	Jan 15 2013	CSA
Congressional Districts 2000	Yes	Yes	Yes	May 26 2011	CSA
County Boundary	Yes	Yes	Yes	May 21 2010	CSA
County Commissioner Districts 2000	Yes	Yes	Yes	Sep 15 2011	CSA
DOQQ Boundaries	Yes	Yes	Yes	Jun 28 2002	CSA
Fire Protection Districts	Yes	Yes	Yes	Apr 27 2011	OTC
Floodplain Boundaries	Yes	Yes	No	Jun 7 2002	OTC
Highways	Yes	Yes	Yes	May 17 2013	CSA
Judicial Districts 2000	Yes	Yes	Yes	Oct 24 2002	CSA
Lakes (OWRB)	Yes	Yes	Yes	Aug 3 2004	OWRB
Major Aquifers of Oklahoma (OWRB)	Yes	Yes	Yes	May 17 2006	OWRB
Misc. Ground Trans. Tiger 2000	Yes	Yes	Yes	Jun 7 2002	CSA
Municipal Boundaries	Yes	Yes	Yes	Jul 10 2013	CSA
NRCS Oklahoma Watershed Dam Locations	Yes	Yes	Yes	Nov 1 2005	OCC
NRCS Water Features	Yes	Yes	No	Jun 26 2008	OTC
NTAD 2003 Airports	Yes	Yes	Yes	Aug 27 2003	BTS
NTAD 2003 Federal Aid Urbanized Area Boundaries	Yes	Yes	Yes	Aug 27 2003	BTS

Oklahoma Data Warehouse



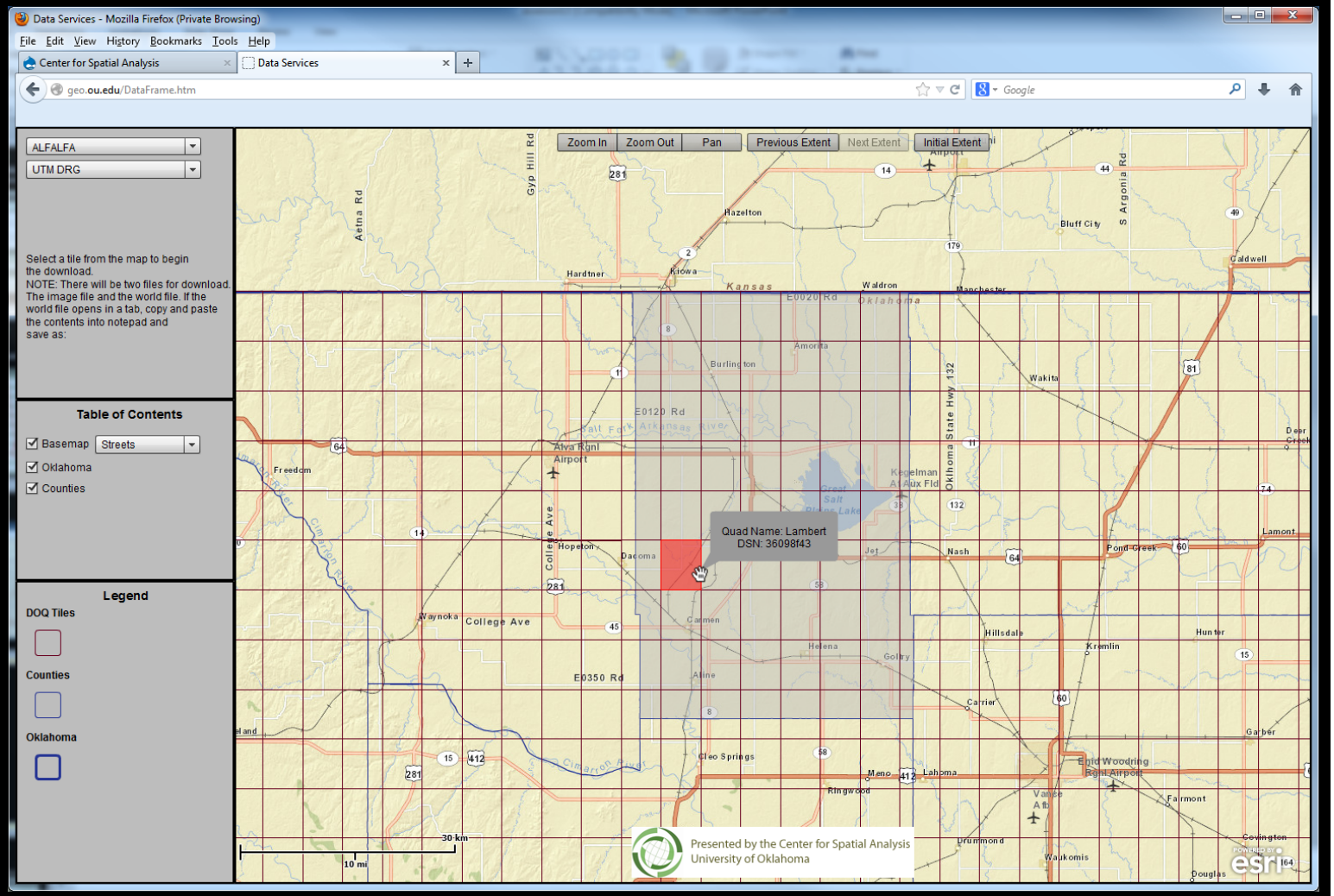
- Click on the *"IMAGE DATA"* tab

- Click County
- Image Type (.sid)
- Select a year



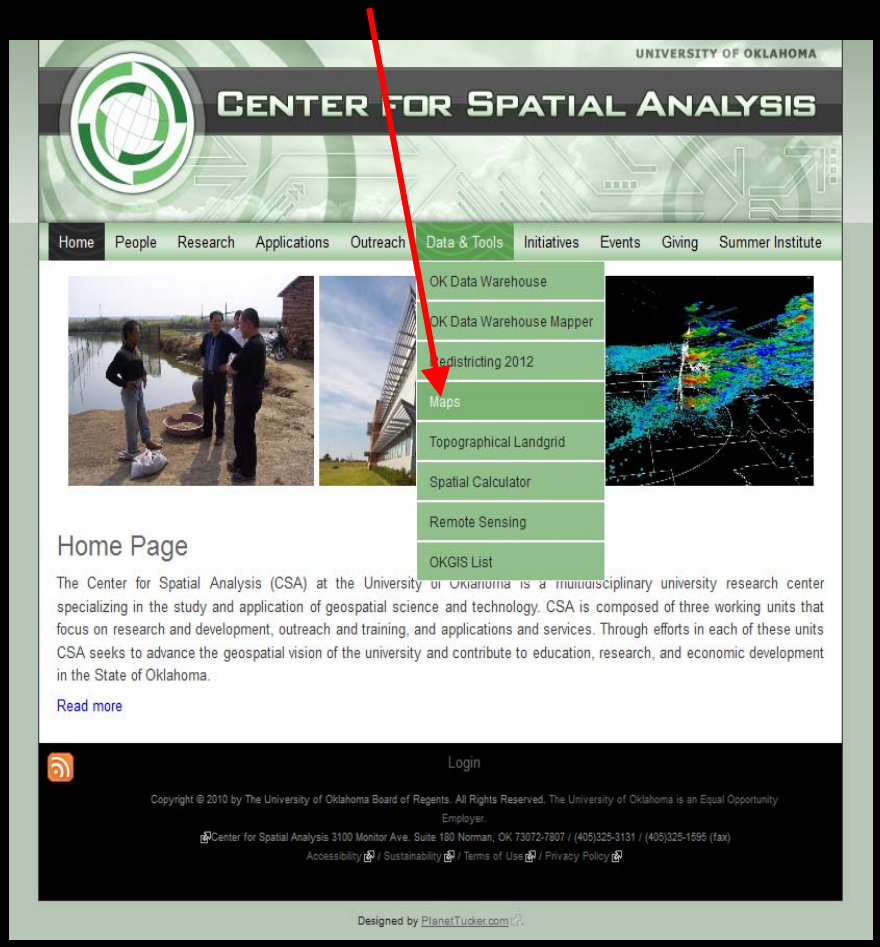
Oklahoma Data Warehouse

- Click County
- Image Type (UTM-DRG) Digital Raster Graph.
- Select a tile from the map for download.
- This is the Lambert USGS 7.5min topographic quadrangle map.

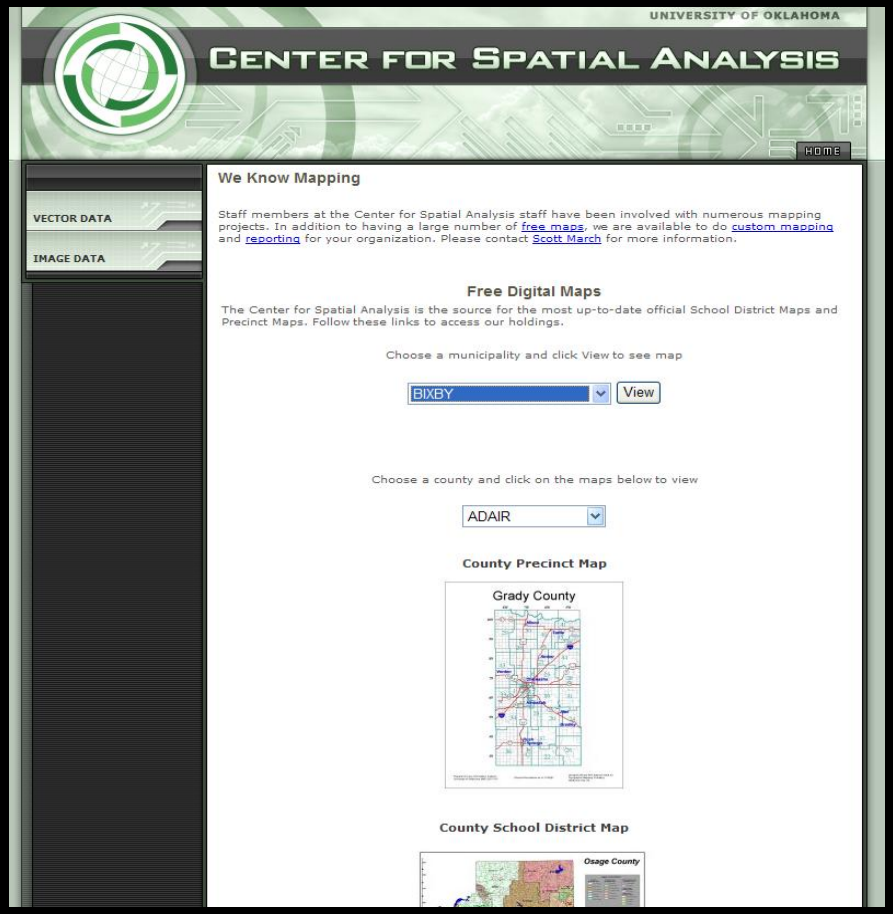


Oklahoma Data Warehouse

- Click on *Maps*



- *View municipal maps*
- *View county precinct/school district maps*

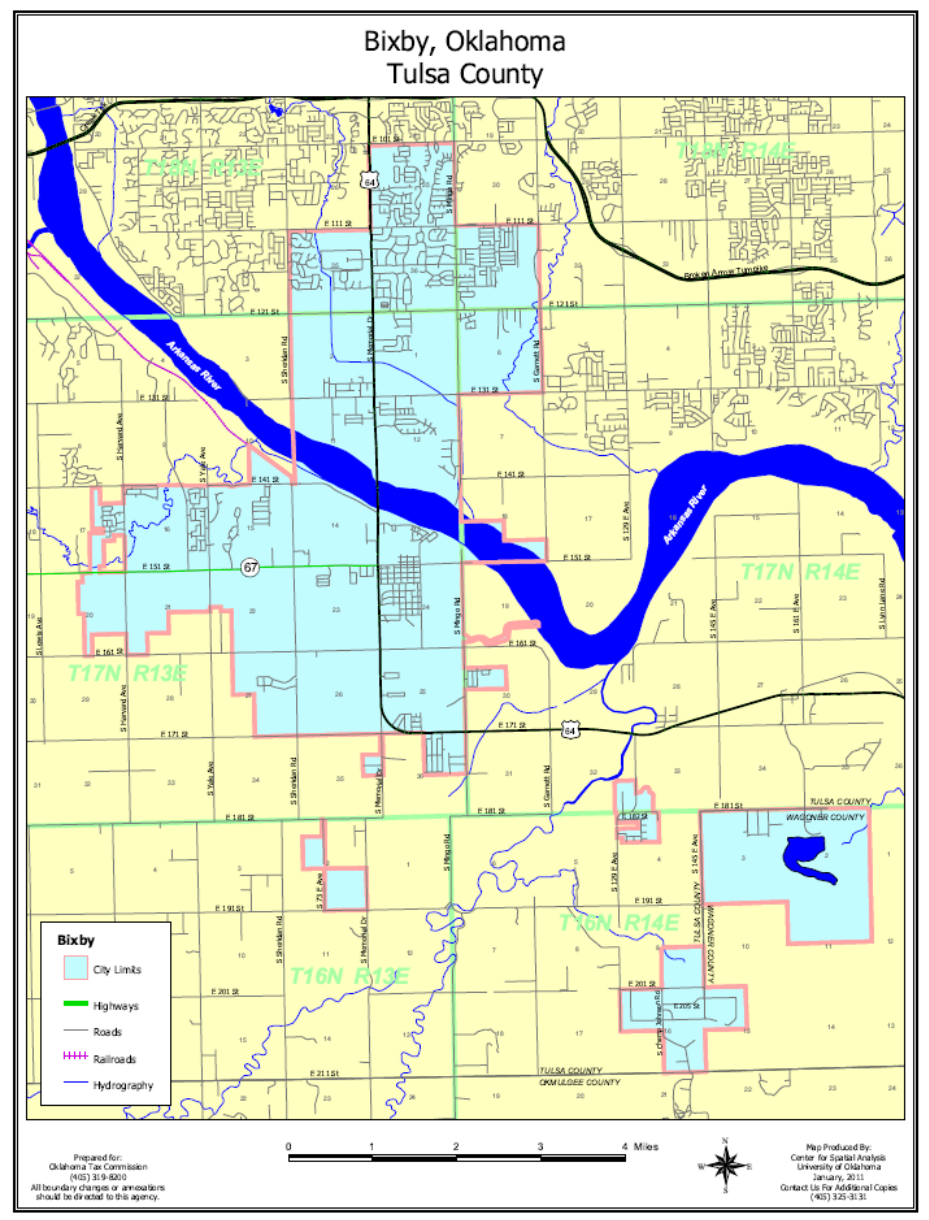


To help verify Municipal Boundaries--

- *Scroll around to check your municipal boundaries reflected on the online maps.*

- *To correct boundary errors, forward signed copies (by city clerk, etc.) of annexation orders or map corrections to Troy Frazier: (405) 319-8200.*

- *These boundaries impact property tax collections, sales tax collections, municipal elections and redistricting city wards!*



Since last year

- Approximately 50 municipalities have sent in updates in the last year.
- Using both 2010 NAIP imagery and Tiger2010 line features (roads, hydrology, railroads etc) over 200 municipalities have been adjusted to this new base data.

By next year

- All 600 municipalities will have city boundaries adjusted to Tiger2010 line features and 2010 NAIP imagery.

What is TIGER?

Topologically Integrated Geographic Encoding and Referencing, or TIGER, or TIGER/Line is a format used by the United States Census Bureau to provide information on streets, railroads and other line features, as well as areas such as census tracts. TIGER was developed to support and improve the Bureau's process of taking the Decennial Census. Tiger line data is released annually.

The initial sources used to create the Census TIGER database, were the U.S. Geological Survey (USGS) 1:100,000-scale Digital Line Graph (DLG), USGS 1:24,000-scale quadrangles and the Census Bureau's 1980 geographic base files (GBF/DIME-Files).

Some of this old dated line work can still be found in the municipal boundary data if that city or town has never been involved in the edit/review process.

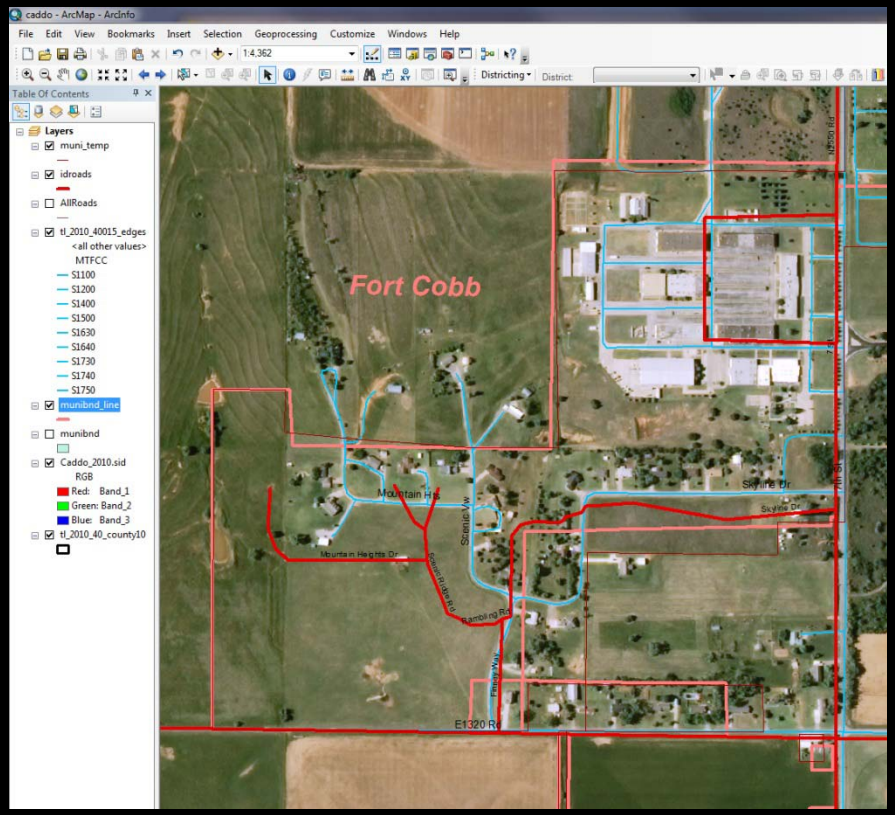
TIGER 2010

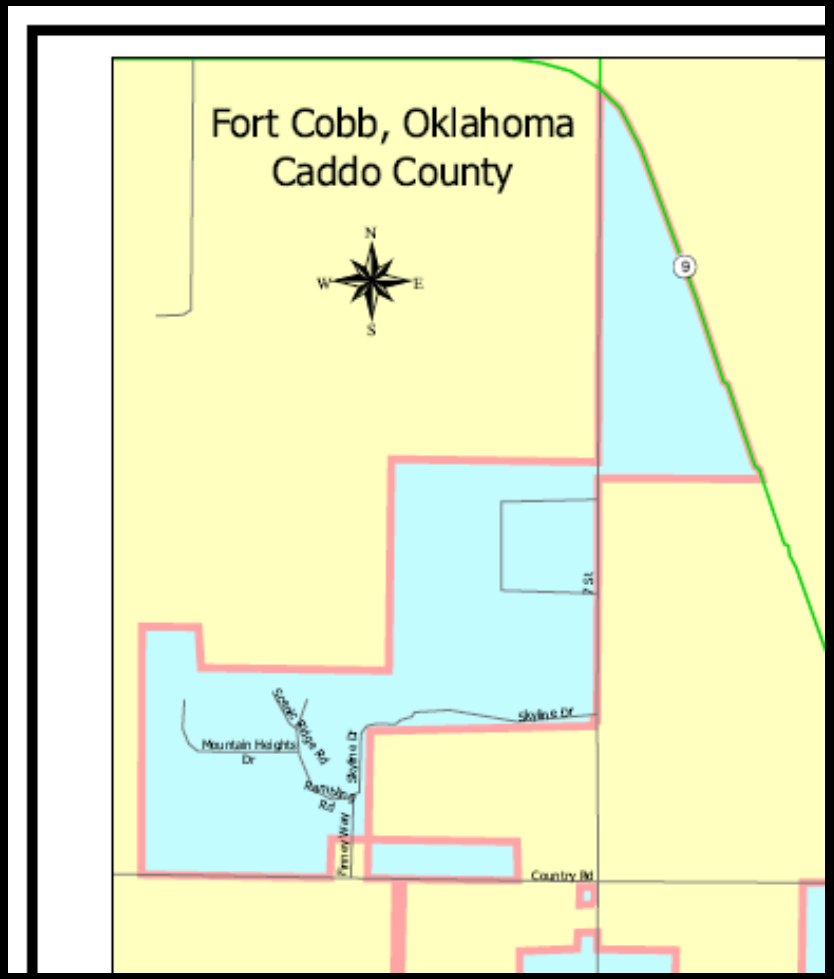
The Census Bureau began a multi-year project called the MAF/TIGER Accuracy Improvement Project (MTAIP) in 2002 to realign and update street features . The project realigned and updated the street features by county using both aerial imagery and gps. The MTAIP was completed in 2008.

In preparation for the 2010 Census, Census employees walked virtually every street in the United States with the primary purpose of verifying and updating Census address lists. A second priority was to provide updates to the Census road network. For the first time census workers used handheld computers that captured GPS information and used this technology to improve both the address lists and the census road network. Census field workers had the opportunity to use GPS to add new roads, identify roads for deletion, and rename existing roads. These modifications should be reflected in the 2010 Census TIGER/Line Shapefiles.

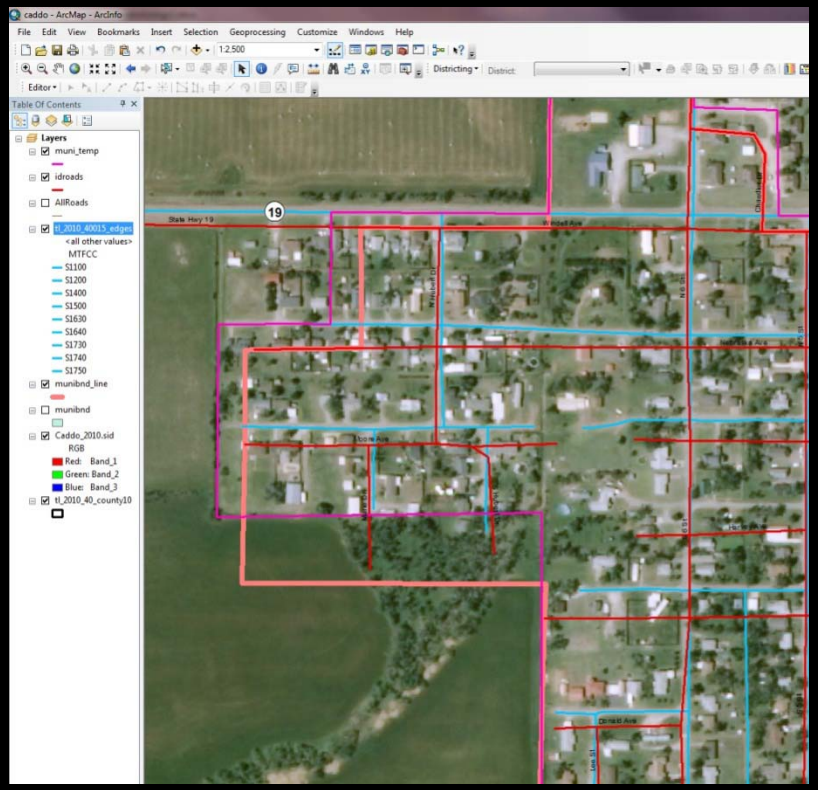
The improved accuracy of Tiger 2010 roads (in blue) shows addressing outside of the city limits of Fort Cobb, Oklahoma.

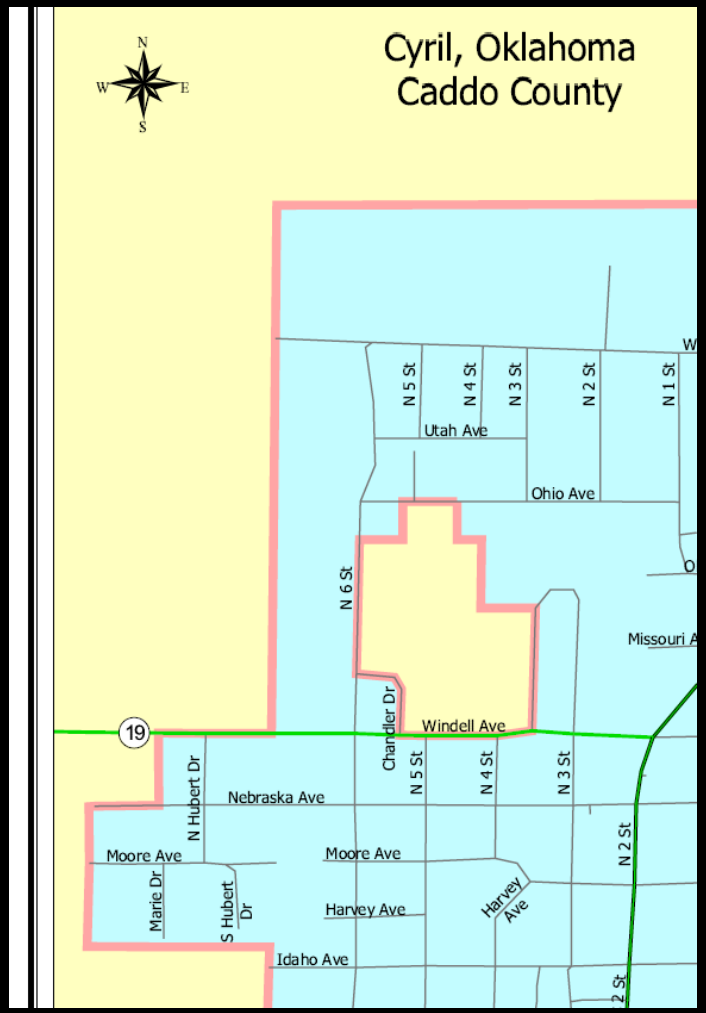
The old Tiger road (in red) was previously within the city limits of Fort Cobb. The municipal tax code will change based on accuracy of the data used for these residences.

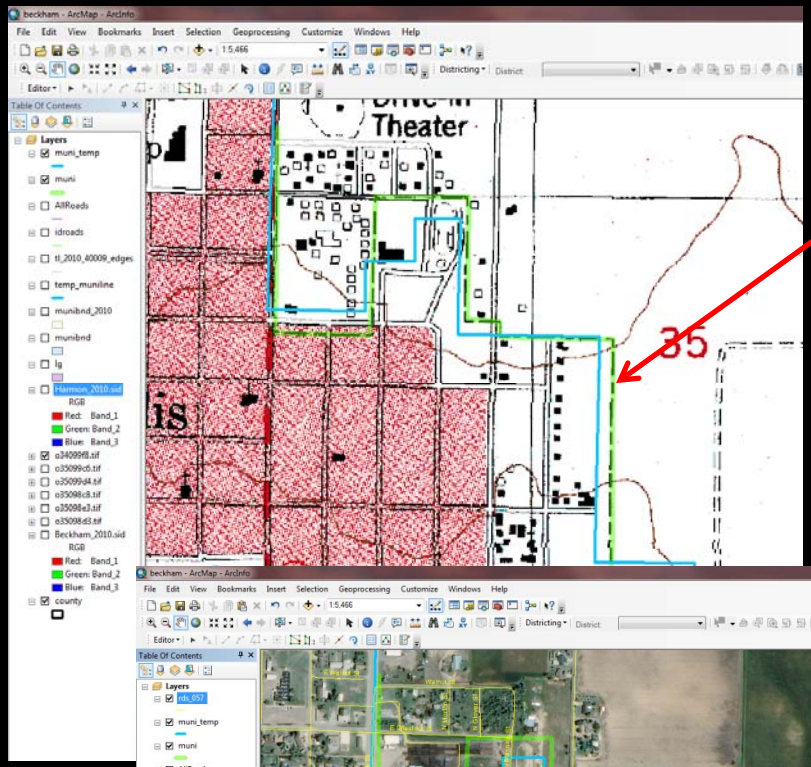




2010 NAIP photography for Caddo County reveals how poorly digitized the old Cyril city limit boundary was.
The new municipal boundary for Cyril (in pink) has been adjusted using the NAIP imagery and detailed legal descriptions.

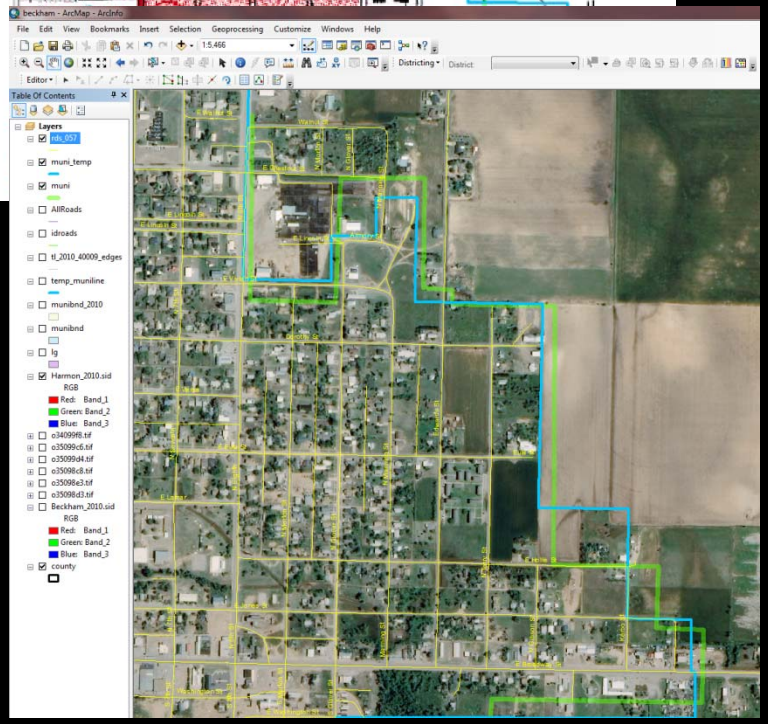






Many municipal boundaries from Tiger 2000 line data are sourced from older USGS 1:24,000 scale quadrangles.

This quad was last updated in 1985!



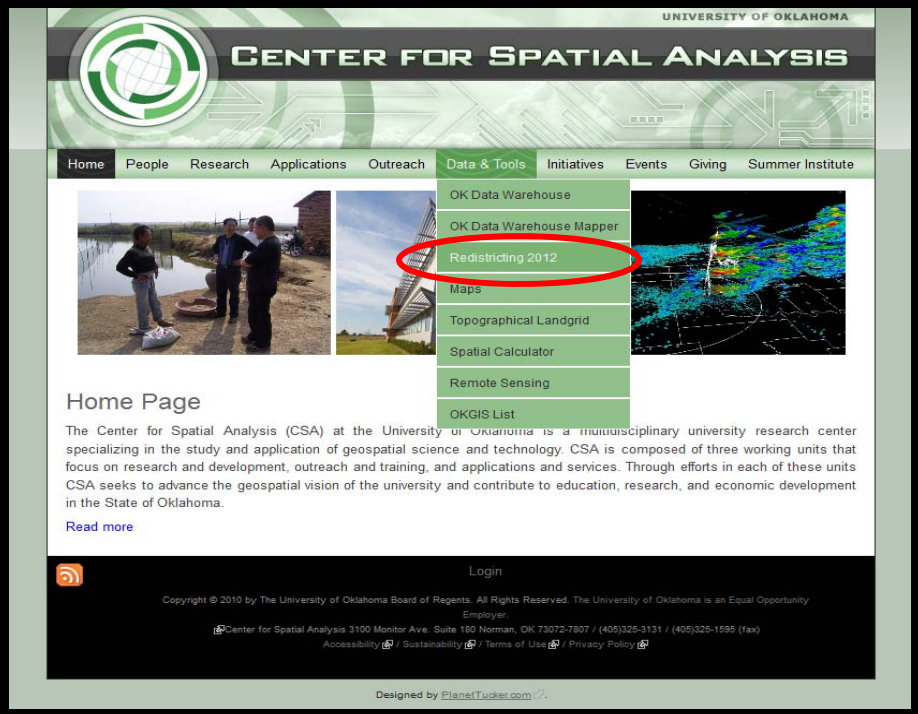
New Tiger 2010 line data along with 2010 NAIP imagery allows for much greater positional accuracy of municipal boundaries.

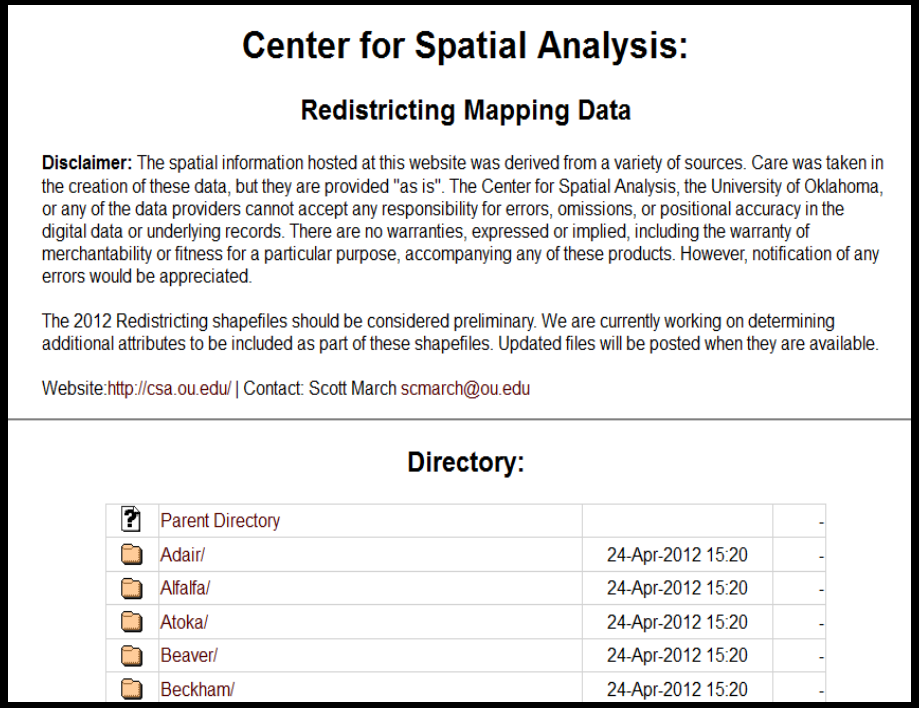
Oklahoma Data Warehouse

- Redistricting 2012

Over the past year CSA has continued to support the Oklahoma State Election Board's re-precincting component of the statewide redistricting following the 2010 Census.

CSA met with 77 separate County Election Boards to go over boundaries and determine where precinct lines needed to be adjusted based on 2010 Census block populations. Precinct lines cannot cross Congressional, Senate, House or County Commissioner boundaries.





Center for Spatial Analysis:

Redistricting Mapping Data

Disclaimer: The spatial information hosted at this website was derived from a variety of sources. Care was taken in the creation of these data, but they are provided "as is". The Center for Spatial Analysis, the University of Oklahoma, or any of the data providers cannot accept any responsibility for errors, omissions, or positional accuracy in the digital data or underlying records. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying any of these products. However, notification of any errors would be appreciated.

The 2012 Redistricting shapefiles should be considered preliminary. We are currently working on determining additional attributes to be included as part of these shapefiles. Updated files will be posted when they are available.

Website:http://csa.ou.edu/ | Contact: Scott March scmarch@ou.edu

Directory:

Parent Directory		-
Adair/	24-Apr-2012 15:20	-
Alfalfa/	24-Apr-2012 15:20	-
Atoka/	24-Apr-2012 15:20	-
Beaver/	24-Apr-2012 15:20	-
Beckham/	24-Apr-2012 15:20	-

Redistricting data is available in ESRI Shapefile format or in .pdf format as a viewable map.

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Directory:

Parent Directory		-
Maps/	24-Apr-2012 15:20	-
Shapefiles/	24-Apr-2012 15:20	-

Shapefiles are available for County Commissioner, State House, State Senate and Voter Precincts for all 77 counties.

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Directory:

Parent Directory		-
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Adair_house.zip	24-Apr-2012 15:20	17K
Adair_precinct.zip	24-Apr-2012 15:20	171K
Adair_senate.zip	24-Apr-2012 15:20	17K

Center for Spatial Analysis:

Redistricting Mapping Data

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Directory:

Parent Directory		
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010010.pdf	24-Apr-2012 15:20	565K
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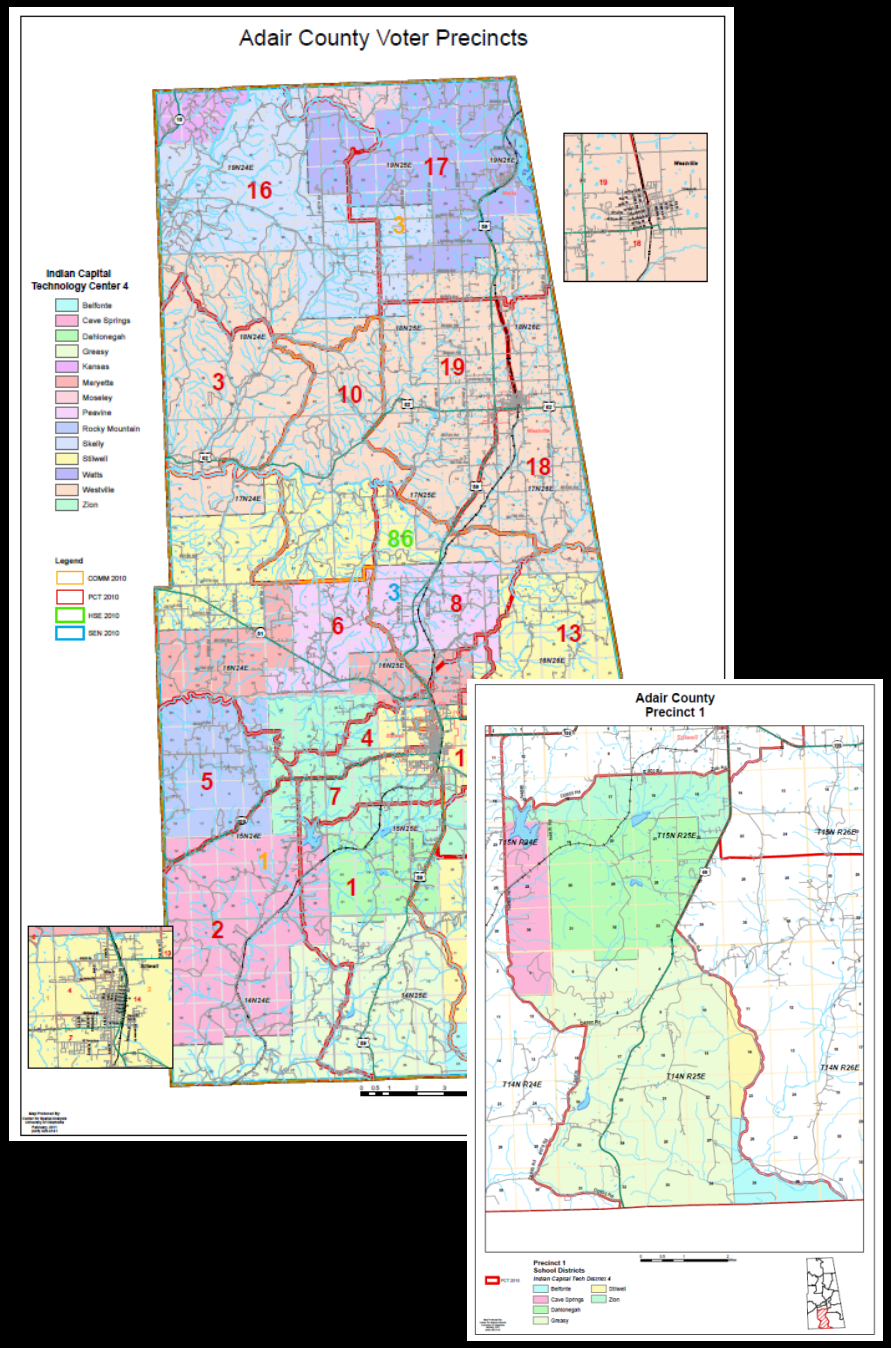
010013.pdf	24-Apr-2012 15:20	466K



Click on the individual precinct .pdf's to display a map.

Questions?

Thank You

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Center for Spatial Analysis

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scmarch@ou.edu