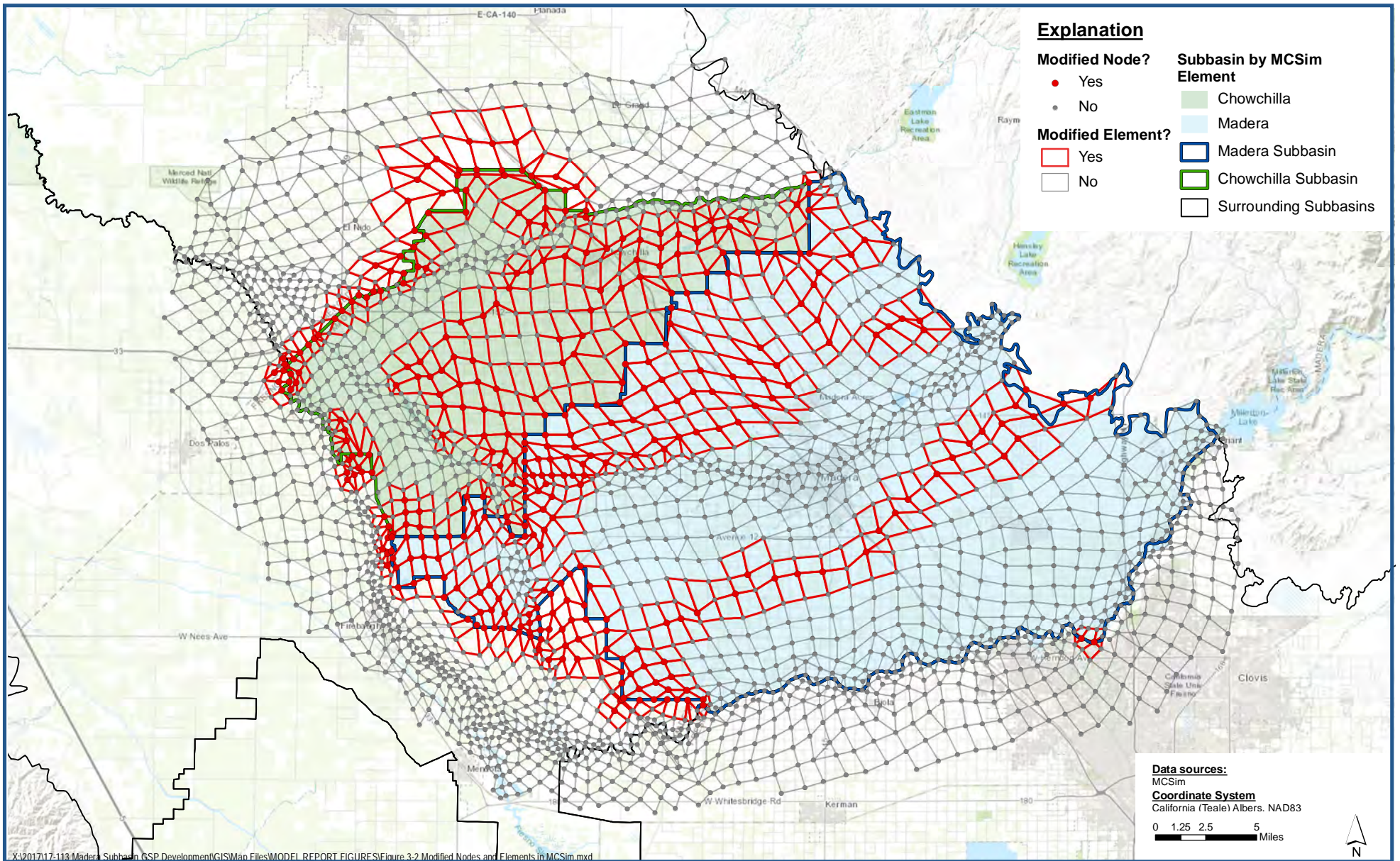


MCSim Model Grid

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

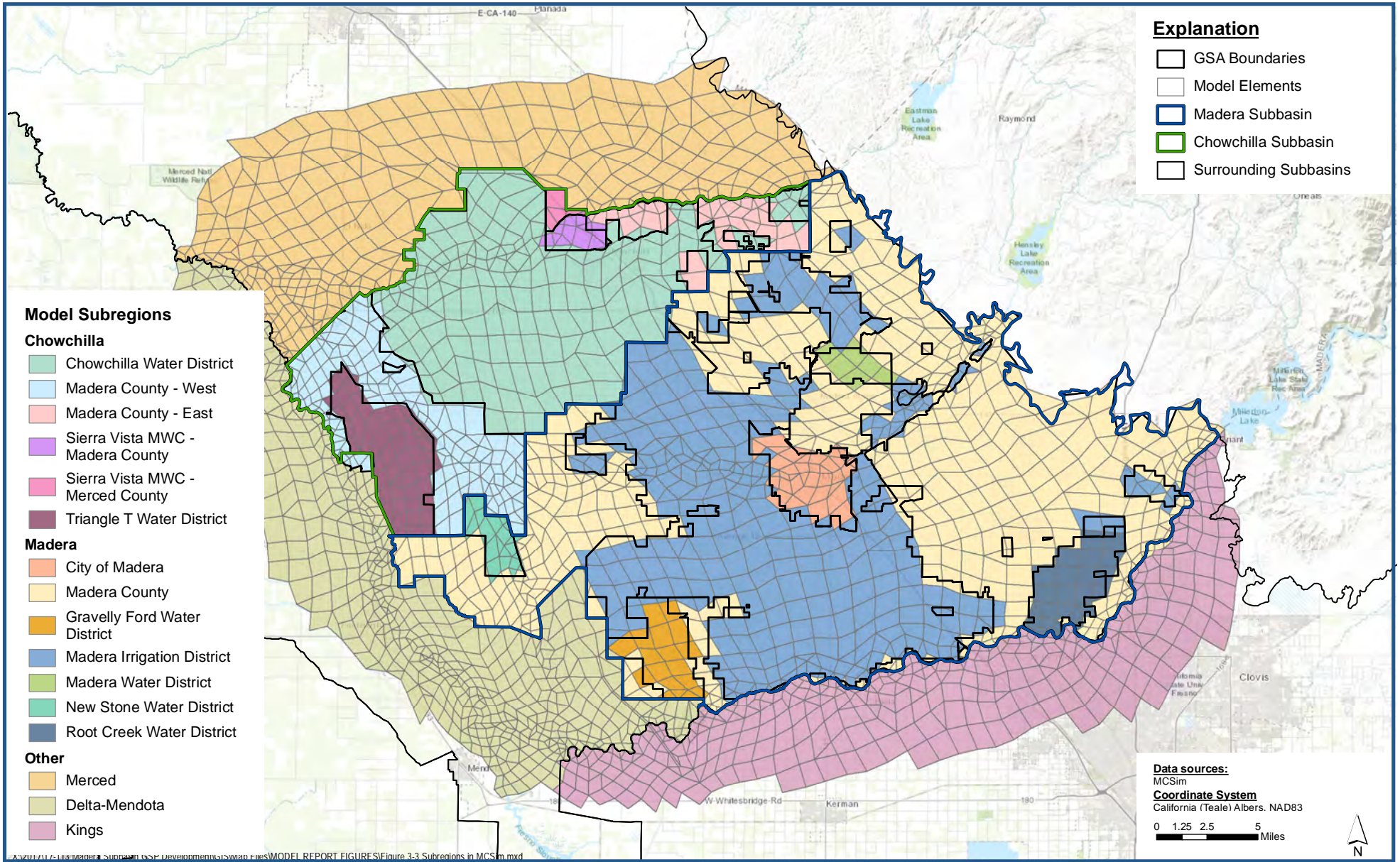
Figure 3-1



Modified Nodes and Elements in MCSim

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

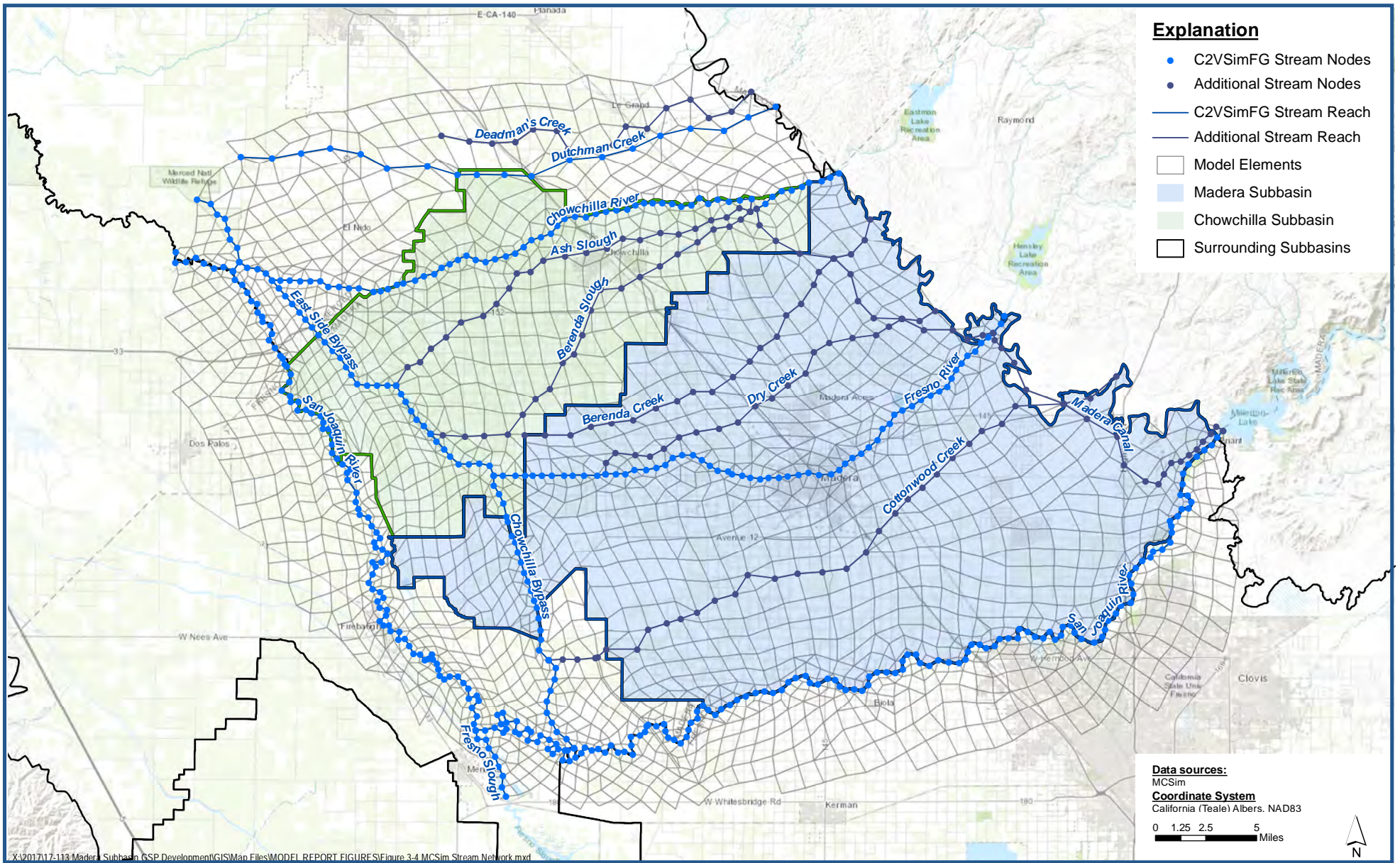
Figure 3-2



Subregions in MCSim

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

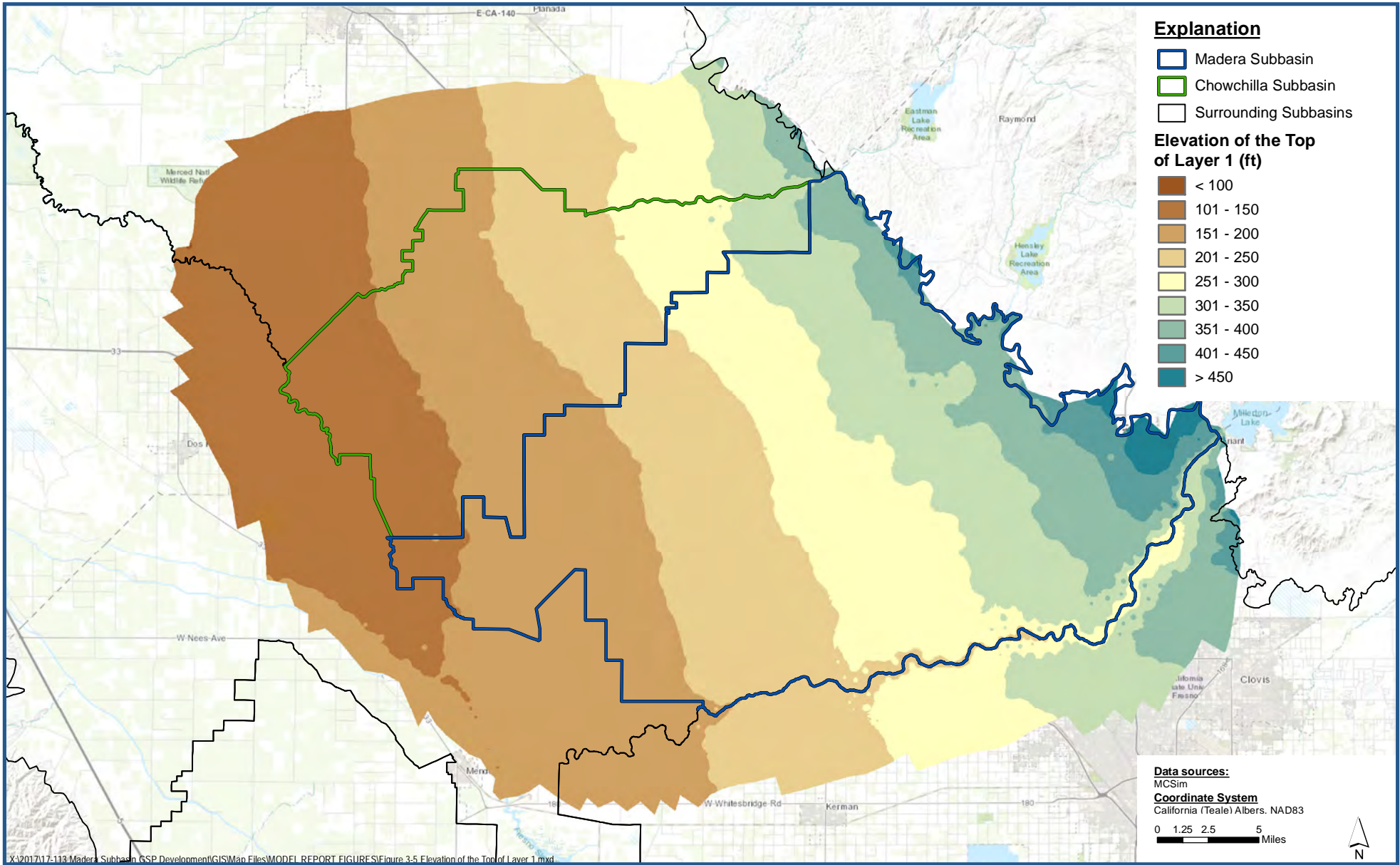
Figure 3-3



MCSim Stream Network

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

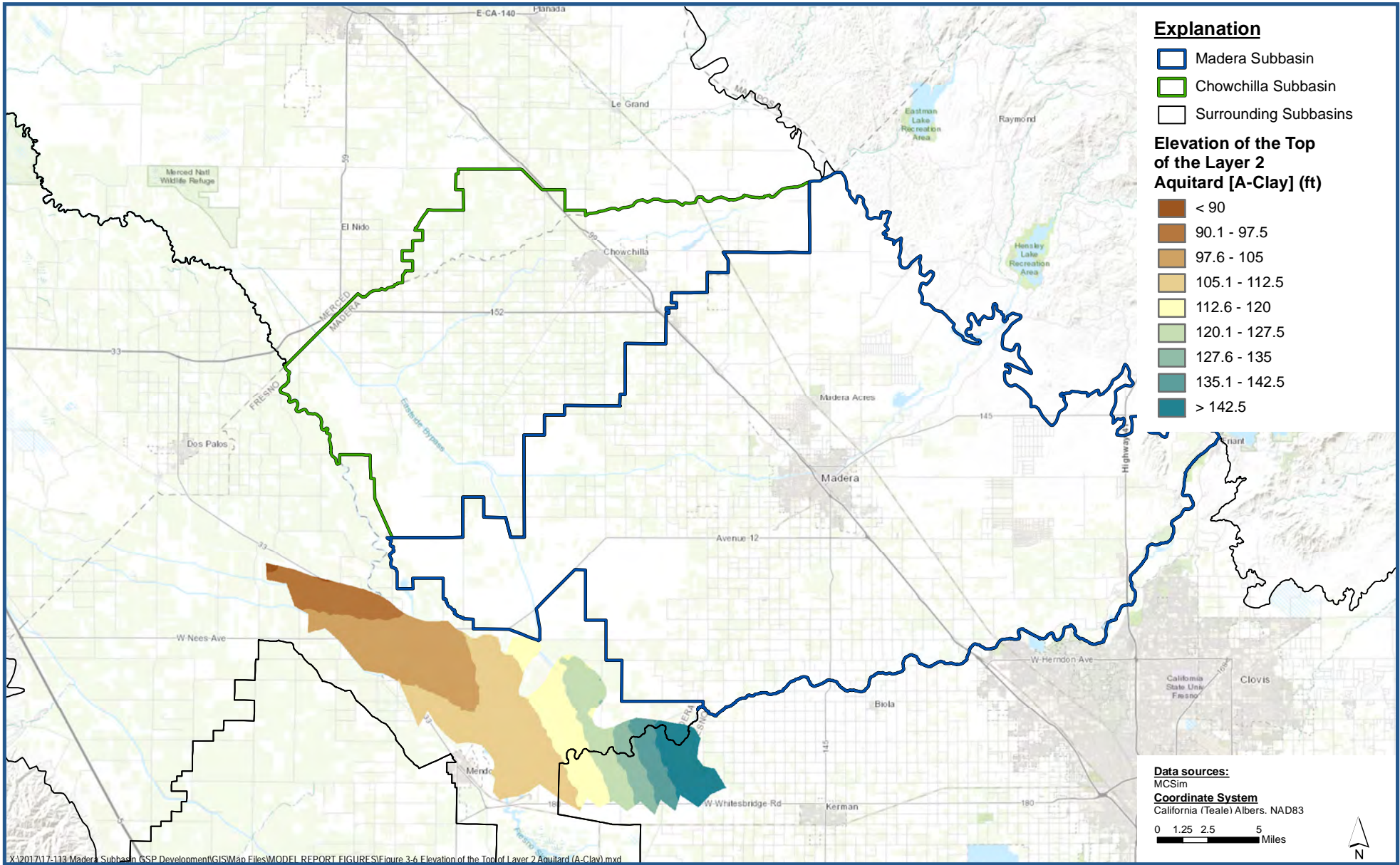
Figure 3-4



Elevation of the Top of Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

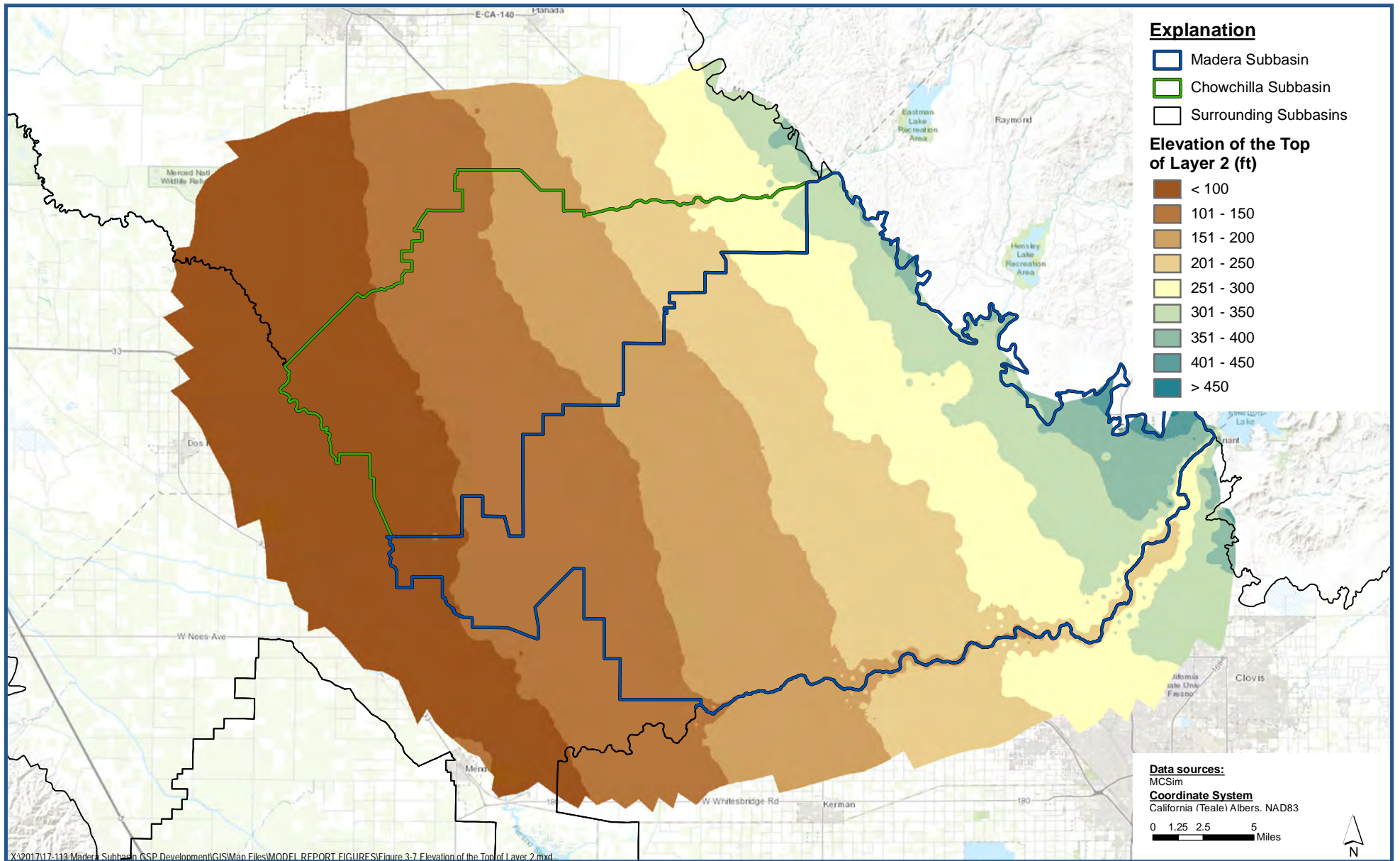
Figure 3-5

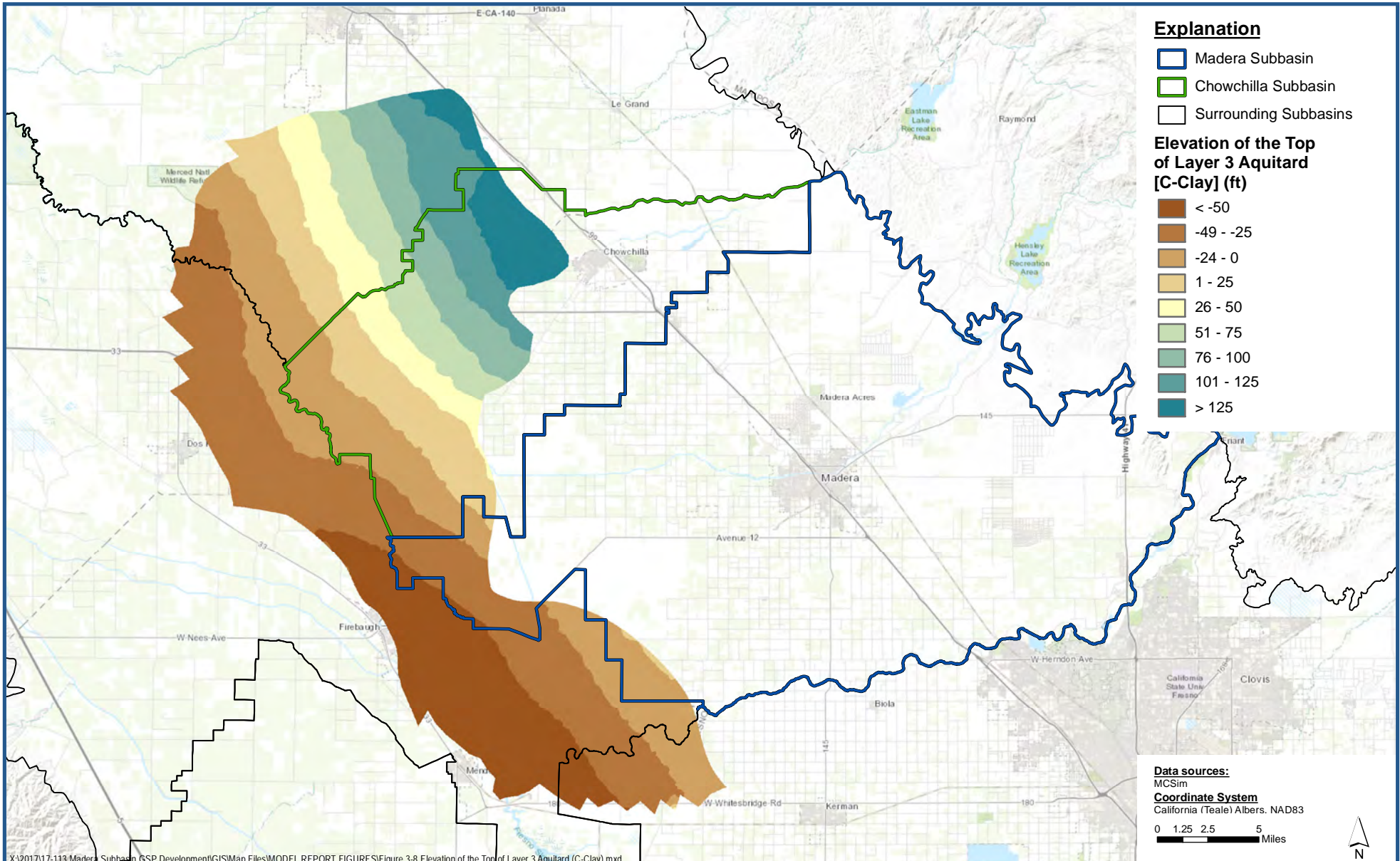


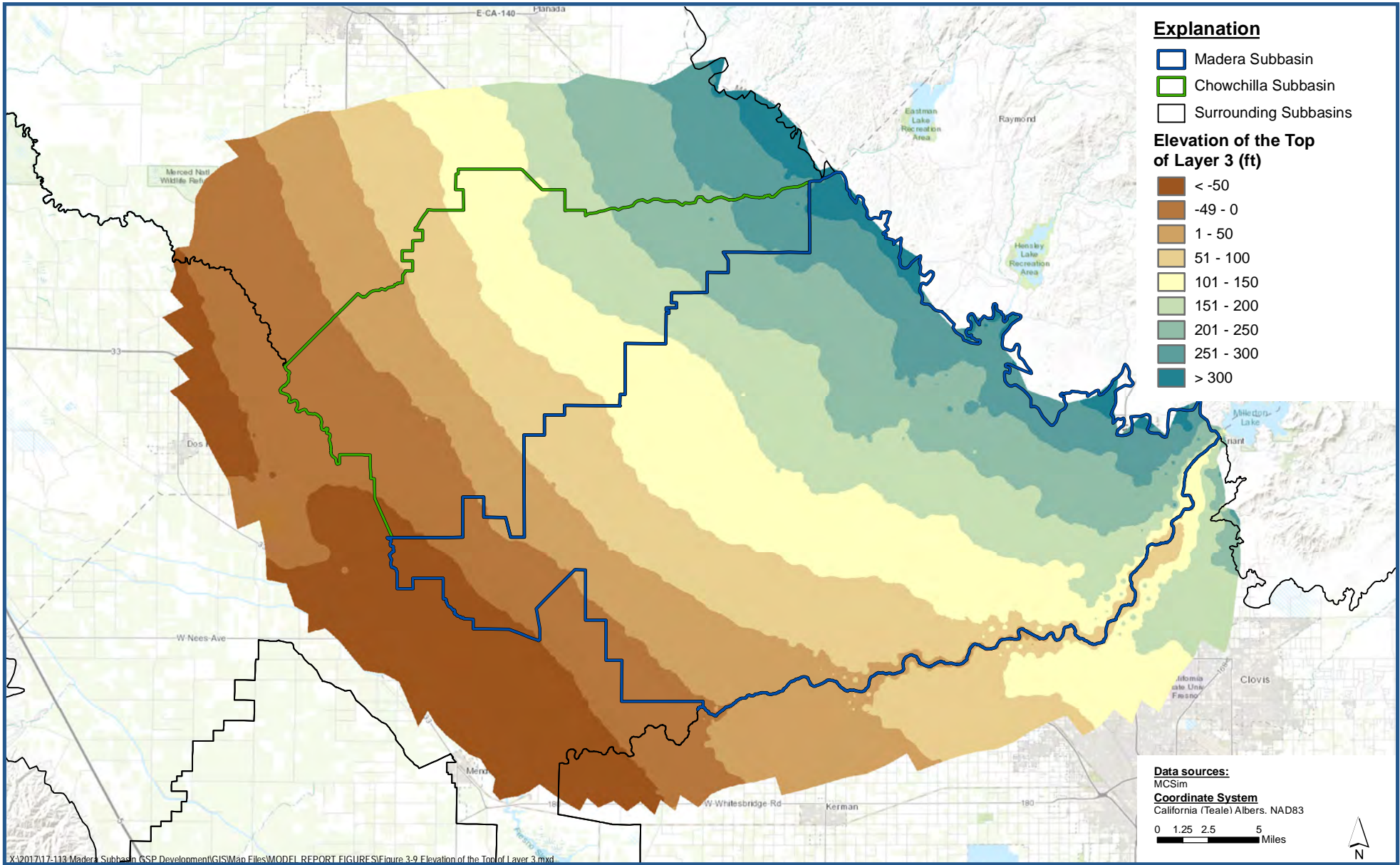
Elevation of the Top of the Layer 2 Aquitard (A-Clay)

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-6



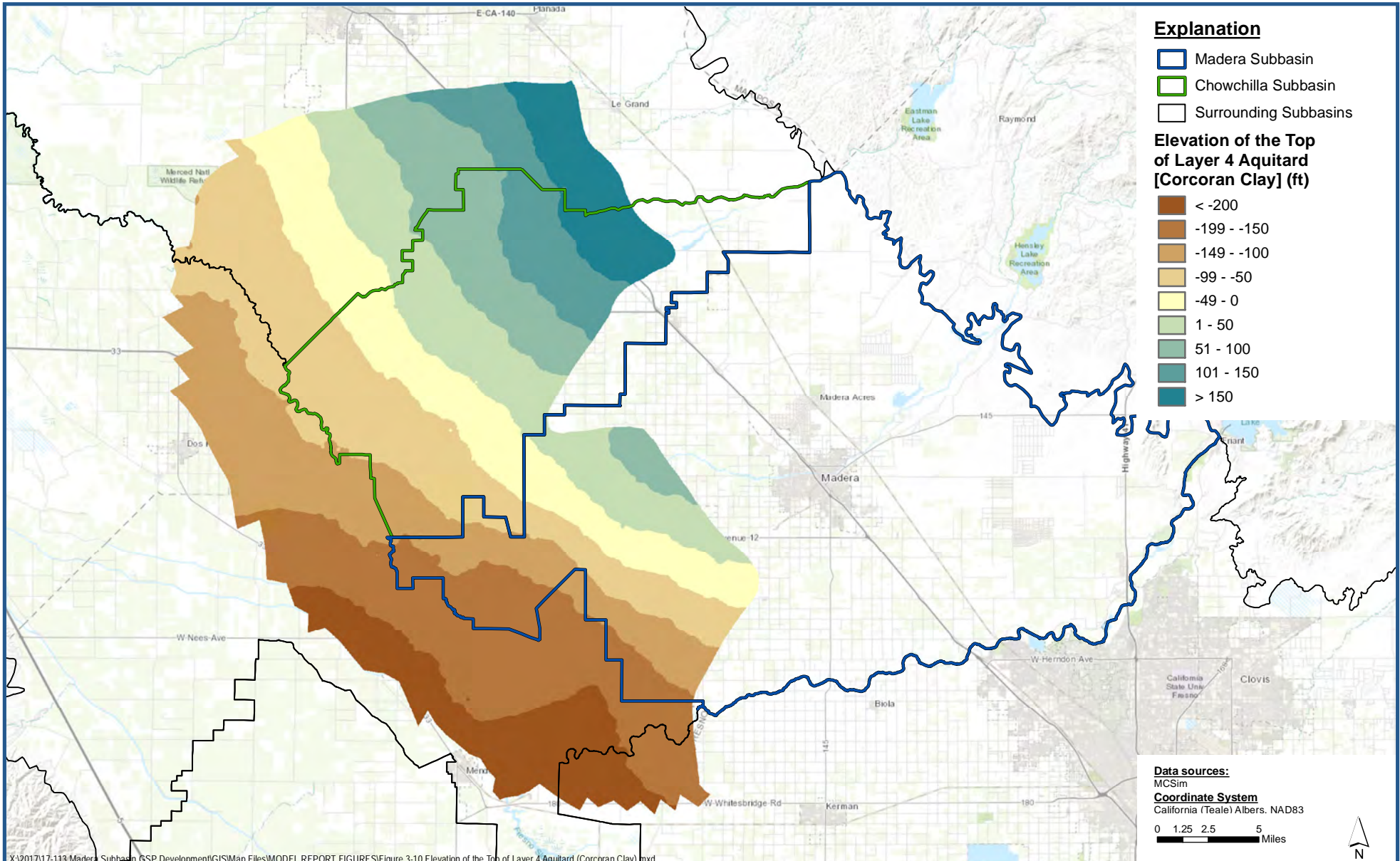


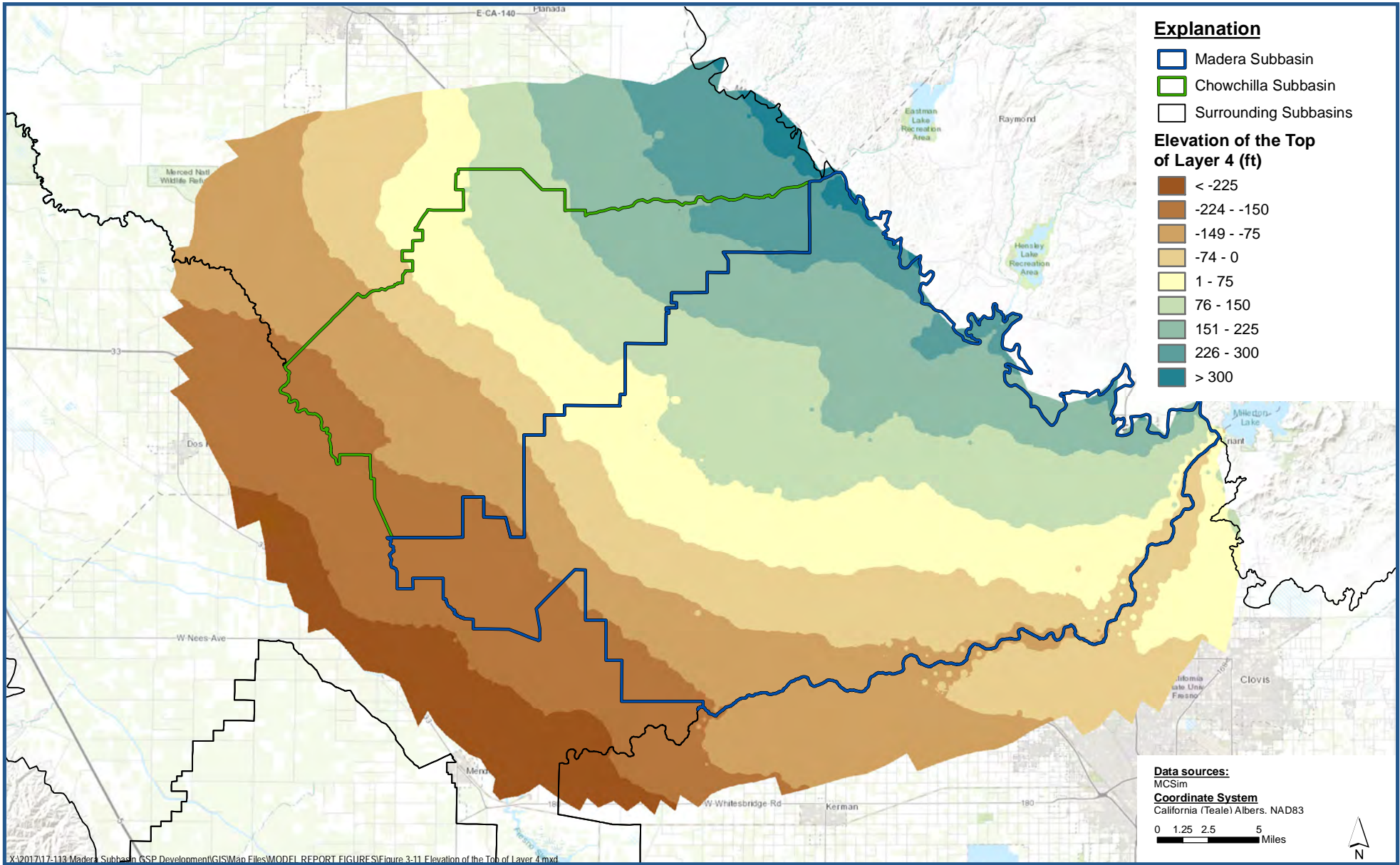


Elevation of the Top of Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-9

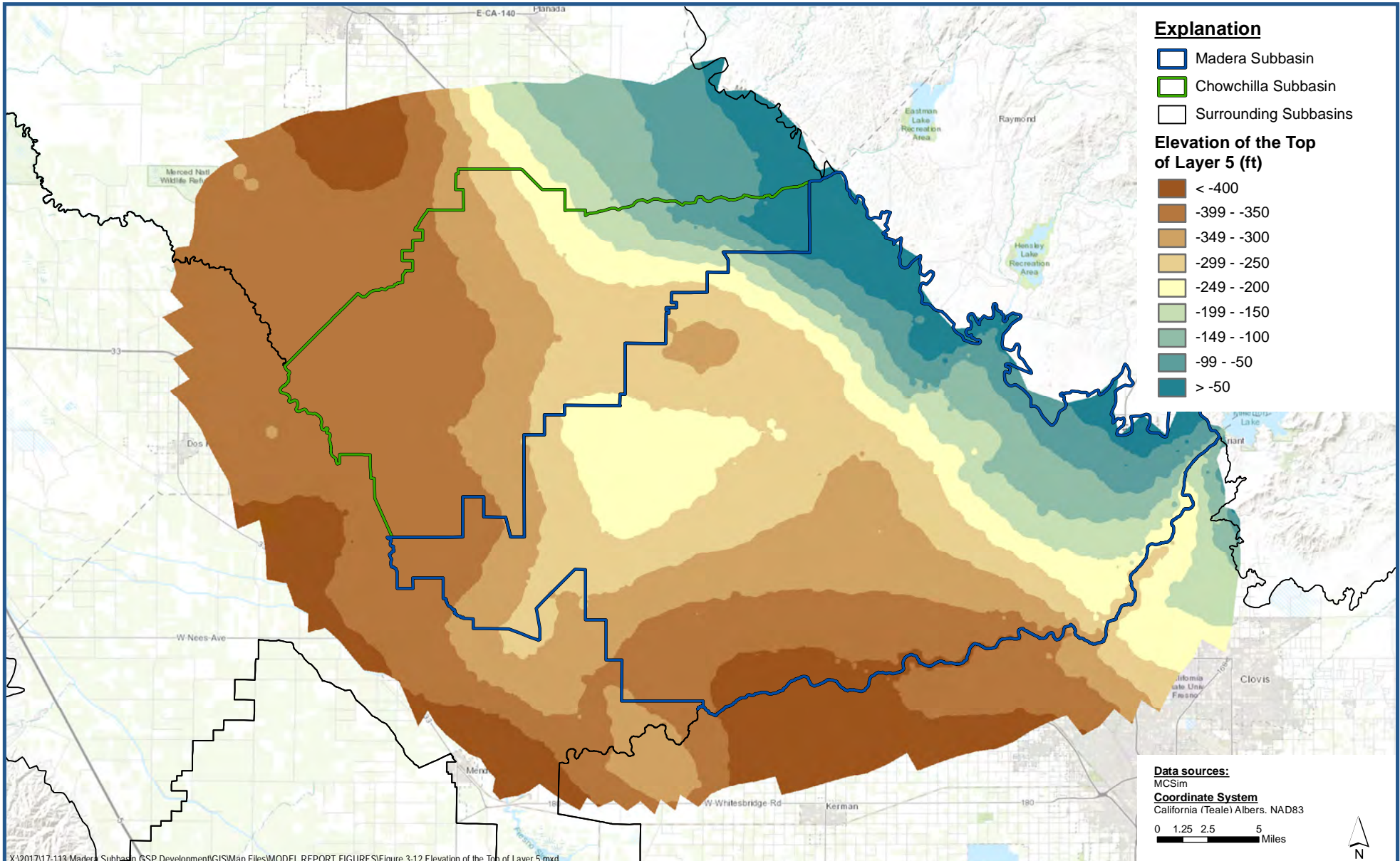




Elevation of the Top of Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

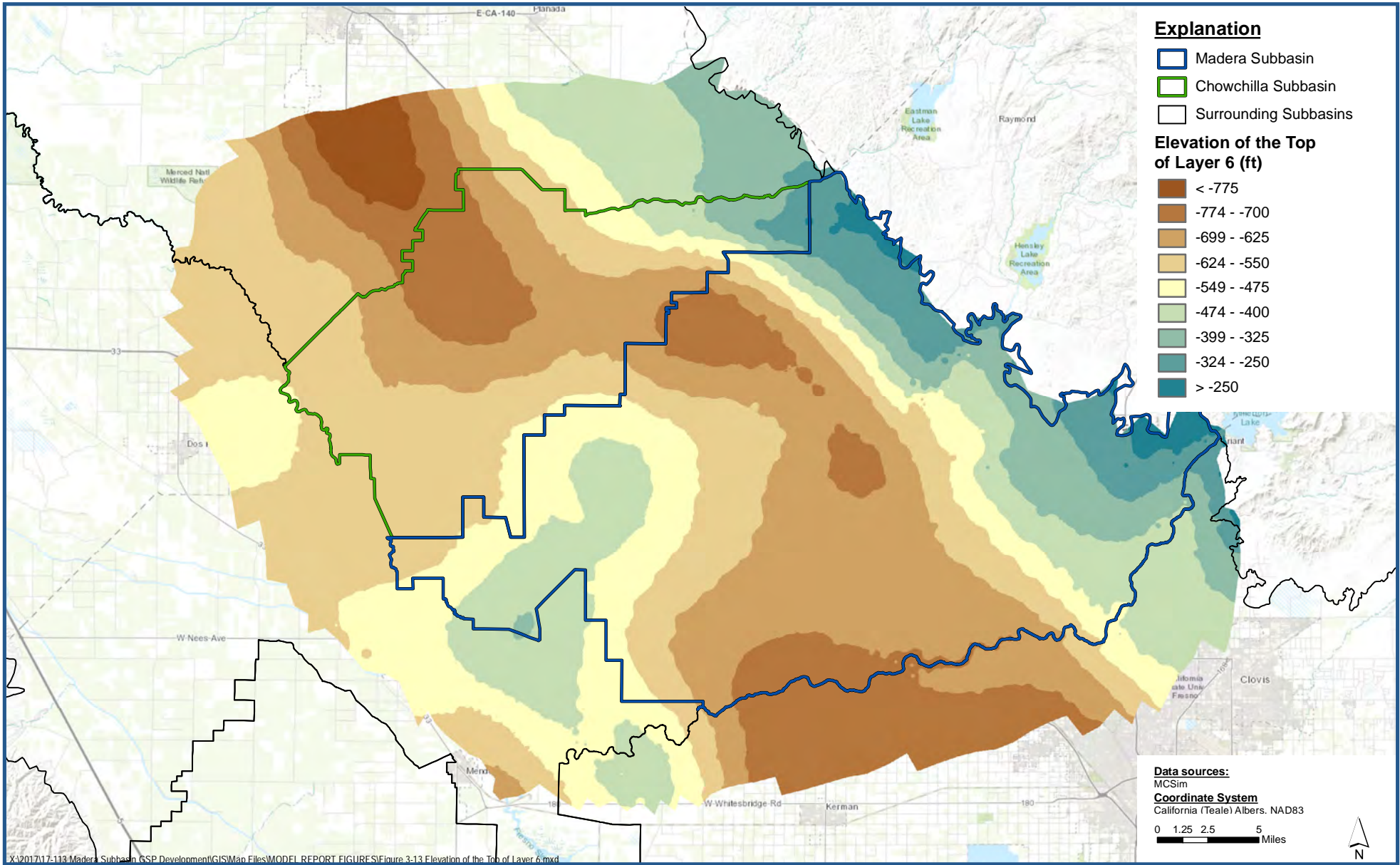
Figure 3-11



Elevation of the Top of Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

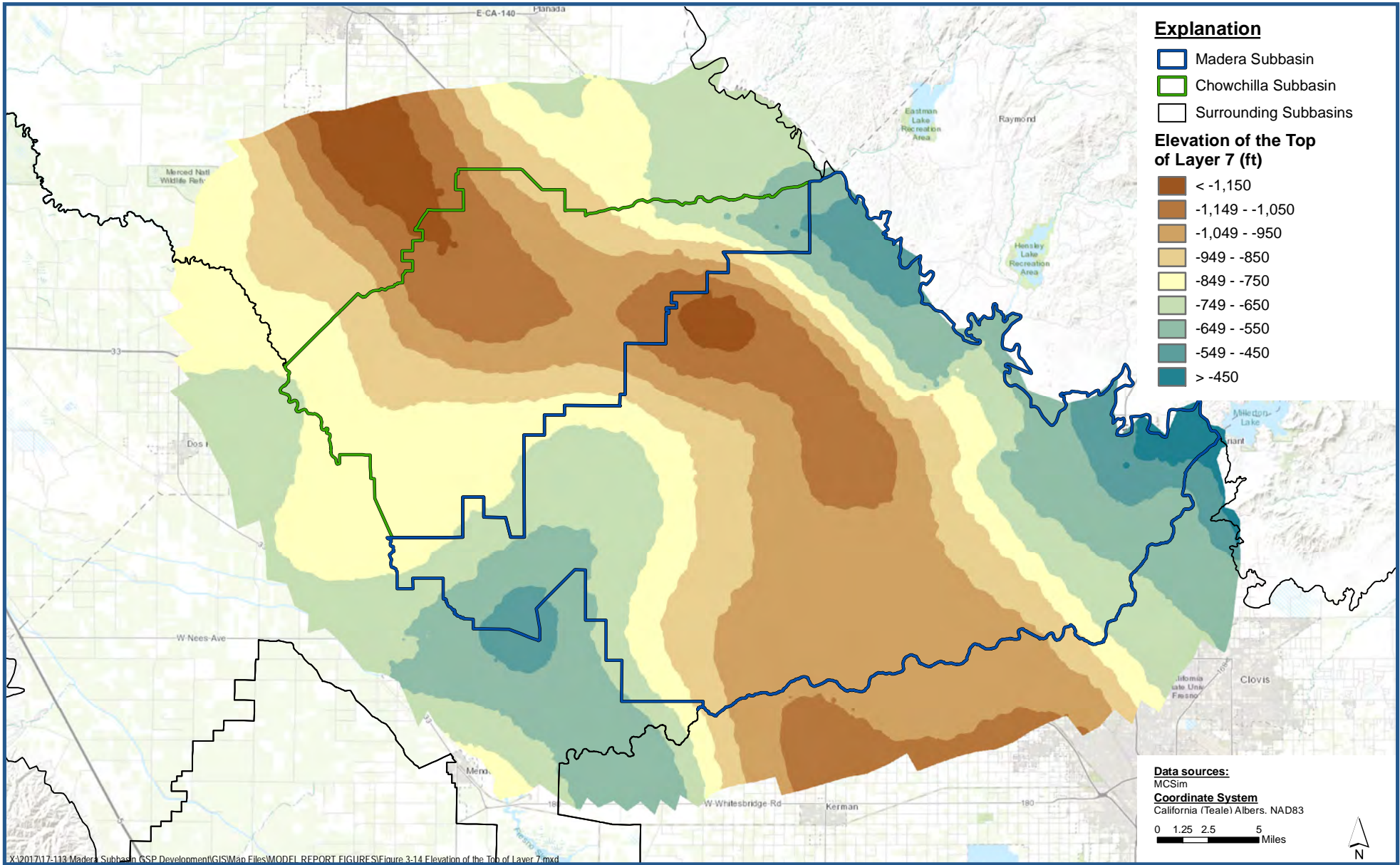
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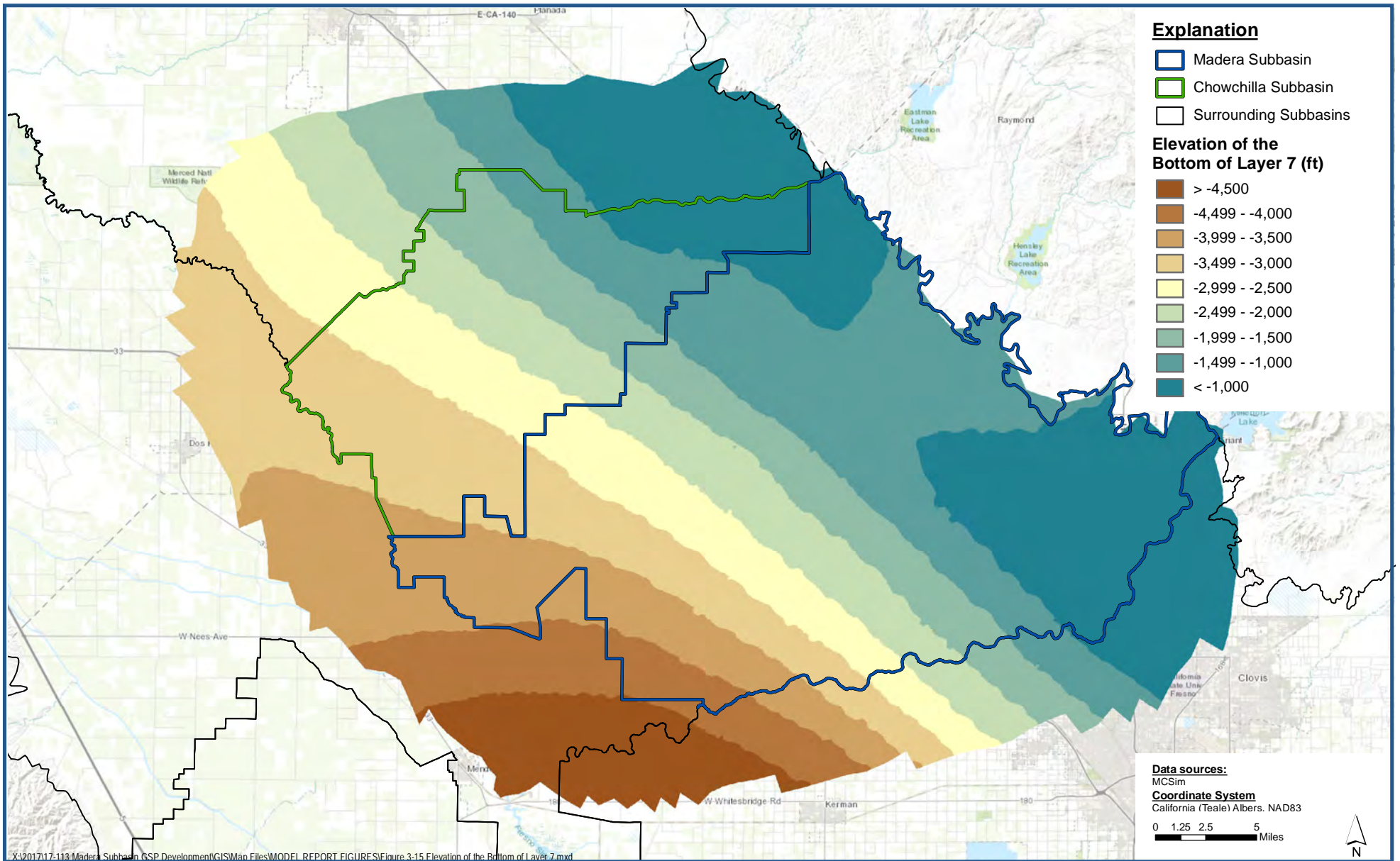


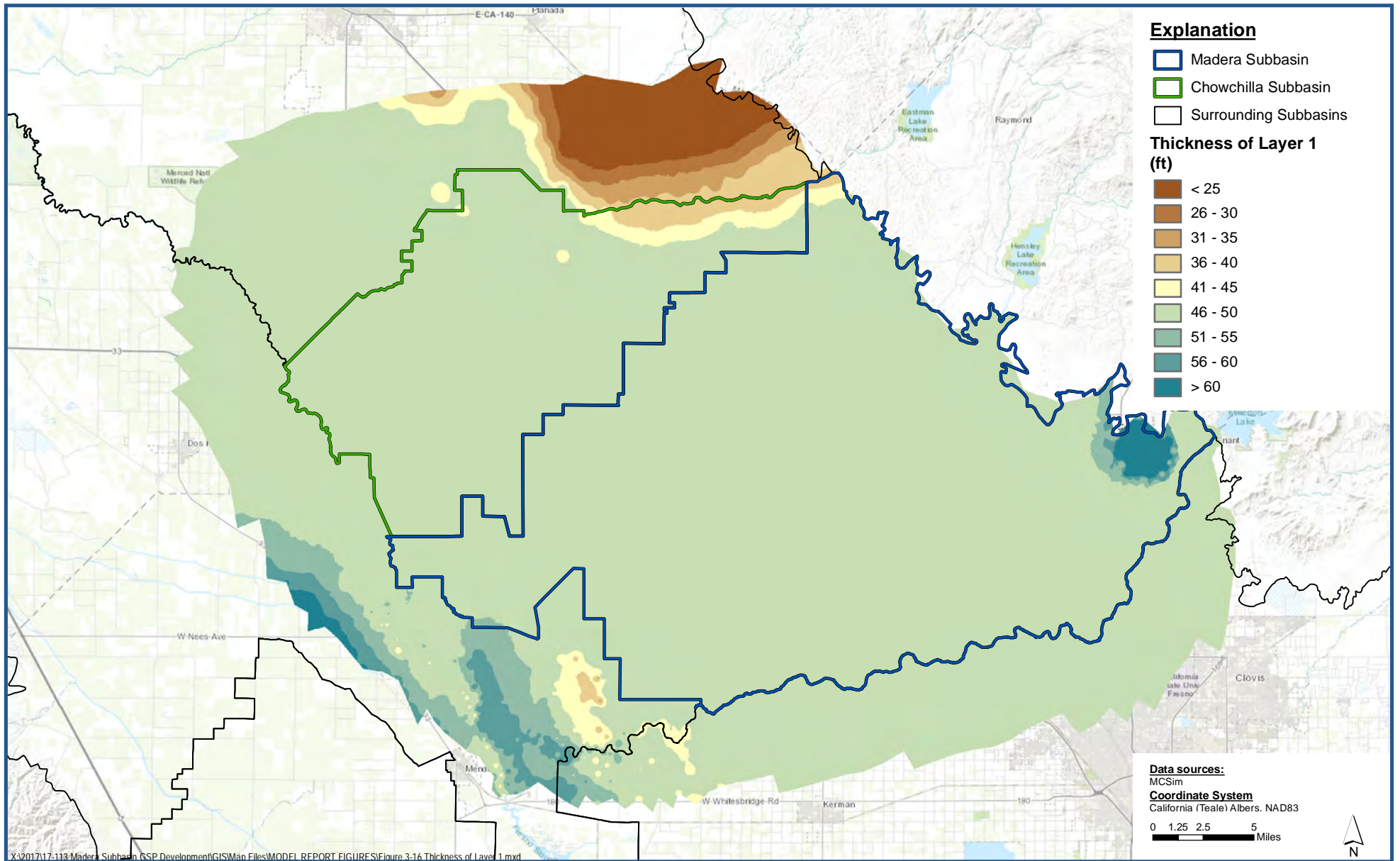
Elevation of the Top of Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-13



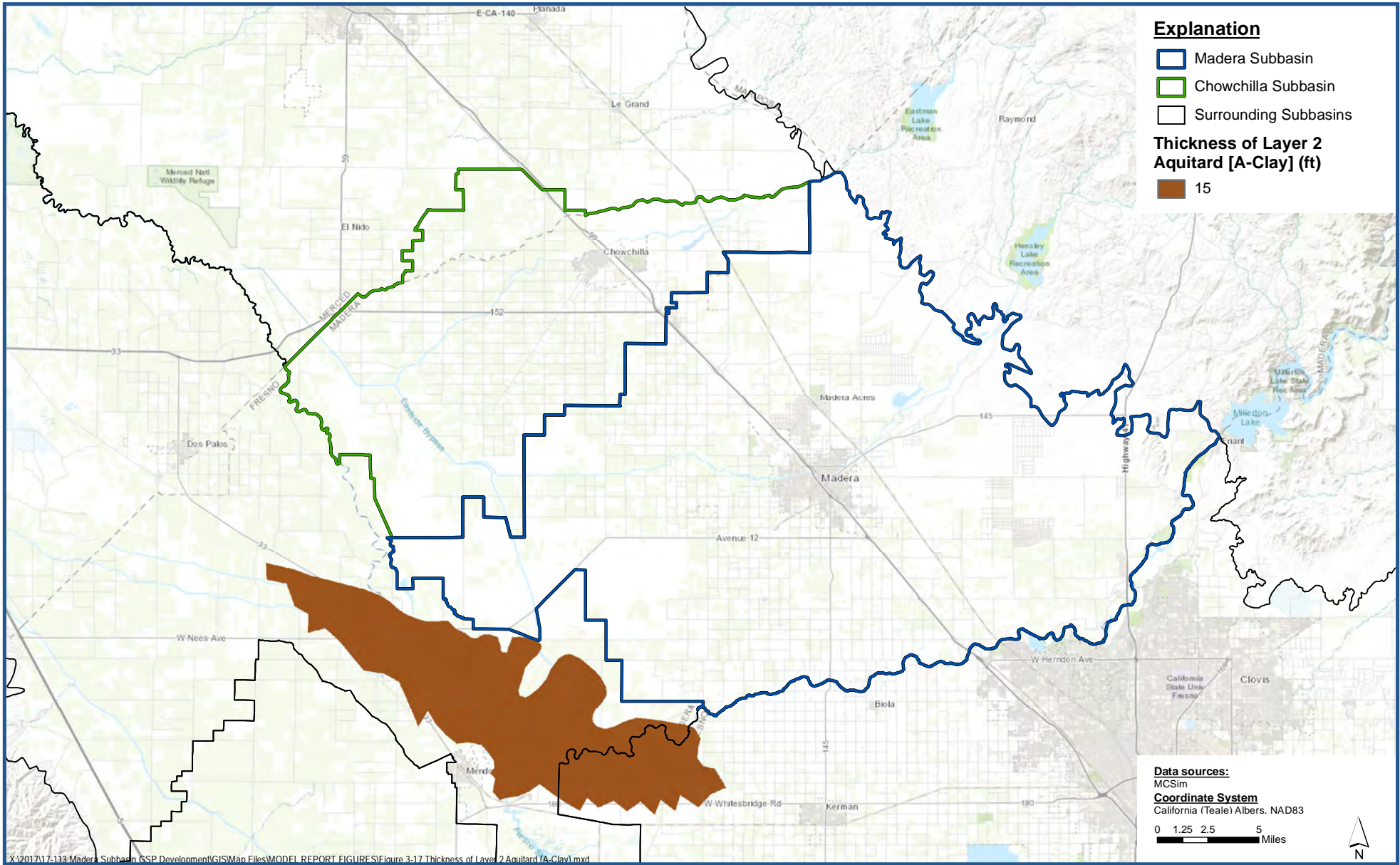




Thickness of Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

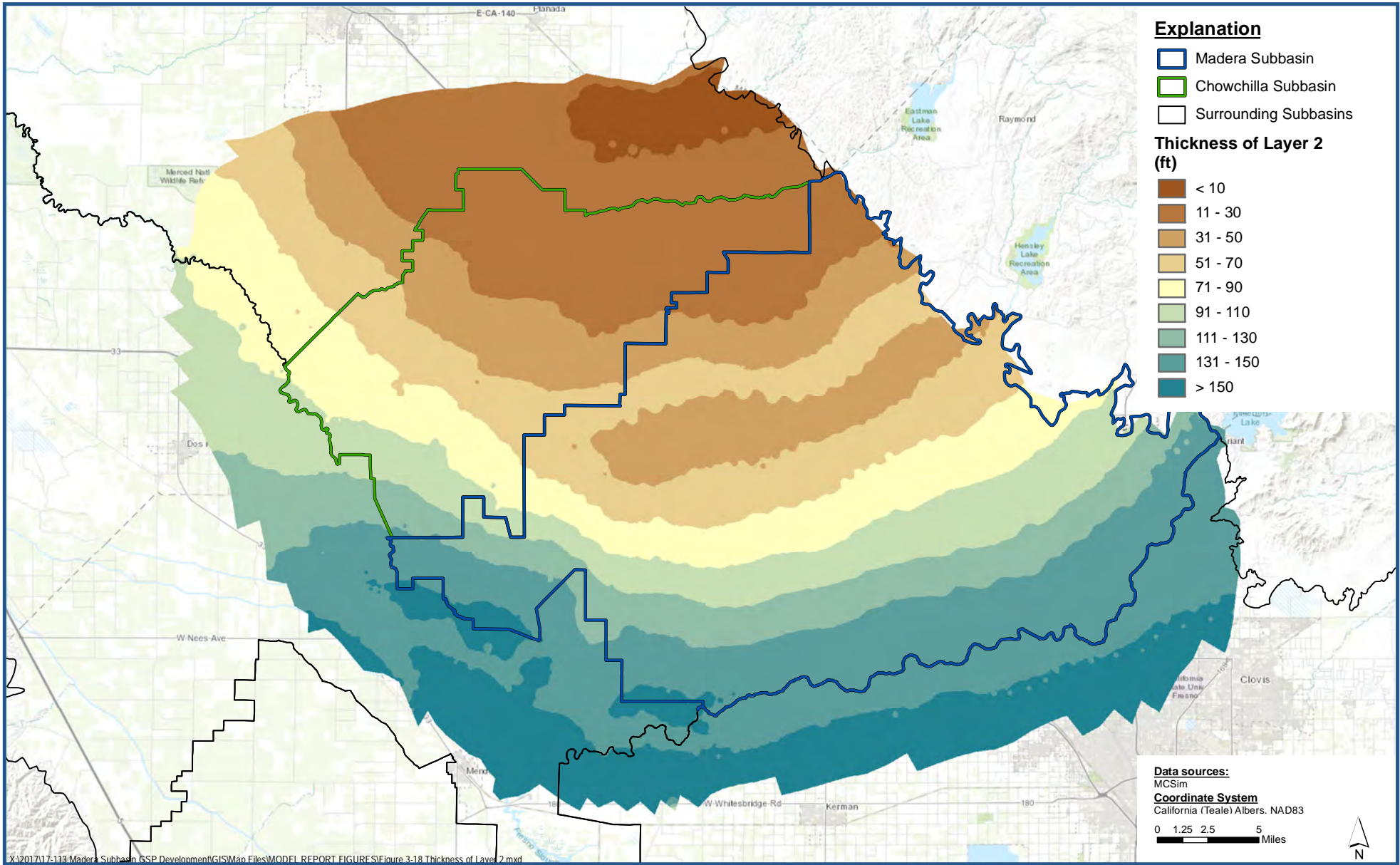
Figure 3-16



Thickness of the Layer 2 Aquitard (A-Clay)

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

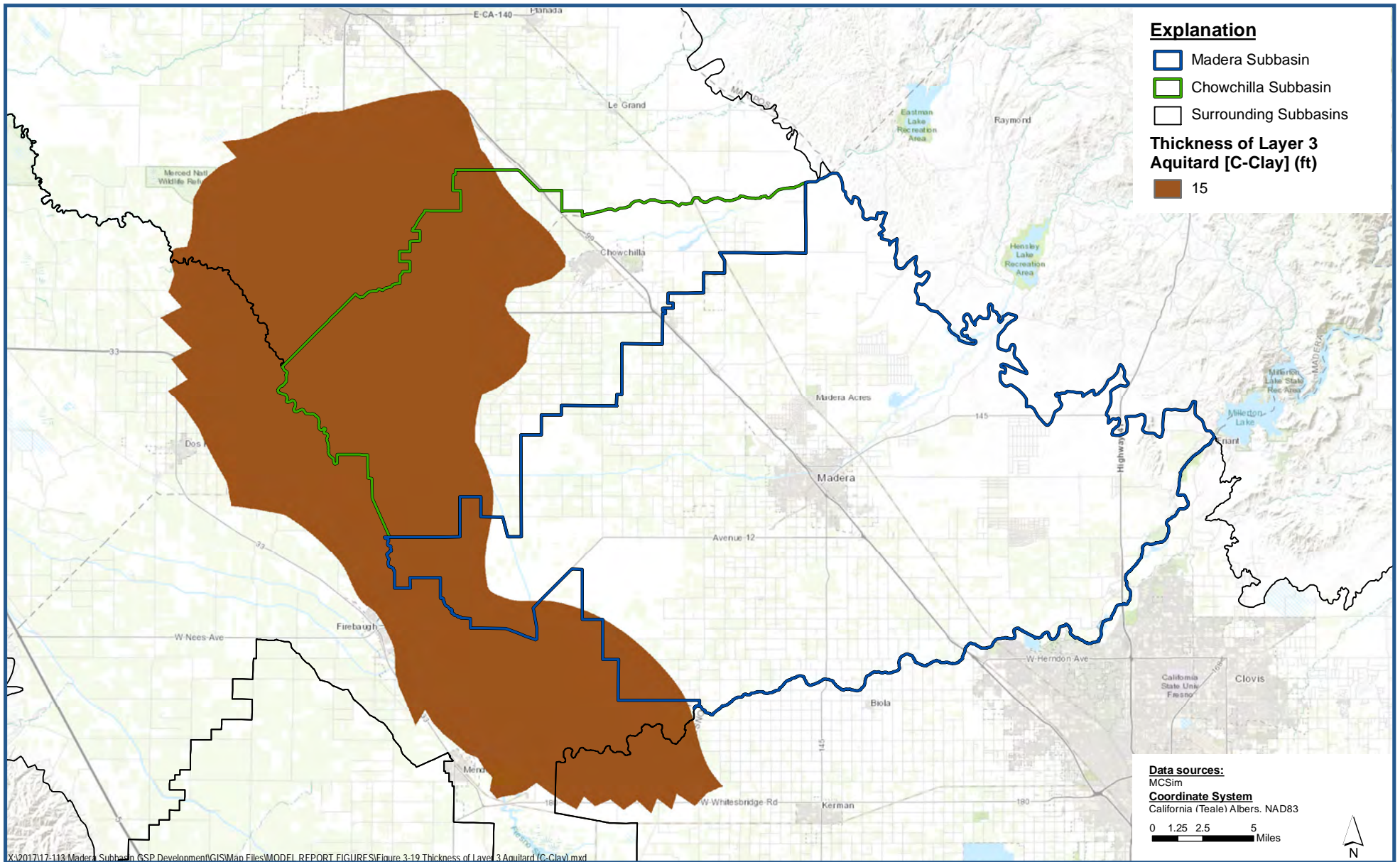
Figure 3-17



Thickness of Layer 2

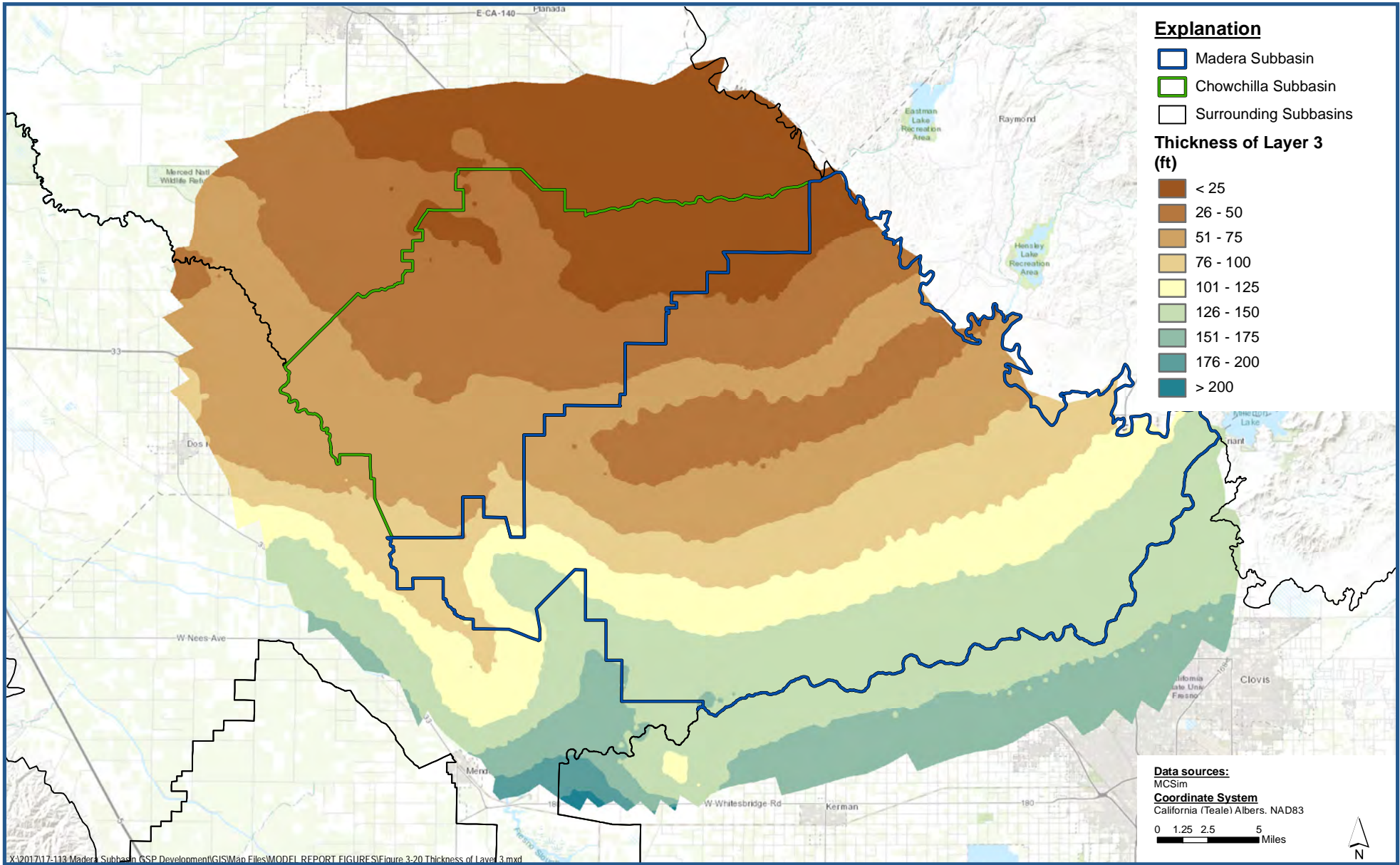
Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-18



Thickness of the Layer 3 Aquitard (C-Clay)

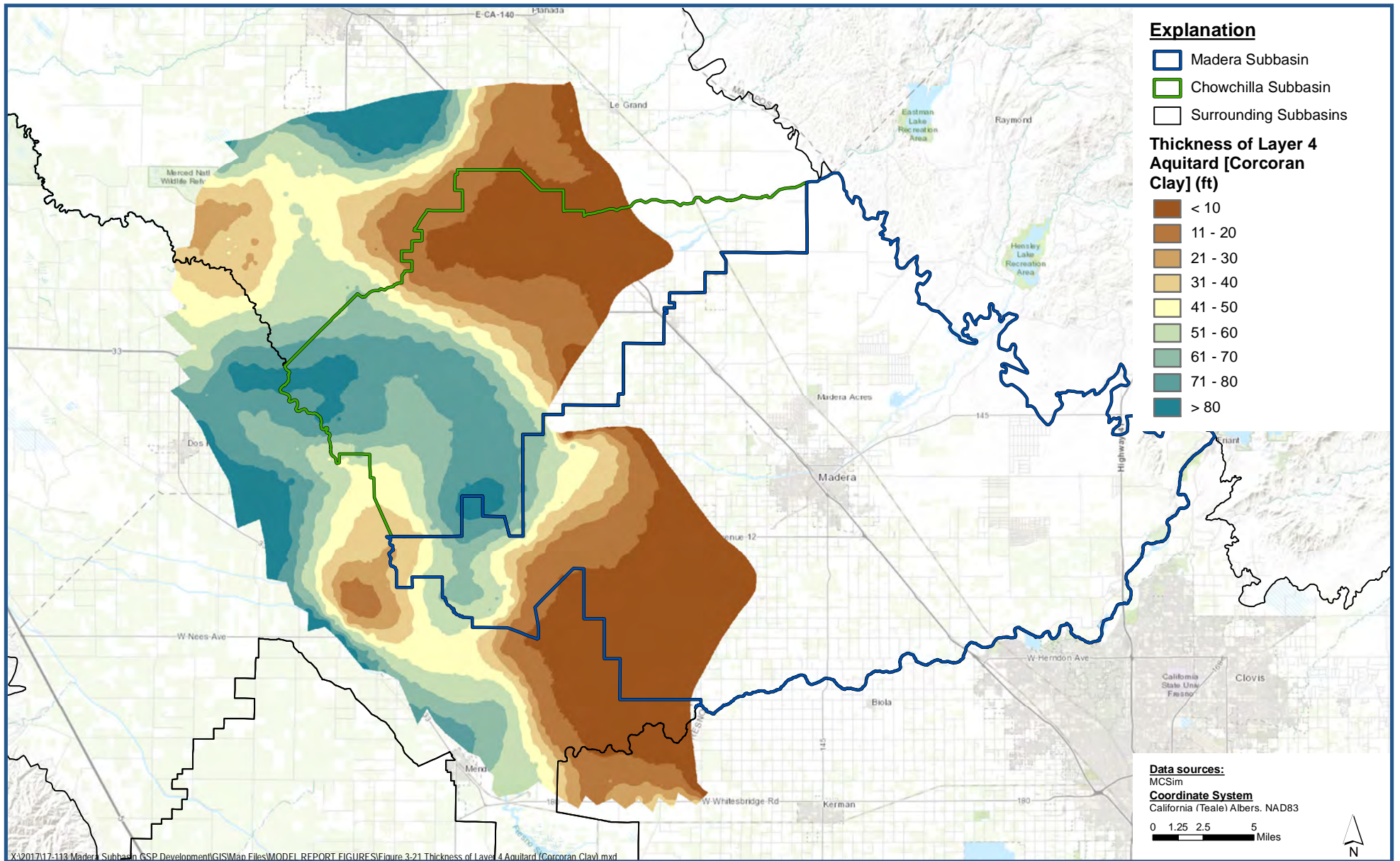
Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

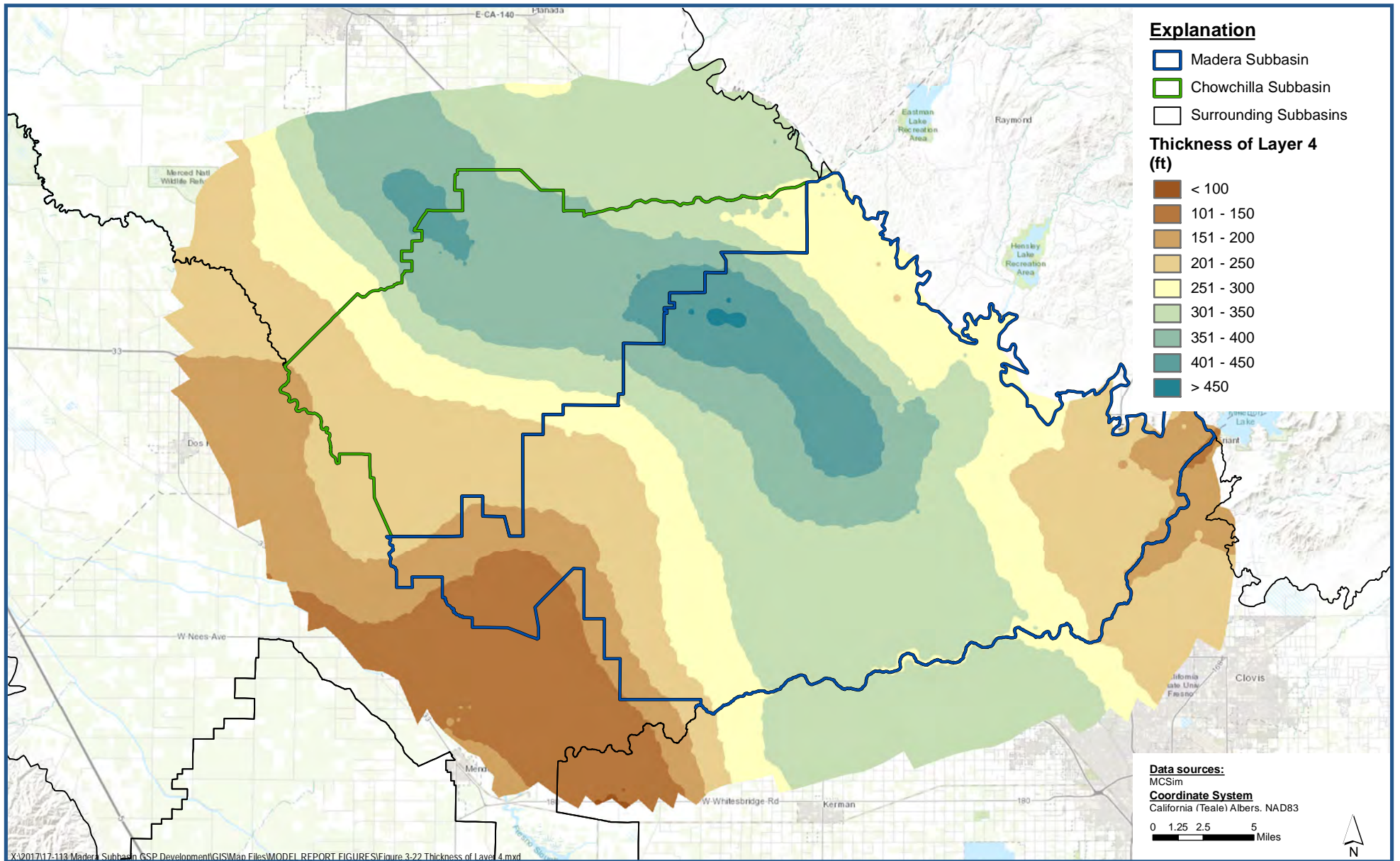


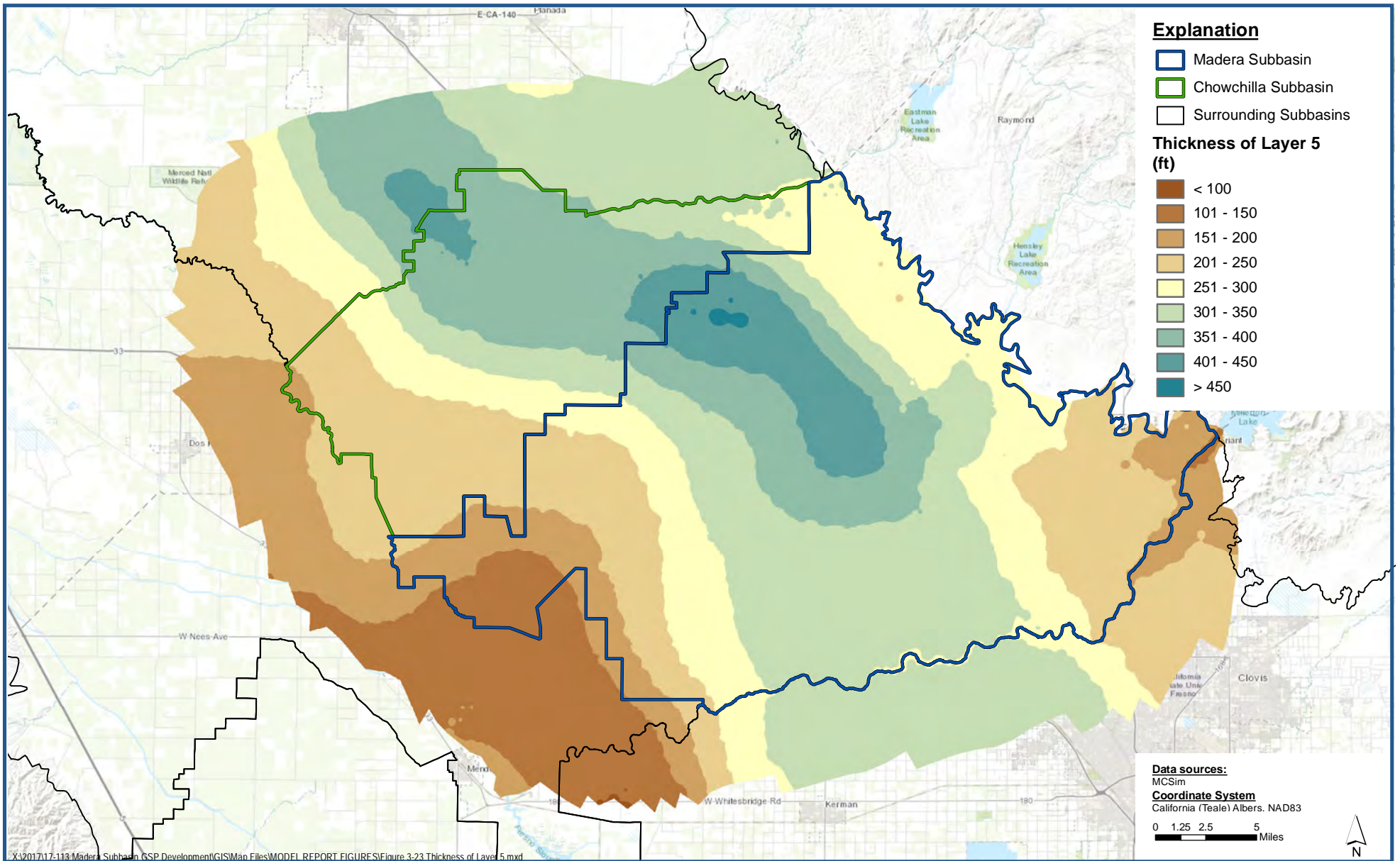
Thickness of Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-20



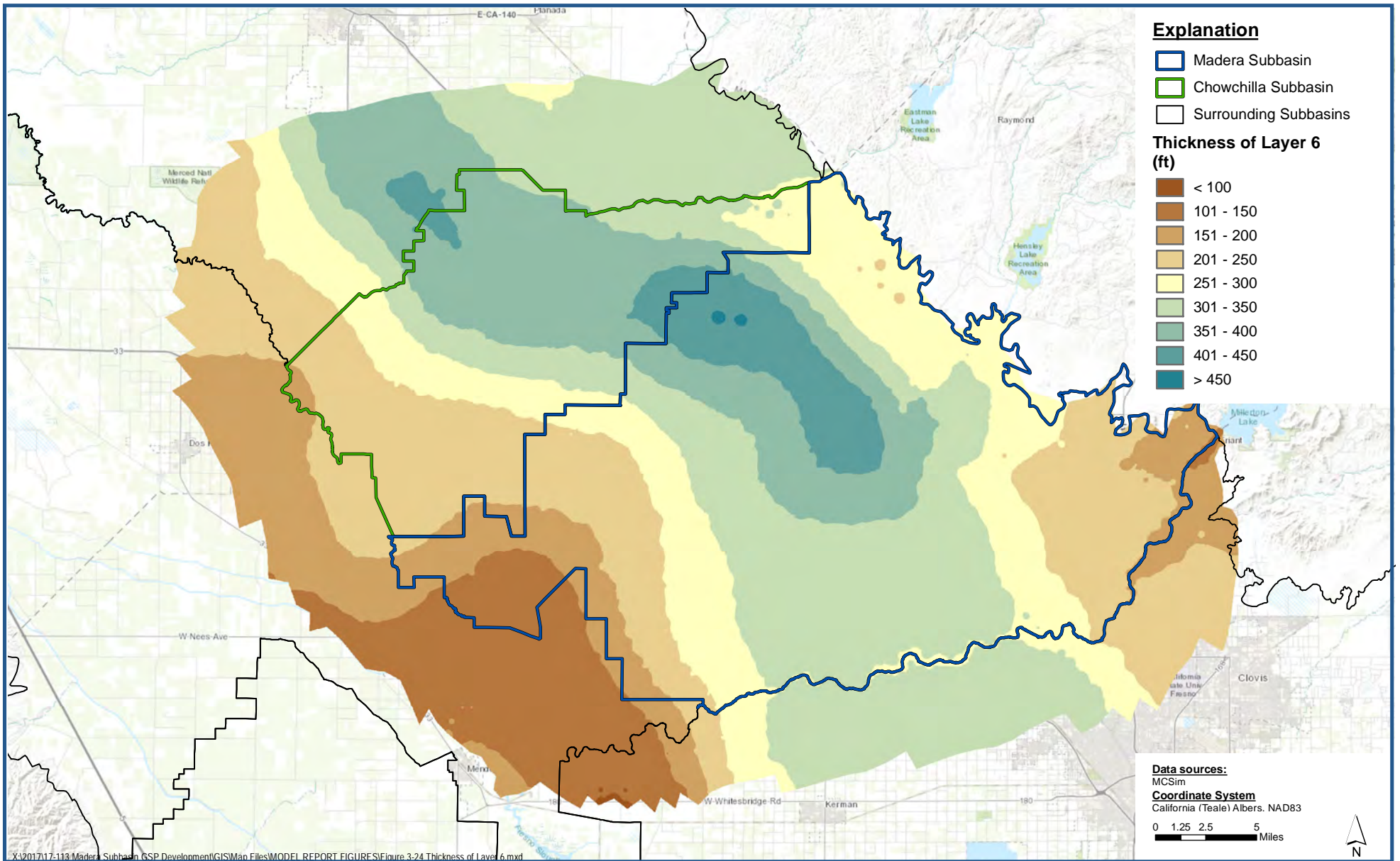


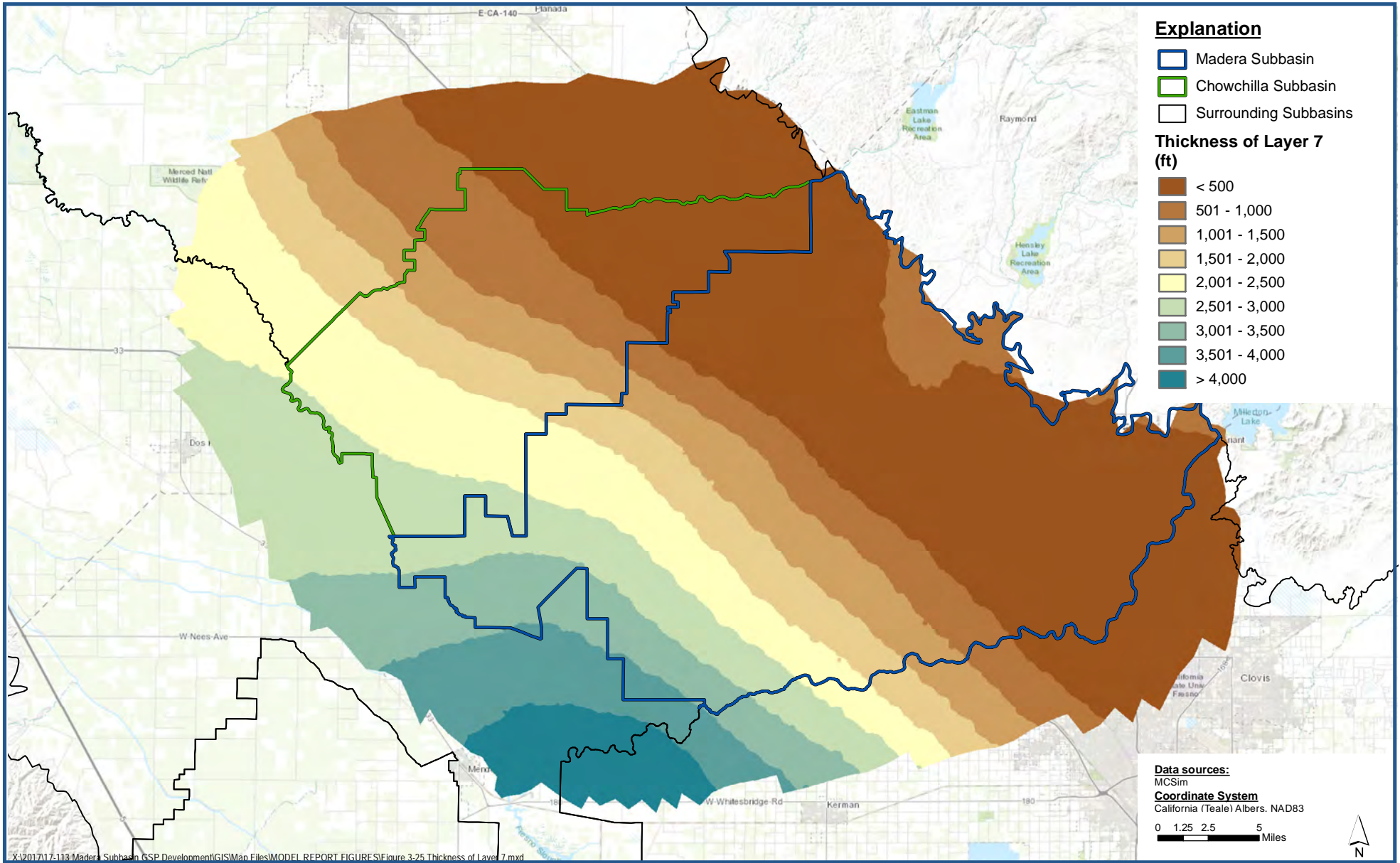


Thickness of Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-23

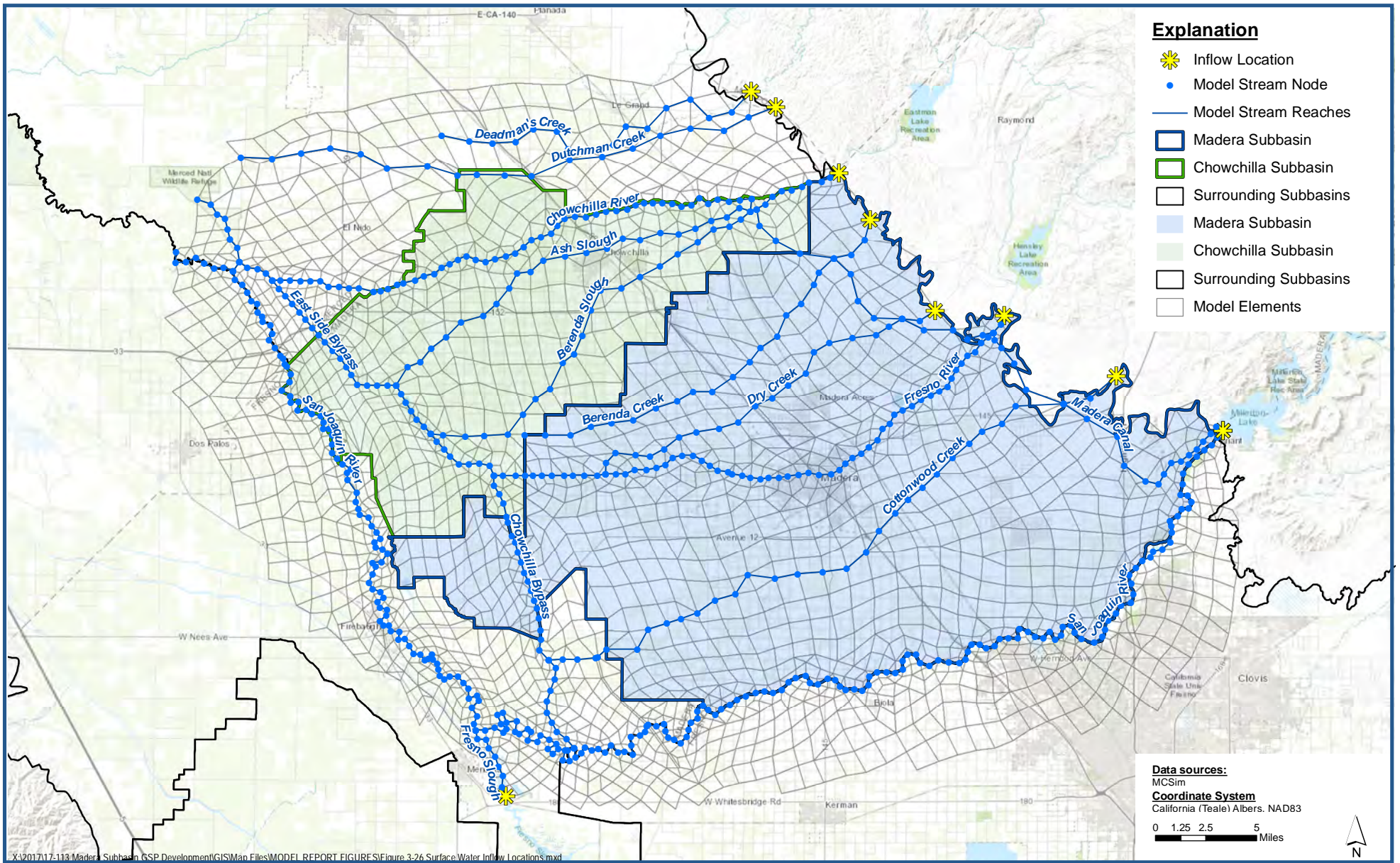




Thickness of Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

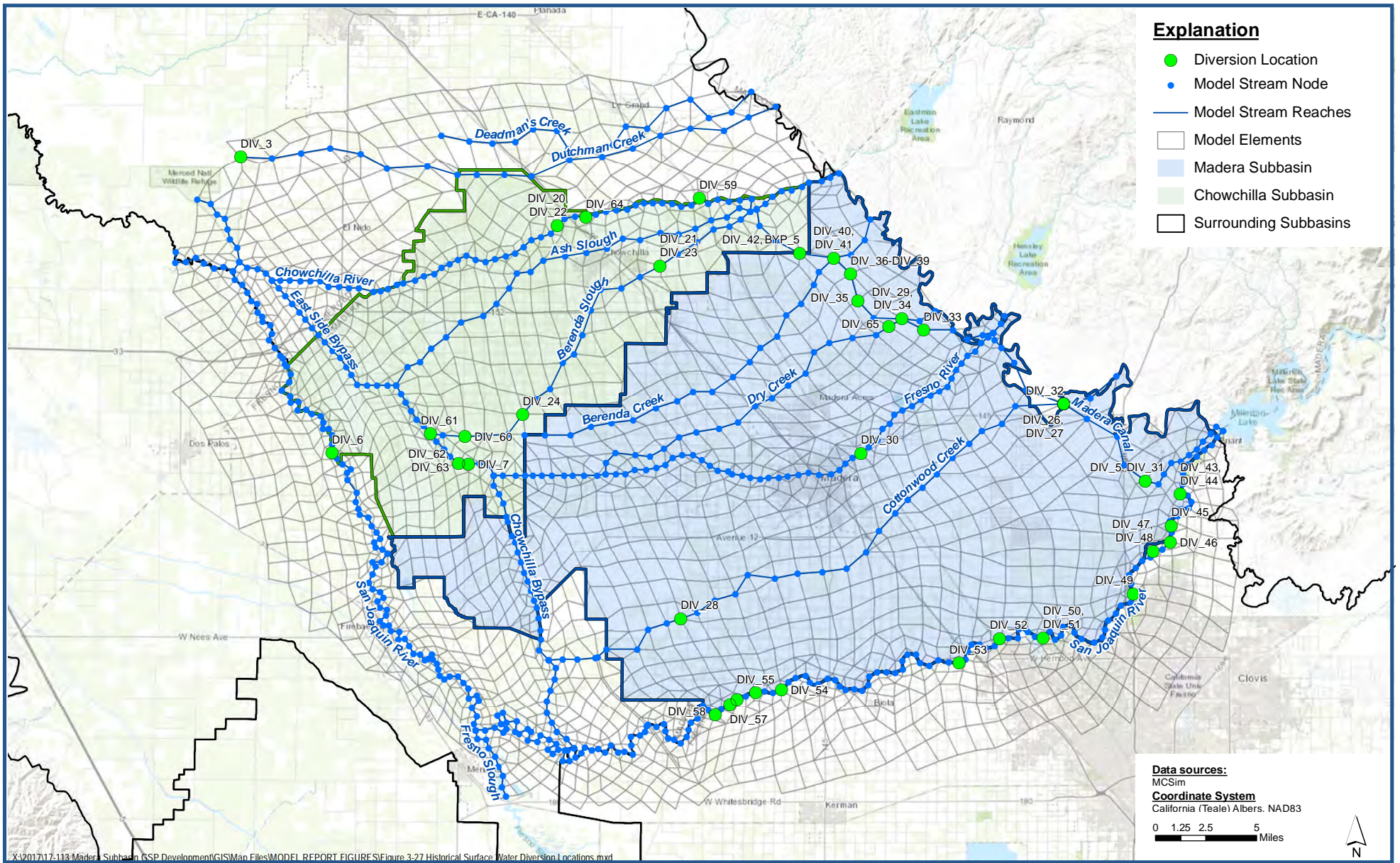
Figure 3-25



Surface Water Inflow Locations

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

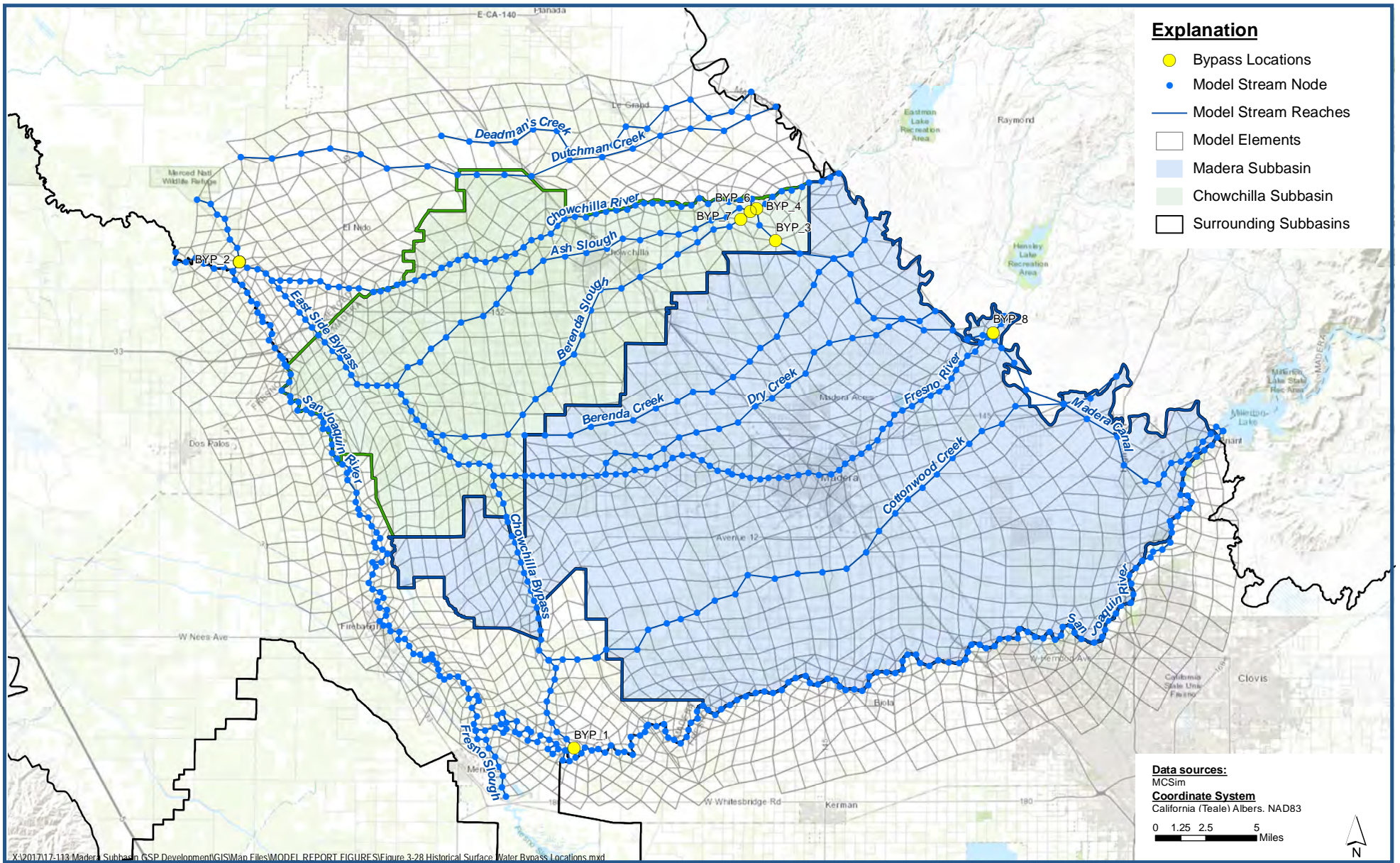
Figure 3-26



Historical Surface Water Diversion Locations

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

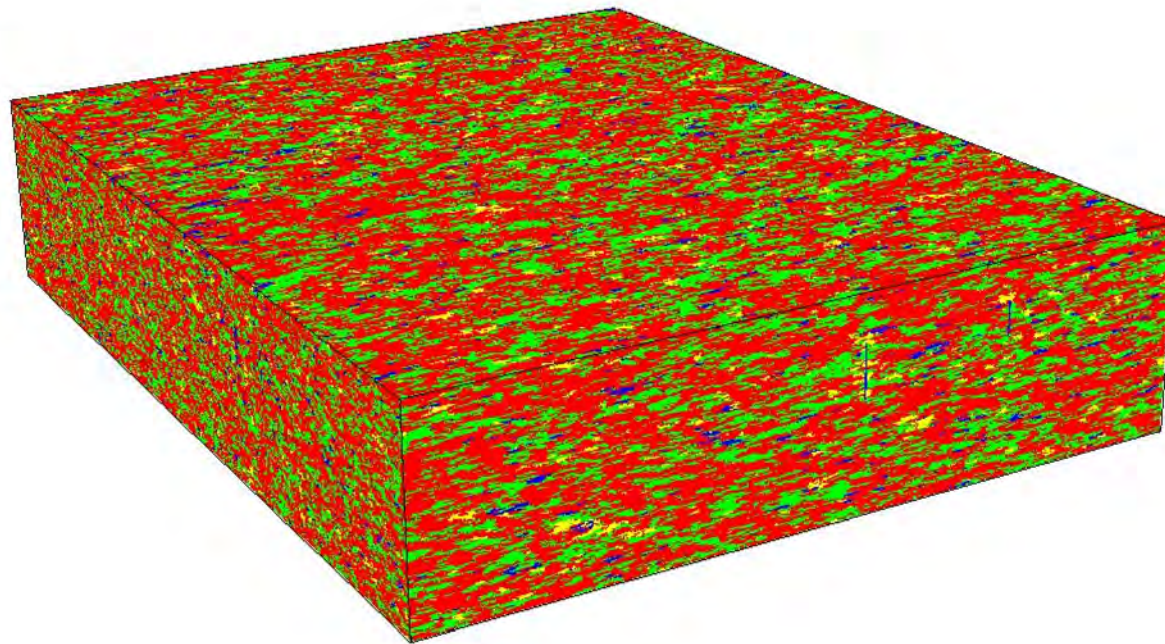
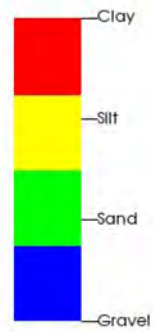
Figure 3-27



Historical Surface Water Bypass Locations

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-28



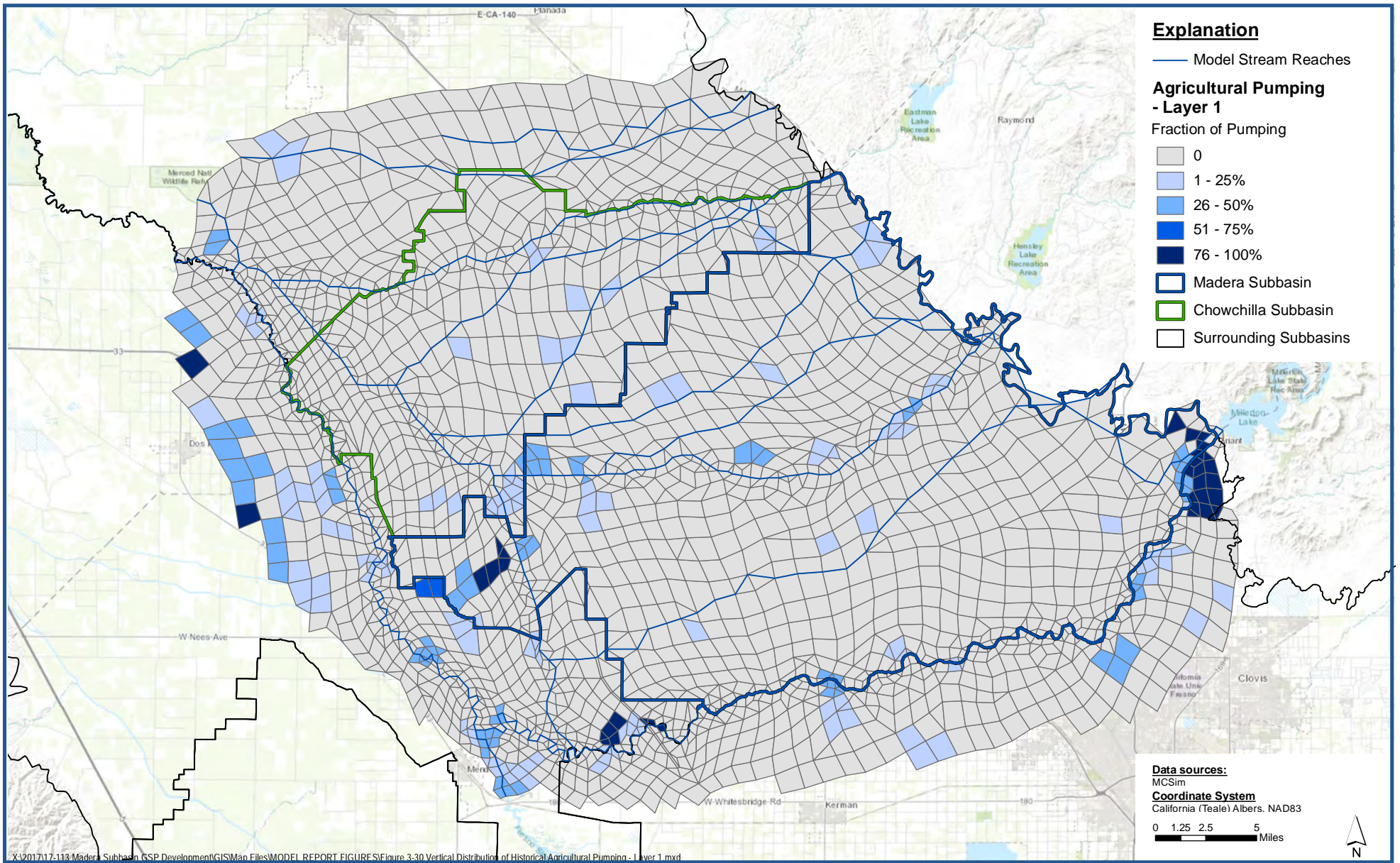
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\MODEL REPORT FIGURES\Figure 3-29 Results from the 500-by-500-foot Indicator Kriging Model.mxd



Results from the 500-by-500-foot Indicator Kriging Model

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

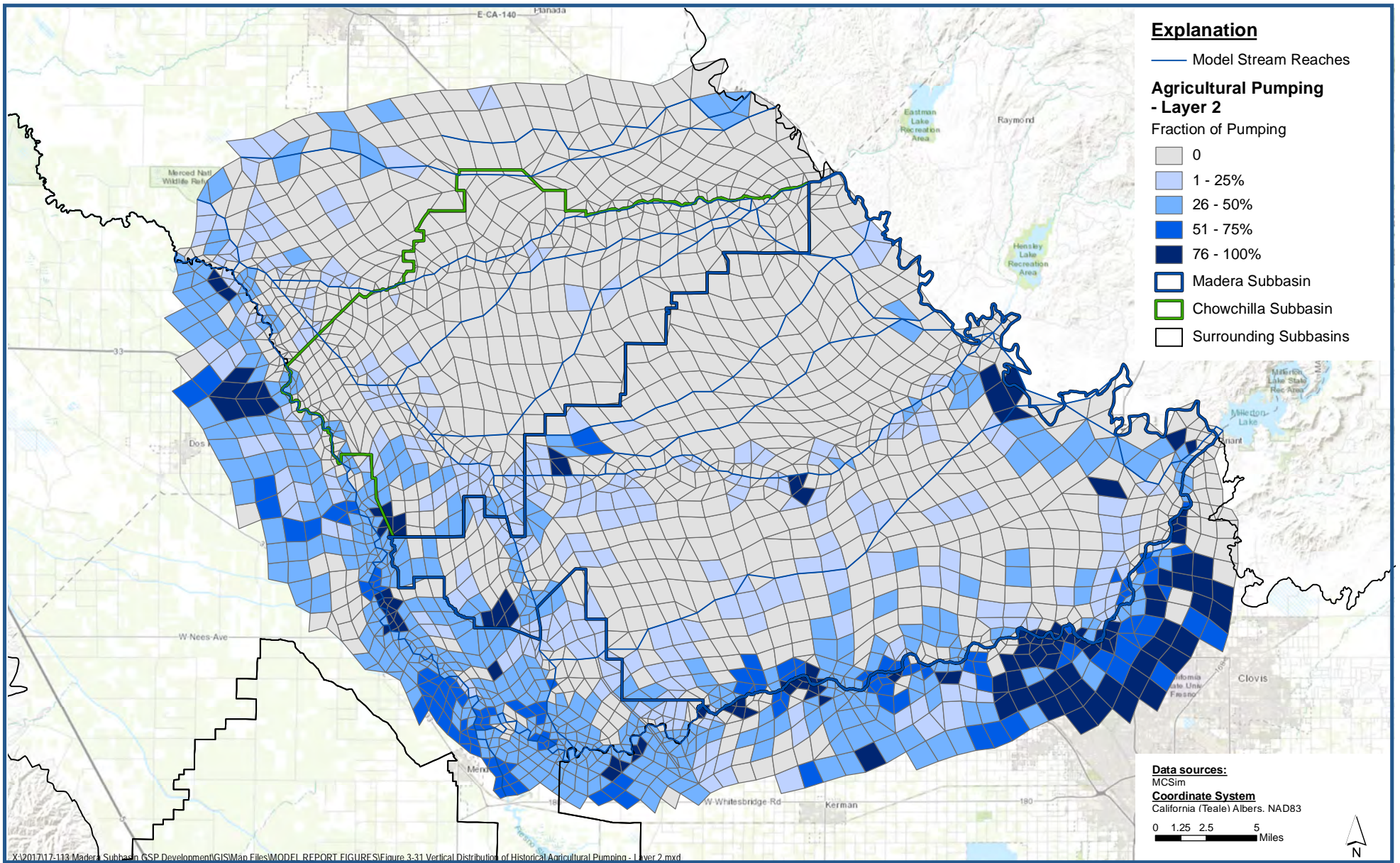
Figure 3-29



Vertical Distribution of Historical Agricultural Pumping - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

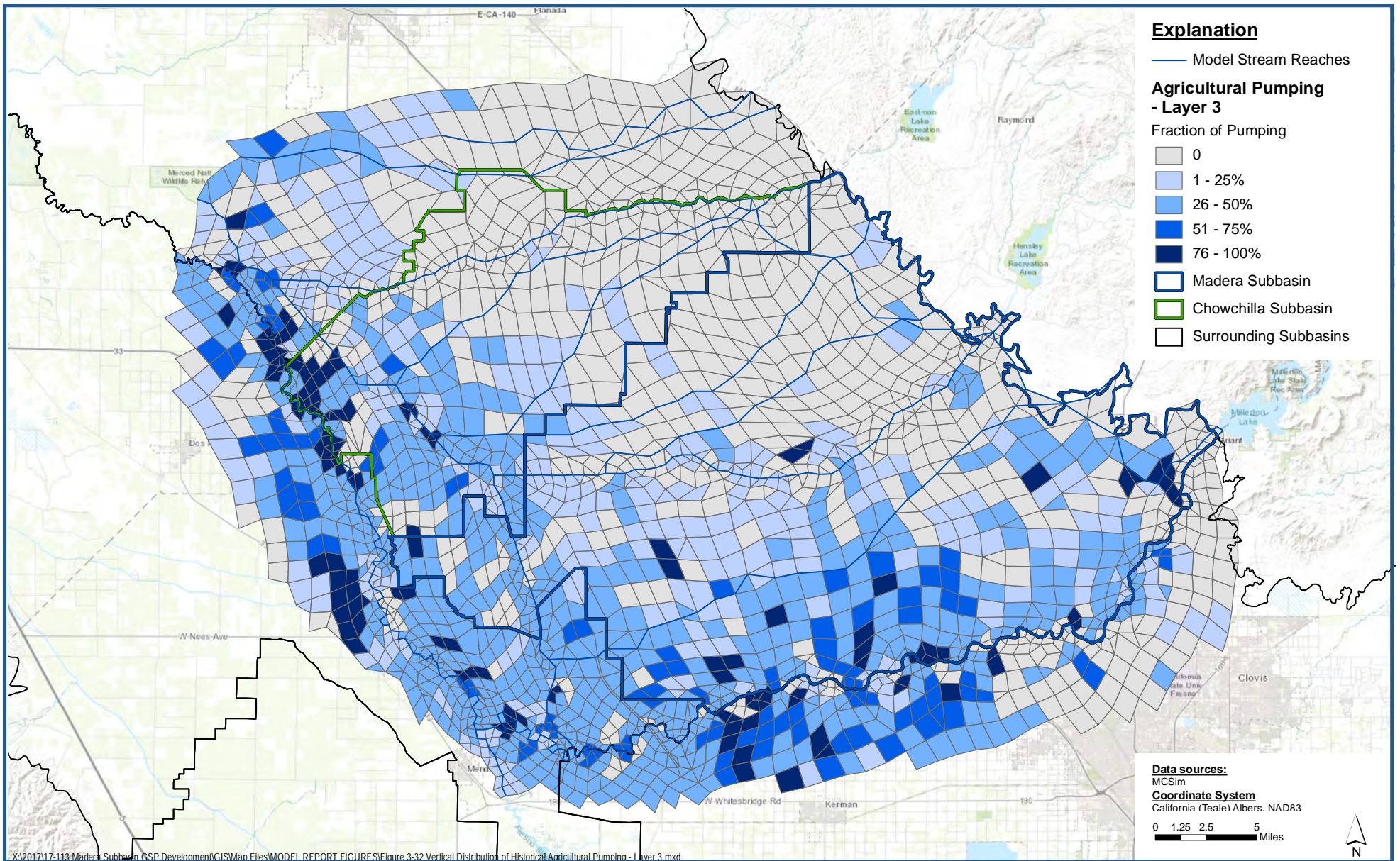
Figure 3-30



Vertical Distribution of Historical Agricultural Pumping - Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

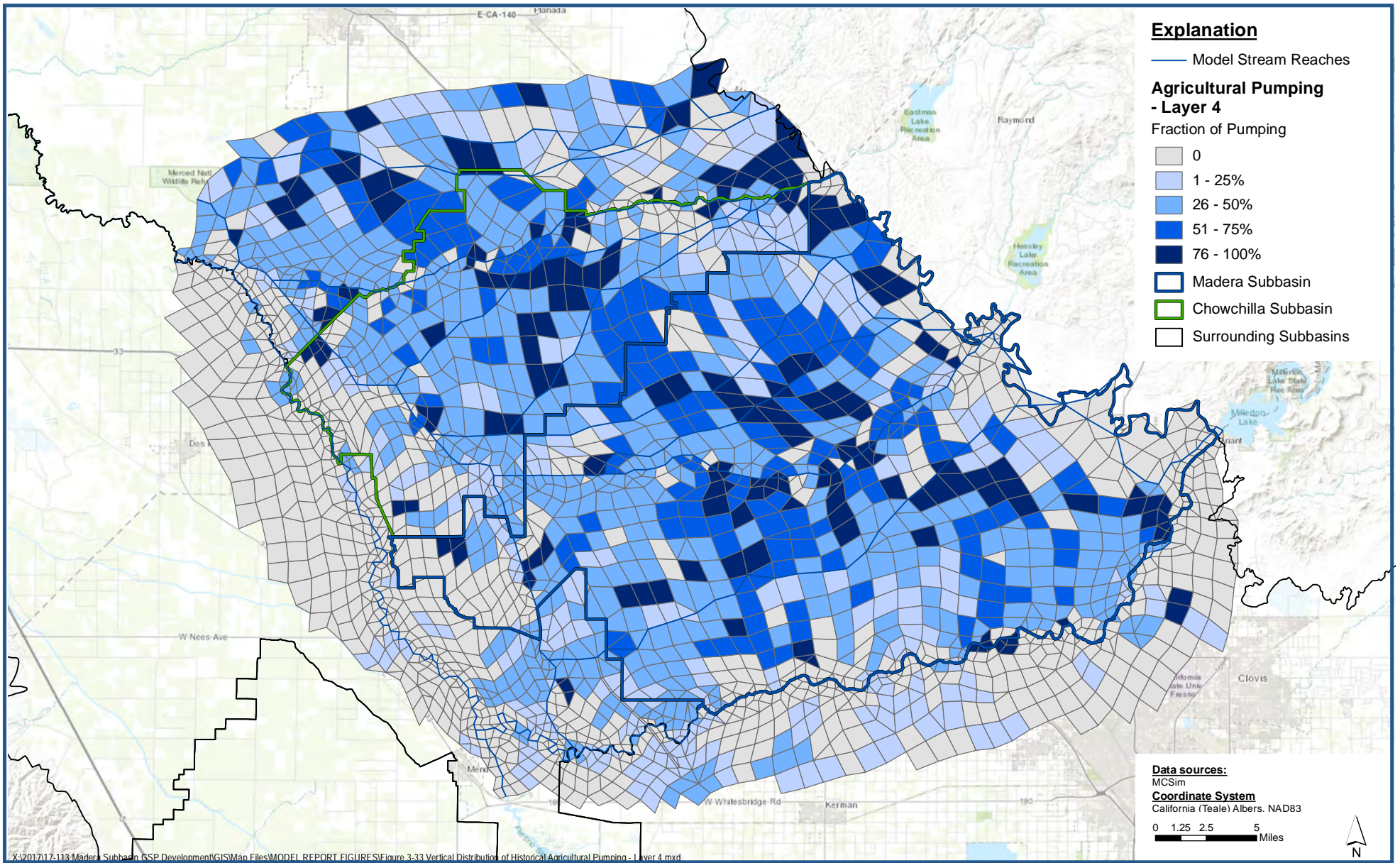
Figure 3-31



Vertical Distribution of Historical Agricultural Pumping - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

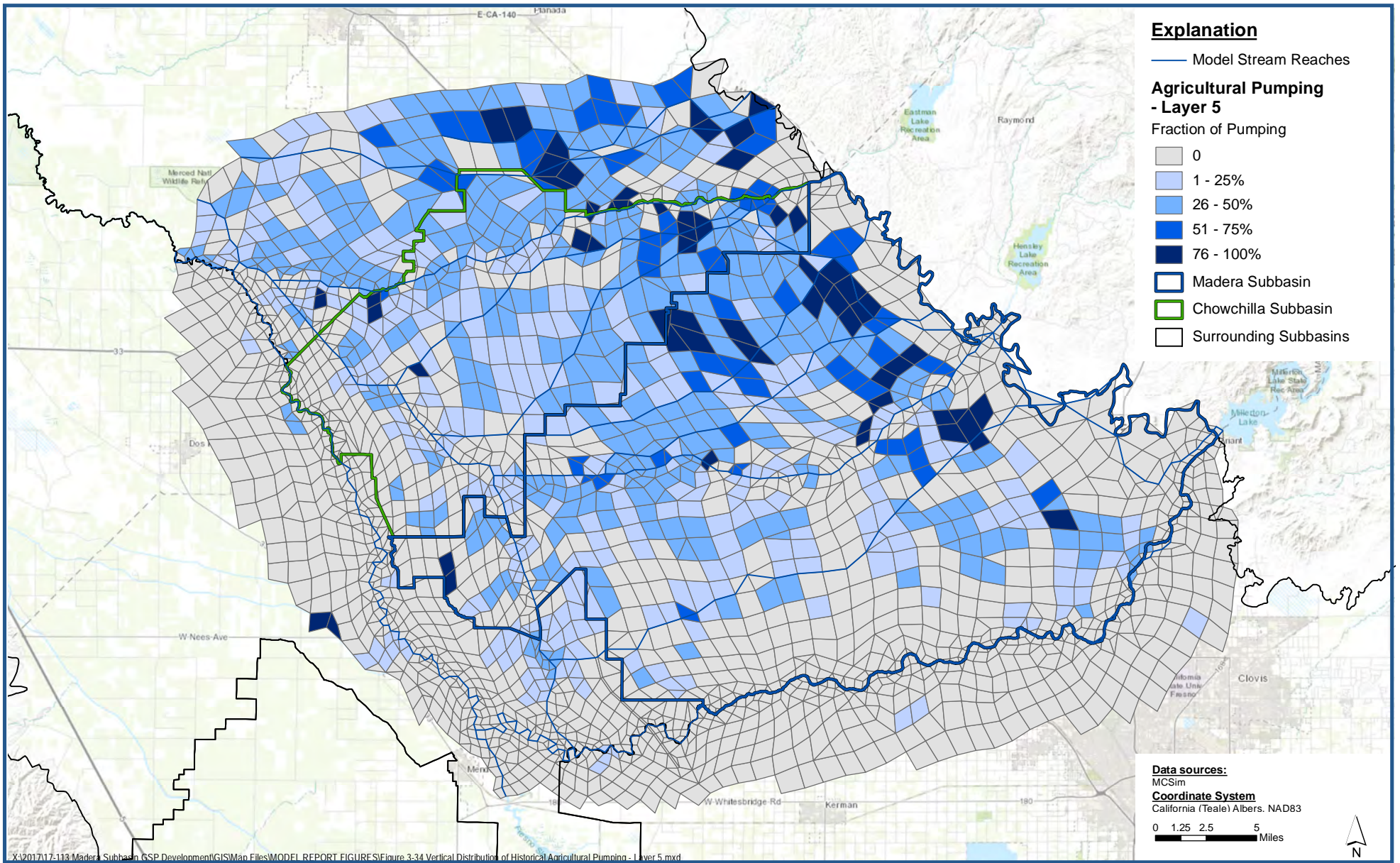
Figure 3-32

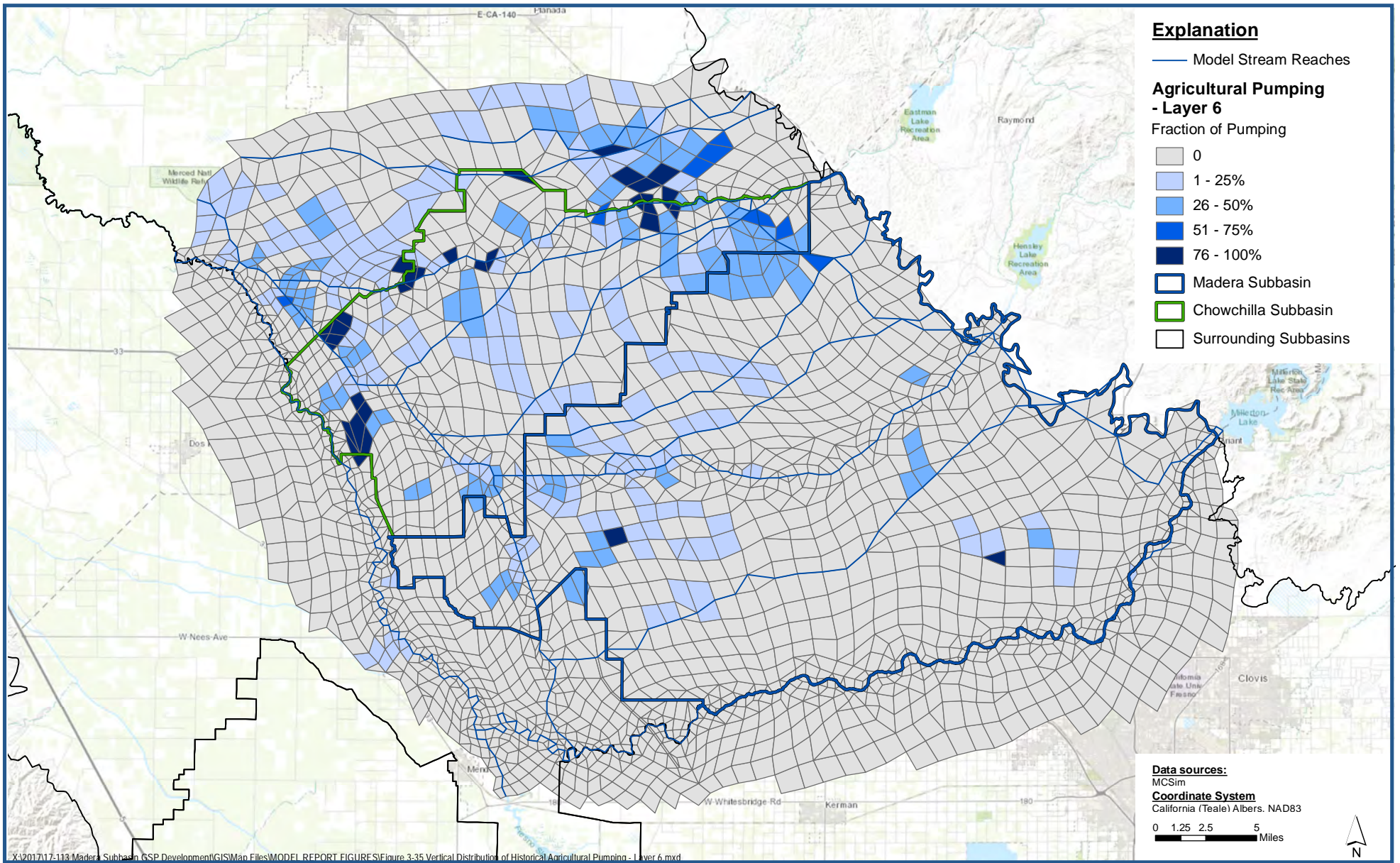


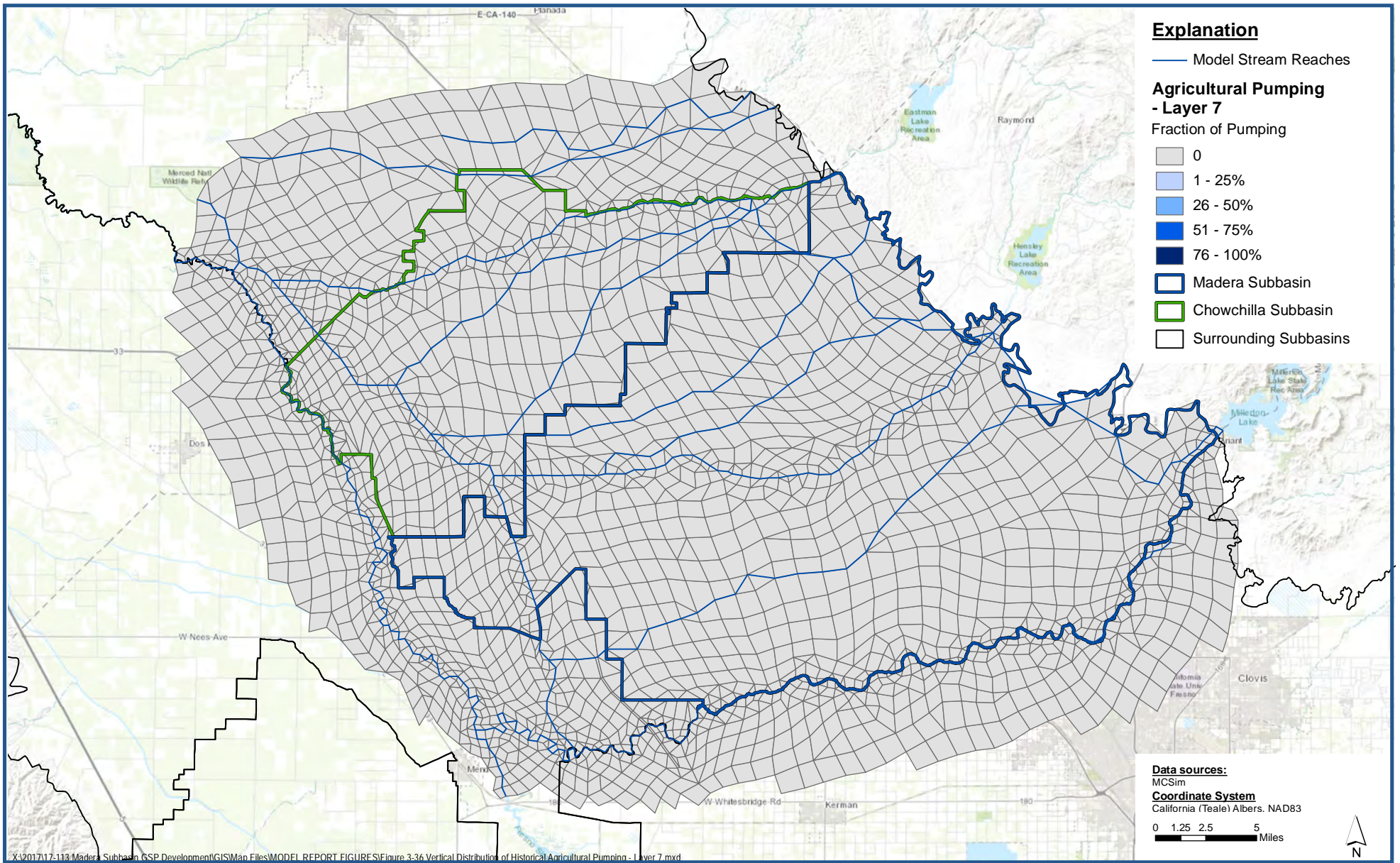
Vertical Distribution of Historical Agricultural Pumping - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-33



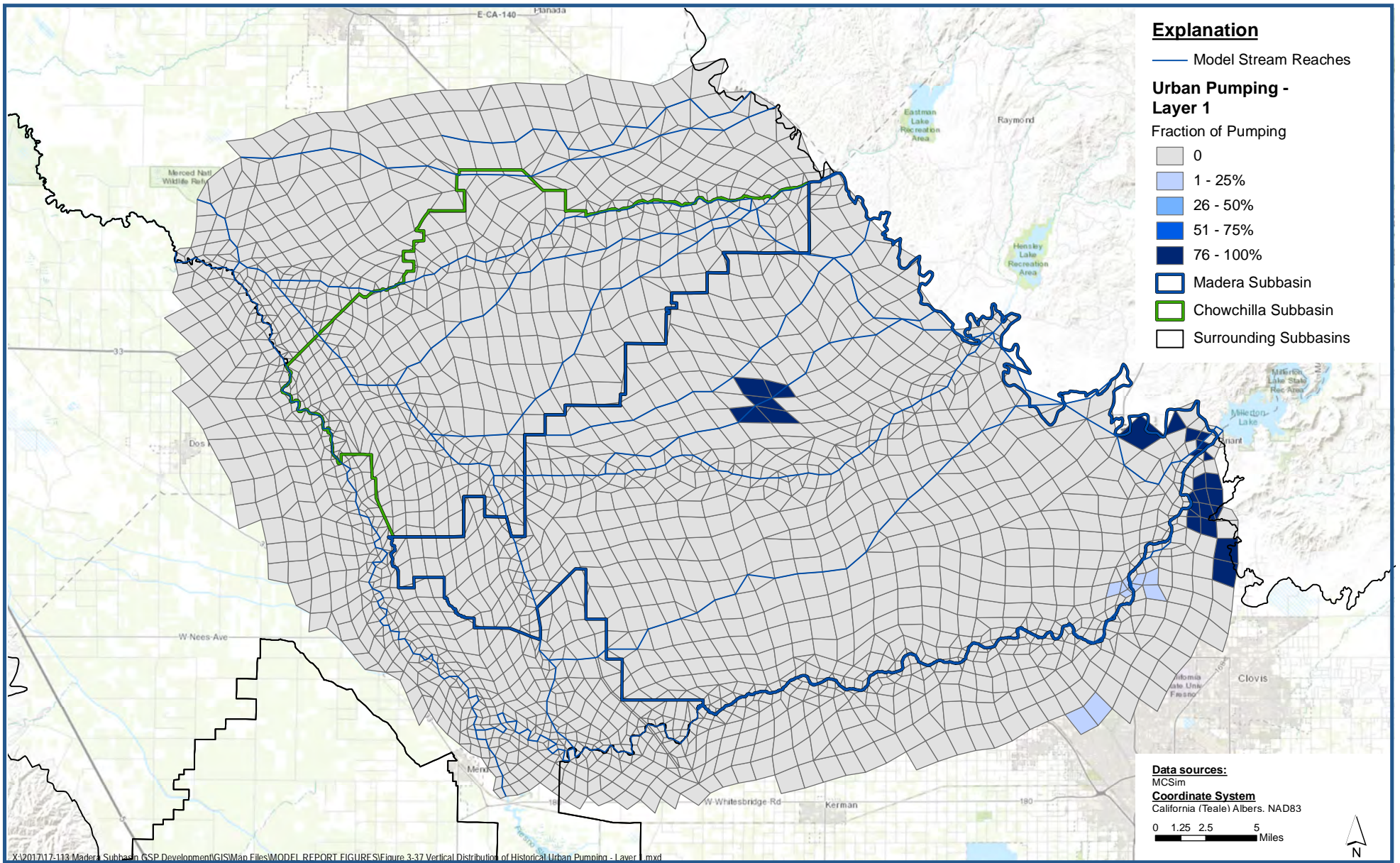




Vertical Distribution of Historical Agricultural Pumping - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

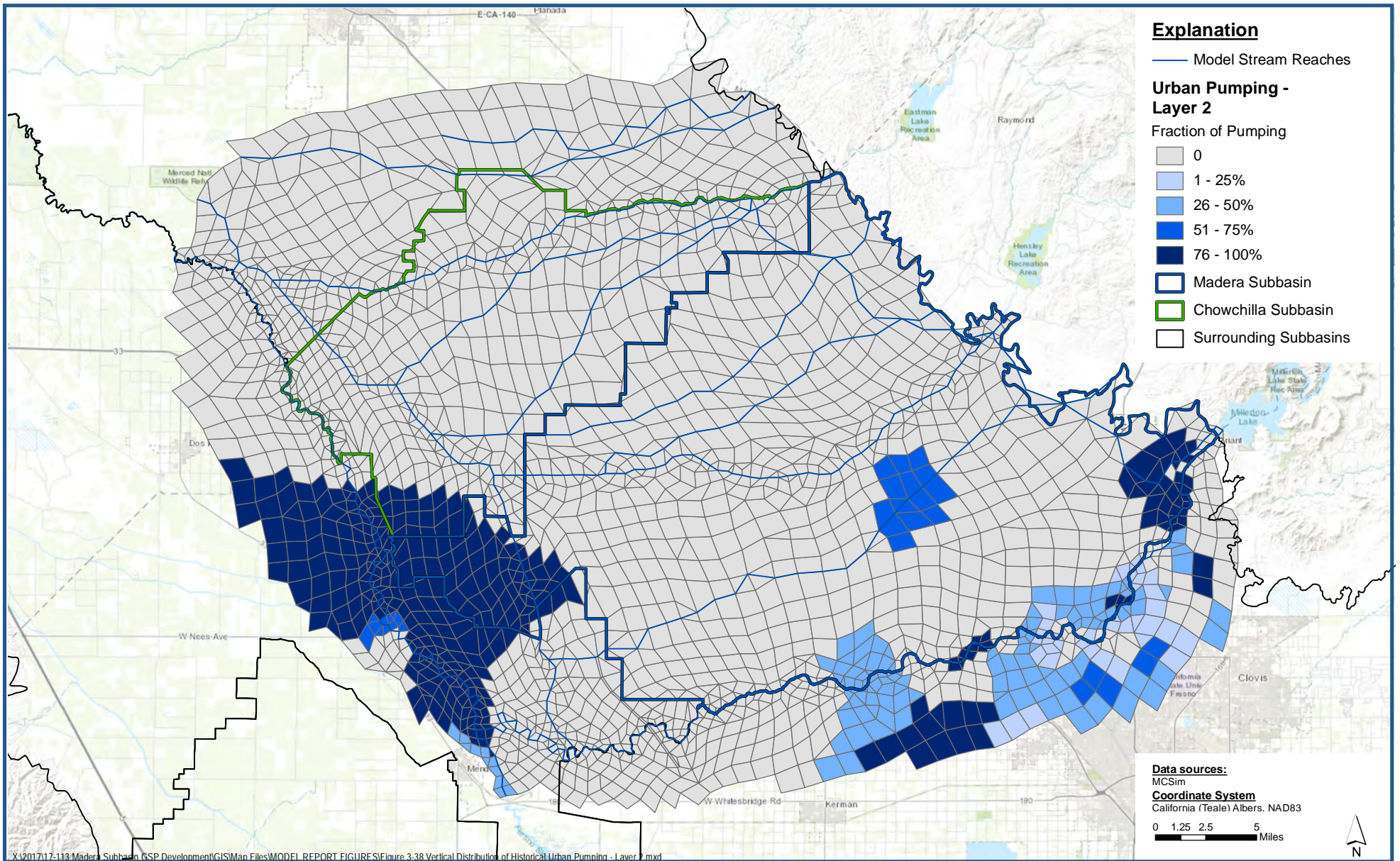
Figure 3-36

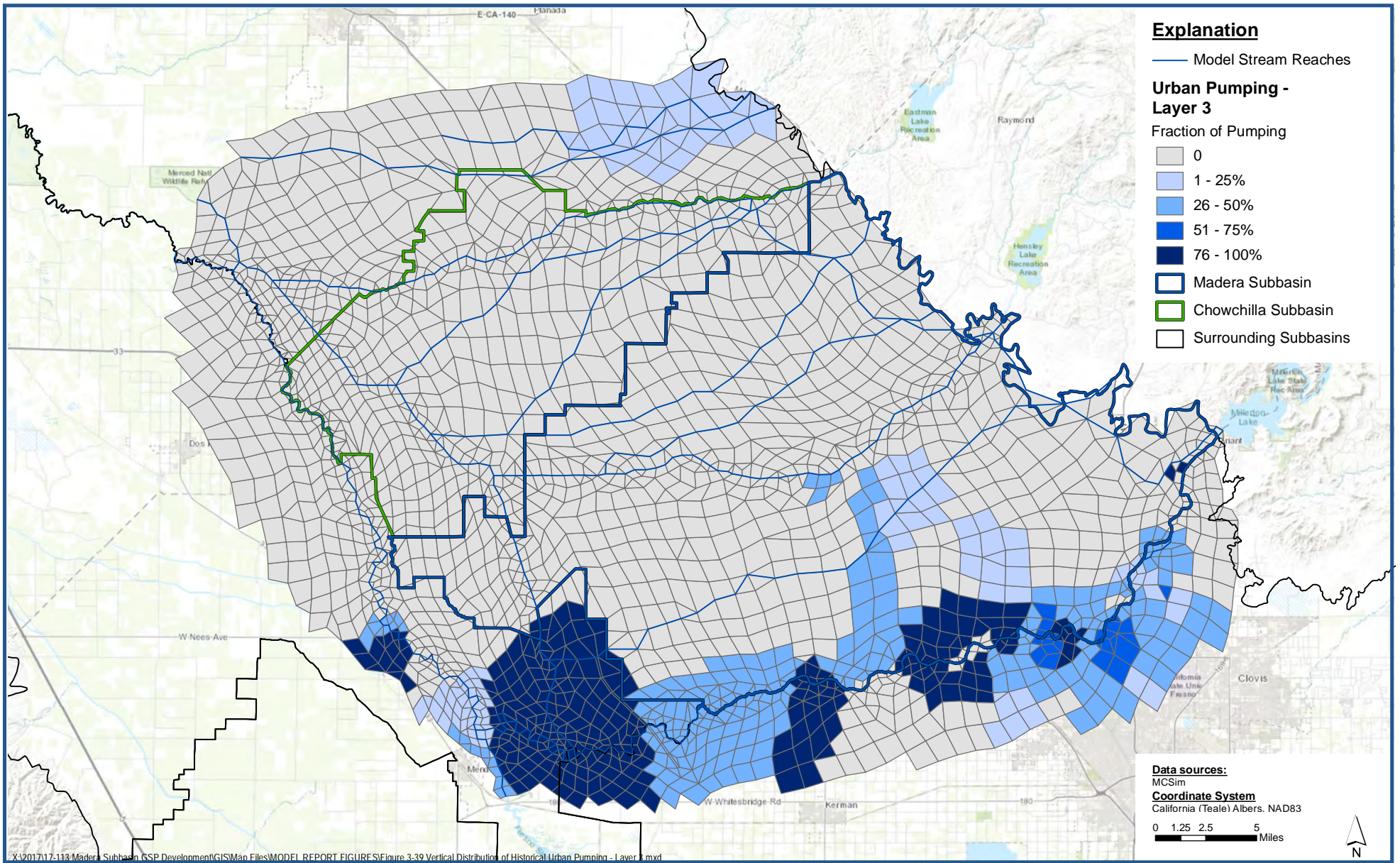


Vertical Distribution of Historical Urban Pumping - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-37



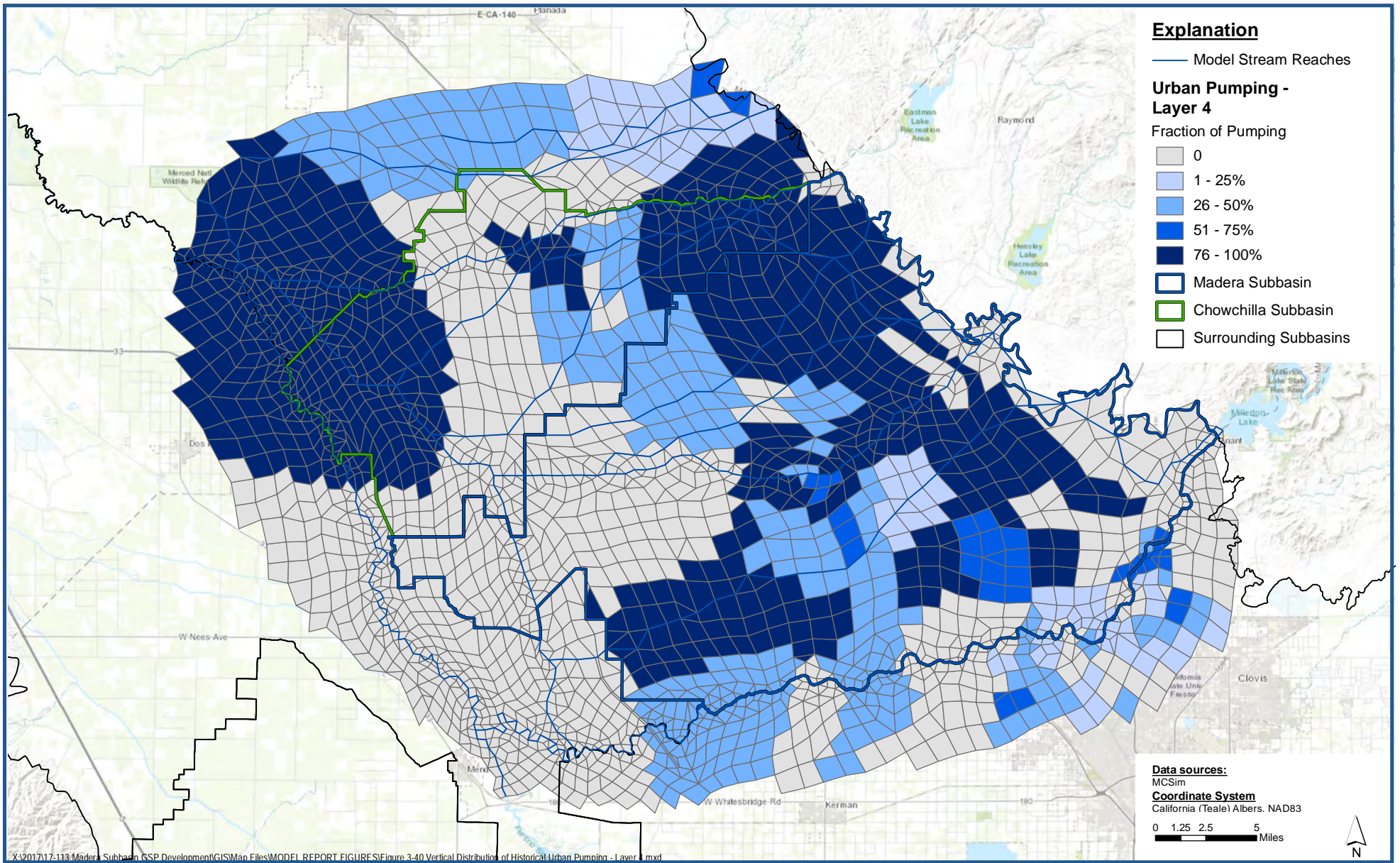


Vertical Distribution of Historical Urban Pumping - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-39

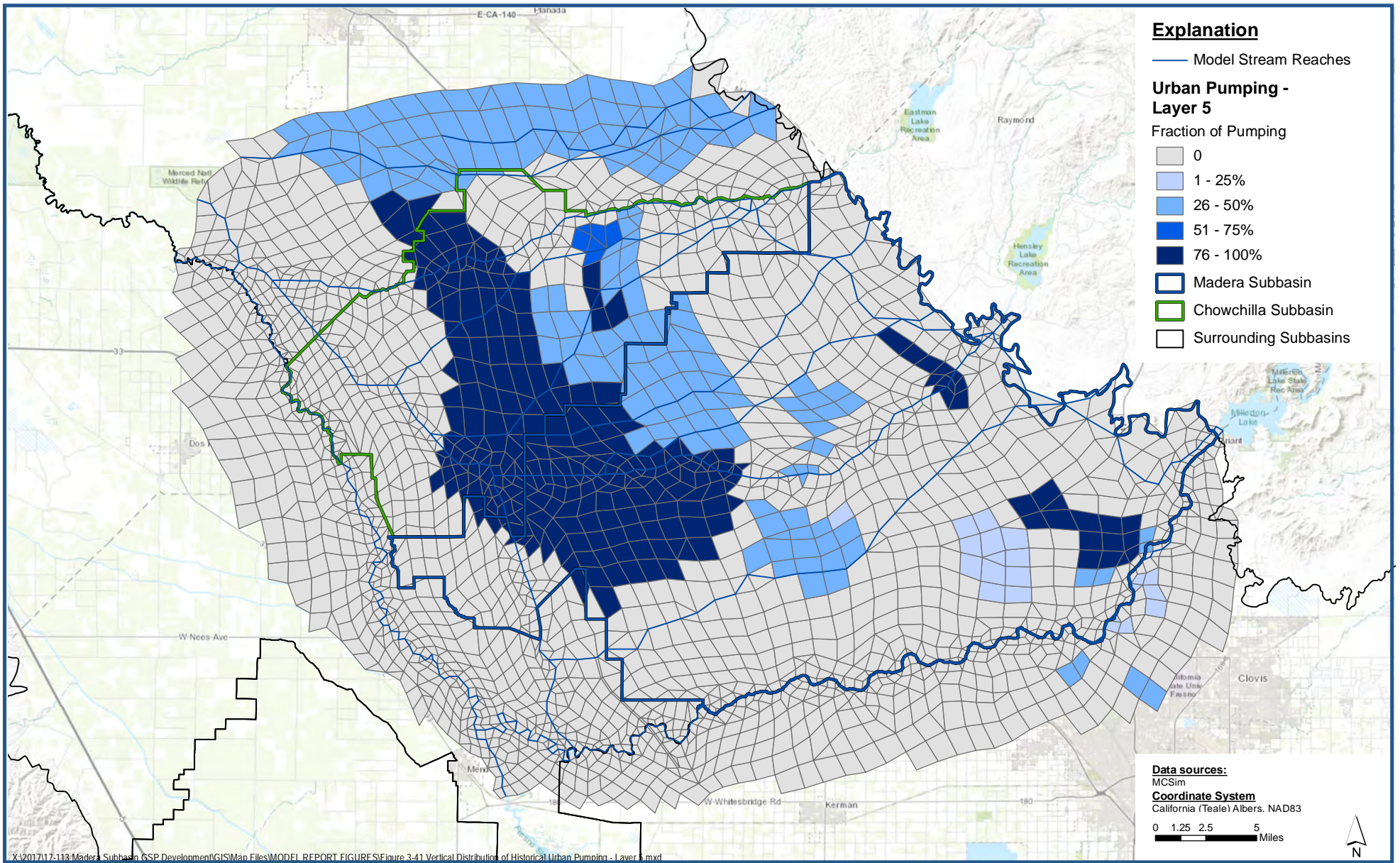




Vertical Distribution of Historical Urban Pumping - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-40

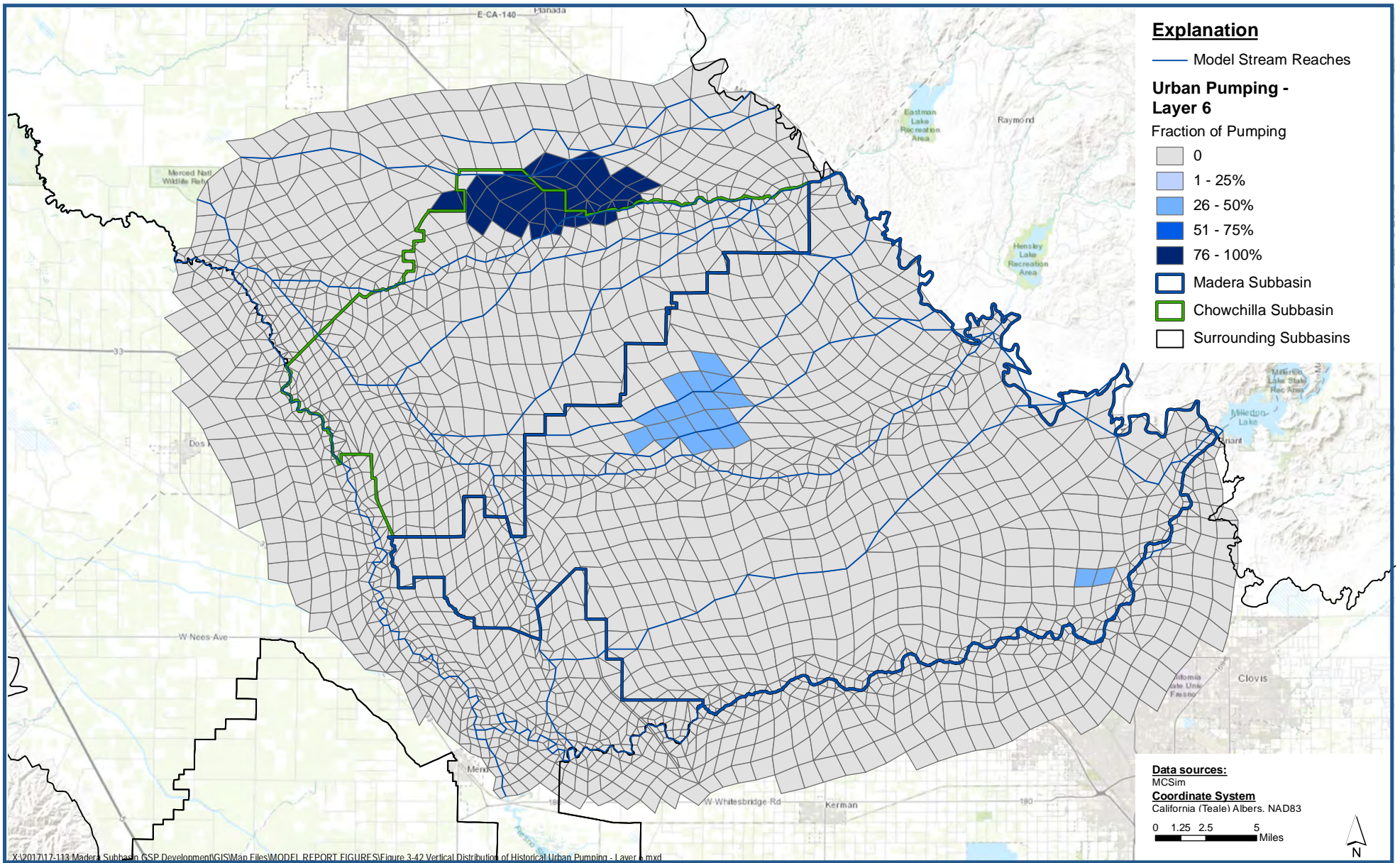


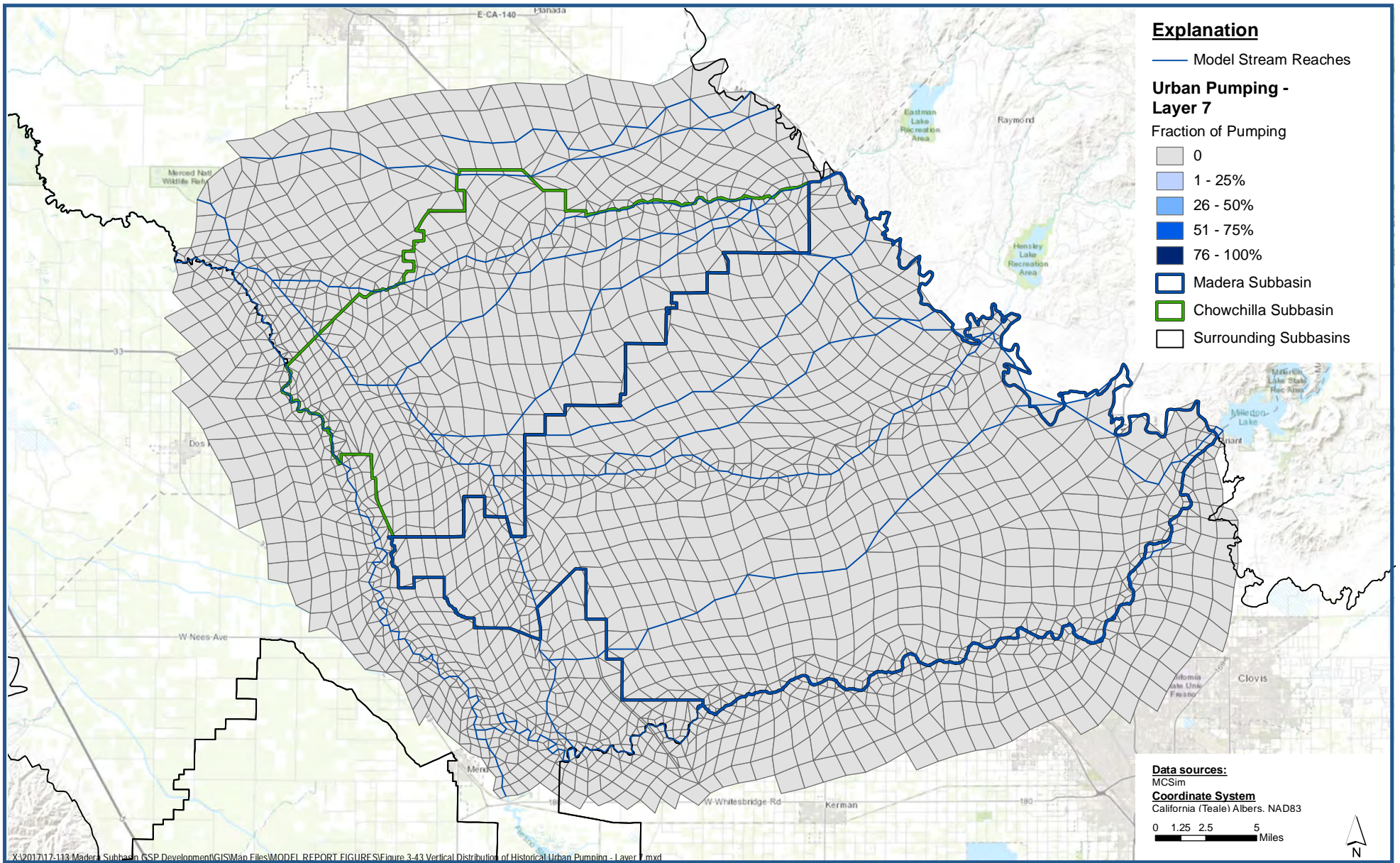
Vertical Distribution of Historical Urban Pumping - Layer 5

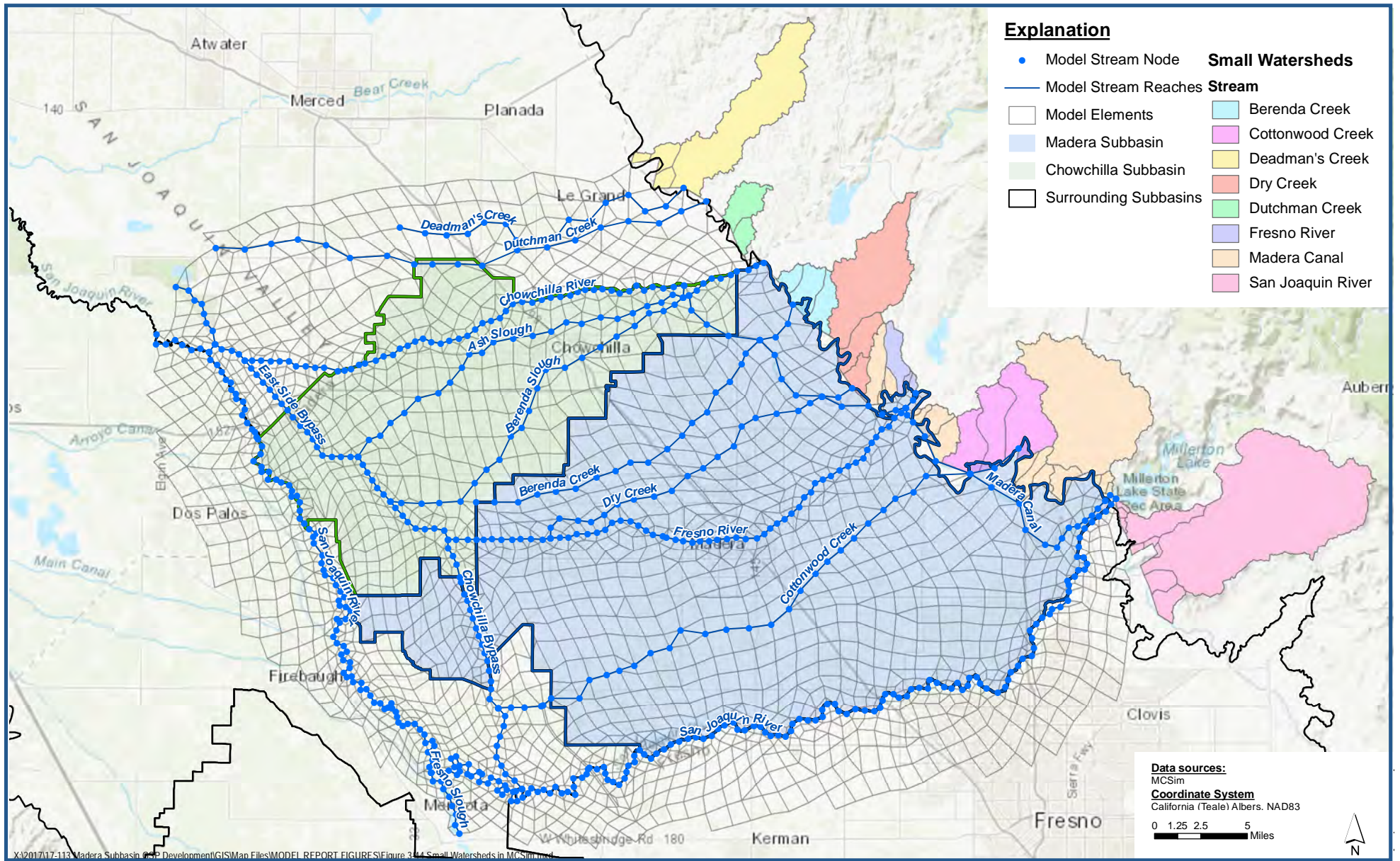
Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-41





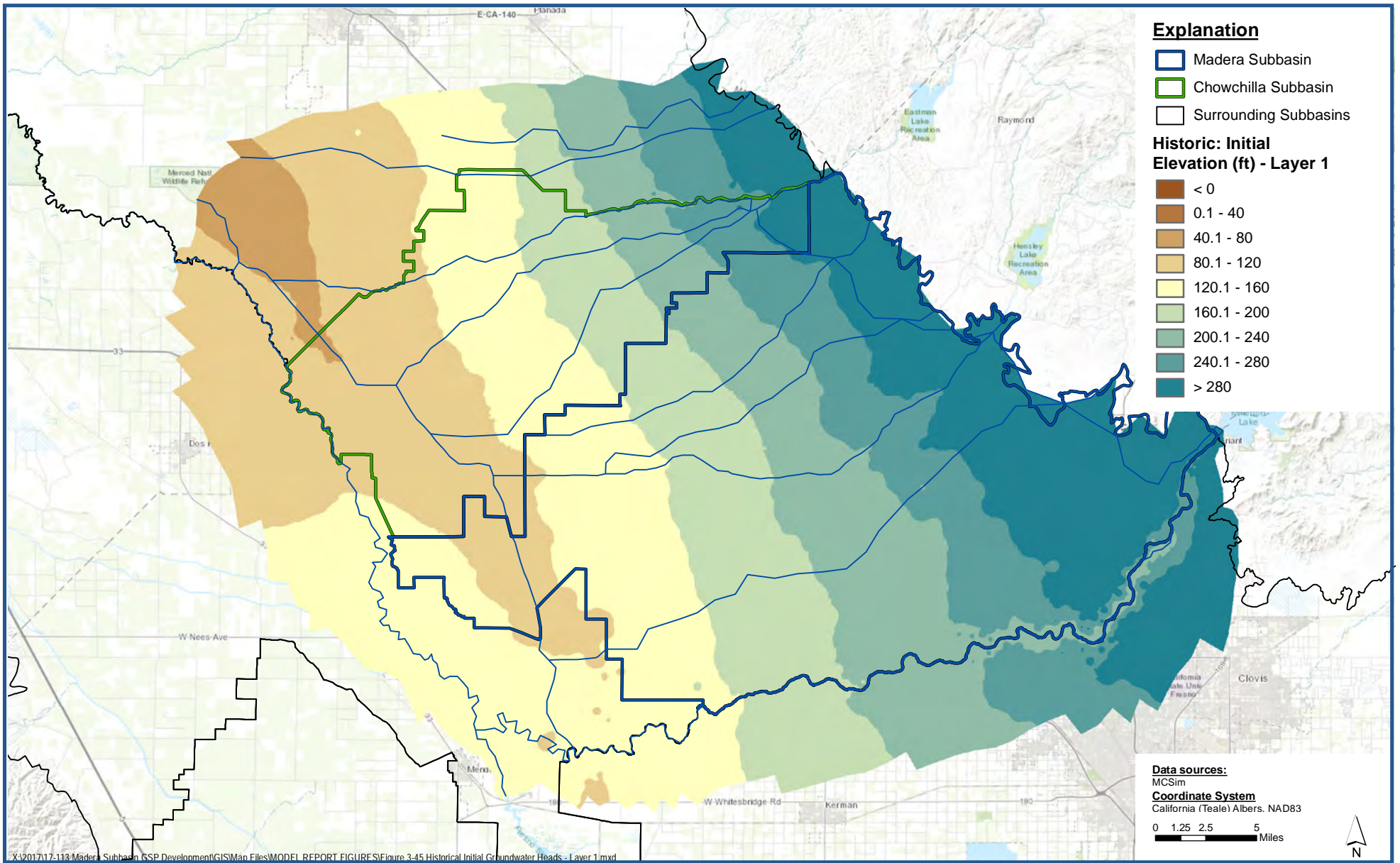




Small Watersheds in MCSim

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

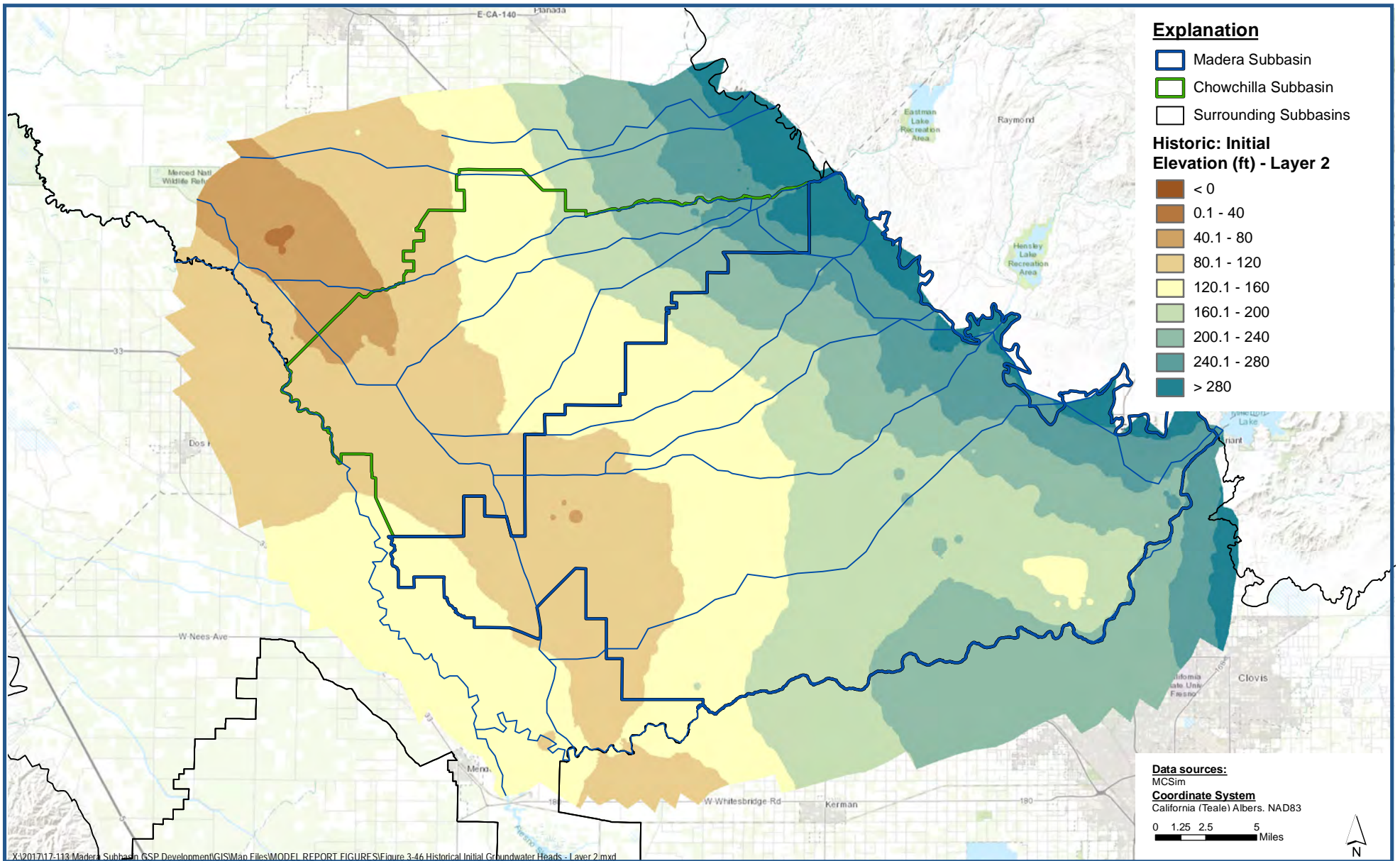
Figure 3-44



Historical Initial Groundwater Heads - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

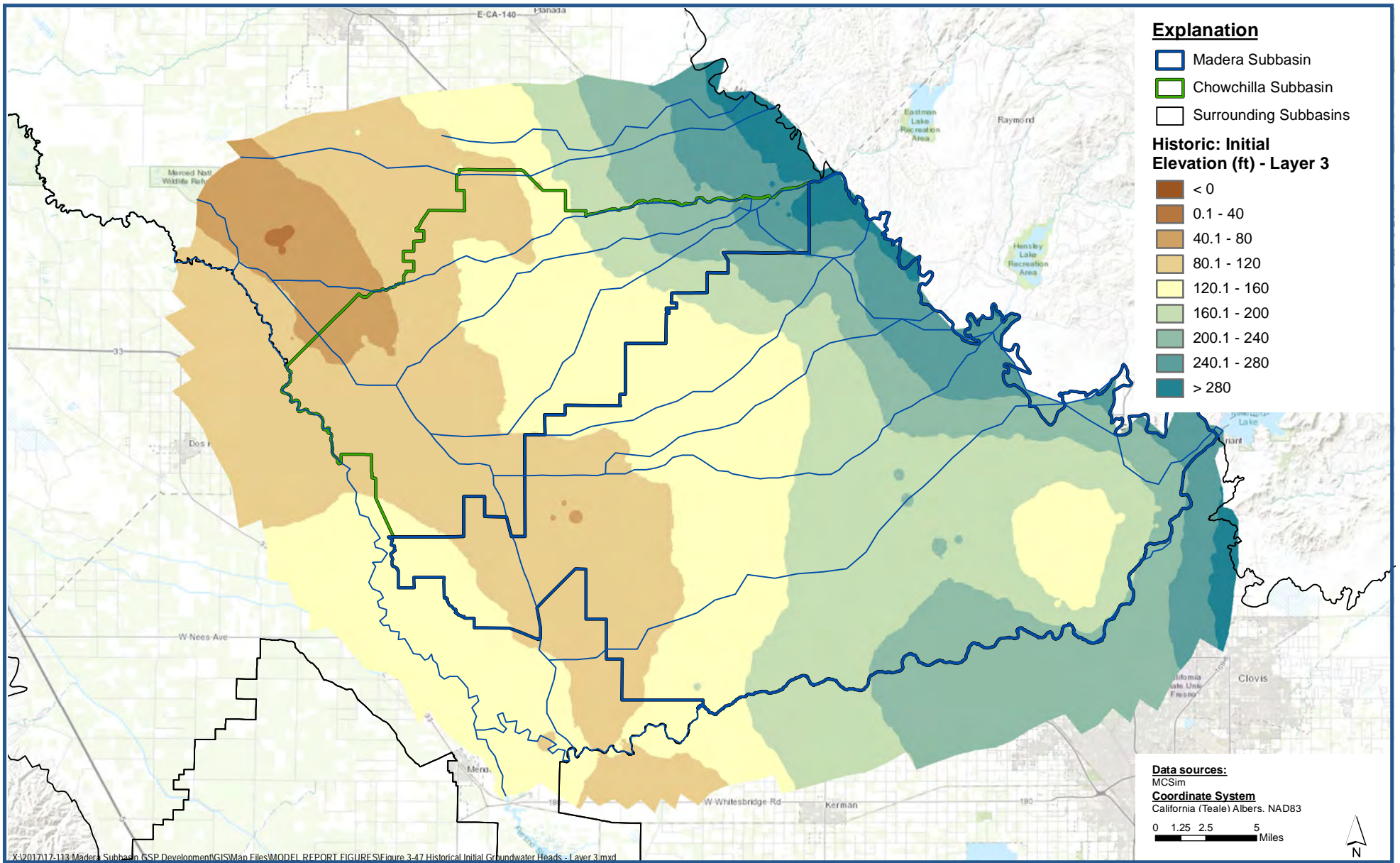
Figure 3-45



Historical Initial Groundwater Heads - Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

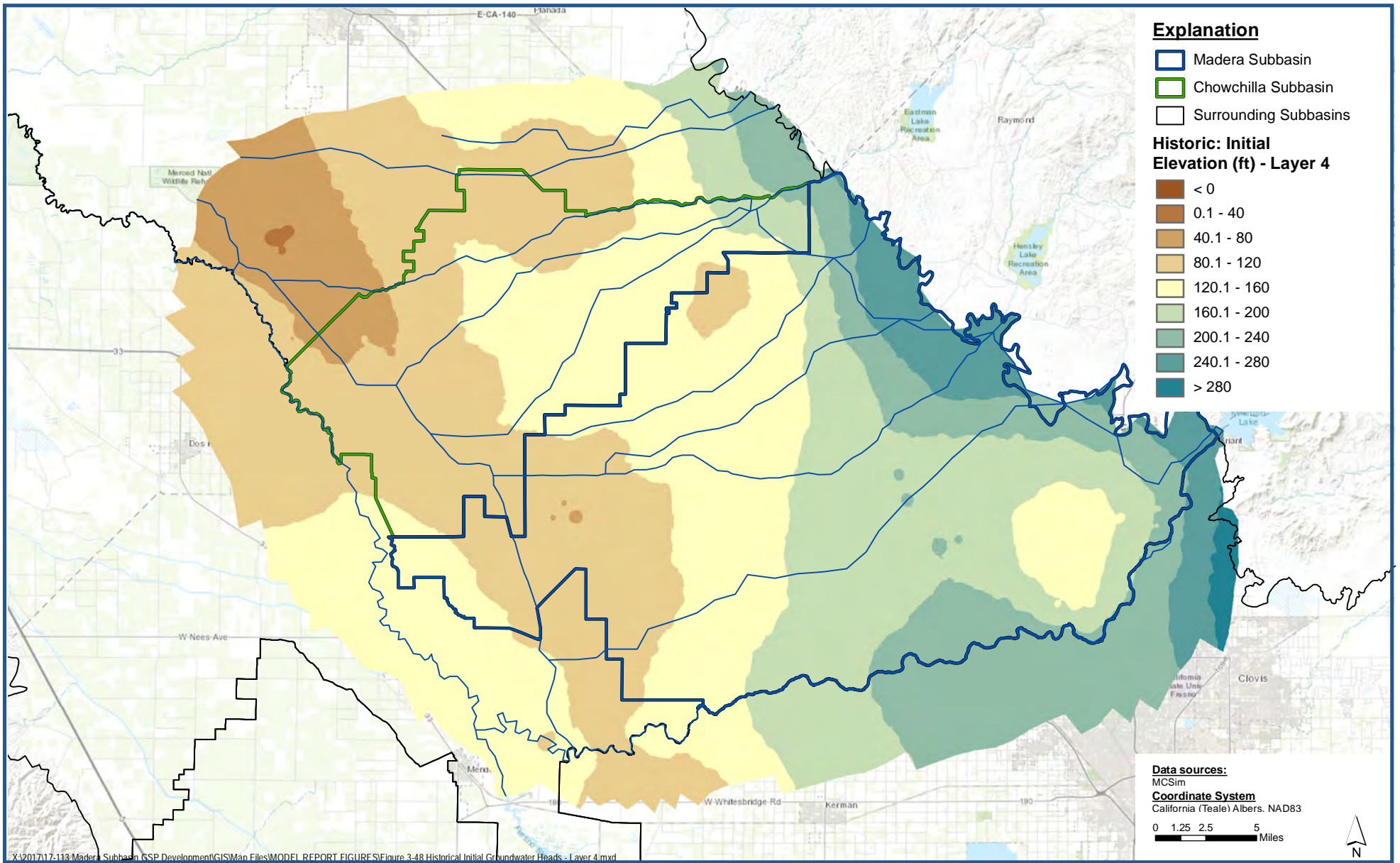
Figure 3-46



Historical Initial Groundwater Heads - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

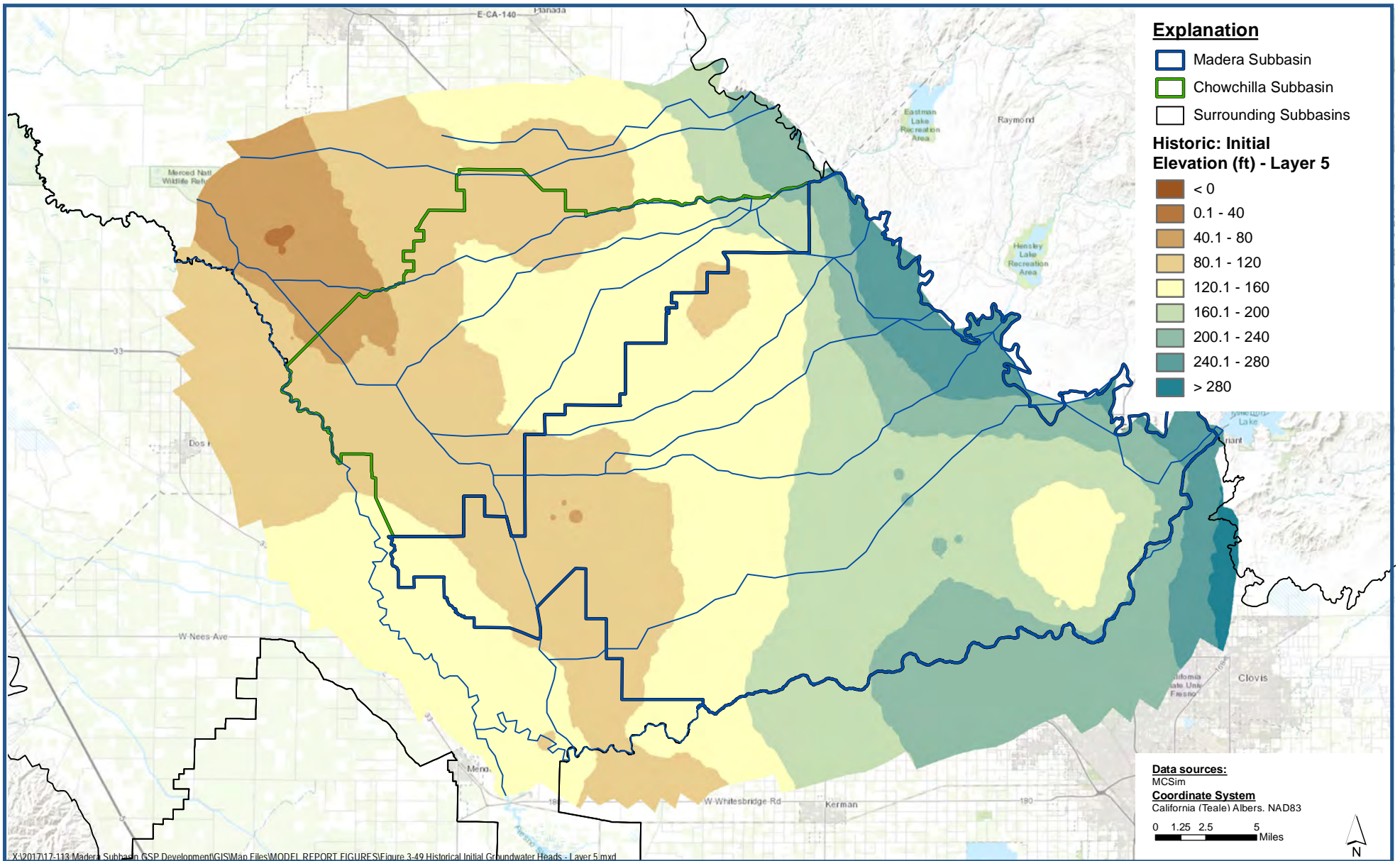
Figure 3-47



Historical Initial Groundwater Heads - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

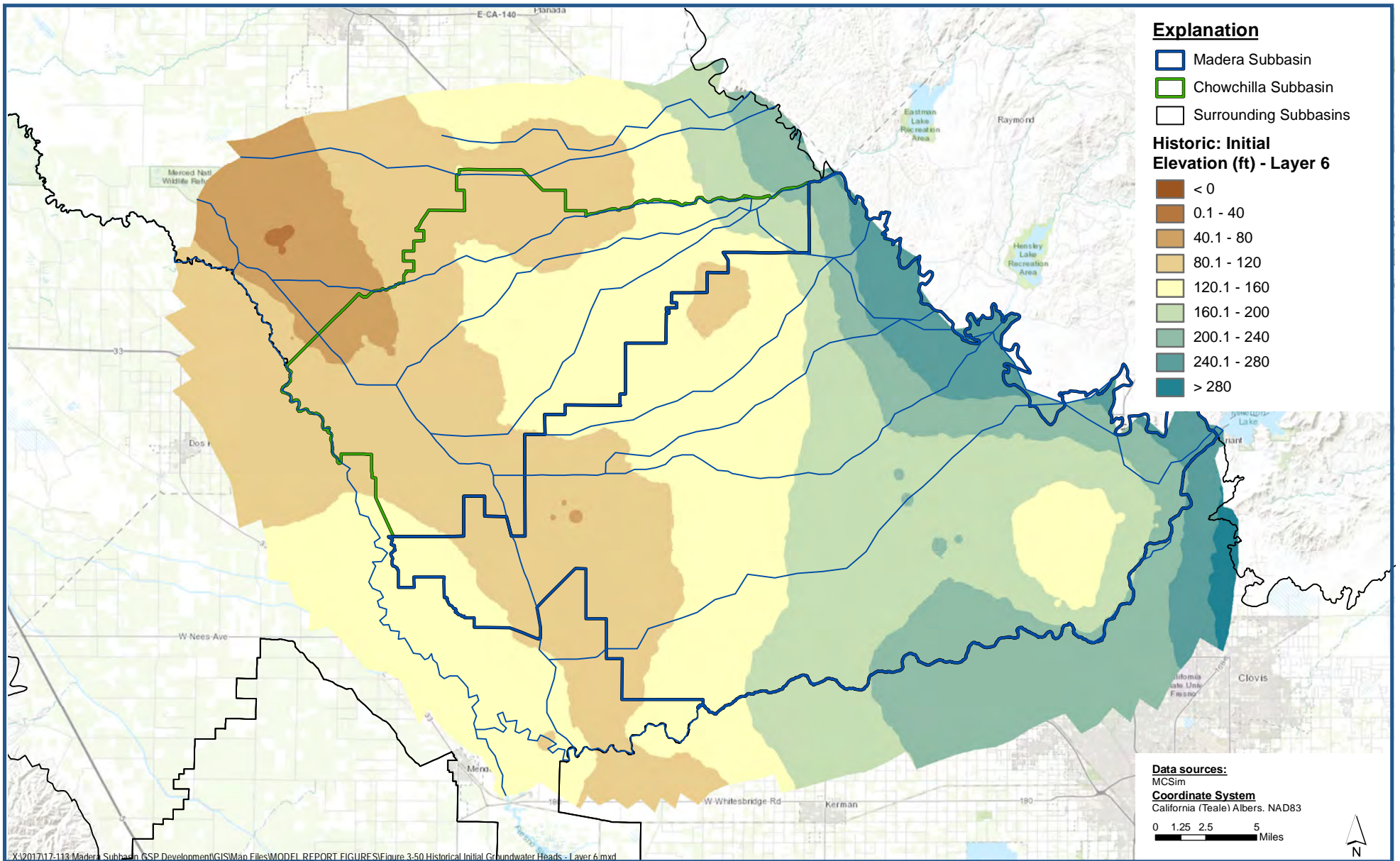
Figure 3-48



Historical Initial Groundwater Heads - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

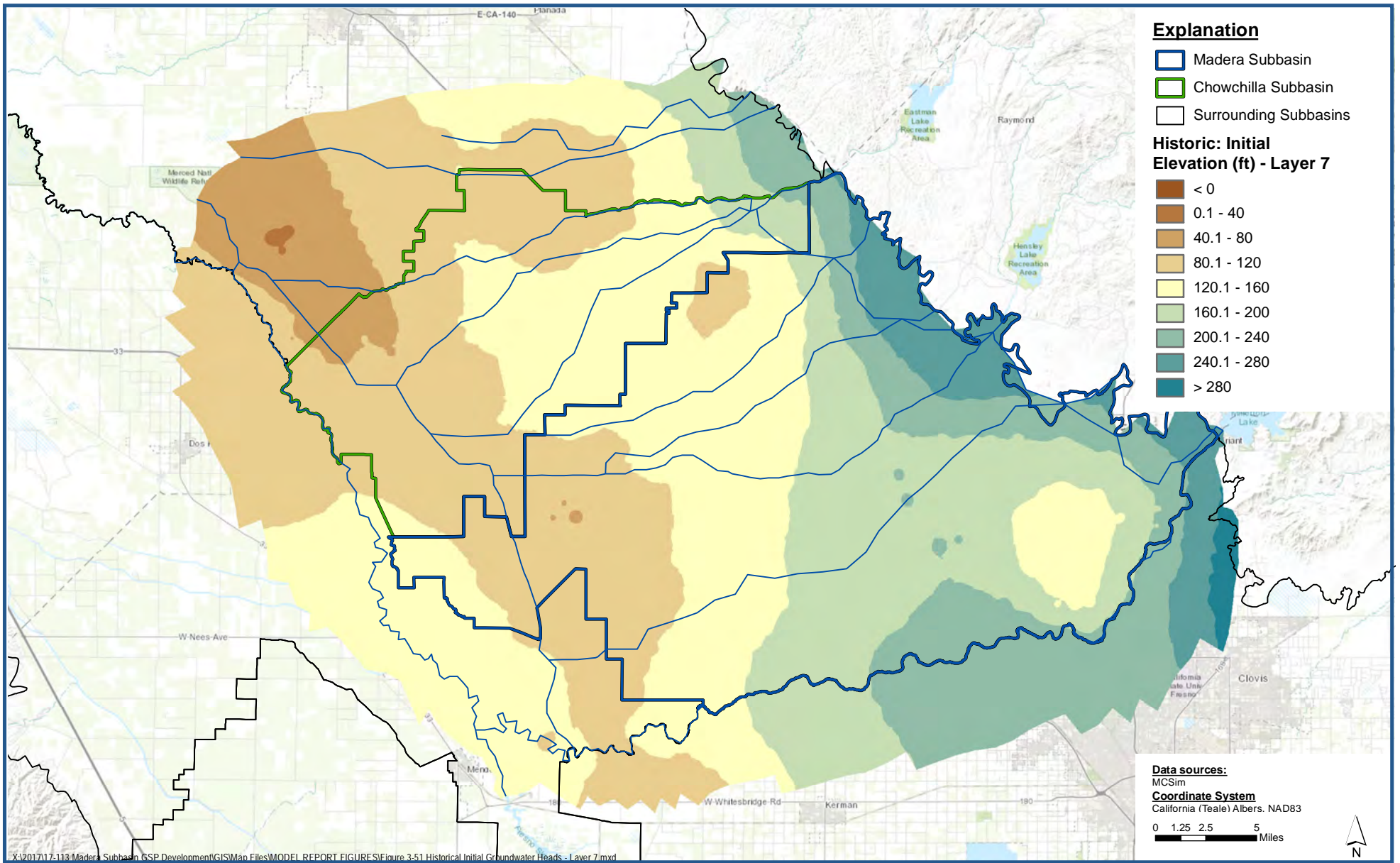
Figure 3-49



Historical Initial Groundwater Heads - Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

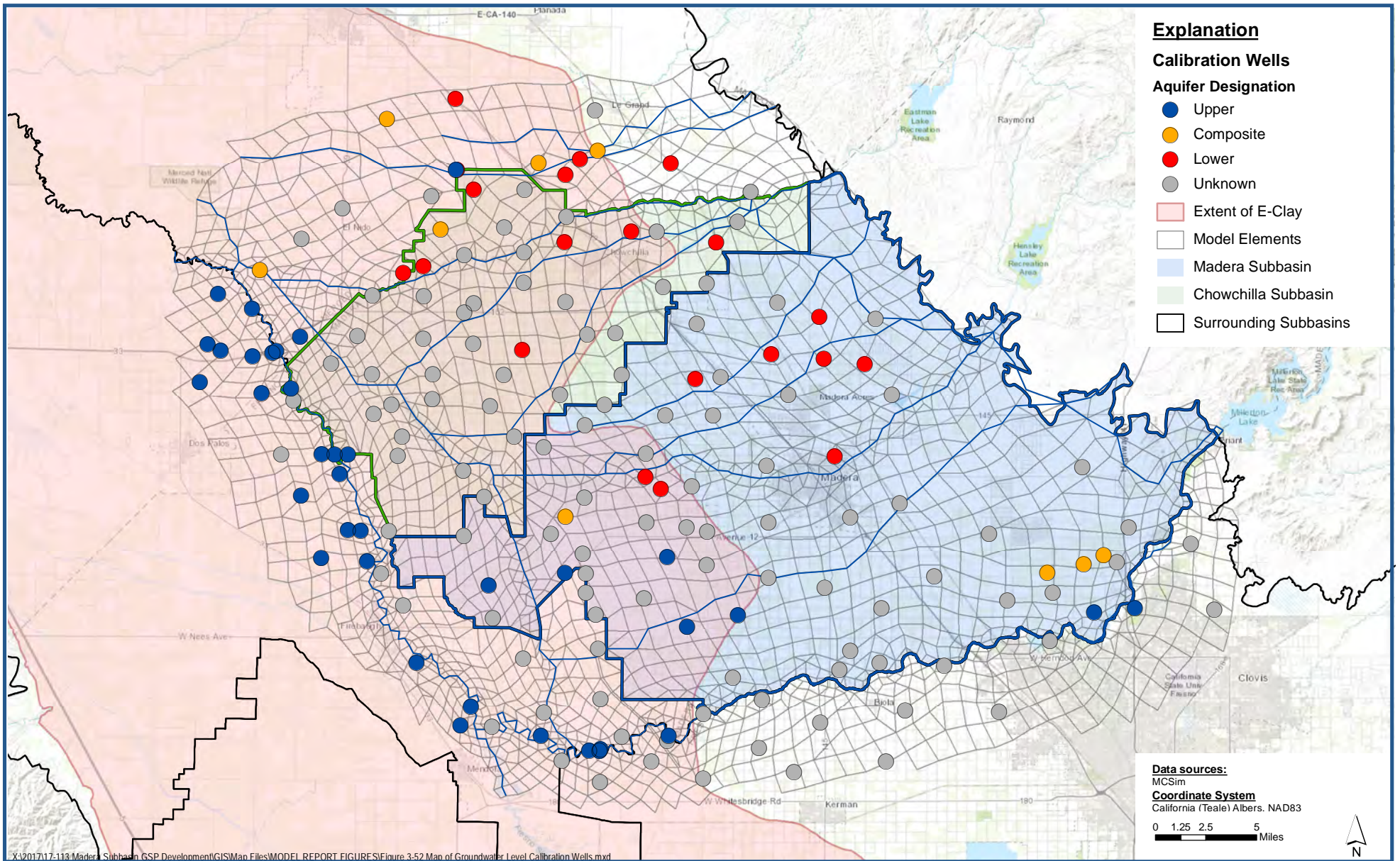
Figure 3-50



Historical Initial Groundwater Heads - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

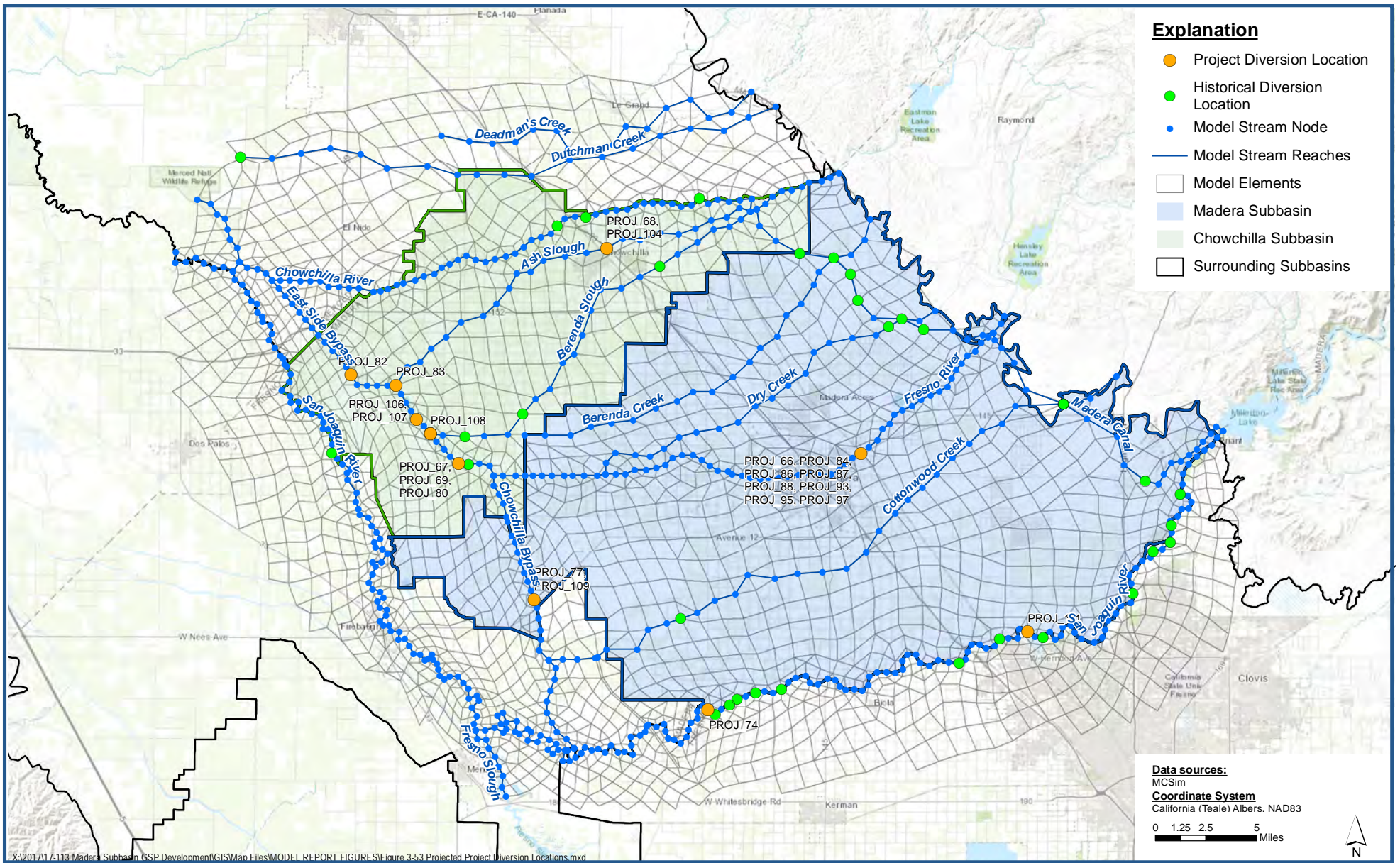
Figure 3-51



Map of Groundwater Level Calibration Wells

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
 Madera County

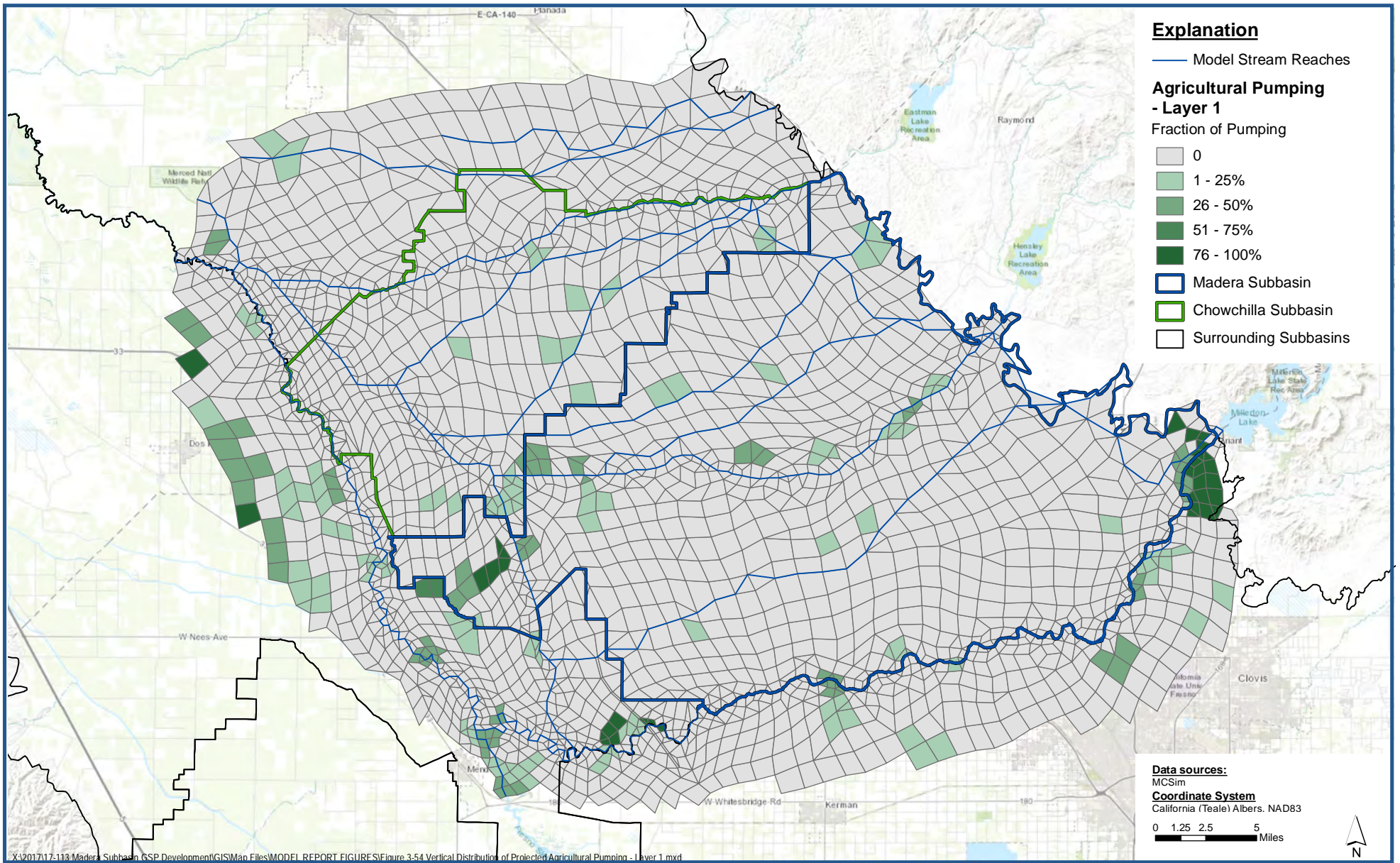
Figure 3-52



Projected Project Diversion Locations

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

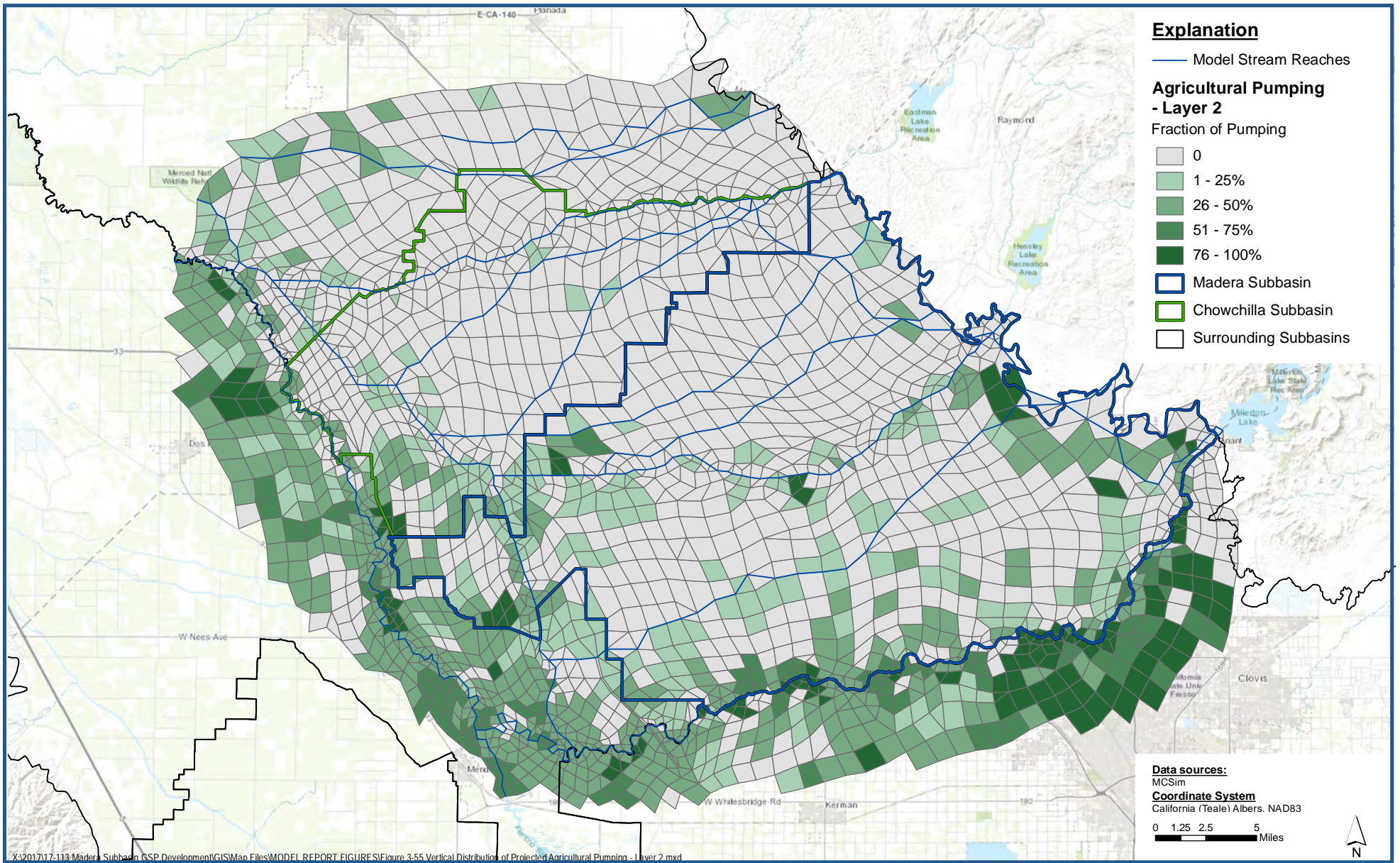
Figure 3-53

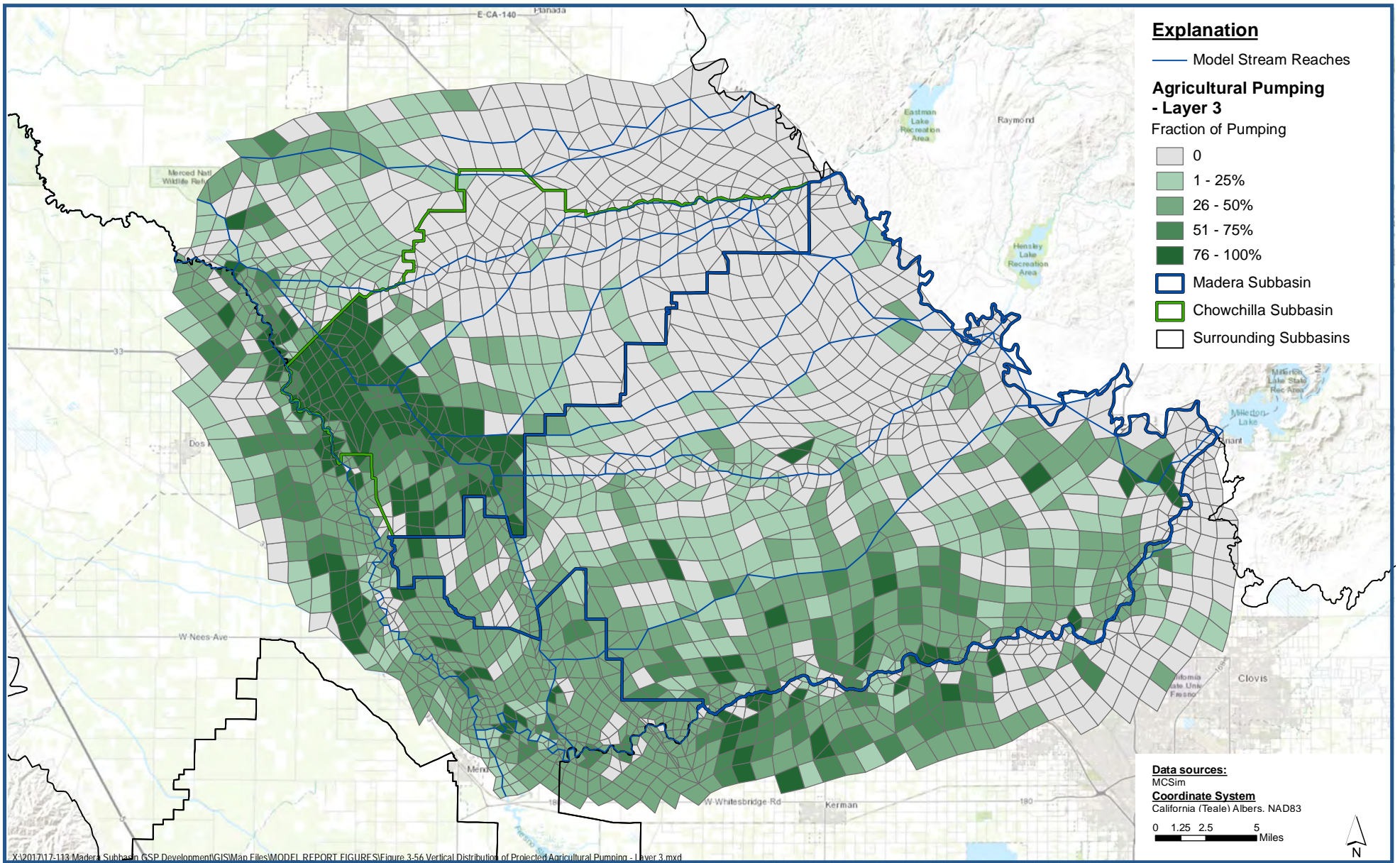


Vertical Distribution of Projected Agricultural Pumping - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-54

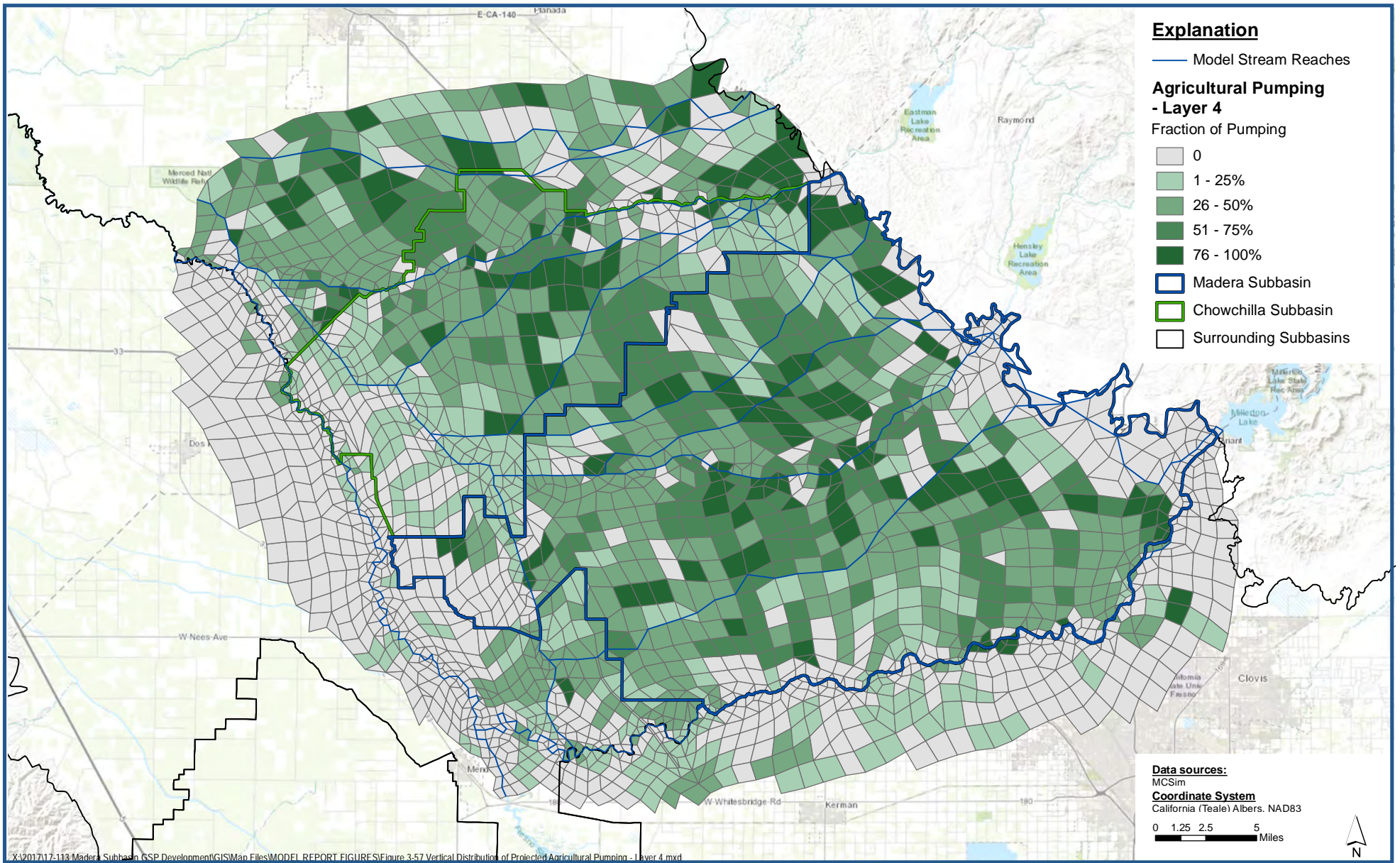




Vertical Distribution of Projected Agricultural Pumping - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

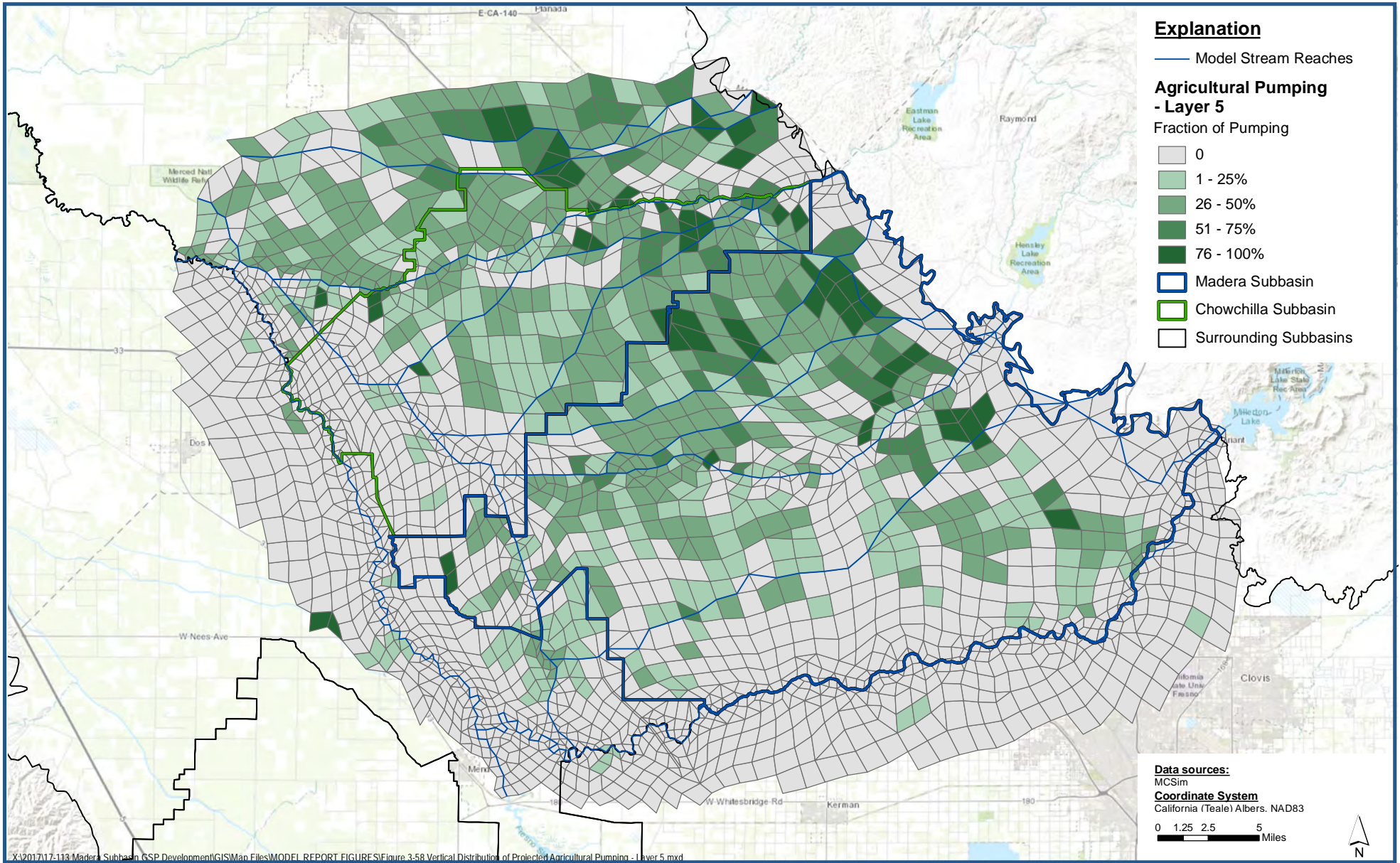
Figure 3-56



Vertical Distribution of Projected Agricultural Pumping - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

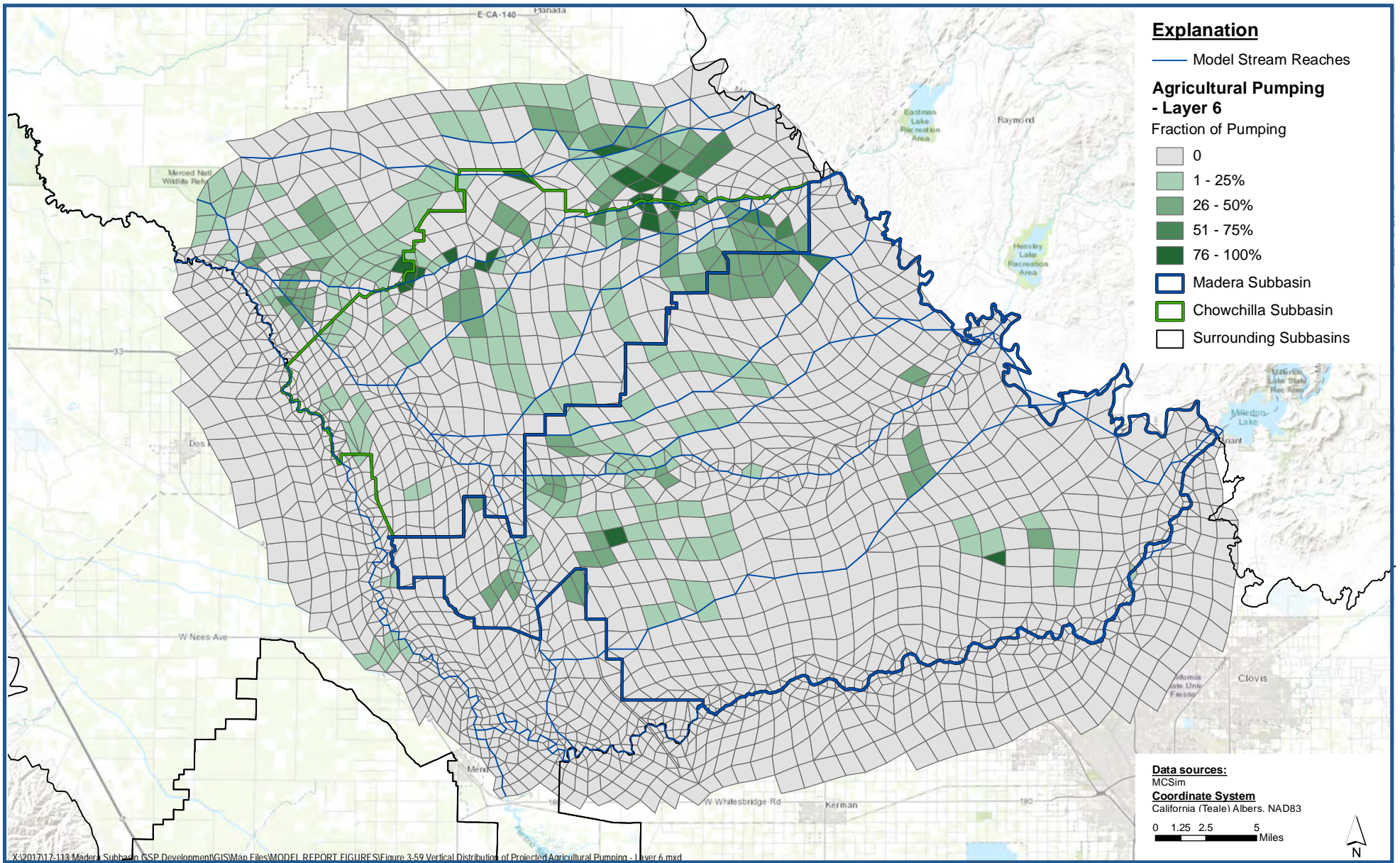
Figure 3-57



Vertical Distribution of Projected Agricultural Pumping - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

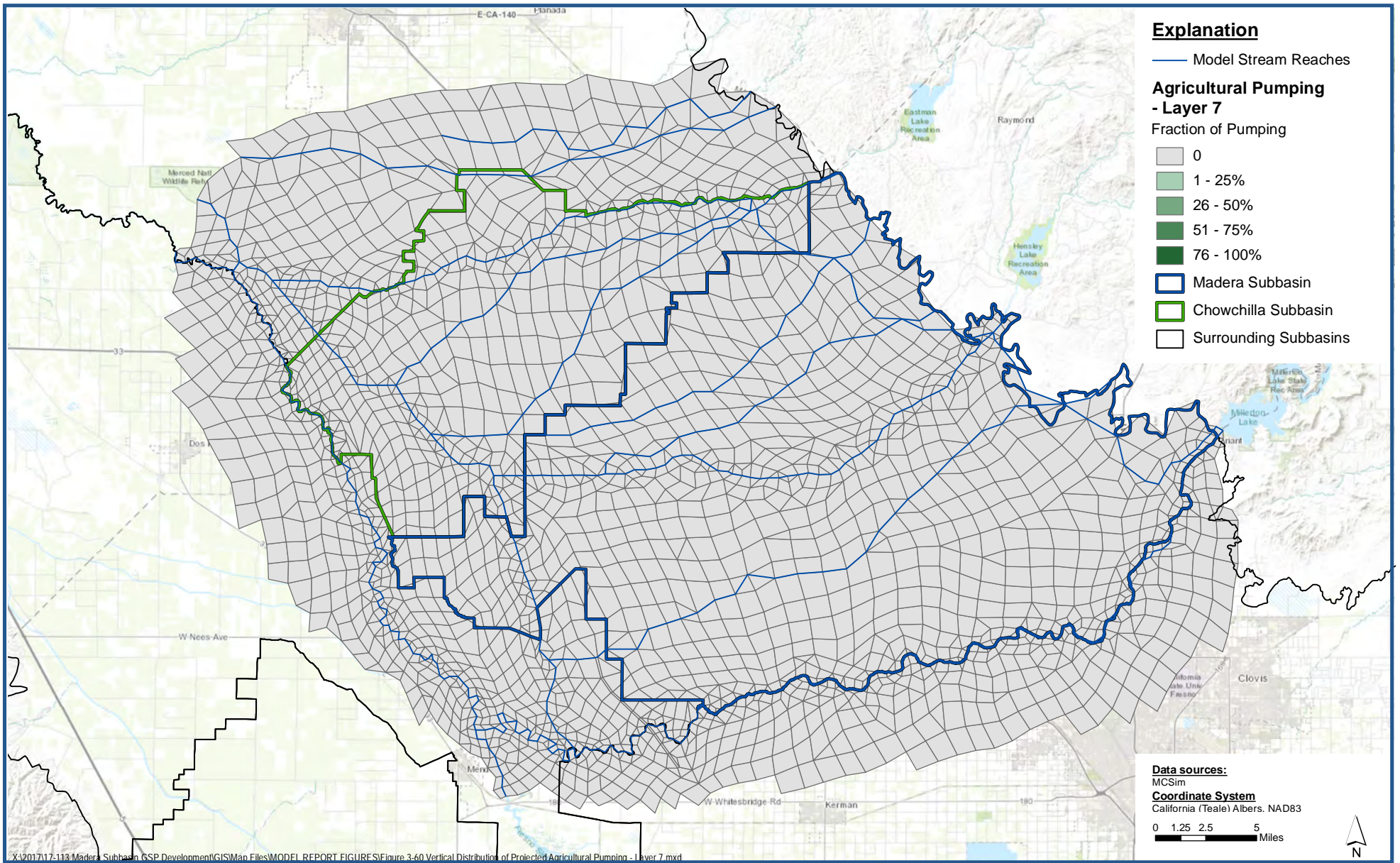
Figure 3-58

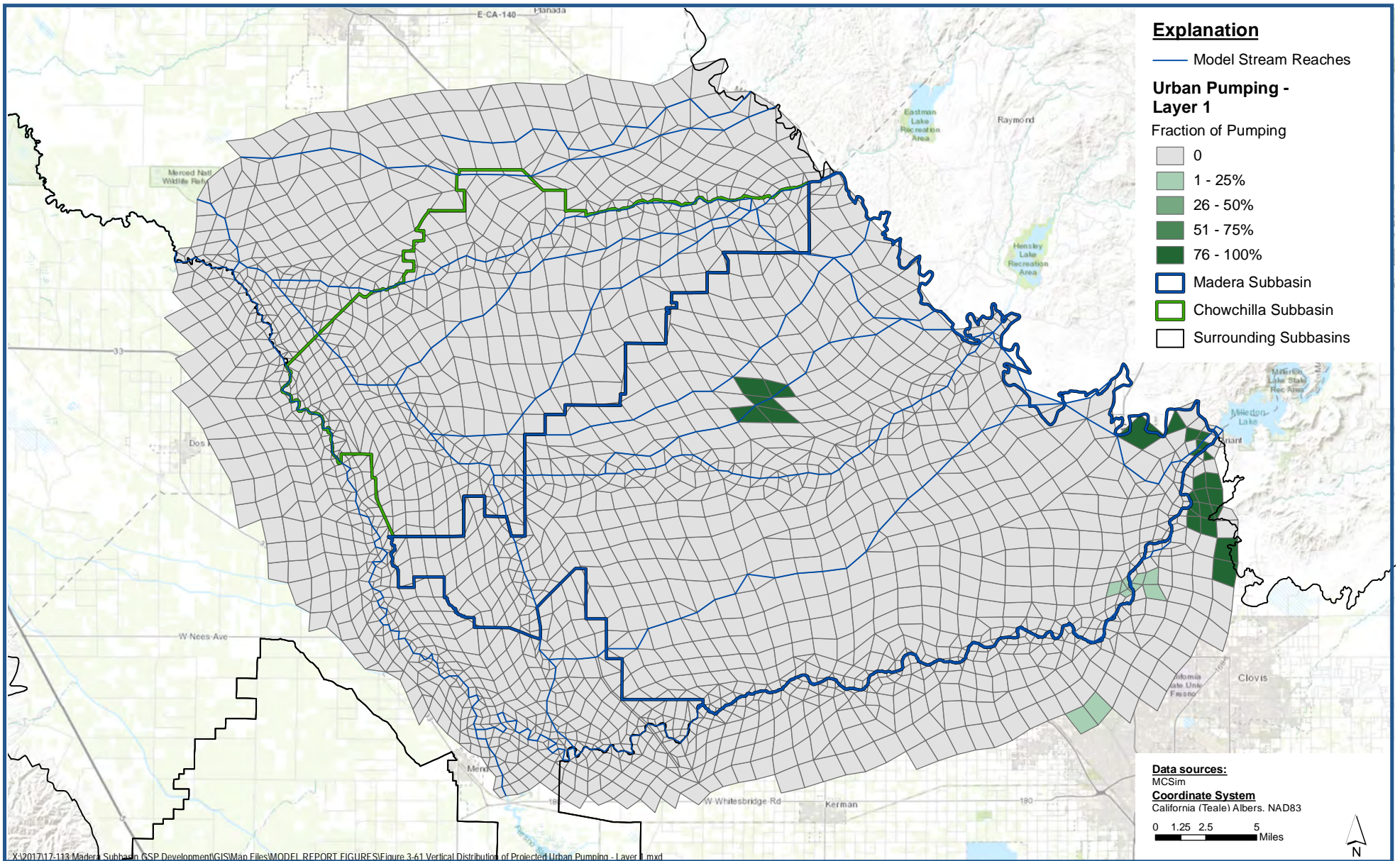


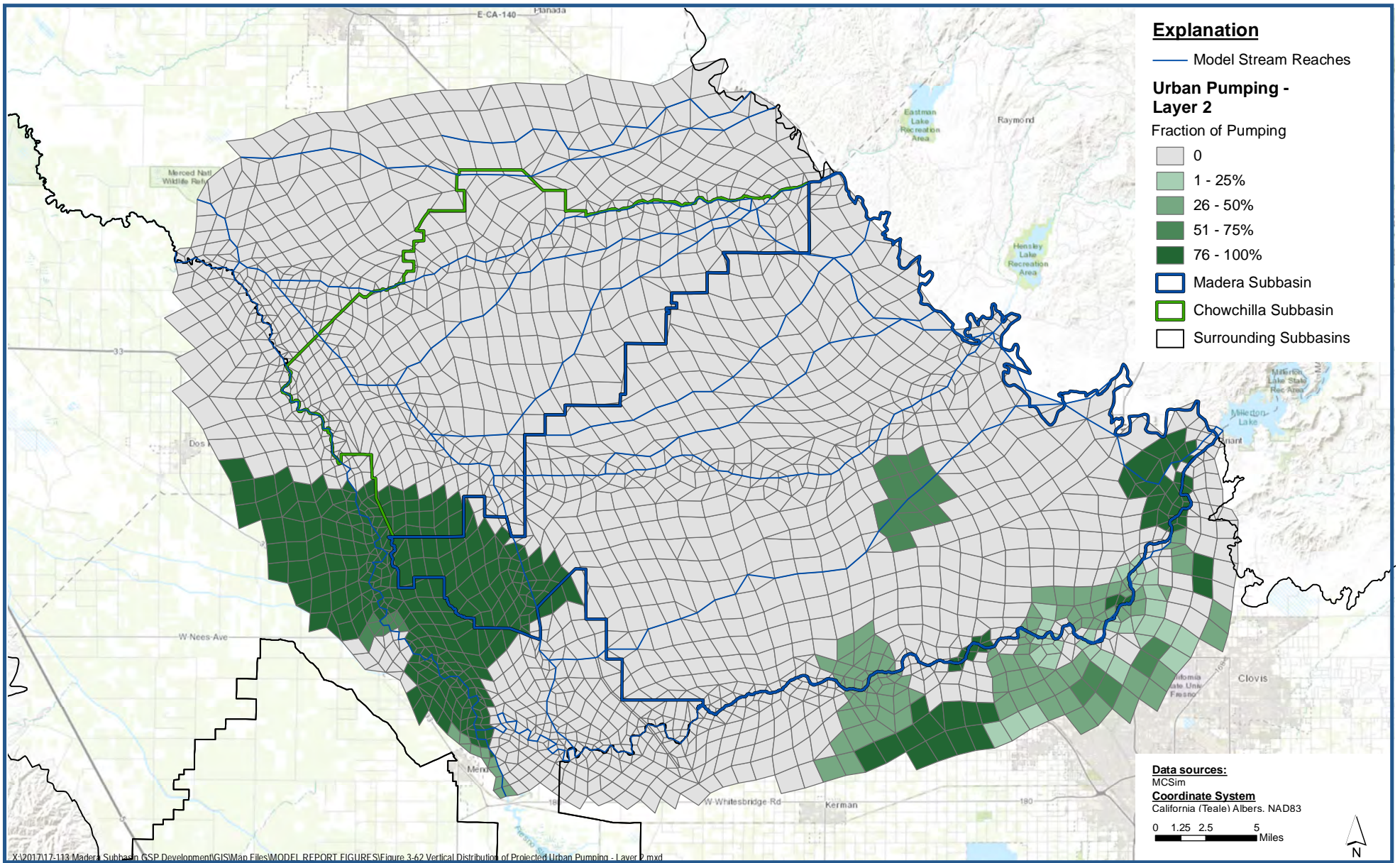
Vertical Distribution of Projected Agricultural Pumping - Layer 6

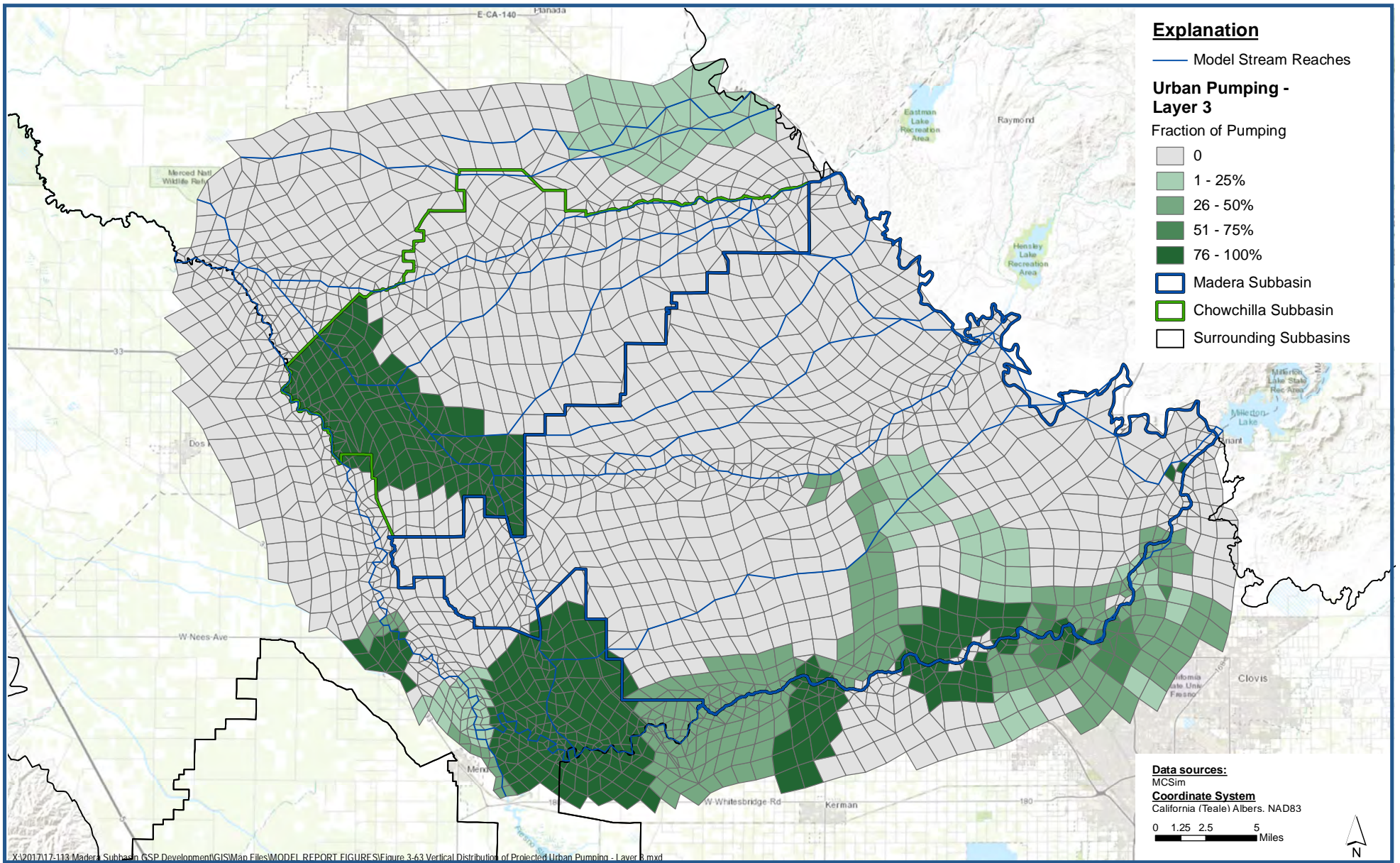
Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

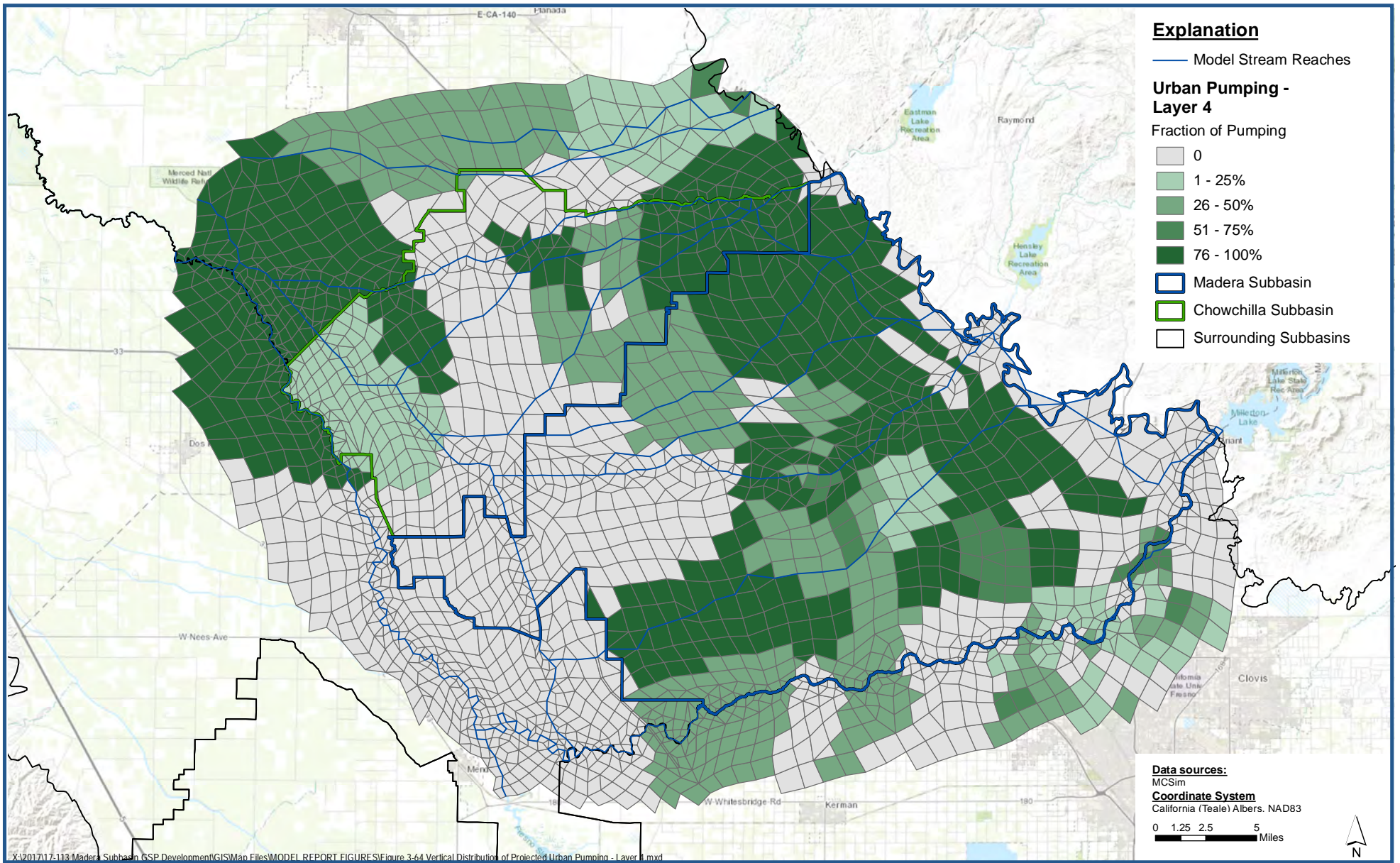
Figure 3-59

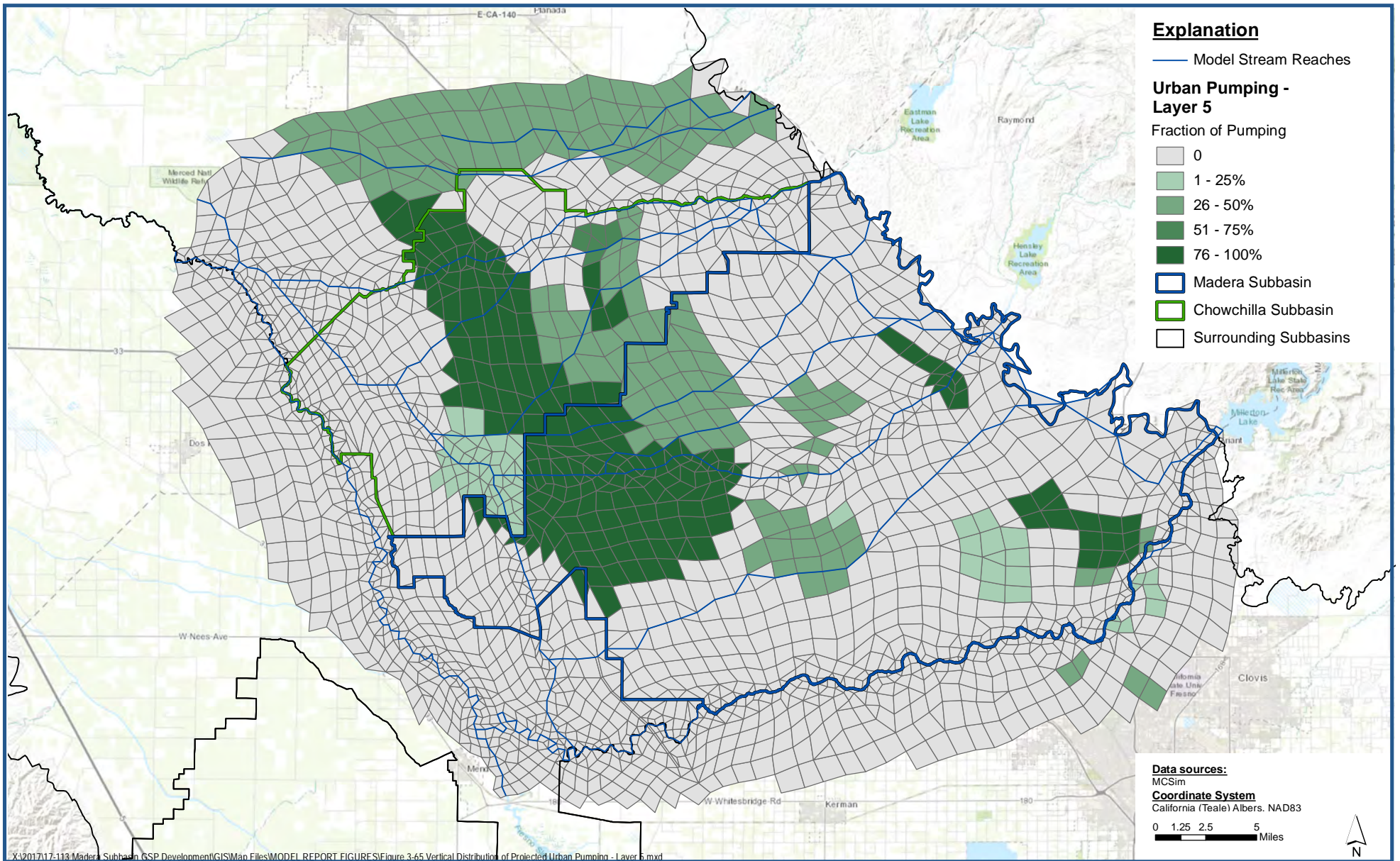








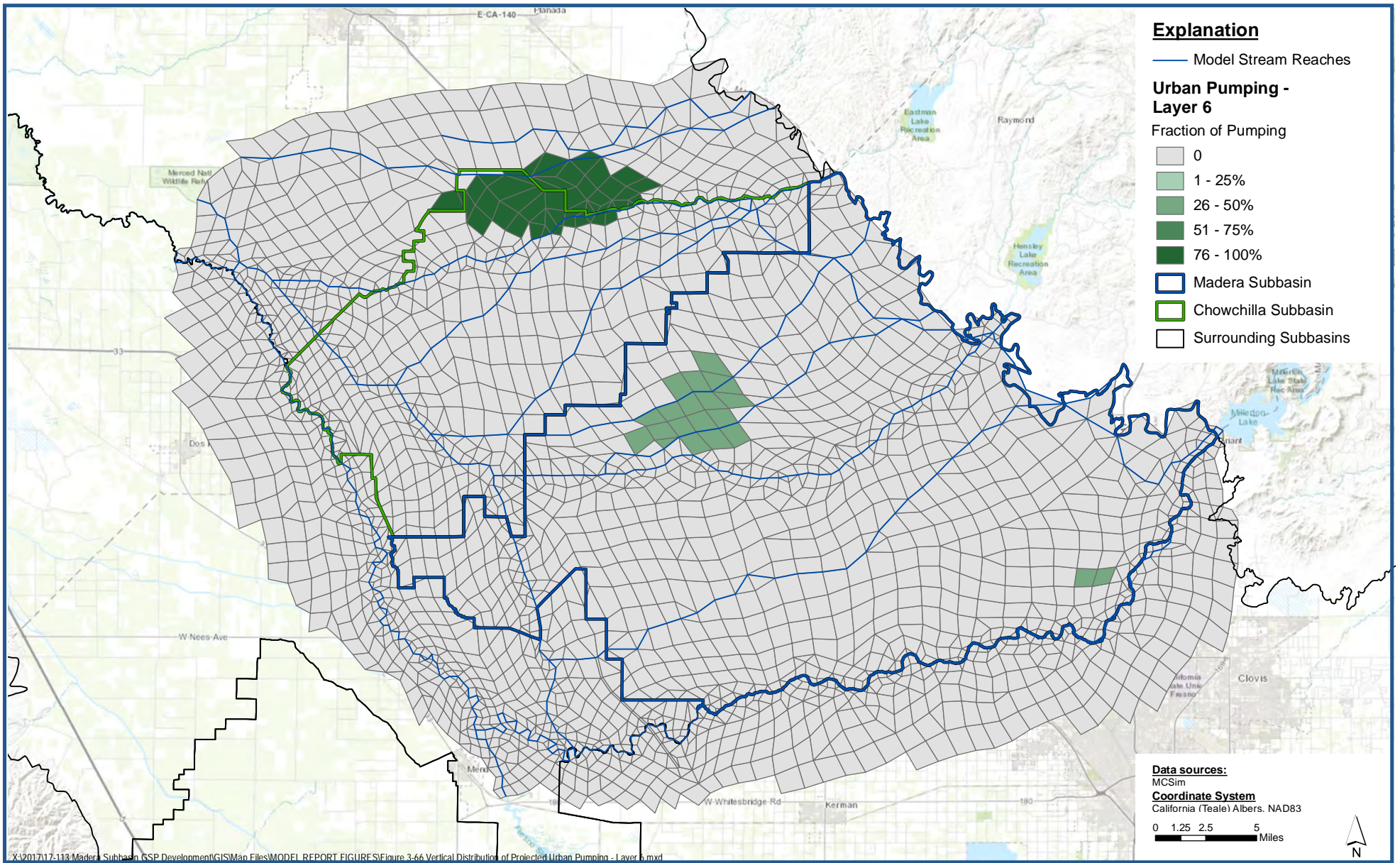




Vertical Distribution of Projected Urban Pumping - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

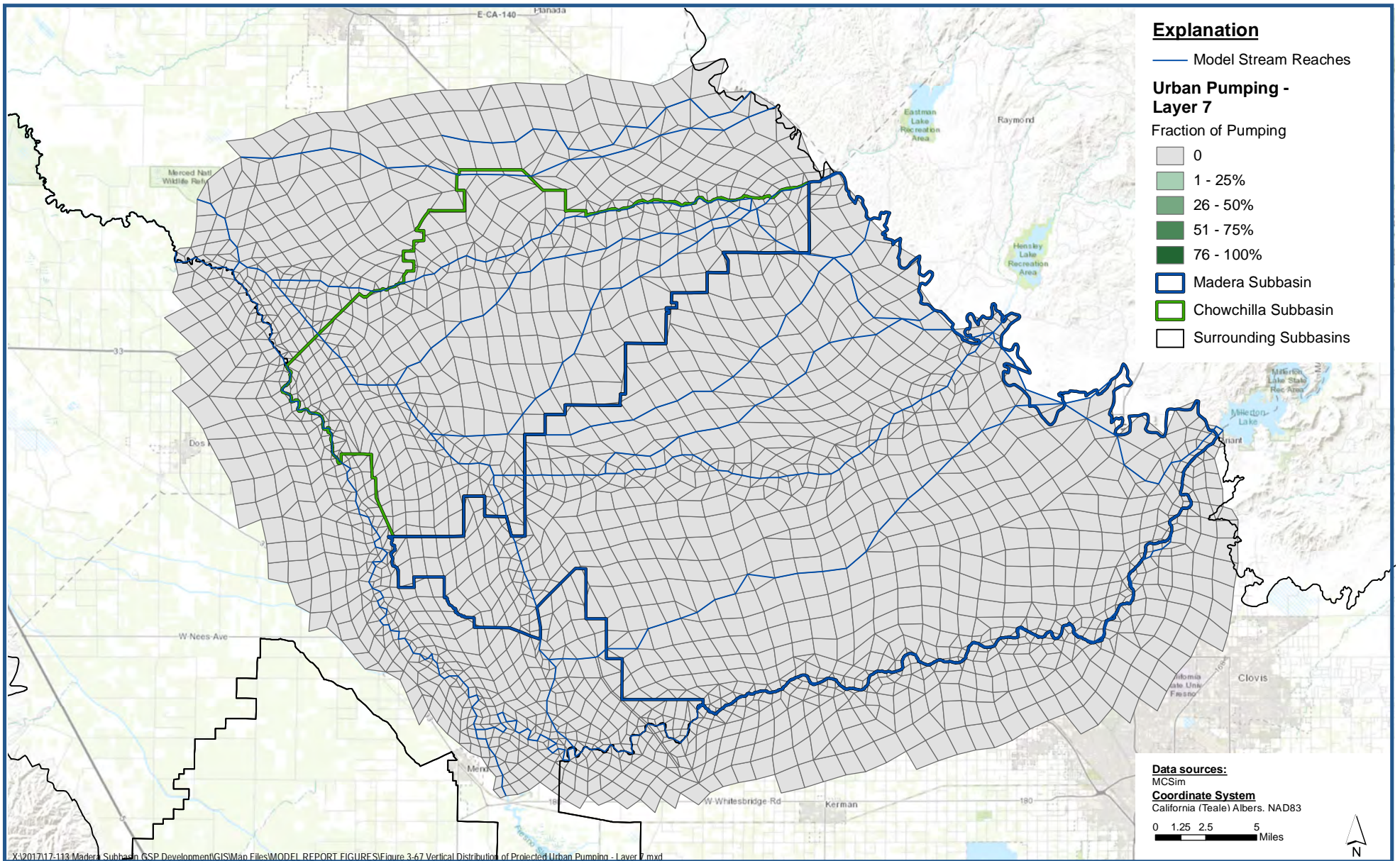
Figure 3-65

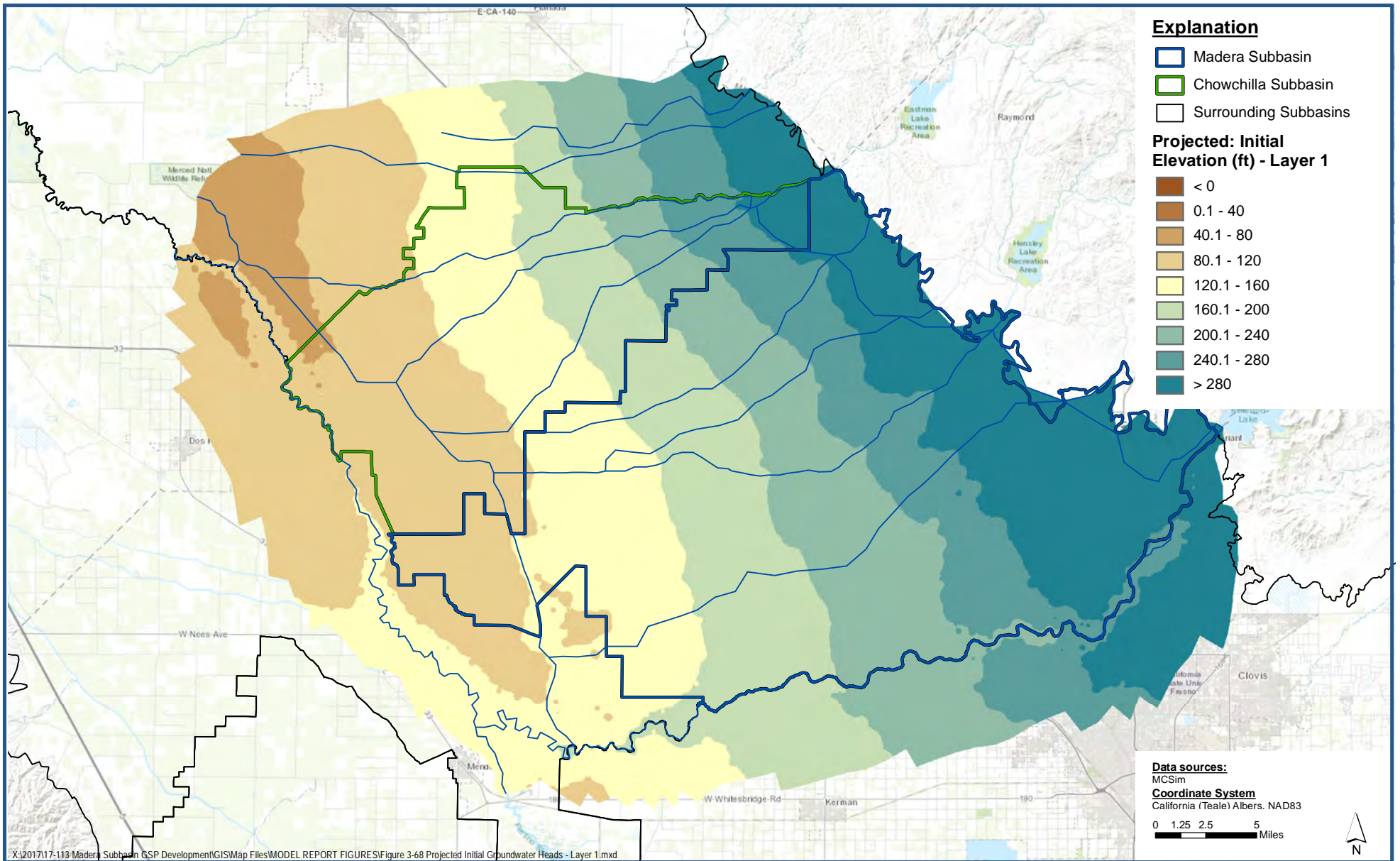


Vertical Distribution of Projected Urban Pumping - Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 3-66

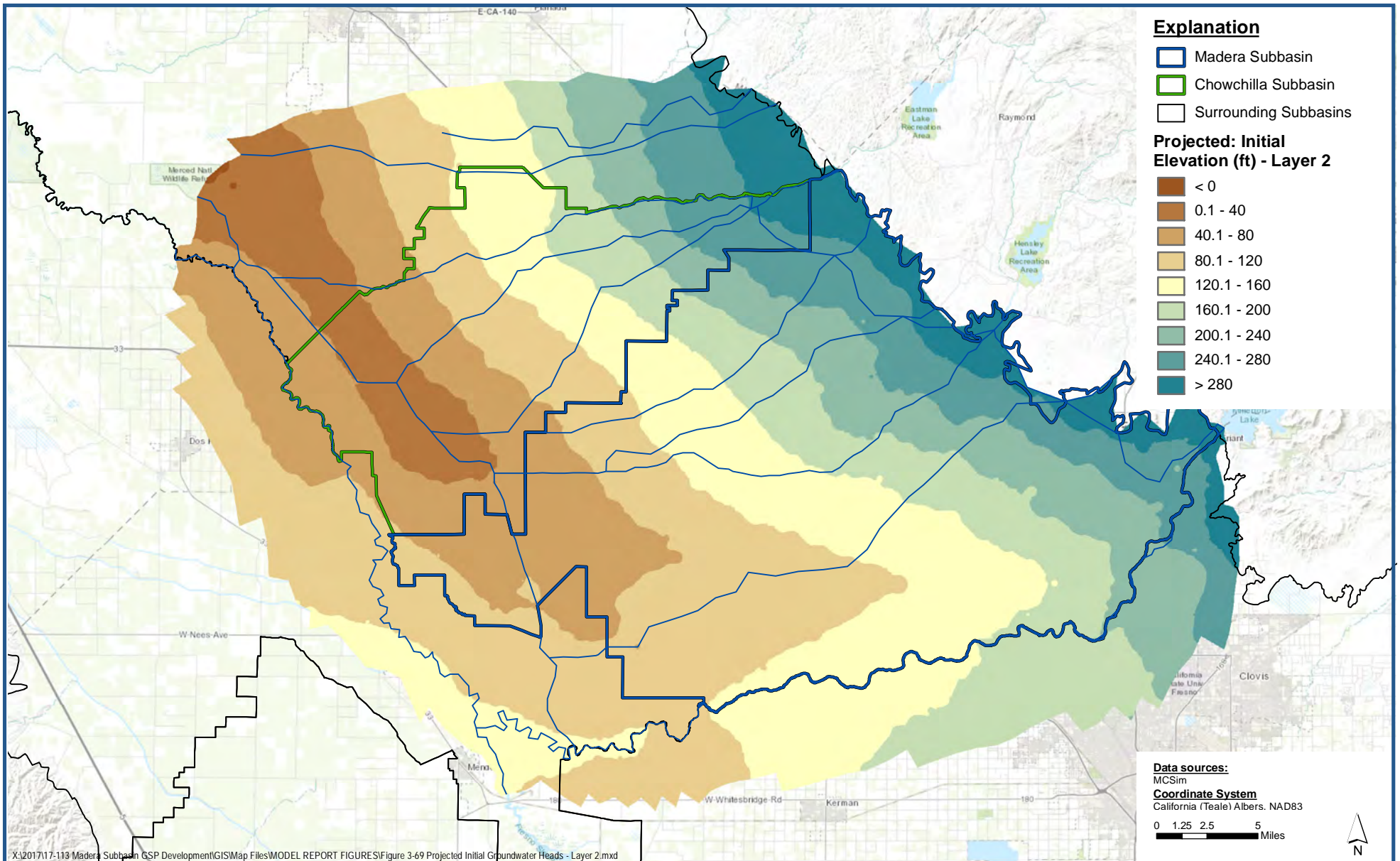




Projected Initial Groundwater Heads - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

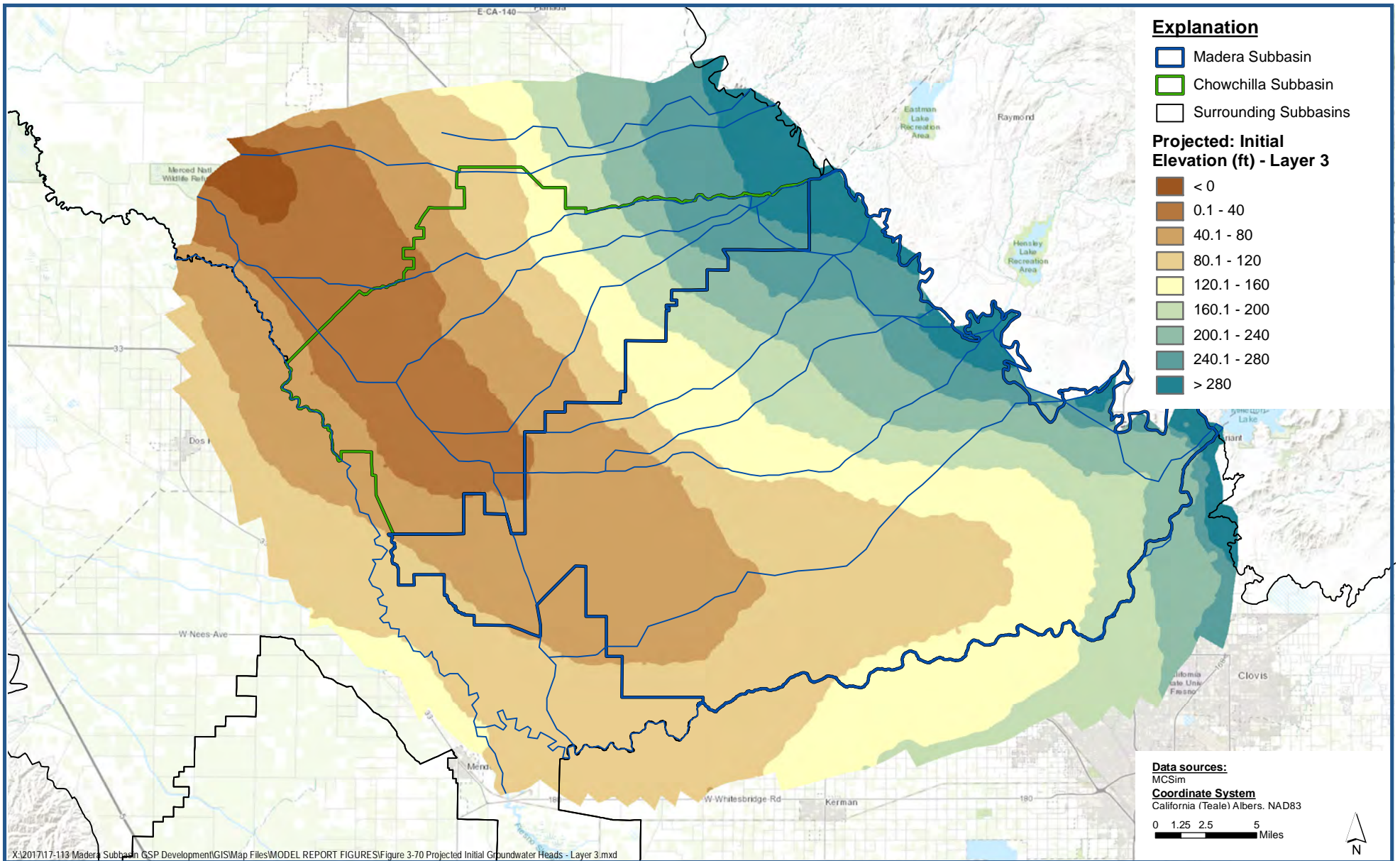
Figure 3-68



Projected Initial Groundwater Heads - Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

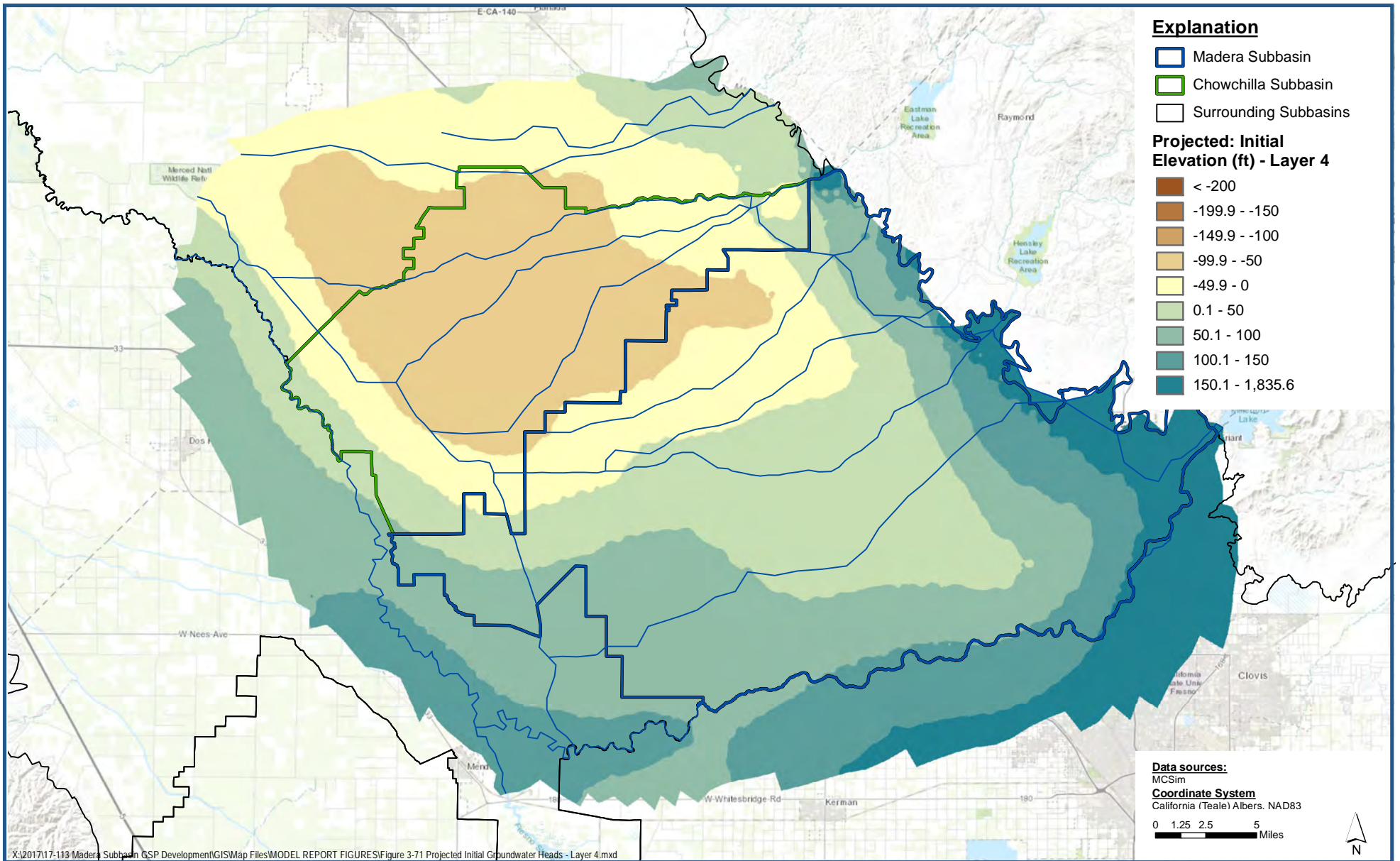
Figure 3-69



Projected Initial Groundwater Heads - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

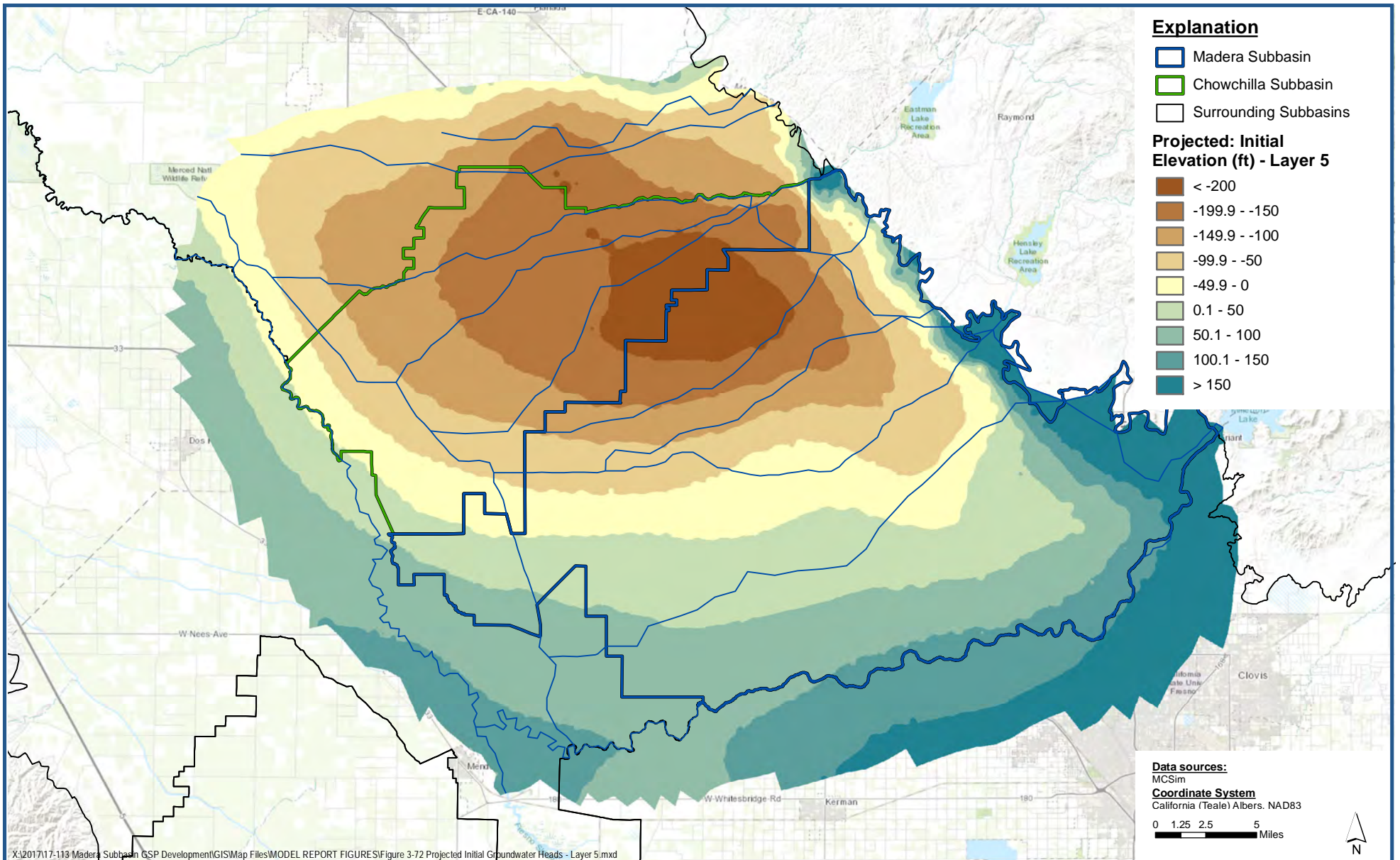
Figure 3-70



Projected Initial Groundwater Heads - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

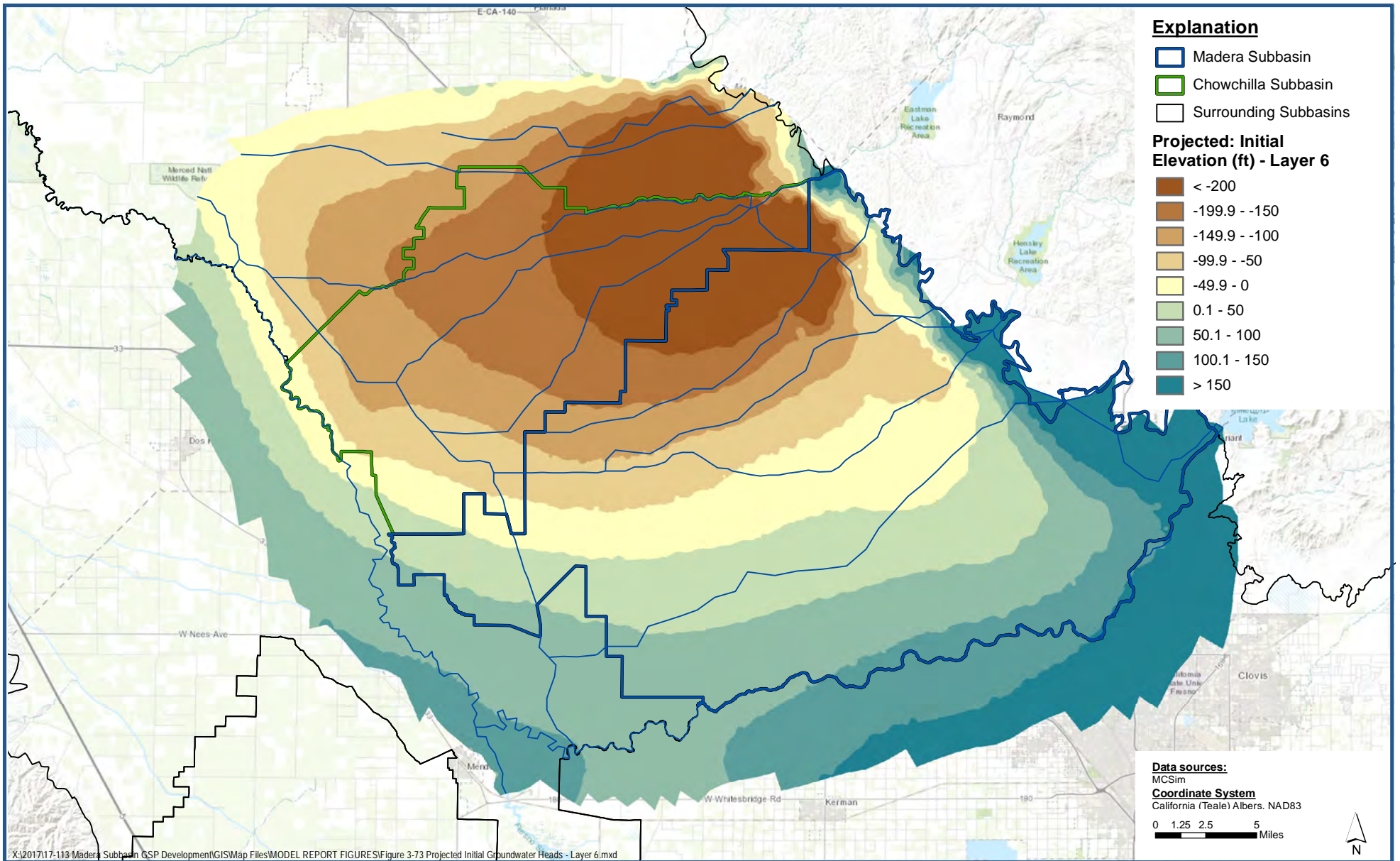
Figure 3-71



Projected Initial Groundwater Heads - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

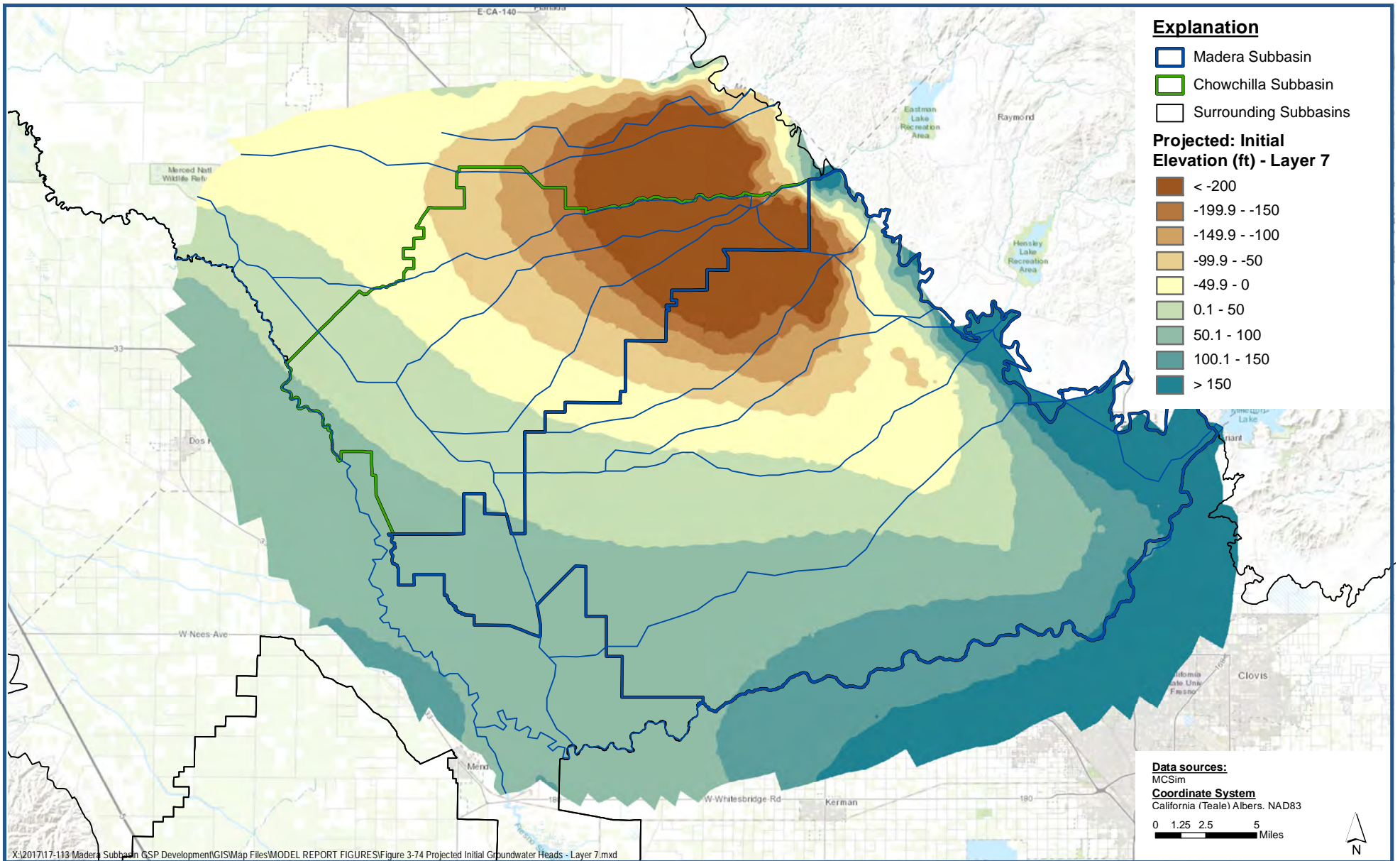
Figure 3-72



Projected Initial Groundwater Heads - Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

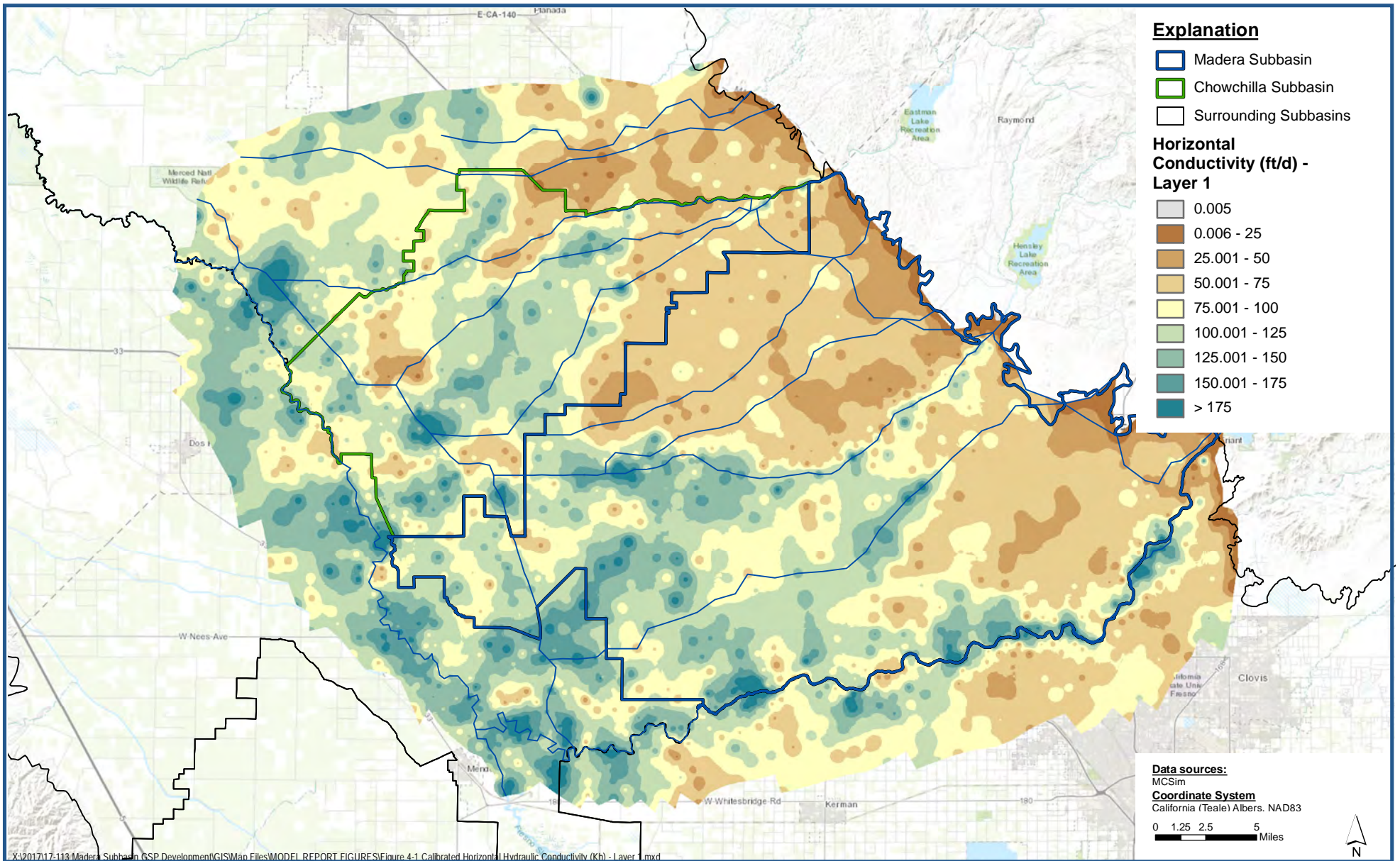
Figure 3-73



Projected Initial Groundwater Heads - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

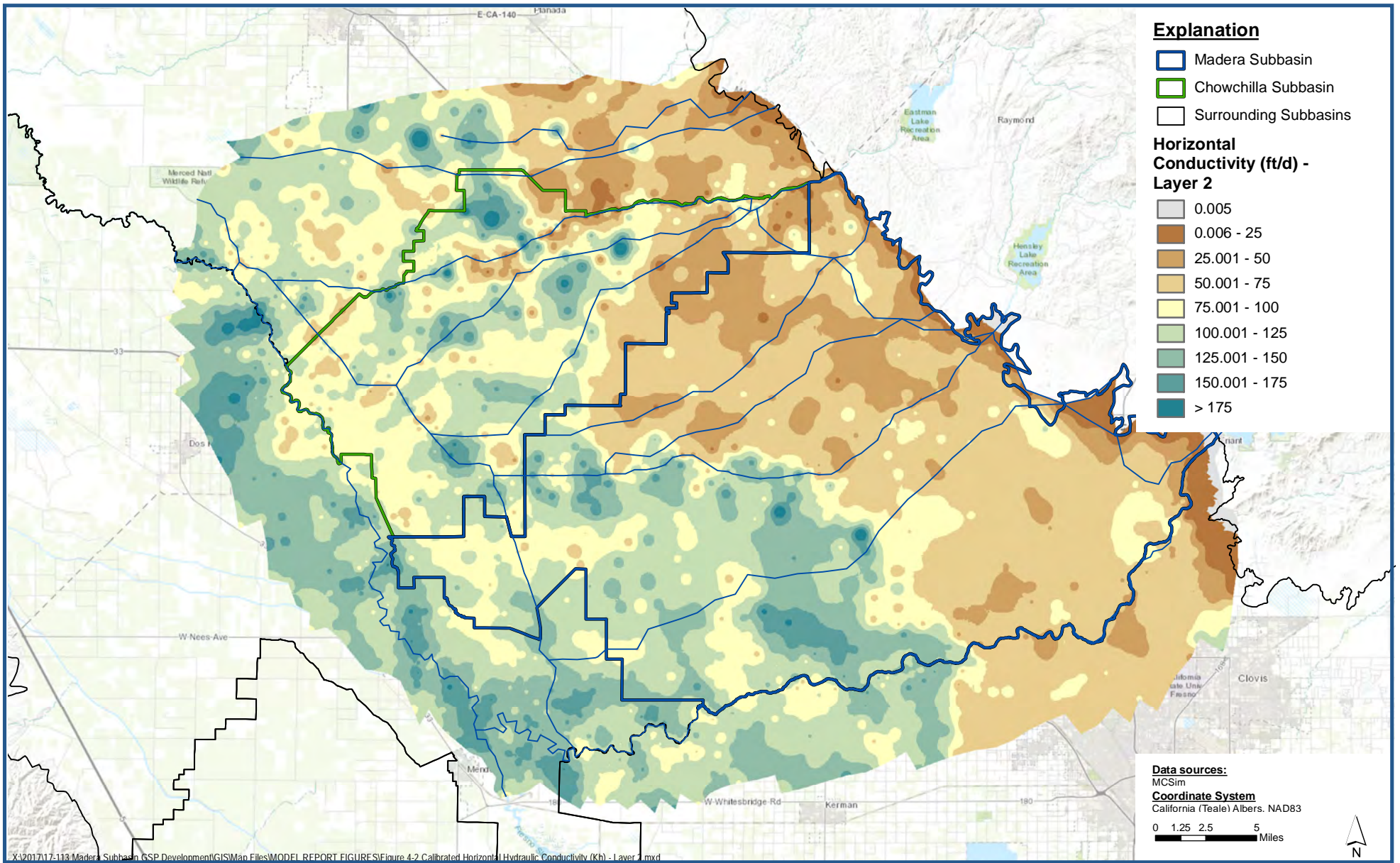
Figure 3-74



Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

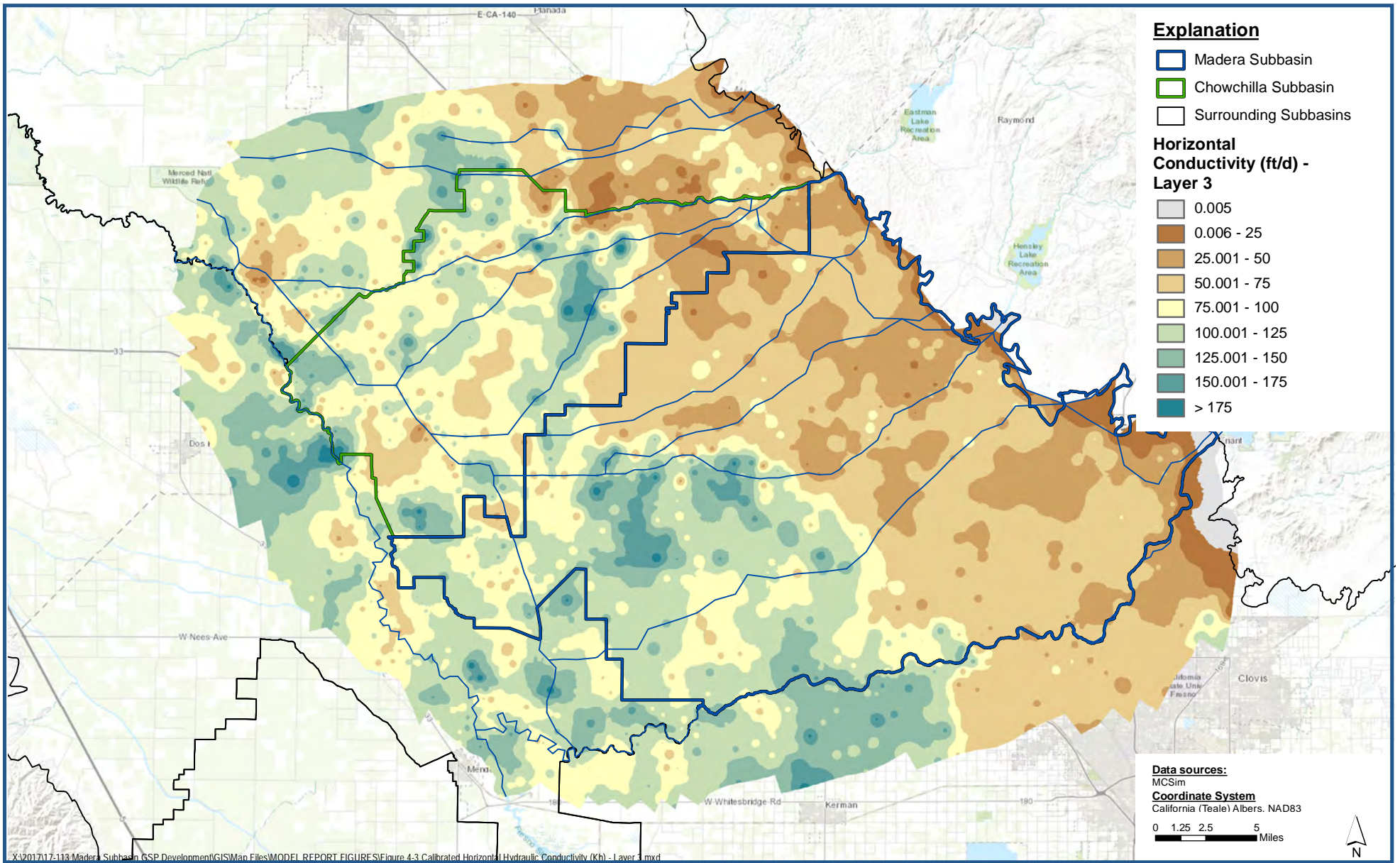
Figure 4-1



Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

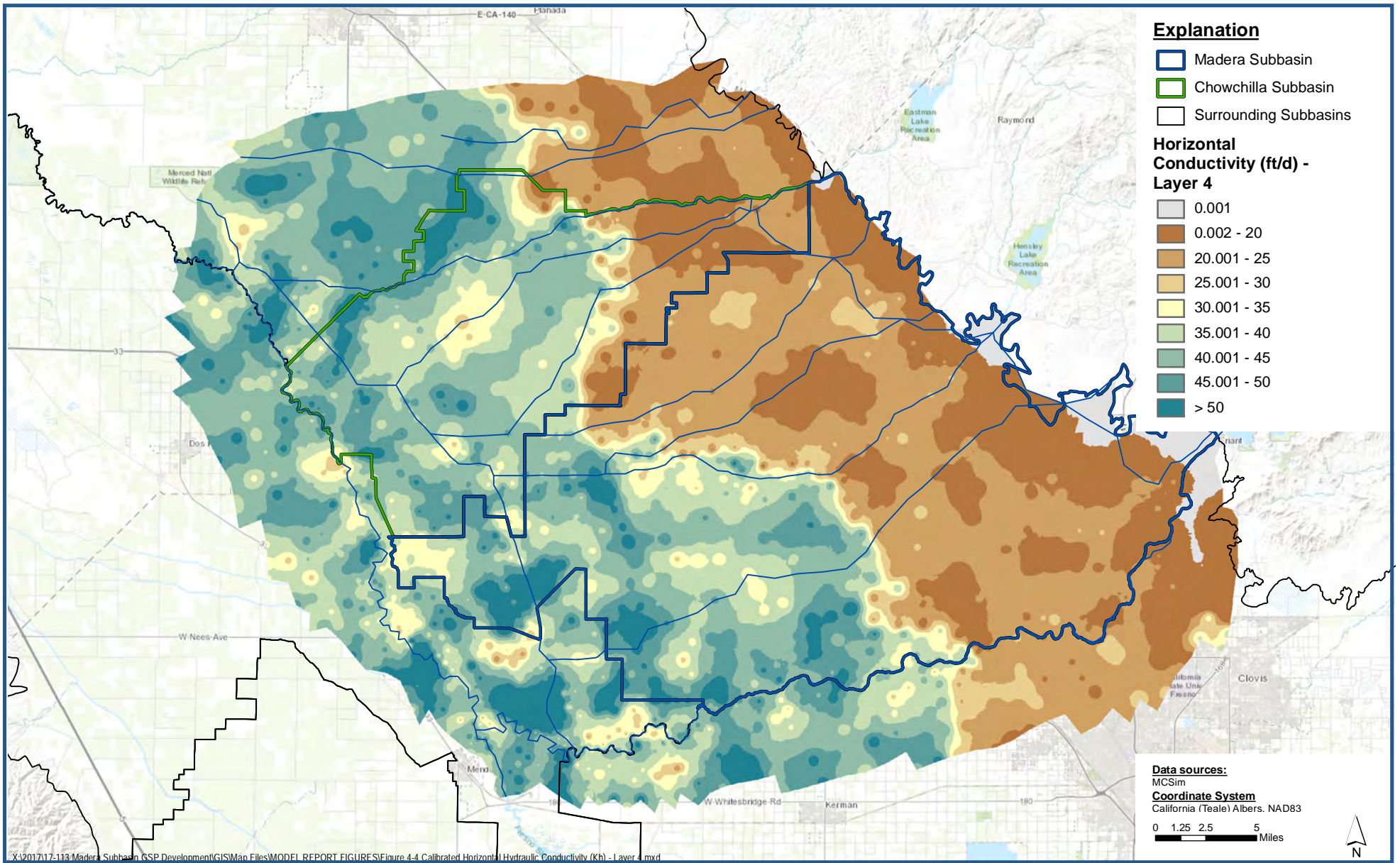
Figure 4-2



Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

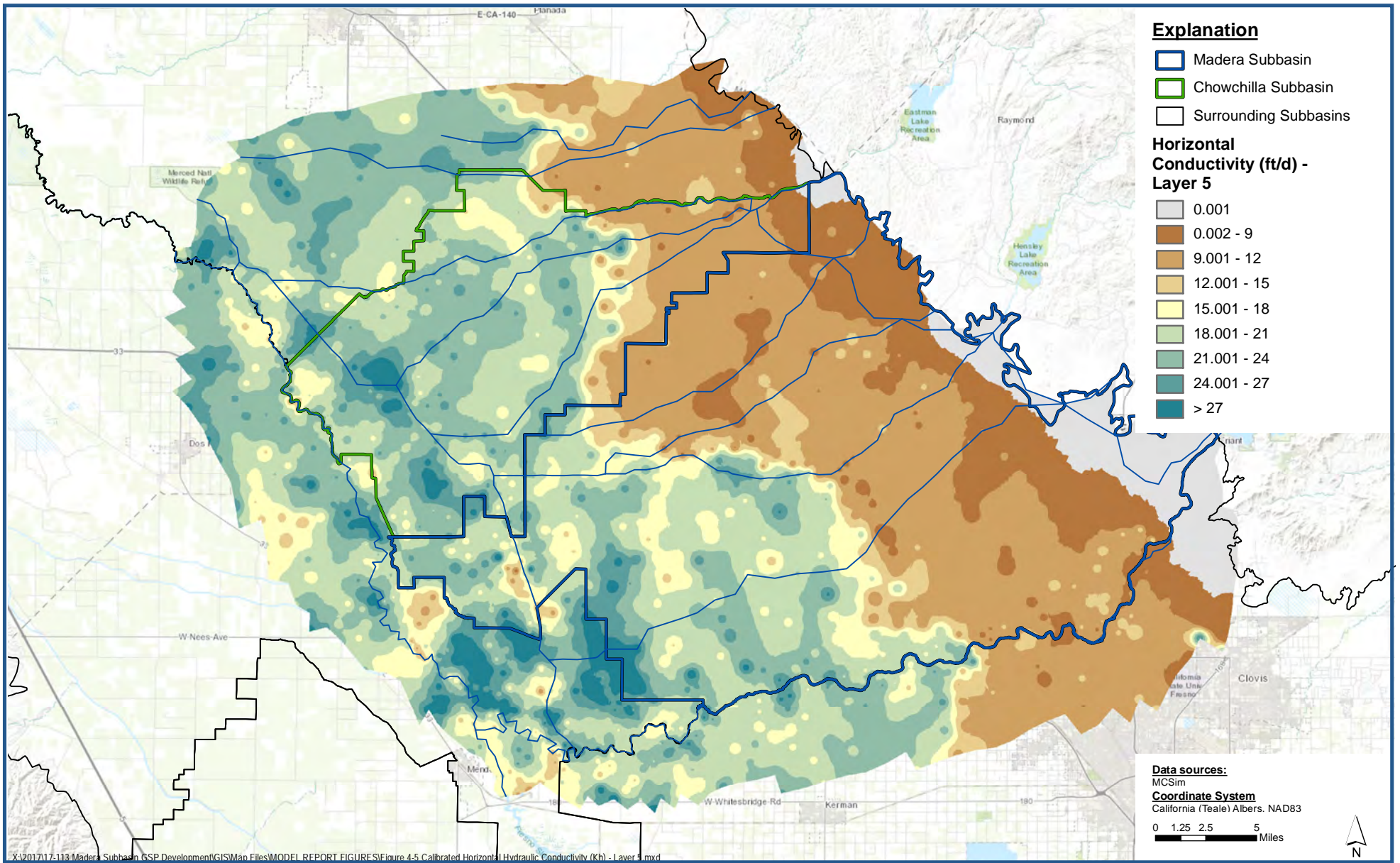
Figure 4-3



Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

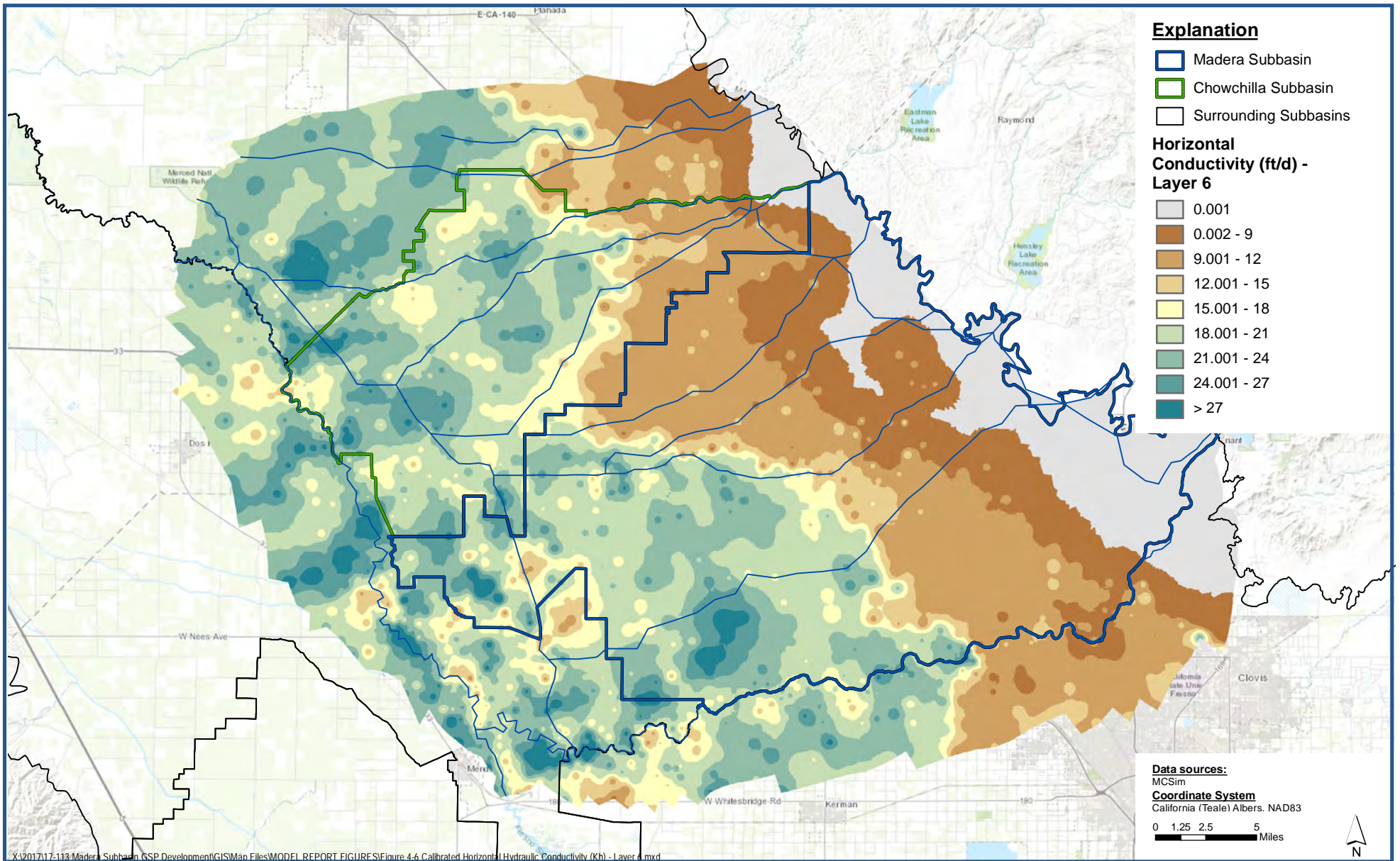
Figure 4-4

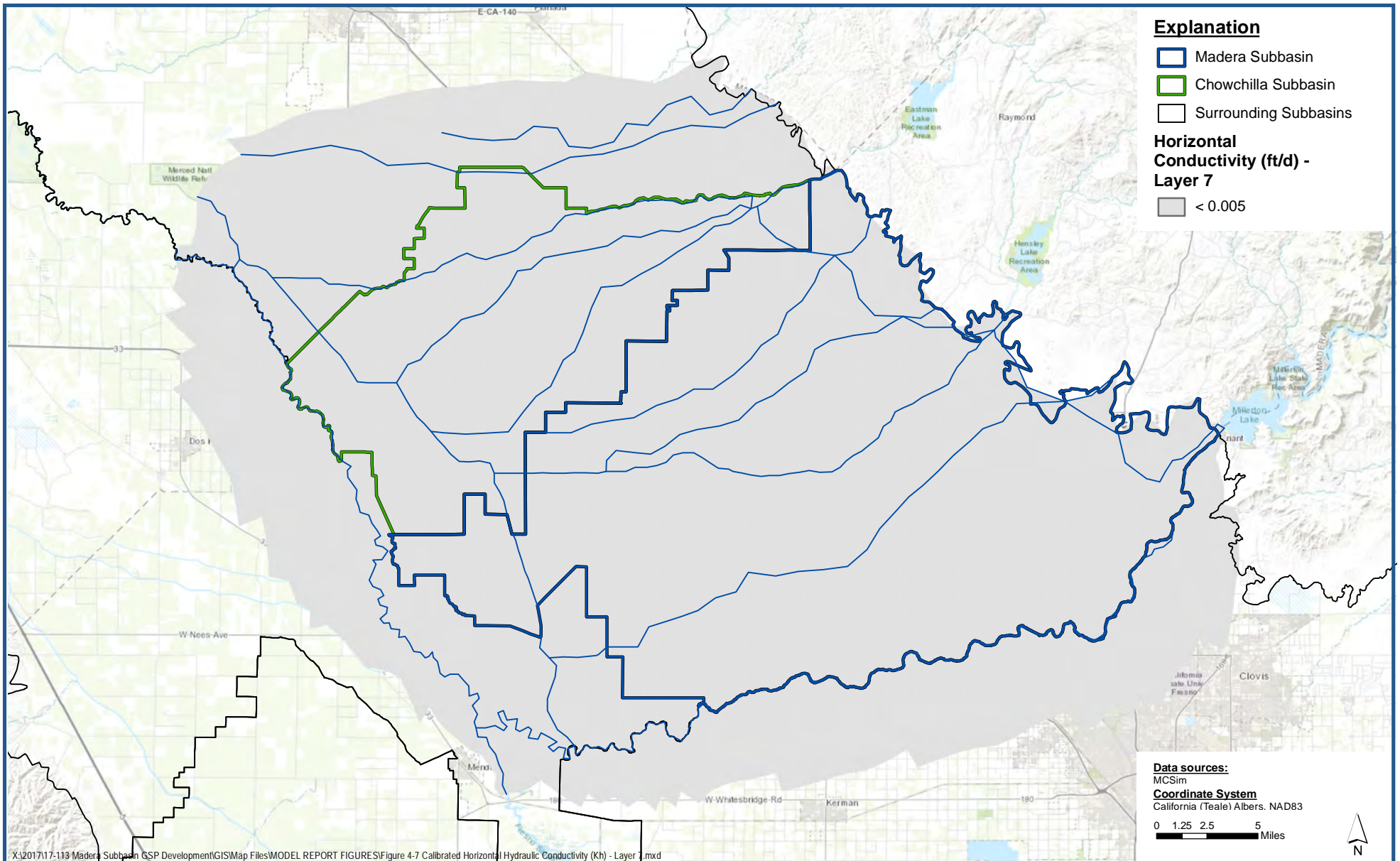


Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-5

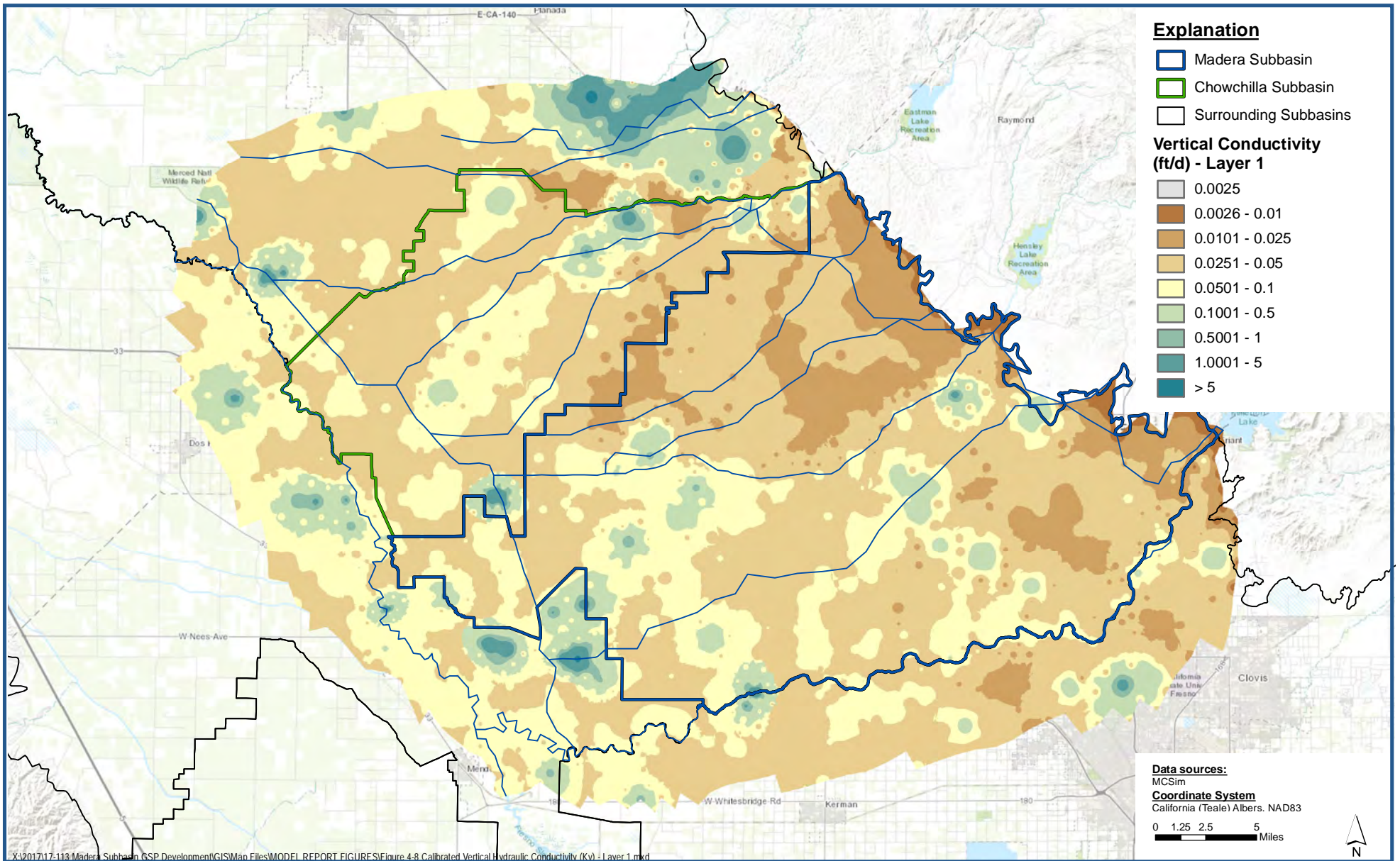




Calibrated Horizontal Hydraulic Conductivity (Kh) - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

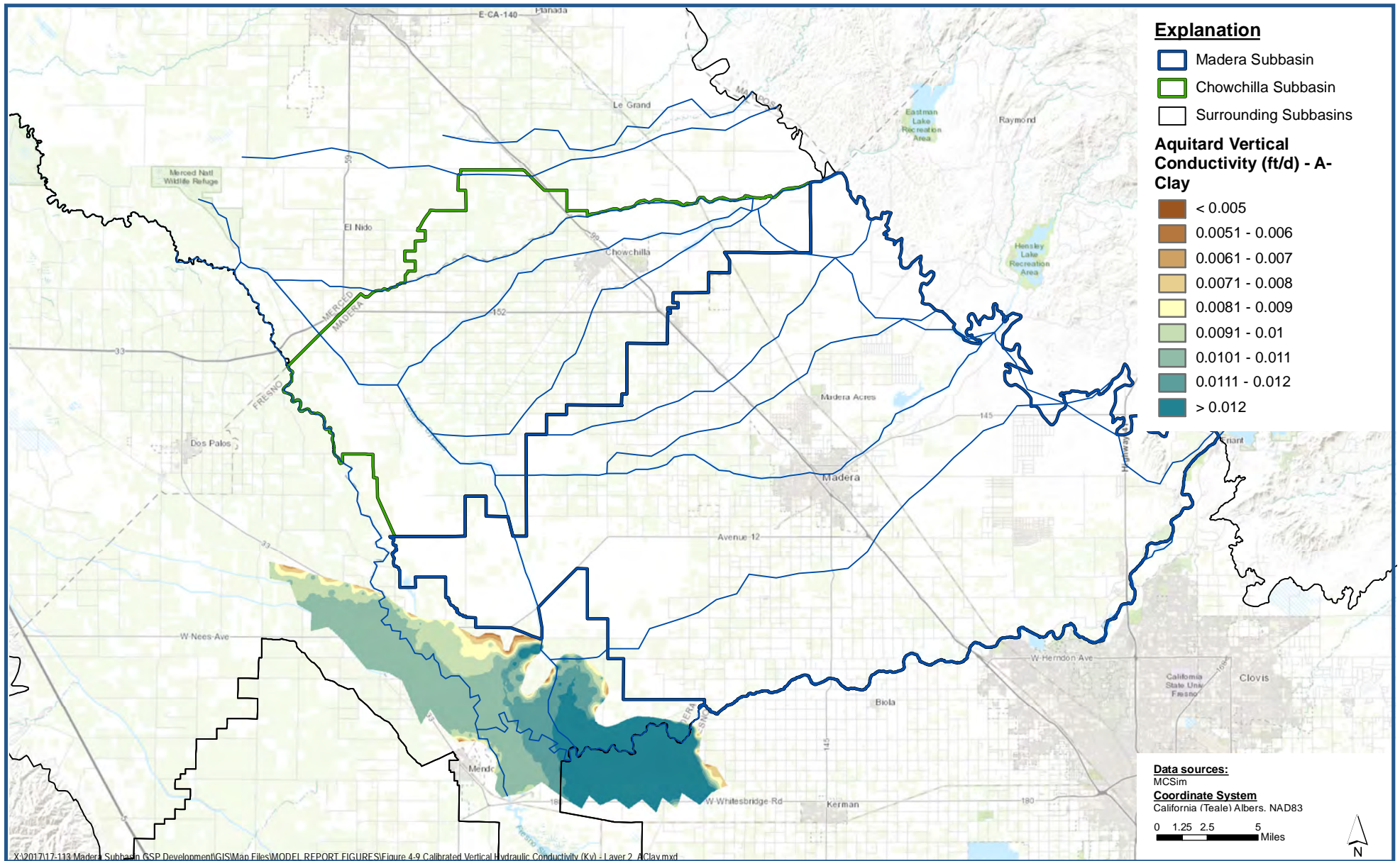
Figure 4-7

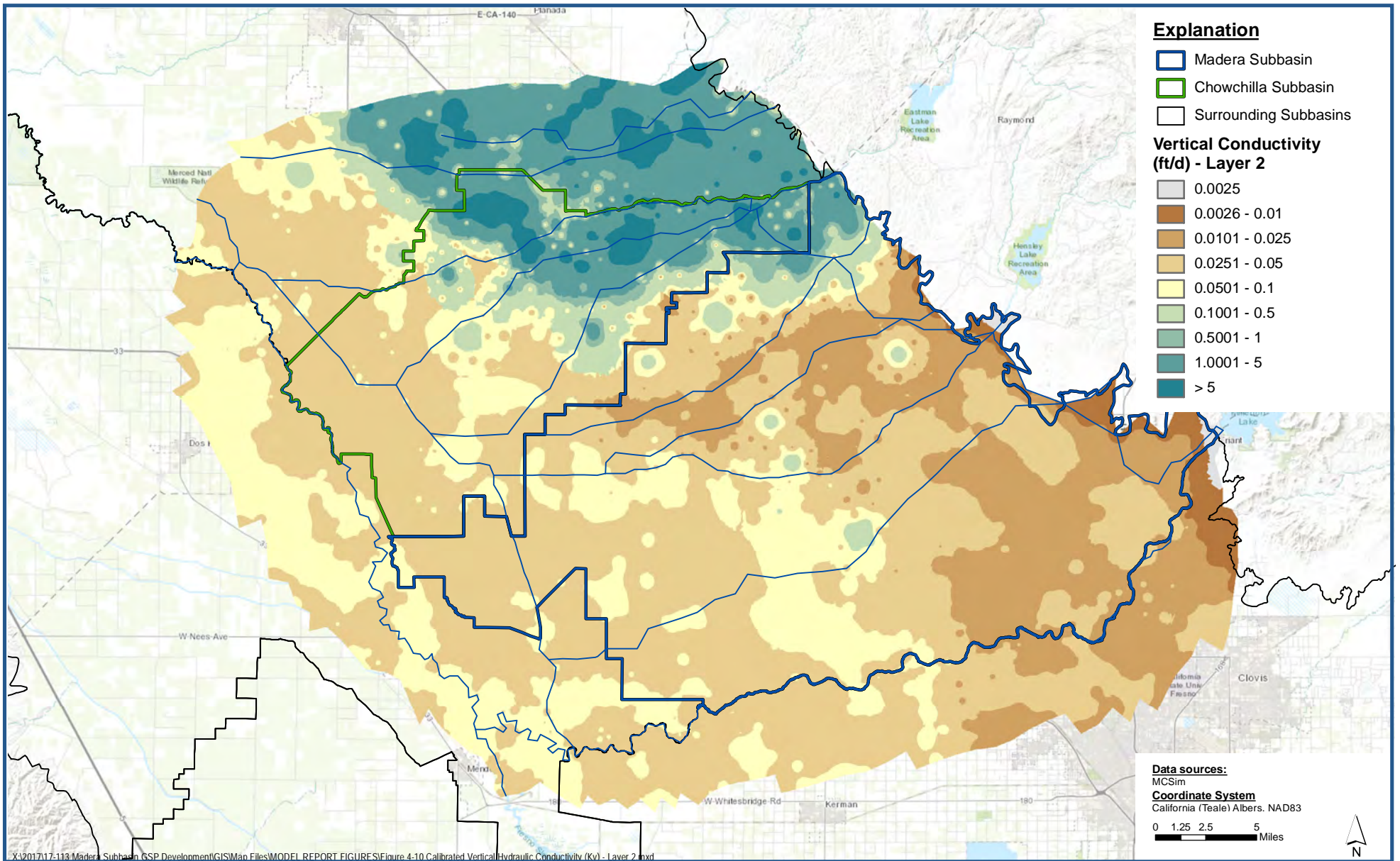


Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-8

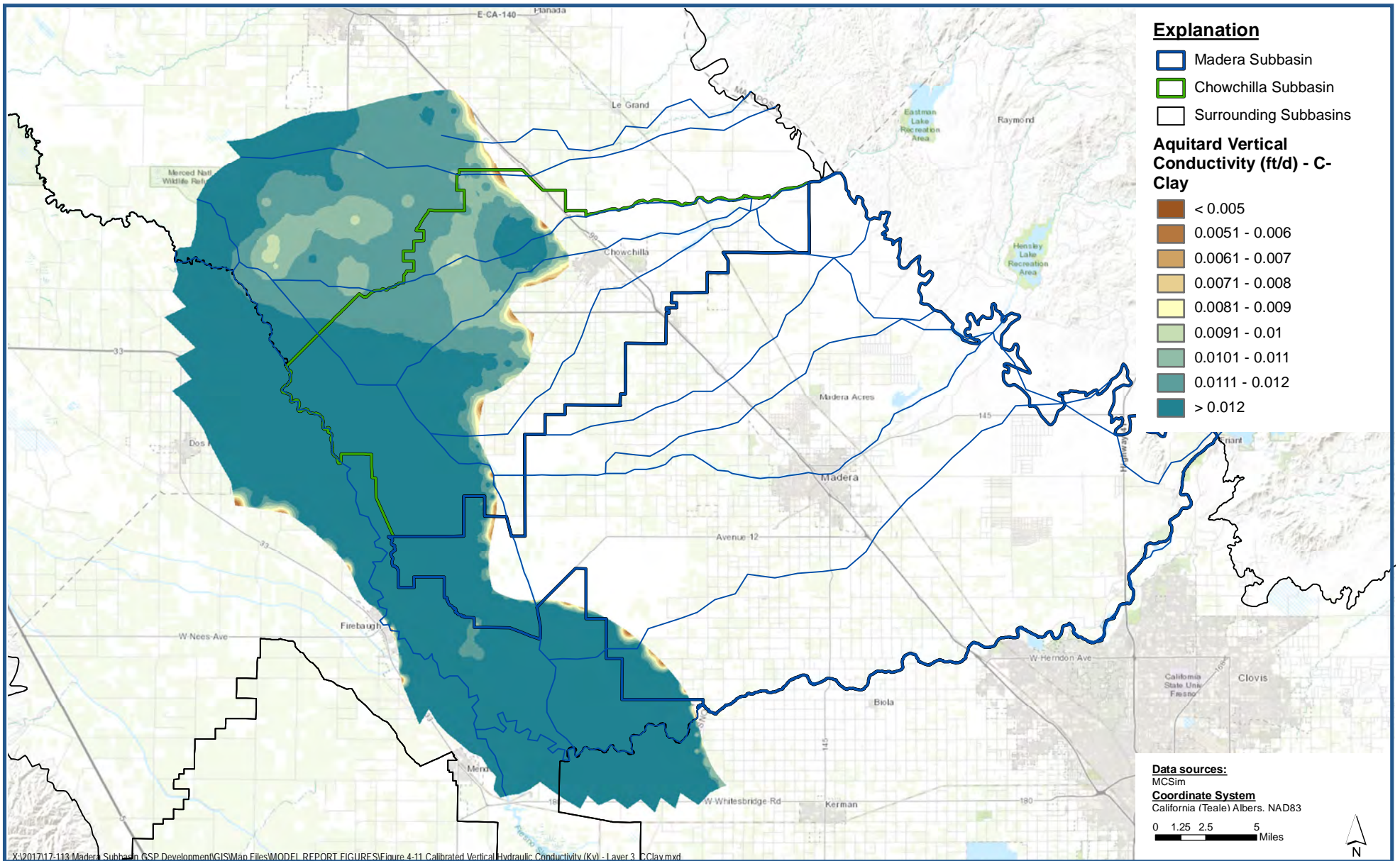




Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

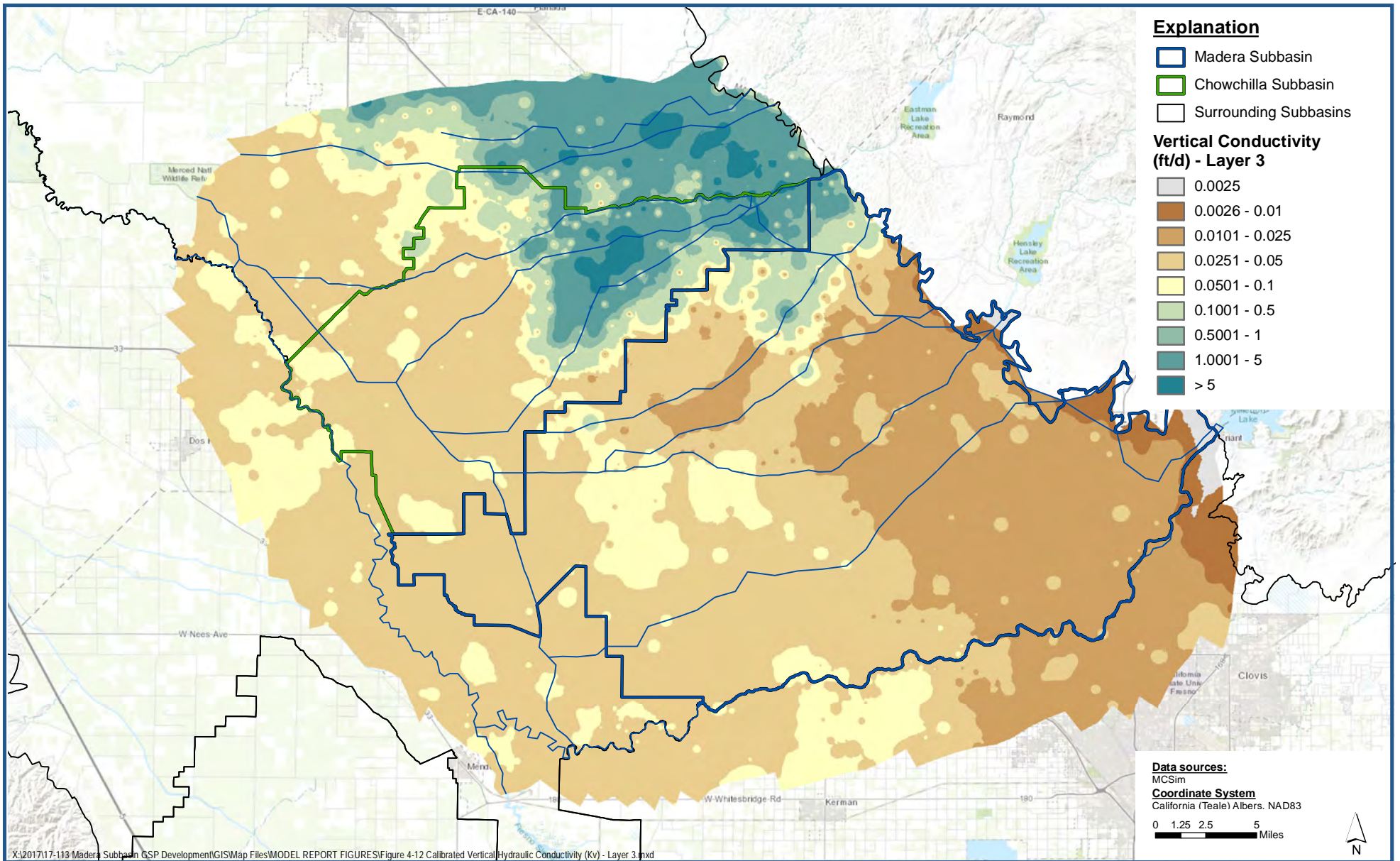
Figure 4-10



Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 3 Aquitard (C-Clay)

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

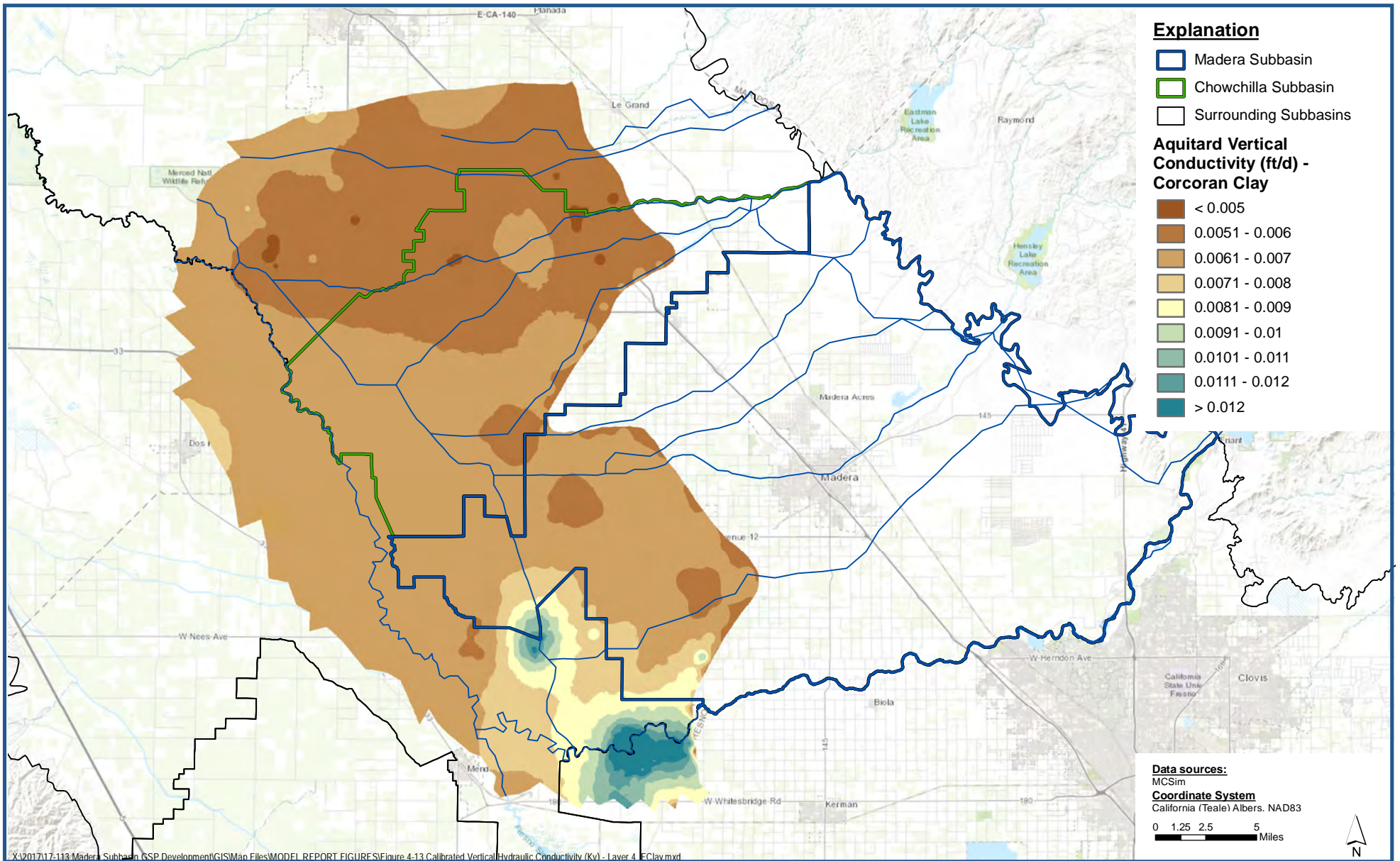
Figure 4-11



Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

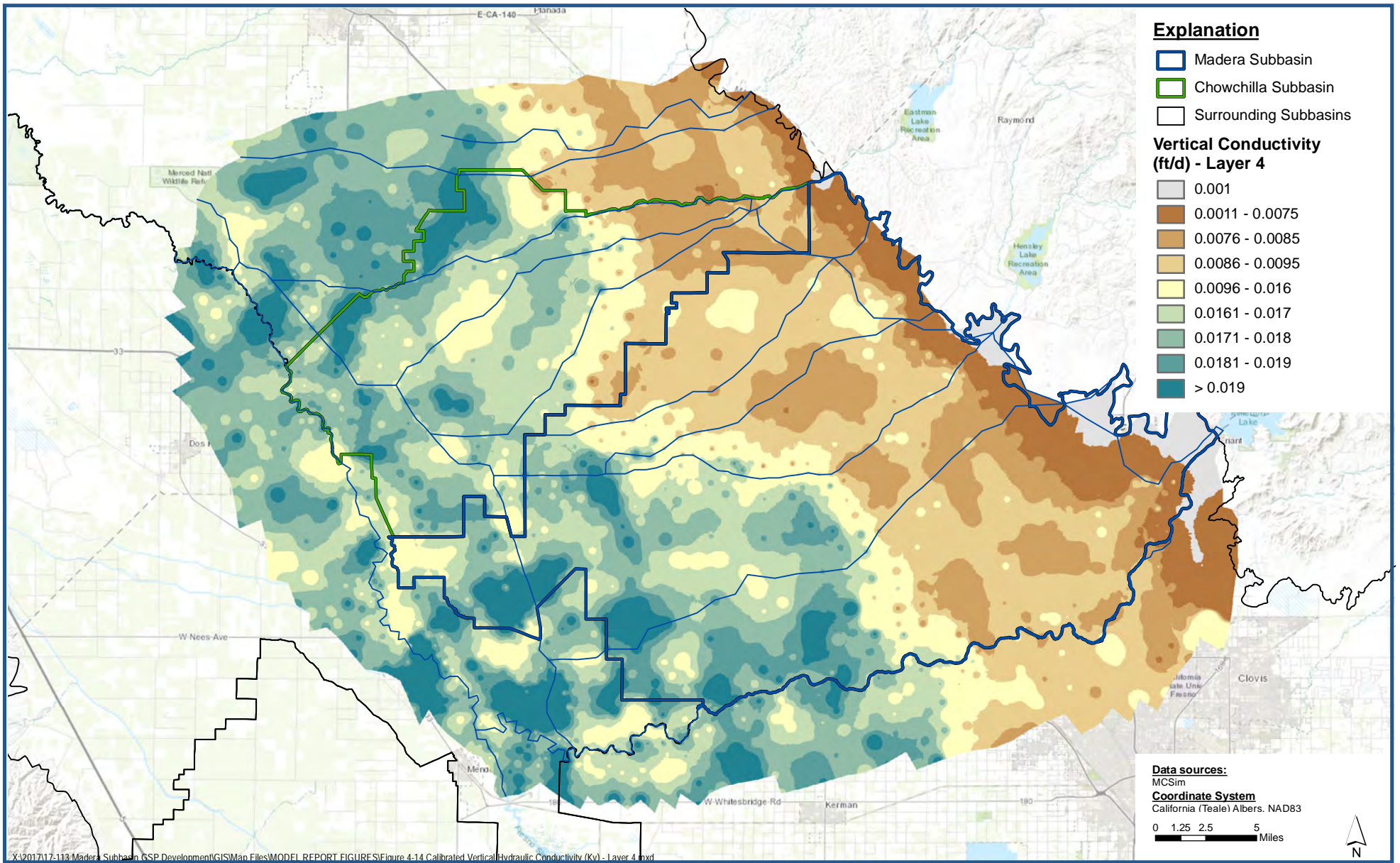
Figure 4-12



Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 4 Aquitard (Corcoran Clay)

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

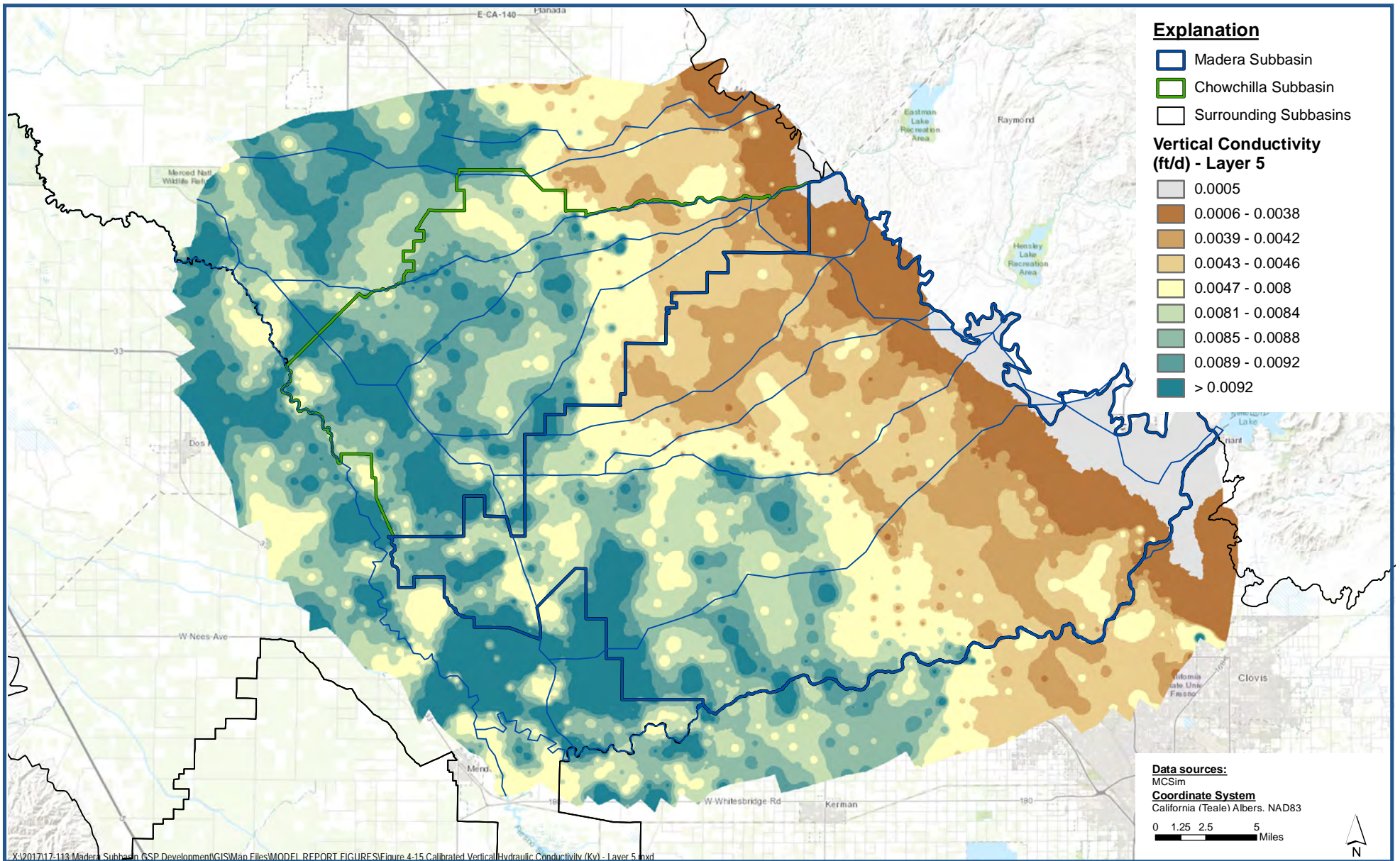
Figure 4-13

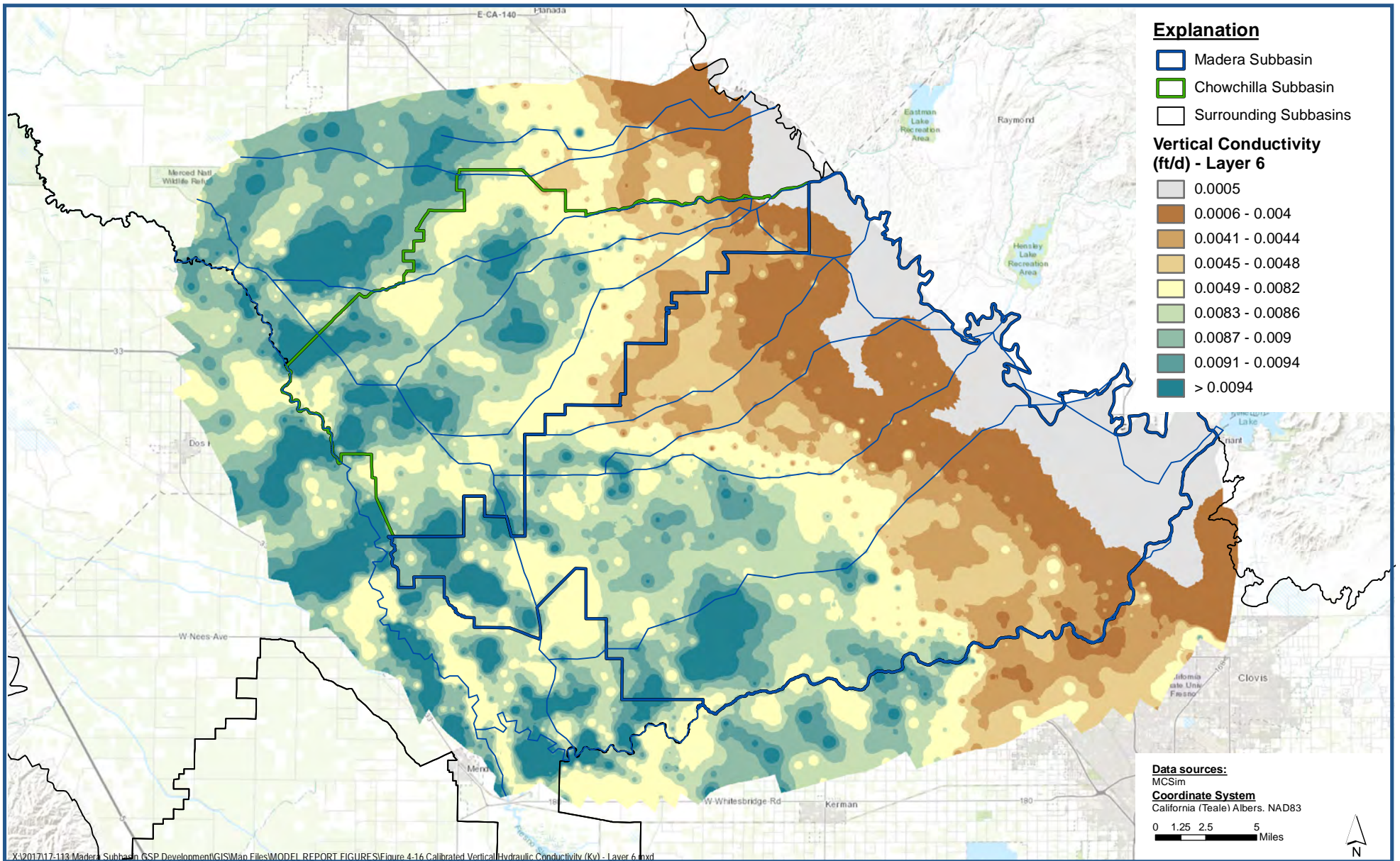


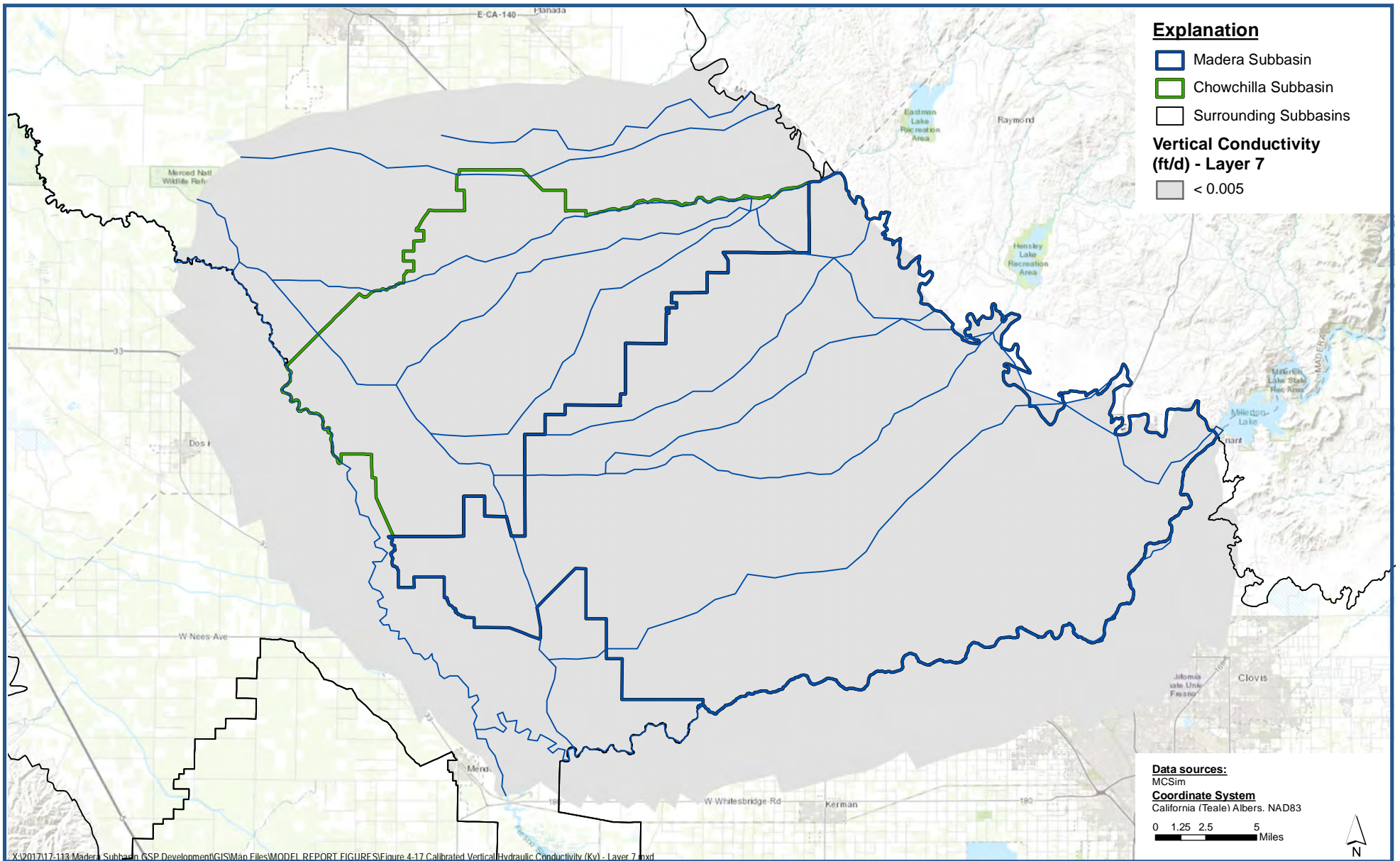
Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 4

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-14



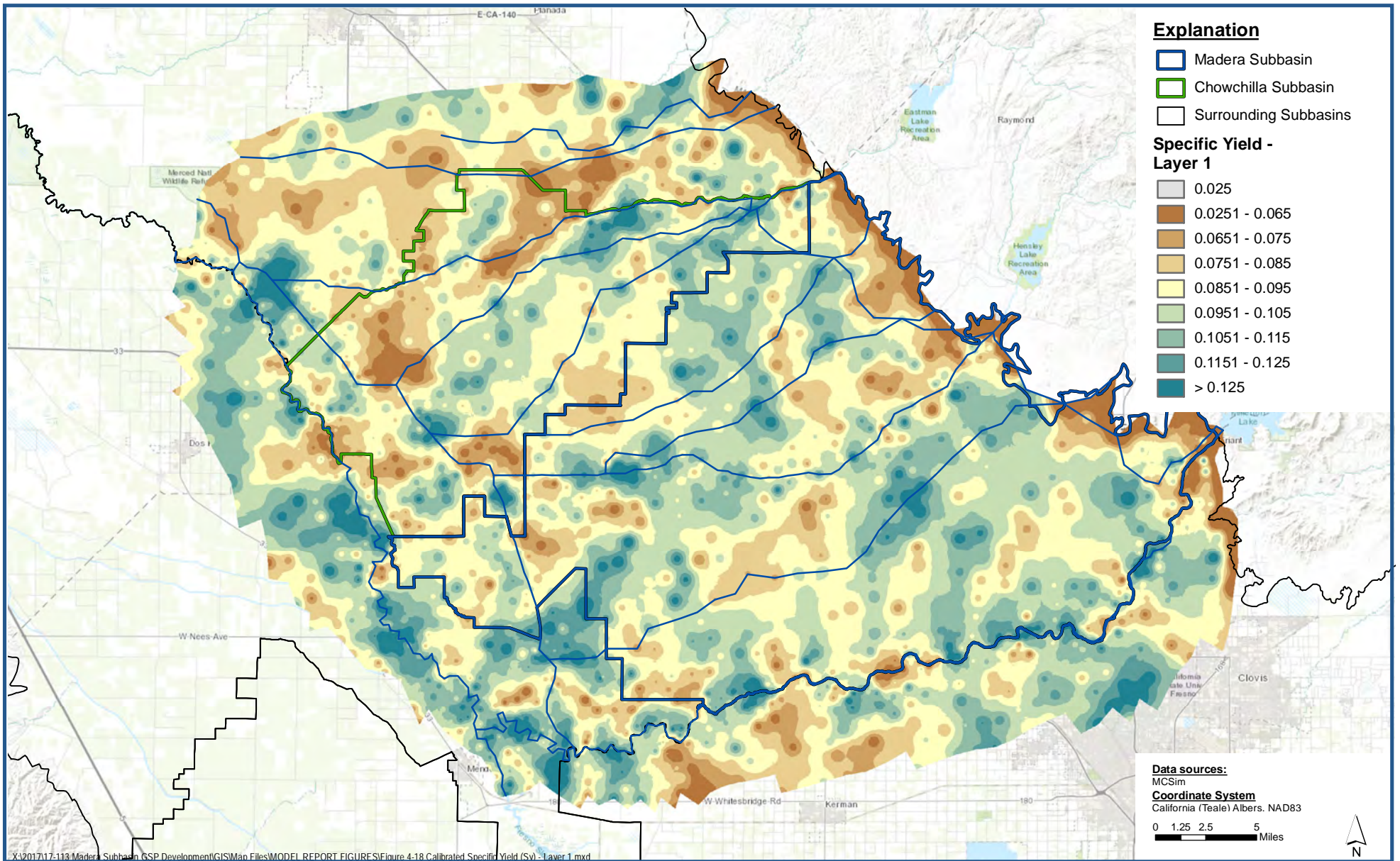




Calibrated Vertical Hydraulic Conductivity (Kv) - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

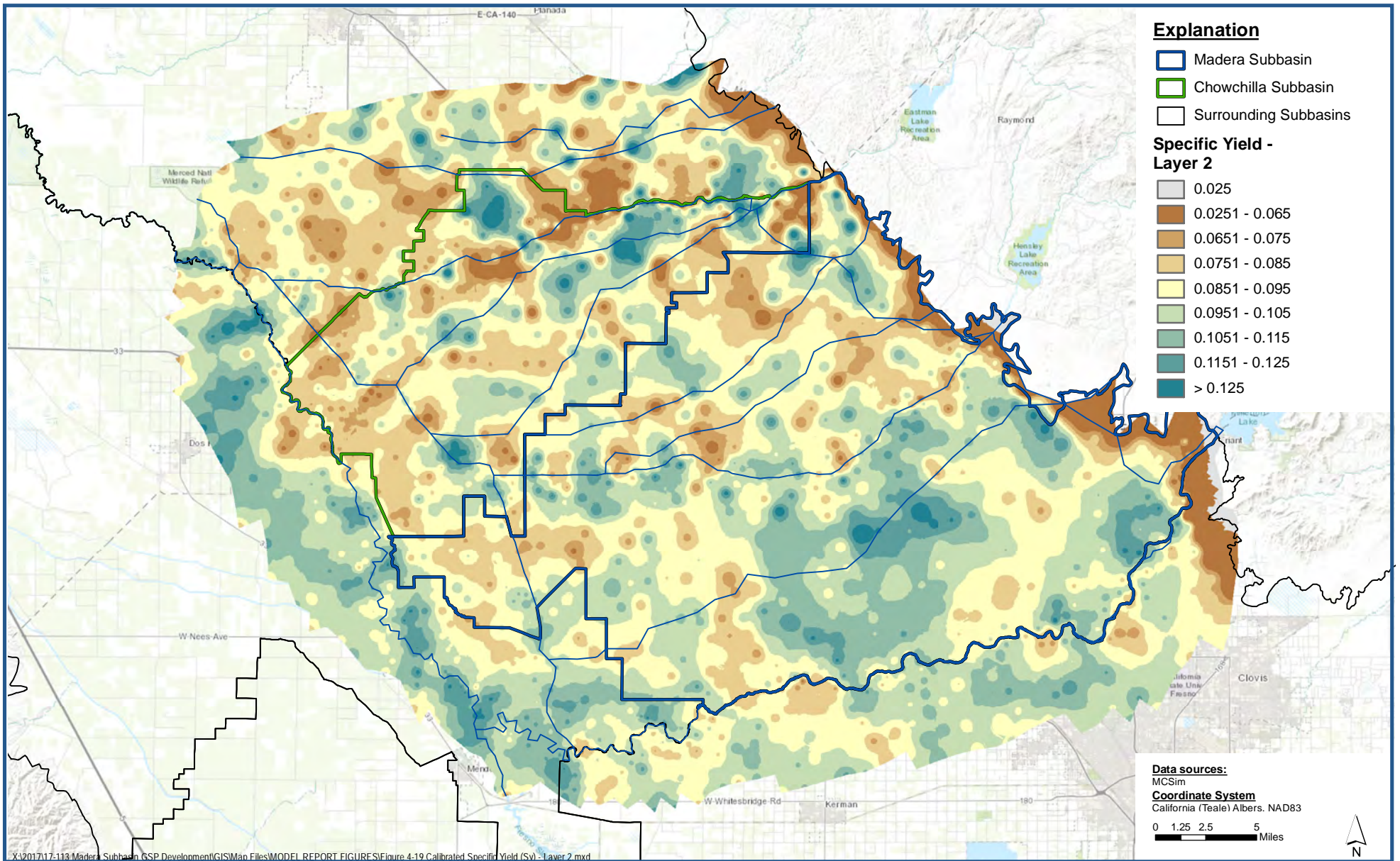
Figure 4-17



Calibrated Specific Yield (Sy) - Layer 1

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

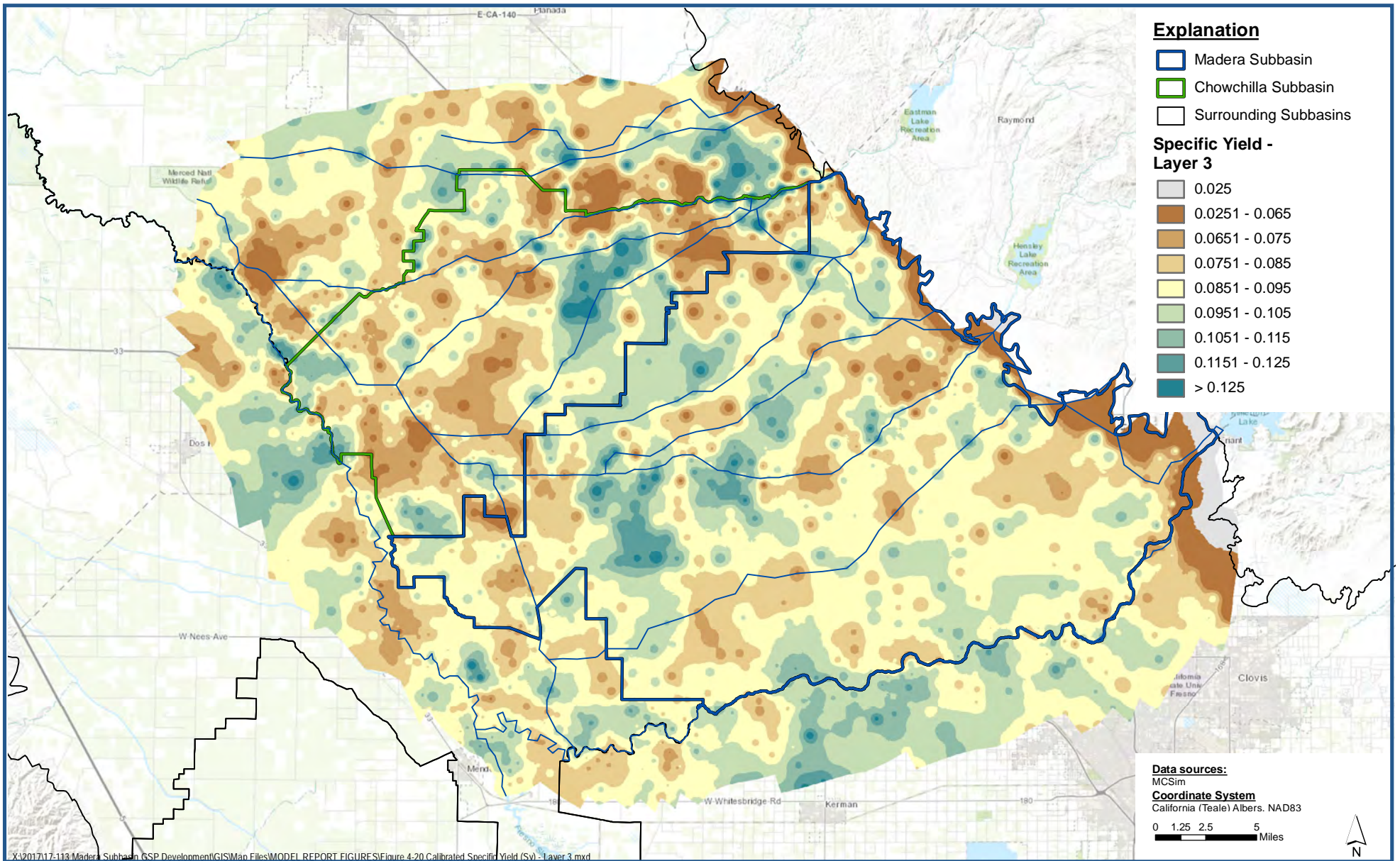
Figure 4-18



Calibrated Specific Yield (Sy) - Layer 2

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

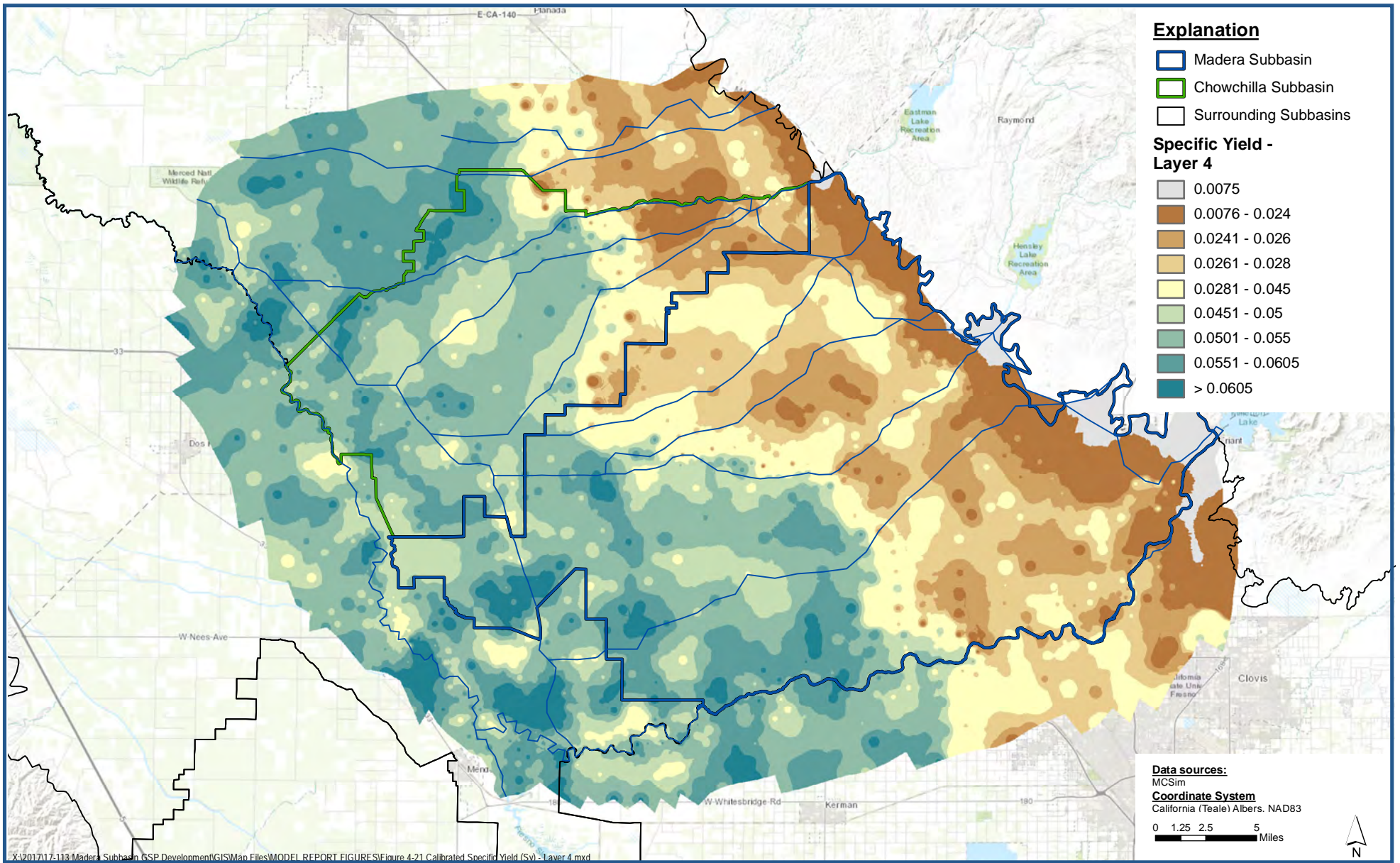
Figure 4-19

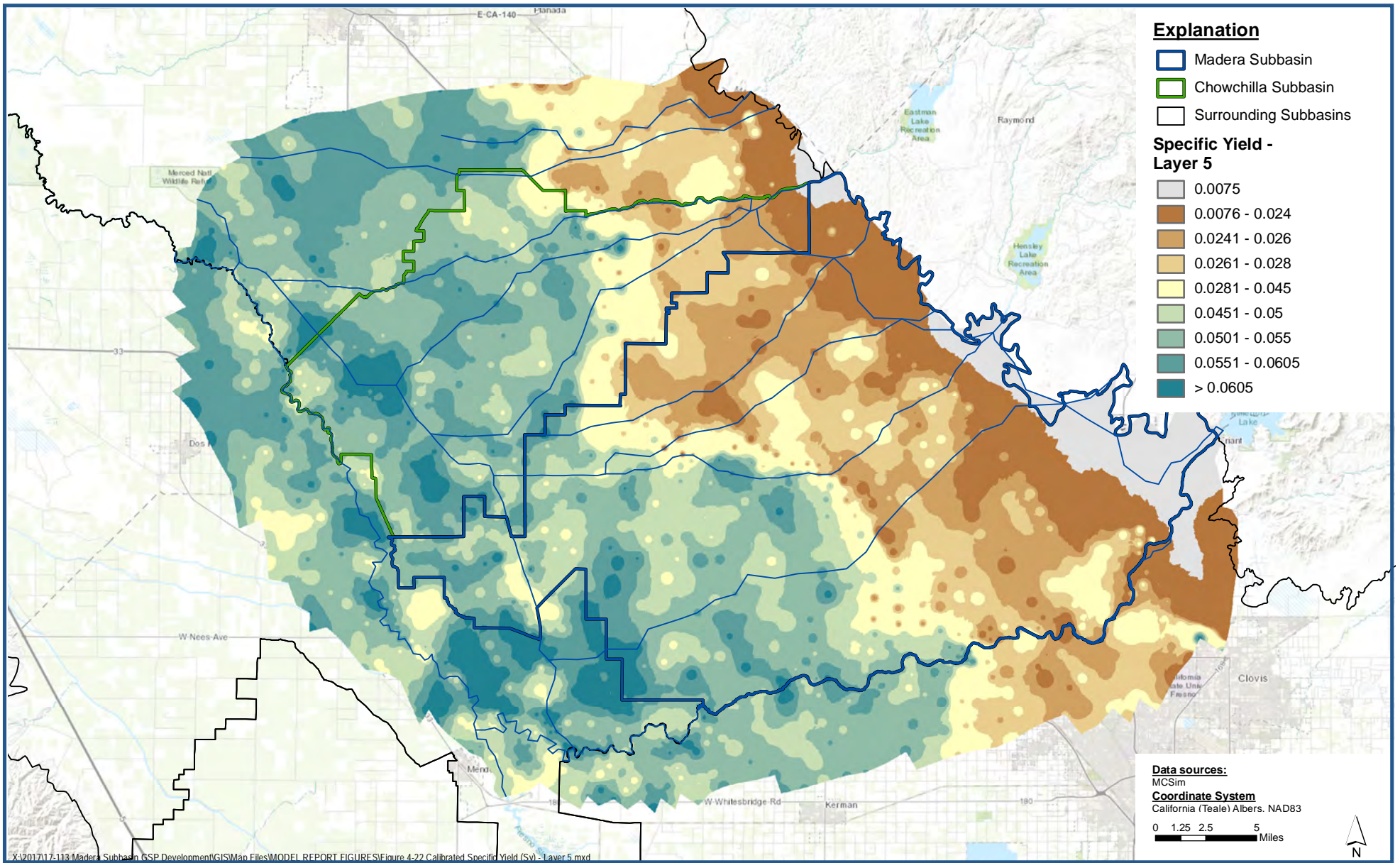


Calibrated Specific Yield (Sy) - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-20

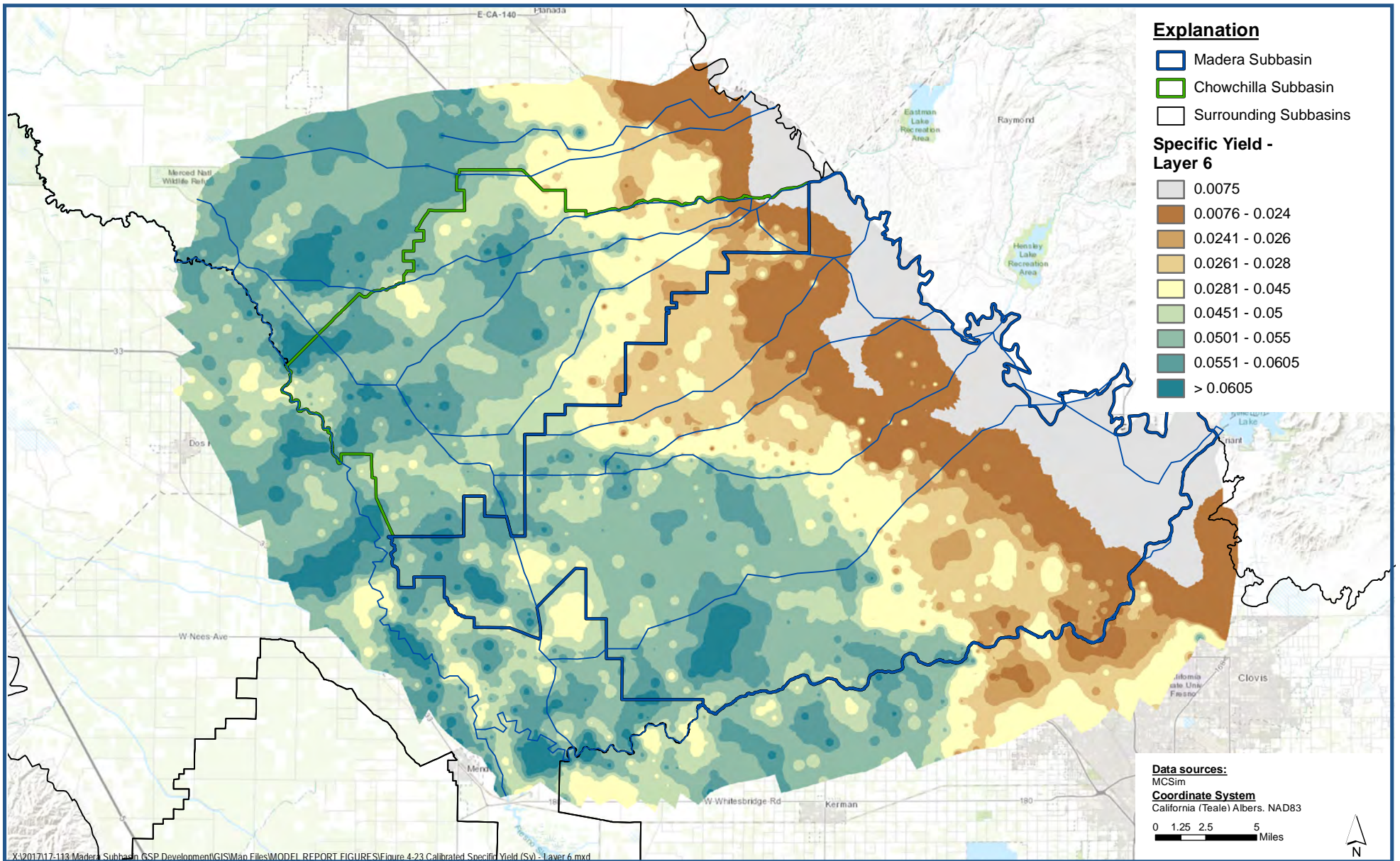




Calibrated Specific Yield (Sy) - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

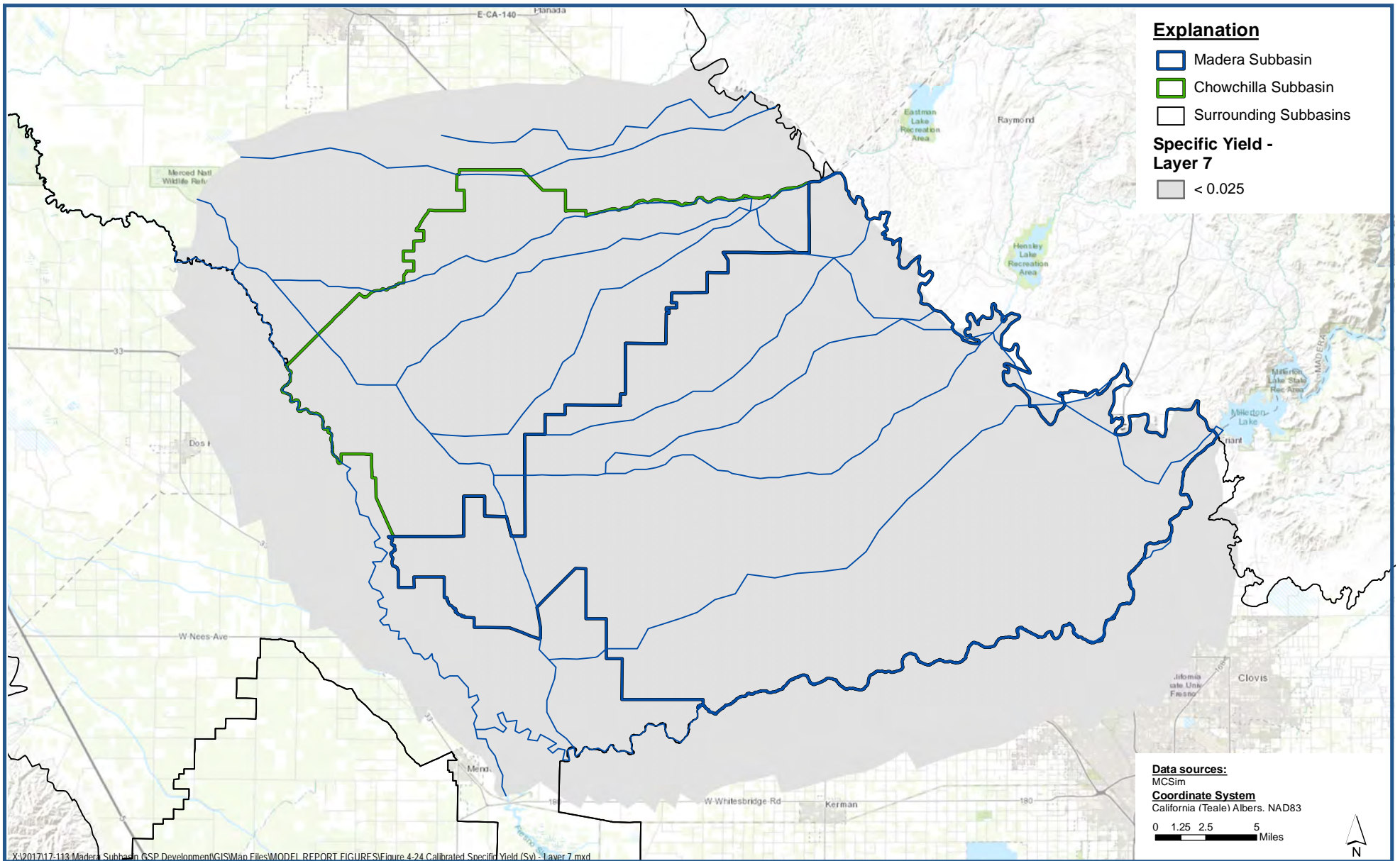
Figure 4-22



Calibrated Specific Yield (Sy) - Layer 6

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

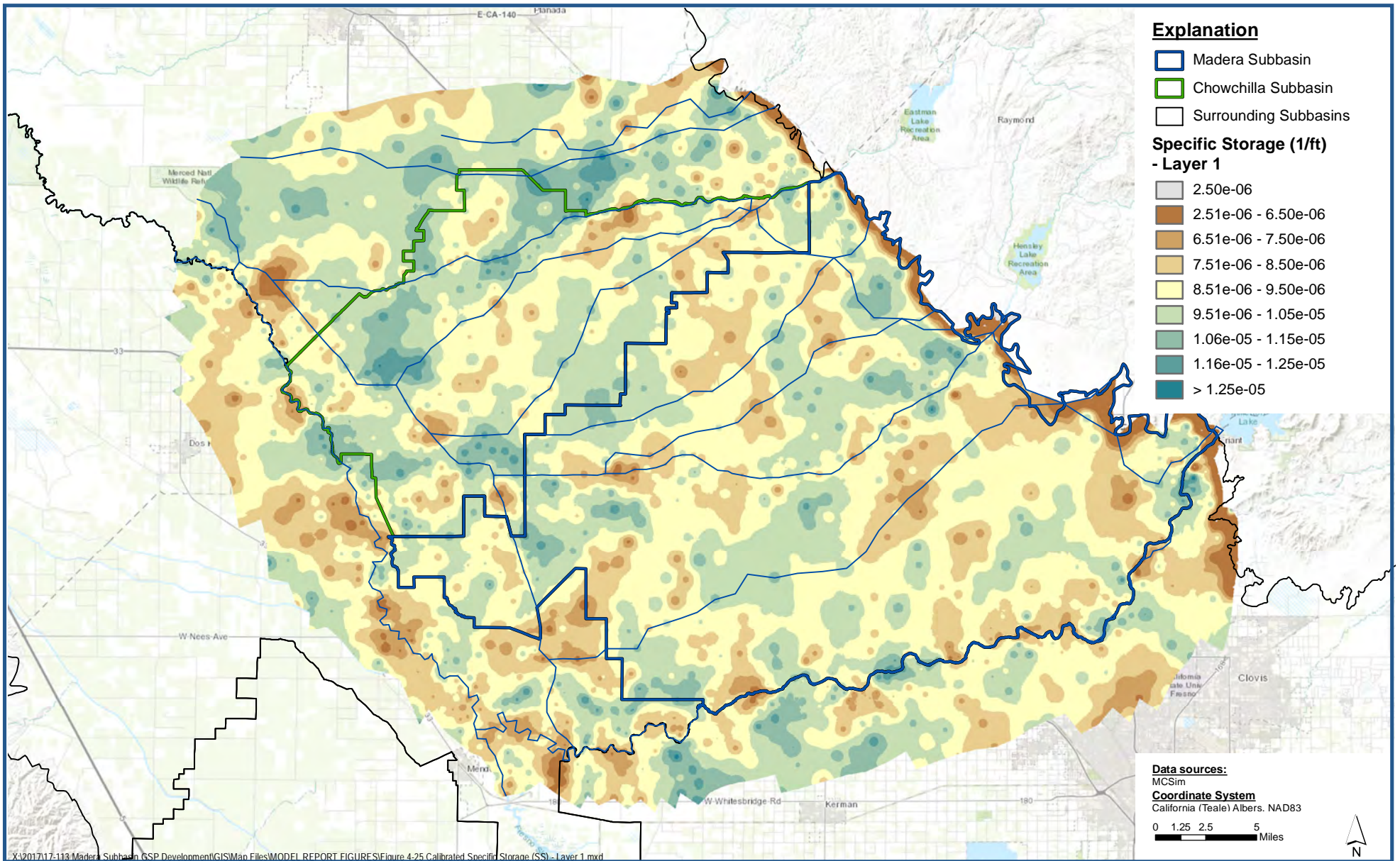
Figure 4-23

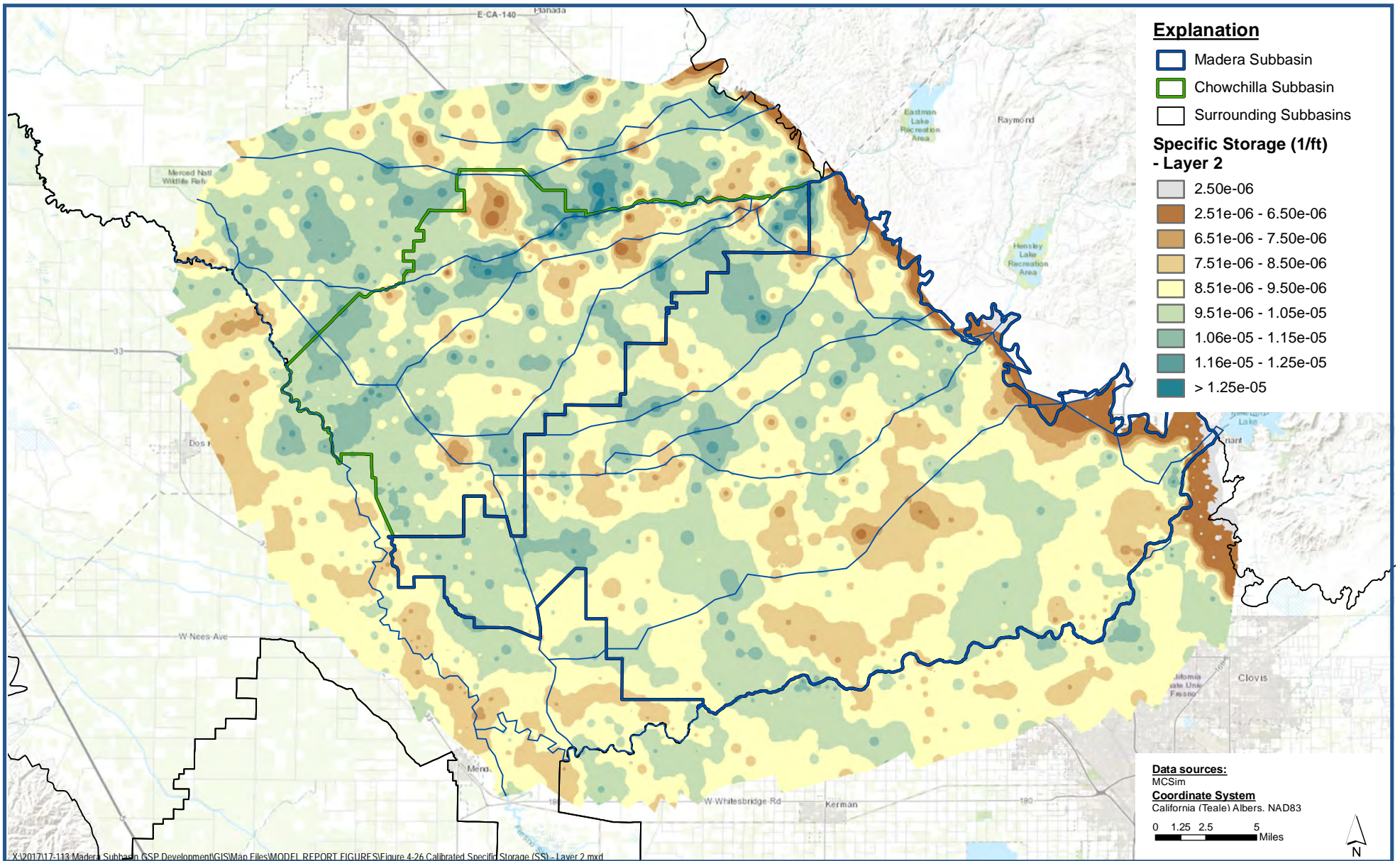


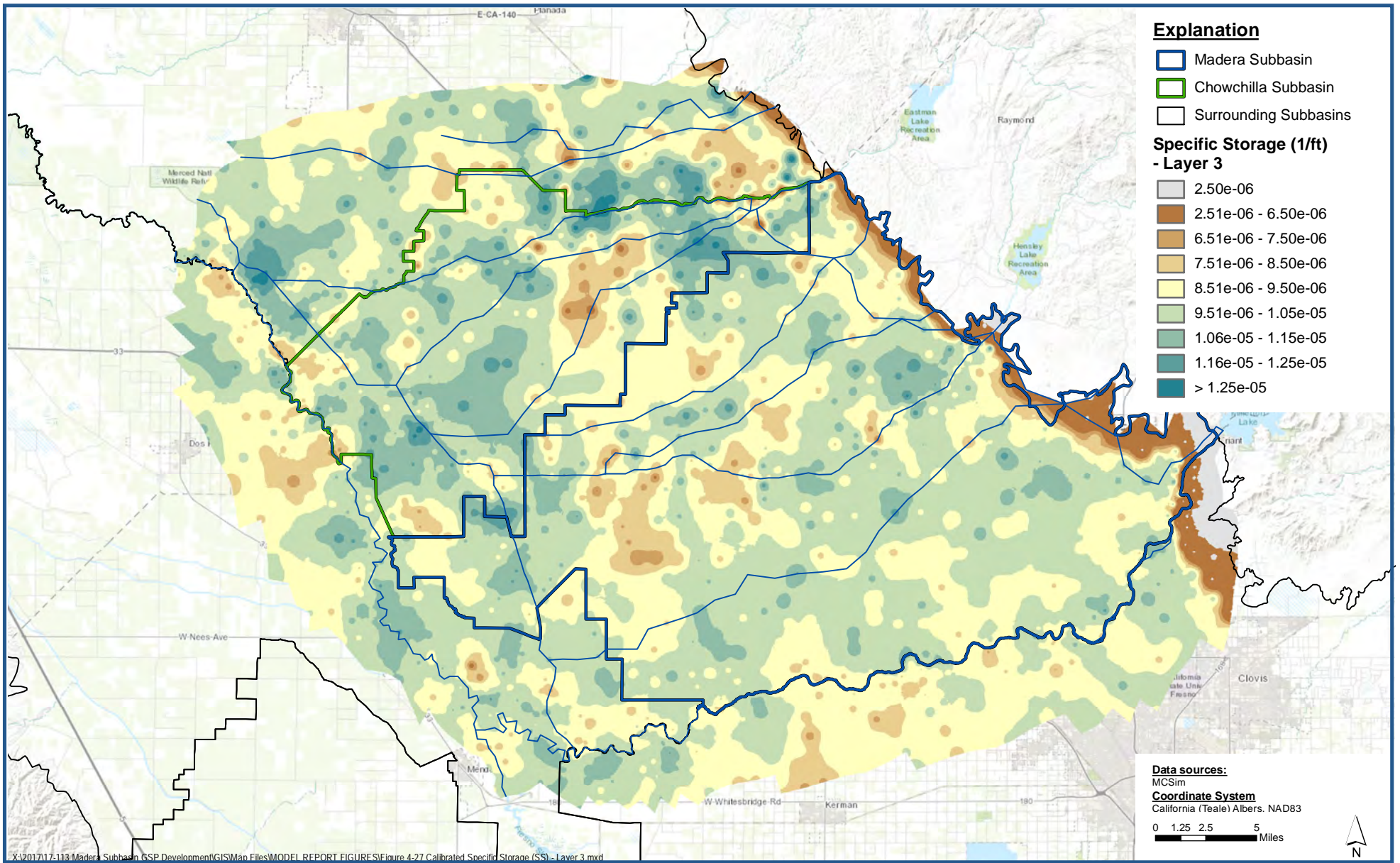
Calibrated Specific Yield (Sy) - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-24



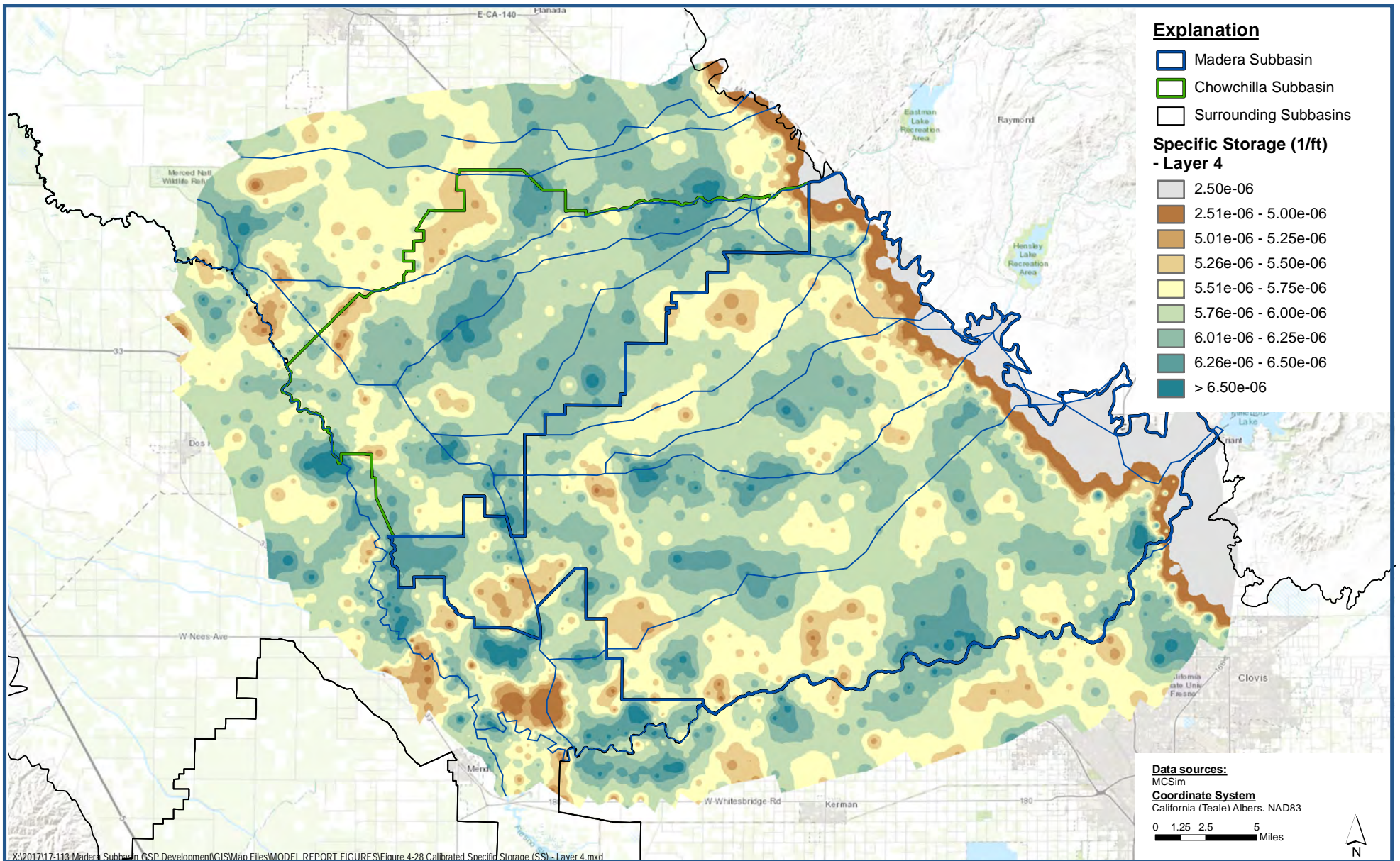


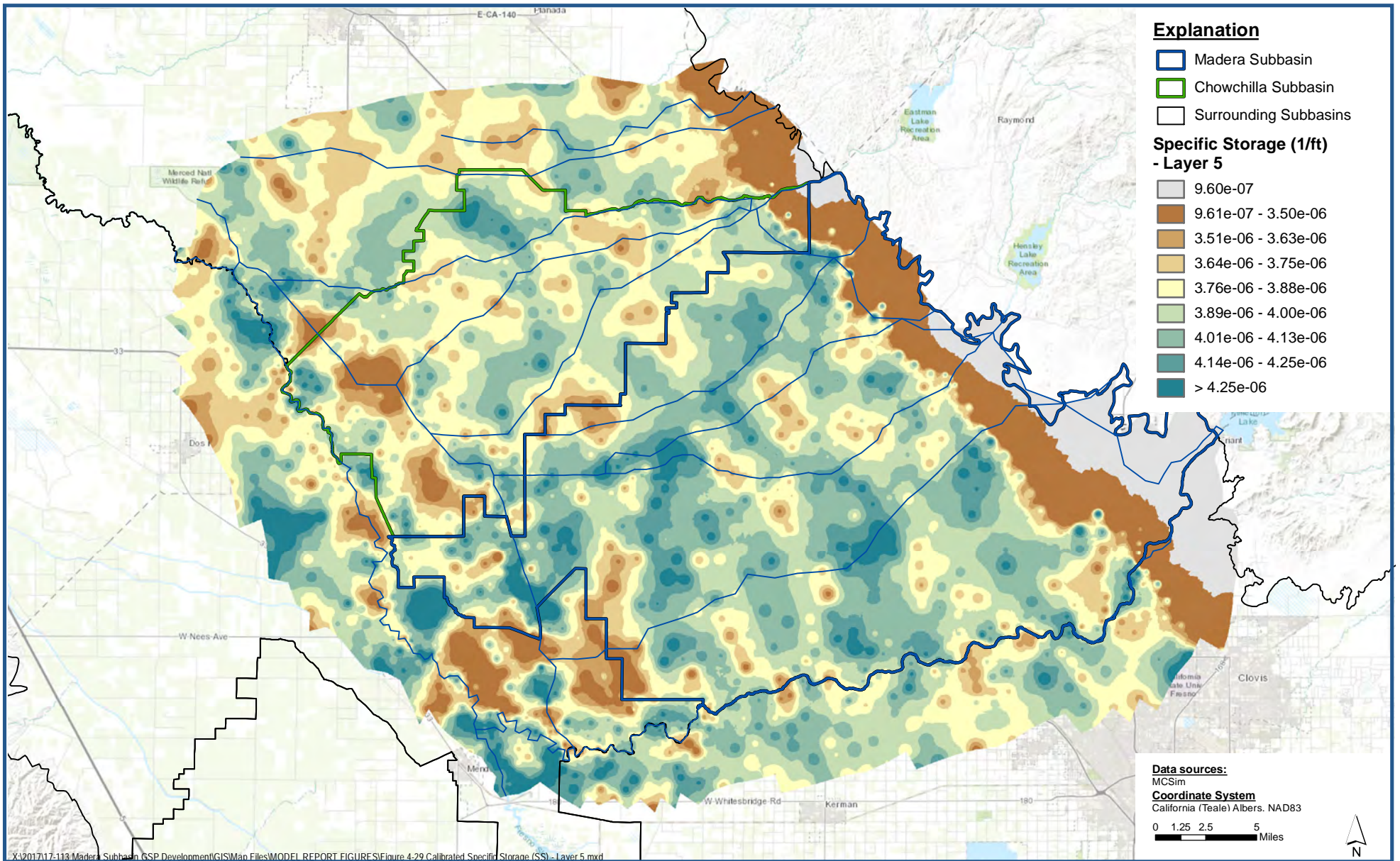


Calibrated Specific Storage (SS) - Layer 3

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-27

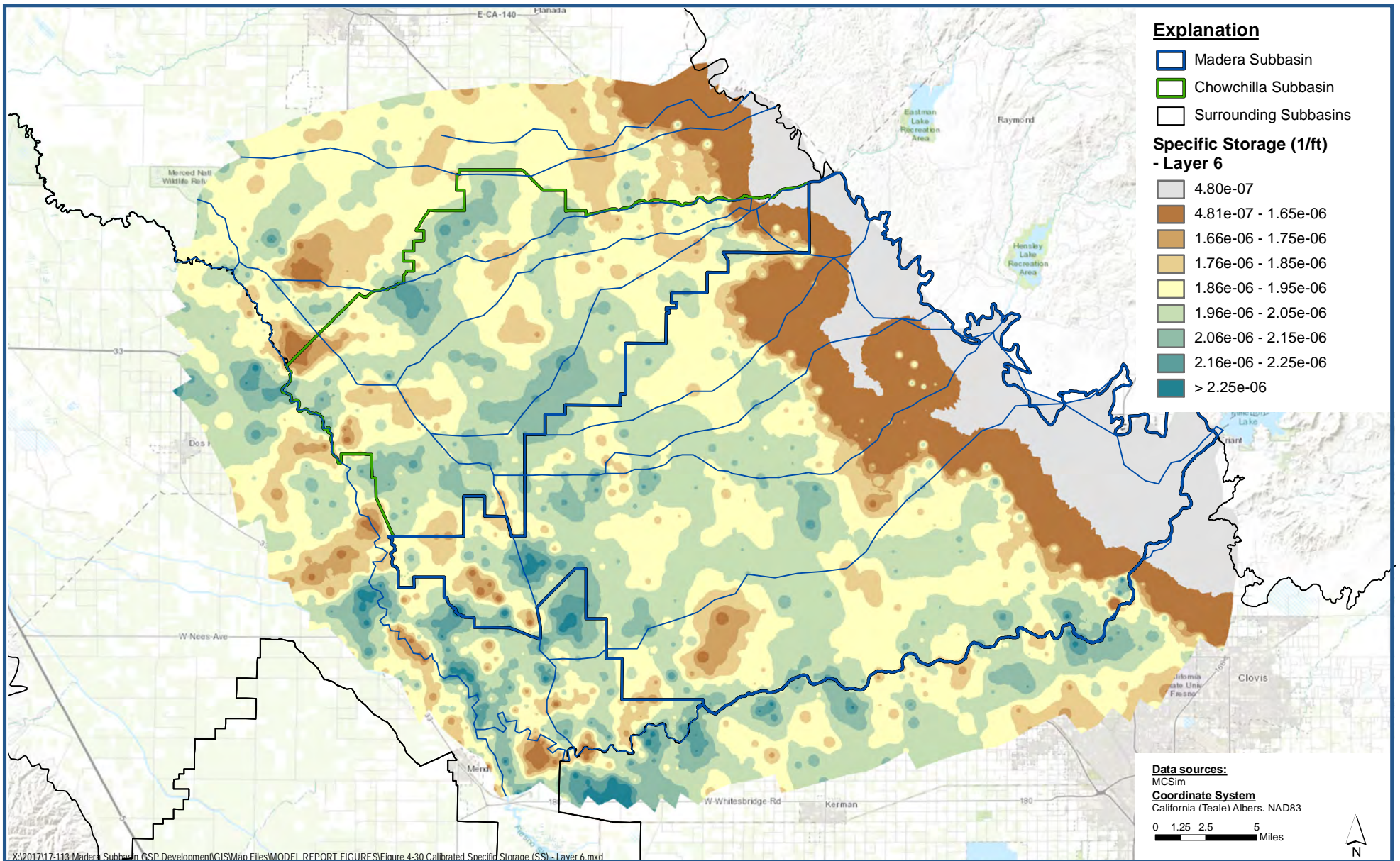


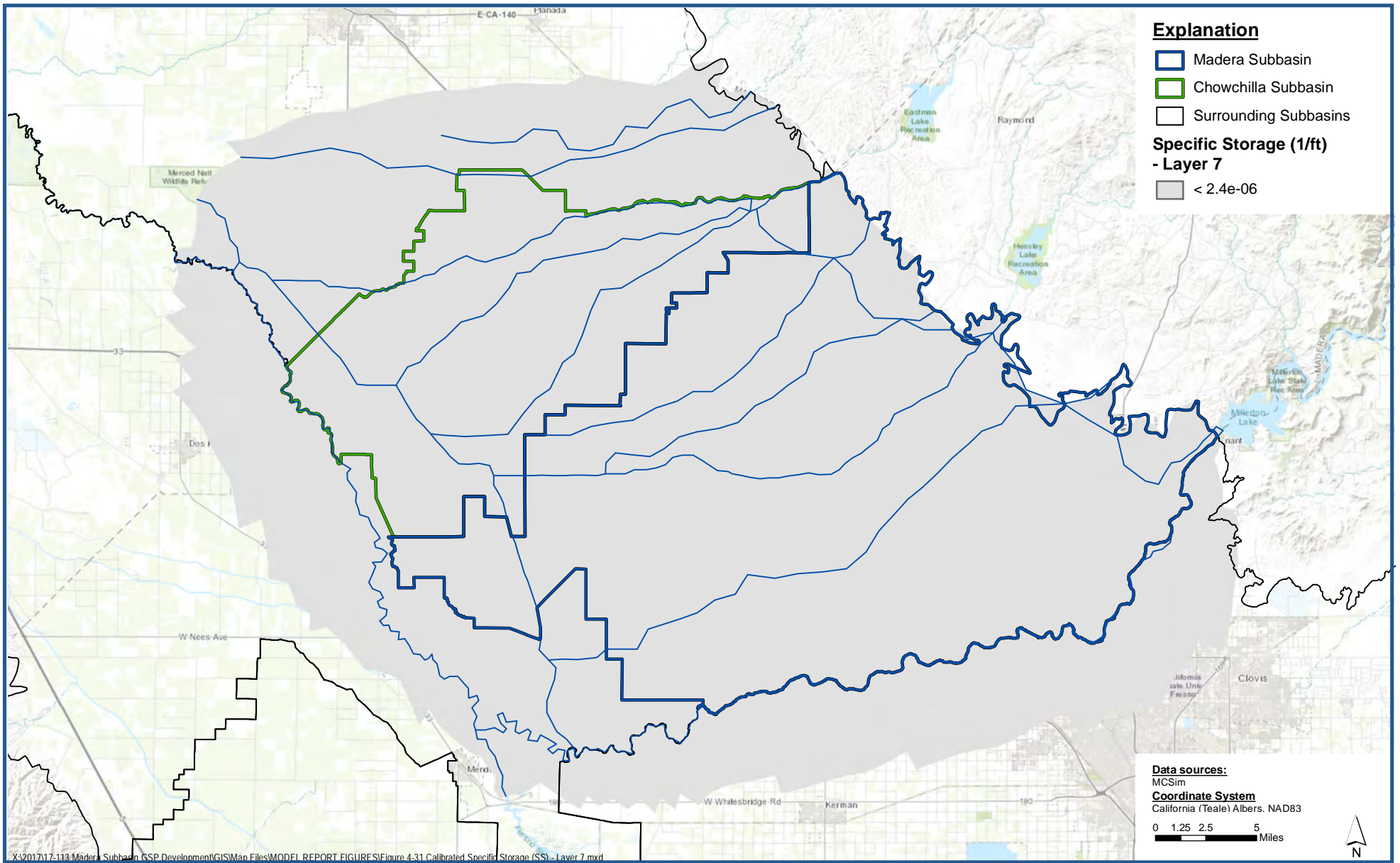


Calibrated Specific Storage (SS) - Layer 5

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-29

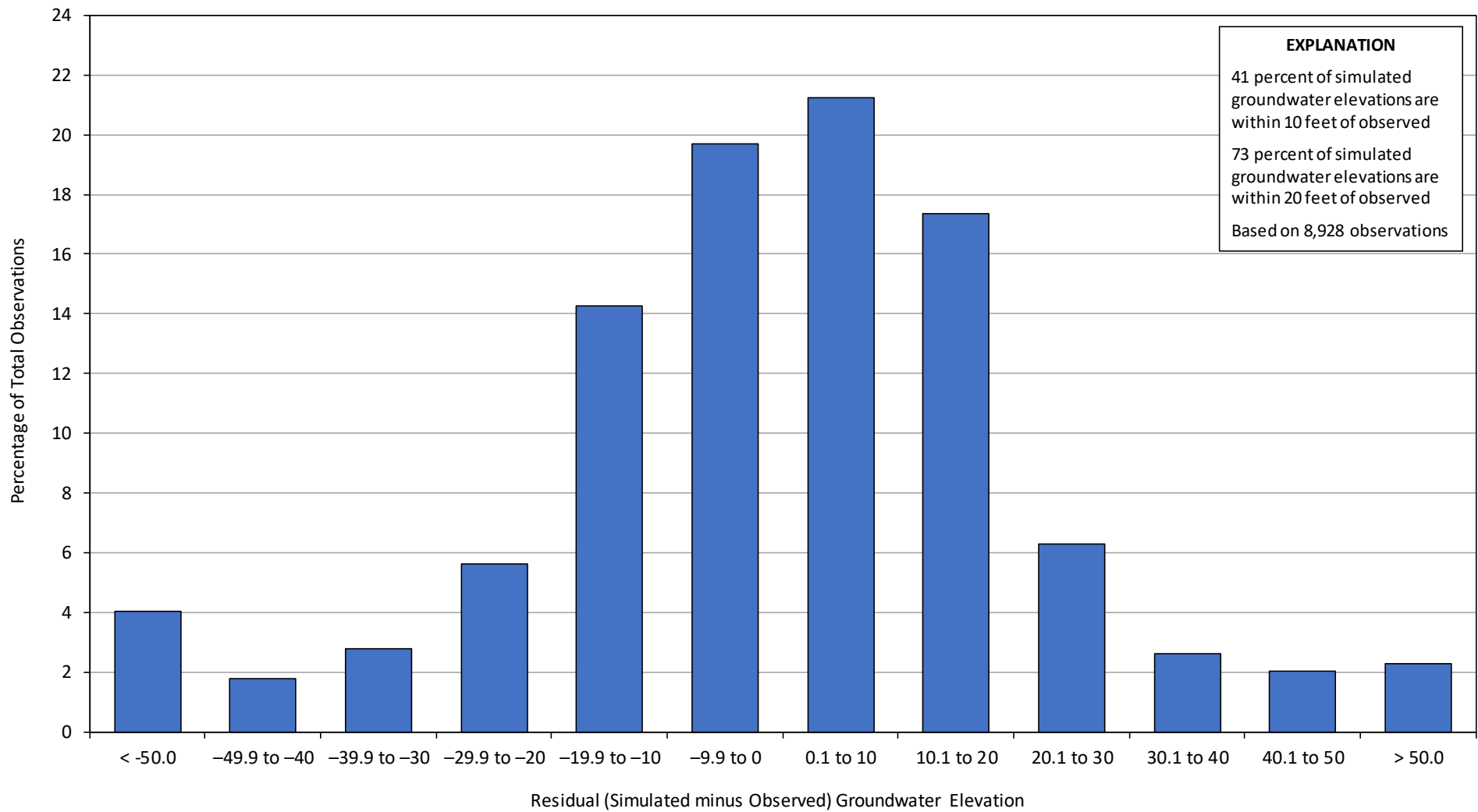




Calibrated Specific Storage (SS) - Layer 7

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-31



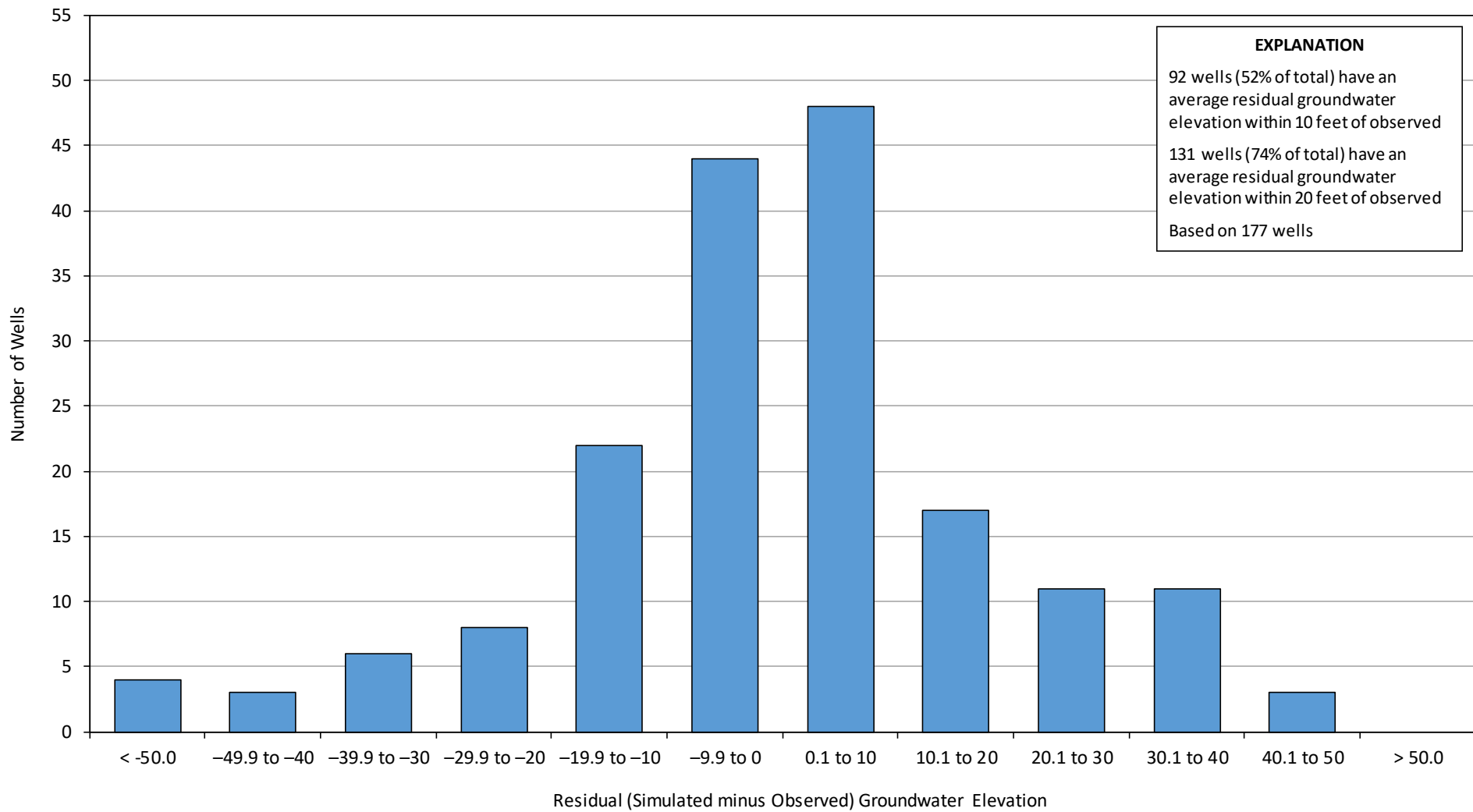
X:\2017\117-113 Madera Subbasin GSP Development\GIS\Map Files\MODEL REPORT FIGURES\Figure 4-32 Histogram of Residual (Simulated minus Observed) Groundwater Elevations for All Observations.mxd



Histogram of Residual (Simulated minus Observed) Groundwater Elevations for All Observations

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
 Madera County

Figure 4-32



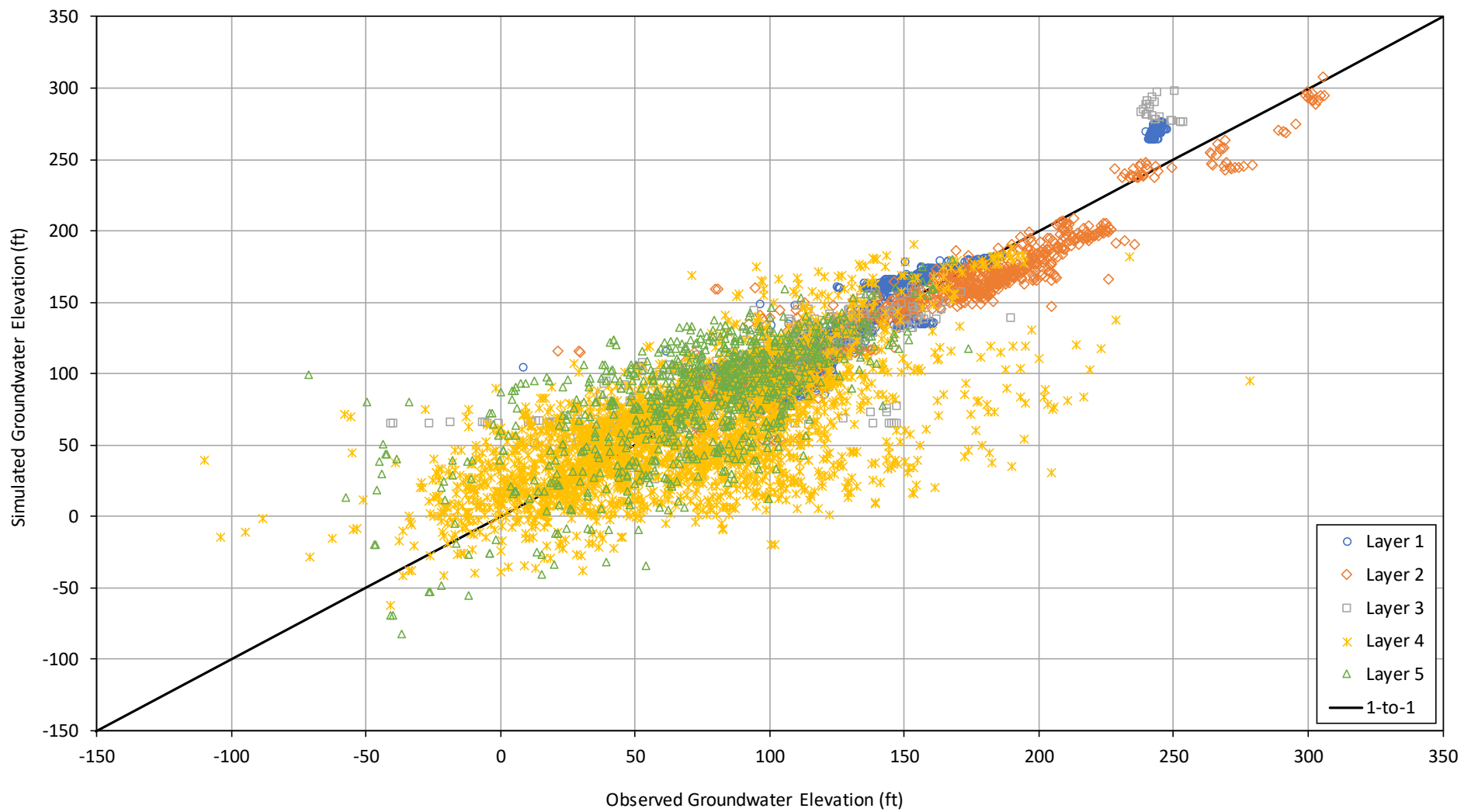
X:\2017\117-113 Madera Subbasin GSP Development\GIS\Map Files\MODEL REPORT FIGURES\Figure 4-33 Histogram of Average Residual (Simulated minus Observed) Groundwater Elevation by Well.mxd



Histogram of Average Residual (Simulated minus Observed) Groundwater Elevation by Well

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
 Madera County

Figure 4-33



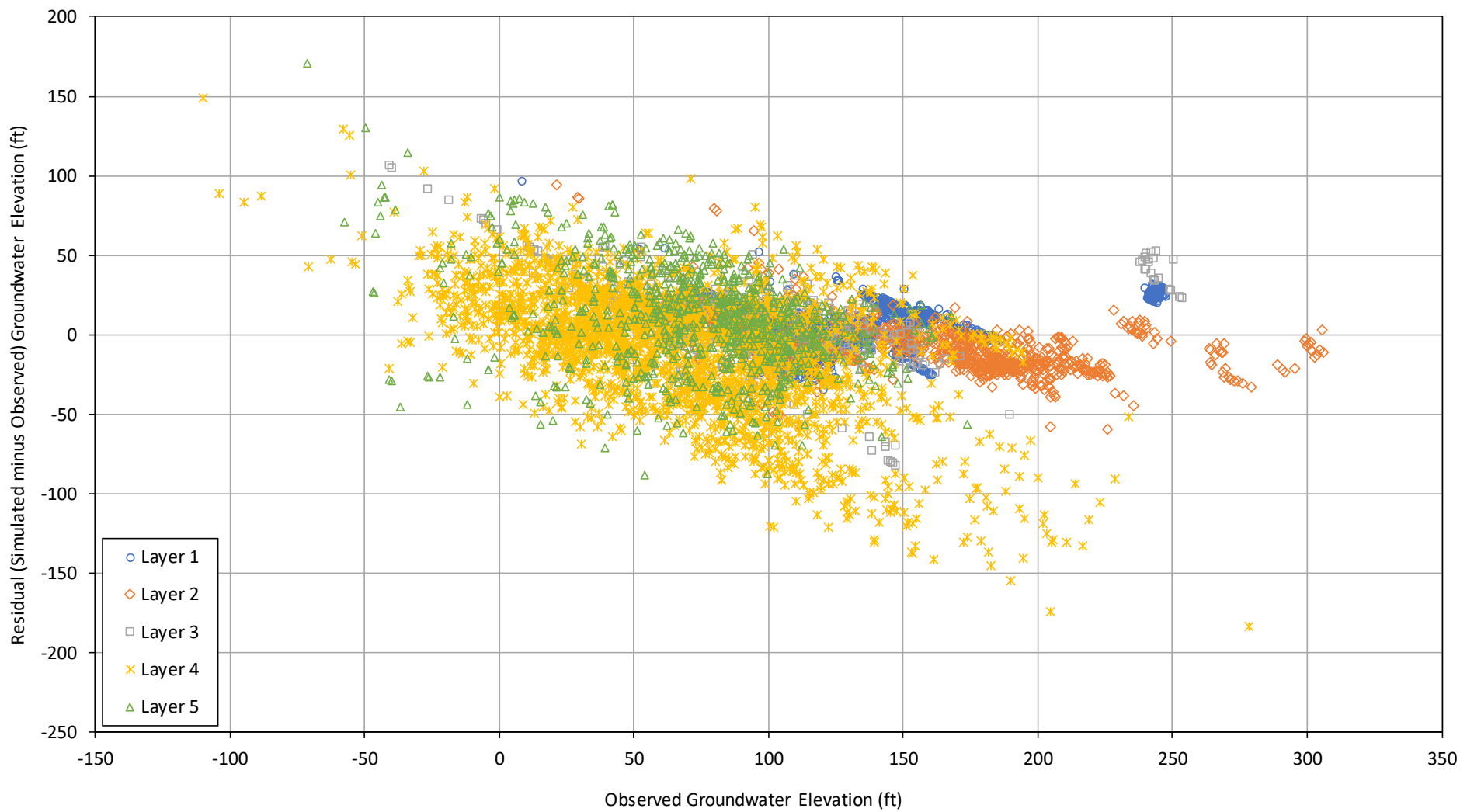
X:\2017\117-113 Madera Subbasin GSP Development\GIS\Map Files\MODEL REPORT FIGURES\Figure 4-34 Simulated vs. Observed Groundwater Elevations, By Layer.mxd



Simulated vs. Observed Groundwater Elevations, By Layer

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-34



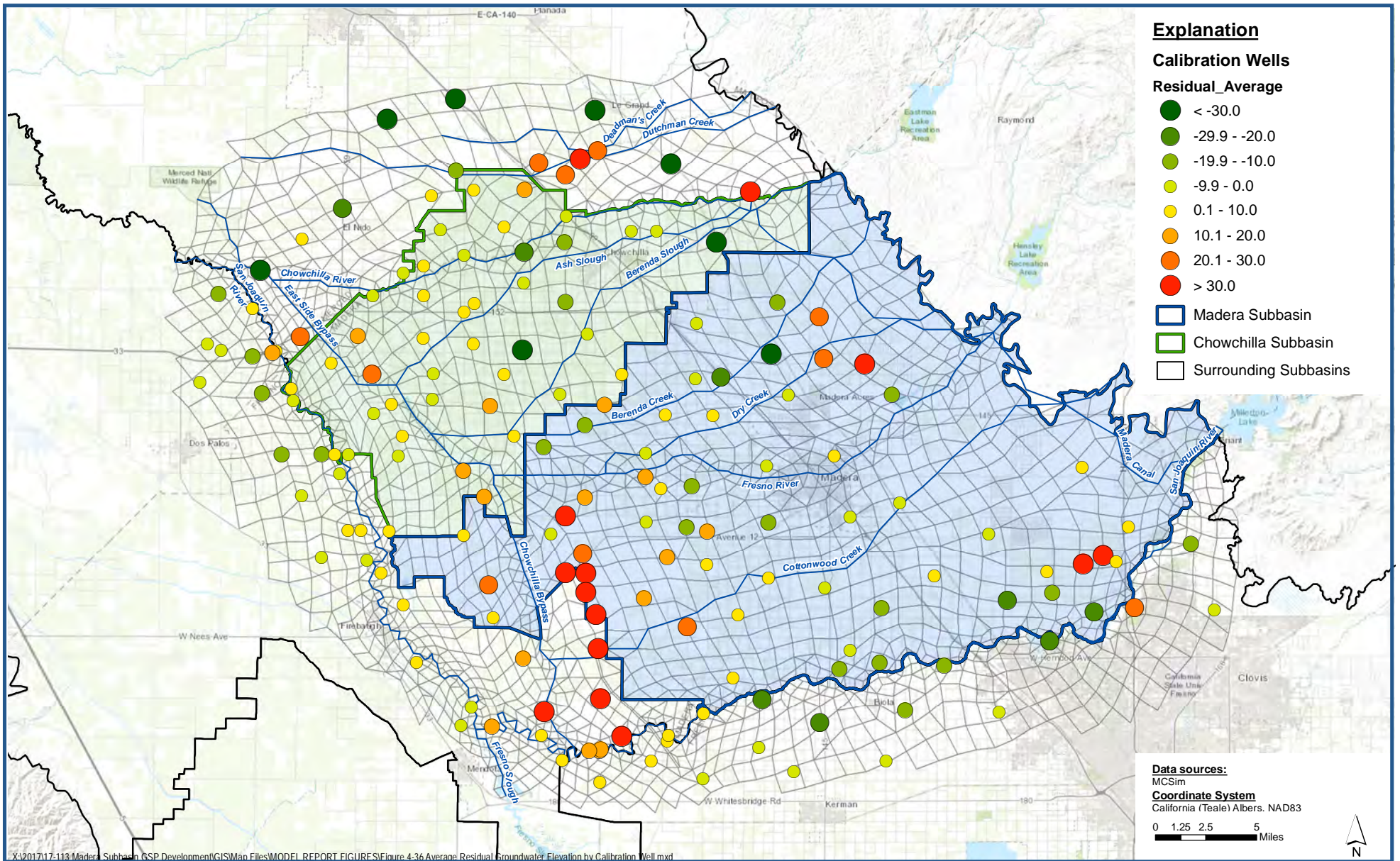
X:\2017\17-113 Madera Subbasin GSP Development\GIS\Map Files\MODEL REPORT FIGURES\Figure 4-35 Residual (Simulated minus Observed) vs. Observed Groundwater Elevations. By Layer.mxd

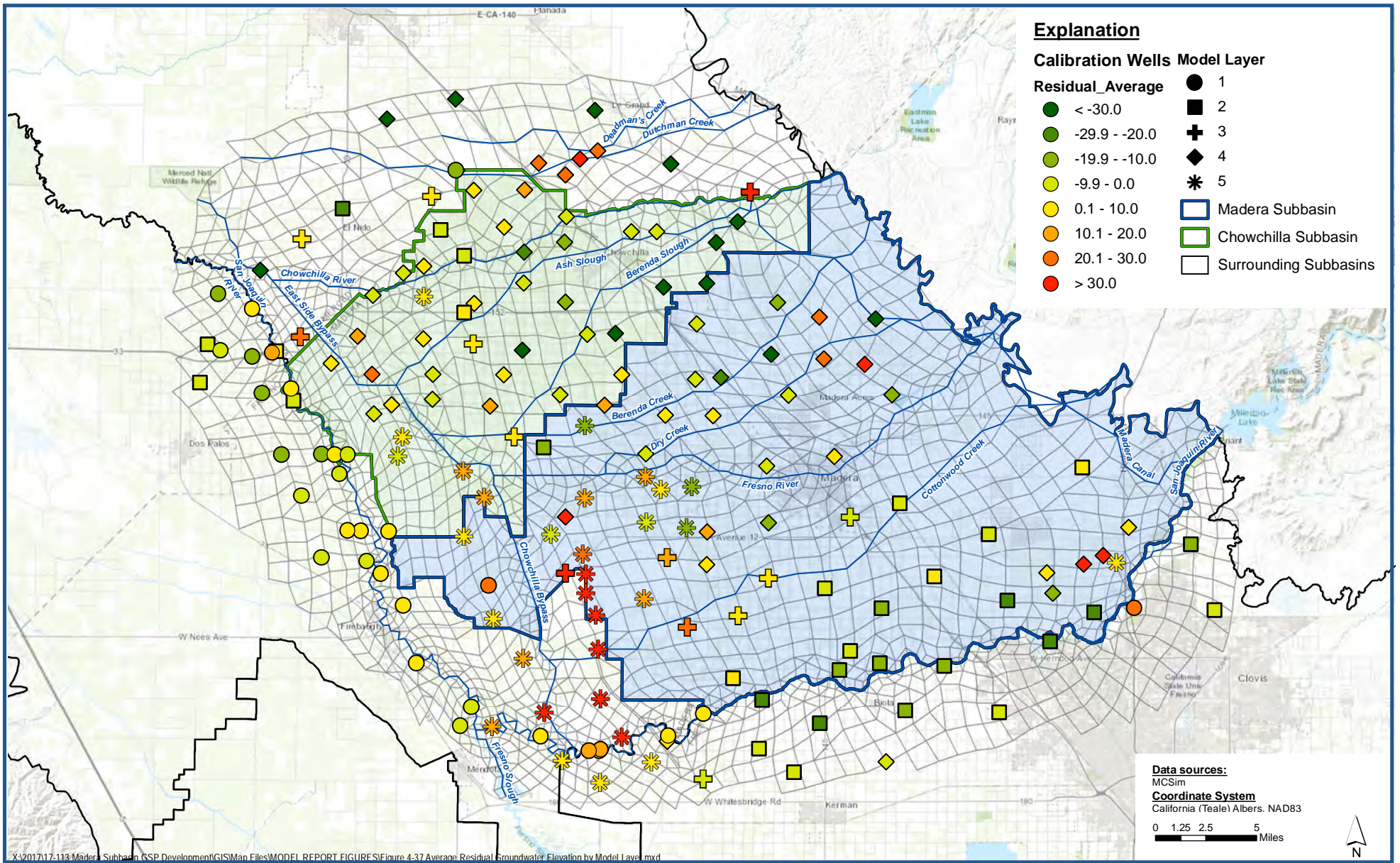


Residual (Simulated minus Observed) vs. Observed Groundwater Elevations, By Layer

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-35

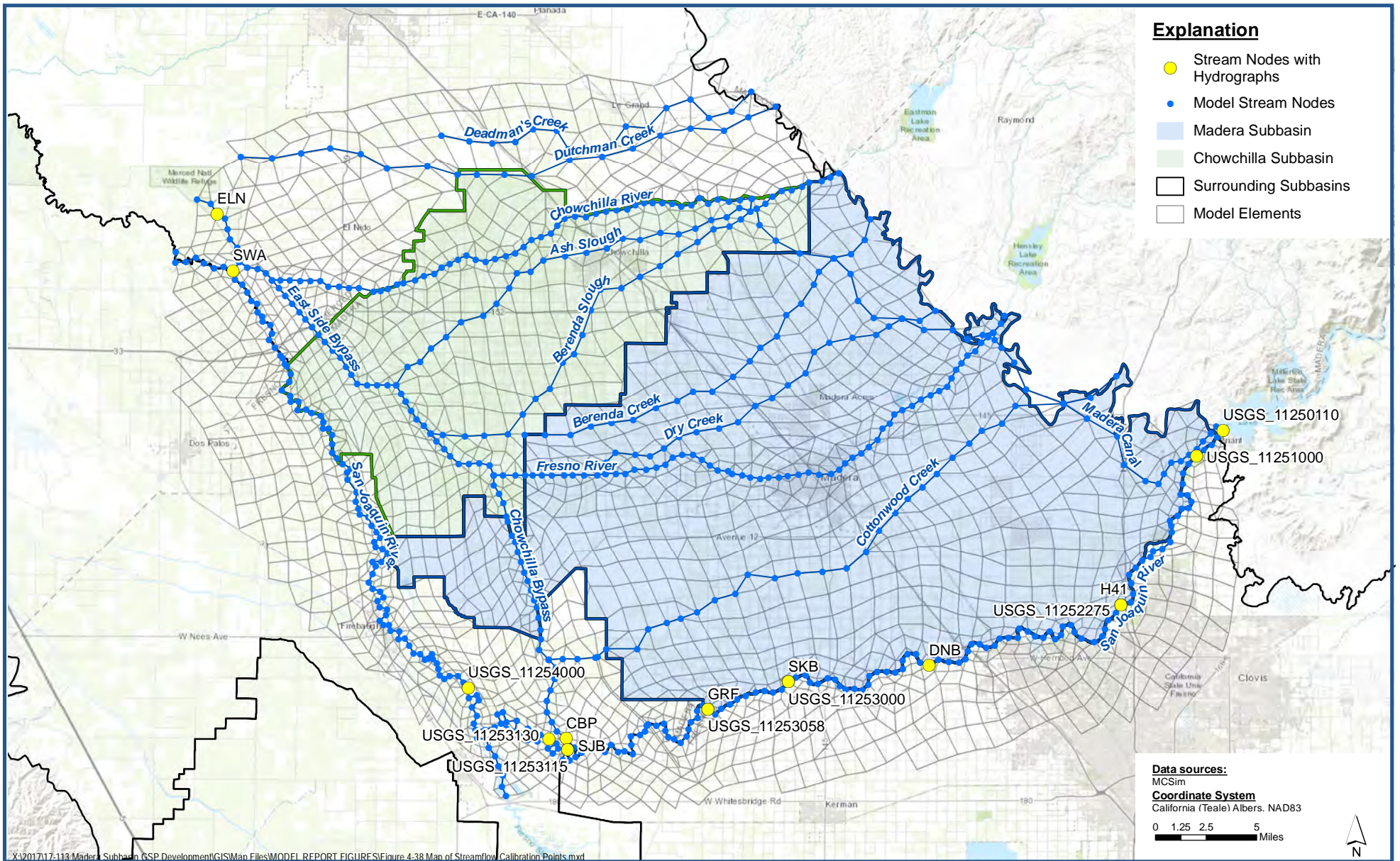




Average Residual Groundwater Elevation by Model Layer

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-37



Map of Streamflow Calibration Points

Madera-Chowchilla Groundwater-Surface Water Simulation Model (MCSim) Report
Madera County

Figure 4-38