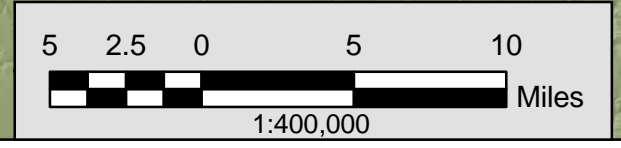


Towns ●	LPN Groundwater Subareas	Lower Newman Grove
Streams —	Platte River Region	Platte Center
NRD Boundary - - -	Bellwood	Shell Creek Uplands
LPN Groundwater Regions	Fremont East	Upper Shell Creek
	Fremont	
	Leshara Platte Valley	Todd Valley Region
	North Bend	Todd Valley
	Octavia	
	Platte River Uplands	Upland Region
	Schuyler	David City
	Wann	Leshara Uplands
		Morse Bluff
	Shell Creek Region	Prague
	Lower Shell Creek	Swedeburg
	Middle Shell Creek	Weston
	Upper Newman Grove	Yutan South
	Newman Grove	Yutan



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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

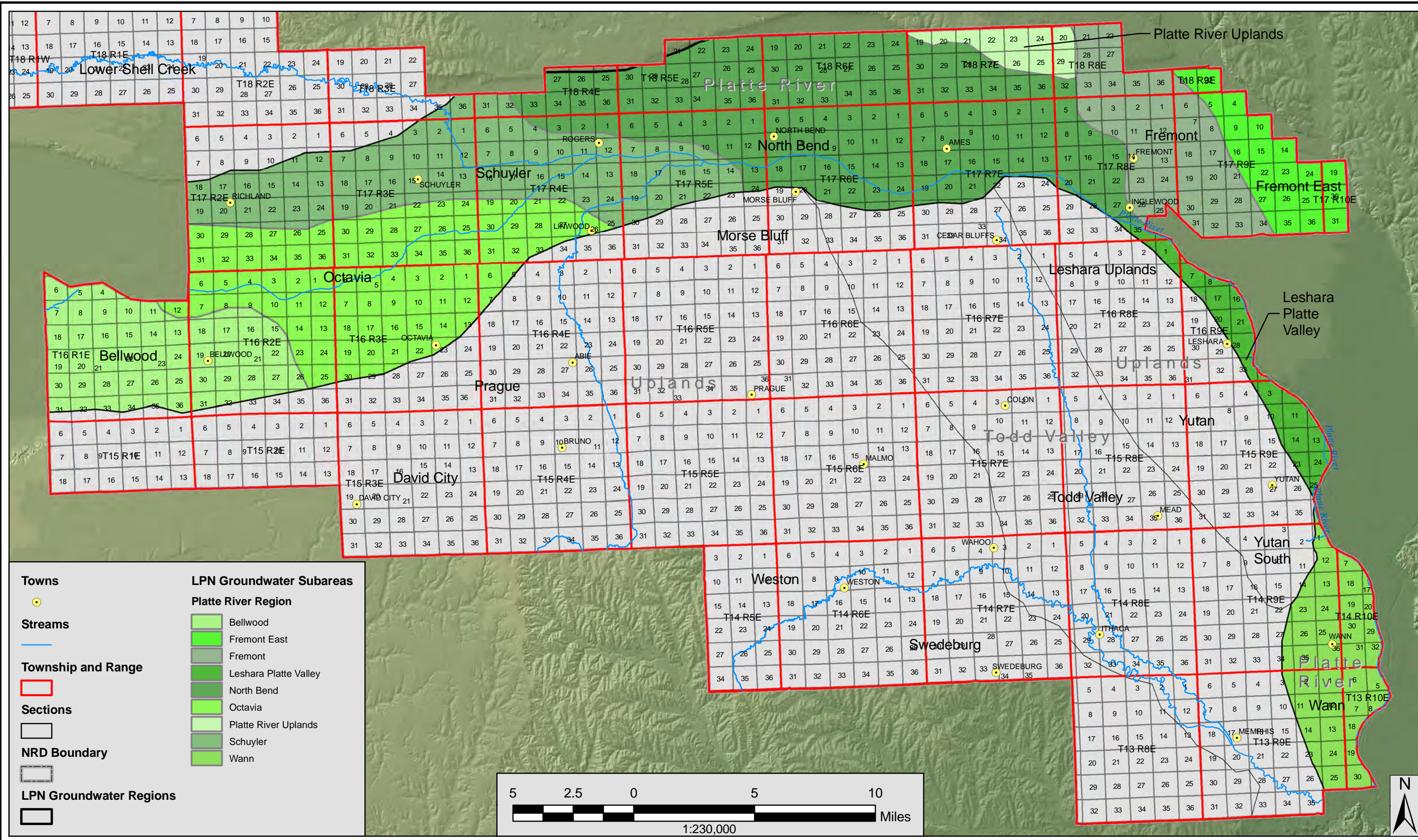
GROUNDWATER MANAGEMENT REGIONS AND SUBAREAS
 Lower Platte North Natural Resources District

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FIGURE
1.1



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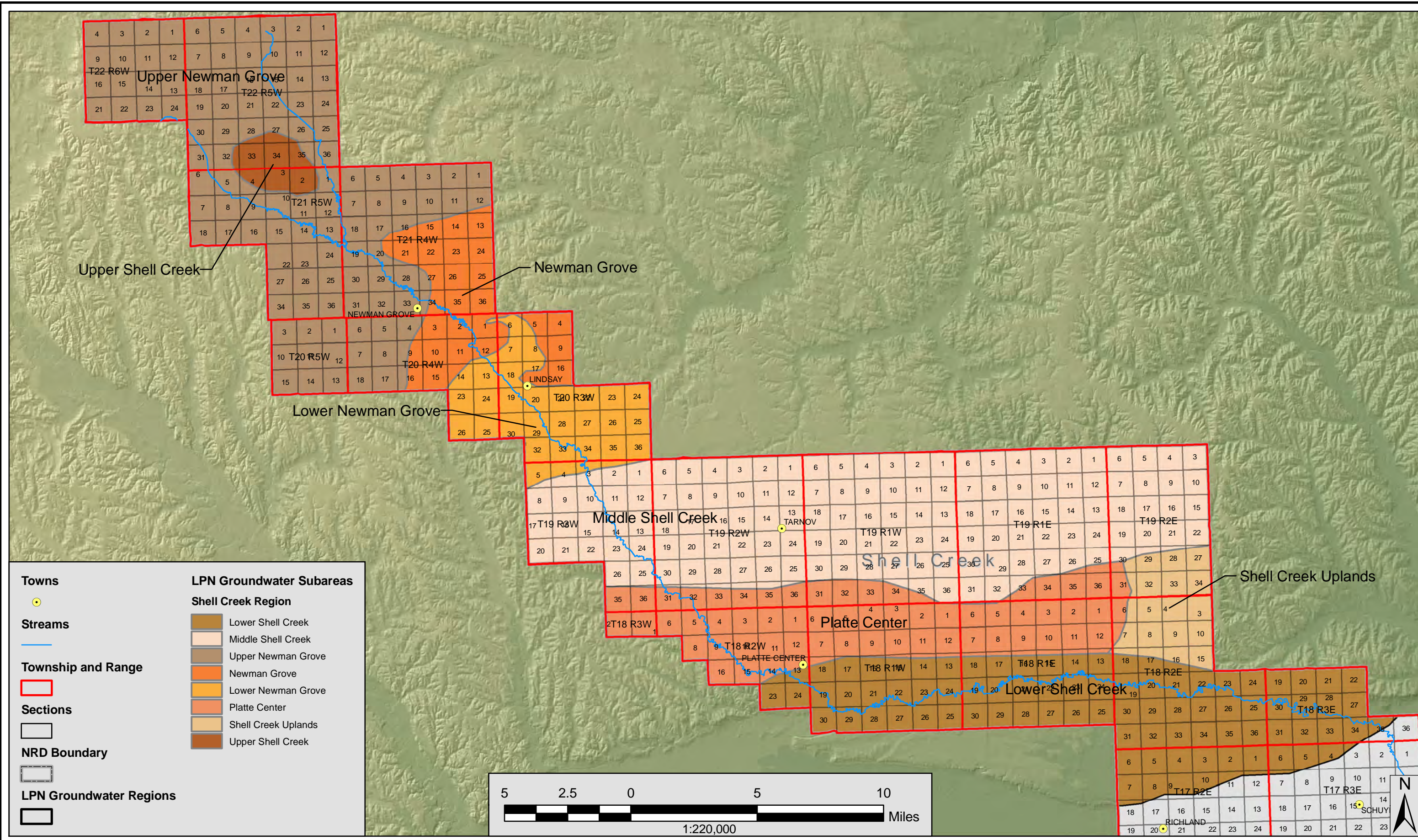
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

PLATTE RIVER REGION WITH GROUNDWATER MANAGEMENT REGIONS AND SUBAREAS
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FIGURE
 1.2

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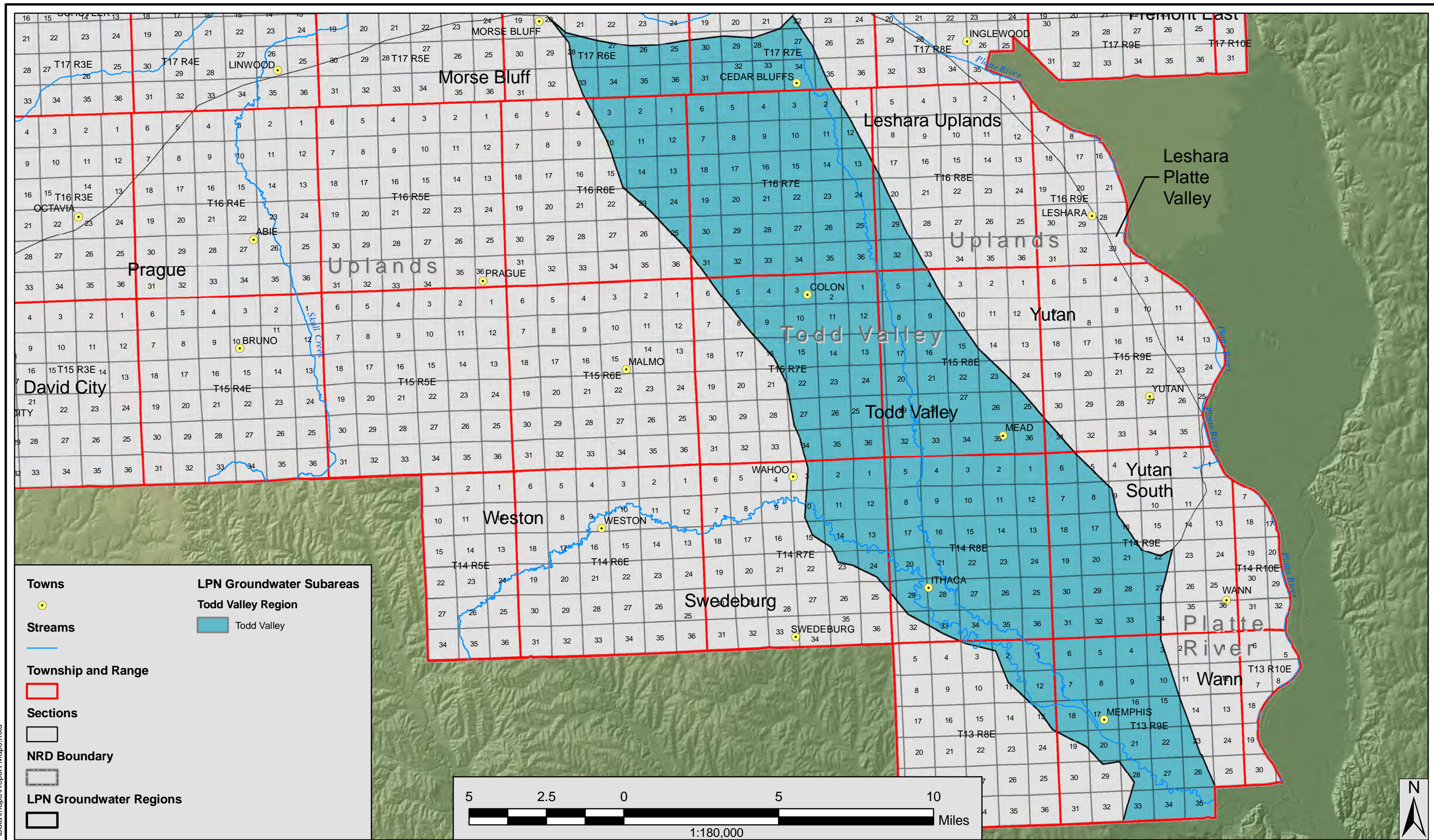
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

SHELL CREEK REGION WITH GROUNDWATER MANAGEMENT REGIONS AND SUBAREAS
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FIGURE
1.3



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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

TODD VALLEY REGION WITH GROUNDWATER MANAGEMENT REGIONS AND SUBAREAS
 Lower Platte North Natural Resources District

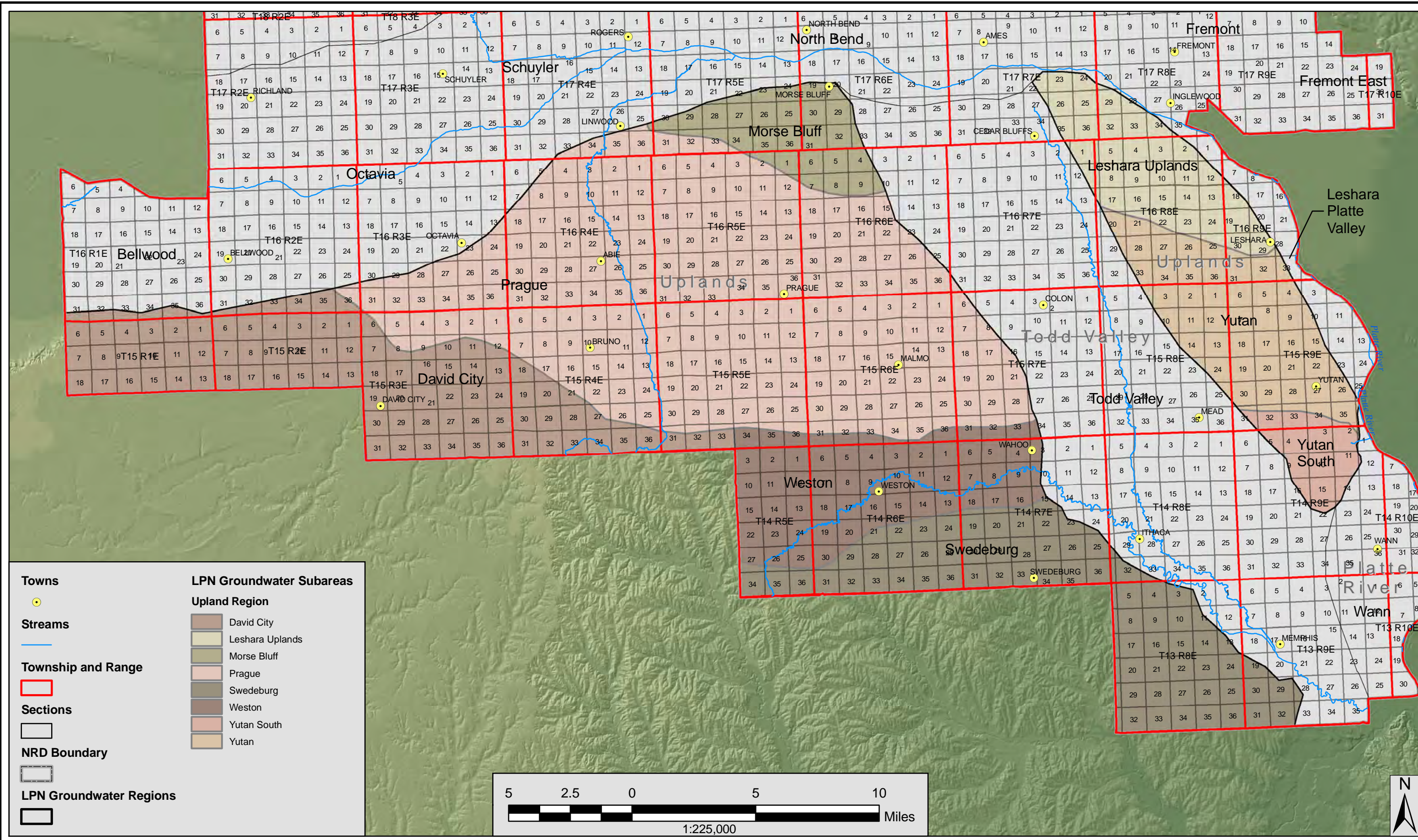
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FIGURE
 1.4

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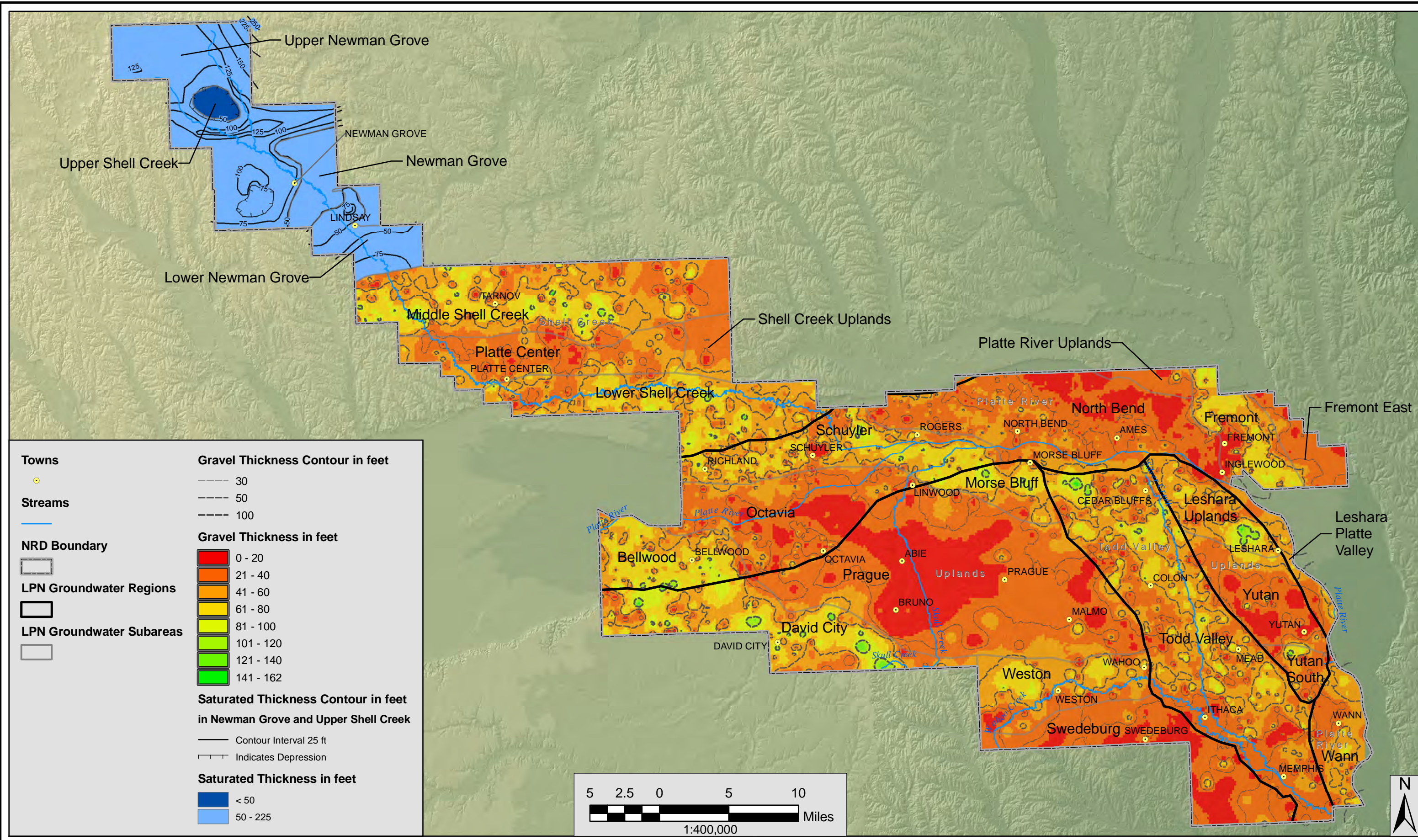
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

UPLANDS REGION WITH GROUNDWATER MANAGEMENT REGIONS AND SUBAREAS
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FIGURE
 1.5

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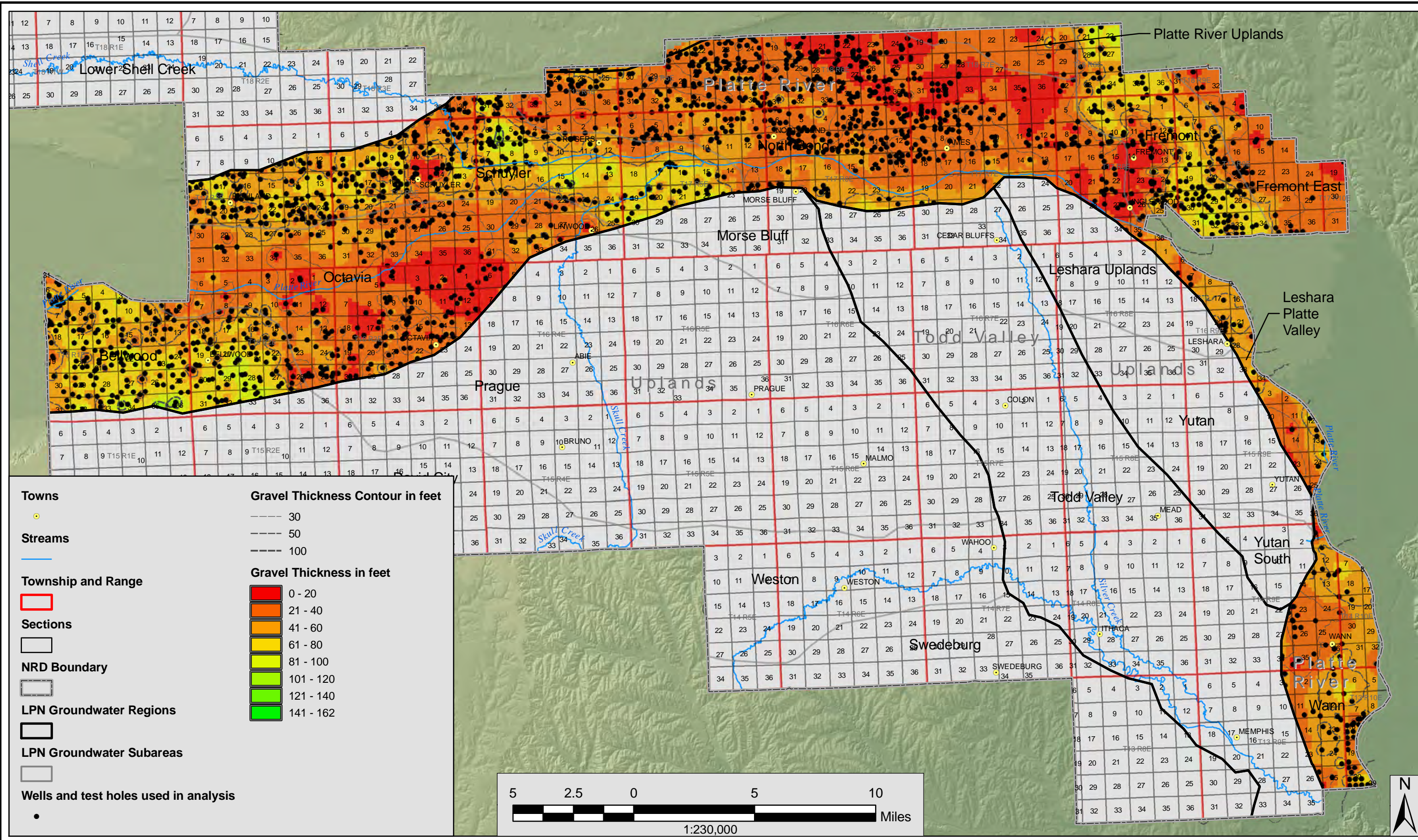
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Thickness of Principal Aquifer, 1996, CSD; Registered Well Database, January 2008, DNR; Test-hole Database, 2007, CSD

SUBAREAS BASED ON GRAVEL AND SATURATED THICKNESS
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FIGURE
2.1



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 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Thickness of Principal Aquifer, 1996, CSD; Registered Well Database, January 2008, DNR; Test-hole Database, 2007, CSD

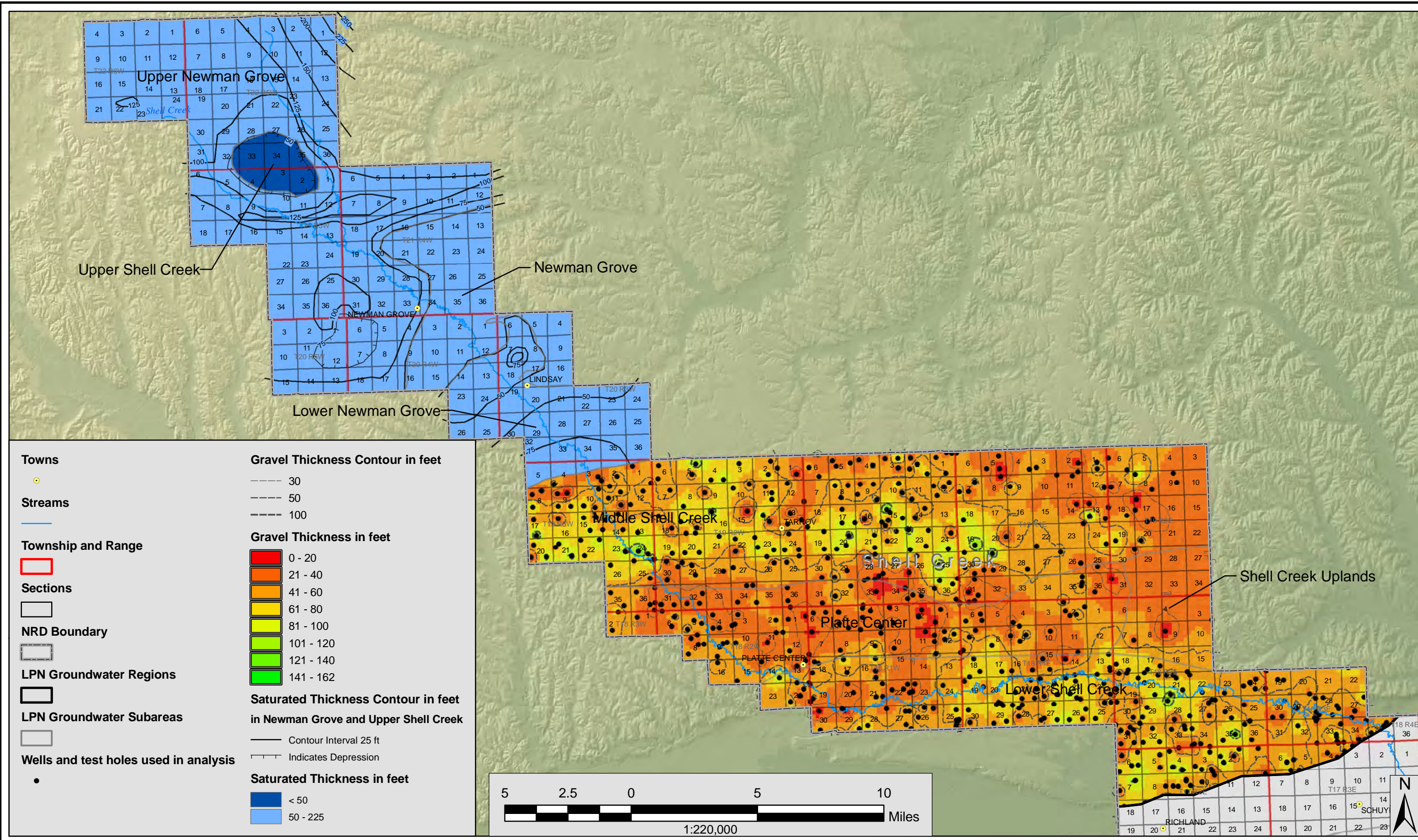
Derivation: Saturated thickness of Ogallala based on CSD map.
 Gravel thickness based on lithologic logs from DNR Registered Wells and CSD Test Holes.

PLATTE RIVER REGION SUBAREAS BASED ON GRAVEL THICKNESS
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FIGURE
2.2

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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Thickness of Principal Aquifer, 1996, CSD; Registered Well Database, January 2008, DNR; Test-hole Database, 2007, CSD

Derivation: Saturated thickness of Ogallala based on CSD map.
 Gravel thickness based on lithologic logs from DNR Registered Wells and CSD Test Holes.

SHELL CREEK REGION SUBAREAS BASED ON GRAVEL AND SATURATED THICKNESS
 Lower Platte North Natural Resources District

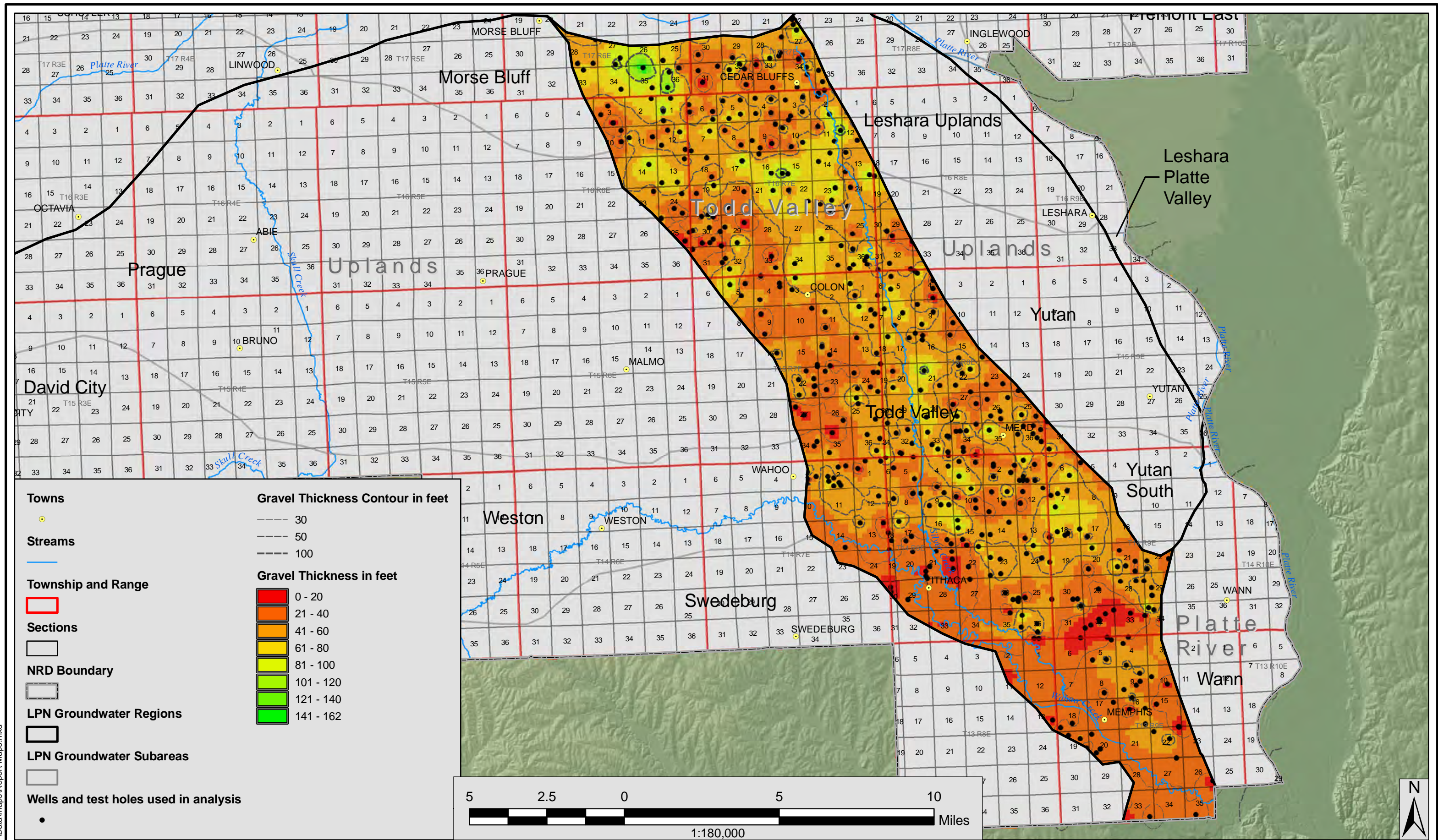
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FIGURE
2.3

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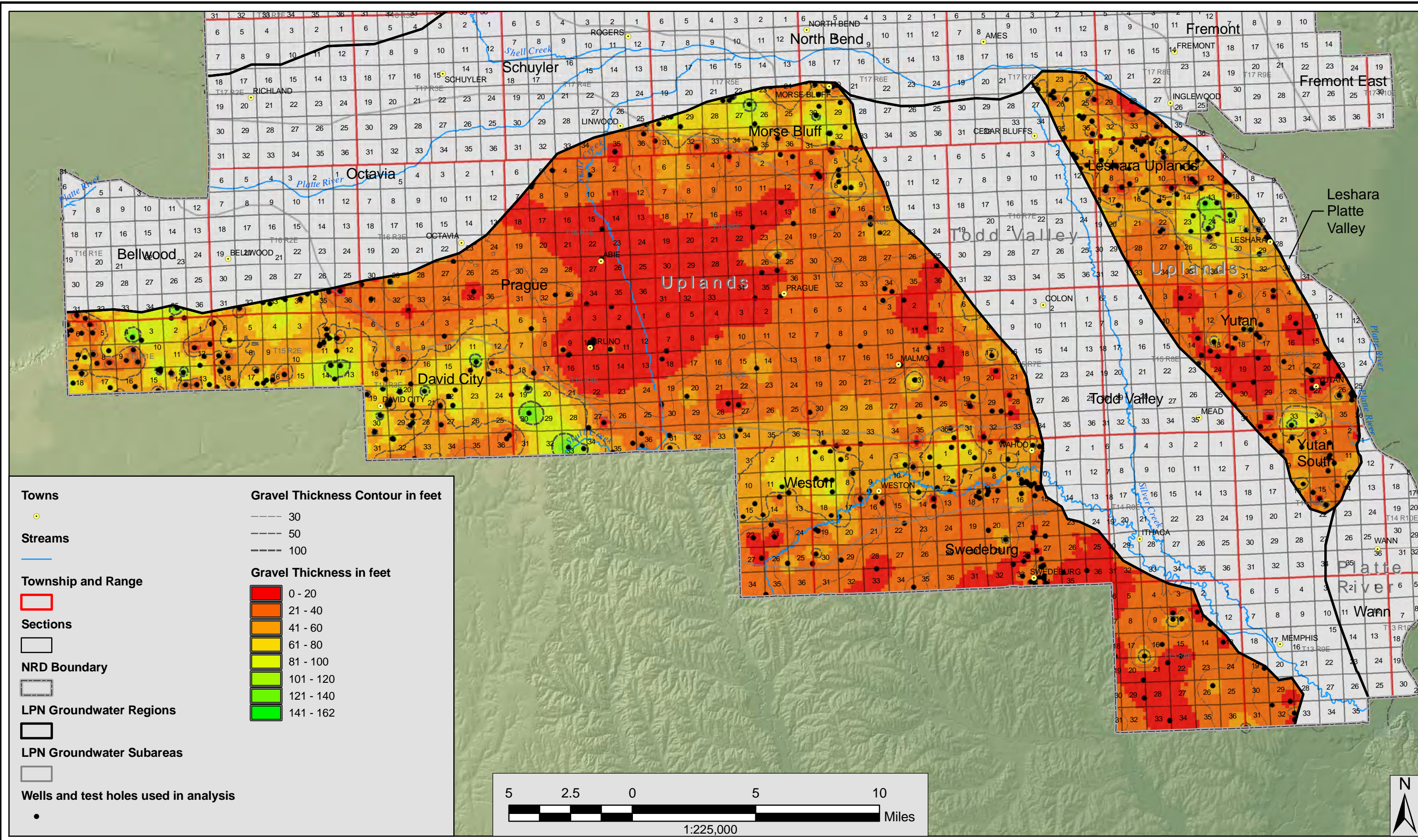
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TODD VALLEY REGION GRAVEL THICKNESS
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FIGURE
2.4

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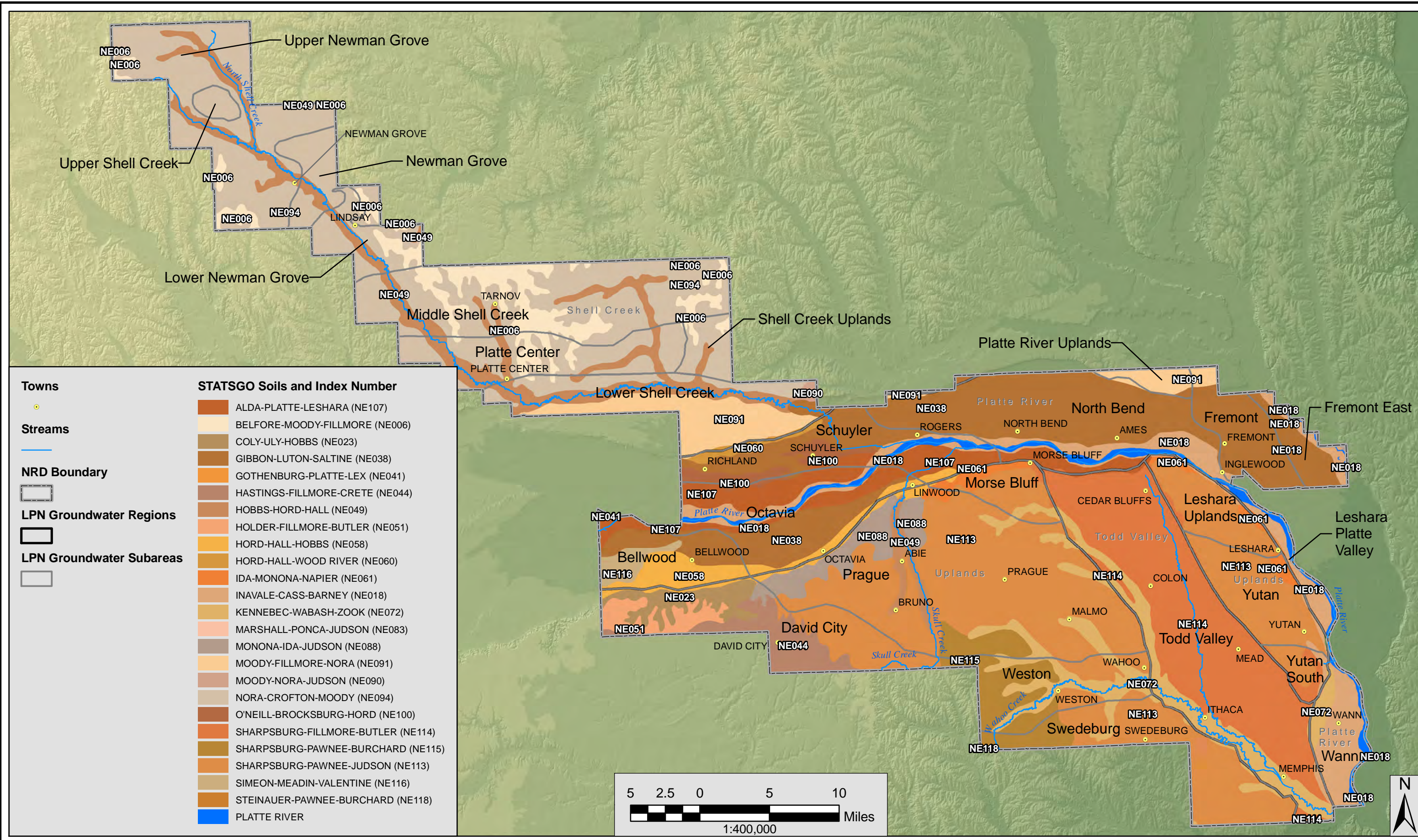
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Thickness of Principal Aquifer, 1996, CSD; Registered Well Database, January 2008, DNR; Test-hole Database, 2007, CSD

UPLANDS REGION SUBAREAS BASED ON GRAVEL THICKNESS
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FIGURE
 2.5

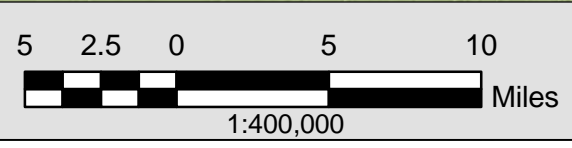
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- Towns**
- Streams**
- NRD Boundary**
- LPN Groundwater Regions**
- LPN Groundwater Subareas**

STATSGO Soils and Index Number

ALDA-PLATTE-LESHARA (NE107)
BELFORE-MOODY-FILLMORE (NE006)
COLY-ULY-HOBBS (NE023)
GIBBON-LUTON-SALTINE (NE038)
GOTHENBURG-PLATTE-LEX (NE041)
HASTINGS-FILLMORE-CRETE (NE044)
HOBBS-HORD-HALL (NE049)
HOLDER-FILLMORE-BUTLER (NE051)
HORD-HALL-HOBBS (NE058)
HORD-HALL-WOOD RIVER (NE060)
IDA-MONONA-NAPIER (NE061)
INVALE-CASS-BARNEY (NE018)
KENNEBEC-WABASH-ZOOK (NE072)
MARSHALL-PONCA-JUDSON (NE083)
MONONA-IDA-JUDSON (NE088)
MOODY-FILLMORE-NORA (NE091)
MOODY-NORA-JUDSON (NE090)
NORA-CROFTON-MOODY (NE094)
O'NEILL-BROCKSBURG-HORD (NE100)
SHARPSBURG-FILLMORE-BUTLER (NE114)
SHARPSBURG-PAWNEE-BURCHARD (NE115)
SHARPSBURG-PAWNEE-JUDSON (NE113)
SIMEON-MEADIN-VALENTINE (NE116)
STEINAUER-PAWNEE-BURCHARD (NE118)
PLATTE RIVER



PROJECT: 007-0427
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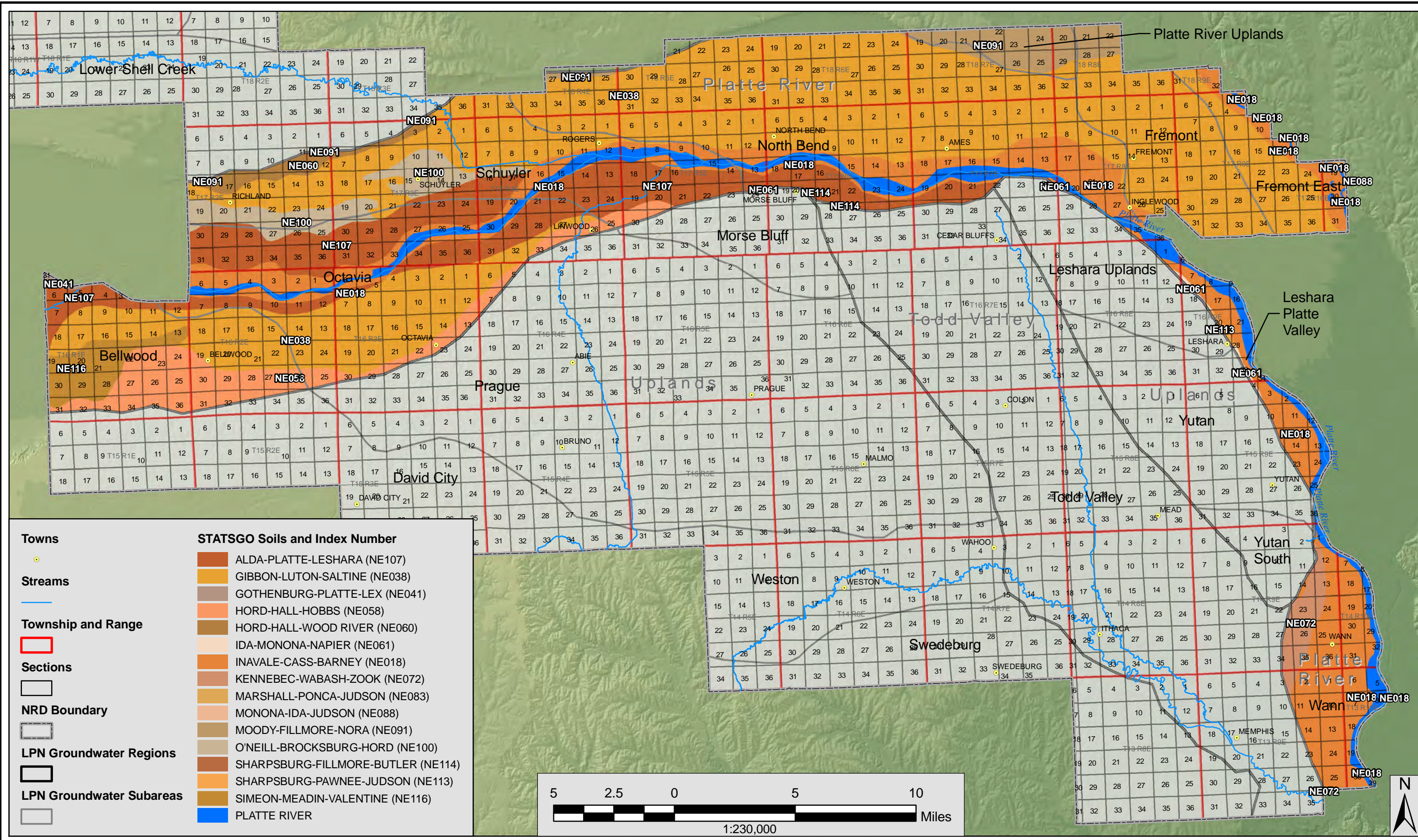
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; STATSGO Soil Associations, 2007, NRCS

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FIGURE
3.1

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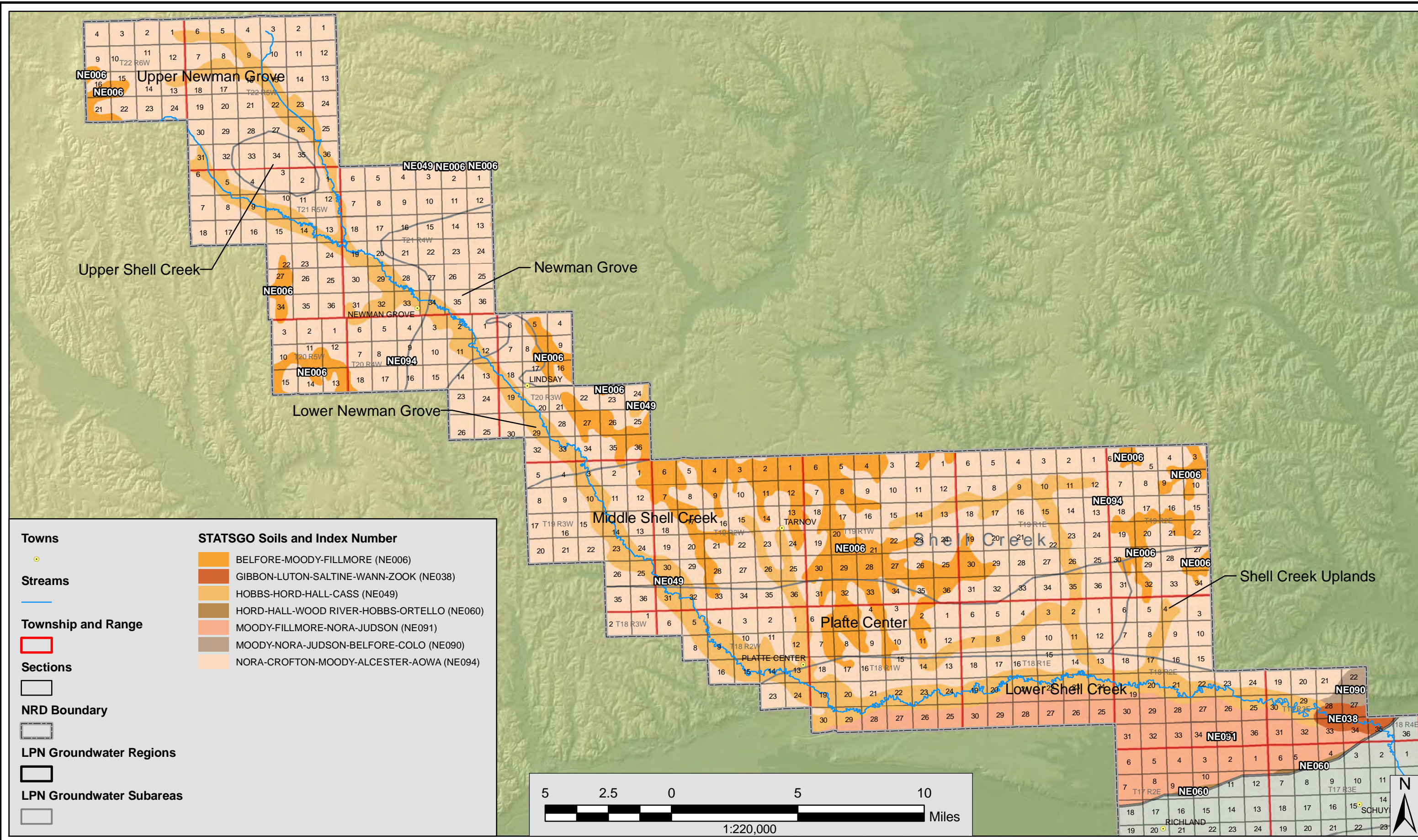
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; STATSGO Soil Associations, 2007, NRCS

PLATTE RIVER REGION STATSGO SOIL ASSOCIATIONS
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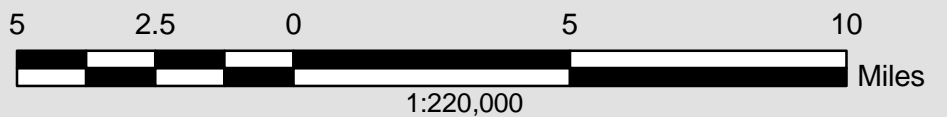

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FIGURE
 3.2



- Towns**
- Streams**
- Township and Range**
- Sections**
- NRD Boundary**
- LPN Groundwater Regions**
- LPN Groundwater Subareas**

- STATSGO Soils and Index Number**
- BELFORE-MOODY-FILLMORE (NE006)
 - GIBBON-LUTON-SALTINE-WANN-ZOOK (NE038)
 - HOBBS-HORD-HALL-CASS (NE049)
 - HORD-HALL-WOOD RIVER-HOBBS-ORTELLO (NE060)
 - MOODY-FILLMORE-NORA-JUDSON (NE091)
 - MOODY-NORA-JUDSON-BELFORE-COLO (NE090)
 - NORA-CROFTON-MOODY-ALCESTER-AOWA (NE094)



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 DRAWN BY: RD
 Date: 3/2/2009

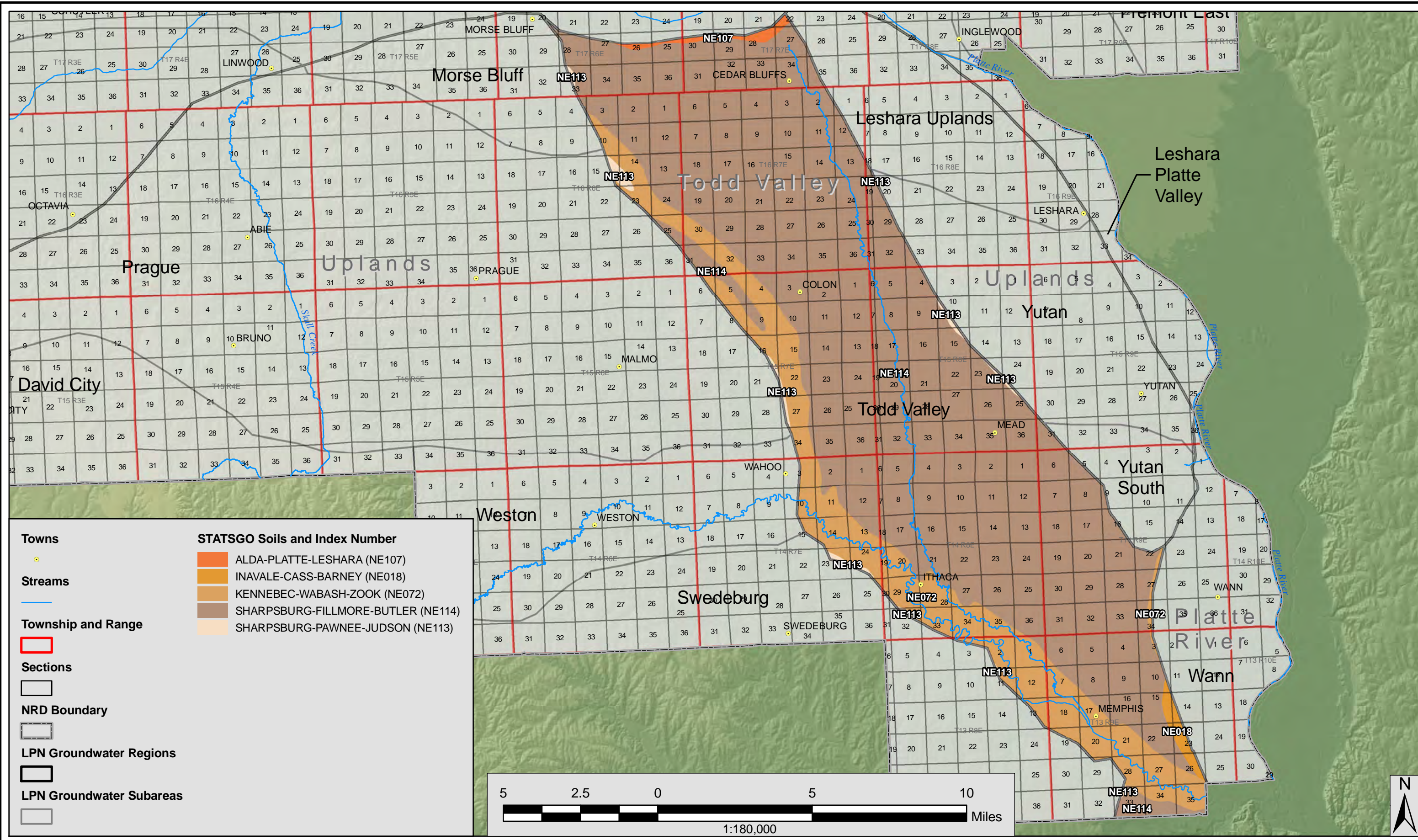
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; STATSGO Soil Associations, 2007, NRCS

SHELL CREEK REGION STATSGO SOIL ASSOCIATIONS
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FIGURE
 3.3

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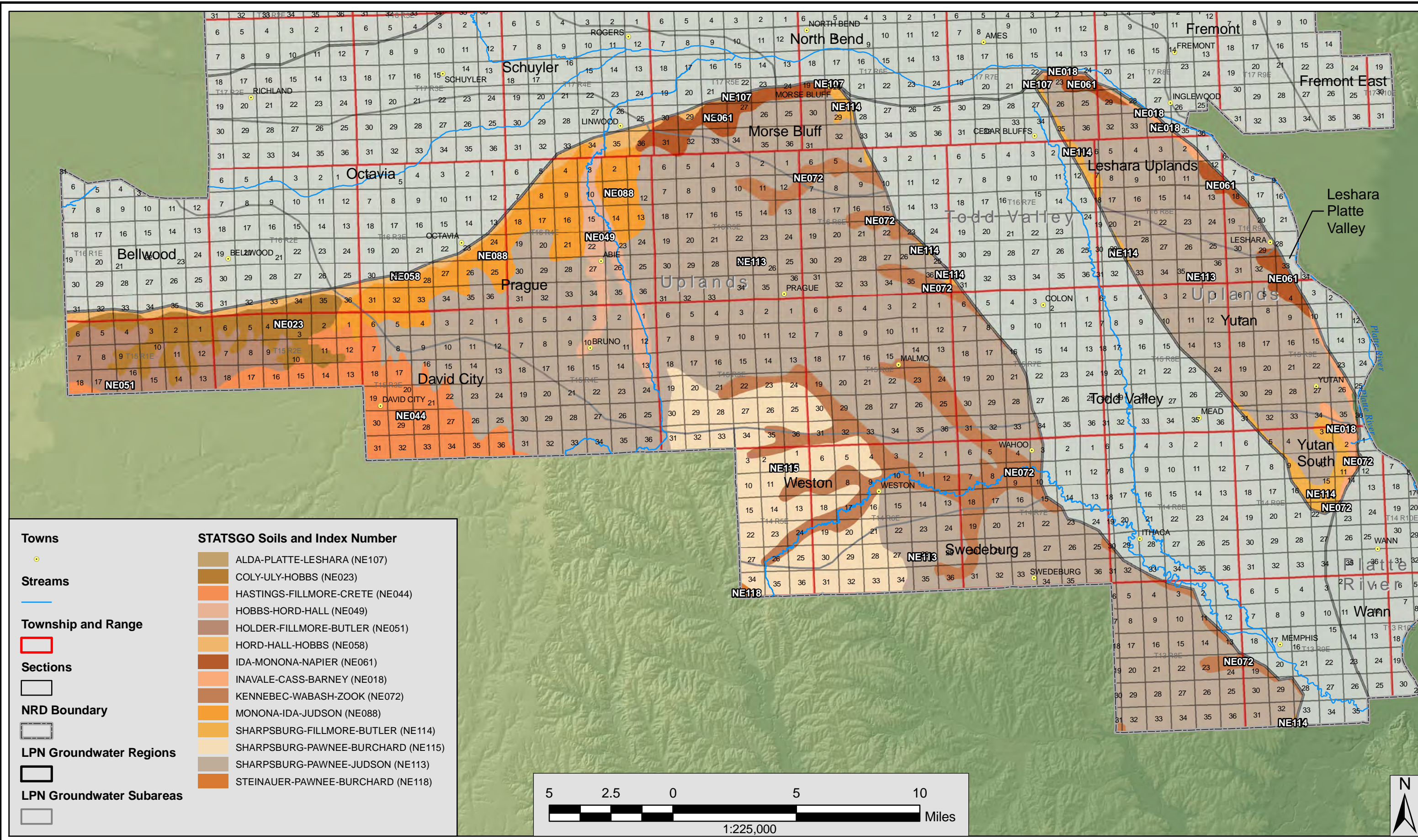
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 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; STATSGO Soil Associations, 2007, NRCS

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FIGURE
3.4



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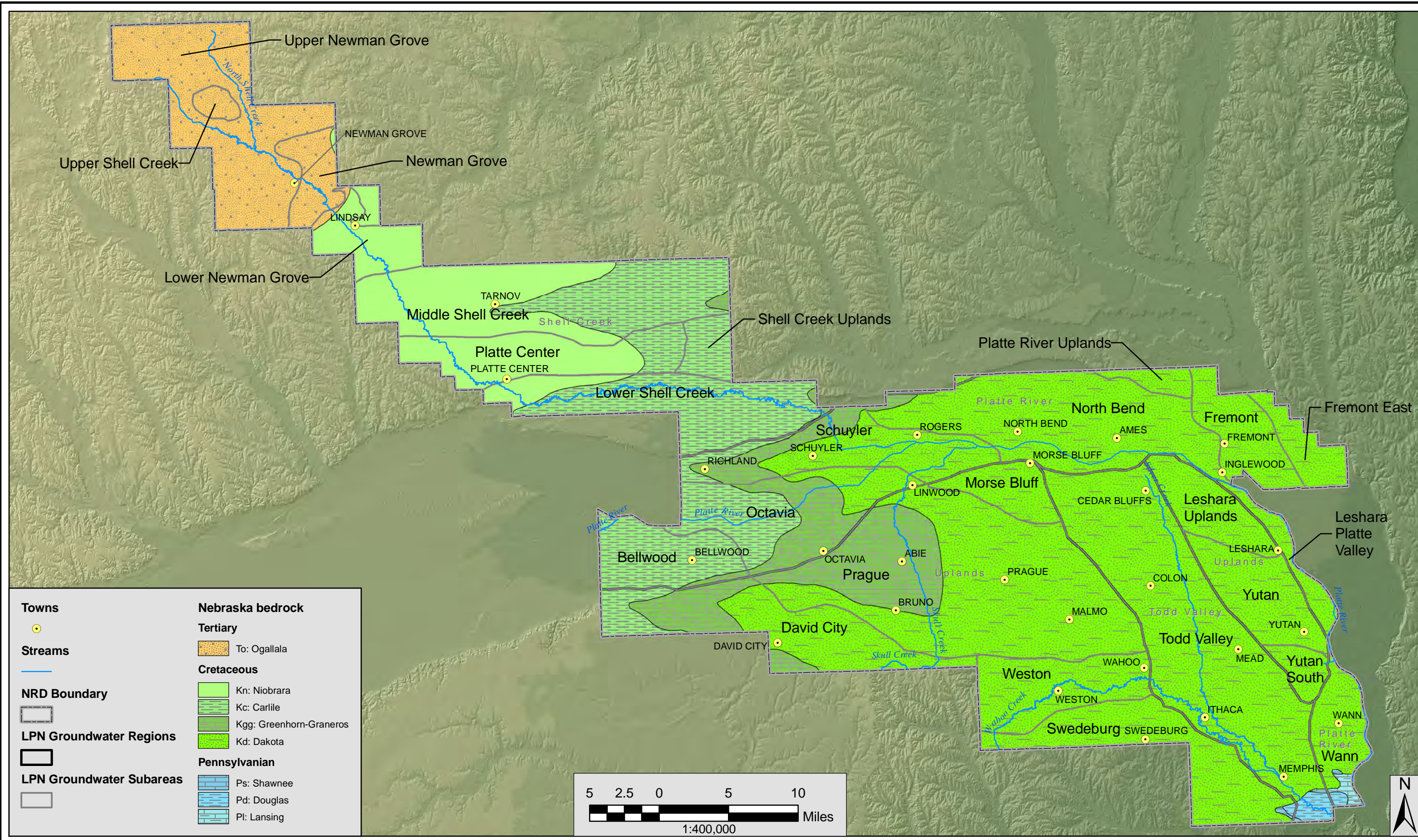
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 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; STATSGO Soil Associations, 2007, NRCS

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FIGURE
3.5



PROJECT: 007-0427
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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Bedrock, 1996, CSD

BEDROCK GEOLOGY
 Lower Platte North Natural Resources District

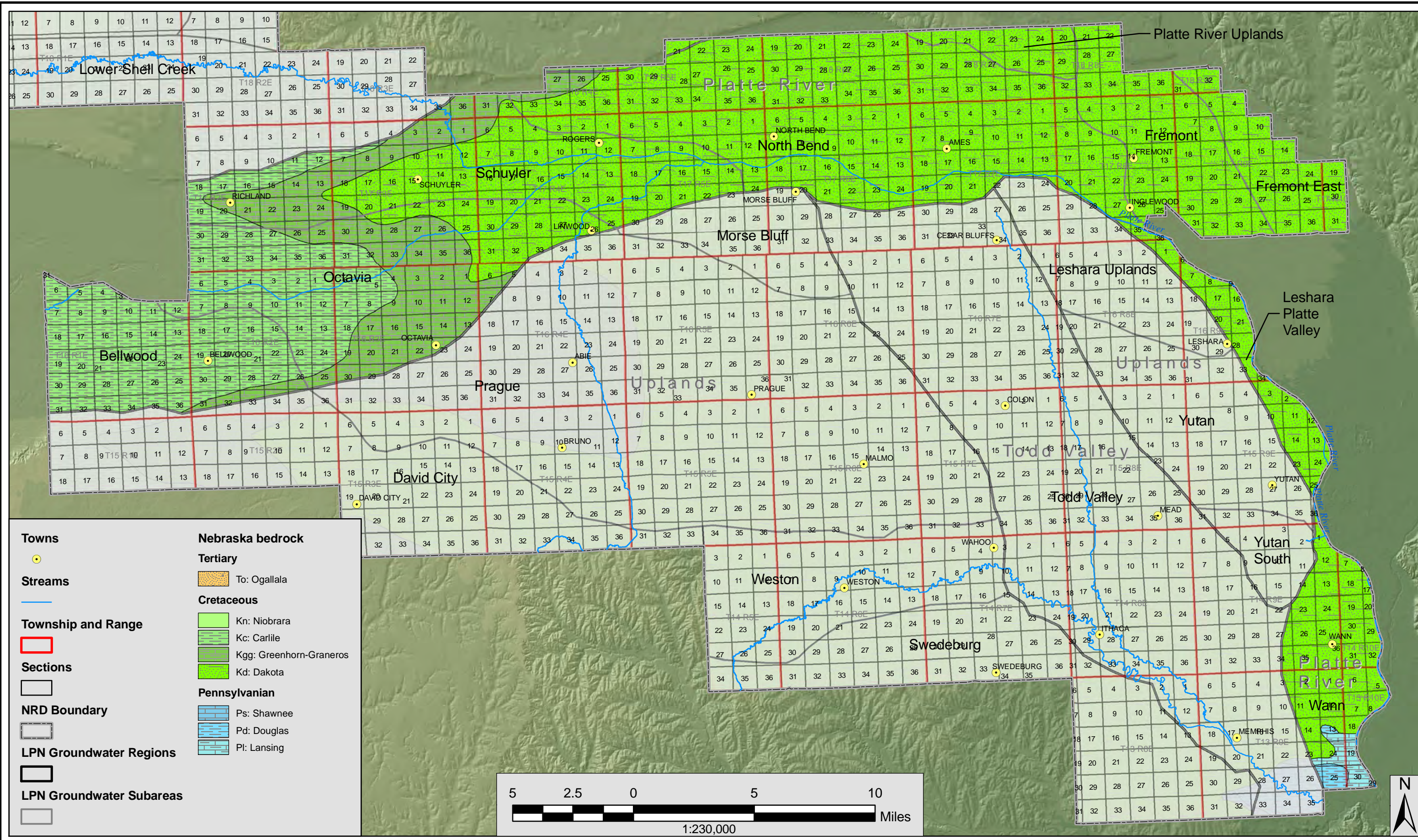
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FIGURE
4.1

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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Bedrock, 1996, CSD

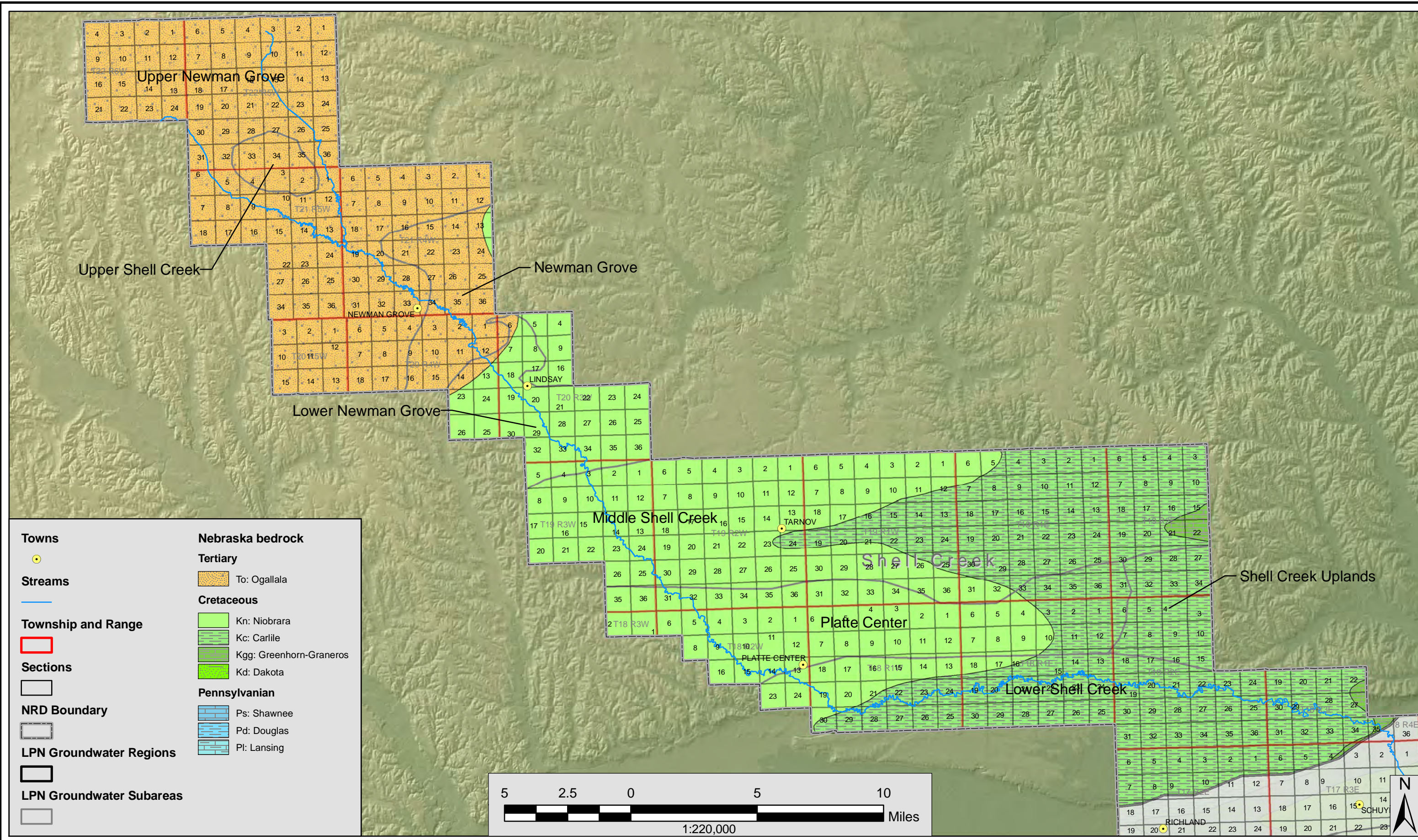
PLATTE RIVER REGION BEDROCK GEOLOGY
 Lower Platte North Natural Resources District

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FIGURE
 4.2



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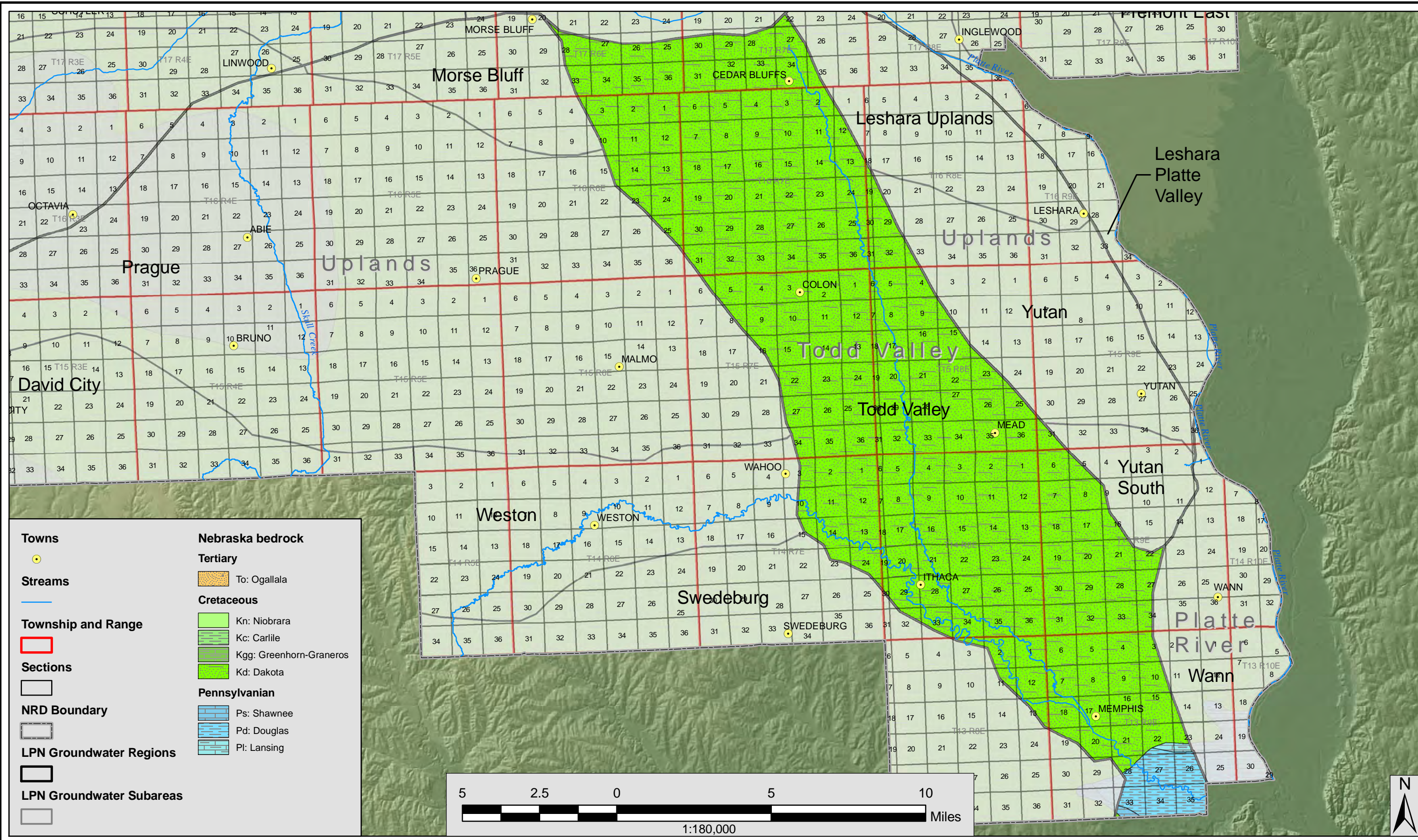
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 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Bedrock, 1996, CSD

SHELL CREEK REGION BEDROCK GEOLOGY
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FIGURE
4.3



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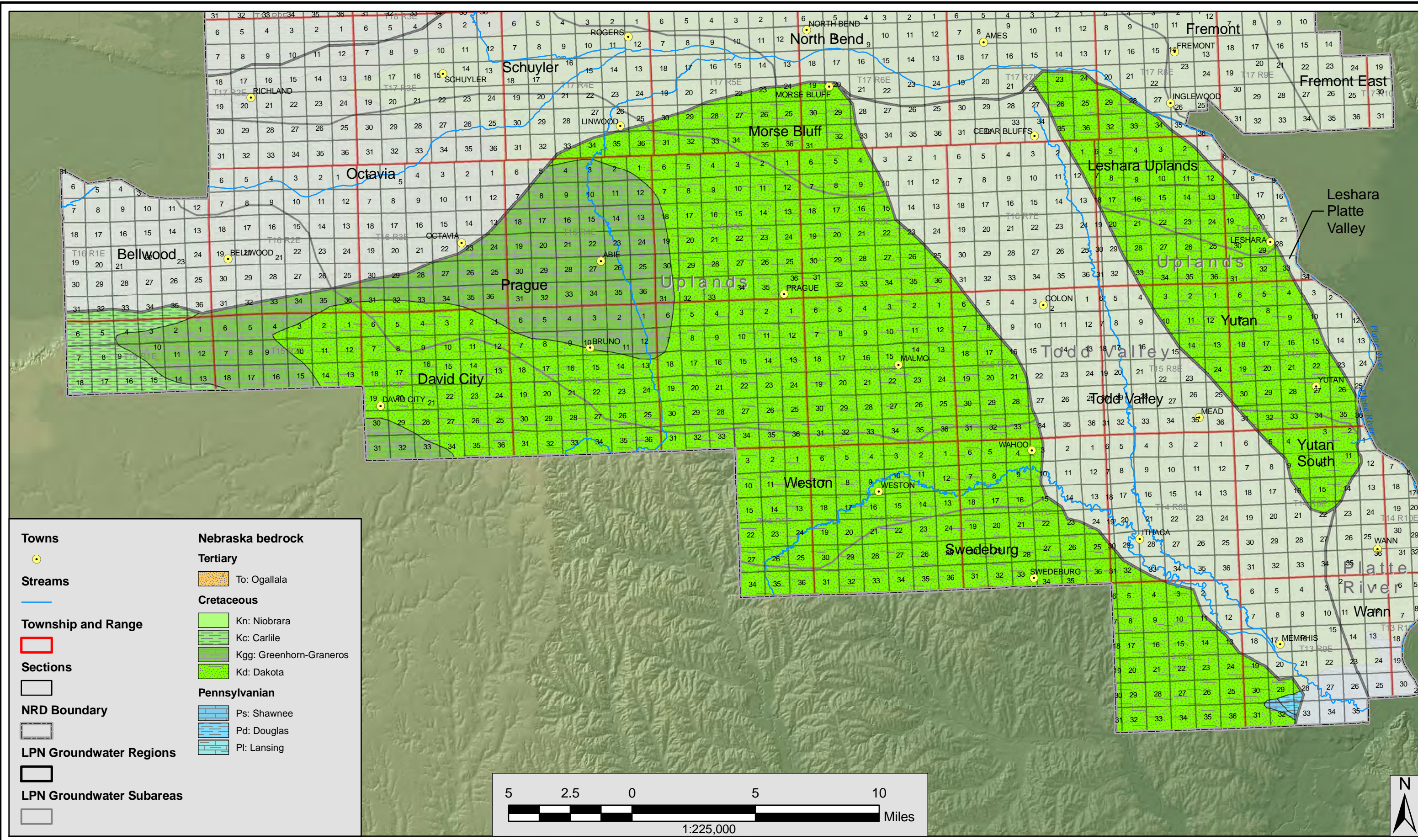
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 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Bedrock, 1996, CSD

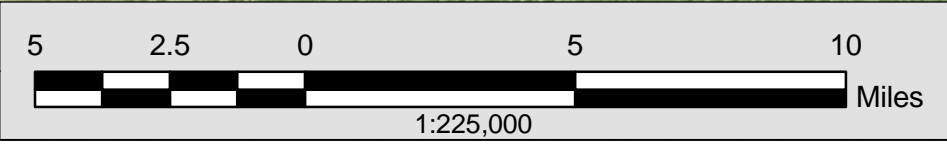
TODD VALLEY REGION BEDROCK GEOLOGY
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FIGURE
4.4



Towns	Nebraska bedrock
●	Tertiary
Streams	▨ To: Ogallala
—	Cretaceous
Township and Range	■ Kn: Niobrara
▭	▨ Kc: Carlile
Sections	▨ Kgg: Greenhorn-Graneros
▭	▨ Kd: Dakota
NRD Boundary	Pennsylvanian
▭	▨ Ps: Shawnee
LPN Groundwater Regions	▨ Pd: Douglas
▭	▨ Pl: Lansing
LPN Groundwater Subareas	
▭	



PROJECT: 007-0427
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 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Bedrock, 1996, CSD

UPLANDS REGION BEDROCK GEOLOGY
 Lower Platte North Natural Resources District

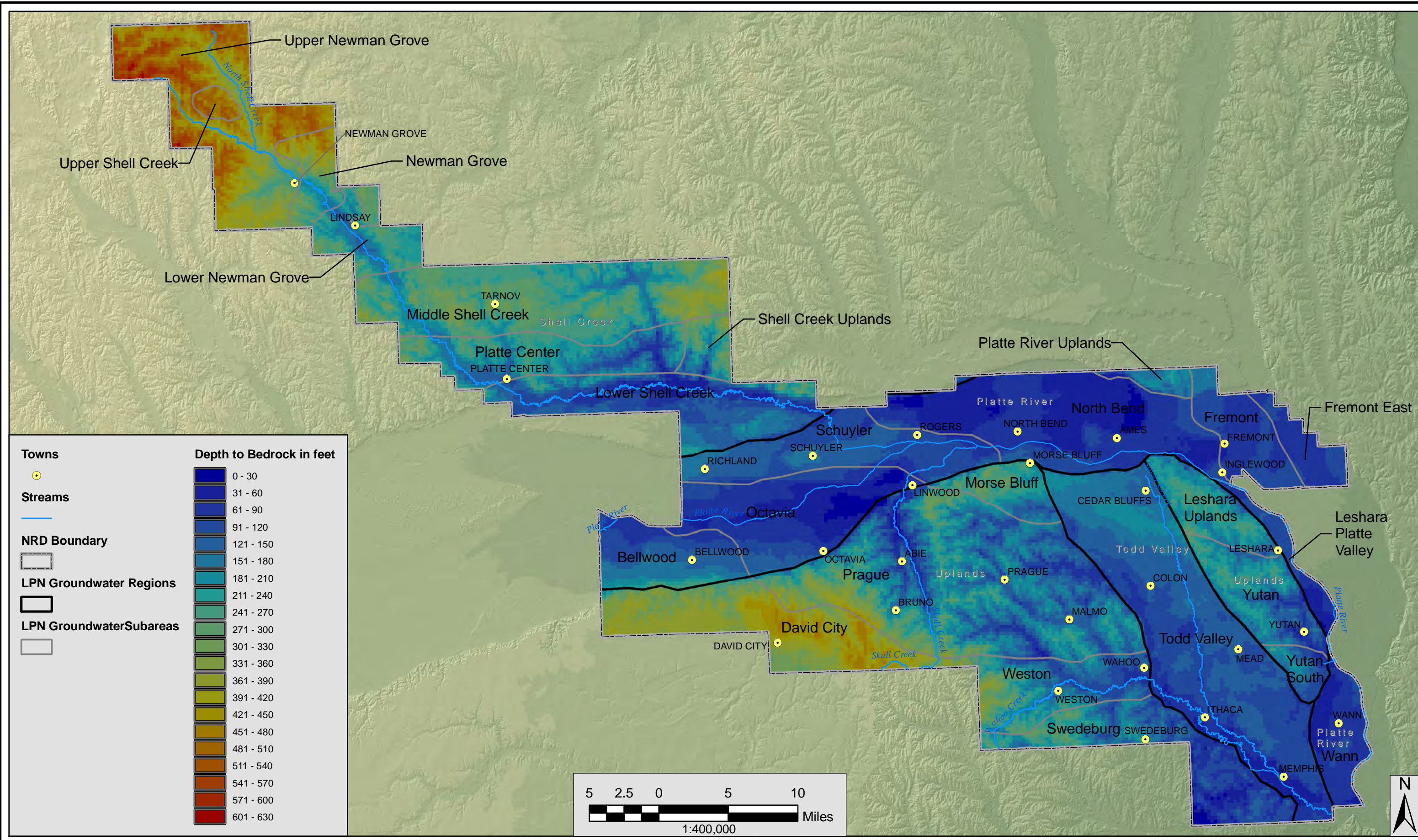
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FIGURE
4.5

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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Thickness of Principal Aquifer, URS, 2007, HWS, 1995; Registered Well Database, January 2008, DNR

Derivation: The depth to bedrock was generated by compiling the depth to bedrock surface from the sources listed above and subtracting it from the ground elevation.

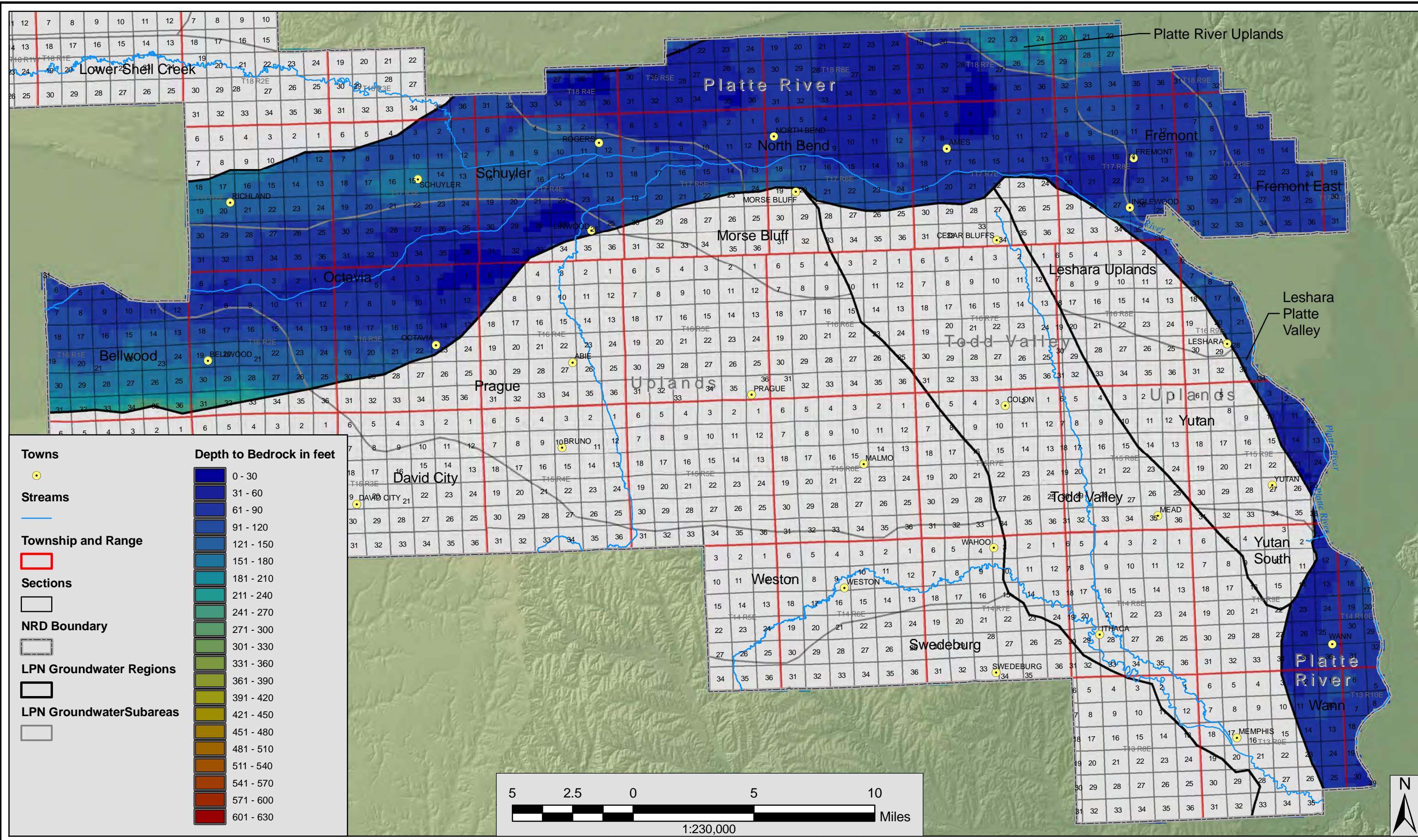
DEPTH TO BEDROCK
 Lower Platte North Natural Resources District

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FIGURE
5.1



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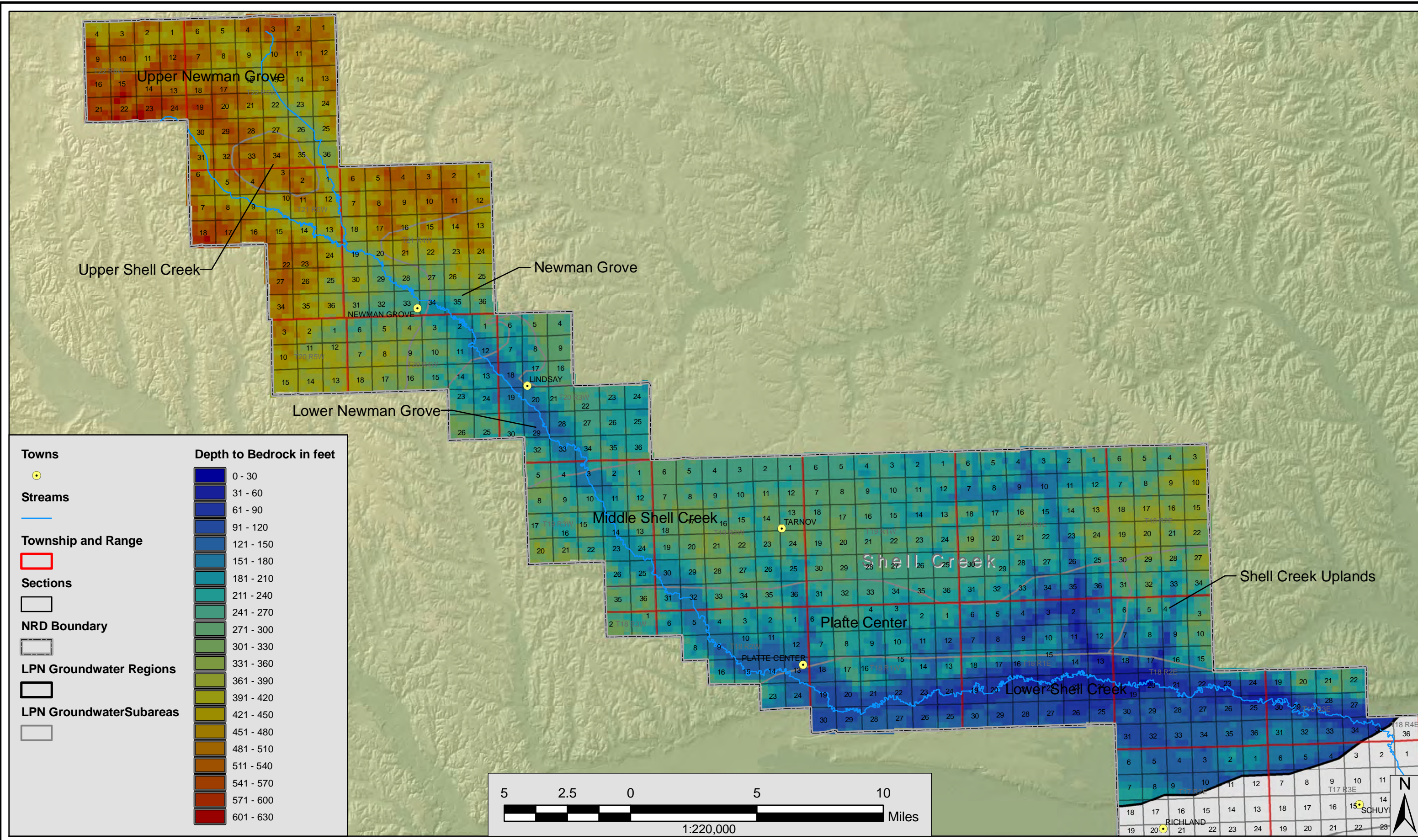
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Derivation: The depth to bedrock was generated by compiling the depth to bedrock surface from the sources listed above and subtracting it from the ground elevation.

PLATTE RIVER REGION DEPTH TO BEDROCK
 Lower Platte North Natural Resources District

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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Thickness of Principal Aquifer, URS, 2007, HWS, 1995; Registered Well Database, January 2008, DNR

SHELL CREEK REGION DEPTH TO BEDROCK
 Lower Platte North Natural Resources District

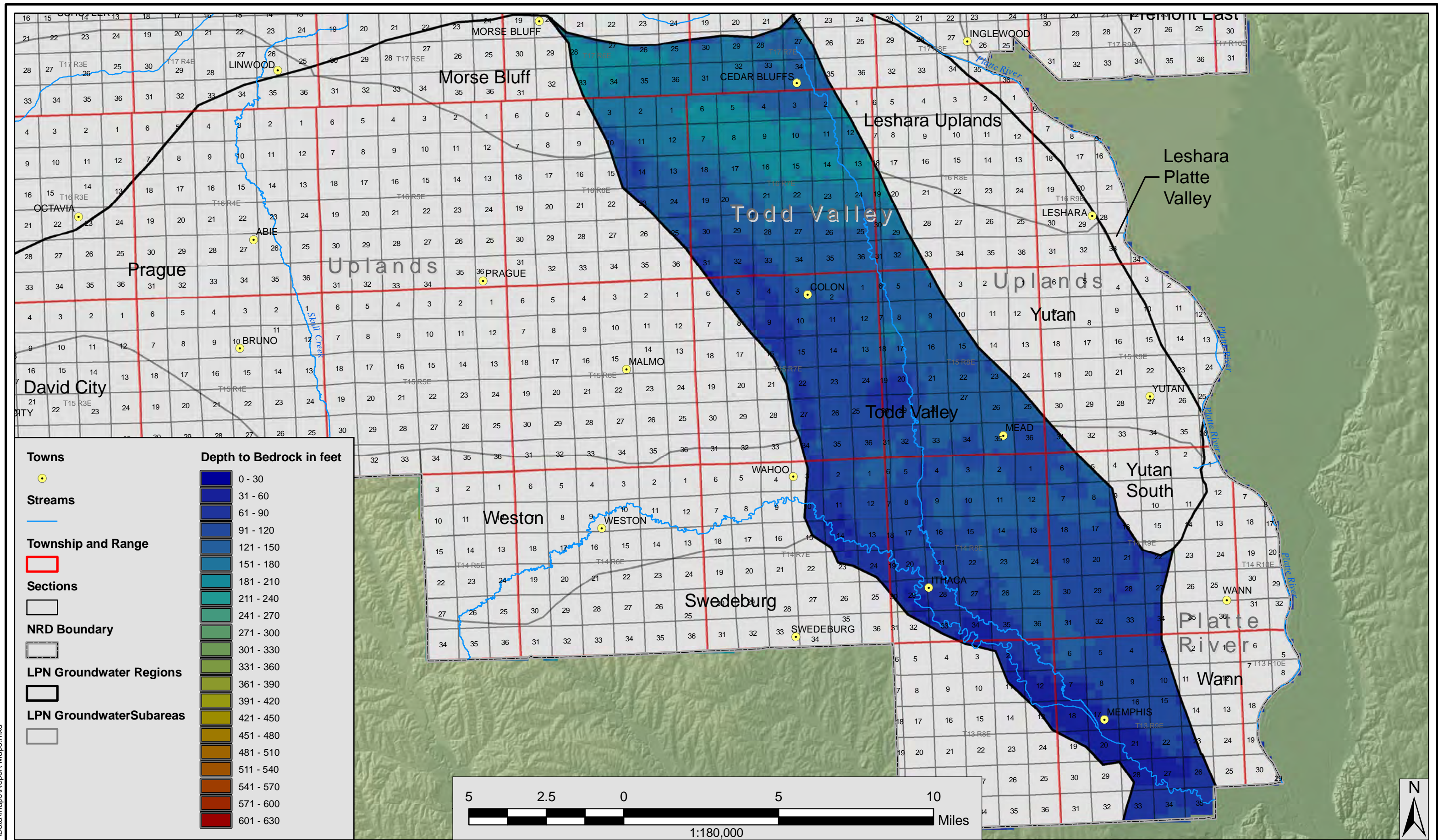
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FIGURE 5.3

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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Thickness of Principal Aquifer, URS, 2007, HWS, 1995; Registered Well Database, January 2008, DNR

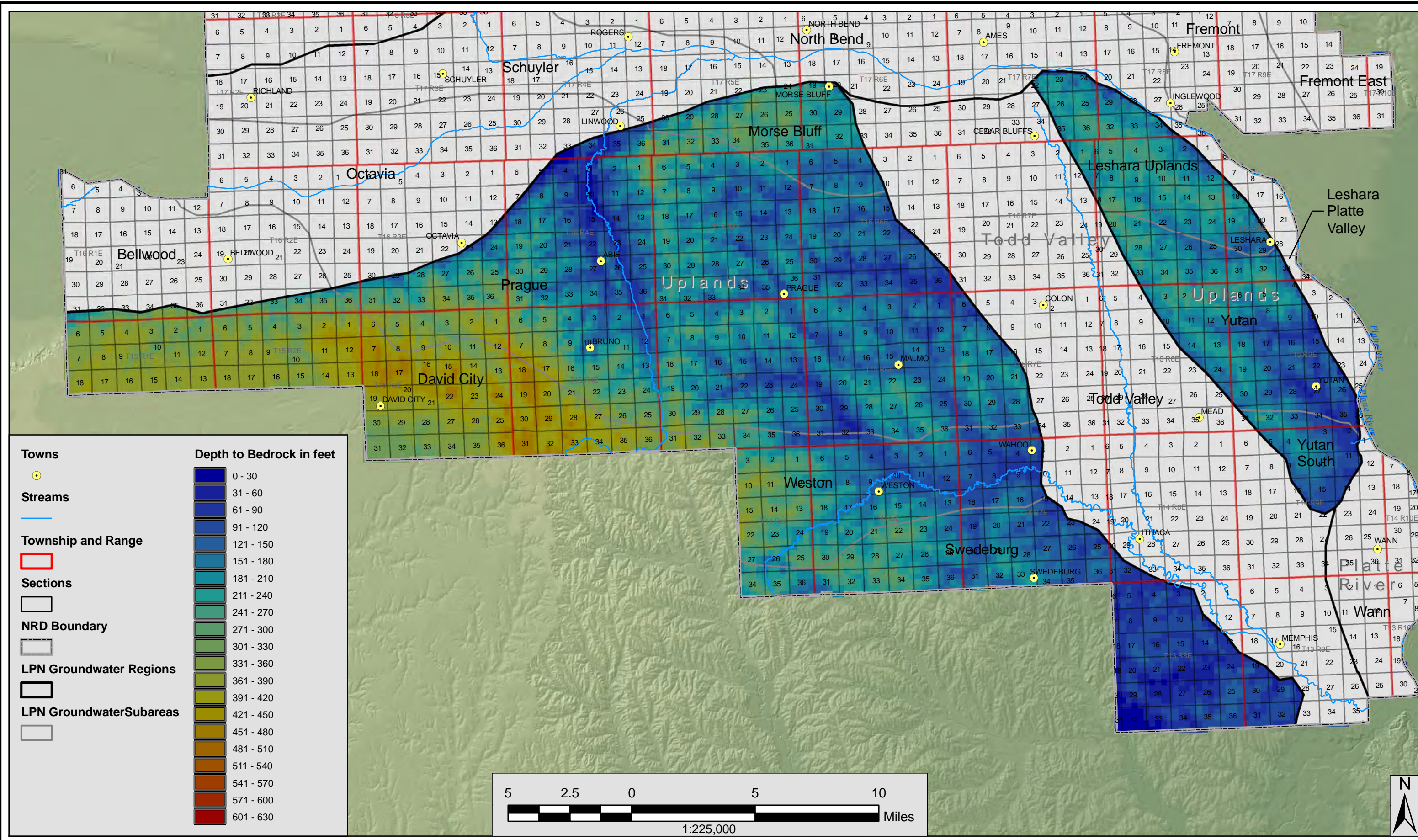
Derivation: The depth to bedrock was generated by compiling the depth to bedrock surface from the sources listed above and subtracting it from the ground elevation.

TODD VALLEY REGION DEPTH TO BEDROCK
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FIGURE
5.4

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PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

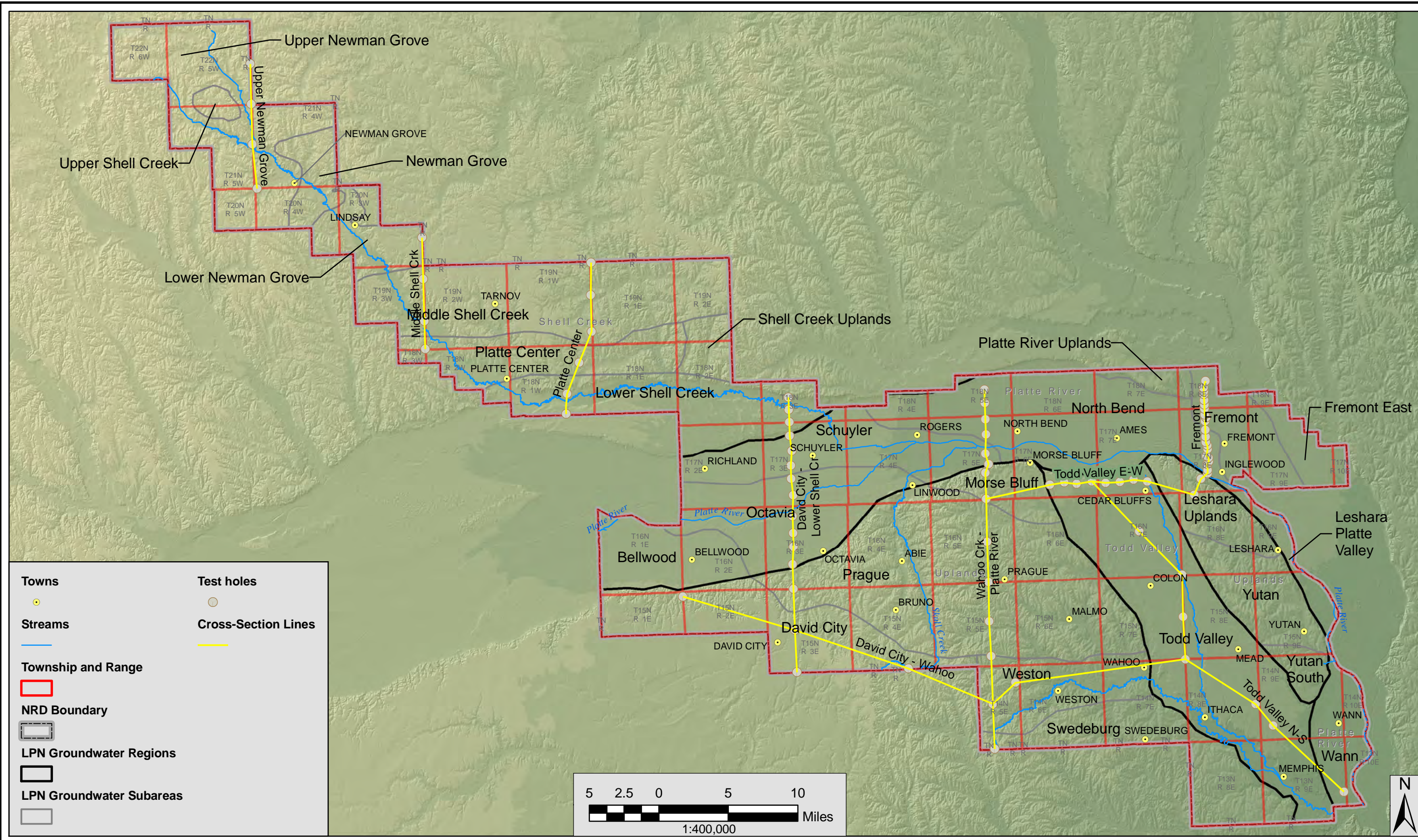
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Thickness of Principal Aquifer, URS, 2007, HWS, 1995; Registered Well Database, January 2008, DNR

Derivation: The depth to bedrock was generated by compiling the depth to bedrock surface from the sources listed above and subtracting it from the ground elevation.

UPLANDS REGION DEPTH TO BEDROCK
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FIGURE
5.5



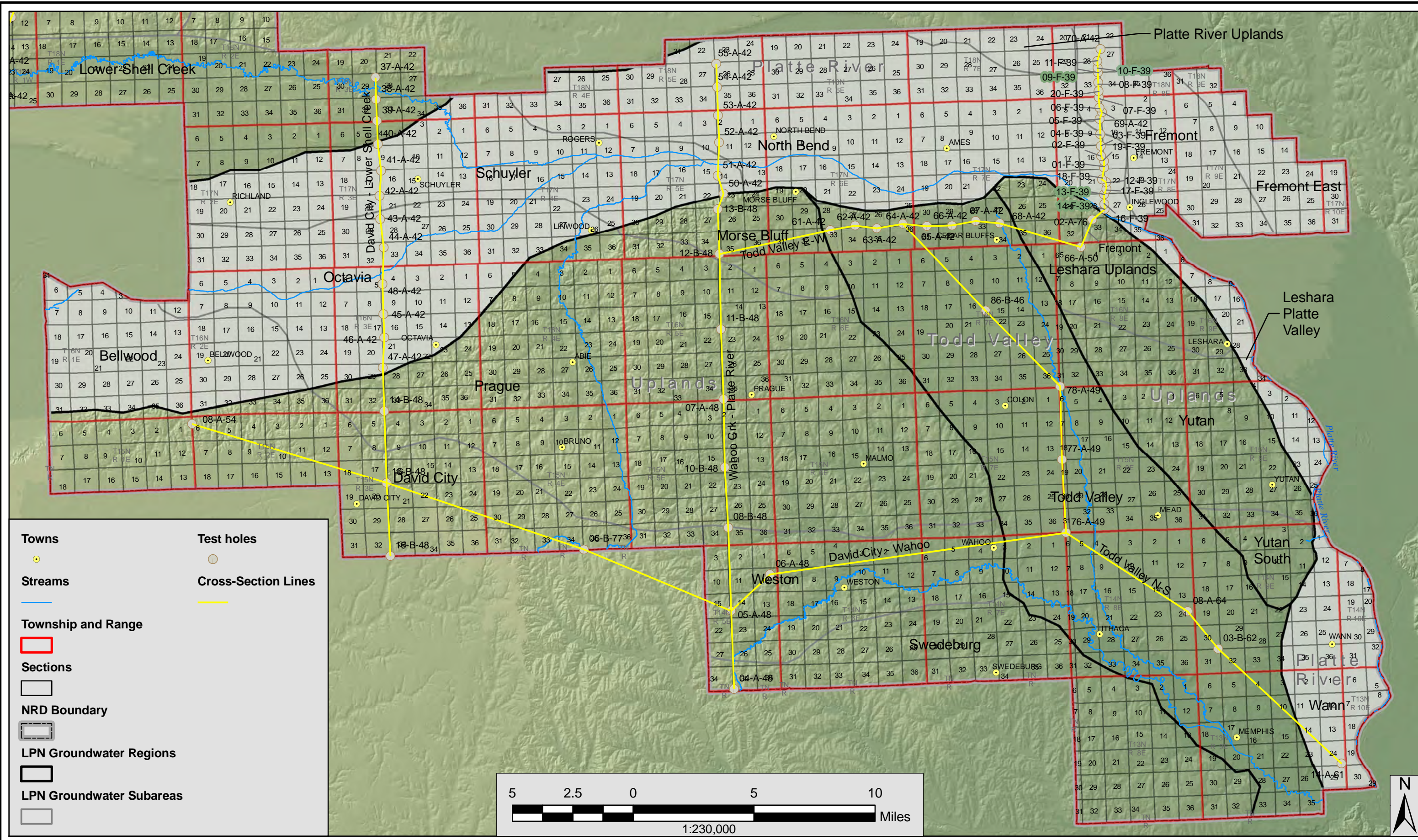
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PROJECT: 007-0427	Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD
DRAWN BY: DR	
Date: 3/2/2009	

GEOLOGIC CROSS-SECTIONS
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FIGURE
6.1



Towns
●

Streams
—

Township and Range
□

Sections
□

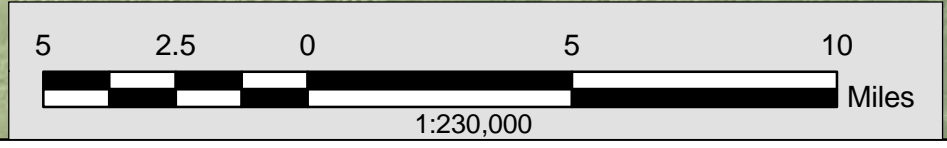
NRD Boundary
□

LPN Groundwater Regions
□

LPN Groundwater Subareas
□

Test holes
○

Cross-Section Lines
—



PROJECT: 007-0427
 DRAWN BY: DR
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

PLATTE RIVER REGION GEOLOGIC CROSS-SECTIONS
 Lower Platte North Natural Resources District

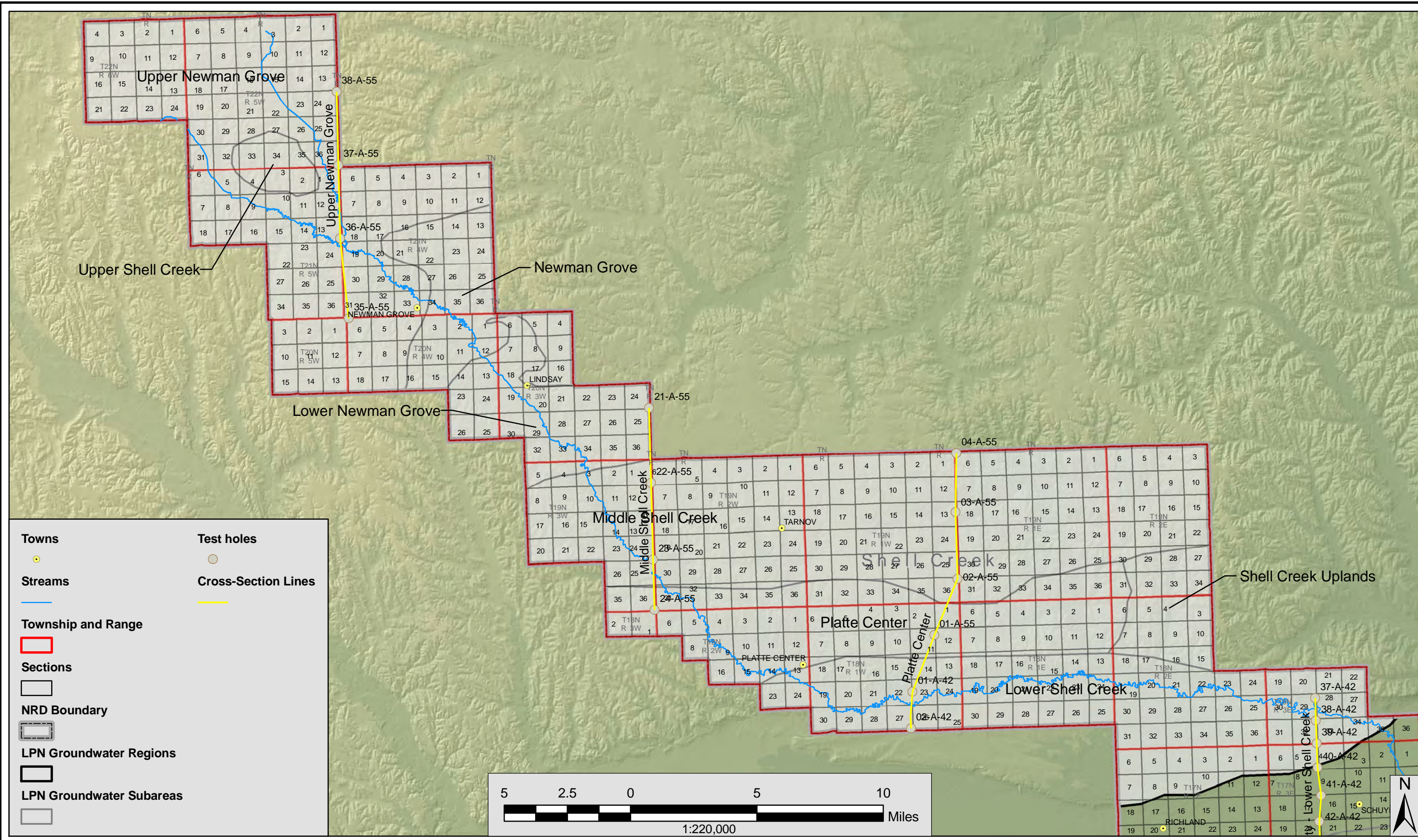
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FIGURE
 6.2

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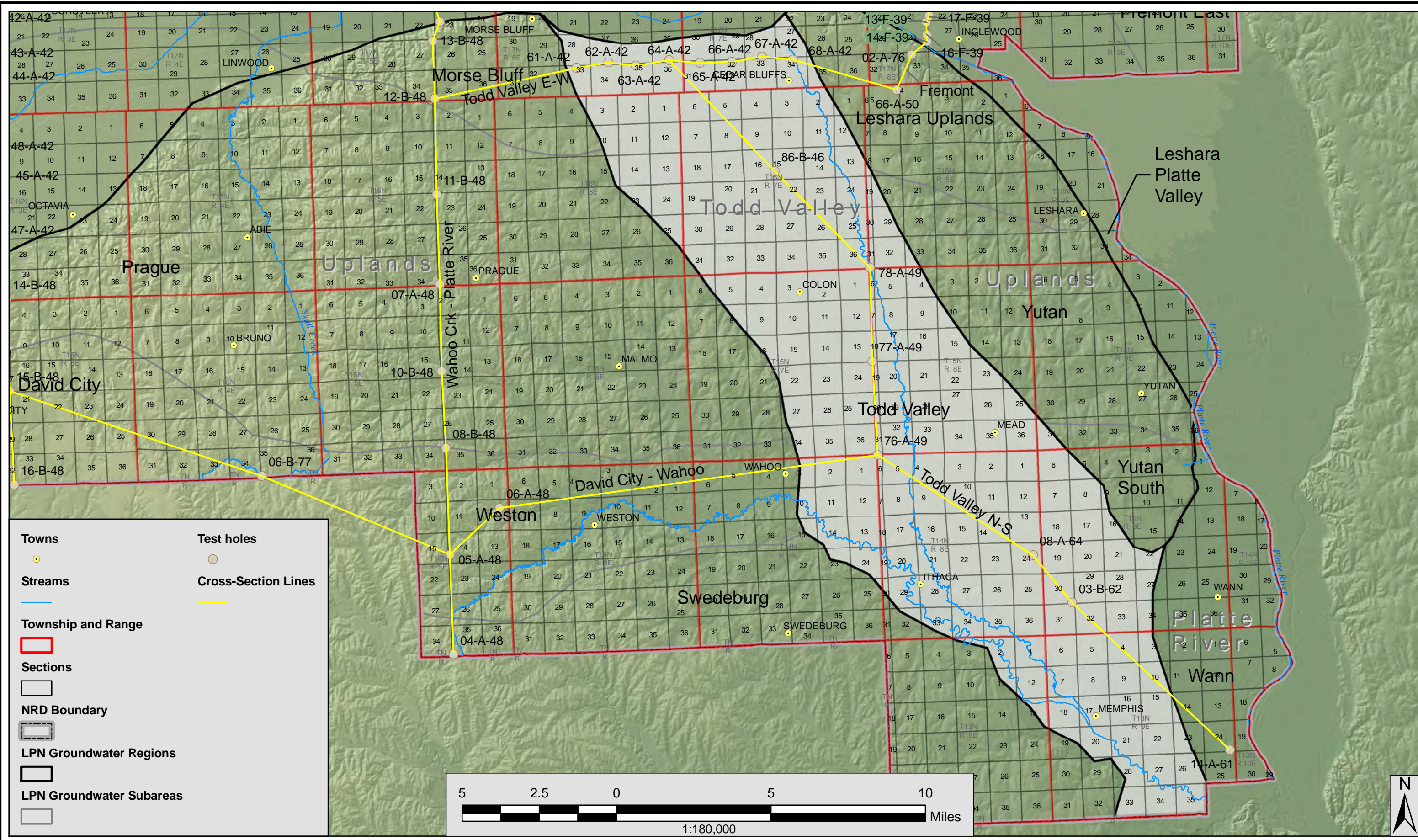
PROJECT: 007-0427
 DRAWN BY: DR
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

SHELL CREEK REGION GEOLOGIC CROSS-SECTIONS
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FIGURE
6.3



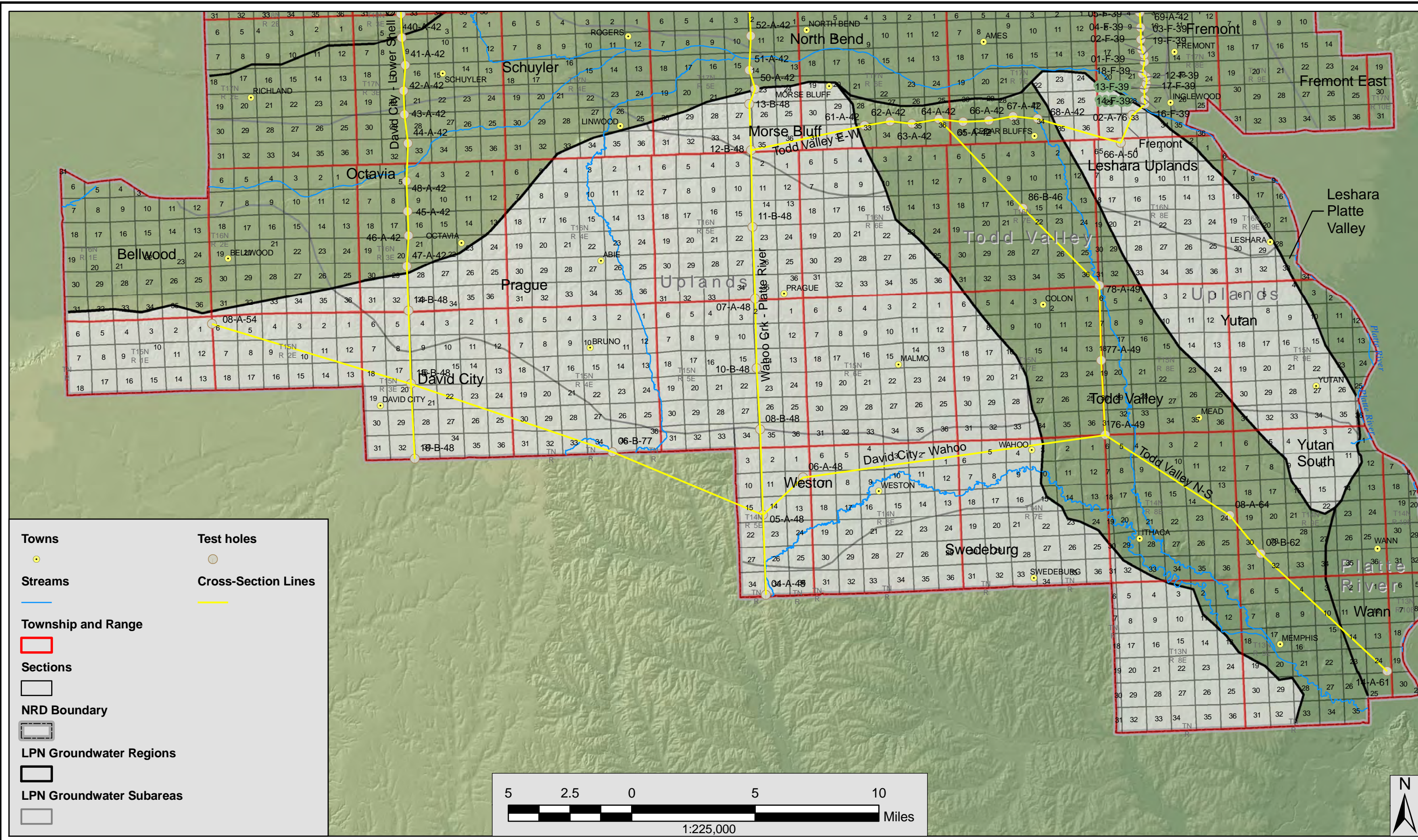
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PROJECT: 007-0427	Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD
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FIGURE
6.4



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PROJECT: 007-0427	Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD
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FIGURE
6.5

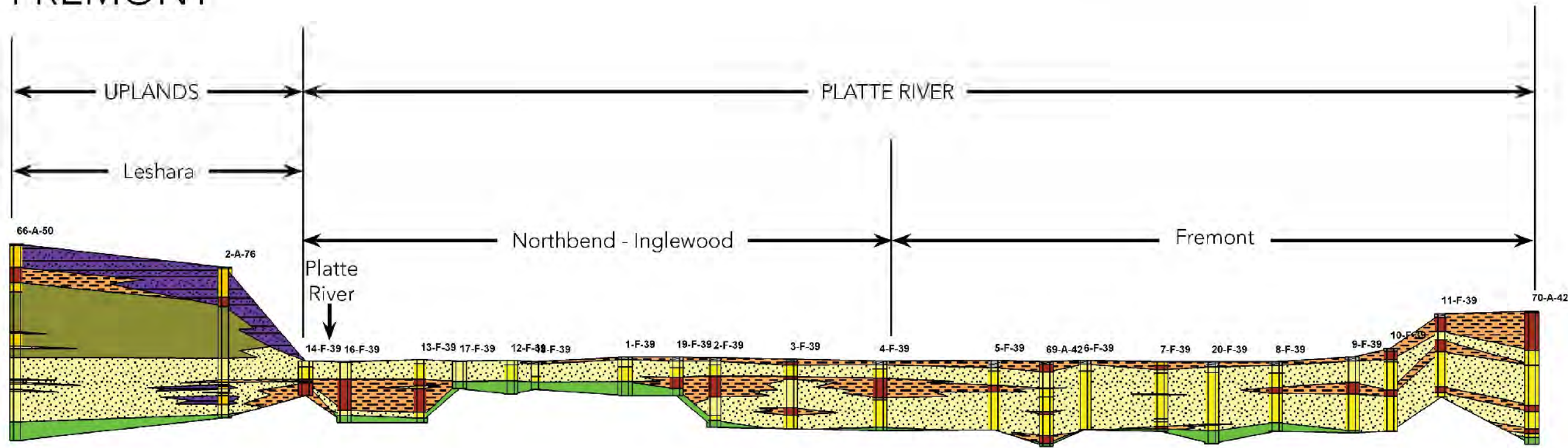
SOUTH

NORTH

FREMONT

Explanation of Cross-Section Borehole Lithology and Lateral Material Interpretation

	Topsoil		Gravel		Loess		Carlile
	Road fill		Till		Sandstone		Greenhorn
	Clay		Volcanic Ash		Chalk		Dakota
	Silt		Clay and Silt		Limestone		Douglas
	Sand		Sand and Gravel		Ogallala		Shale
					Niobrara		Siltstone



NOT TO SCALE

F:\Projects\007-0427\Data\maps\report_maps.mxd

PROJECT: 007-0427 Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

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Date: 10/22/2008

FREMONT NORTH - SOUTH CROSS-SECTION

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FIGURE
6.2.1

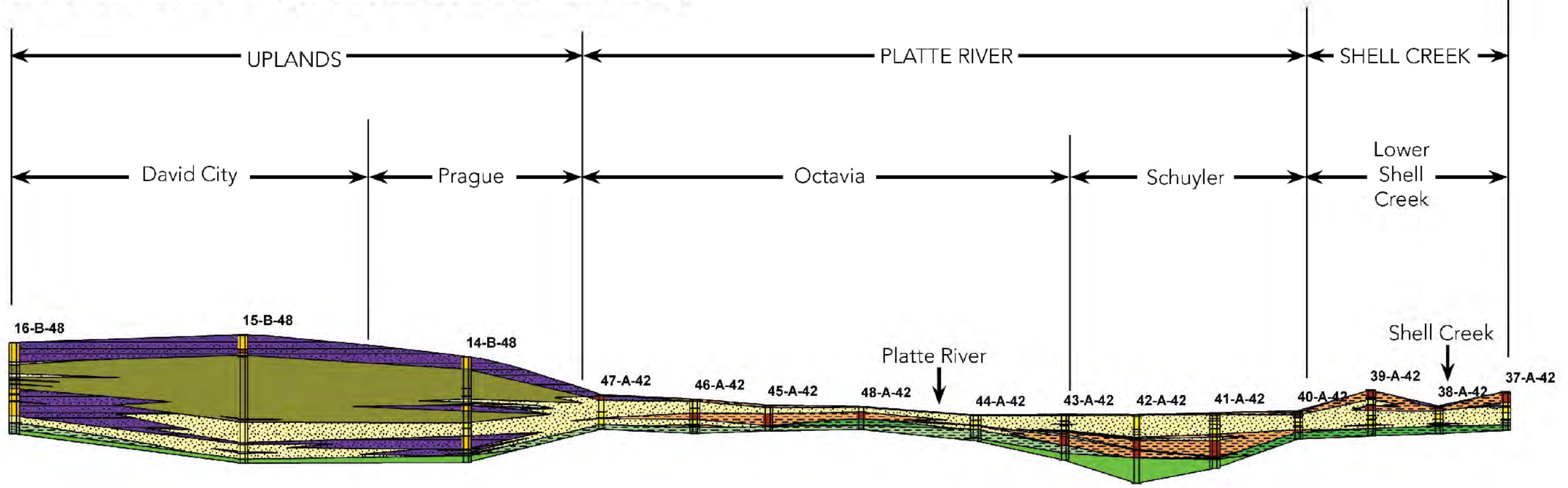
SOUTH

NORTH

Explanation of Cross-Section Borehole Lithology and Lateral Material Interpretation

 Topsoil	 Gravel	 Loess	 Carlile
 Road fill	 Till	 Sandstone	 Greenhorn
 Clay	 Volcanic Ash	 Chalk	 Dakota
 Silt	 Clay and Silt	 Limestone	 Douglas
 Sand	 Sand and Gravel	 Ogallala	 Shale
		 Niobrara	 Siltstone

DAVID CITY - LOWER SHELL CREEK



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PROJECT: 007-0427 Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD
 Boundary, 2007, CSD; Elevation, 1998, USGS;
 Range-Township, 1996, CSD

DRAWN BY: RD

Date: 10/22/2008

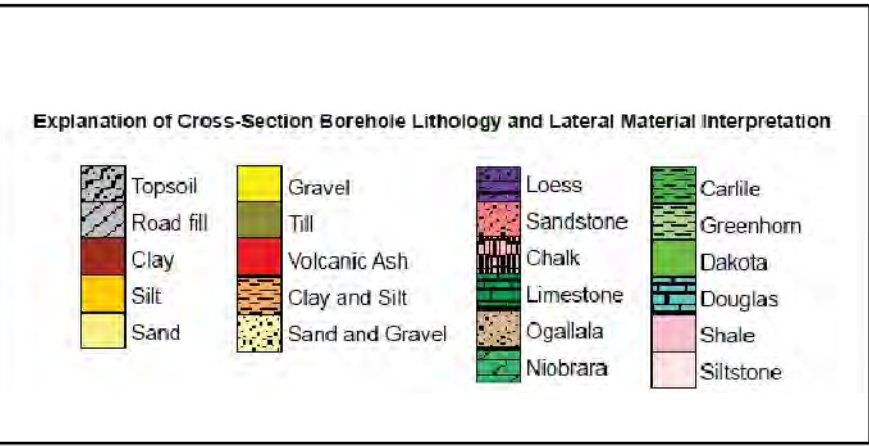
DAVID CITY - LOWER SHELL CREEK NORTH - SOUTH CROSS-SECTION
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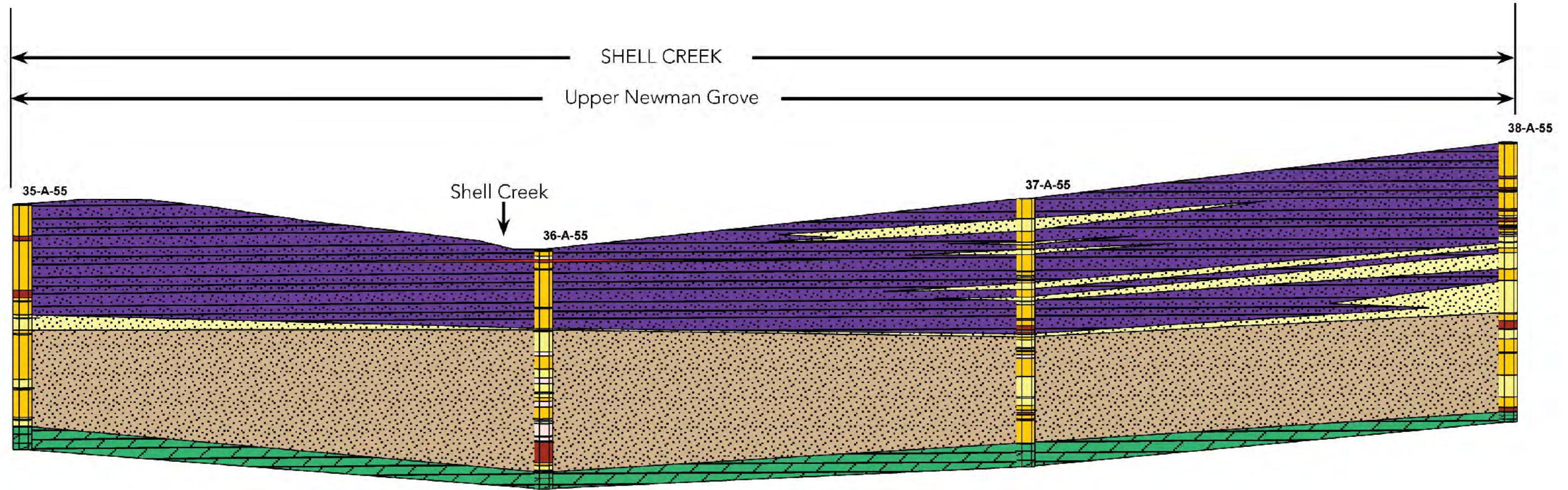
FIGURE
 6.2.2



SOUTH

NORTH

UPPER NEWMAN GROVE



NOT TO SCALE

PROJECT: 007-0427 Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD
 DRAWN BY: RD
 Date: 10/22/2008

UPPER NEWMAN GROVE NORTH - SOUTH CROSS-SECTION Lower Platte North Natural Resources District

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FIGURE
 6.3.1

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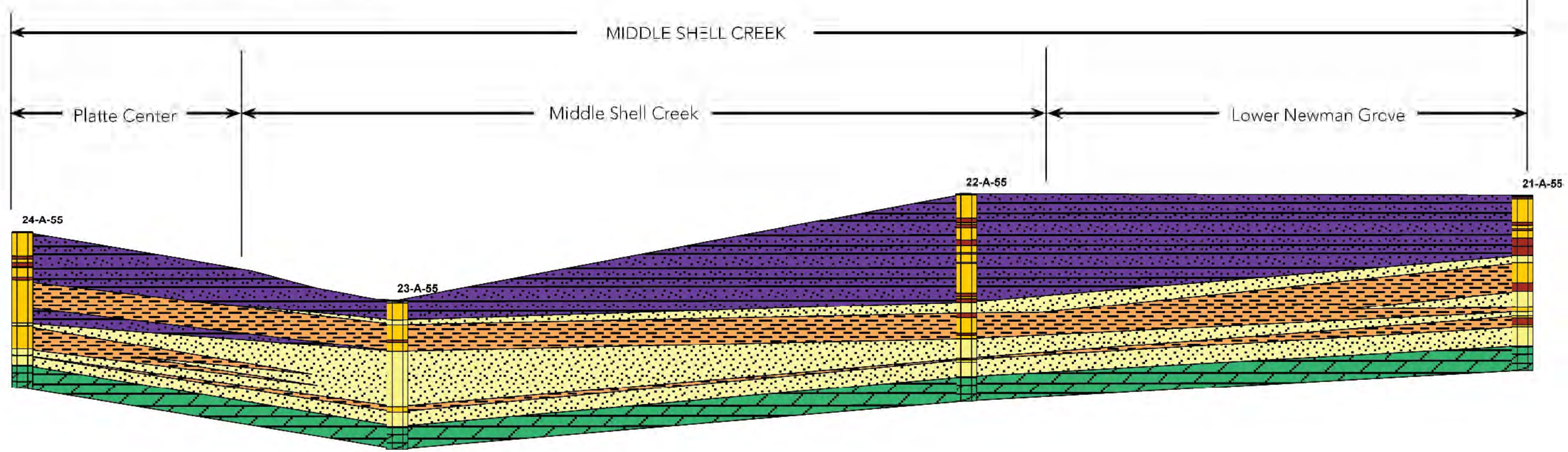
SOUTH

NORTH

MIDDLE SHELL CREEK

Explanation of Cross-Section Borehole Lithology and Lateral Material Interpretation

	Topsoil		Gravel		Loess		Carlile
	Road fill		Till		Sandstone		Greenhorn
	Clay		Volcanic Ash		Chalk		Dakota
	Silt		Clay and Silt		Limestone		Douglas
	Sand		Sand and Gravel		Ogallala		Shale
					Niobrara		Siltstone



NOT TO SCALE

PROJECT: 007-0427
 DRAWN BY: RD
 Date: 10/22/2008

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

MIDDLE SHELL CREEK NORTH - SOUTH CROSS-SECTION

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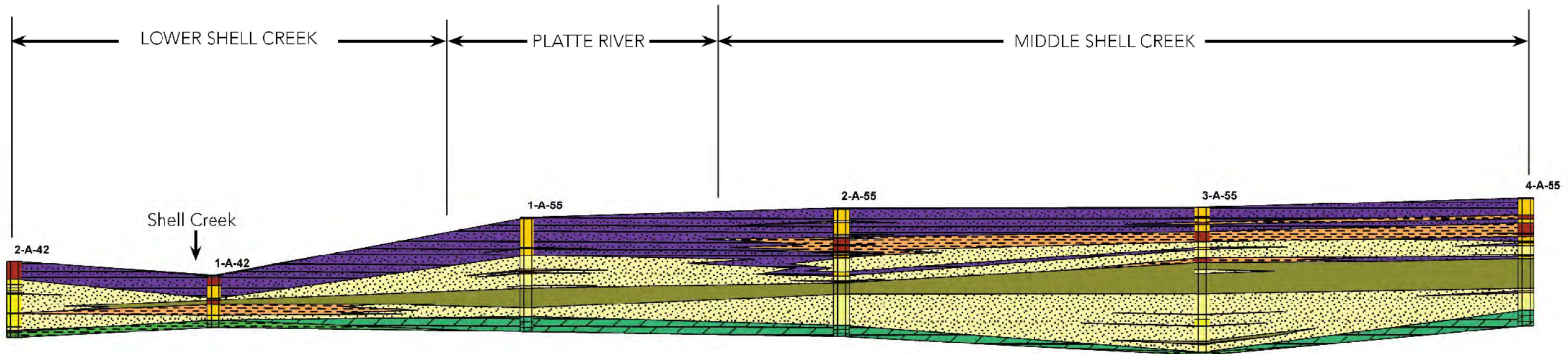
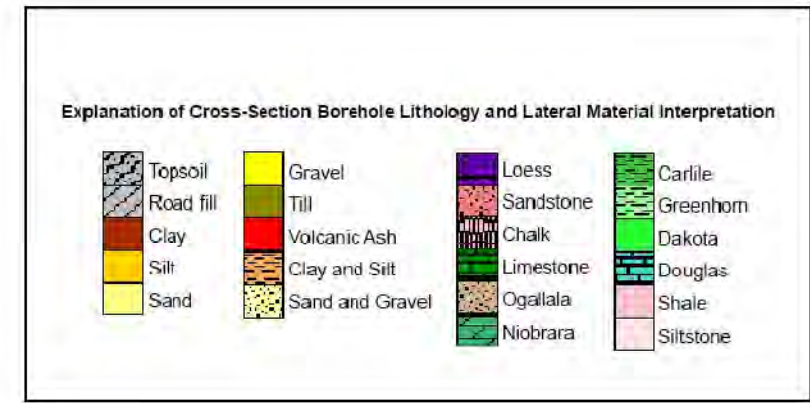
FIGURE
6.3.2

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SOUTH

NORTH

PLATTE CENTER



NOT TO SCALE

PROJECT: 007-0427 Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD
 Boundary, 2007, CSD; Elevation, 1998, USGS;
 Range-Township, 1996, CSD
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 Date: 10/22/2008

PLATTE CENTER NORTH - SOUTH CROSS-SECTION

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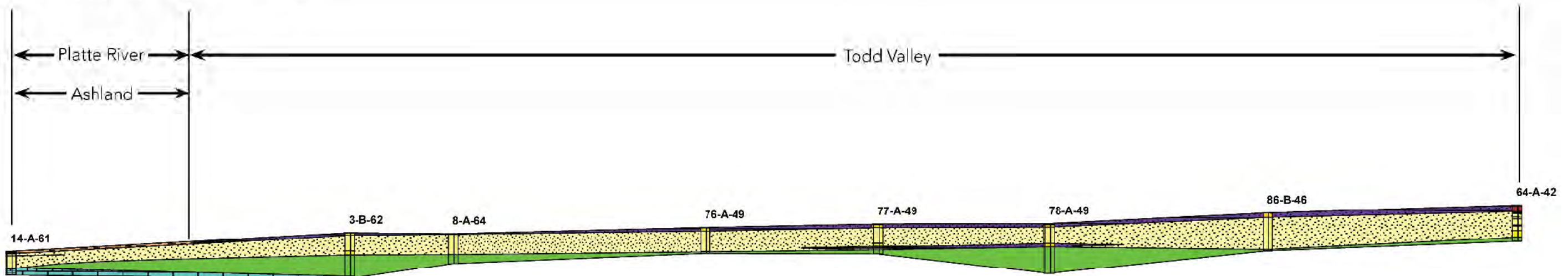
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FIGURE
6.3.3

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SOUTH

TODD VALLEY N-S



Explanation of Cross-Section Borehole Lithology and Lateral Material Interpretation

Topsoil	Gravel	Loess	Carlile
Road fill	Till	Sandstone	Greenhorn
Clay	Volcanic Ash	Chalk	Dakota
Silt	Clay and Silt	Limestone	Douglas
Sand	Sand and Gravel	Ogallala	Shale
		Niobrara	Siltstone

NORTH

NOT TO SCALE

F:\Projects\007-0427\Data\maps\report_maps.mxd

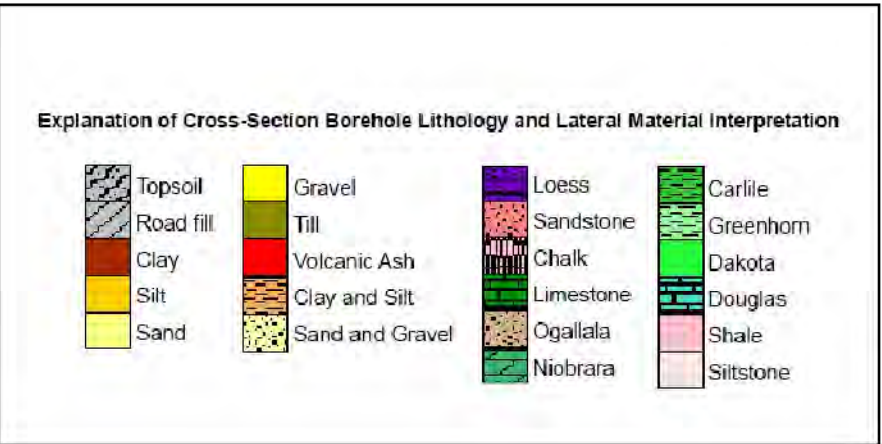
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DRAWN BY: RD	
Date: 10/22/2008	

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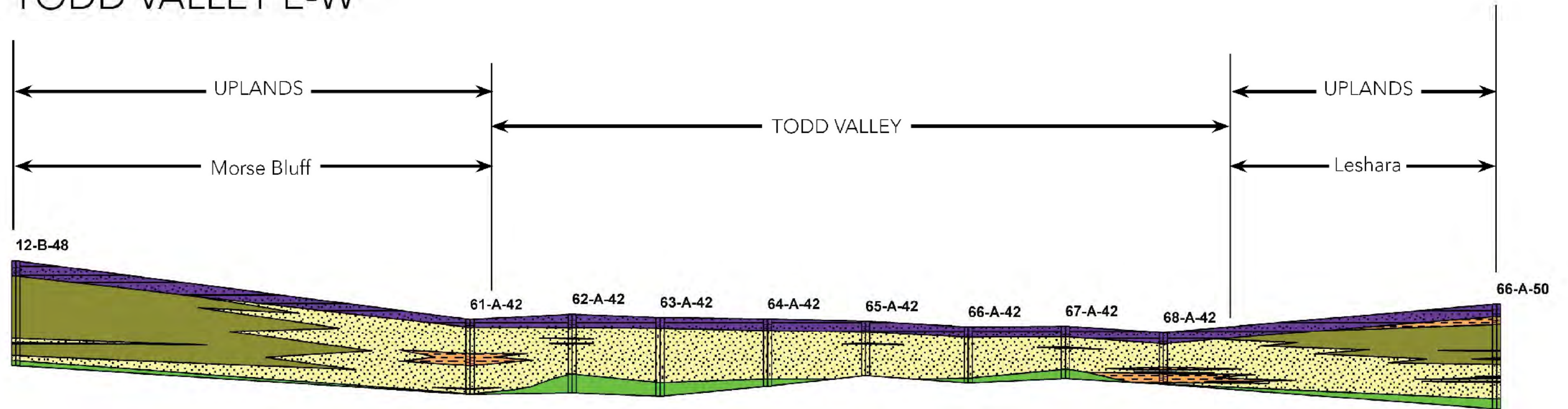
FIGURE
6.4.1



WEST

EAST

TODD VALLEY E-W



NOT TO SCALE

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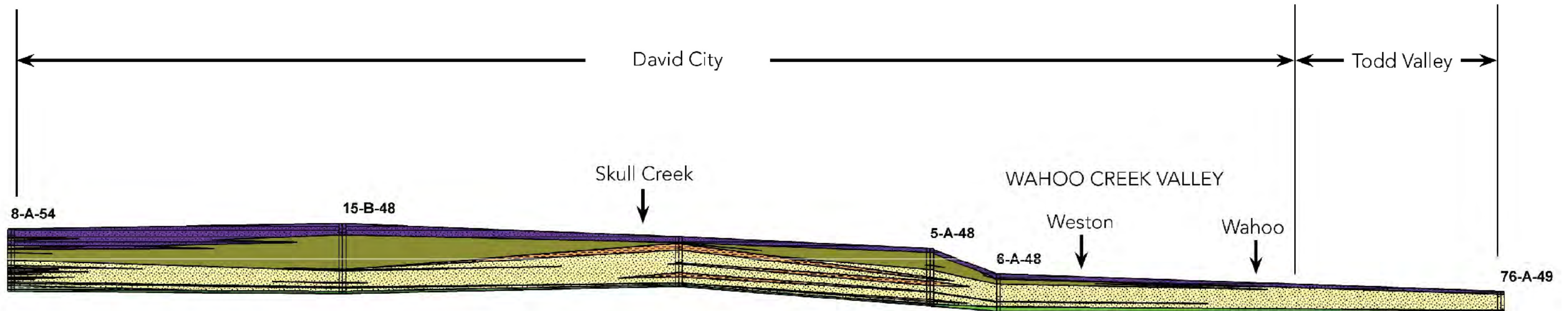
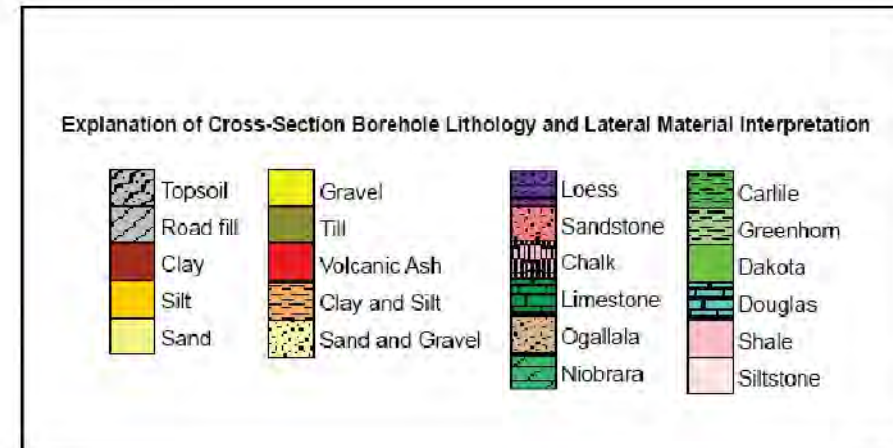
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

TODD VALLEY EAST - WEST CROSS-SECTION
 Lower Platte North Natural Resources District

WEST

EAST

DAVID CITY - WAHOO



NOT TO SCALE

PROJECT: 007-0427 Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD
 Boundary, 2007, CSD; Elevation, 1998, USGS;
 Range-Township, 1996, CSD

DRAWN BY: RD

Date: 10/22/2008

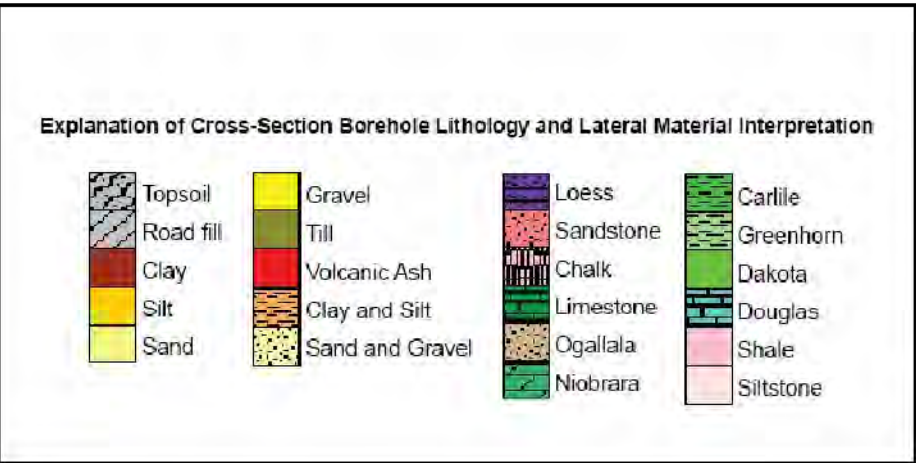
DAVID CITY - WAHOO EAST - WEST CROSS-SECTION
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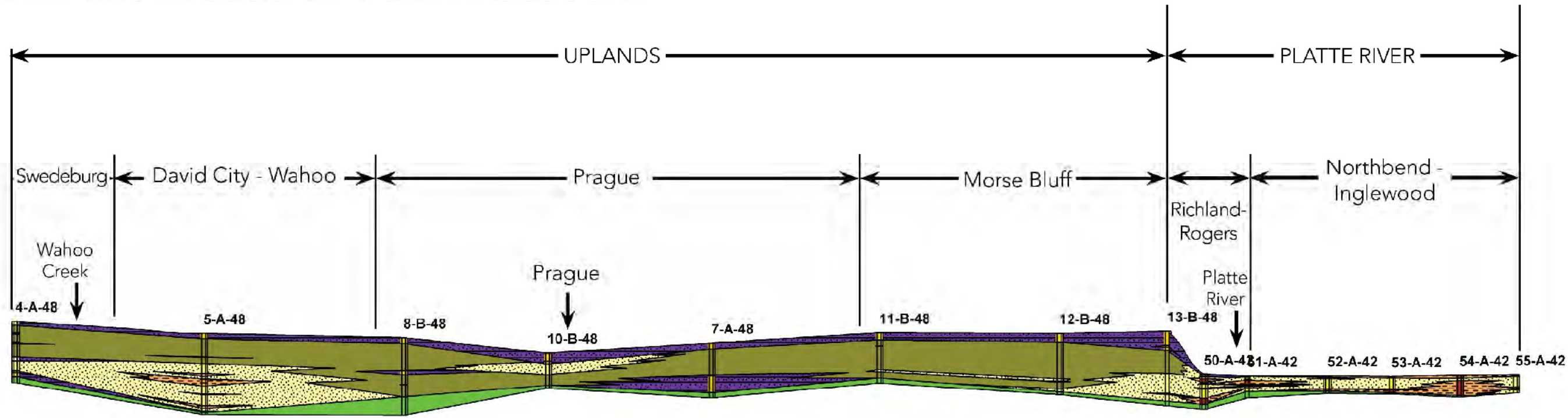
FIGURE
 6.5.1



SOUTH

NORTH

WAHOO CREEK - PLATTE RIVER



NOT TO SCALE

PROJECT: 007-0427
 DRAWN BY: RD
 Date: 10/22/2008

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD

WAHOO CREEK - PLATTE RIVER NORTH - SOUTH CROSS-SECTION
 Lower Platte North Natural Resources District

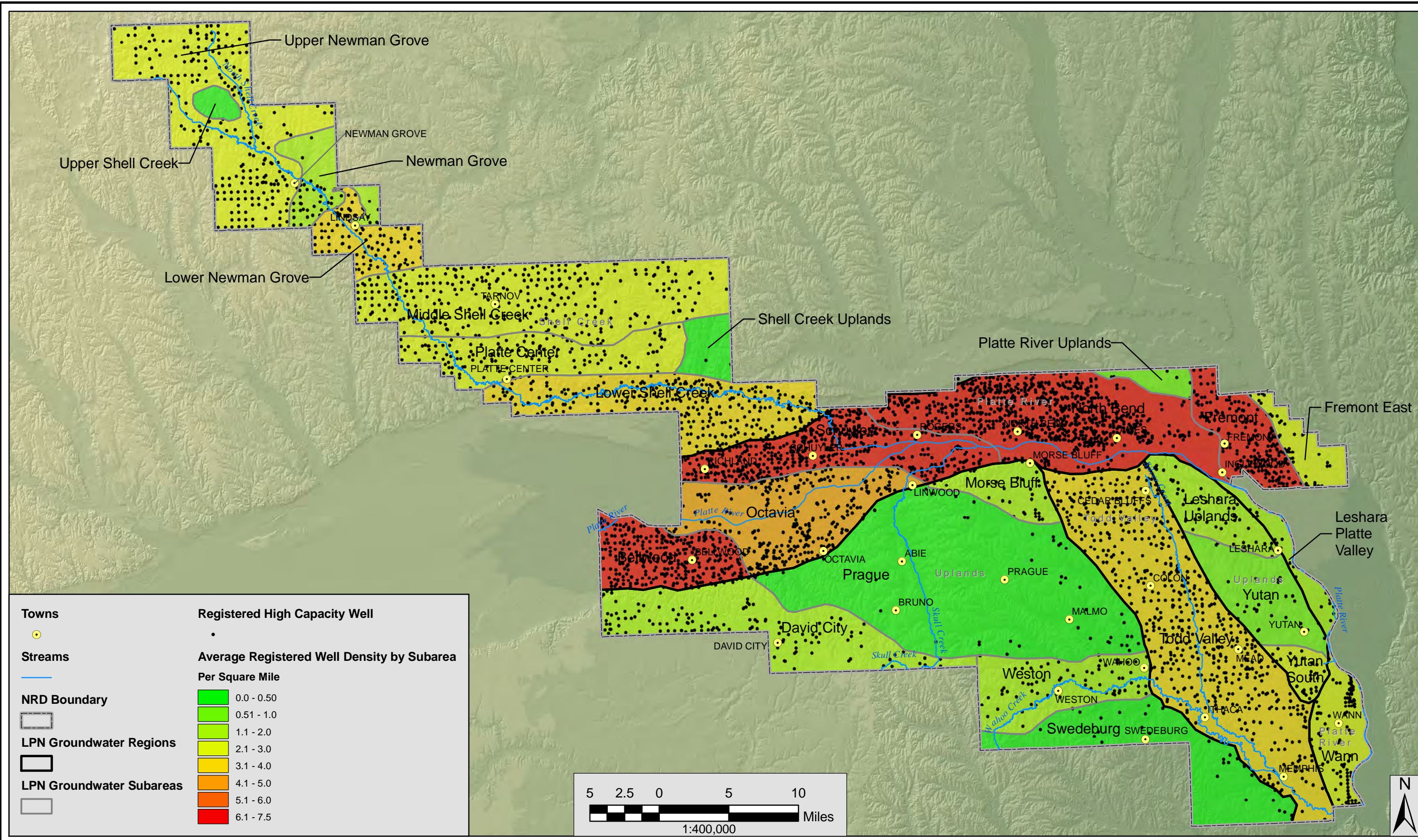
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FIGURE
6.5.2

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PROJECT: 007-0427	Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Registered Well Database, January 2008, DNR
DRAWN BY: RD	
Date: 3/2/2009	

Derivation: Density is based on the average high capacity well density across the groundwater management subarea. High capacity includes wells registered with > 300 gpm.

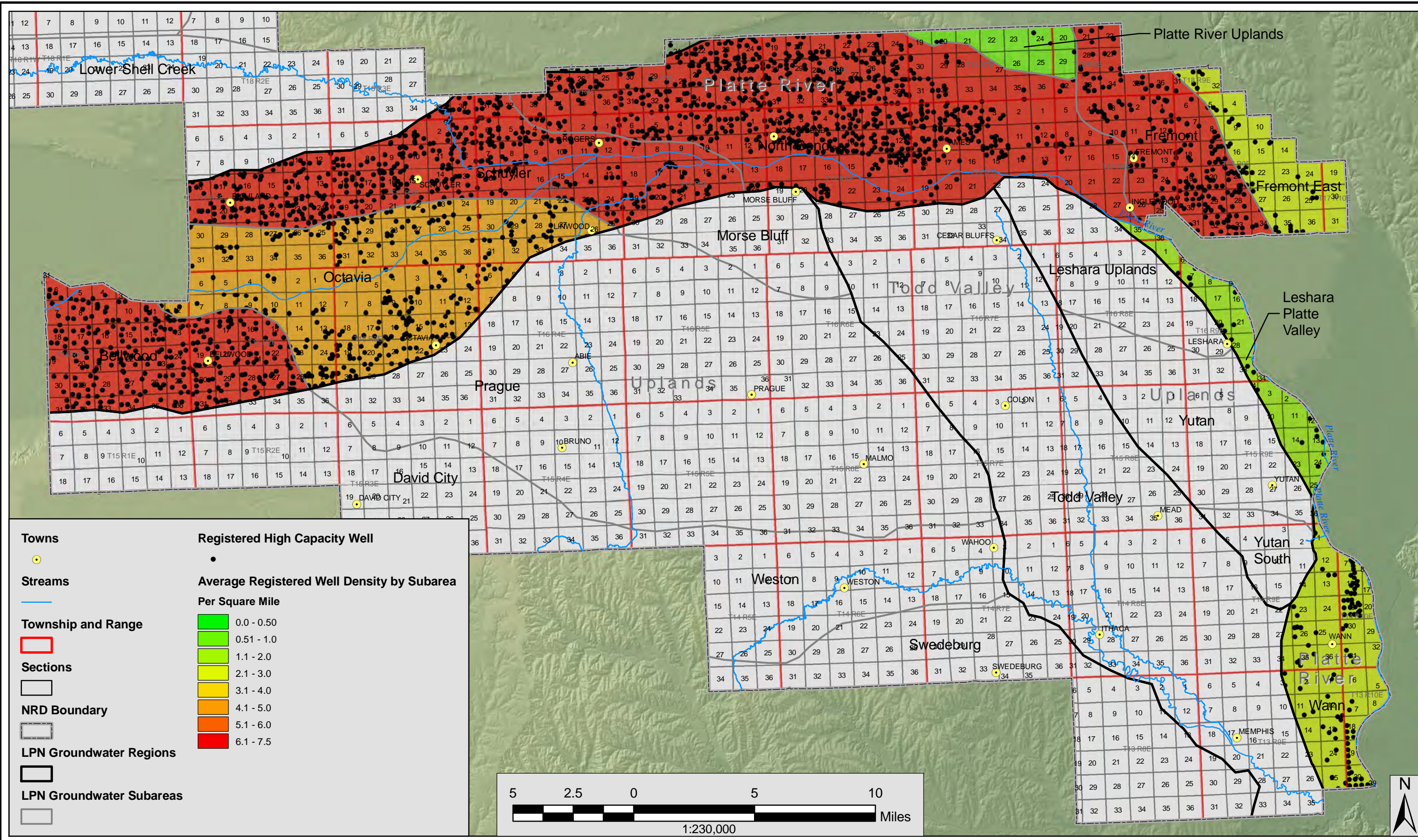
REGISTERED WELLS Lower Platte North Natural Resources District

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FIGURE
7.1



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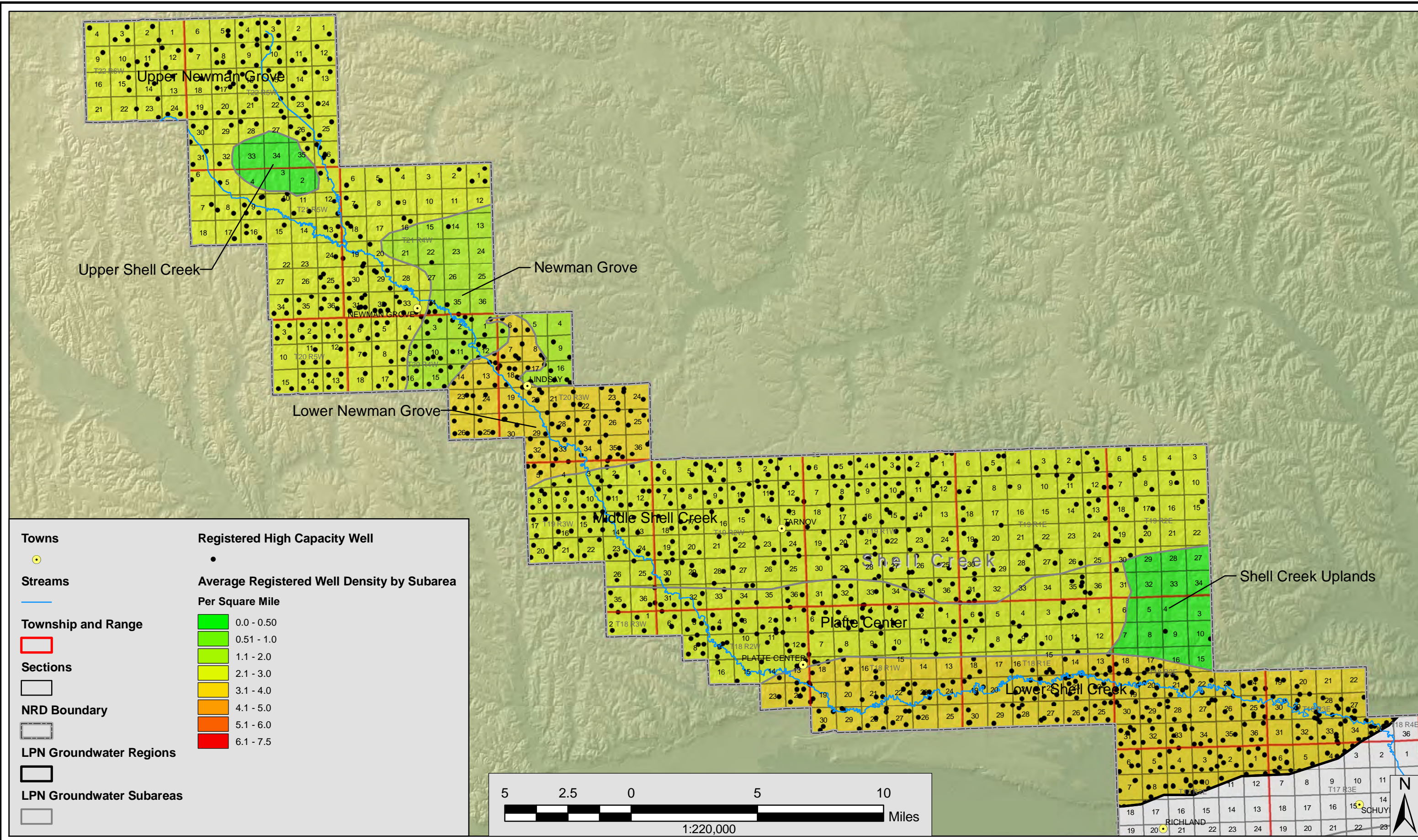
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Registered Well Database, January 2008, DNR

PLATTE RIVER REGION REGISTERED WELLS
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FIGURE
7.2



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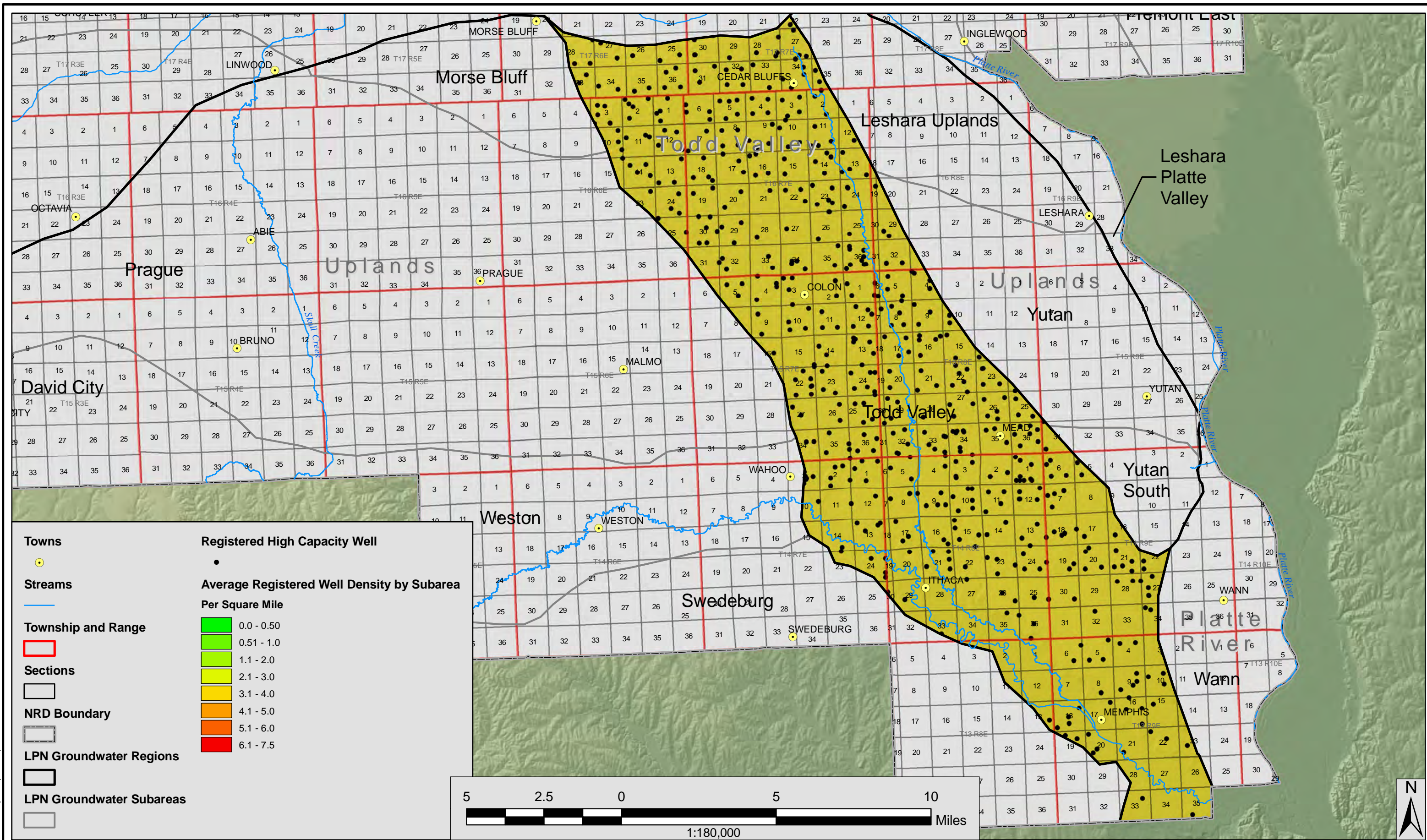
PROJECT: 007-0427	Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Registered Well Database, January 2008, DNR
DRAWN BY: RD	
Date: 3/2/2009	

Derivation: Density is based on the average high capacity well density across the groundwater management subarea. High capacity includes wells registered with > 300 gpm.

SHELL CREEK REGION REGISTERED WELLS Lower Platte North Natural Resources District

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FIGURE
7.3



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PROJECT: 007-0427
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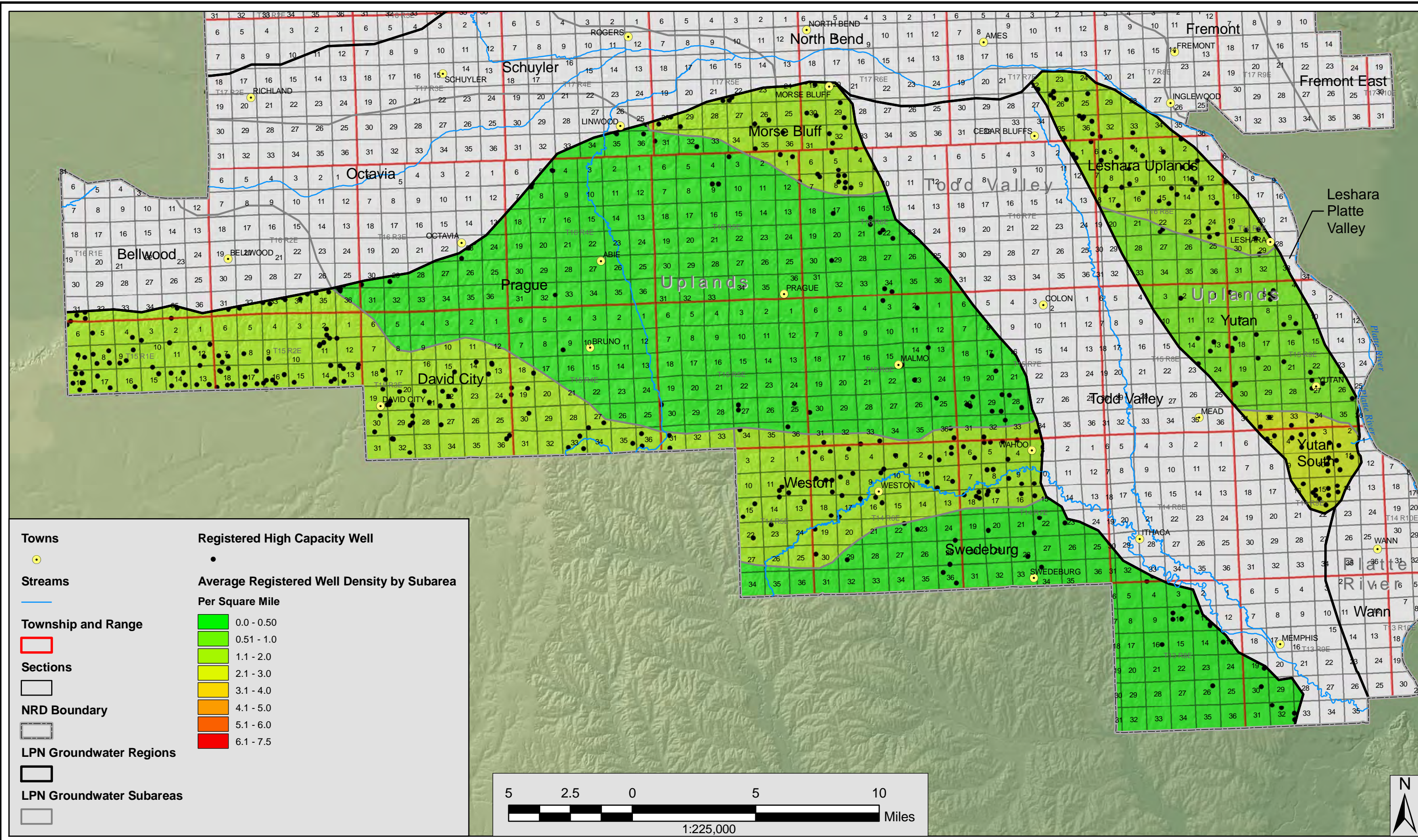
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Registered Well Database, January 2008, DNR

Derivation: Density is based on the average high capacity well density across the groundwater management subarea. High capacity includes wells registered with > 300 gpm.

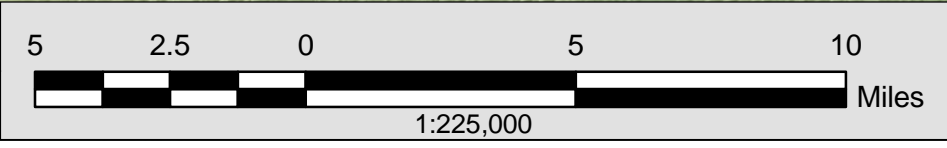
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FIGURE
7.4



Towns	Registered High Capacity Well
●	●
Streams	Average Registered Well Density by Subarea
—	Per Square Mile
Township and Range	0.0 - 0.50
□	0.51 - 1.0
Sections	1.1 - 2.0
□	2.1 - 3.0
NRD Boundary	3.1 - 4.0
□	4.1 - 5.0
LPN Groundwater Regions	5.1 - 6.0
□	6.1 - 7.5
LPN Groundwater Subareas	
□	



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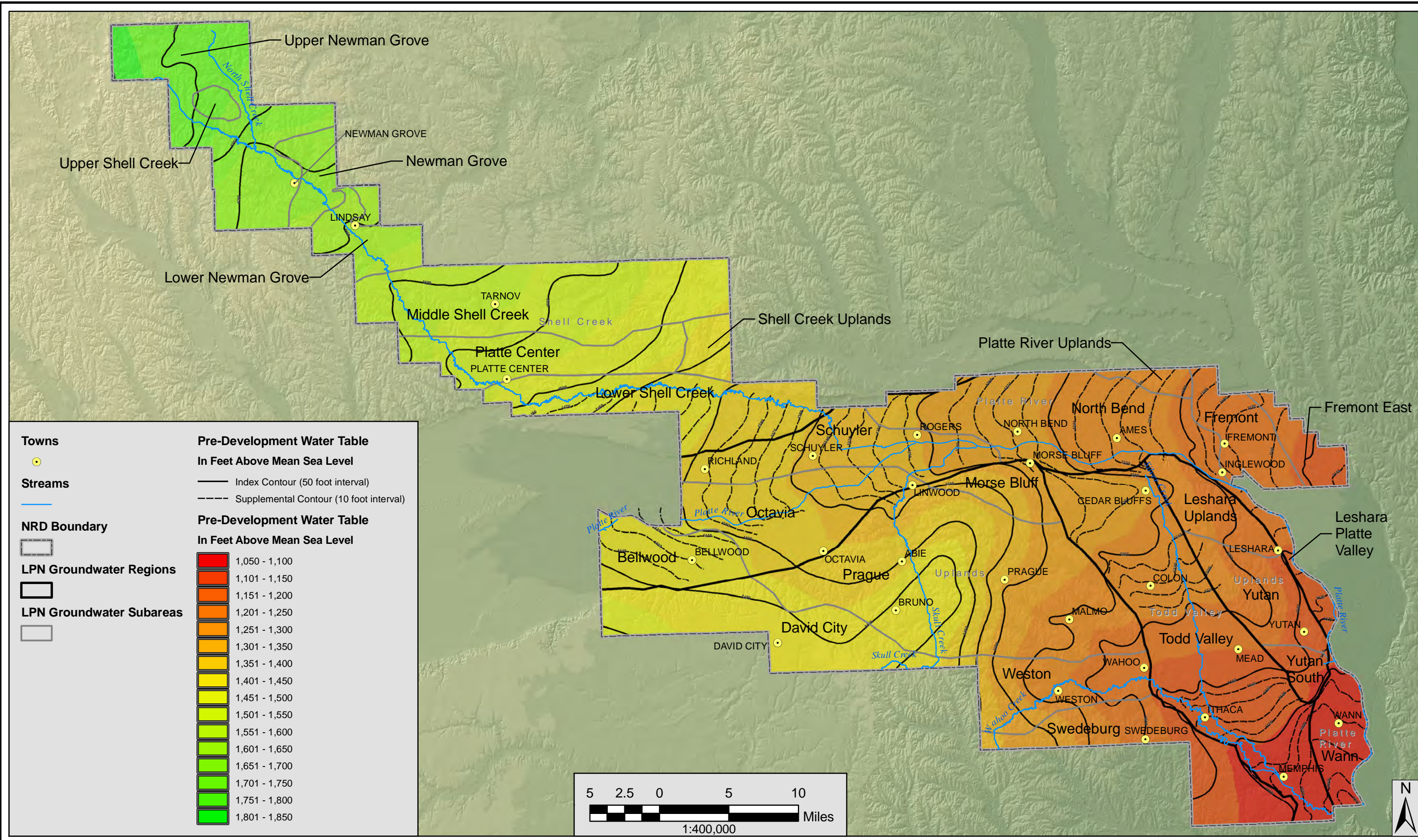
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Registered Well Database, January 2008, DNR

Derivation: Density is based on the average high capacity well density across the groundwater management subarea. High capacity includes wells registered with > 300 gpm.

UPLANDS REGION REGISTERED WELLS
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FIGURE
7.5



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DRAWN BY: RD
Date: 10/9/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Table Configuration, 1996, CSD

WATER LEVEL (1979)
Lower Platte North Natural Resources District

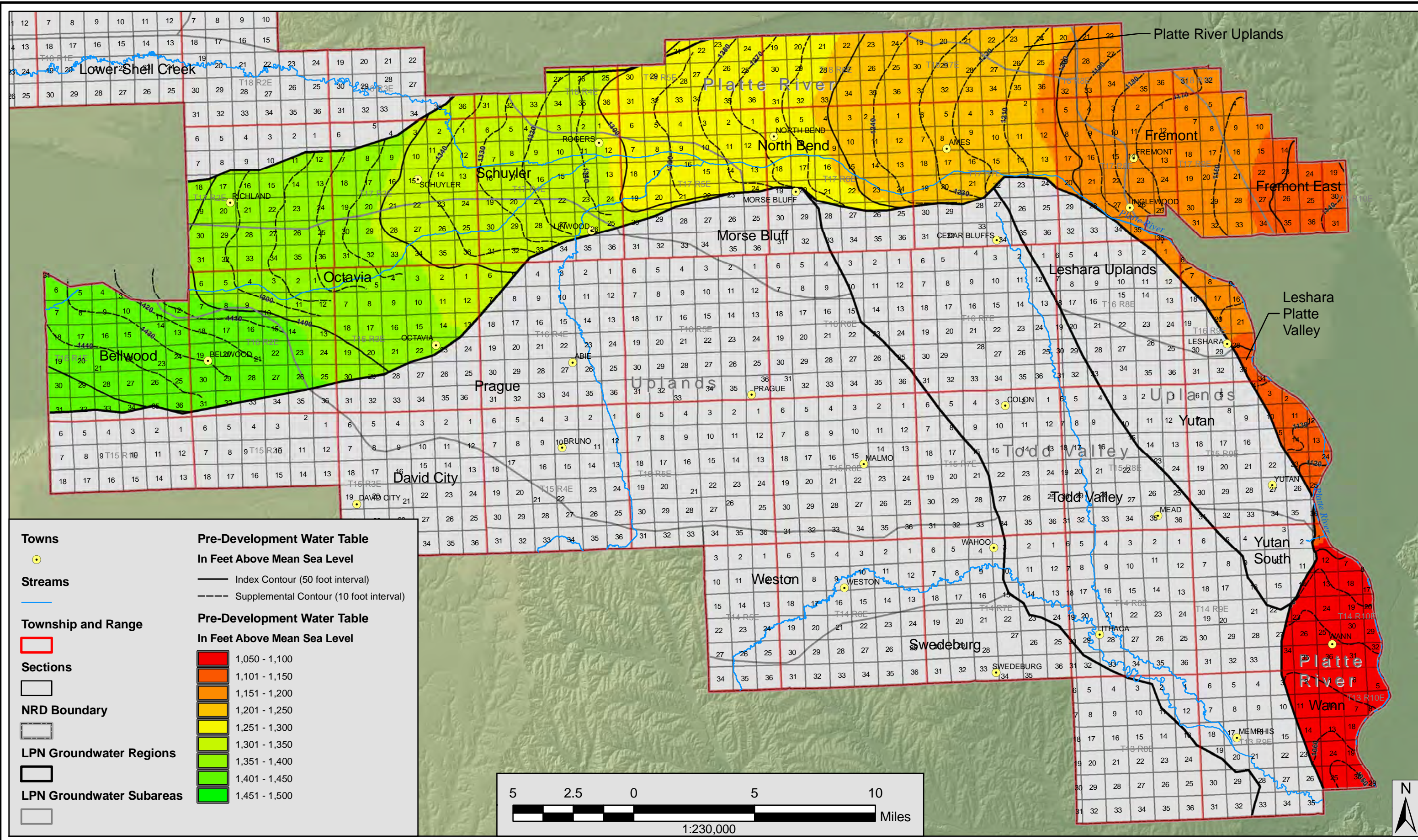
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FIGURE
8.1

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 DRAWN BY: RD
 Date: 10/9/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Table Configuration, 1996, CSD

PLATTE RIVER REGION WATER LEVEL (1979)
 Lower Platte North Natural Resources District

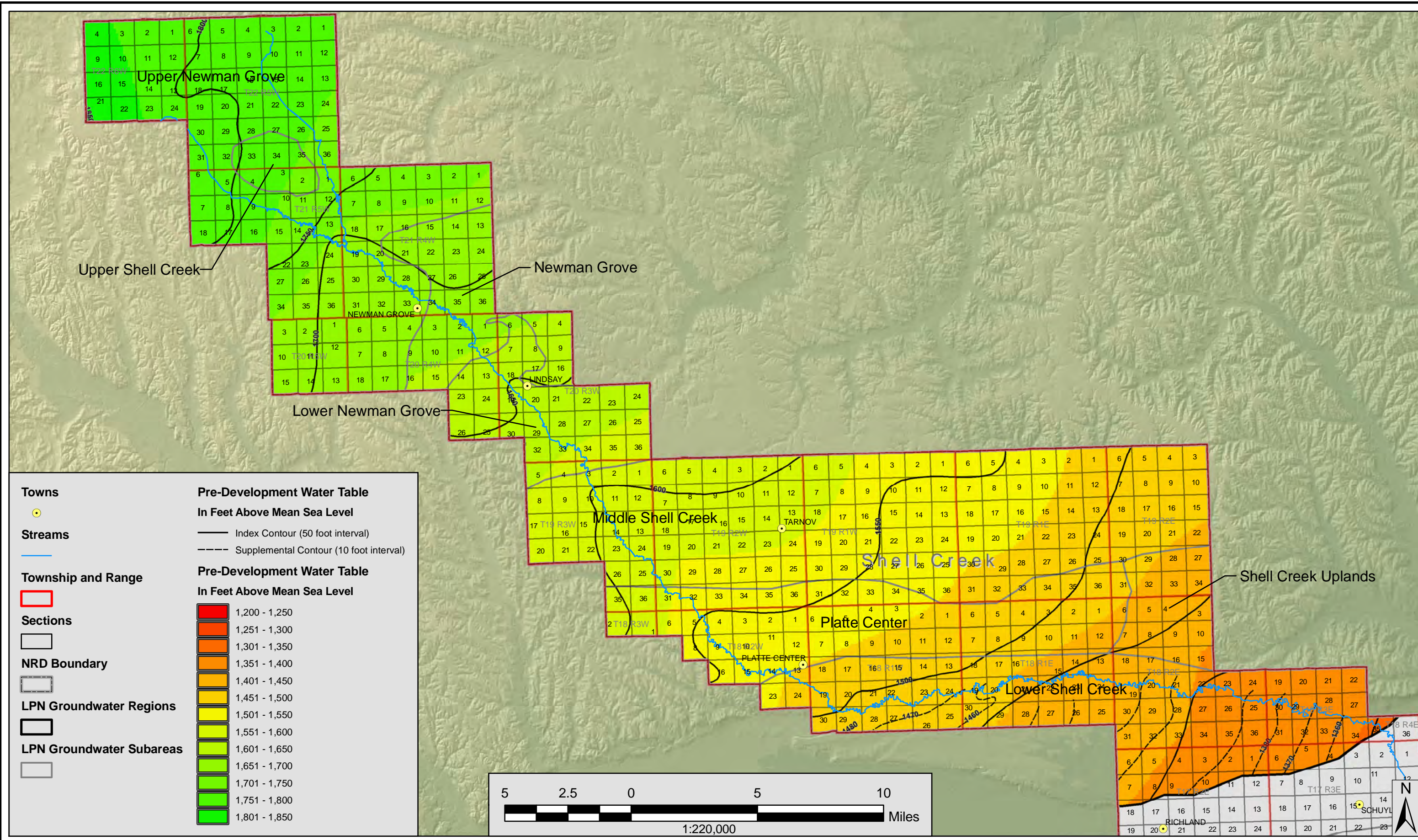
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FIGURE 8.2

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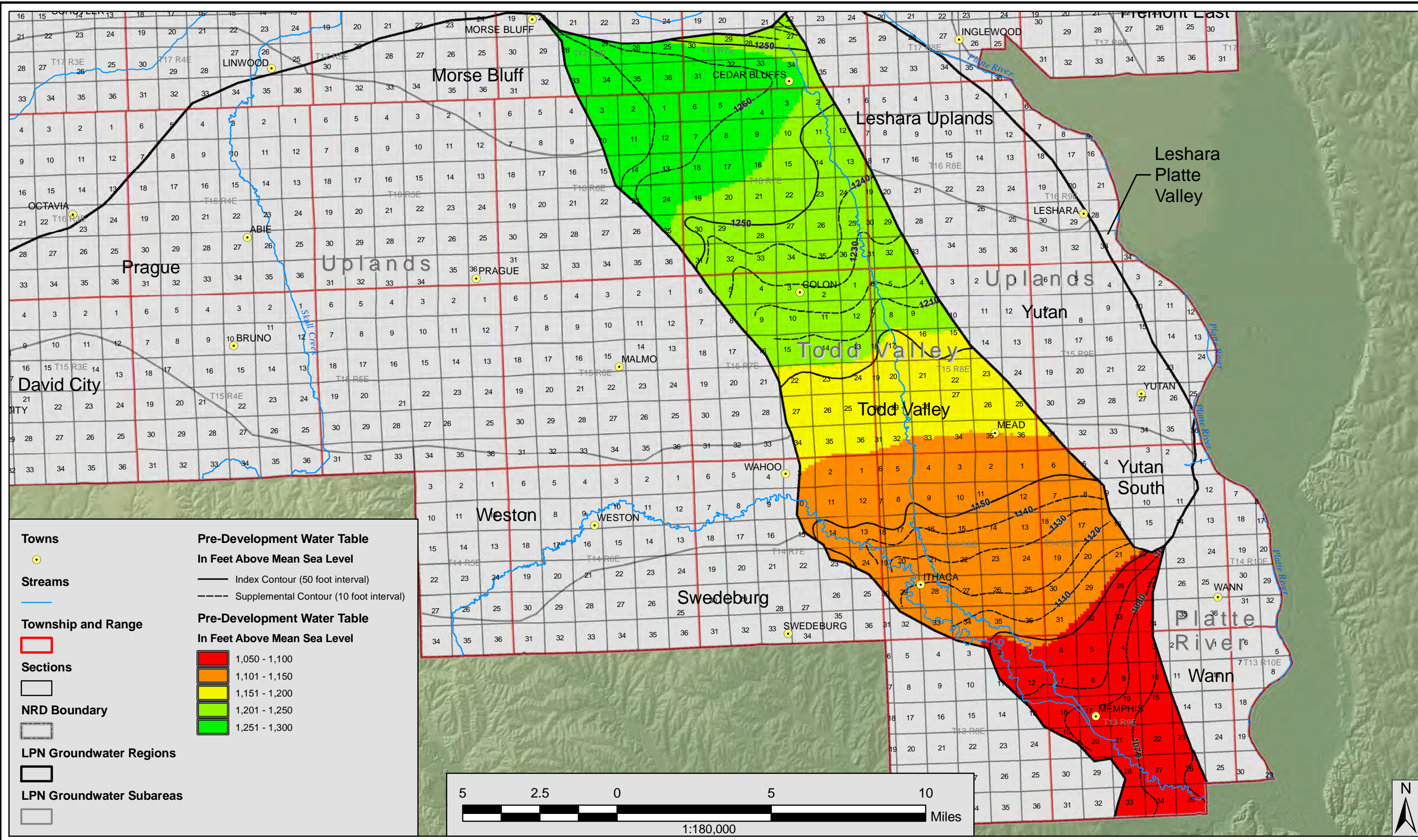
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 10/9/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Table Configuration, 1996, CSD

SHELL CREEK REGION WATER LEVEL (1979)
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FIGURE
 8.3



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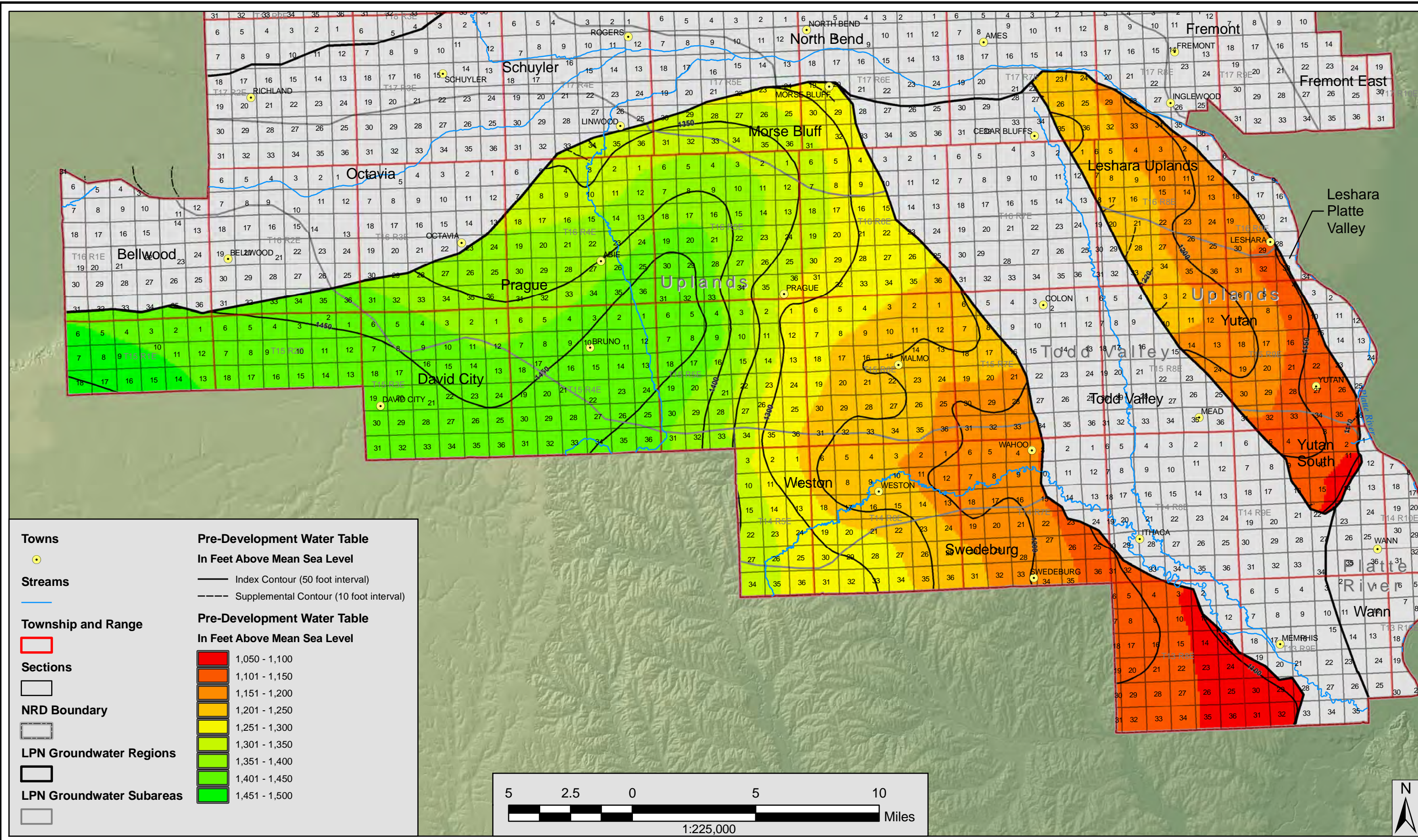
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 10/9/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Table Configuration, 1996, CSD

TODD VALLEY REGION WATER LEVEL (1979)
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FIGURE
 8.4



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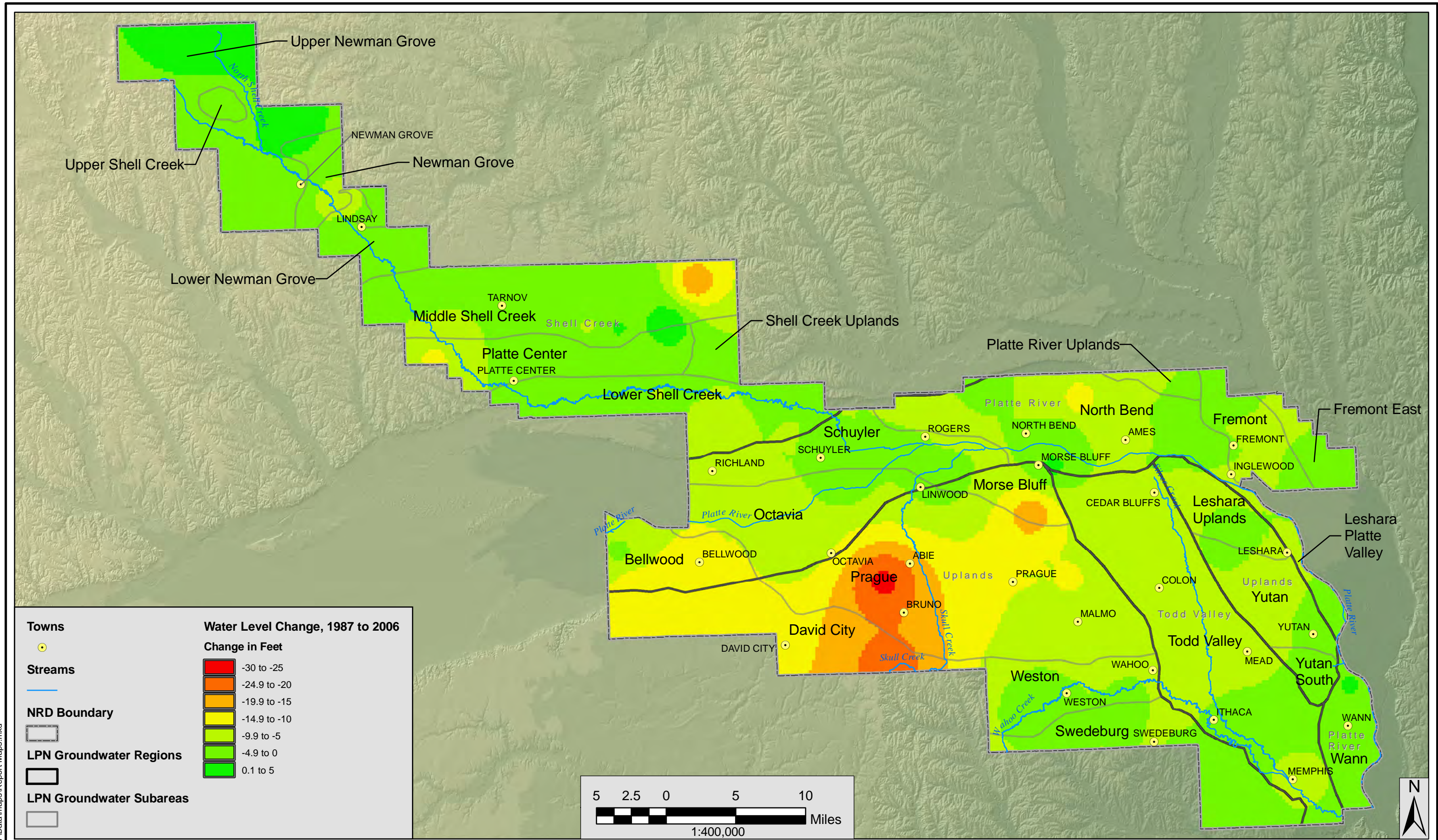
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 10/9/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Table Configuration, 1996, CSD

UPLANDS REGION WATER LEVEL (1979)
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FIGURE
8.5



PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Table Configuration, 1996, CSD; Water Level Database, 2008, LPNNRD

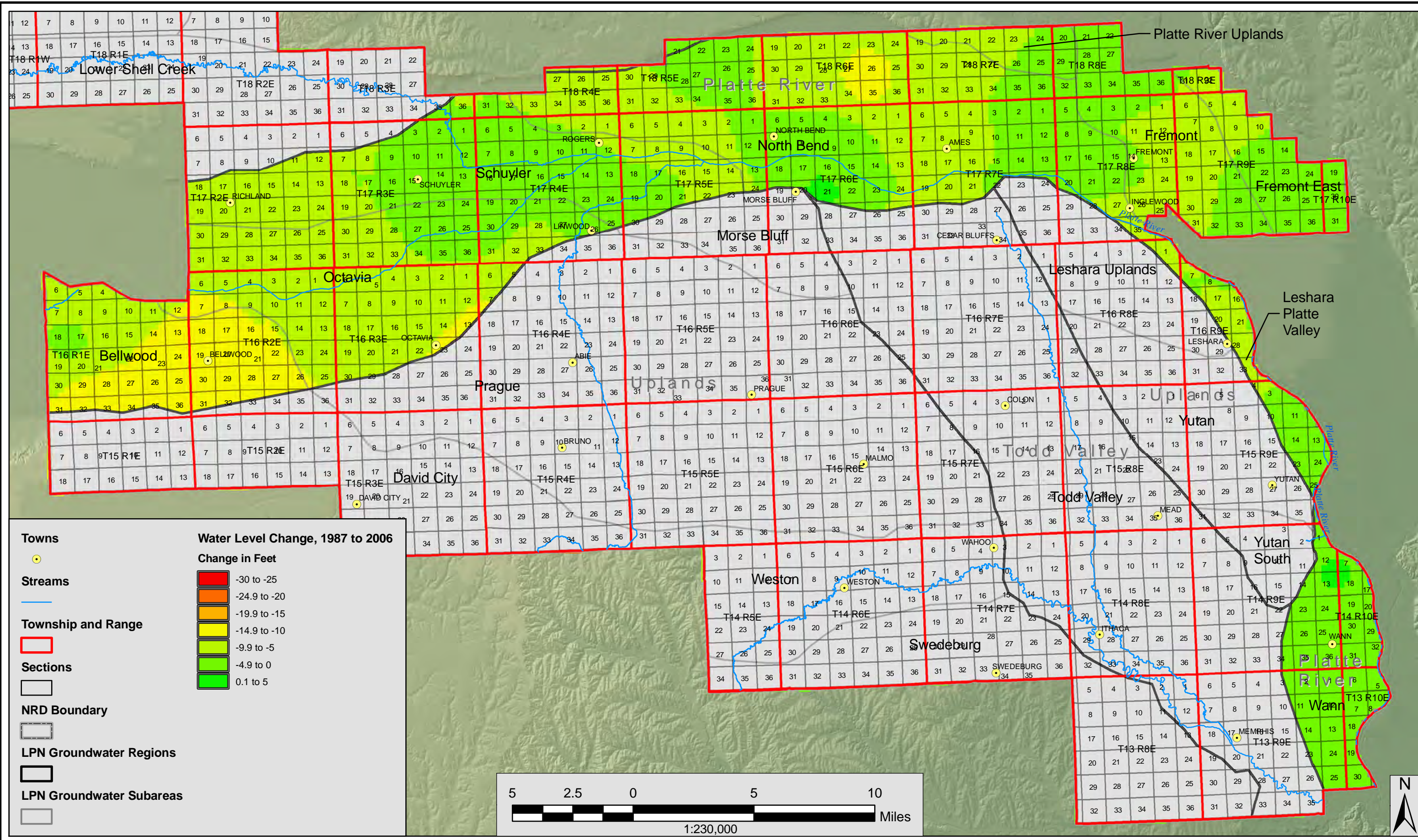
Derivation: The change in water level elevations was calculated by subtracting the Spring 1987 water level elevation surface from the LPNNRD Spring 2006 water level surface.

GROUNDWATER WATER LEVEL CHANGE, 1987-2006
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FIGURE
 9.1

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 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Table Configuration, 1996, CSD; Water Level Database, 2008, LPNNRD

Derivation: The change in water level elevations was calculated by subtracting the Spring 1987 water level elevation surface from the LPNNRD Spring 2006 water level surface.

PLATTE RIVER REGION GROUNDWATER WATER LEVEL CHANGE, 1987-2006

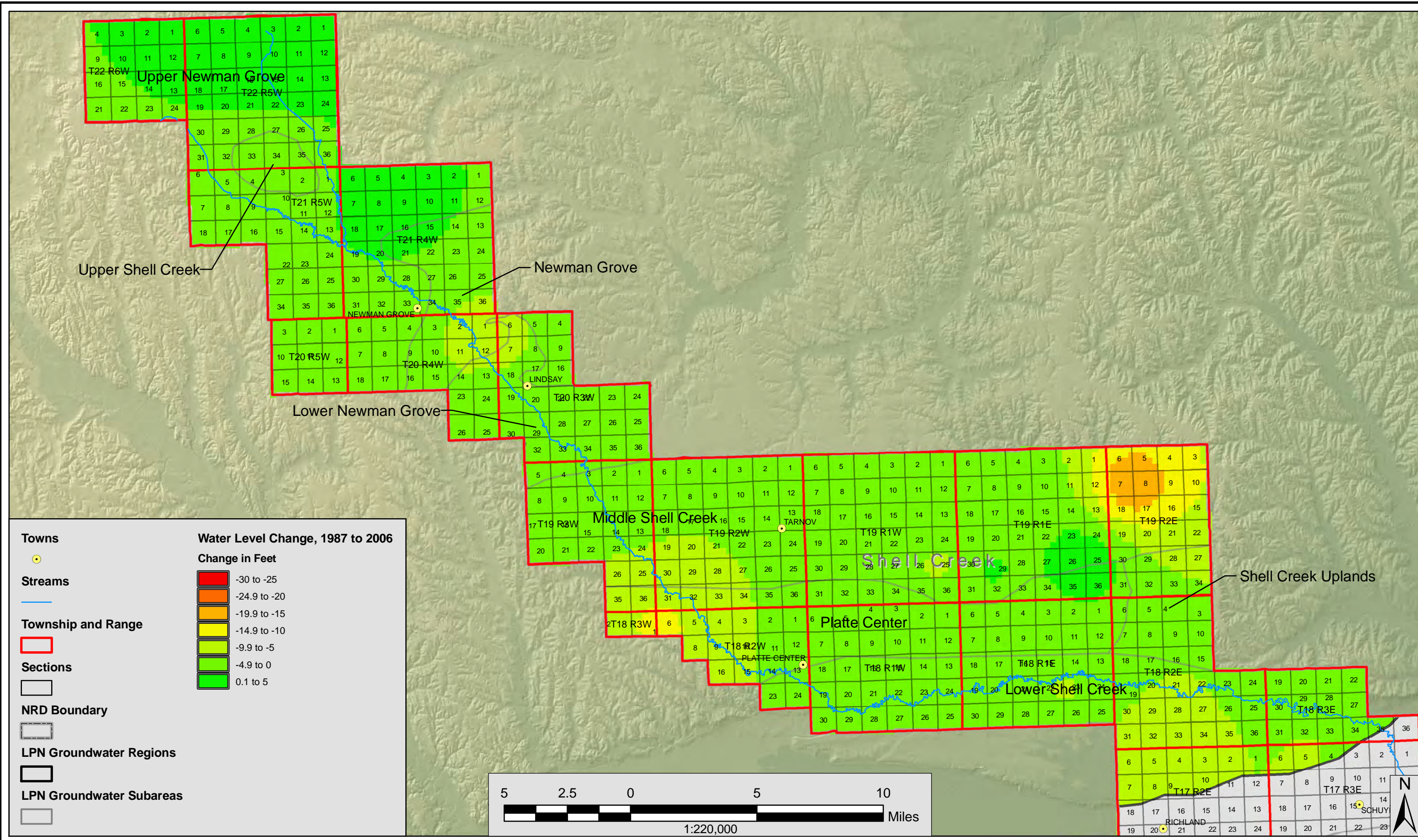
Lower Platte North Natural Resources District

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FIGURE
9.2



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PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

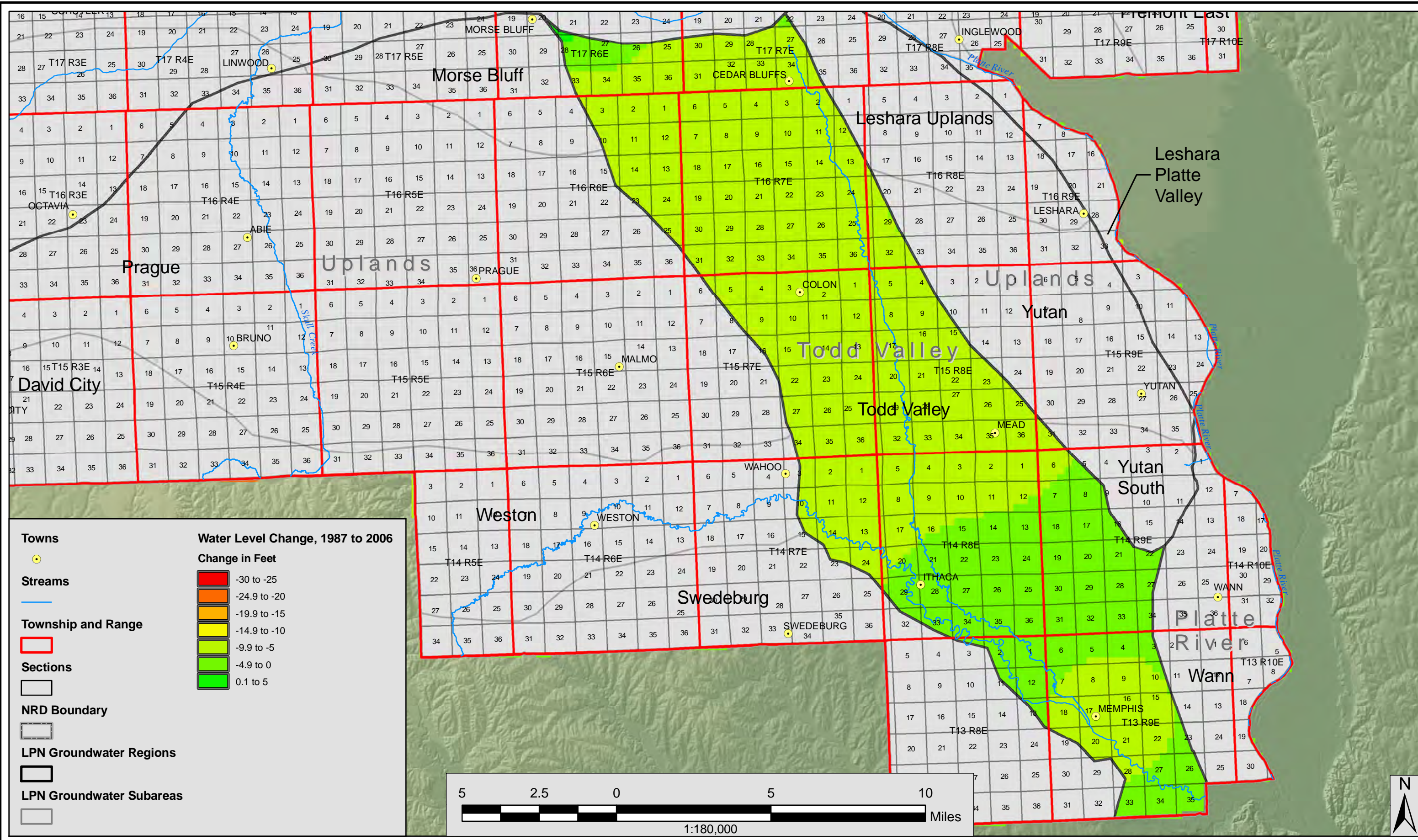
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Table Configuration, 1996, CSD; Water Level Database, 2008, LPNNRD

Derivation: The change in water level elevations was calculated by subtracting the Spring 1987 water level elevation surface from the LPNNRD Spring 2006 water level surface.

SHELL CREEK REGION GROUNDWATER WATER LEVEL CHANGE, 1987-2006 Lower Platte North Natural Resources District

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FIGURE
 9.3



PROJECT: 007-0427
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 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Table Configuration, 1996, CSD; Water Level Database, 2008, LPNNRD

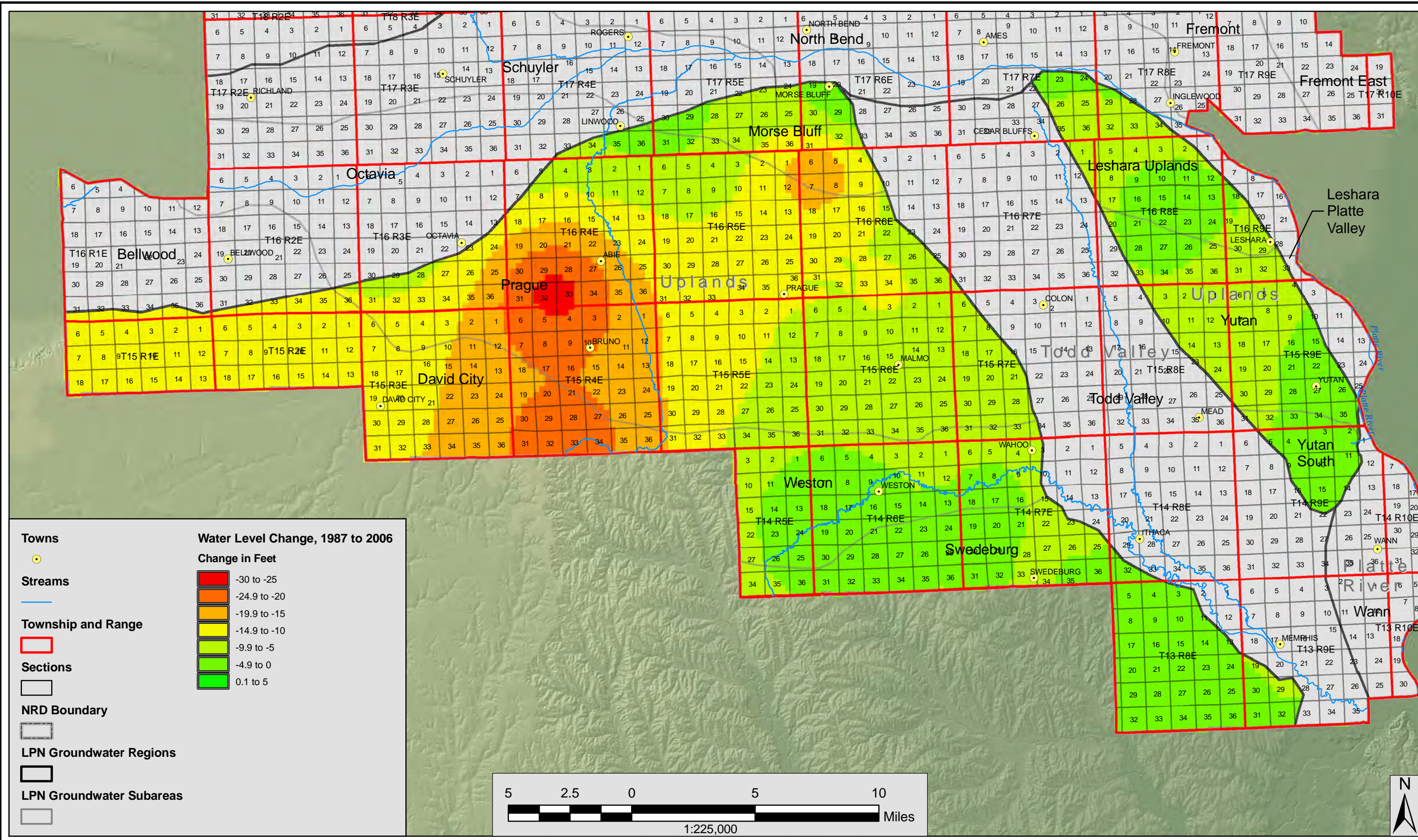
Derivation: The change in water level elevations was calculated by subtracting the Spring 1987 water level elevation surface from the LPNNRD Spring 2006 water level surface.

TODD VALLEY REGION GROUNDWATER WATER LEVEL CHANGE, 1987-2006
 Lower Platte North Natural Resources District

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FIGURE
9.4

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 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Table Configuration, 1996, CSD; Water Level Database, 2008, LPNNRD

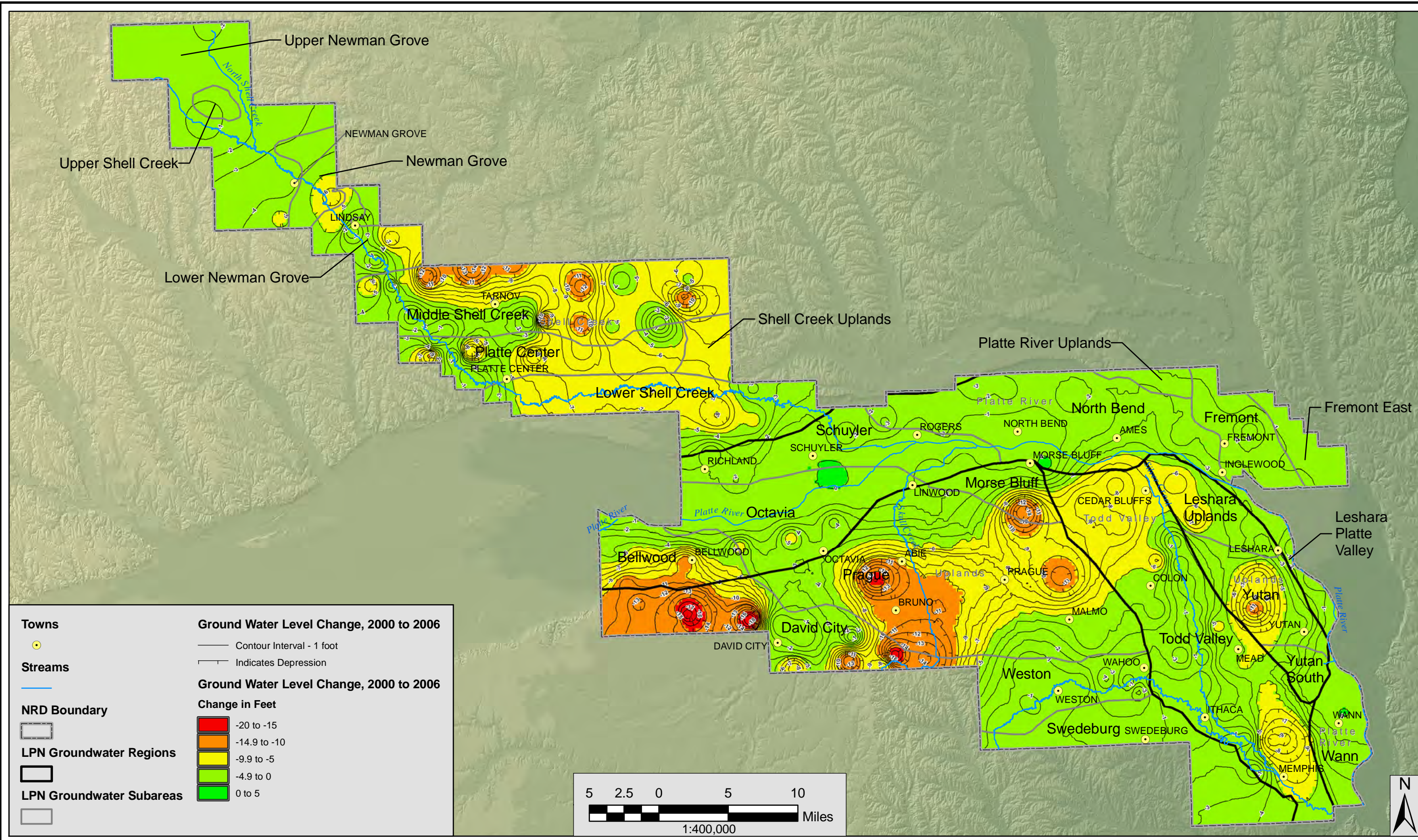
UPLANDS REGION GROUNDWATER WATER LEVEL CHANGE, 1987-2006 Lower Platte North Natural Resources District

Derivation: The change in water level elevations was calculated by subtracting the Spring 1987 water level elevation surface from the LPNNRD Spring 2006 water level surface.

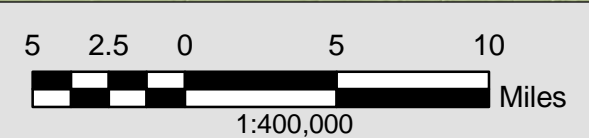
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FIGURE
9.5



Towns	Ground Water Level Change, 2000 to 2006
●	— Contour Interval - 1 foot
Streams	— Indicates Depression
—	
NRD Boundary	Ground Water Level Change, 2000 to 2006
—	Change in Feet
LPN Groundwater Regions	■ -20 to -15
■	■ -14.9 to -10
LPN Groundwater Subareas	■ -9.9 to -5
■	■ -4.9 to 0
■	■ 0 to 5



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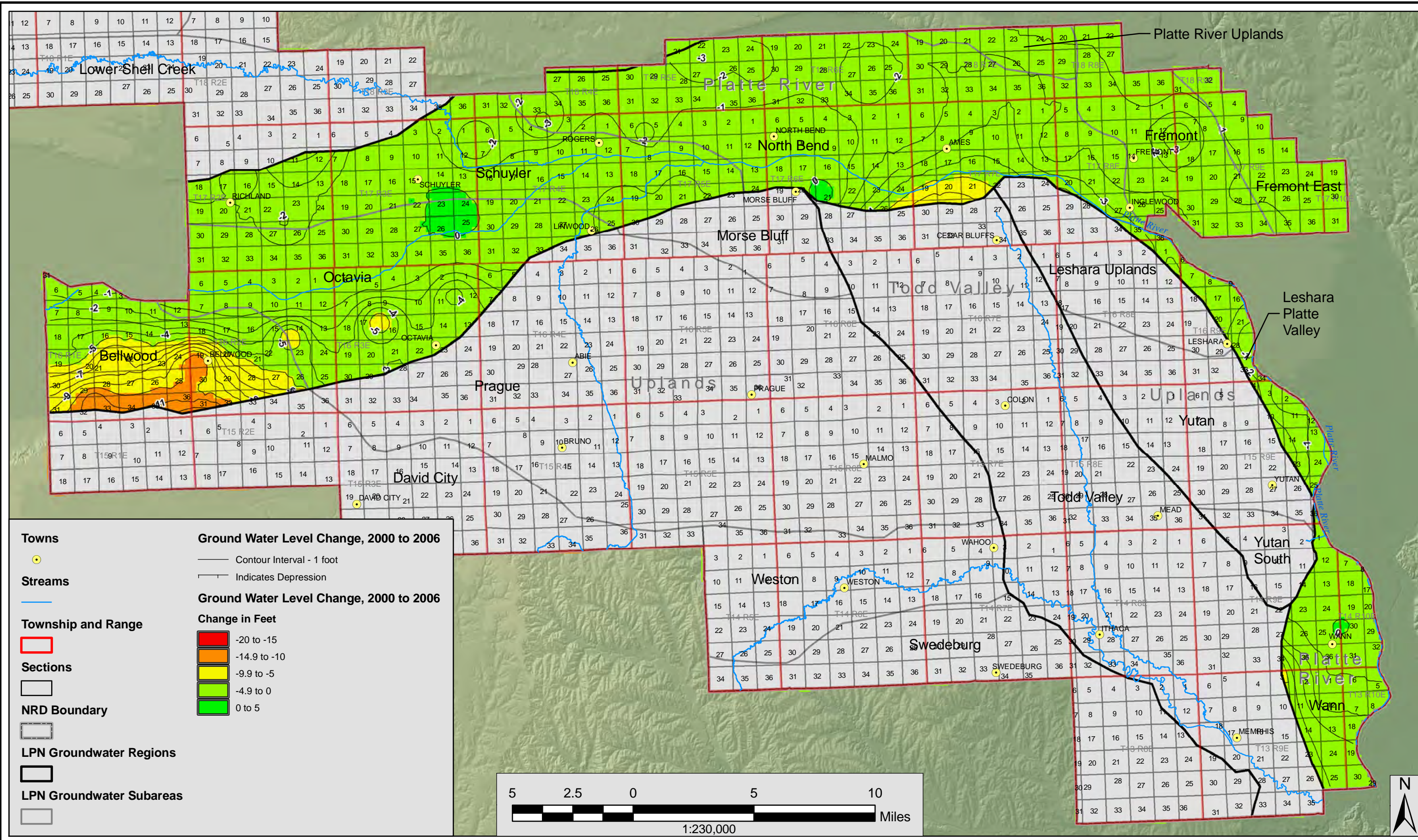
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Level Database, 2008, LPNNRD
 Derivation: Water level change calculated by subtracting the water levels measured in 2007 from the water levels measured in 2001.

GROUNDWATER WATER LEVEL CHANGE, 2000-2006
 Lower Platte North Natural Resources District

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FIGURE
10.1



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 DRAWN BY: RD
 Date: 3/2/2009

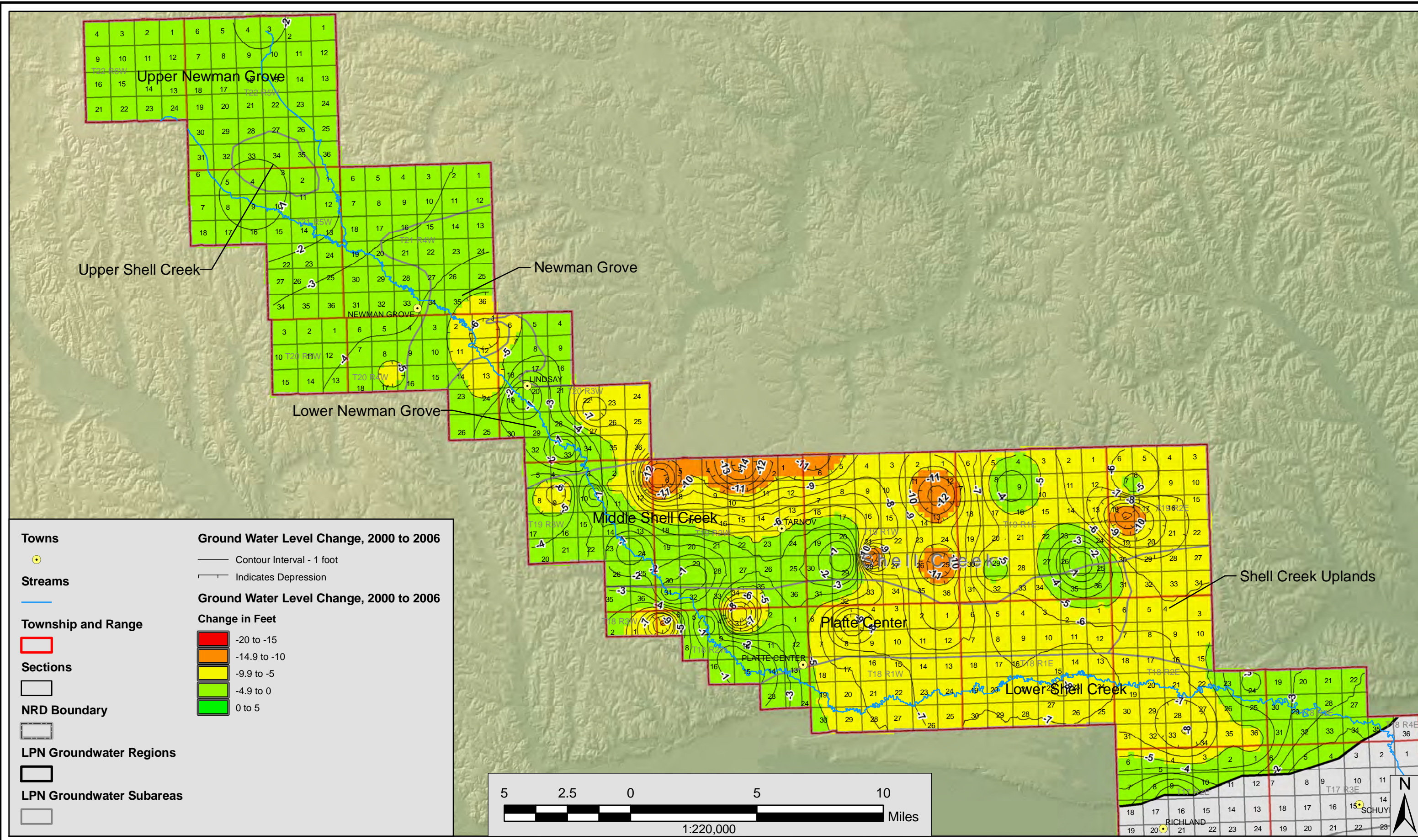
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Level Database, 2008, LPNDRD

PLATTE RIVER GROUNDWATER WATER LEVEL CHANGE, 2000-2006
 Lower Platte North Natural Resources District

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FIGURE
 10.2

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- Towns**
- Streams**
- Township and Range**
- Sections**
- NRD Boundary**
- LPN Groundwater Regions**
- LPN Groundwater Subareas**

- Ground Water Level Change, 2000 to 2006**
- Contour Interval - 1 foot
- Indicates Depression
- Ground Water Level Change, 2000 to 2006**
- Change in Feet**
- 20 to -15
- 14.9 to -10
- 9.9 to -5
- 4.9 to 0
- 0 to 5

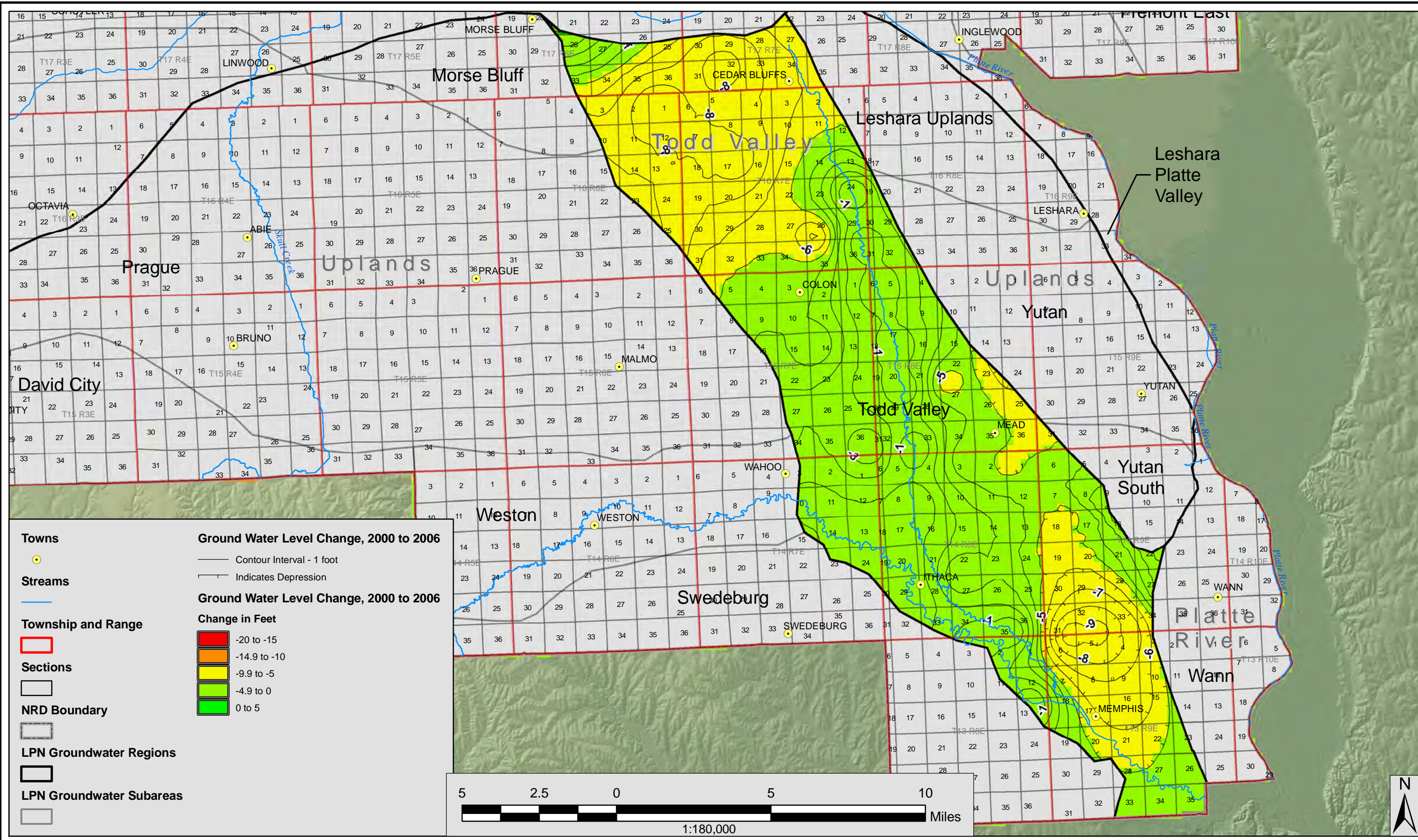
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Level Database, 2008, LPNNRD

SHELL CREEK GROUNDWATER WATER LEVEL CHANGE, 2000-2006
 Lower Platte North Natural Resources District

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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Level Database, 2008, LPNNRD

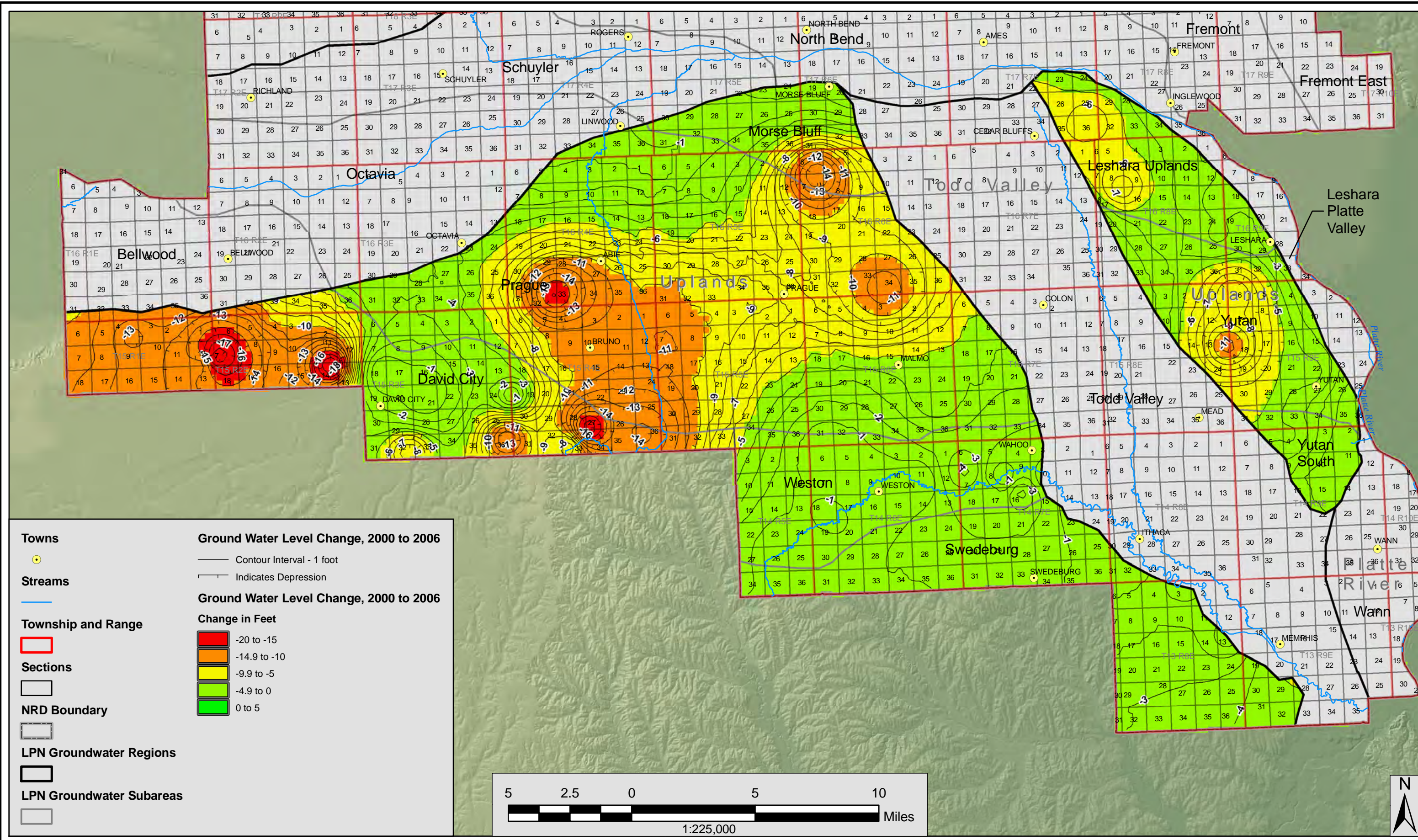
Derivation: Water level change calculated by subtracting the water levels measured in 2007 from the water levels measured in 2001.

TODD VALLEY GROUNDWATER WATER LEVEL CHANGE, 2000-2006
 Lower Platte North Natural Resources District

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FIGURE
10.4

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PROJECT: 007-0427
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 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Level Database, 2008, LPNNRD

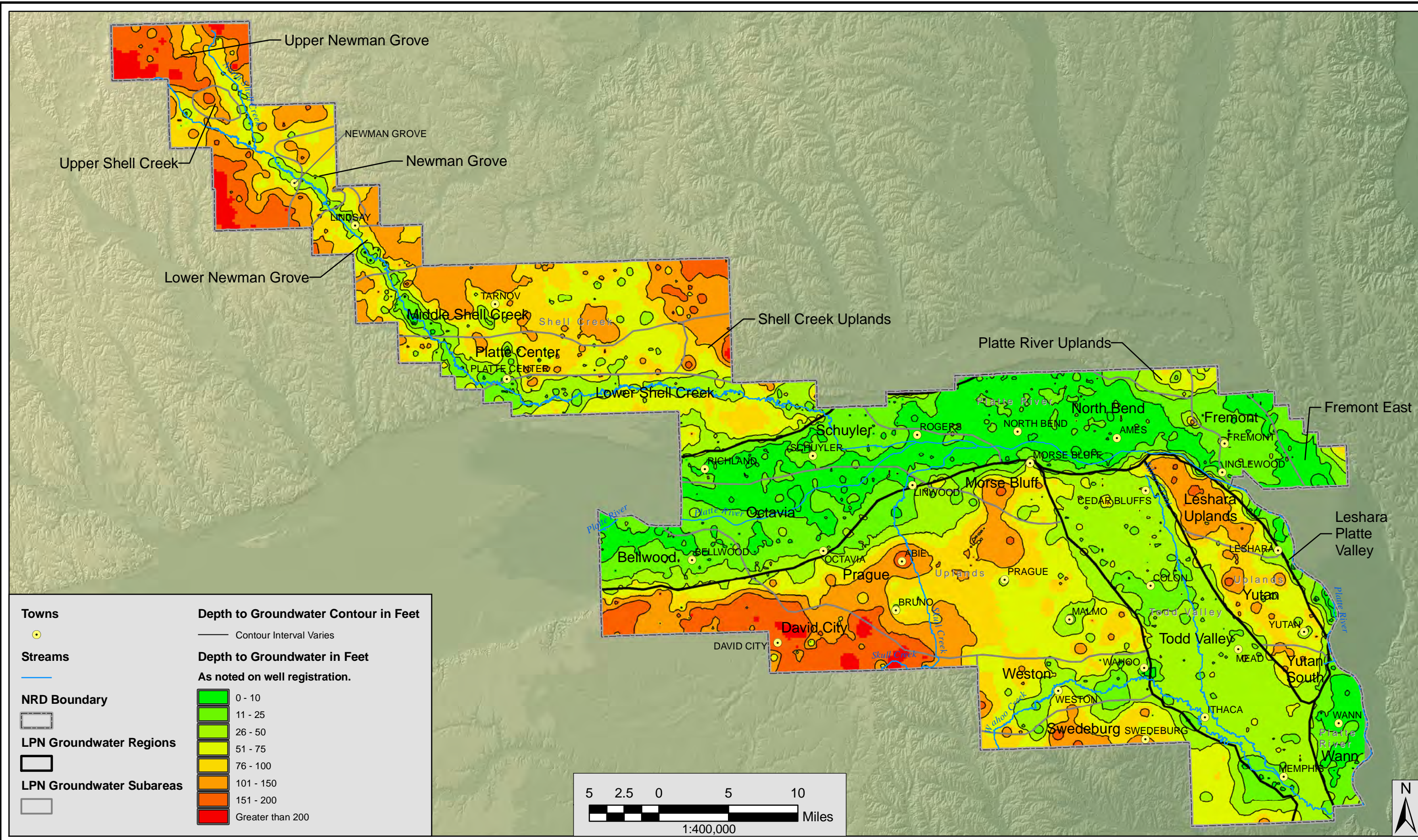
UPLANDS GROUNDWATER WATER LEVEL CHANGE, 2000-2006
 Lower Platte North Natural Resources District

Derivation: Water level change calculated by subtracting the water levels measured in 2007 from the water levels measured in 2001.

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FIGURE
10.5

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PROJECT: 007-0427
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 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Registered Well Database, January 2008, DNR

Derivation: Depths calculated by subtracting depth to water on the well registration record from the ground surface elevation.

ESTIMATED DEPTH TO GROUNDWATER
 Lower Platte North Natural Resources District

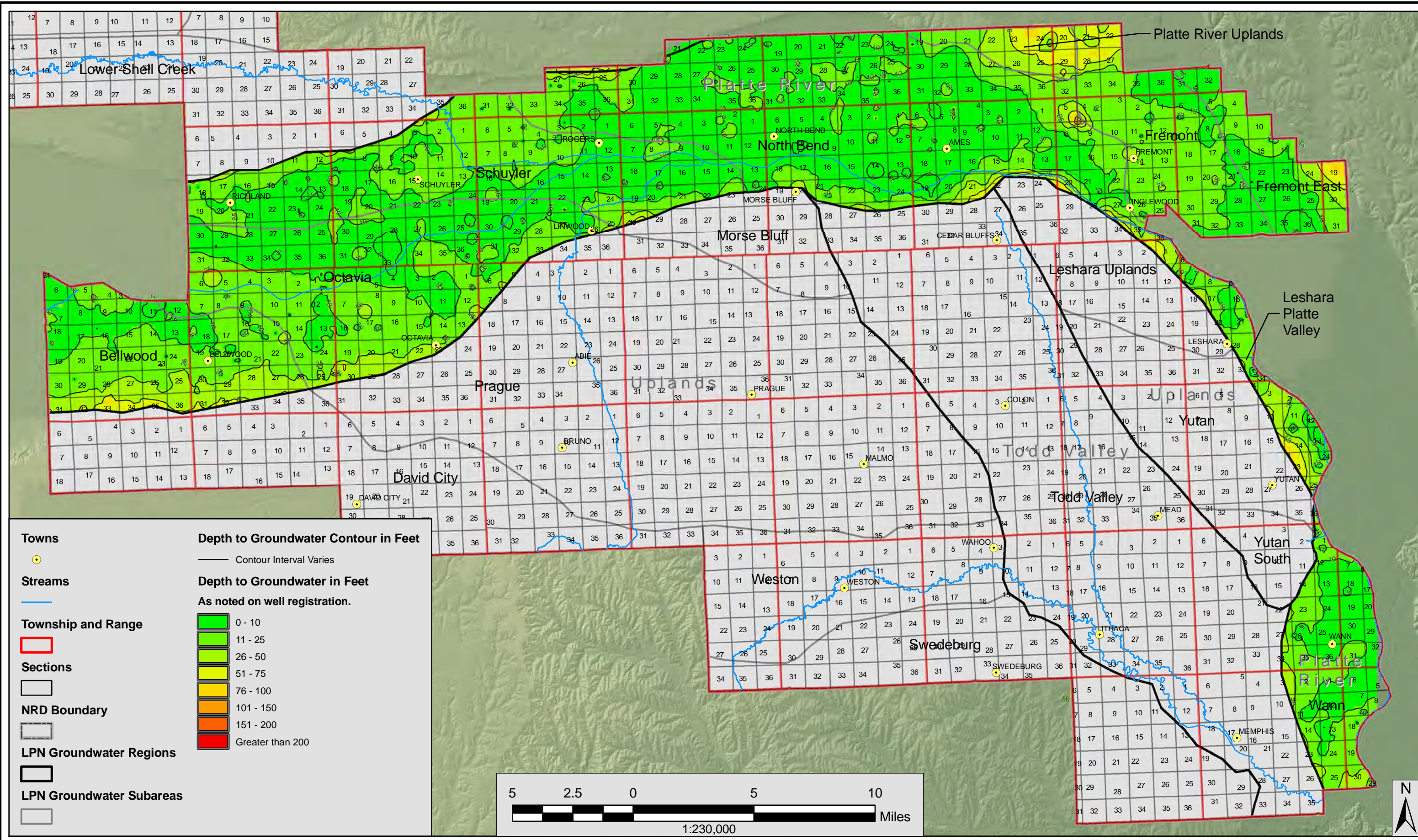
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FIGURE
 11.1

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PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

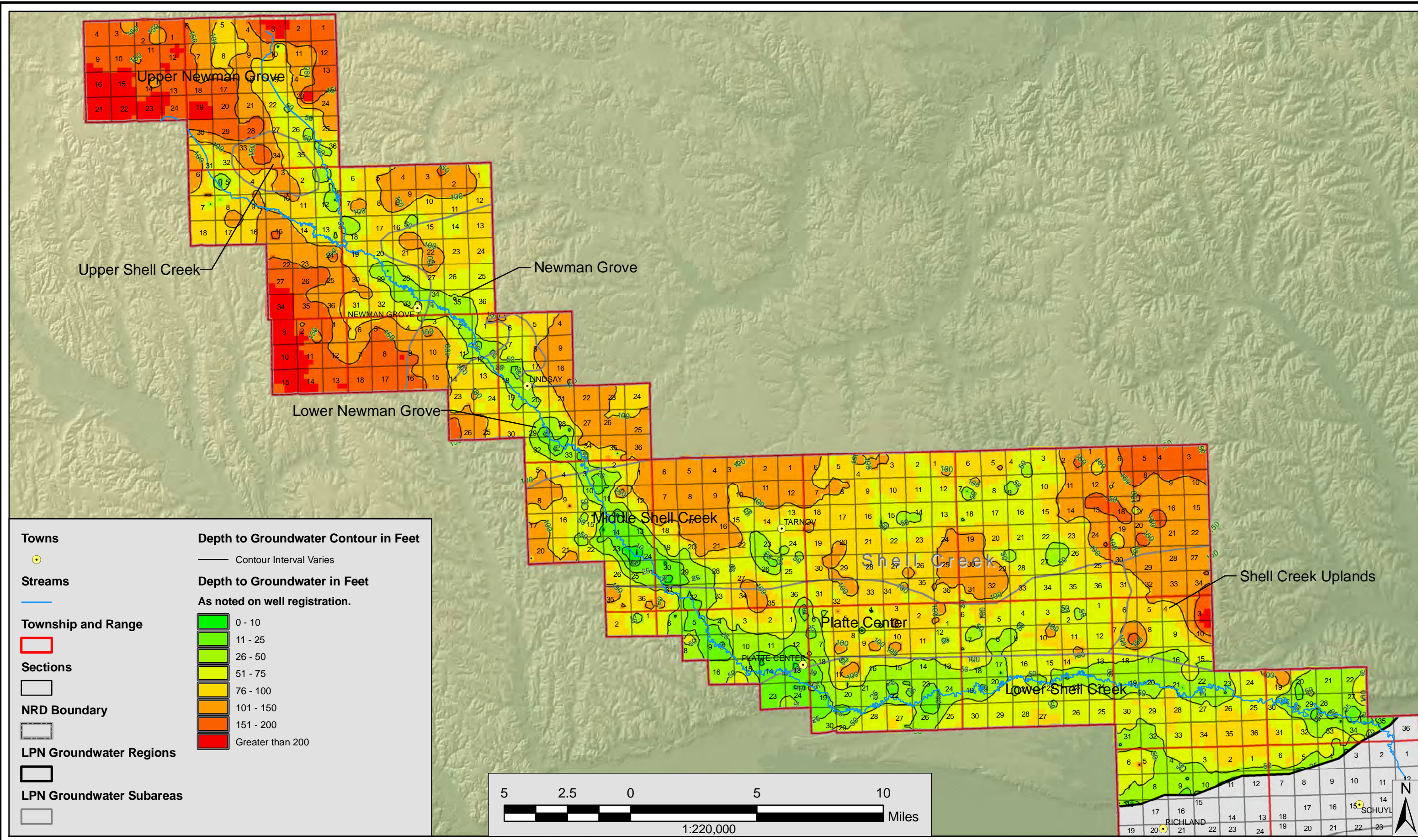
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Registered Well Database, January 2008, DNR

PLATTE RIVER REGION ESTIMATED DEPTH TO GROUNDWATER
 Lower Platte North Natural Resources District

Derivation: Depths calculated by subtracting depth to water on the well registration record from the ground surface elevation.

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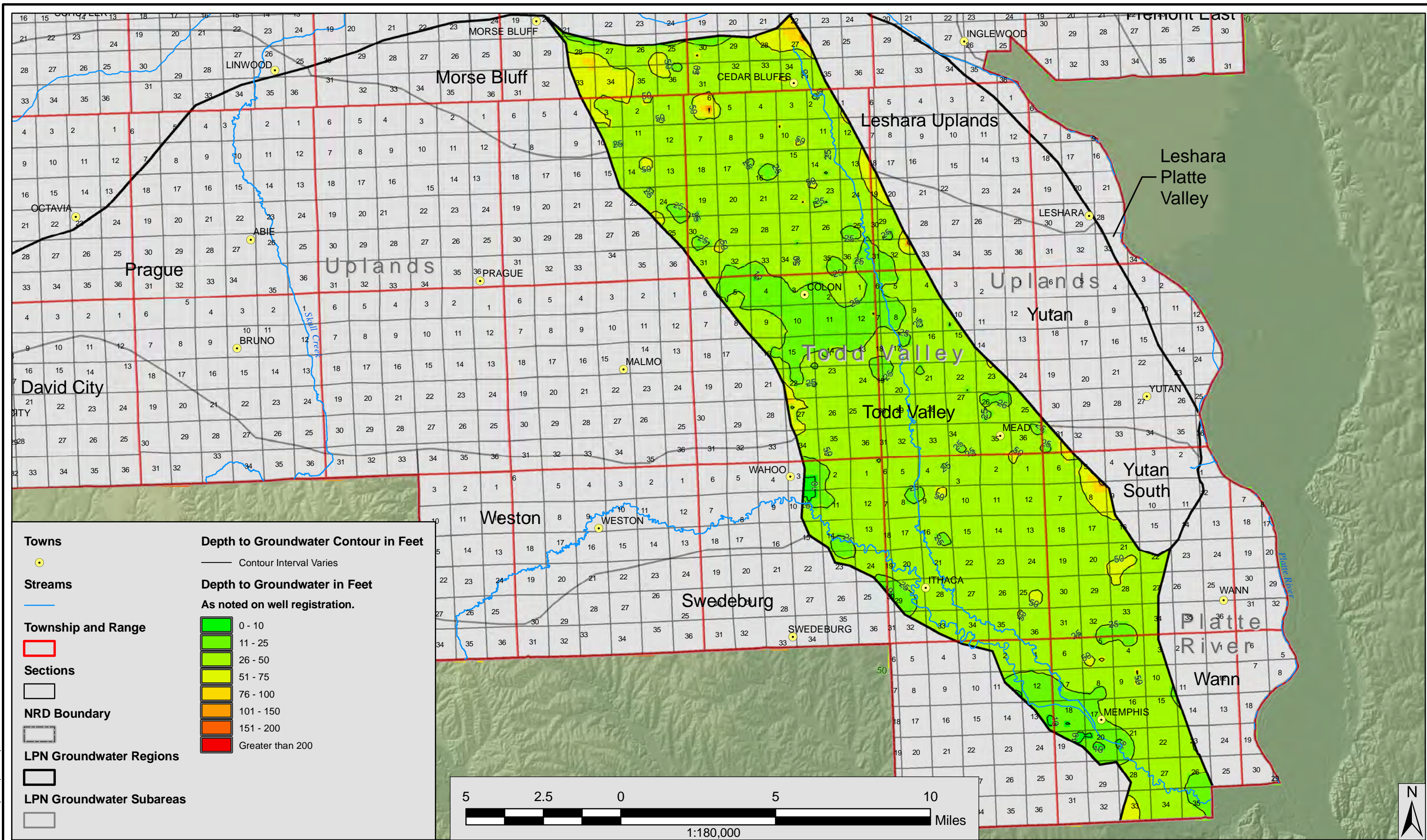
PROJECT: 007-0427	Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Registered Well Database, January 2008, DNR
DRAWN BY: RD	
Date: 3/2/2009	

Derivation: Depths calculated by subtracting depth to water on the well registration record from the ground surface elevation.

SHELL CREEK REGION ESTIMATED DEPTH TO GROUNDWATER Lower Platte North Natural Resources District

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FIGURE
11.3



PROJECT: 007-0427
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 Date: 3/2/2009

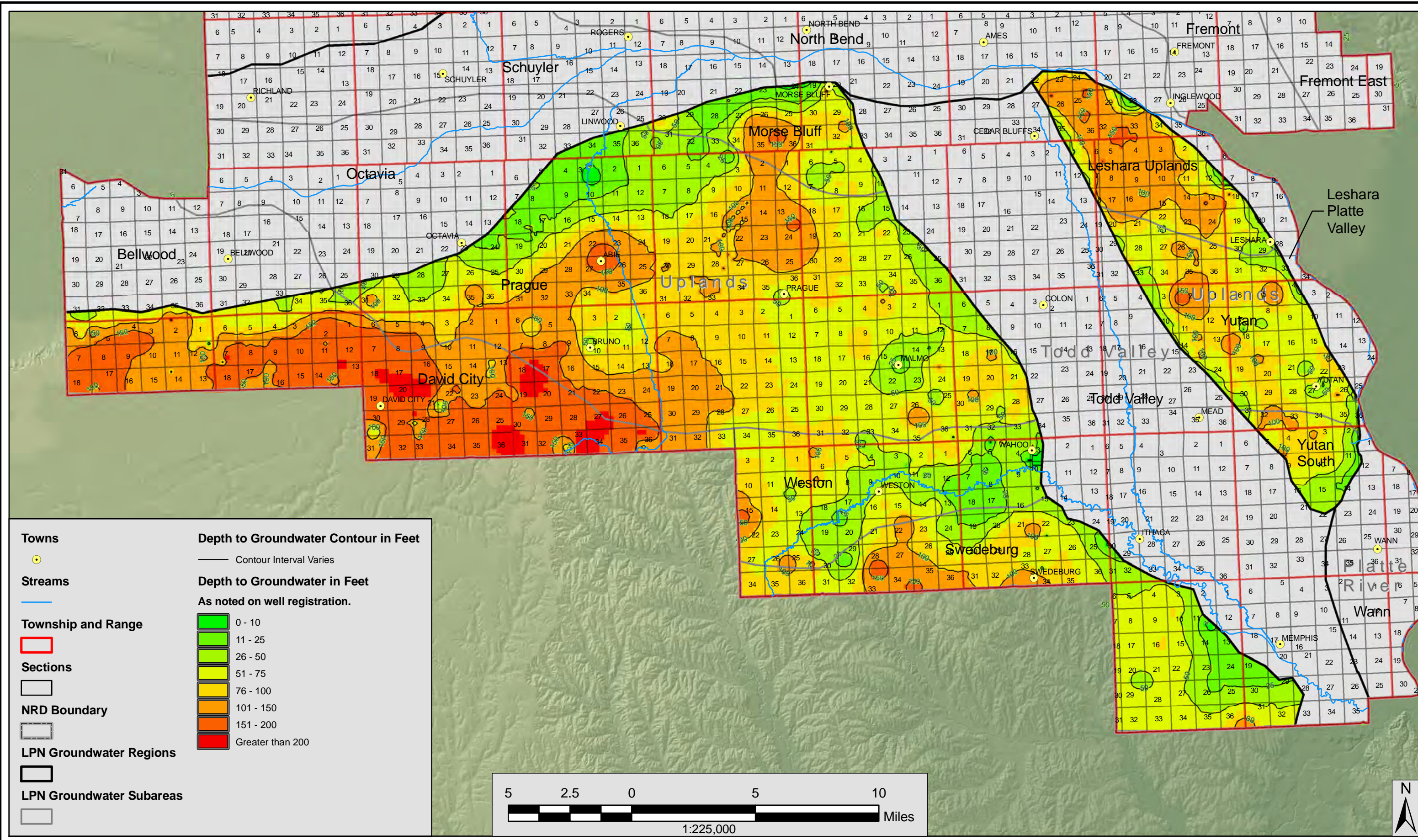
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Registered Well Database, January 2008, DNR

TODD VALLEY REGION ESTIMATED DEPTH TO GROUNDWATER
 Lower Platte North Natural Resources District

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FIGURE
11.4

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PROJECT: 007-0427
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 Date: 3/2/2009

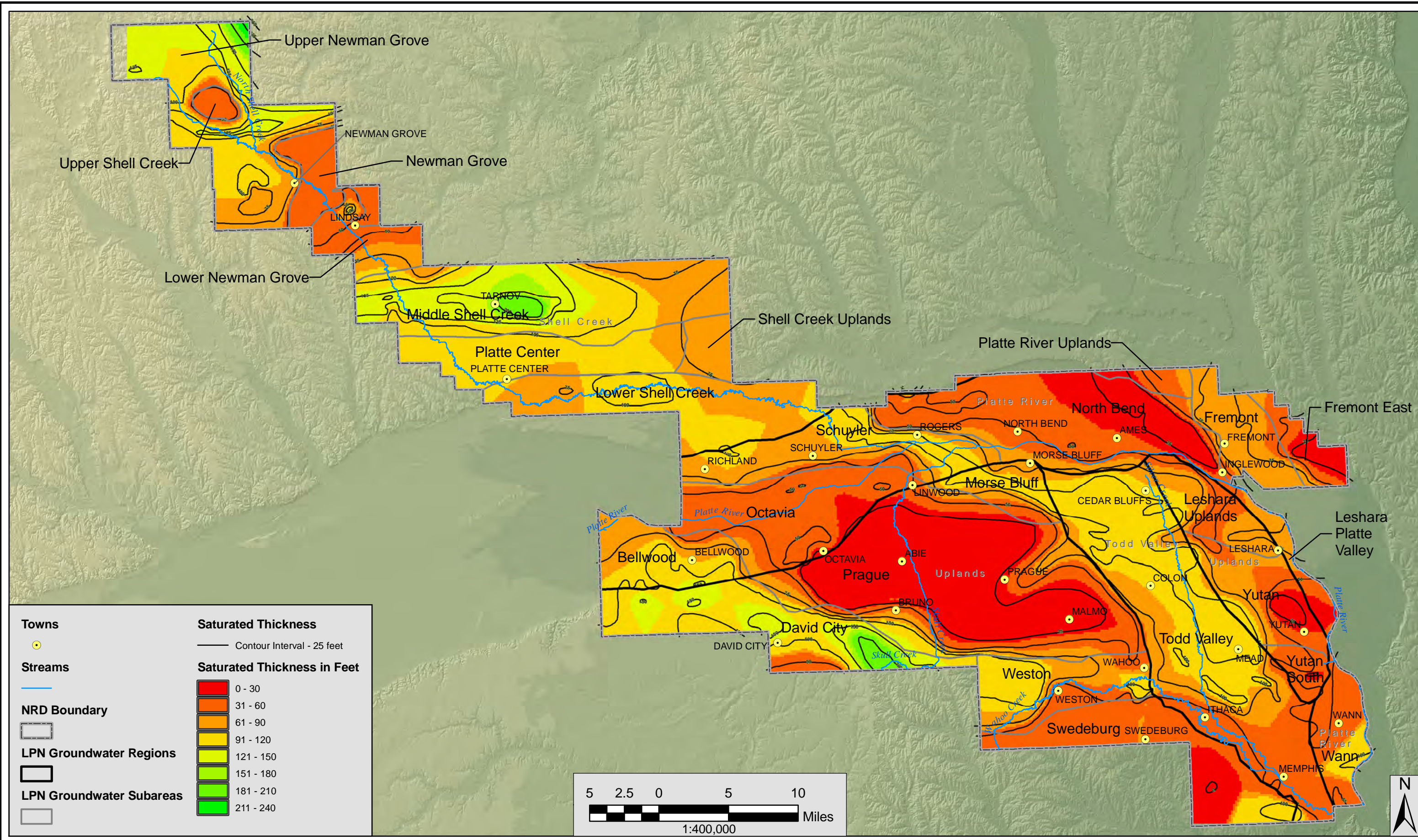
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Registered Well Database, January 2008, DNR

UPLANDS REGION ESTIMATED DEPTH TO GROUNDWATER
 Lower Platte North Natural Resources District

Derivation: Depths calculated by subtracting depth to water on the well registration record from the ground surface elevation.

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FIGURE
11.5



PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Saturated Thickness, 1996, CSD

SATURATED THICKNESS OF THE PRINCIPAL AQUIFER
 Lower Platte North Natural Resources District

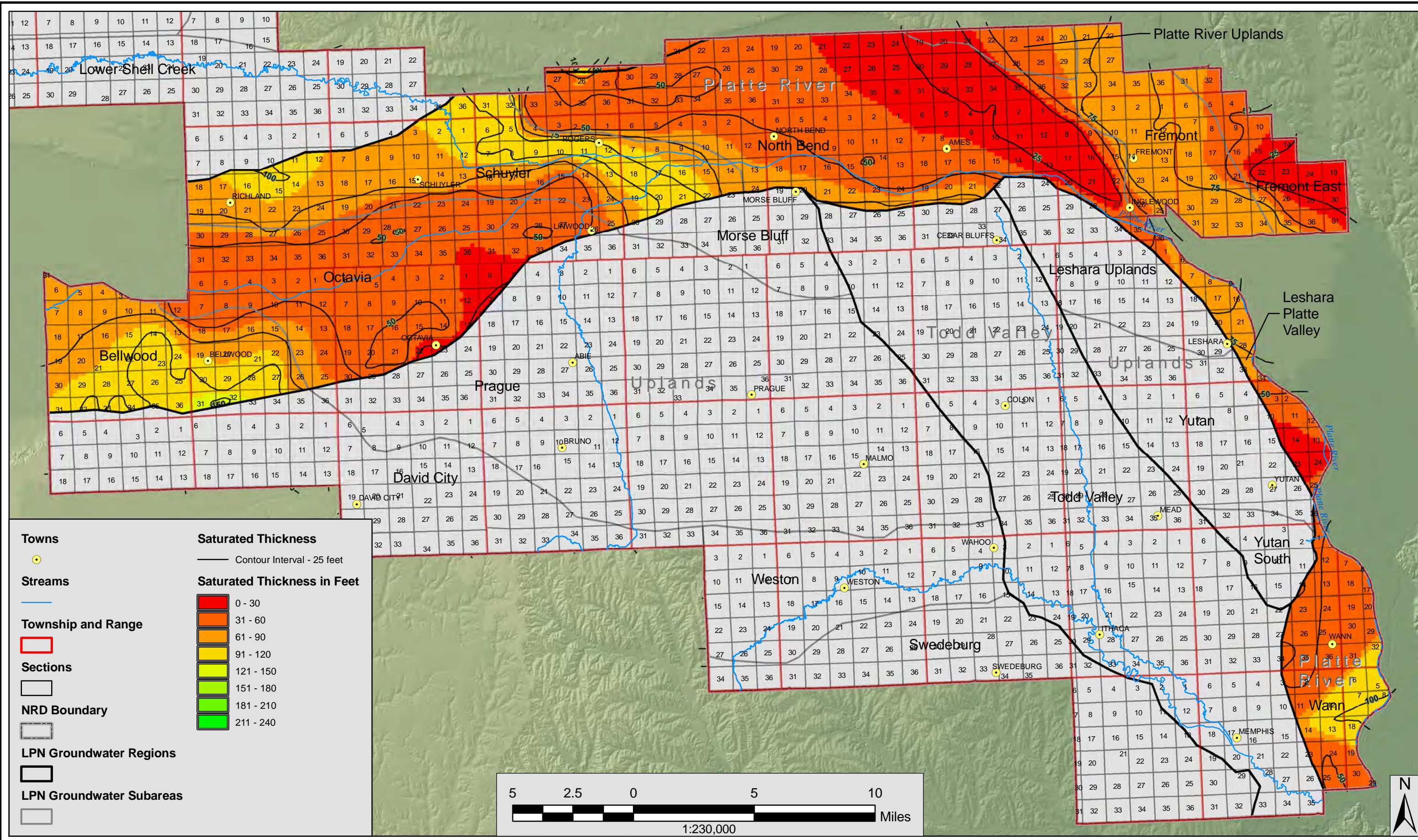
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FIGURE
 12.1

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PROJECT: 007-0427
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 Date: 3/2/2009

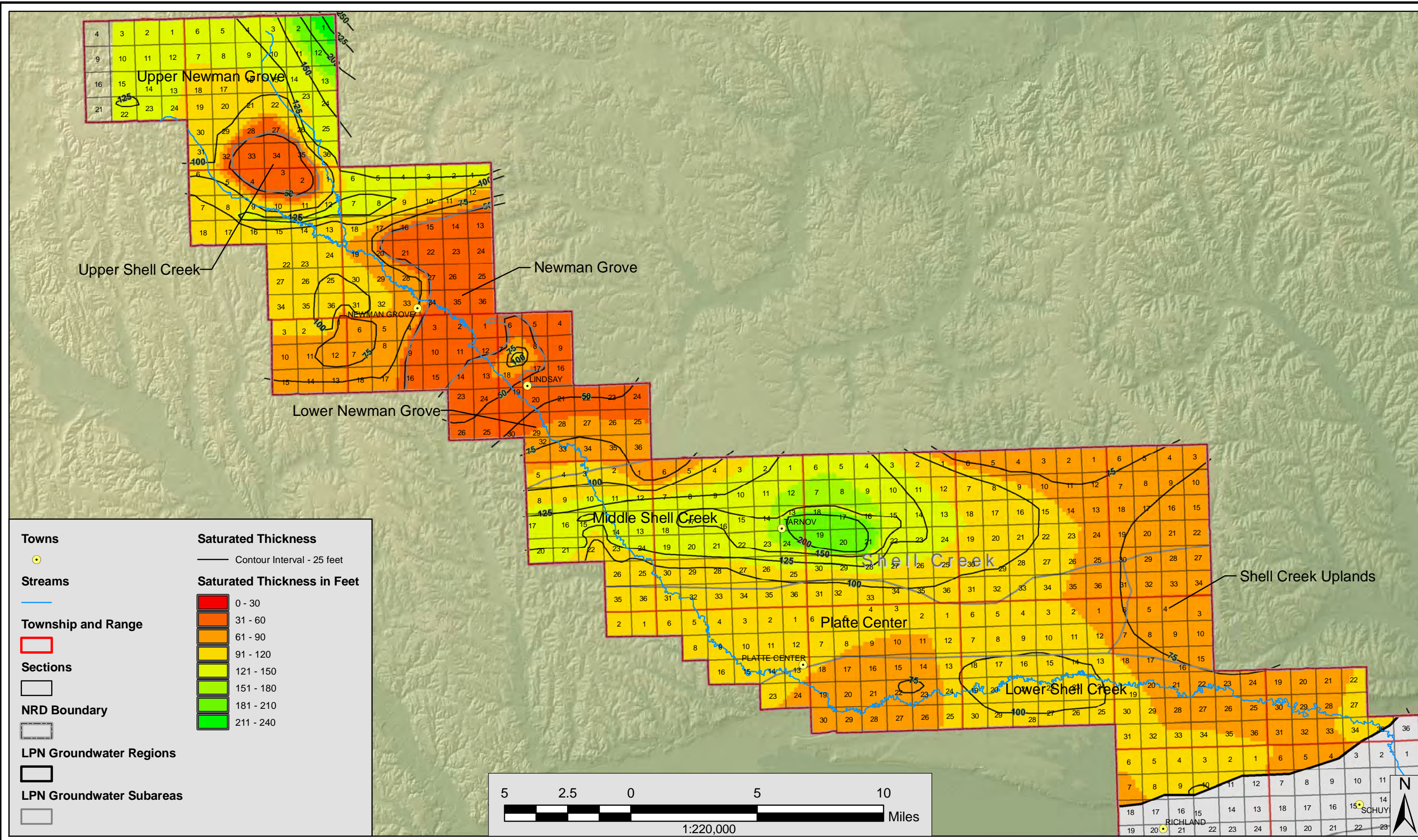
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Saturated Thickness, 1996, CSD

PLATTE RIVER REGION SATURATED THICKNESS OF THE PRINCIPAL AQUIFER
 Lower Platte North Natural Resources District

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FIGURE
 12.2

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PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Saturated Thickness, 1996, CSD

SHELL CREEK REGION SATURATED THICKNESS OF THE PRINCIPAL AQUIFER
 Lower Platte North Natural Resources District

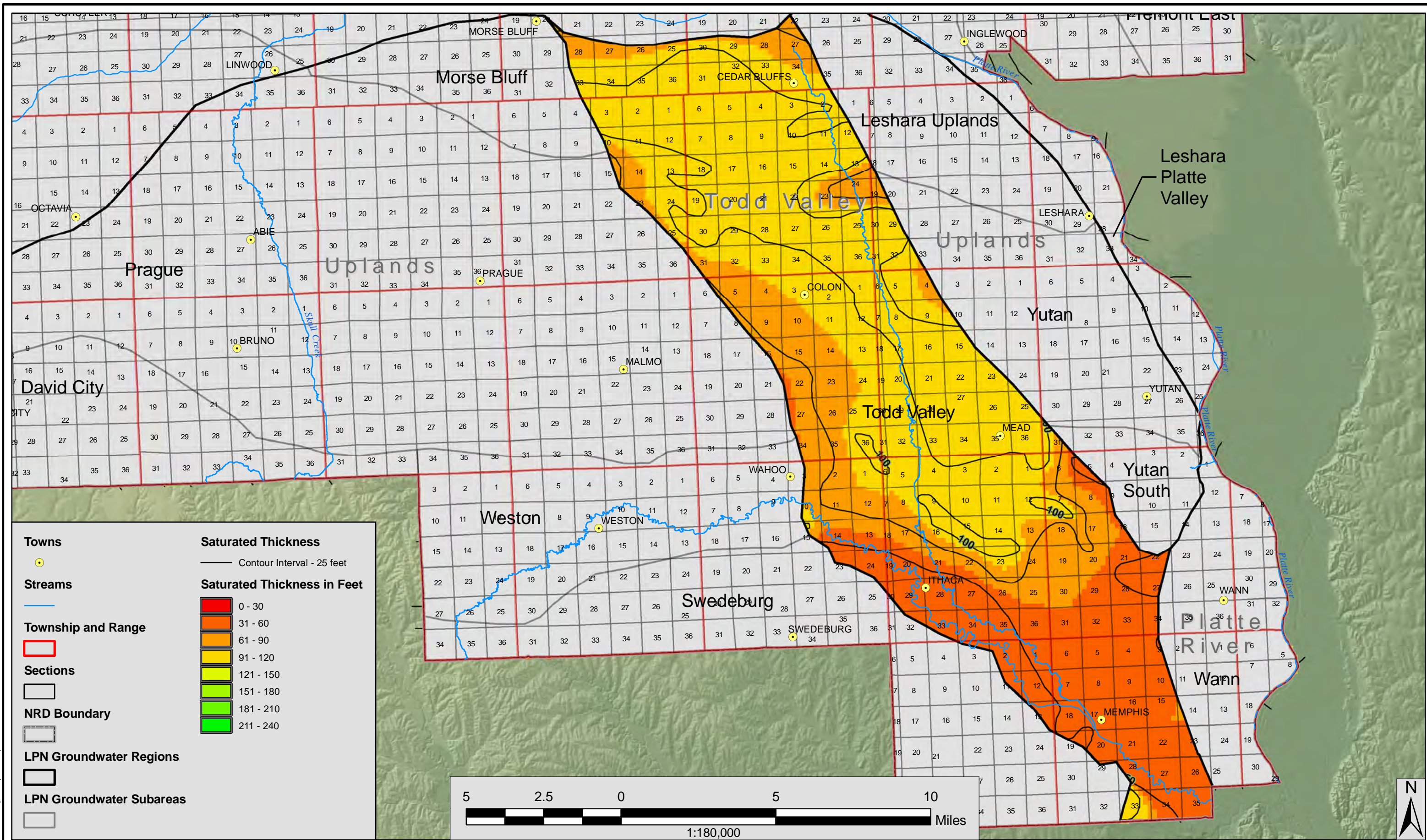
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FIGURE
 12.3

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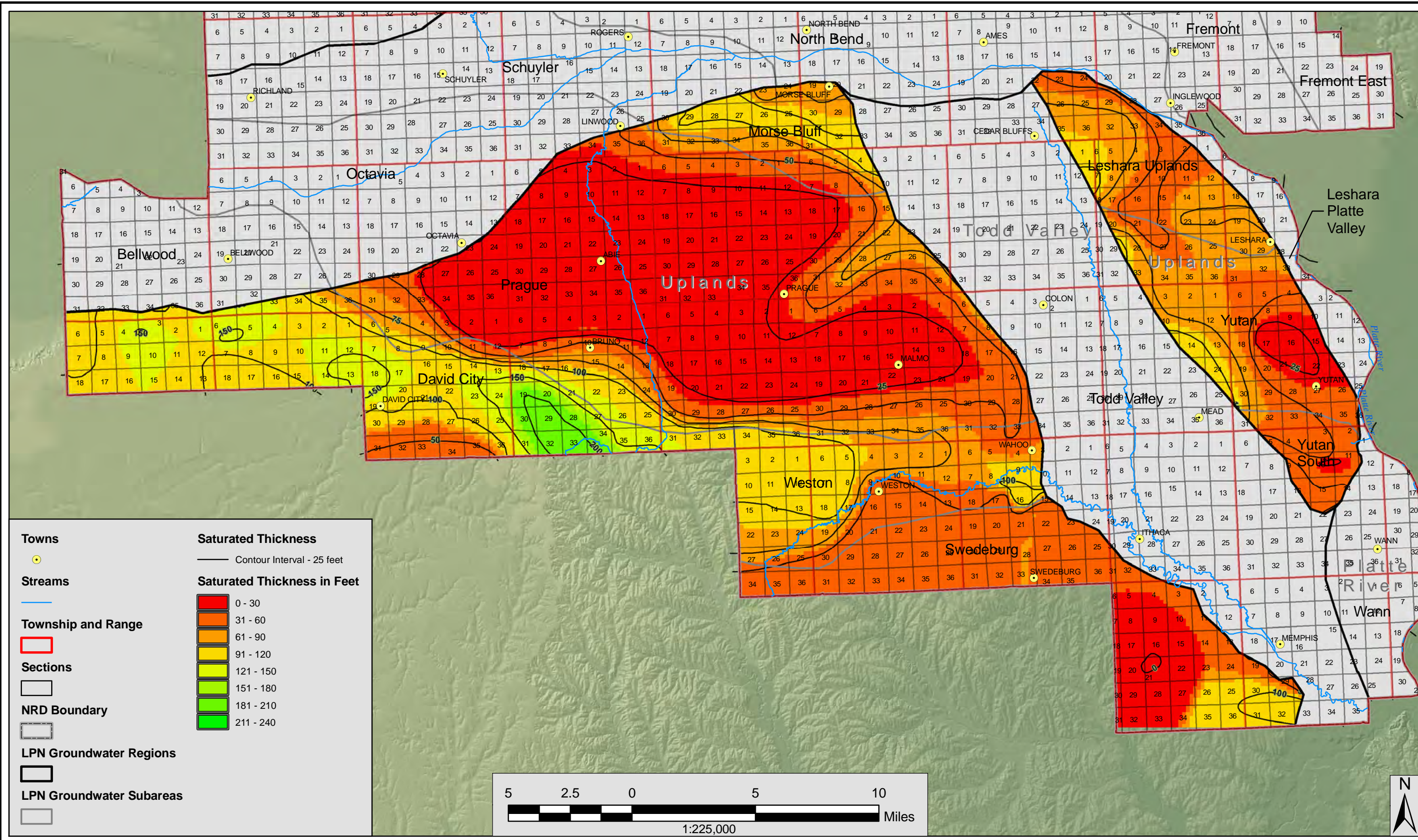
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Saturated Thickness, 1996, CSD

TODD VALLEY REGION SATURATED THICKNESS OF THE PRINCIPAL AQUIFER
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FIGURE
12.4

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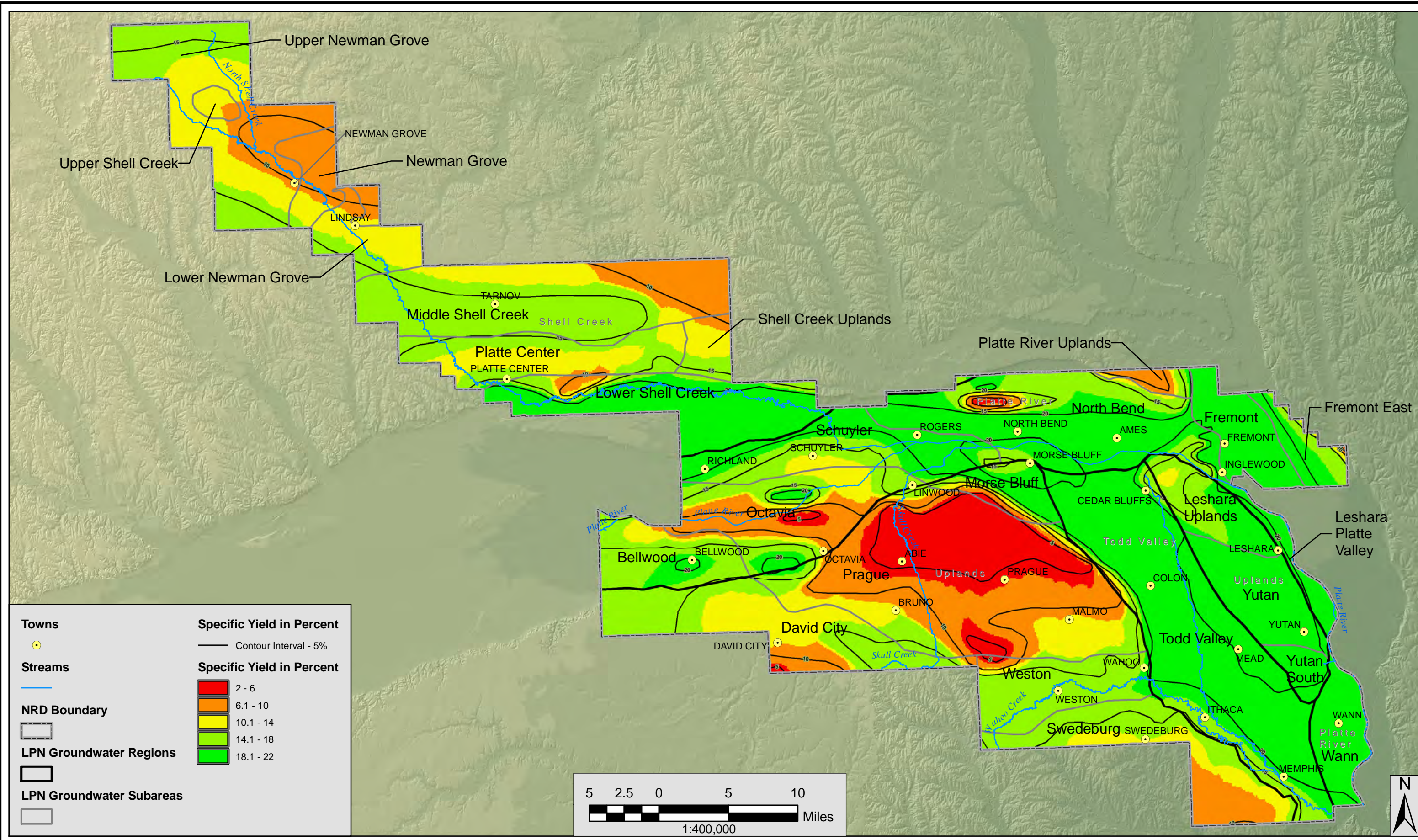
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Saturated Thickness, 1996, CSD

UPLANDS REGION SATURATED THICKNESS OF THE PRINCIPAL AQUIFER
 Lower Platte North Natural Resources District


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FIGURE
12.5



PROJECT: 007-0427
 DRAWN BY: DR
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Specific Yield of the Principal Aquifer, 2005, CSD

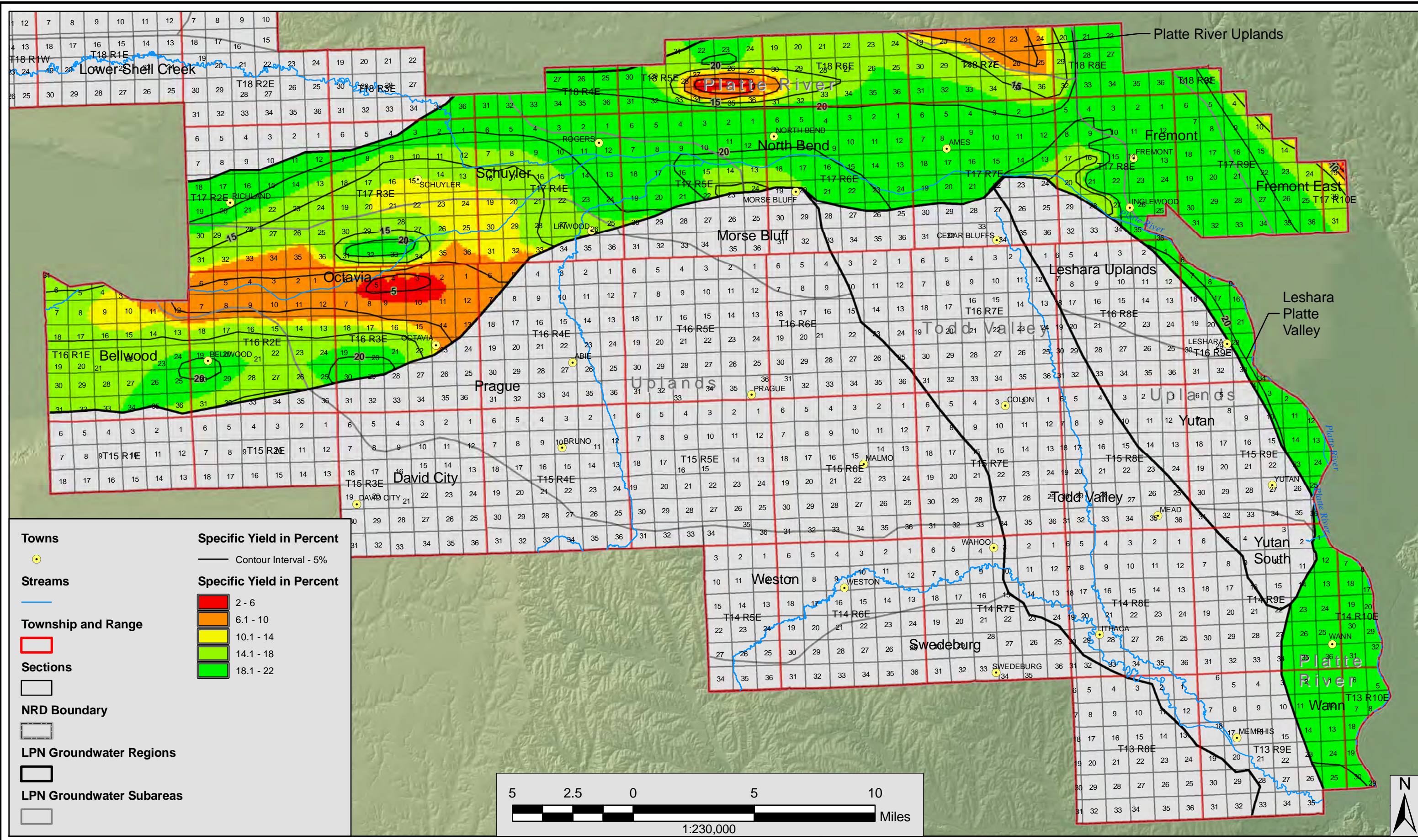
ESTIMATED SPECIFIC YIELD
 Lower Platte North Natural Resources District

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 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Specific Yield of the Principal Aquifer, 2005, CSD

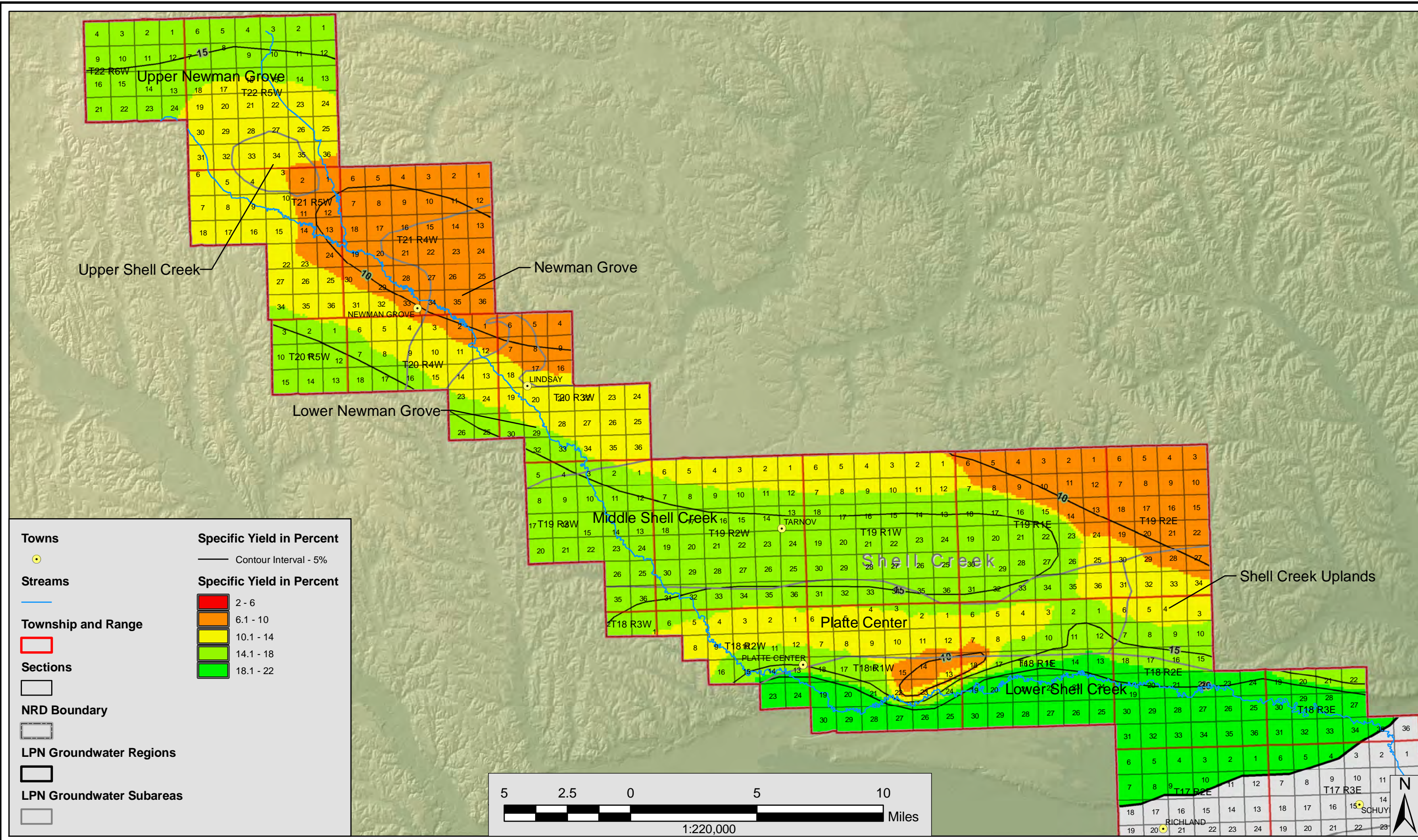
PLATTE RIVER REGION ESTIMATED SPECIFIC YIELD
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FIGURE
 13.2



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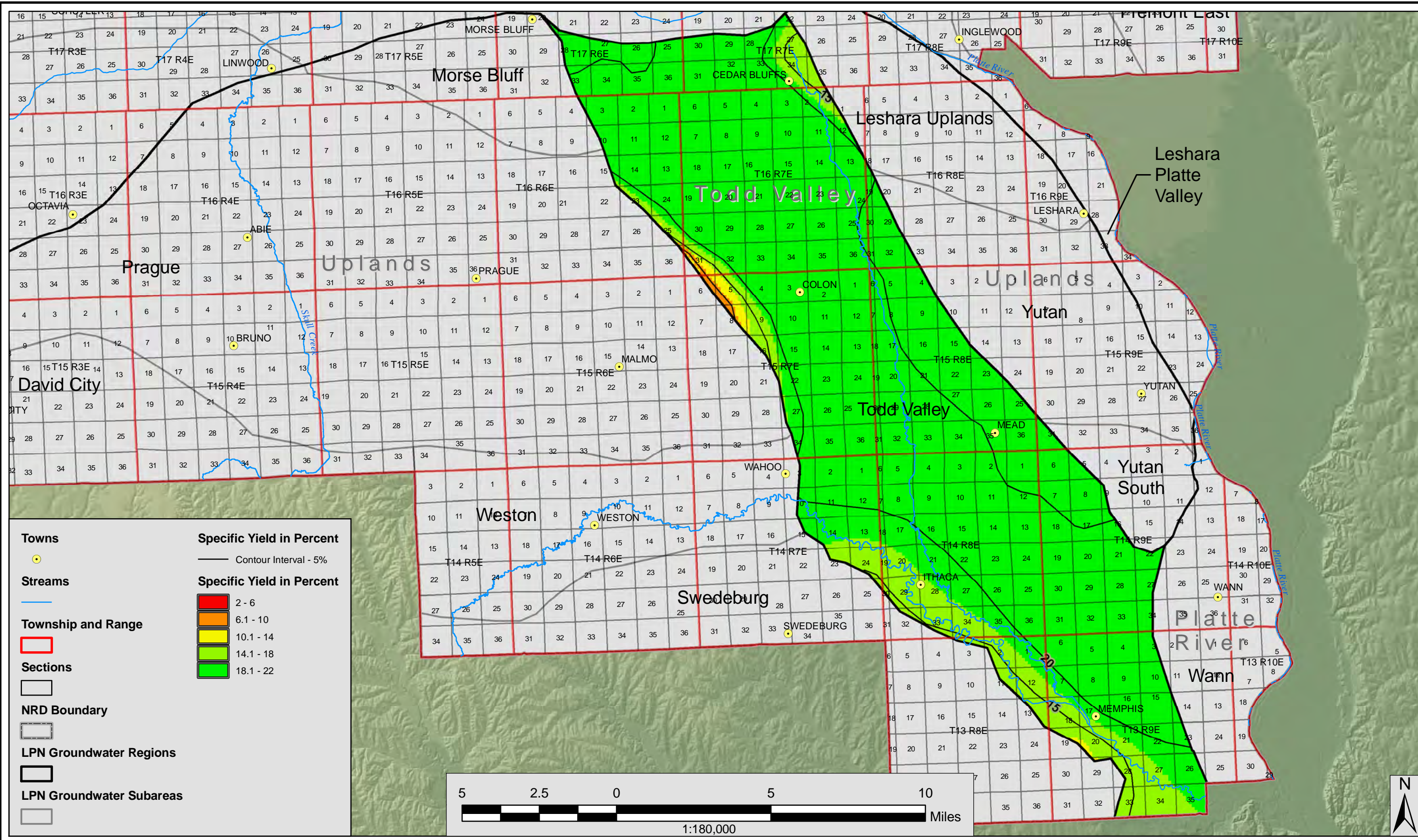
PROJECT: 007-0427
 DRAWN BY: DR
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Specific Yield of the Principal Aquifer, 2005, CSD

SHELL CREEK REGION ESTIMATED SPECIFIC YIELD
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FIGURE
 13.3



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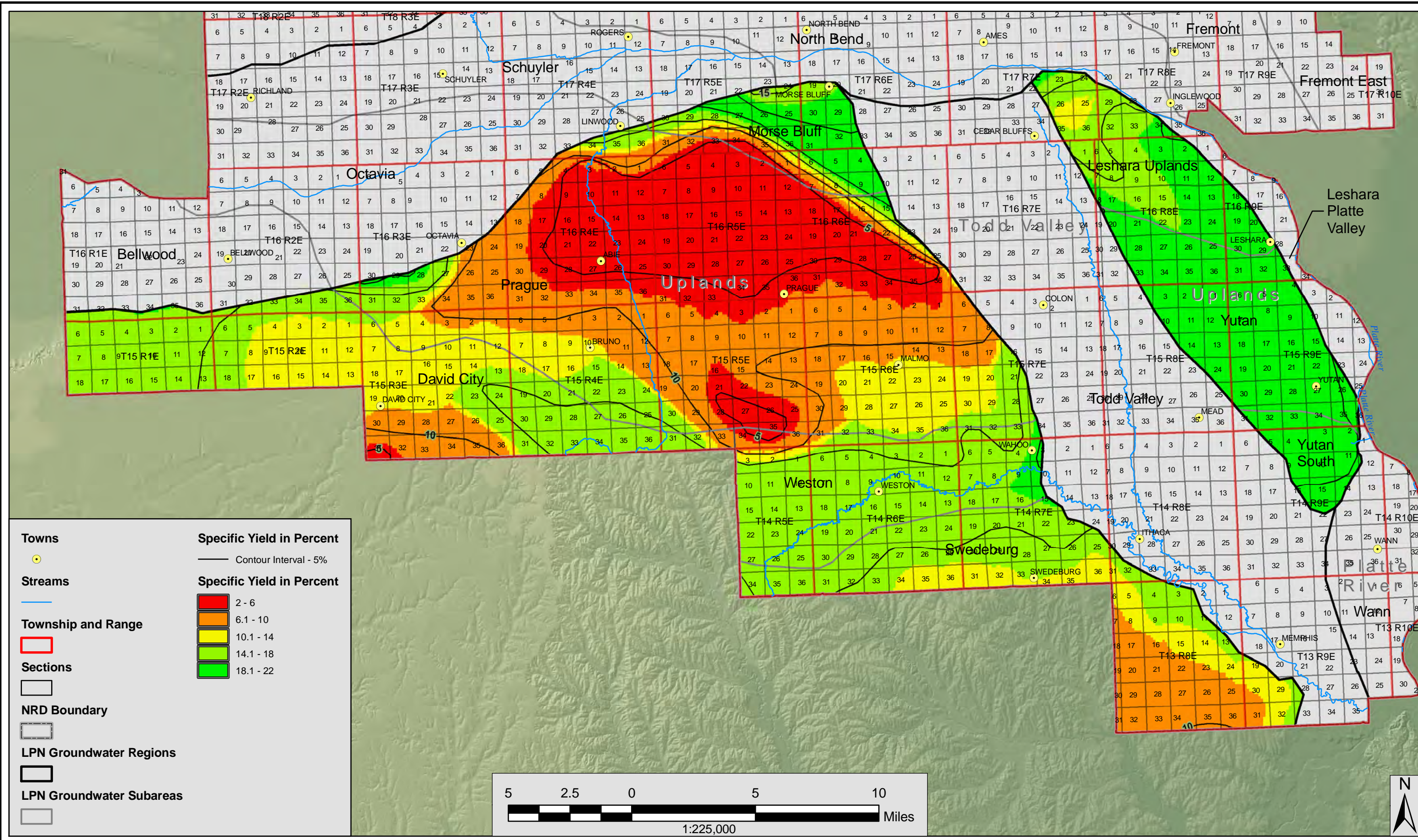
PROJECT: 007-0427
 DRAWN BY: DR
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Specific Yield of the Principal Aquifer, 2005, CSD

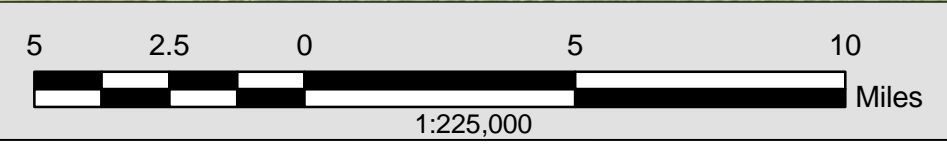
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FIGURE
 13.4



Towns	Specific Yield in Percent
●	— Contour Interval - 5%
Streams	Specific Yield in Percent
—	2 - 6
Township and Range	6.1 - 10
□	10.1 - 14
Sections	14.1 - 18
□	18.1 - 22
NRD Boundary	
□	
LPN Groundwater Regions	
□	
LPN Groundwater Subareas	
□	



PROJECT: 007-0427
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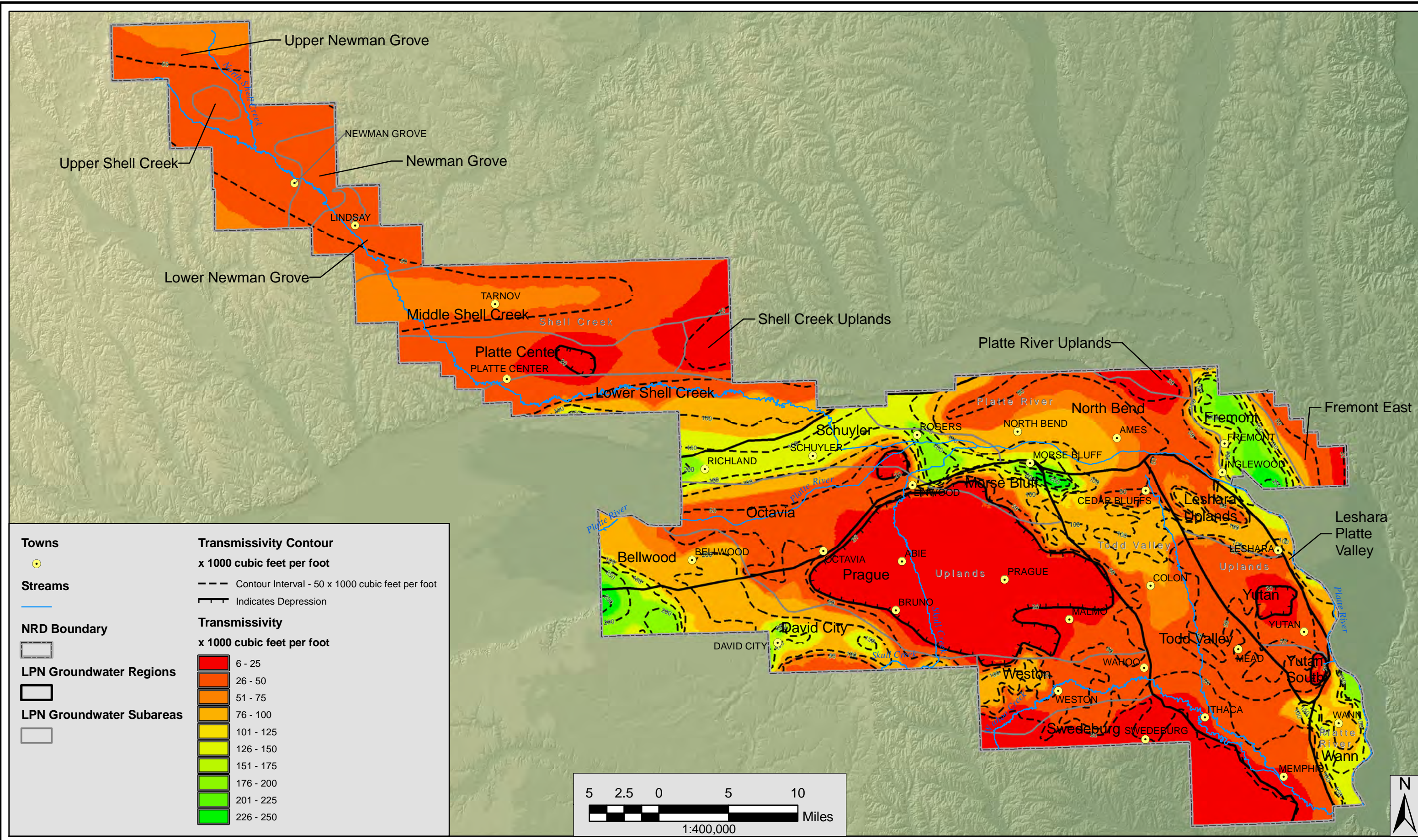
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Specific Yield of the Principal Aquifer, 2005, CSD

UPLANDS REGION ESTIMATED SPECIFIC YIELD
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FIGURE
13.5

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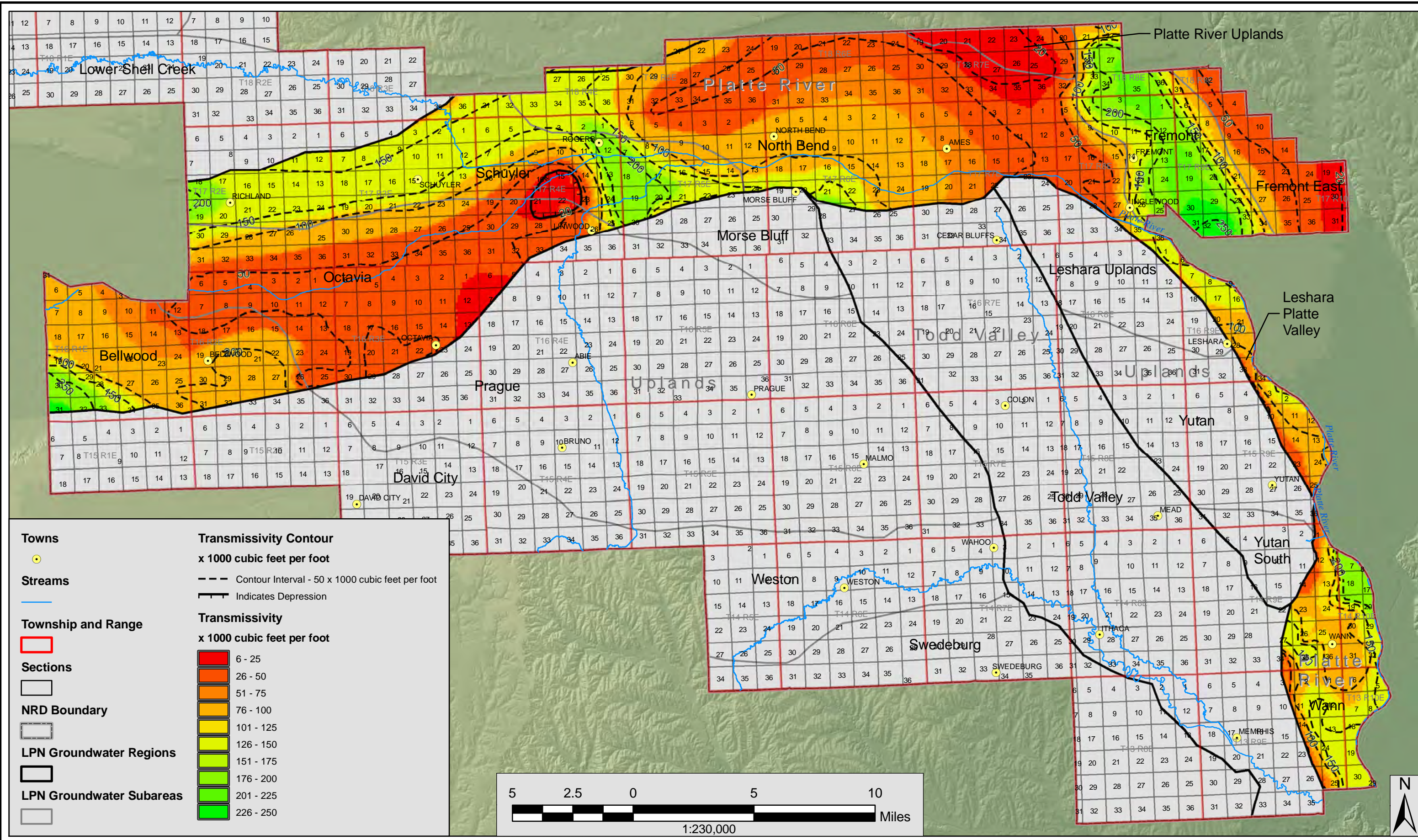
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PROJECT: 007-0427	Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Transmissivity of the Principal Aquifer, 2005, CSD
DRAWN BY: RD	
Date: 3/2/2009	

**TRANSMISSIVITY OF THE PRINCIPAL AQUIFER
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**FIGURE
14.1**



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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Transmissivity of the Principal Aquifer, 2005, CSD

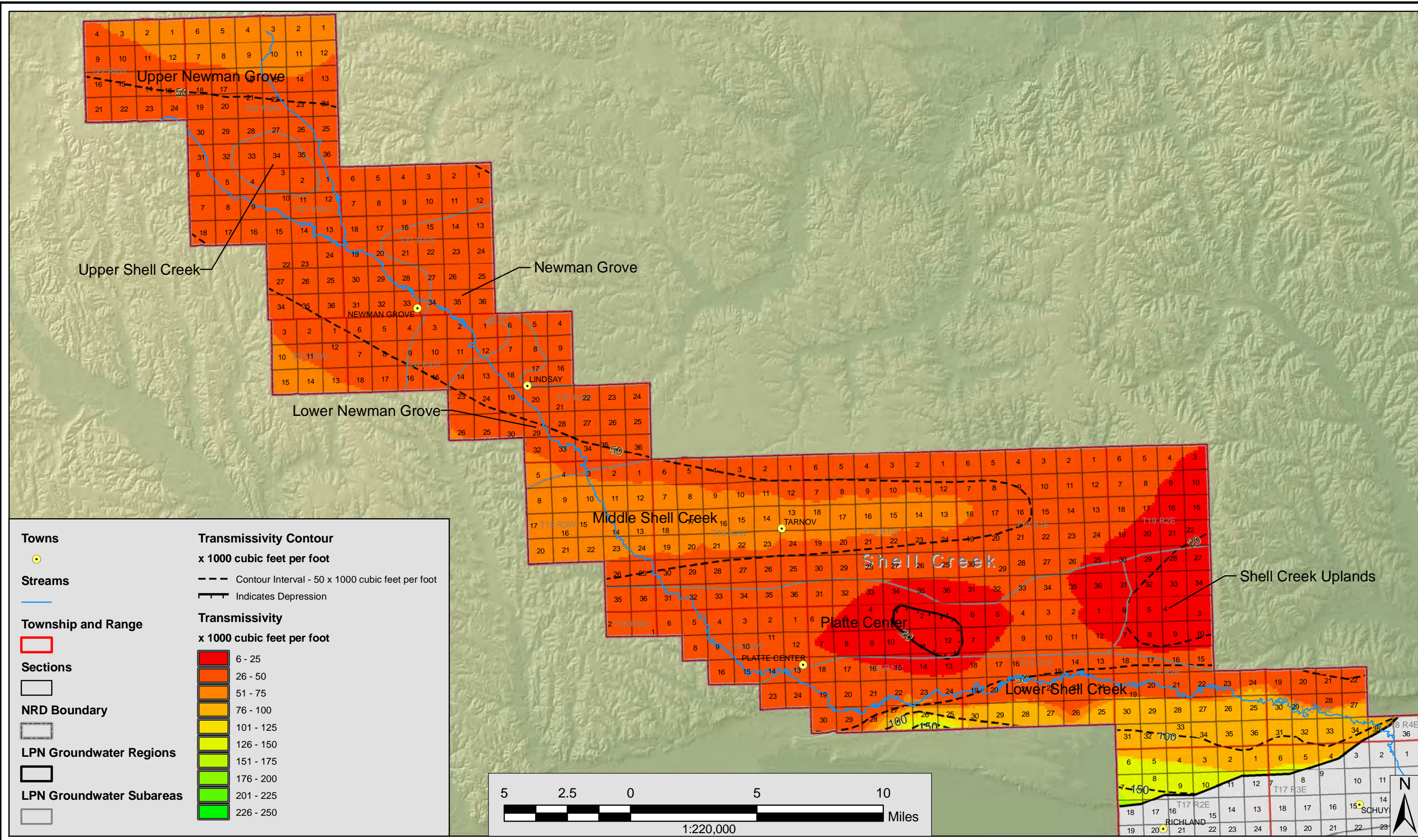
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FIGURE
14.2



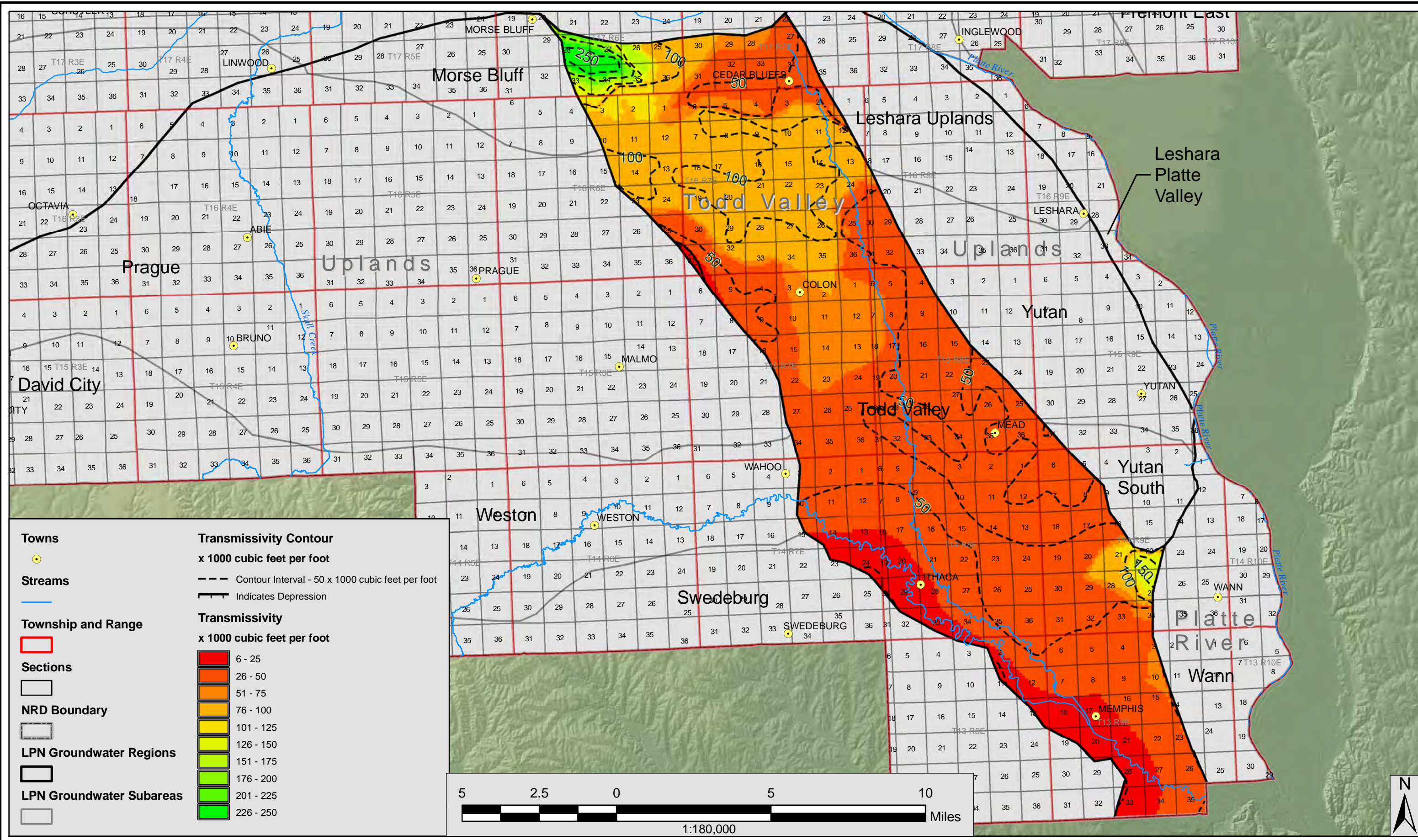
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 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Transmissivity of the Principal Aquifer, 2005, CSD

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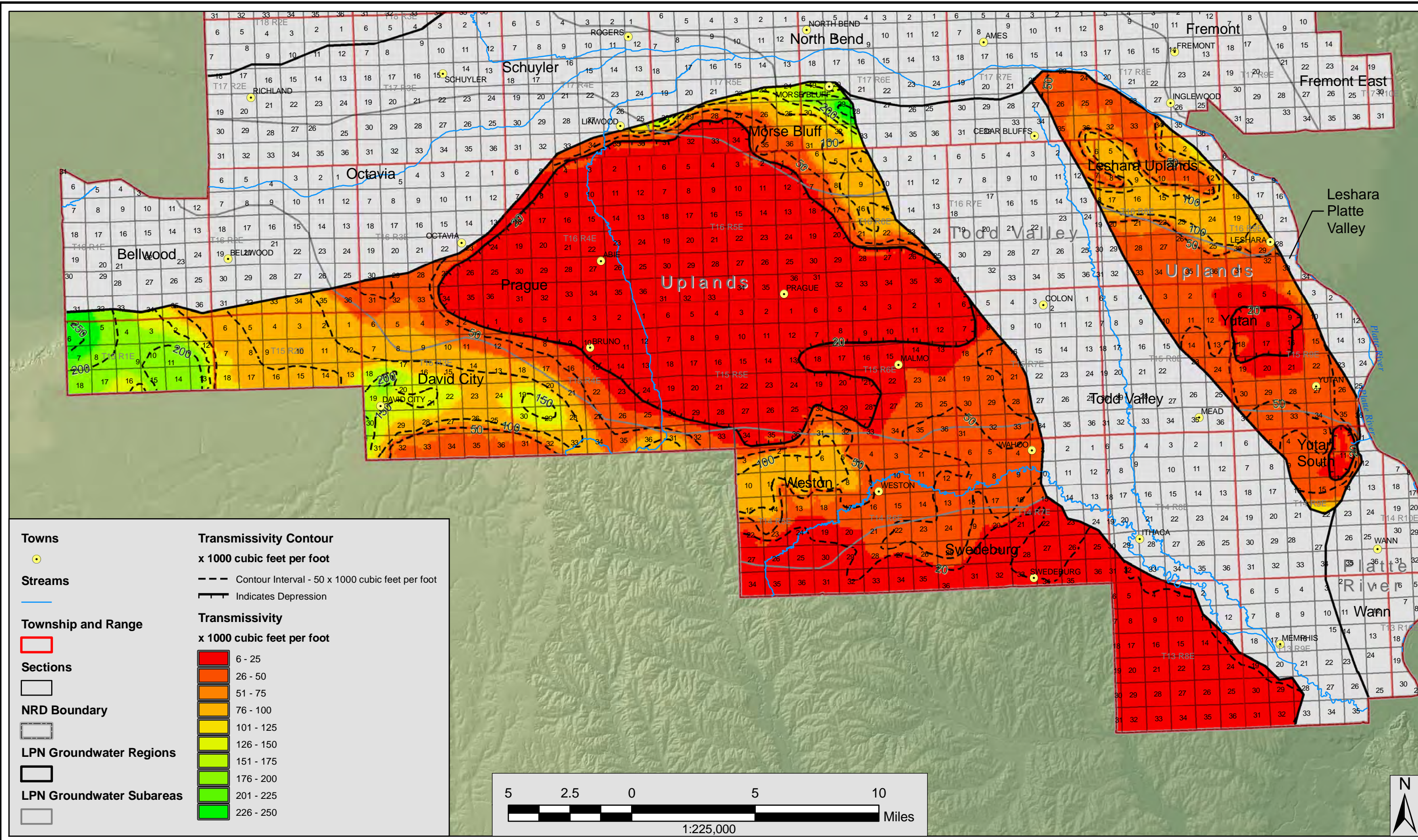
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Transmissivity of the Principal Aquifer, 2005, CSD

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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Transmissivity of the Principal Aquifer, 2005, CSD

UPLANDS REGION TRANSMISSIVITY OF THE PRINCIPAL AQUIFER
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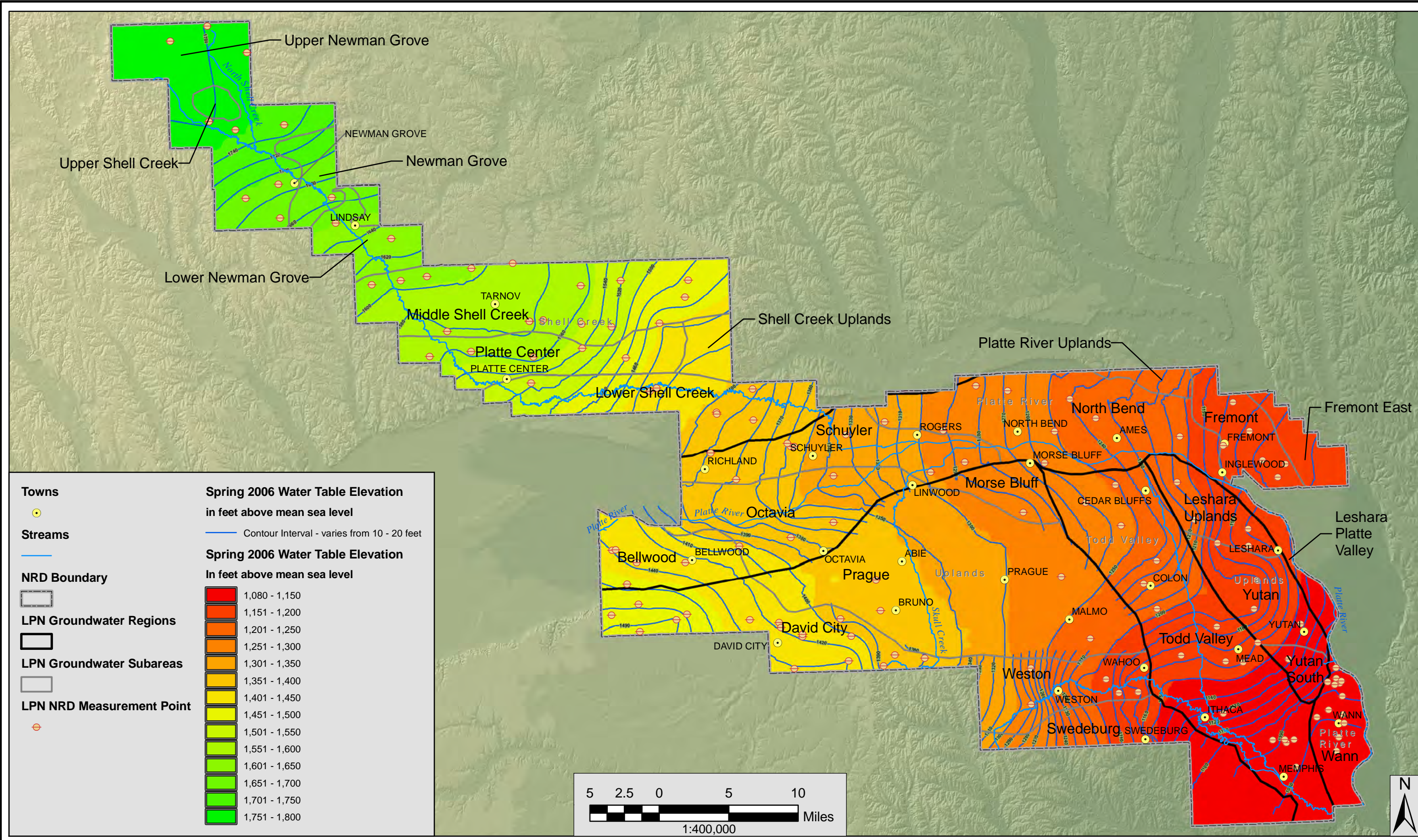
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FIGURE
 14.5

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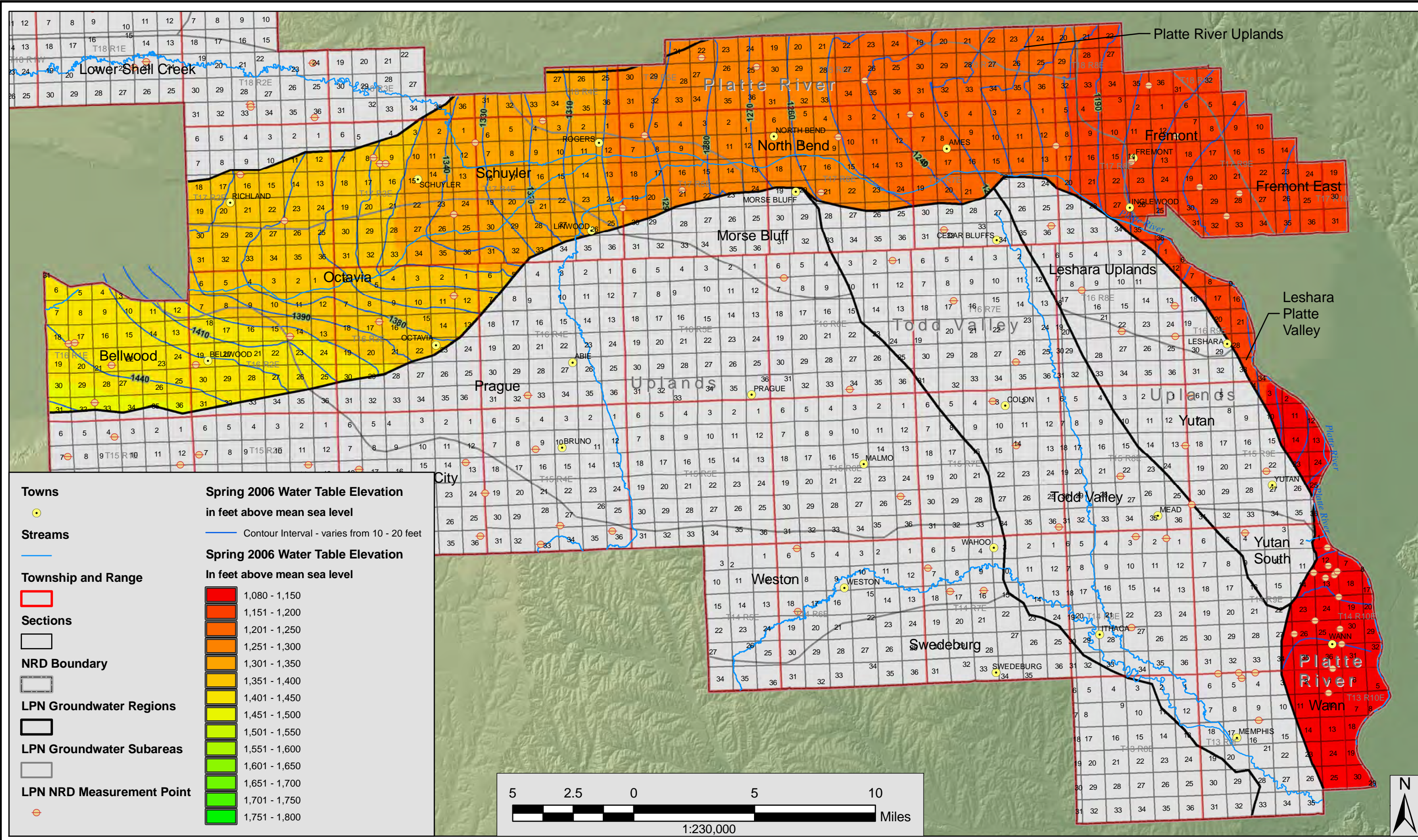
PROJECT: 007-0427	Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Level Database, 2006, LPN NRD
DRAWN BY: RD	
Date: 3/2/2009	

Derivation: Map generated by contouring the Spring 2006 water level elevation measurements and calculating estimated flow velocity and direction based on configuration of water table contours.

ESTIMATED GROUNDWATER ELEVATION, SPRING 2006
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FIGURE 15.1



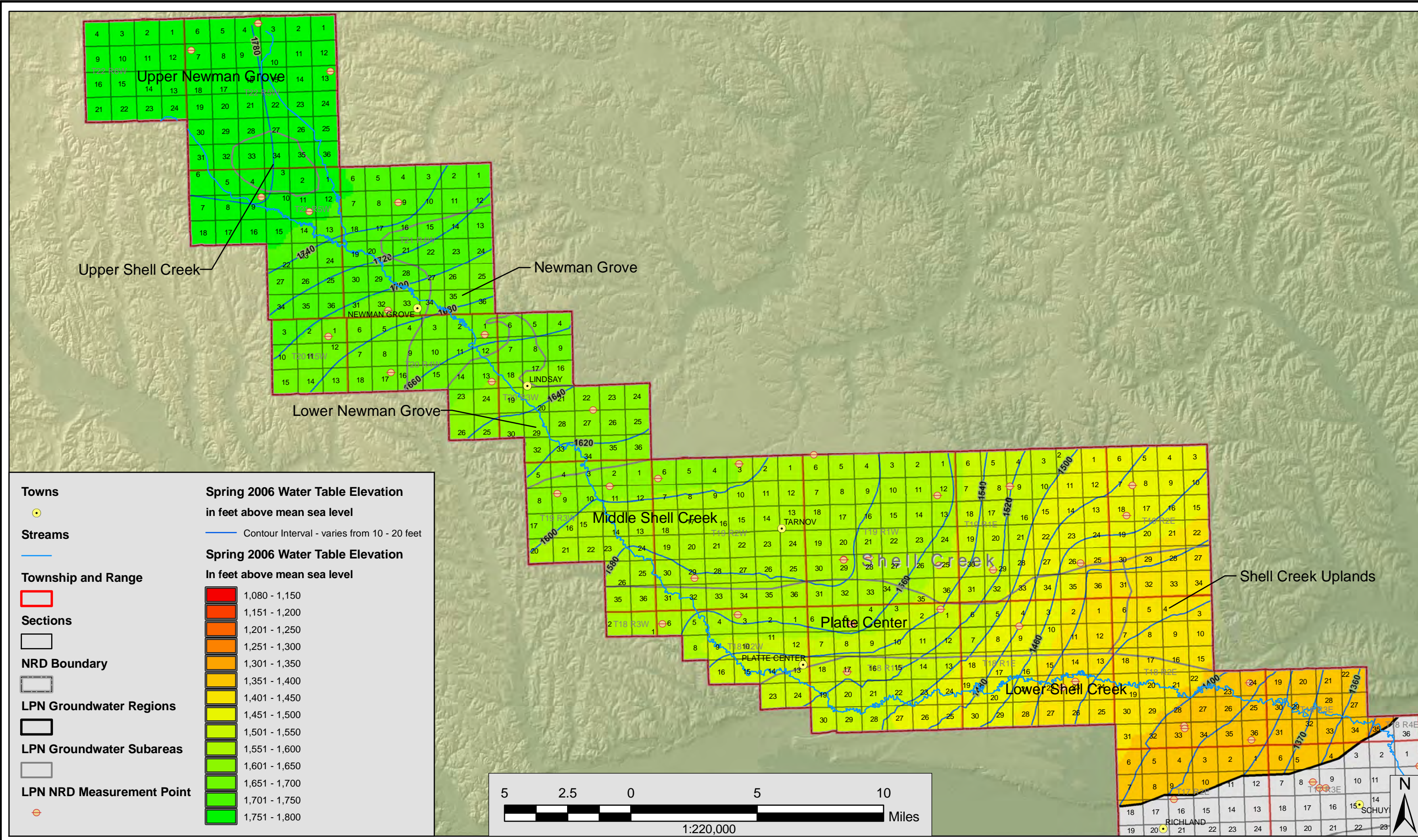
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Level Database, 2006, LPN NRD

PLATTE RIVER REGION ESTIMATED GROUNDWATER ELEVATION, SPRING 2006
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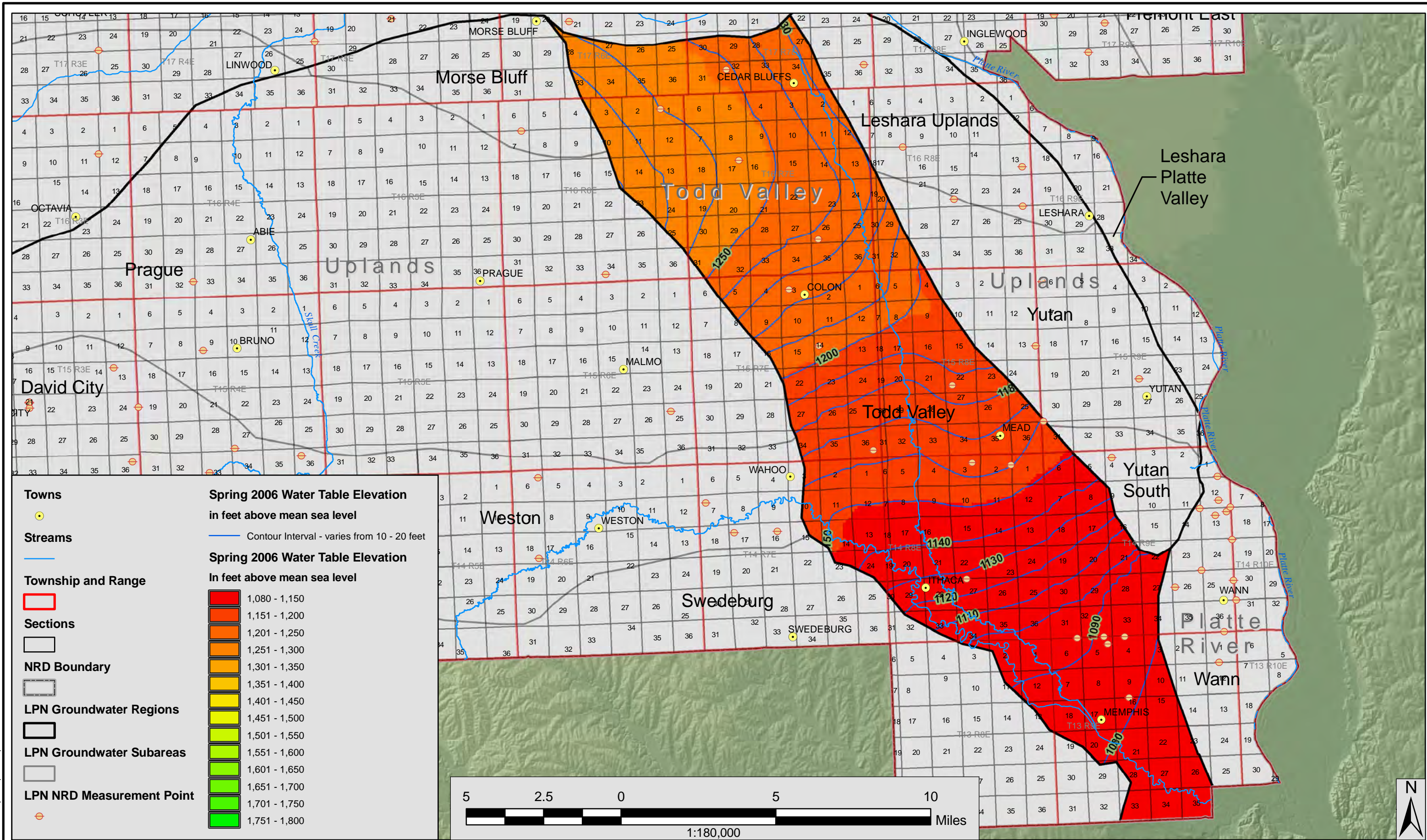
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Level Database, 2006, LPN NRD

Derivation: Map generated by contouring the Spring 2006 water level elevation measurements and calculating estimated flow velocity and direction based on configuration of water table contours.

SHELL CREEK REGION ESTIMATED GROUNDWATER ELEVATION, SPRING 2006
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FIGURE
15.3



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 Date: 3/2/2009

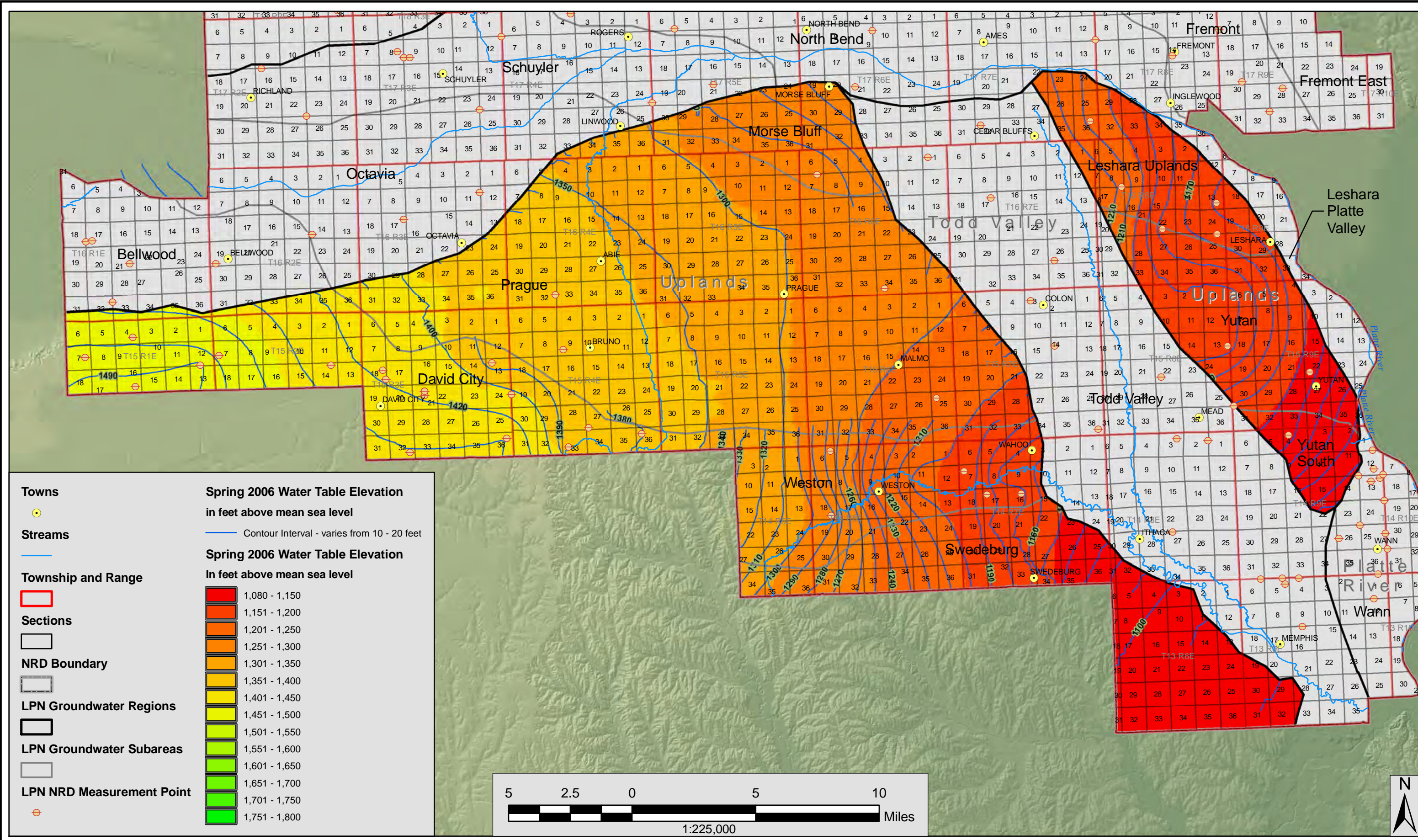
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Level Database, 2006, LPN NRD

Derivation: Map generated by contouring the Spring 2006 water level elevation measurements and calculating estimated flow velocity and direction based on configuration of water table contours.

TODD VALLEY REGION ESTIMATED GROUNDWATER ELEVATION, SPRING 2006
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FIGURE
 15.4



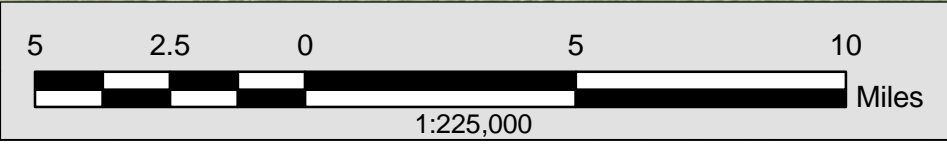
- Towns**
●
- Streams**
—
- Township and Range**
□
- Sections**
□
- NRD Boundary**
□
- LPN Groundwater Regions**
□
- LPN Groundwater Subareas**
□
- LPN NRD Measurement Point**
○

Spring 2006 Water Table Elevation in feet above mean sea level

— Contour Interval - varies from 10 - 20 feet

Spring 2006 Water Table Elevation In feet above mean sea level

1,080 - 1,150
1,151 - 1,200
1,201 - 1,250
1,251 - 1,300
1,301 - 1,350
1,351 - 1,400
1,401 - 1,450
1,451 - 1,500
1,501 - 1,550
1,551 - 1,600
1,601 - 1,650
1,651 - 1,700
1,701 - 1,750
1,751 - 1,800



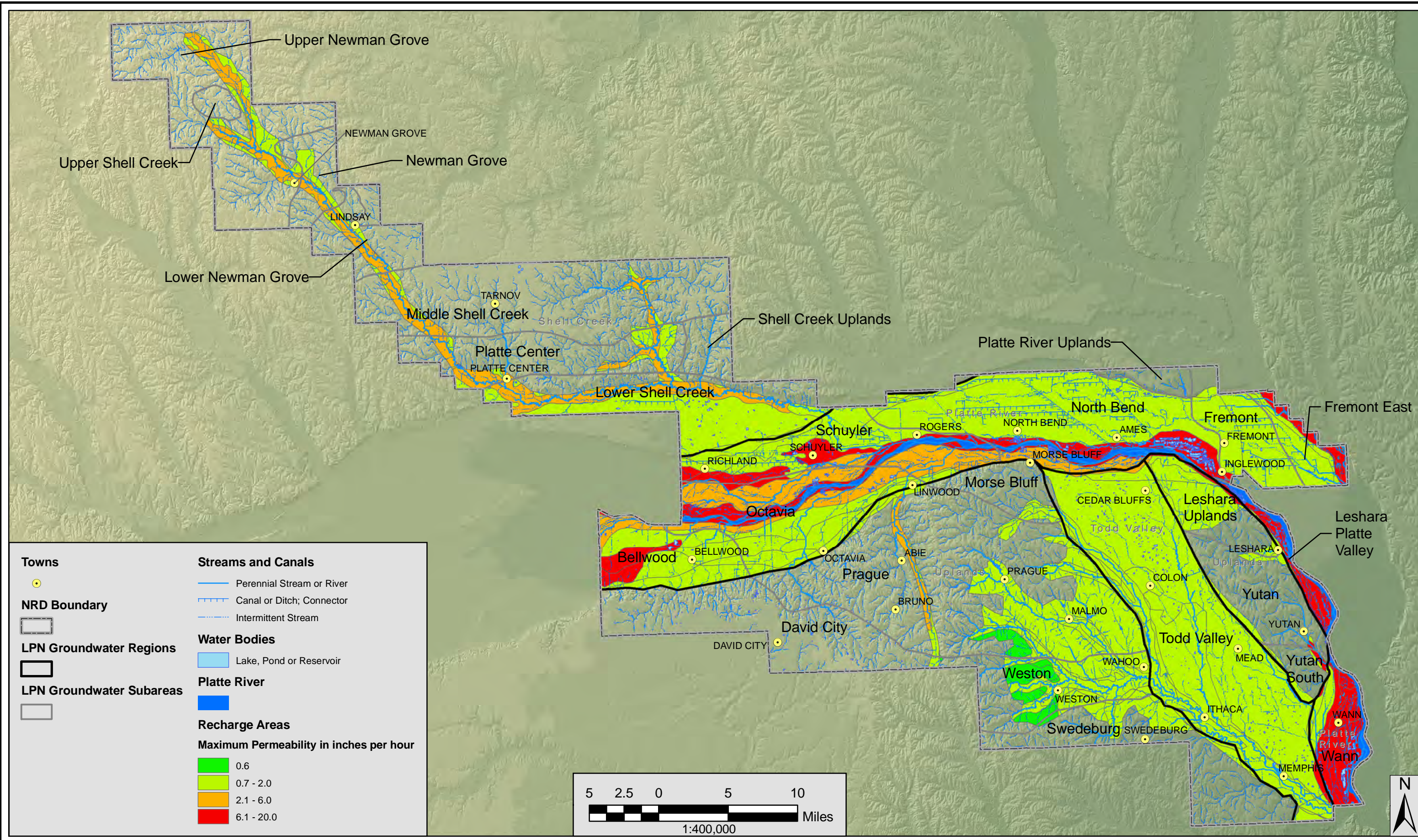
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Level Database, 2006, LPN NRD

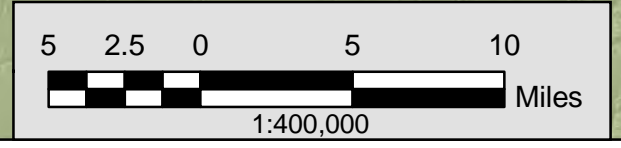
UPLANDS REGION ESTIMATED GROUNDWATER ELEVATION, SPRING 2006
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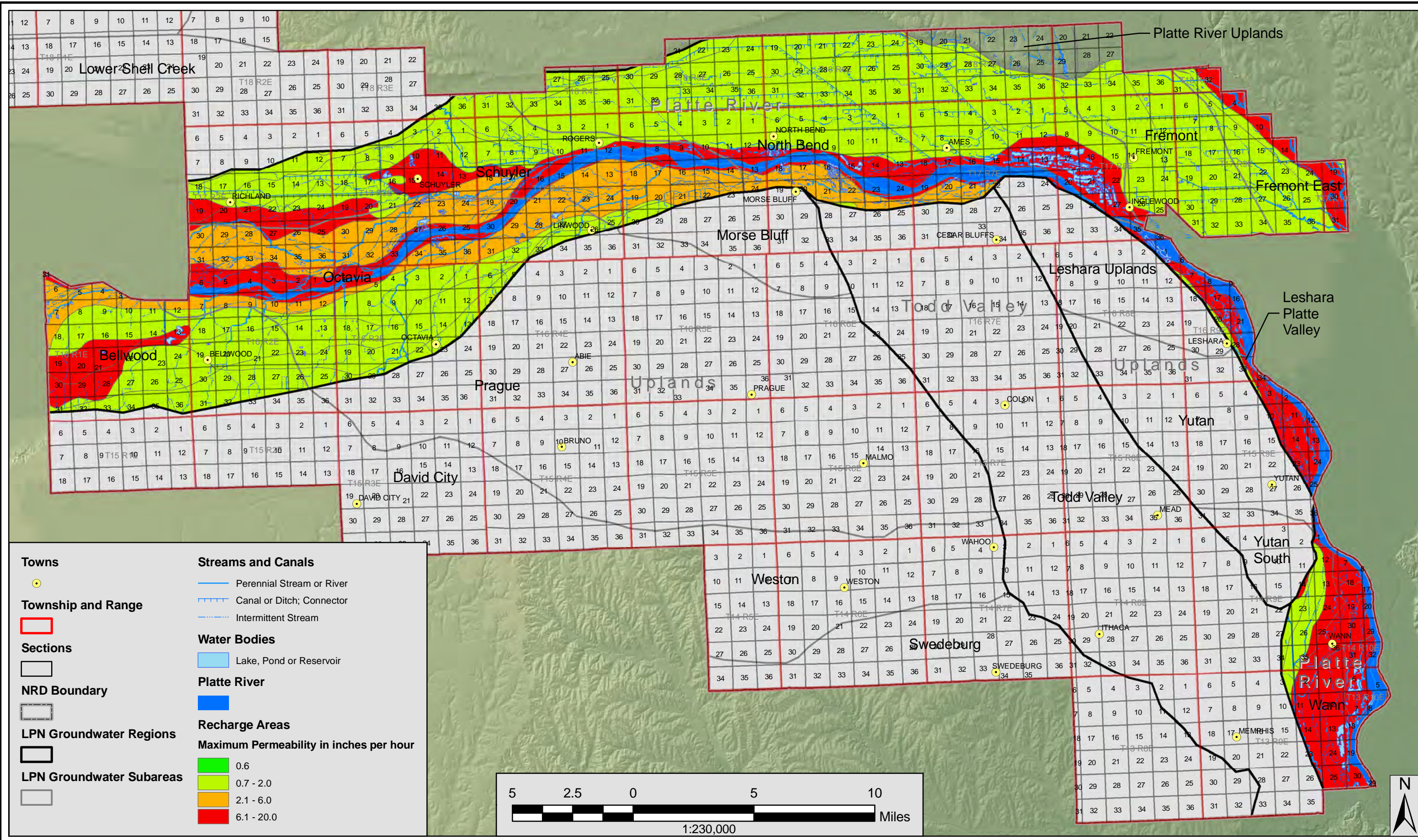
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Towns	Streams and Canals
Town	Perennial Stream or River
NRD Boundary	Canal or Ditch; Connector
NRD Boundary	Intermittent Stream
LPN Groundwater Regions	Water Bodies
LPN Groundwater Region	Lake, Pond or Reservoir
LPN Groundwater Subareas	Platte River
LPN Groundwater Subarea	Platte River
	Recharge Areas
	Maximum Permeability in inches per hour
	0.6
	0.7 - 2.0
	2.1 - 6.0
	6.1 - 20.0



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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; STATSGO Soil Associations, 2007, NRCS; Water Level Database, 2008, LPN NRD

Derivation: Recharge areas were interpreted based on soil types and depth to water.

PLATTE RIVER REGION SURFACE WATER BODIES AND GROUND WATER RECHARGE POTENTIAL
 Lower Platte North Natural Resources District

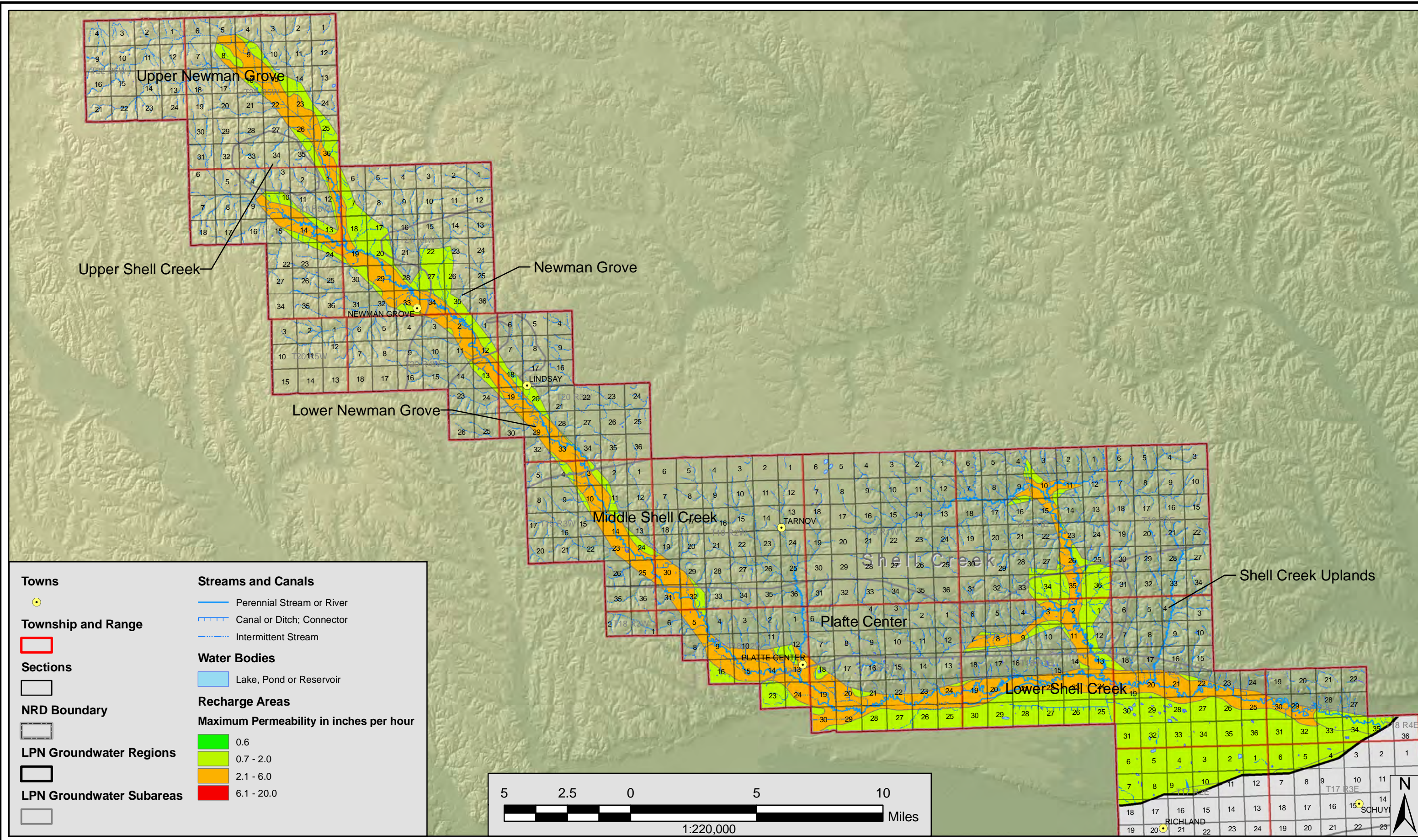
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FIGURE
16.2

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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; STATSGO Soil Associations, 2007, NRCS; Water Level Database, 2008, LPN NRD

Derivation: Recharge areas were interpreted based on soil types and depth to water.

SHELL CREEK REGION SURFACE WATER BODIES AND GROUND WATER RECHARGE POTENTIAL
 Lower Platte North Natural Resources District

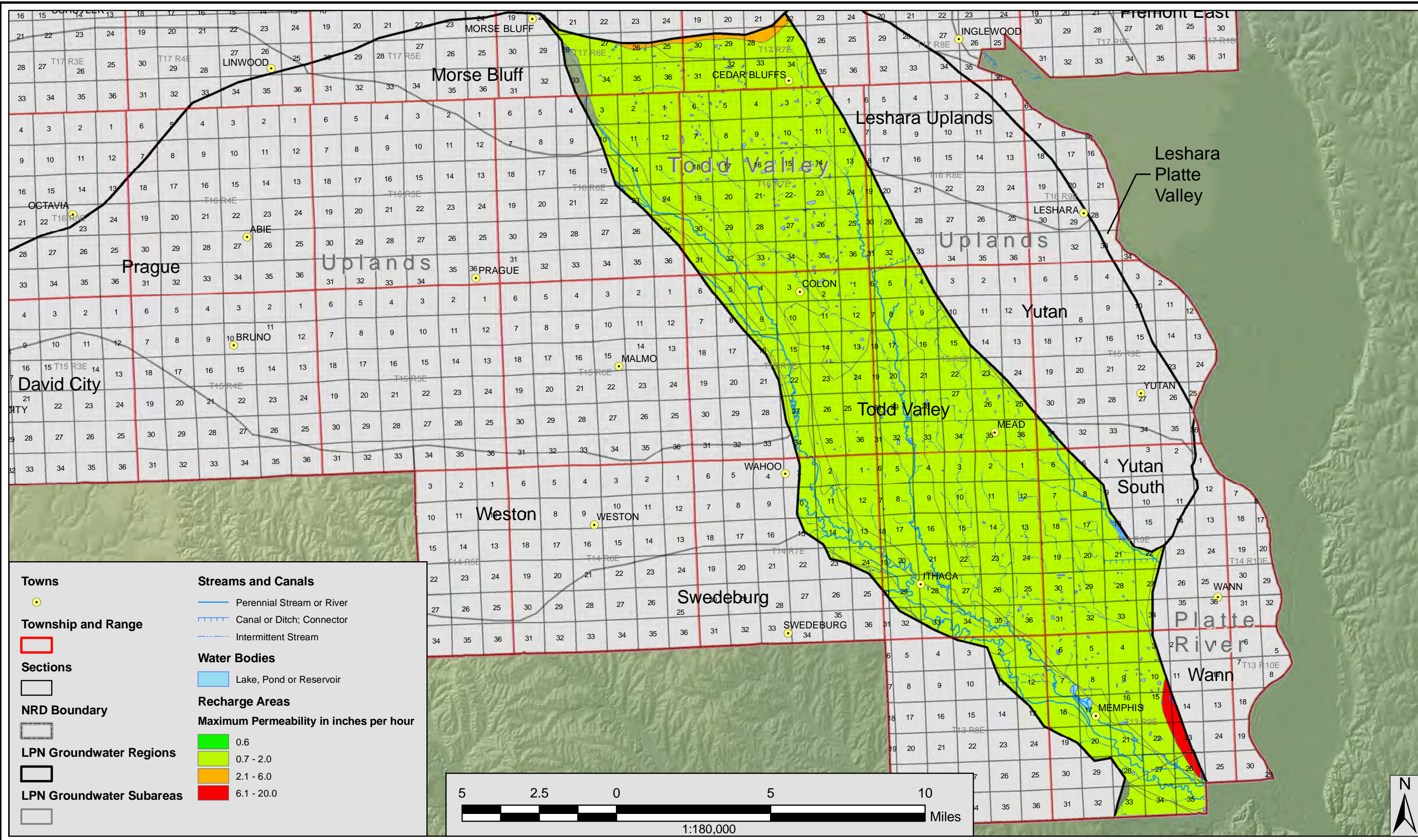
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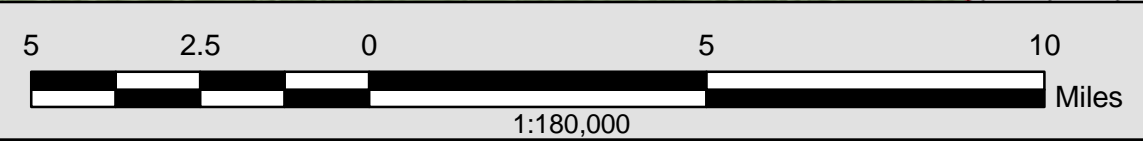
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FIGURE 16.3

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Towns	Streams and Canals
●	— Perennial Stream or River
Township and Range	▬ Canal or Ditch; Connector
▭	▬ Intermittent Stream
Sections	Water Bodies
▭	▭ Lake, Pond or Reservoir
NRD Boundary	Recharge Areas
▭	Maximum Permeability in inches per hour
LPN Groundwater Regions	■ 0.6
▭	■ 0.7 - 2.0
LPN Groundwater Subareas	■ 2.1 - 6.0
▭	■ 6.1 - 20.0



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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; STATSGO Soil Associations, 2007, NRCS; Water Level Database, 2008, LPN NRD

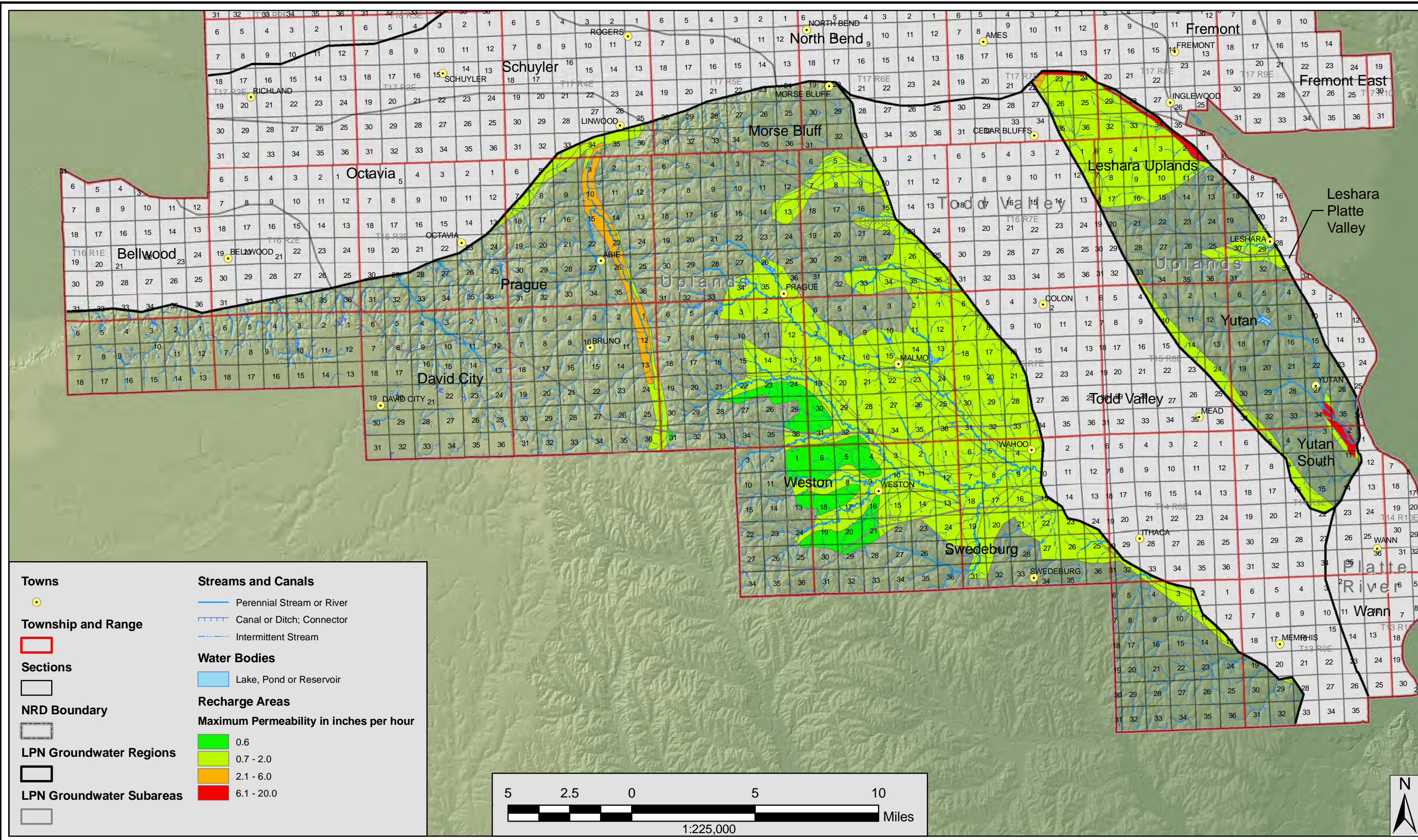
Derivation: Recharge areas were interpreted based on soil types and depth to water.

TODD VALLEY REGION SURFACE WATER BODIES AND GROUNDWATER RECHARGE POTENTIAL
 Lower Platte North Natural Resources District

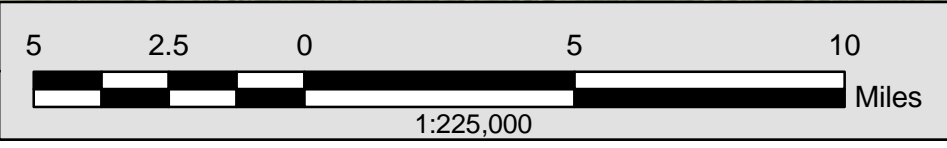
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FIGURE
16.4

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Towns	Streams and Canals
●	— Perennial Stream or River
Township and Range	▬ Canal or Ditch; Connector
▭	▬ Intermittent Stream
Sections	Water Bodies
▭	▭ Lake, Pond or Reservoir
NRD Boundary	Recharge Areas
▭	Maximum Permeability in inches per hour
LPN Groundwater Regions	■ 0.6
▭	■ 0.7 - 2.0
LPN Groundwater Subareas	■ 2.1 - 6.0
▭	■ 6.1 - 20.0



PROJECT: 007-0427
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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; STATSGO Soil Associations, 2007, NRCS; Water Level Database, 2008, LPN NRD

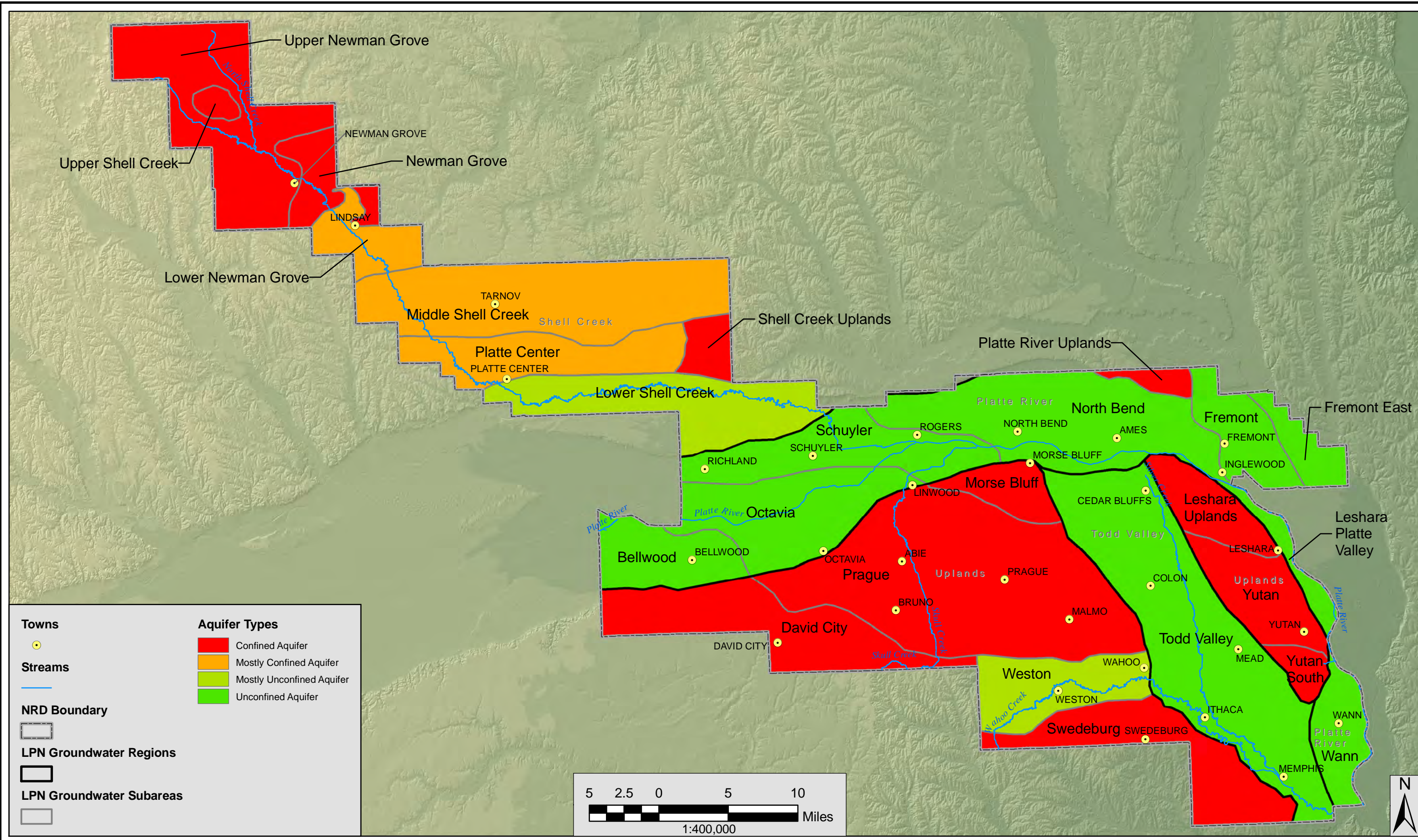
Derivation: Recharge areas were interpreted based on soil types and depth to water.

UPLANDS REGION SURFACE WATER BODIES AND GROUND WATER RECHARGE POTENTIAL
 Lower Platte North Natural Resources District

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FIGURE
16.5

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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Unpublished Data, 2008, CSD

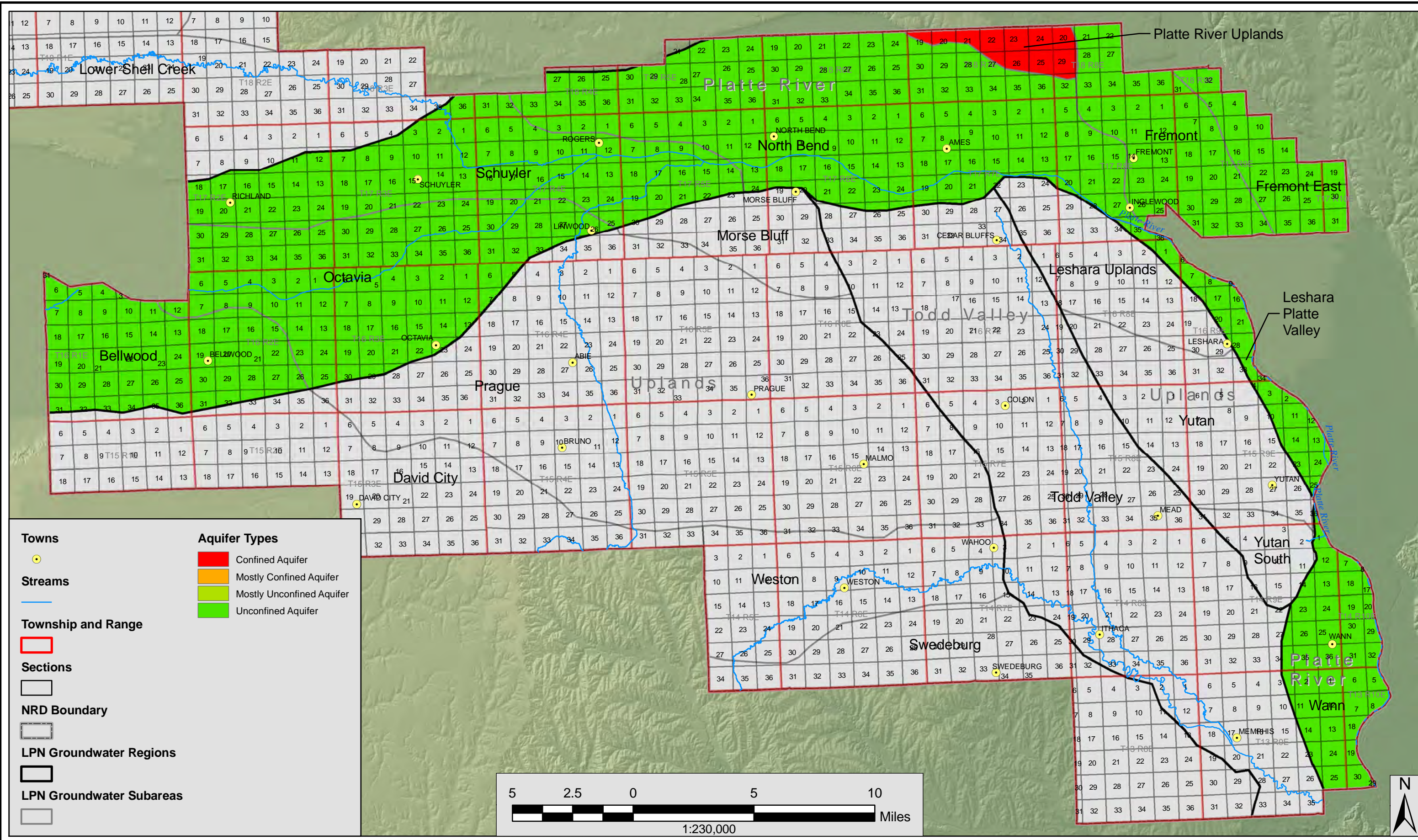
AQUIFER TYPES
 Lower Platte North Natural Resources District

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FIGURE
17.1



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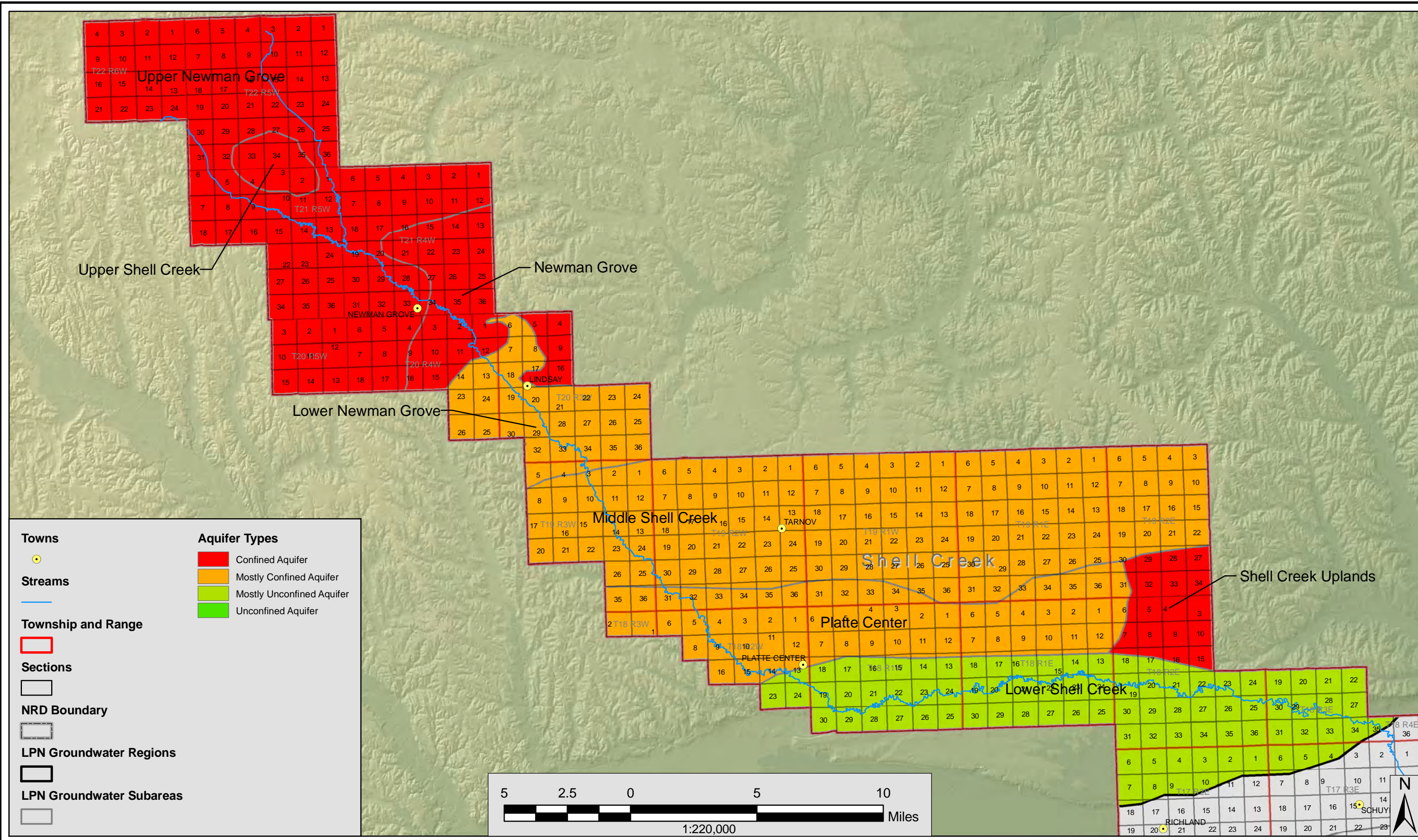
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 Date: 3/2/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Unpublished Data, 2008, CSD

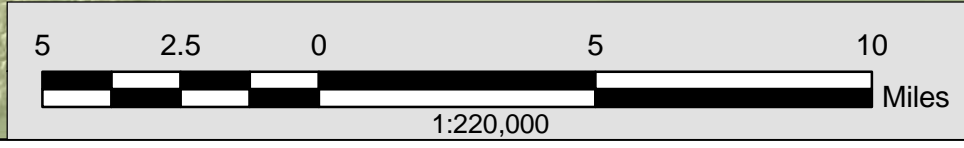
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FIGURE
17.2



Towns	Aquifer Types
	Confined Aquifer
Streams	Mostly Confined Aquifer
	Mostly Unconfined Aquifer
Township and Range	Unconfined Aquifer
Sections	
NRD Boundary	
LPN Groundwater Regions	
LPN Groundwater Subareas	



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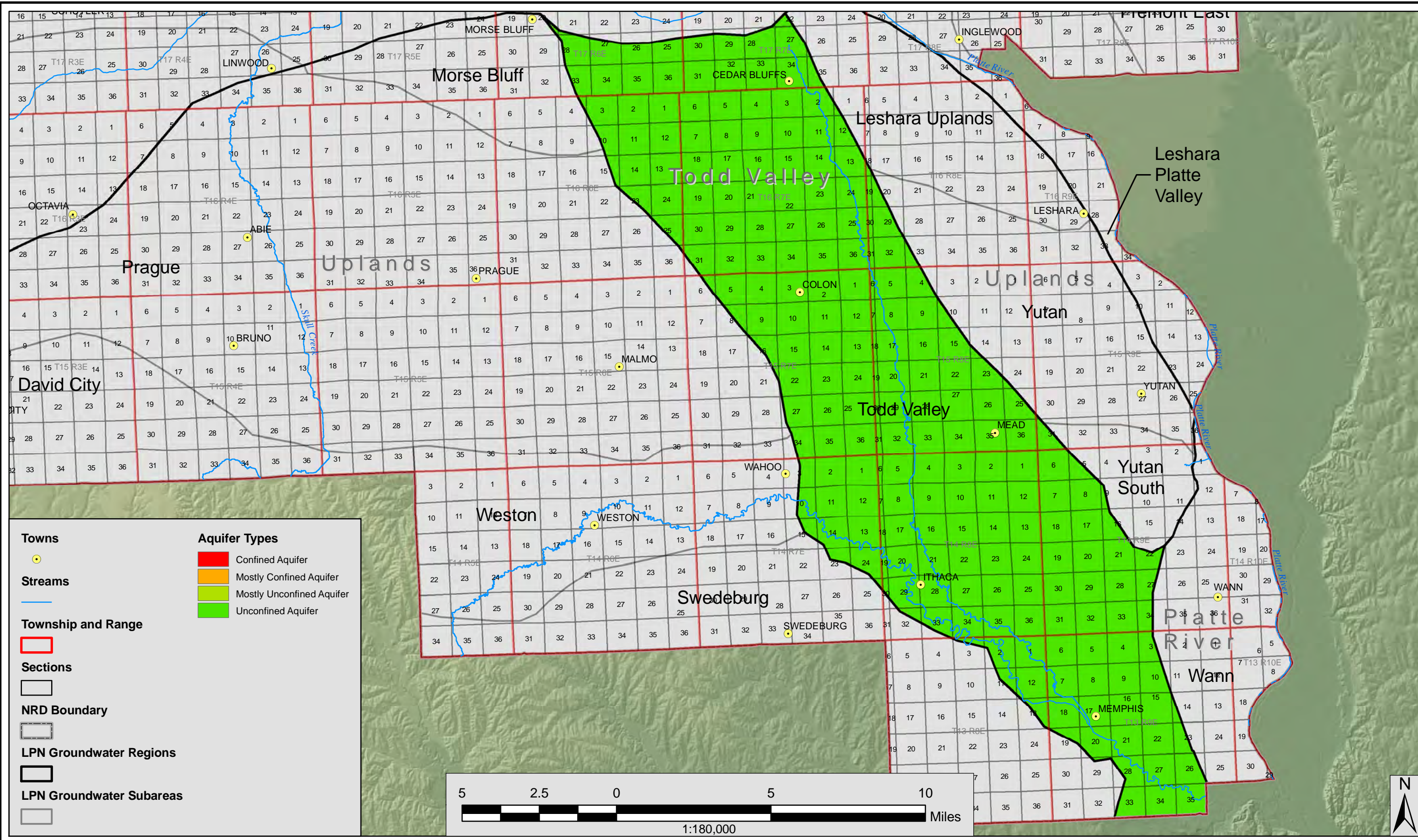
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FIGURE
17.3



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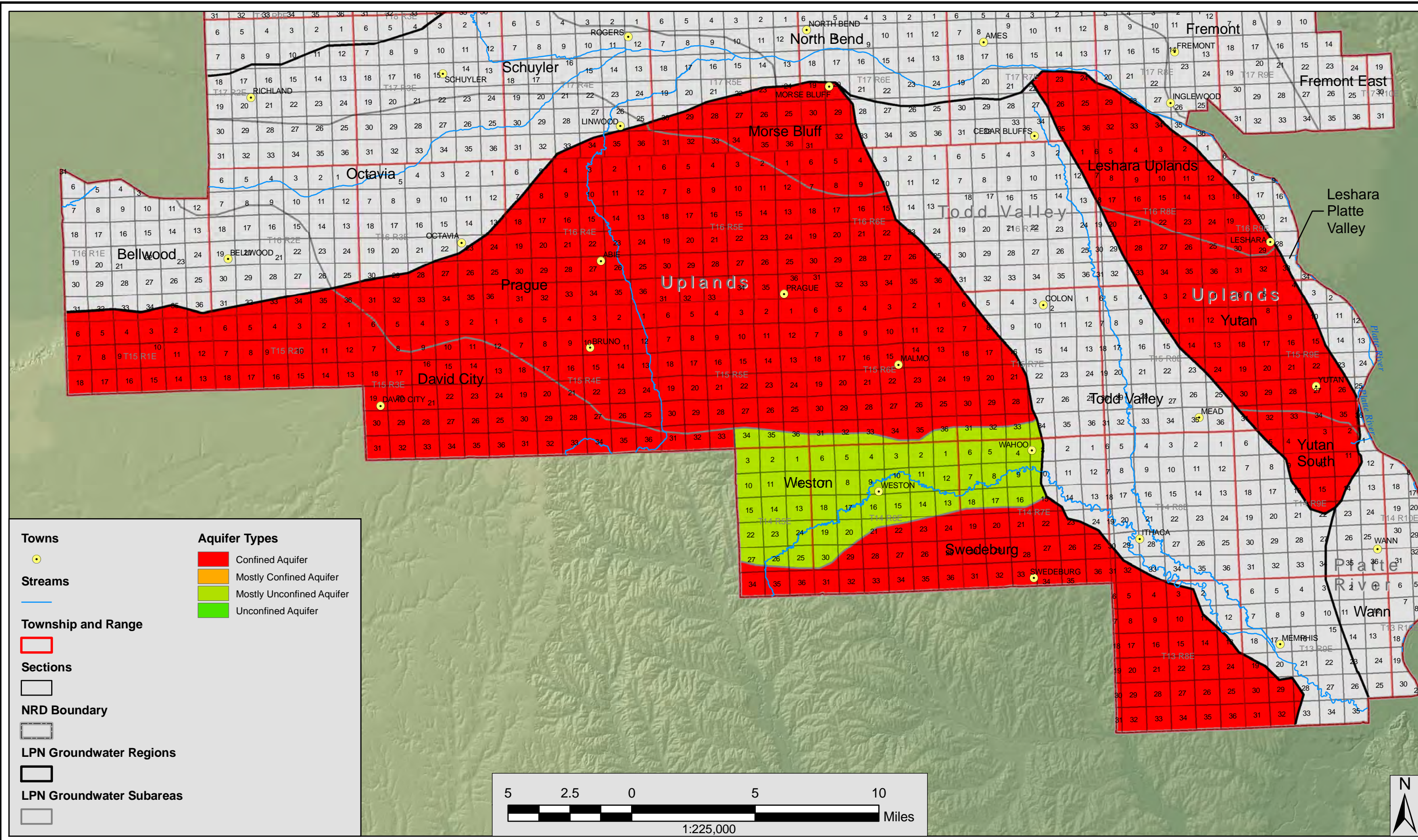
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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Unpublished Data, 2008, CSD

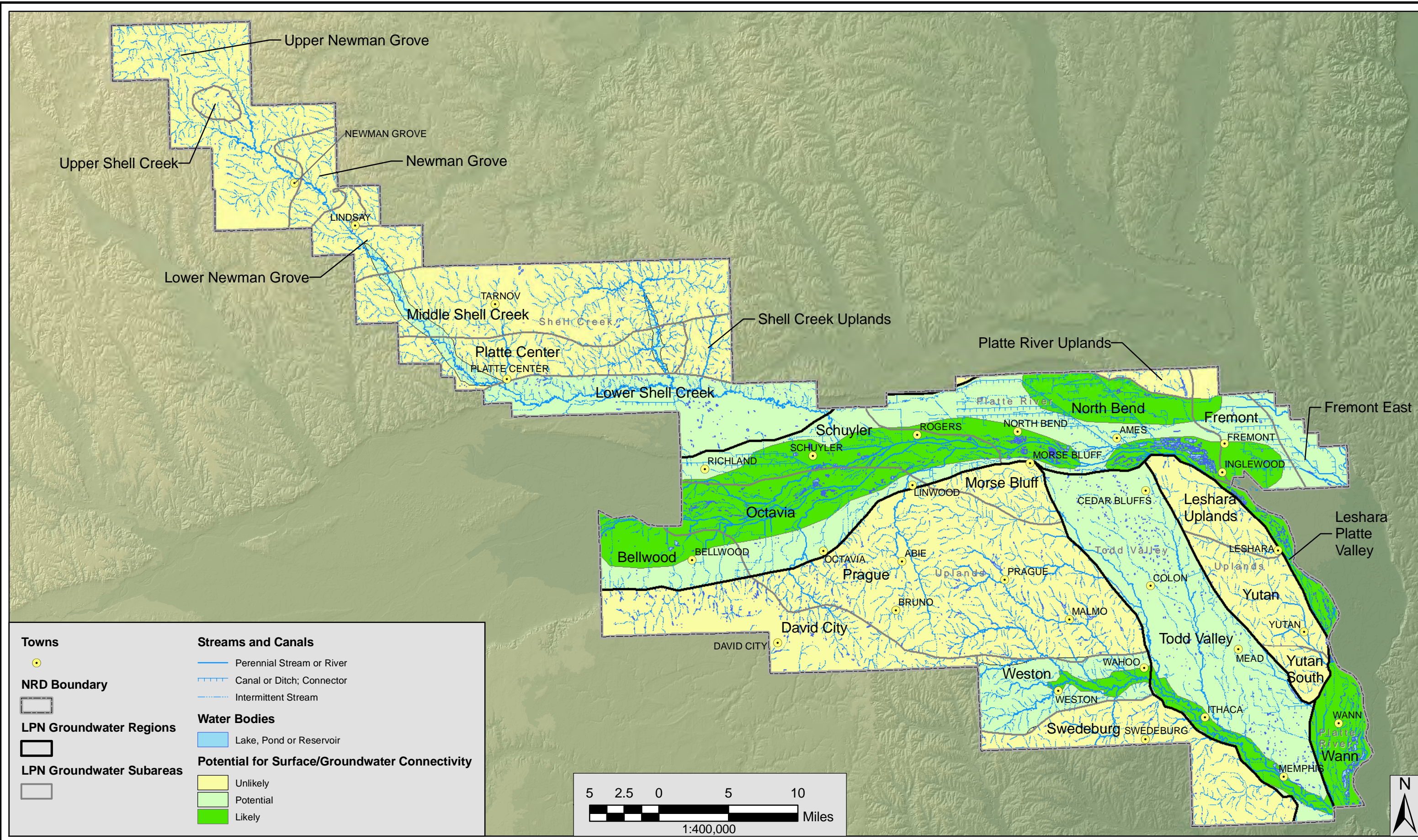
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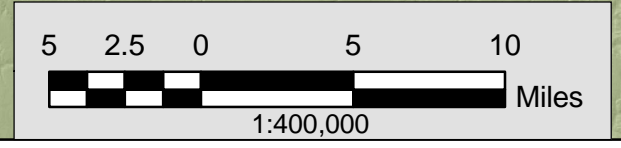
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FIGURE
17.5



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Towns	Streams and Canals
●	— Perennial Stream or River
NRD Boundary	--- Canal or Ditch; Connector
□	--- Intermittent Stream
LPN Groundwater Regions	Water Bodies
□	■ Lake, Pond or Reservoir
LPN Groundwater Subareas	Potential for Surface/Groundwater Connectivity
□	■ Unlikely
	■ Potential
	■ Likely



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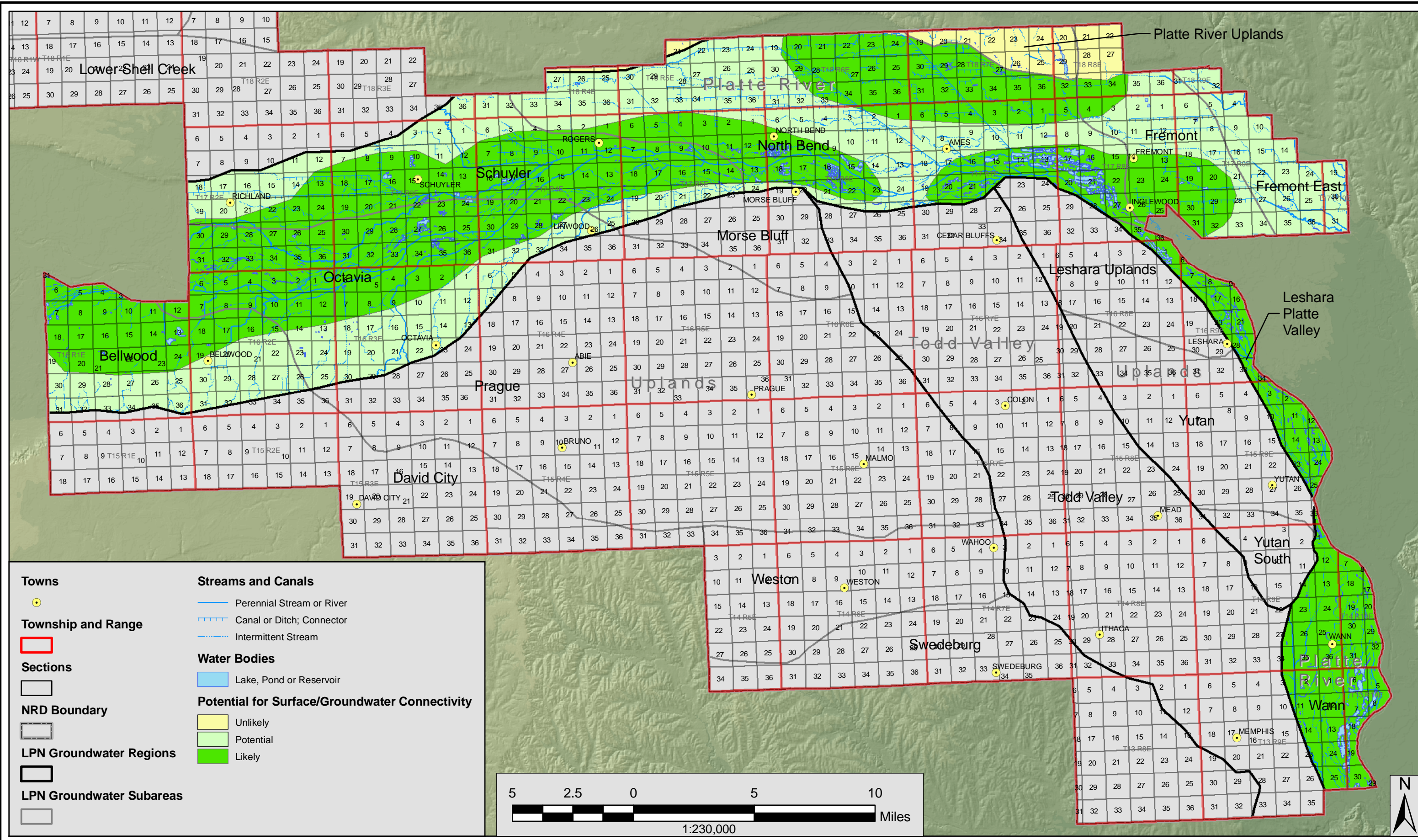
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Unpublished Data, 2008, CSD

Derivation: Mapped interpretations are based on assigning areas as "likely" where water table elevations were close to ground surface and water table configuration.

AQUIFER AND SURFACE WATER CONNECTIVITY
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FIGURE
18.1



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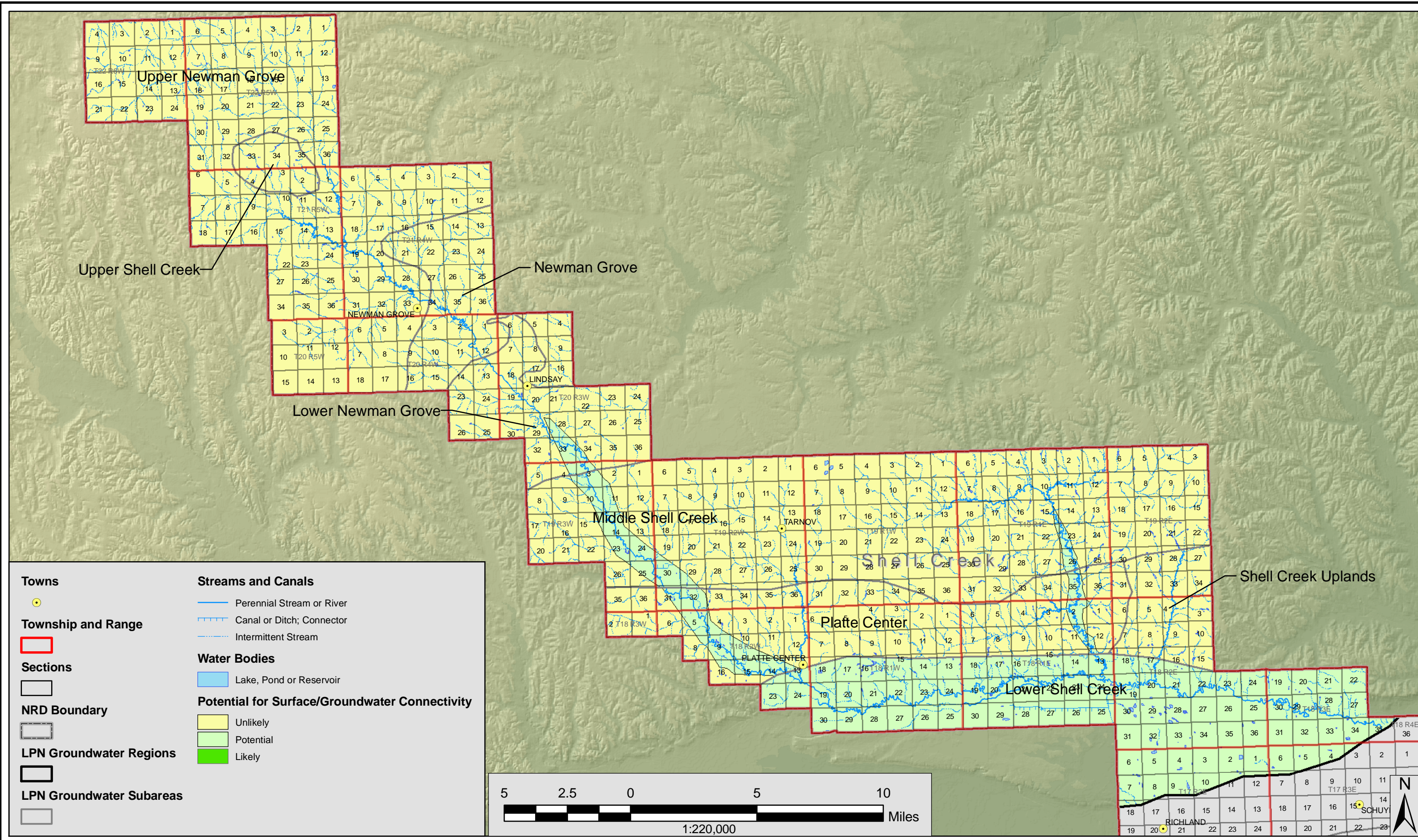
Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Unpublished Data, 2008, CSD

Derivation: Mapped interpretations are based on assigning areas as "likely" where water table elevations were close to ground surface and water table configuration.

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FIGURE
 18.2



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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Unpublished Data, 2008, CSD

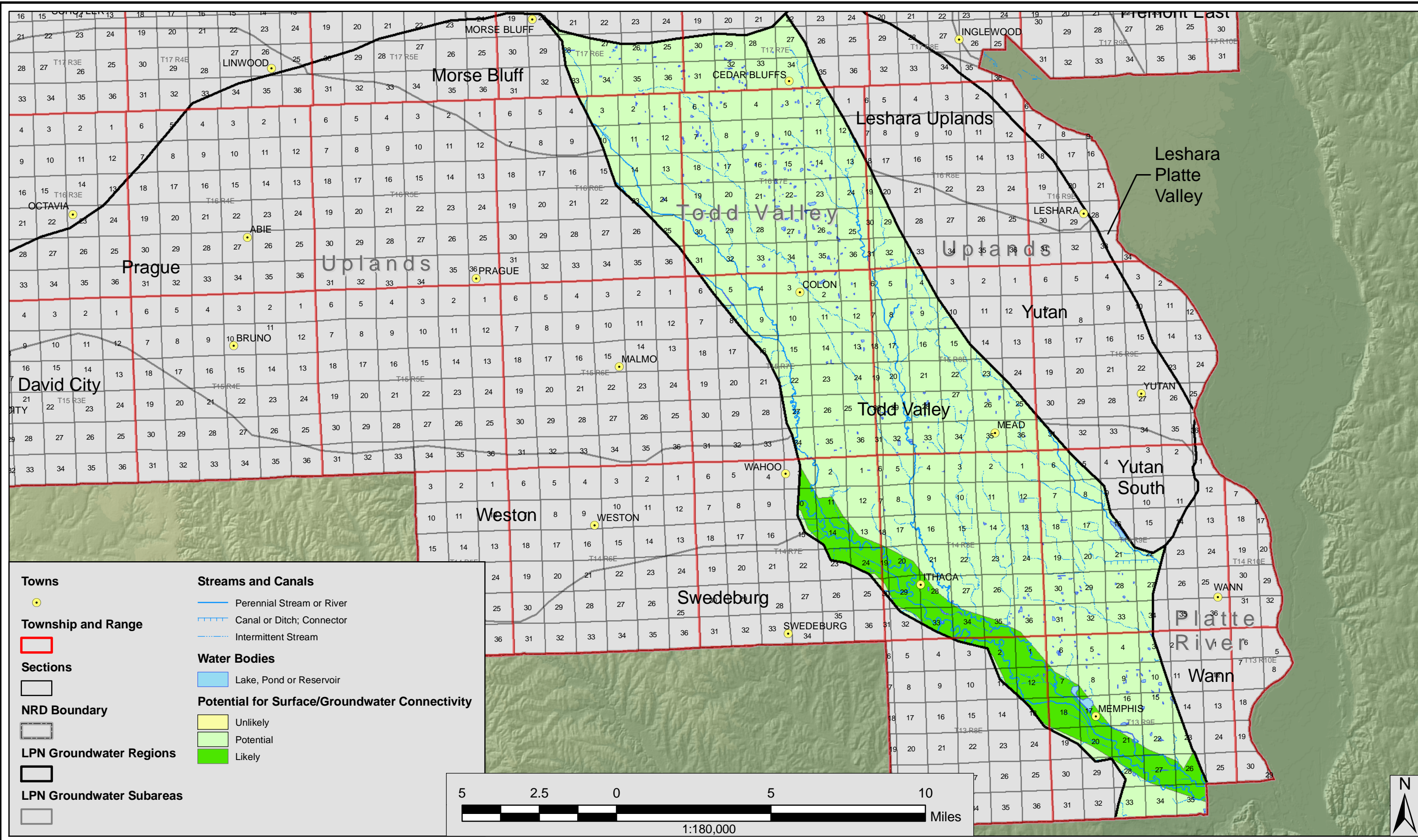
Derivation: Mapped interpretations are based on assigning areas as "likely" where water table elevations were close to ground surface and water table configuration.

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FIGURE
18.3



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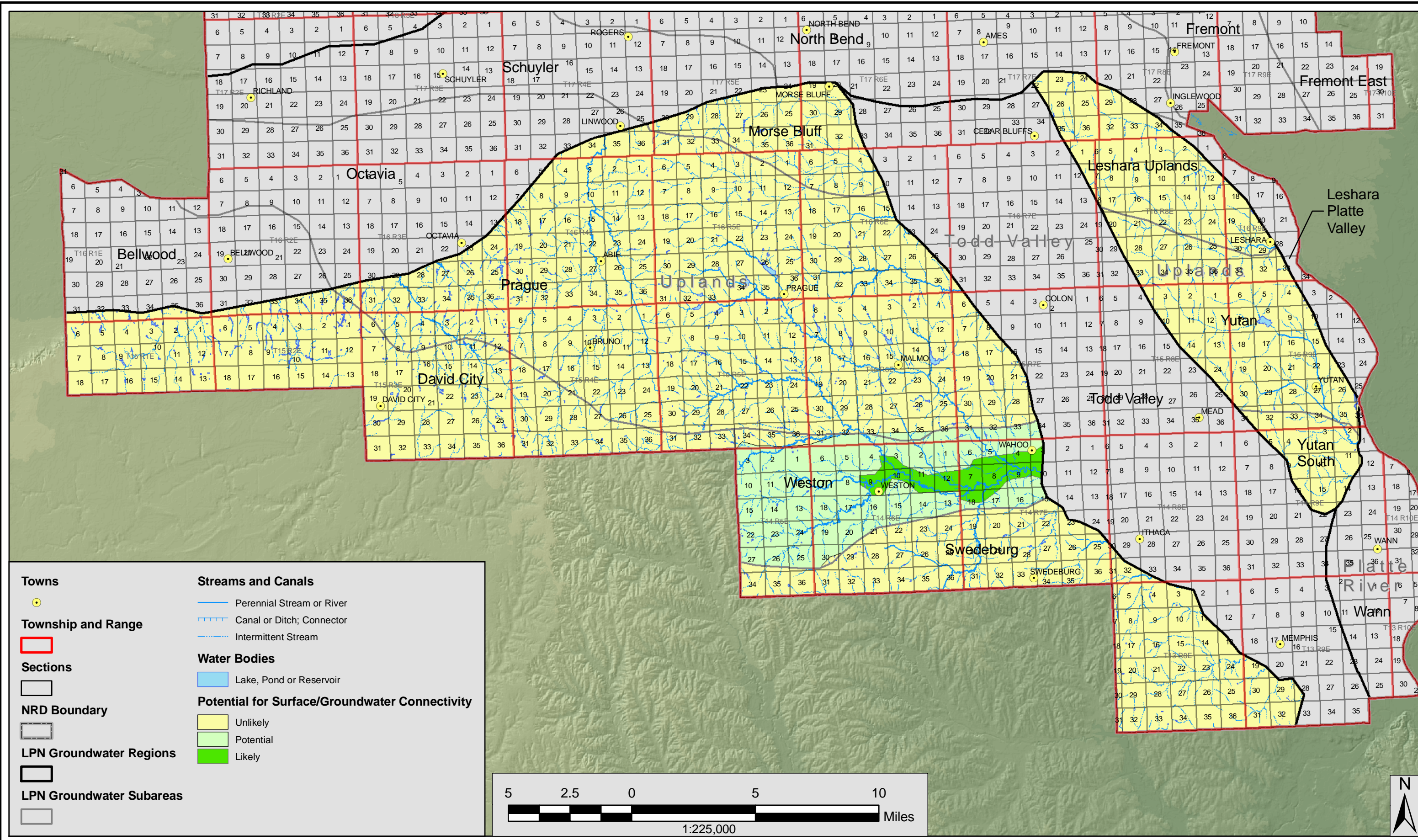
PROJECT: 007-0427
 DRAWN BY: RD
 Date: 3/9/2009

Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Unpublished Data, 2008, CSD

TODD VALLEY REGION AQUIFER AND SURFACE WATER CONNECTIVITY
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FIGURE
18.4



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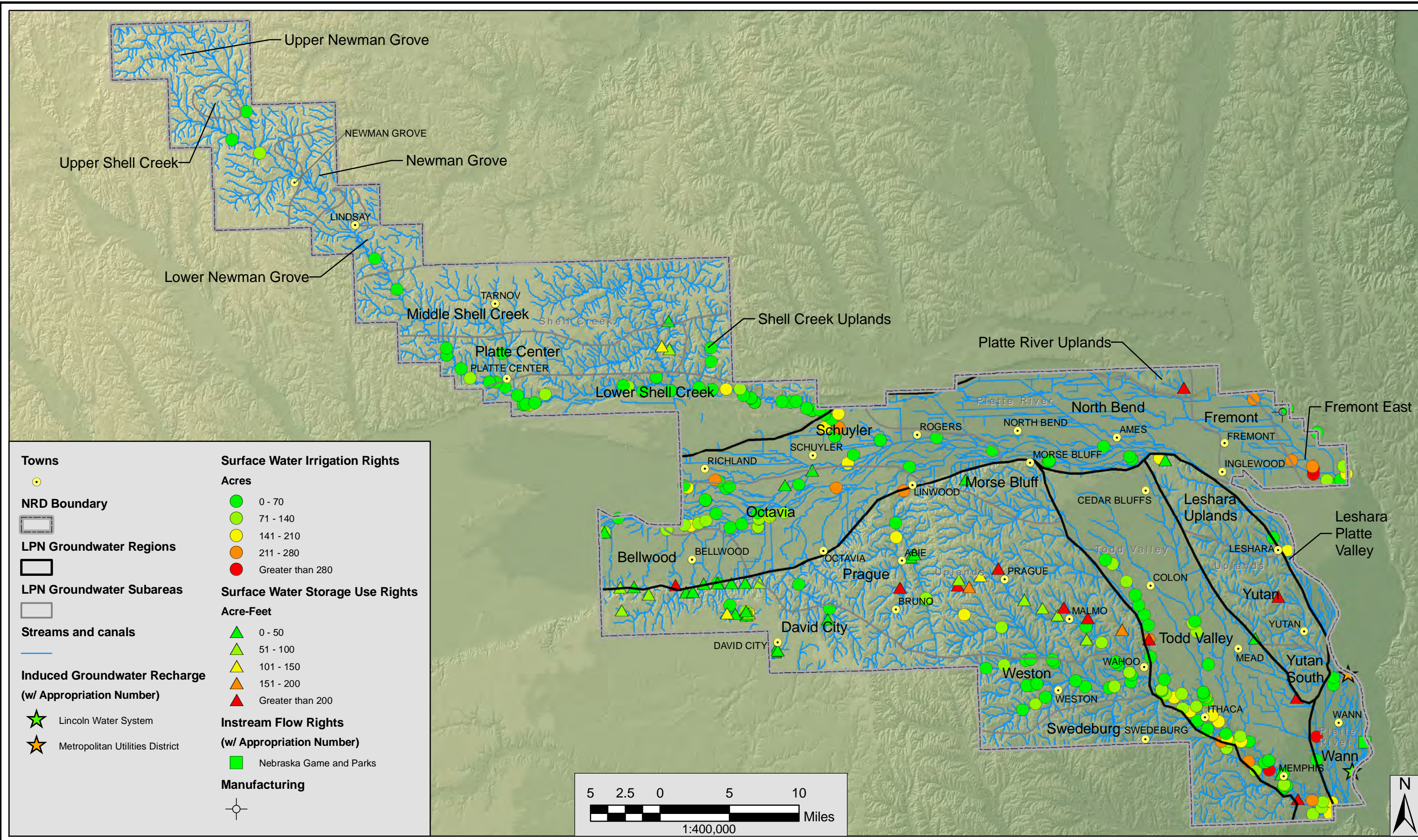
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UPLANDS REGION AQUIFER AND SURFACE WATER CONNECTIVITY Lower Platte North Natural Resources District

Derivation: Mapped interpretations are based on assigning areas as "likely" where water table elevations were close to ground surface and water table configuration.

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FIGURE
18.5



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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Surface Water Appropriations, 2008, DNR

SURFACE WATER APPROPRIATIONS
 Lower Platte North Natural Resources District

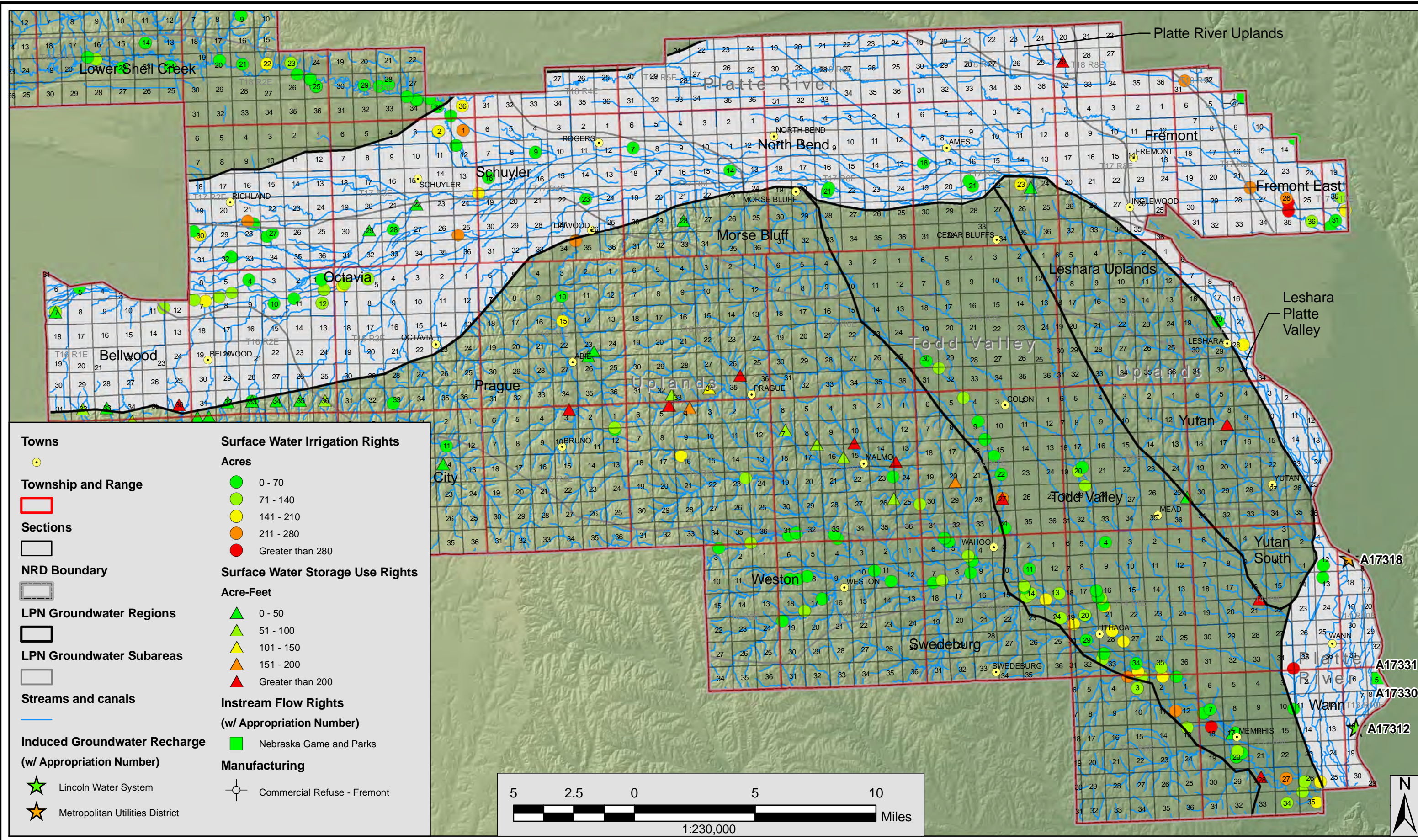
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FIGURE
 19.1

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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Surface Water Appropriations, 2008, DNR

PLATTE RIVER REGION SURFACE WATER APPROPRIATIONS
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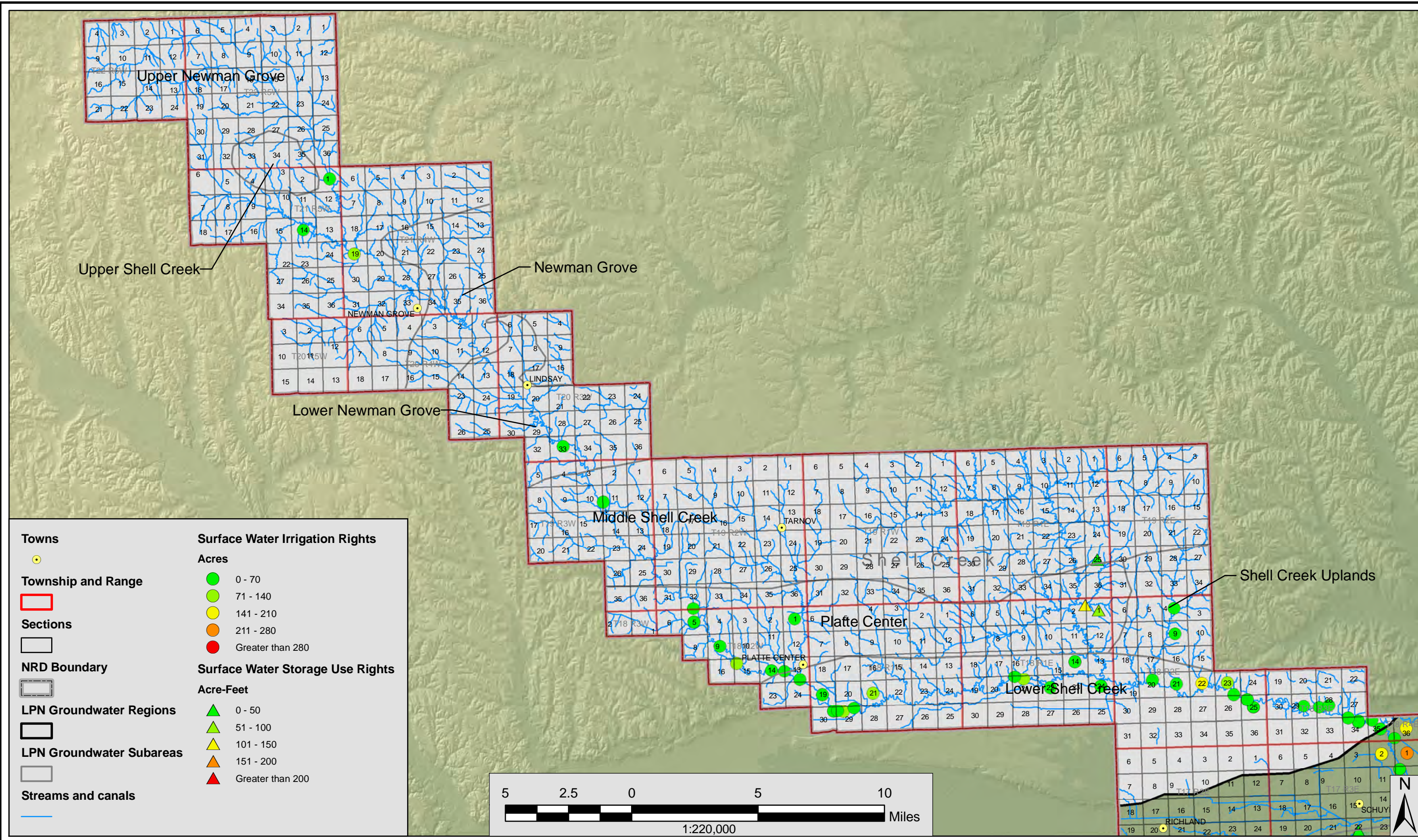


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FIGURE
19.2



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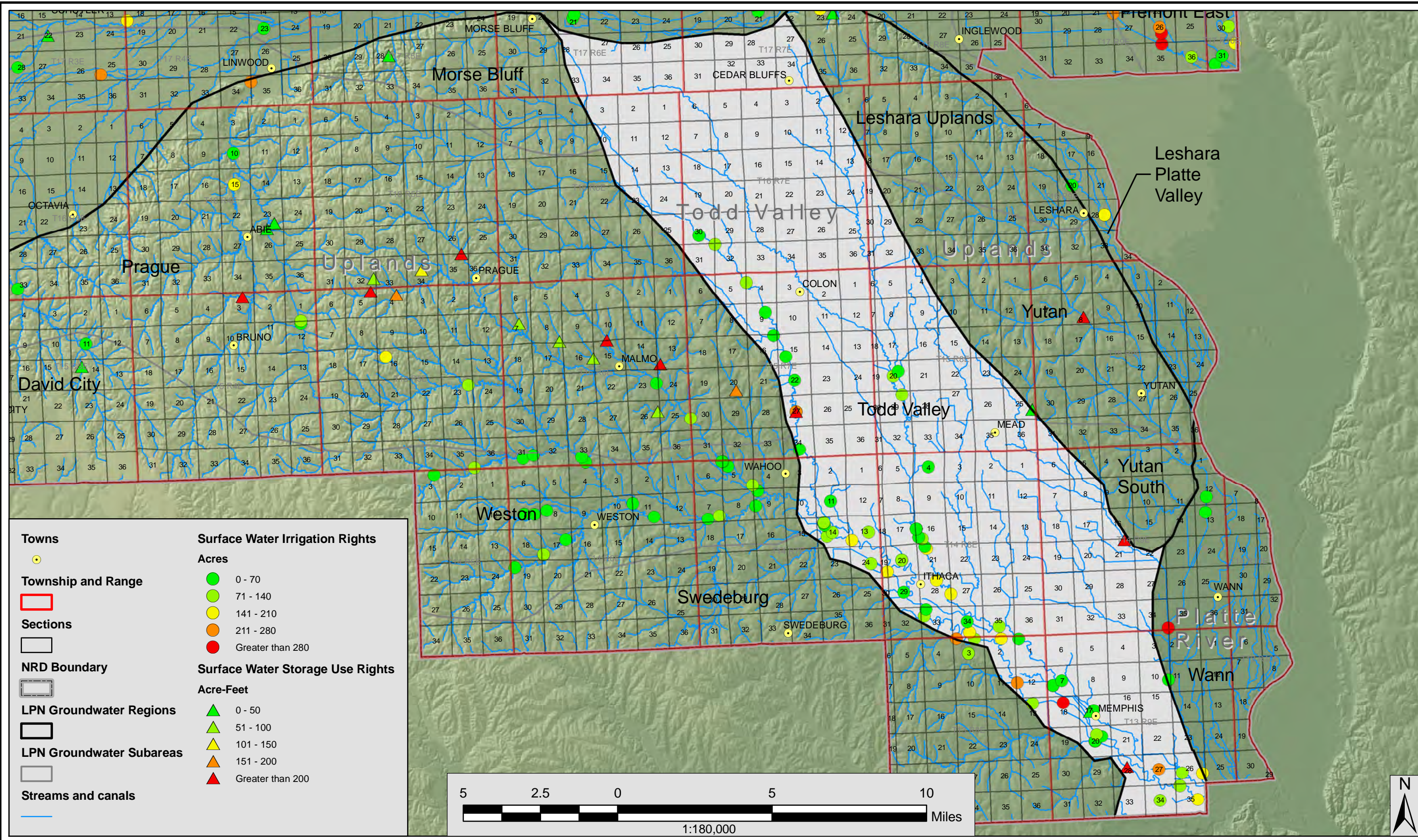
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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Surface Water Appropriations, 2008, DNR

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FIGURE 19.3



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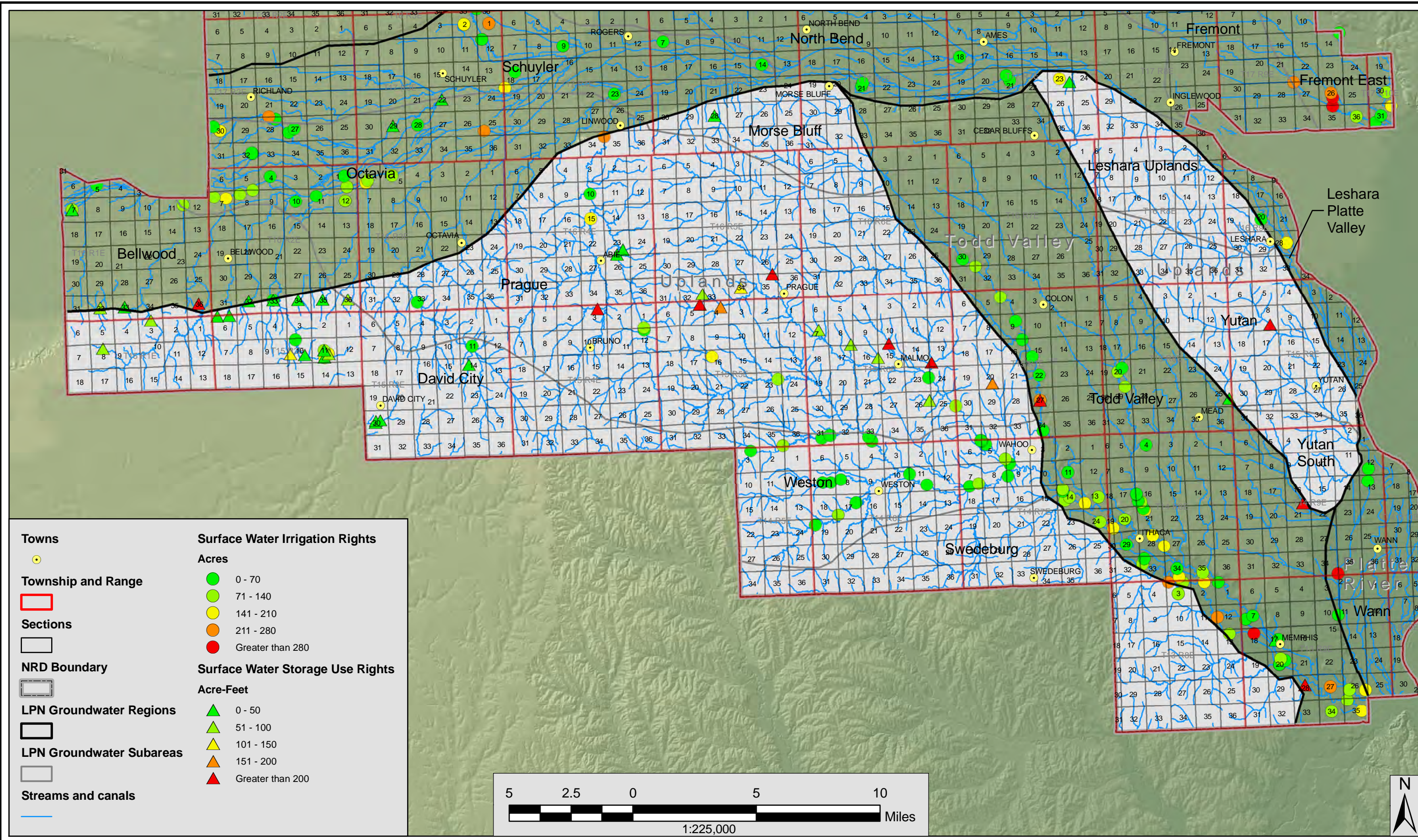
PROJECT: 007-0427
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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Surface Water Appropriations, 2008, DNR

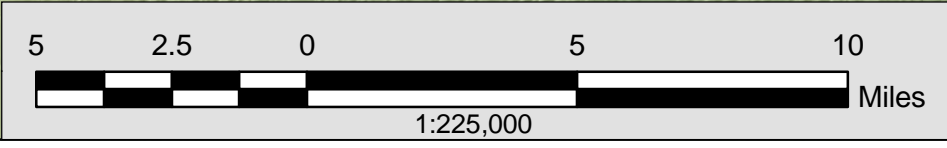
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FIGURE
 19.4



Towns	Surface Water Irrigation Rights
●	Acres
Township and Range	● 0 - 70
□	● 71 - 140
Sections	● 141 - 210
□	● 211 - 280
NRD Boundary	● Greater than 280
□	Surface Water Storage Use Rights
LPN Groundwater Regions	Acre-Feet
□	▲ 0 - 50
LPN Groundwater Subareas	▲ 51 - 100
□	▲ 101 - 150
Streams and canals	▲ 151 - 200
—	▲ Greater than 200



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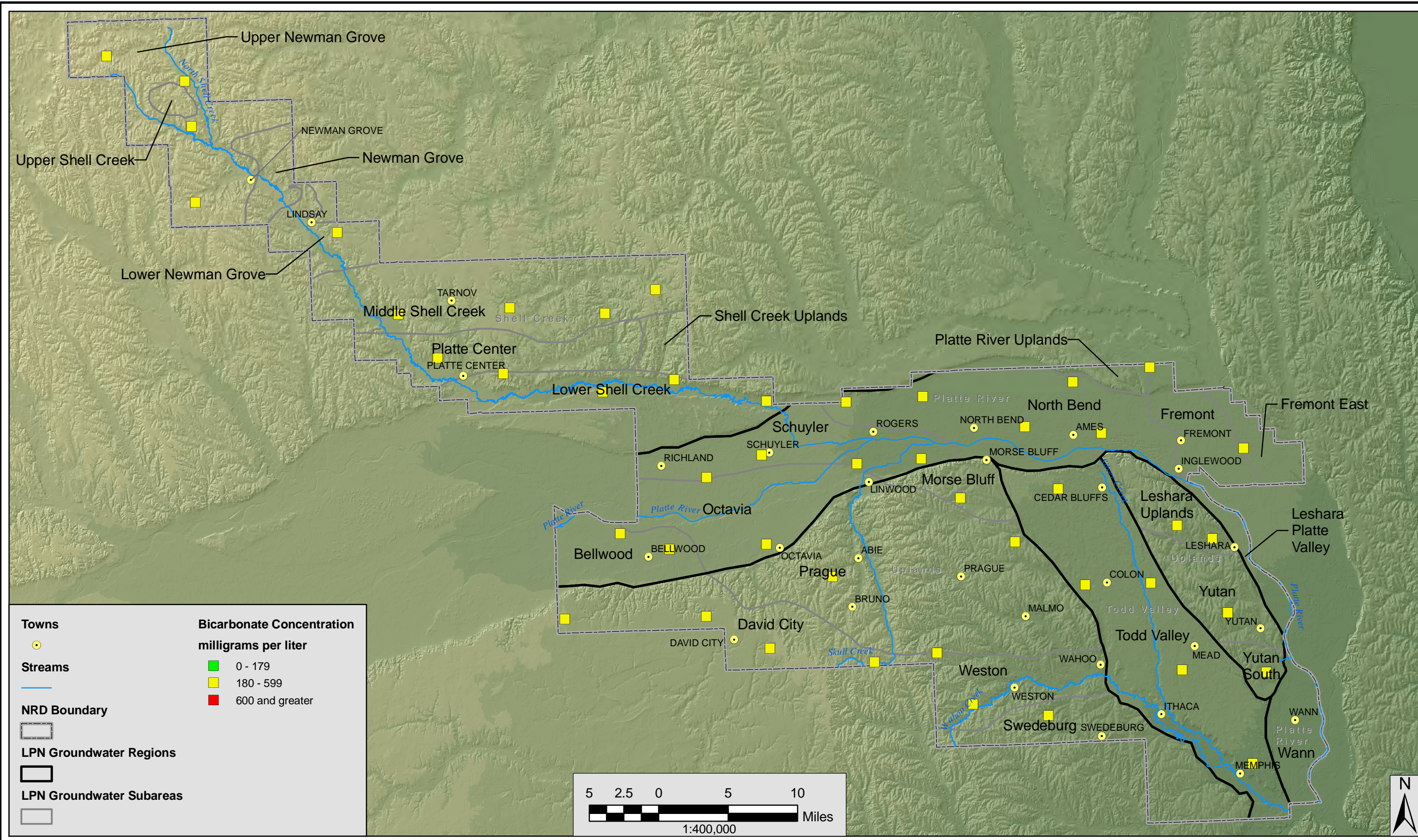
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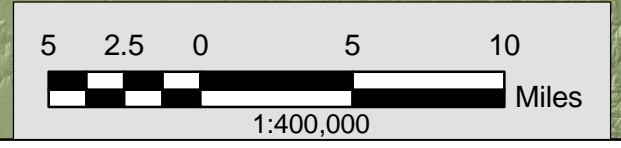
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FIGURE
19.5



Towns	Bicarbonate Concentration milligrams per liter
	0 - 179
Streams	180 - 599
	600 and greater
NRD Boundary	
LPN Groundwater Regions	
LPN Groundwater Subareas	



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PROJECT: 007-0427 Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Quality Database, 2008, LPN NRD

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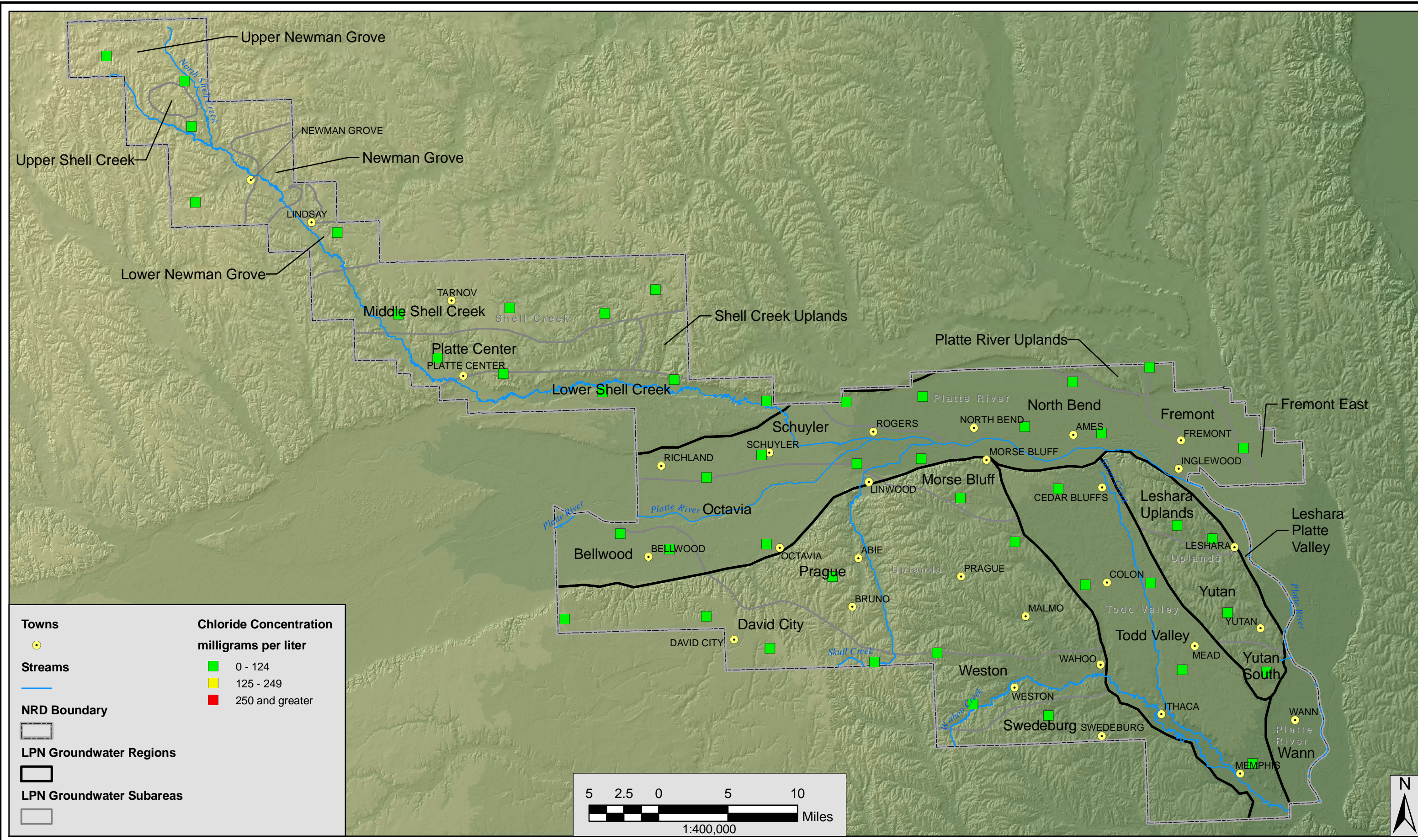
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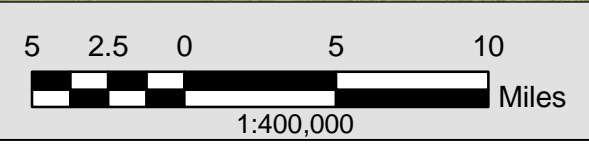
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FIGURE
20.1



Towns	
Streams	
NRD Boundary	
LPN Groundwater Regions	
LPN Groundwater Subareas	

Chloride Concentration milligrams per liter	
	0 - 124
	125 - 249
	250 and greater



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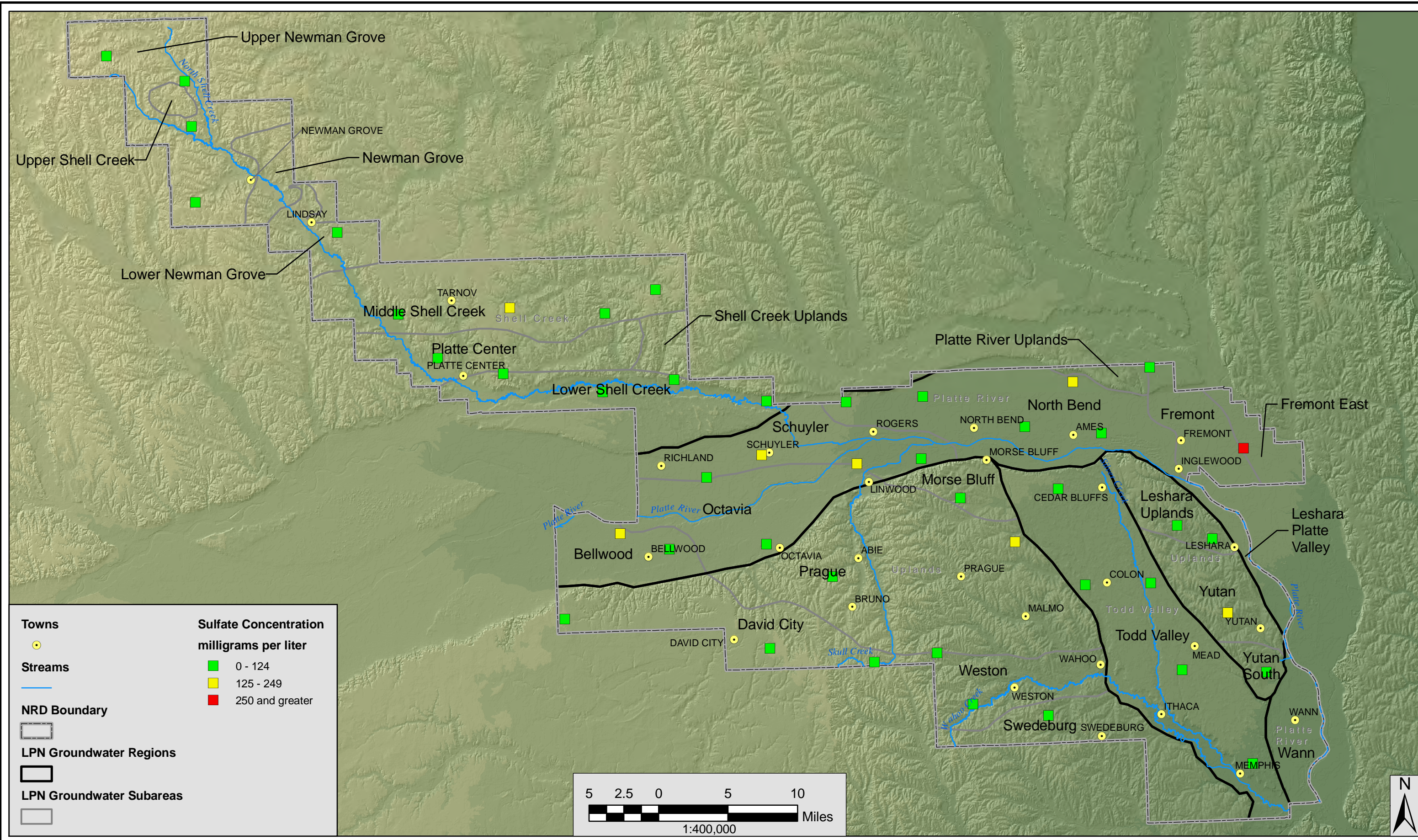
PROJECT: 007-0427	Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Quality Database, 2008, LPN NRD
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FIGURE
20.2



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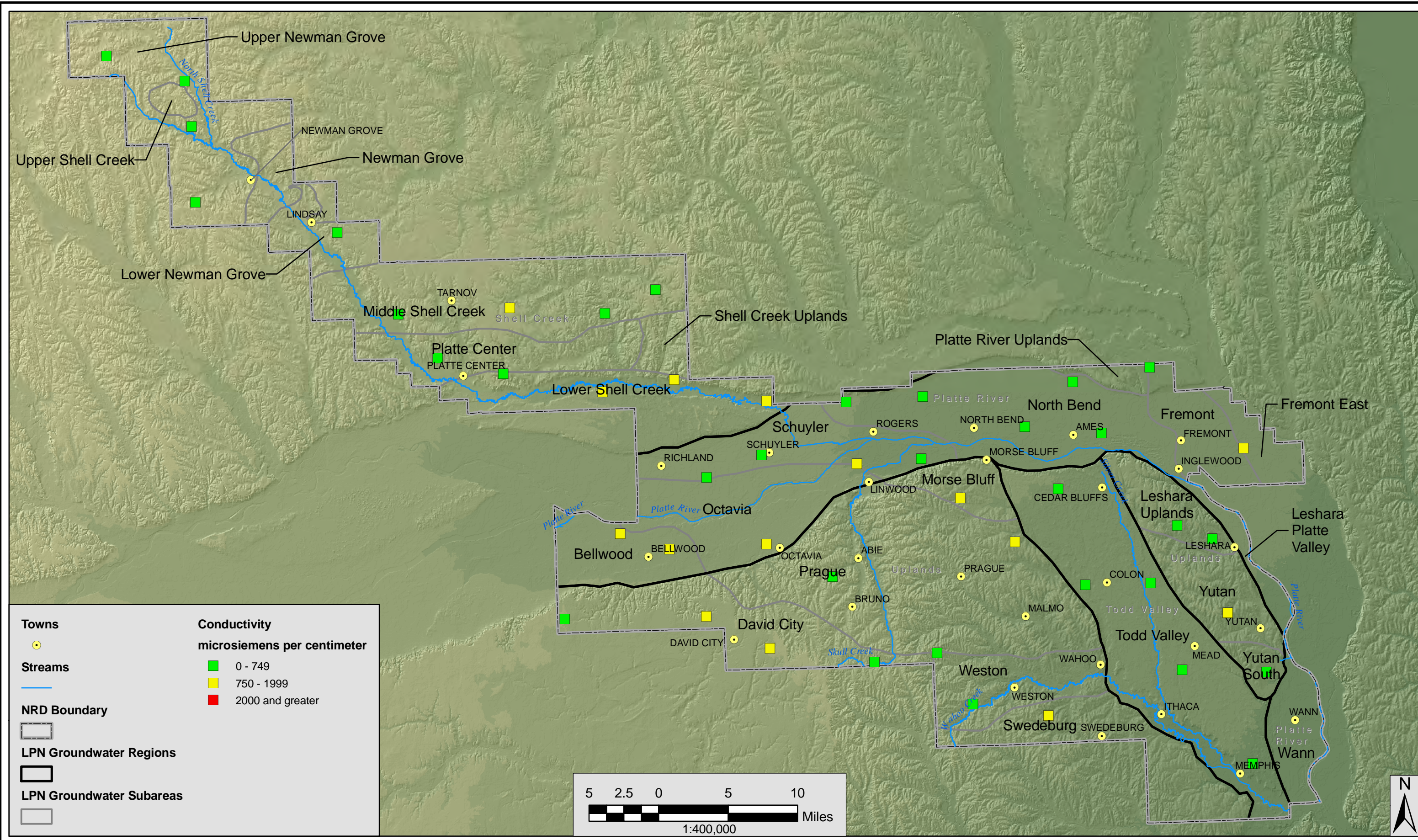
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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Water Quality Database, 2008, LPN NRD

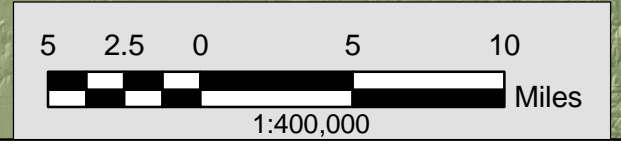
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FIGURE
20.3



Towns ●	Conductivity microsiemens per centimeter
Streams —	
NRD Boundary - - -	
LPN Groundwater Regions —	0 - 749
LPN Groundwater Subareas —	750 - 1999
	2000 and greater



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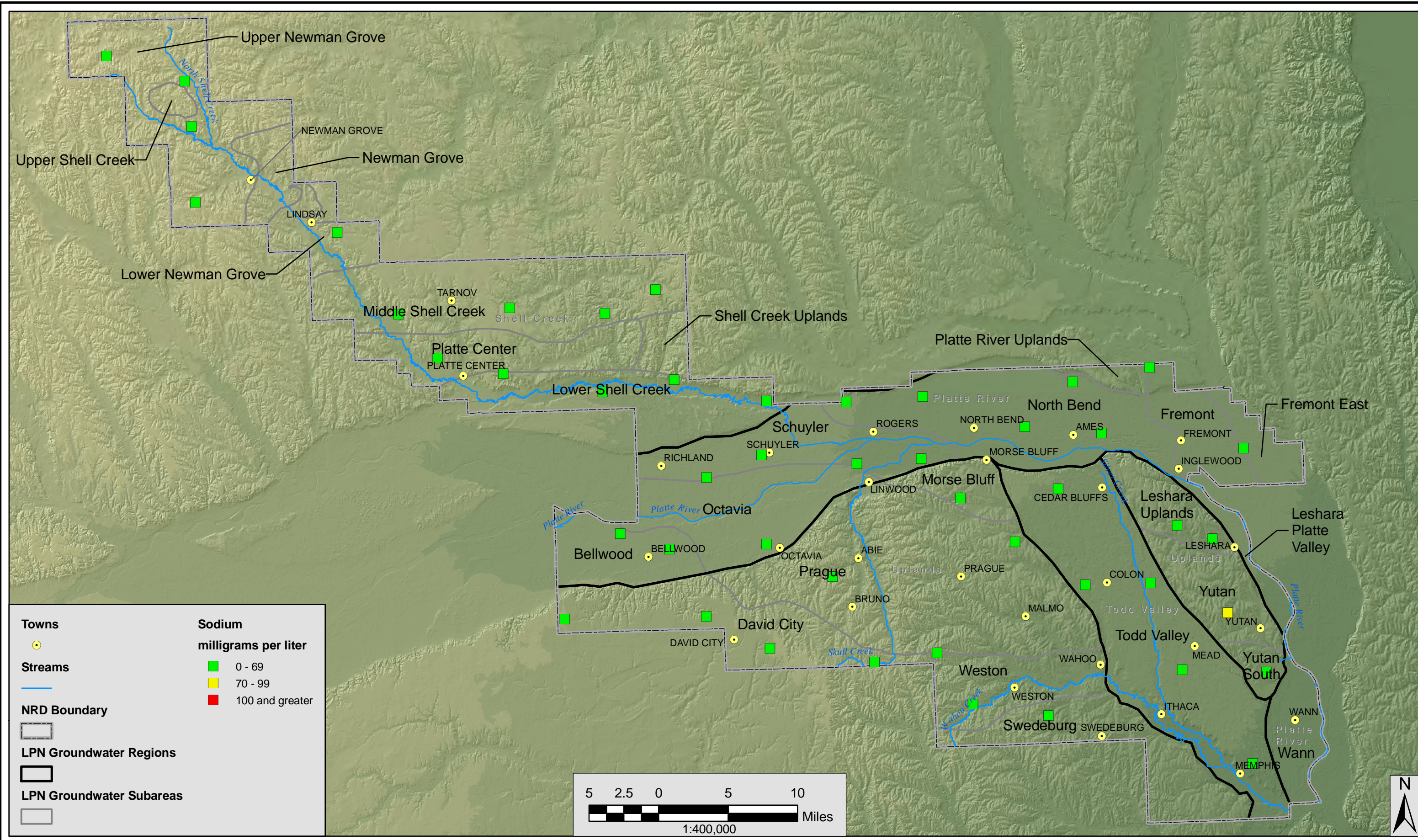
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FIGURE
20.4



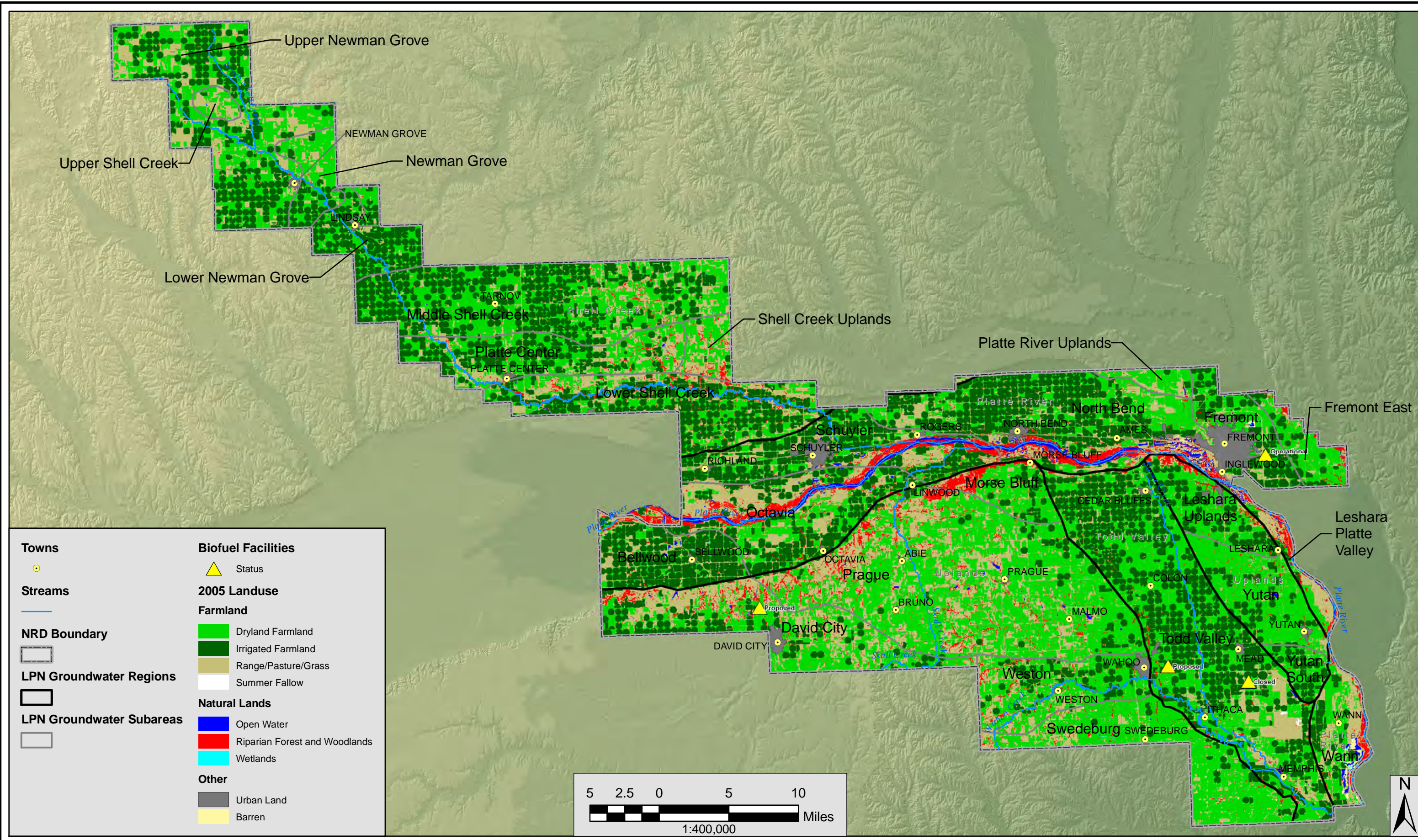
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Date: 10/22/2008	

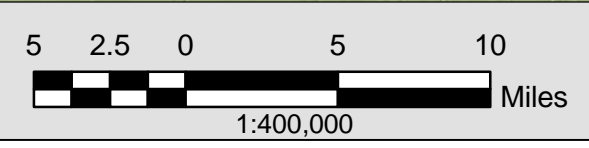
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FIGURE
20.5



Towns	Biofuel Facilities
●	▲ Status
Streams	2005 Landuse
—	Farmland
NRD Boundary	■ Dryland Farmland
□	■ Irrigated Farmland
LPN Groundwater Regions	■ Range/Pasture/Grass
□	■ Summer Fallow
LPN Groundwater Subareas	Natural Lands
□	■ Open Water
	■ Riparian Forest and Woodlands
	■ Wetlands
	Other
	■ Urban Land
	■ Barren



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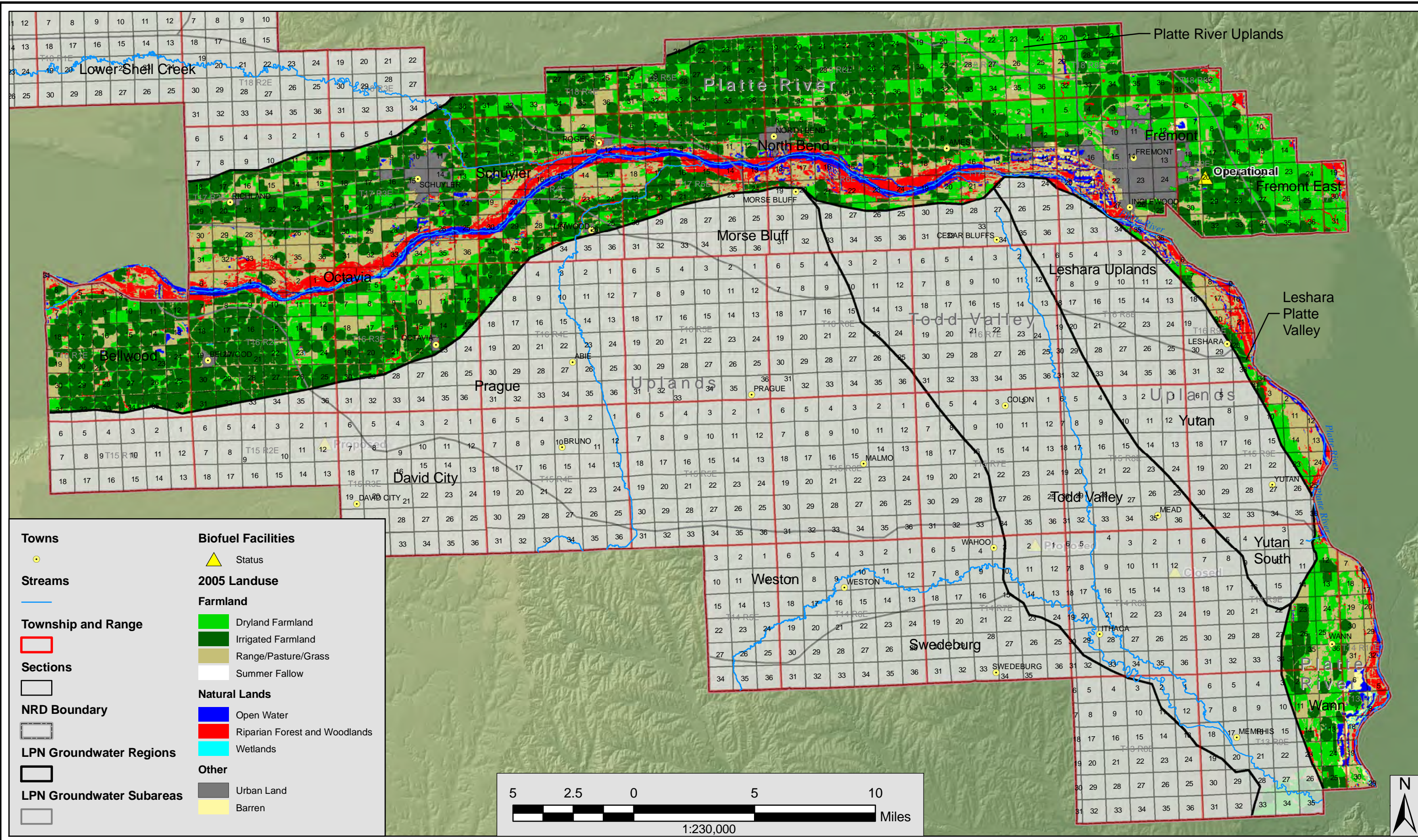
2005 LANDUSE
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FIGURE
21.1



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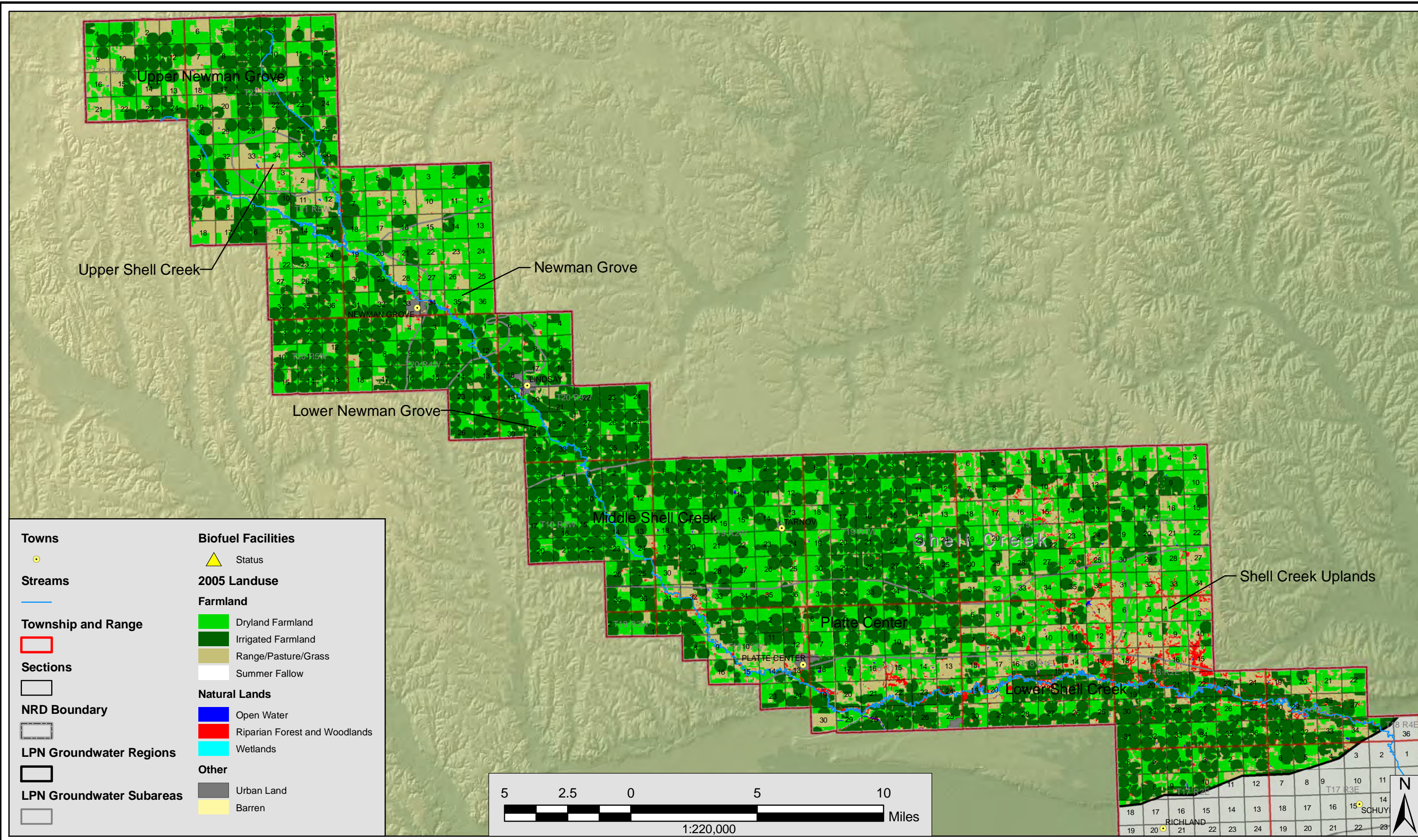
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Source: Towns, 1996, CSD; Streams, 2007, CSD; NRD Boundary, 2007, CSD; Elevation, 1998, USGS; Range-Township, 1996, CSD; Landuse, 2005, CALMIT; Planned, Proposed, Permitted and Operating Ethanol Plants, 2007, DEQ

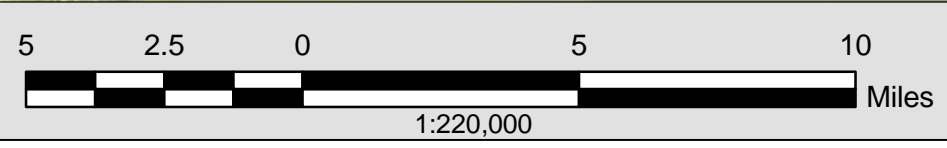
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FIGURE
 21.2



Towns	Biofuel Facilities
●	▲ Status
Streams	2005 Landuse
—	Farmland
Township and Range	■ Dryland Farmland
□	■ Irrigated Farmland
Sections	■ Range/Pasture/Grass
□	■ Summer Fallow
NRD Boundary	Natural Lands
□	■ Open Water
LPN Groundwater Regions	■ Riparian Forest and Woodlands
□	■ Wetlands
LPN Groundwater Subareas	Other
□	■ Urban Land
□	■ Barren



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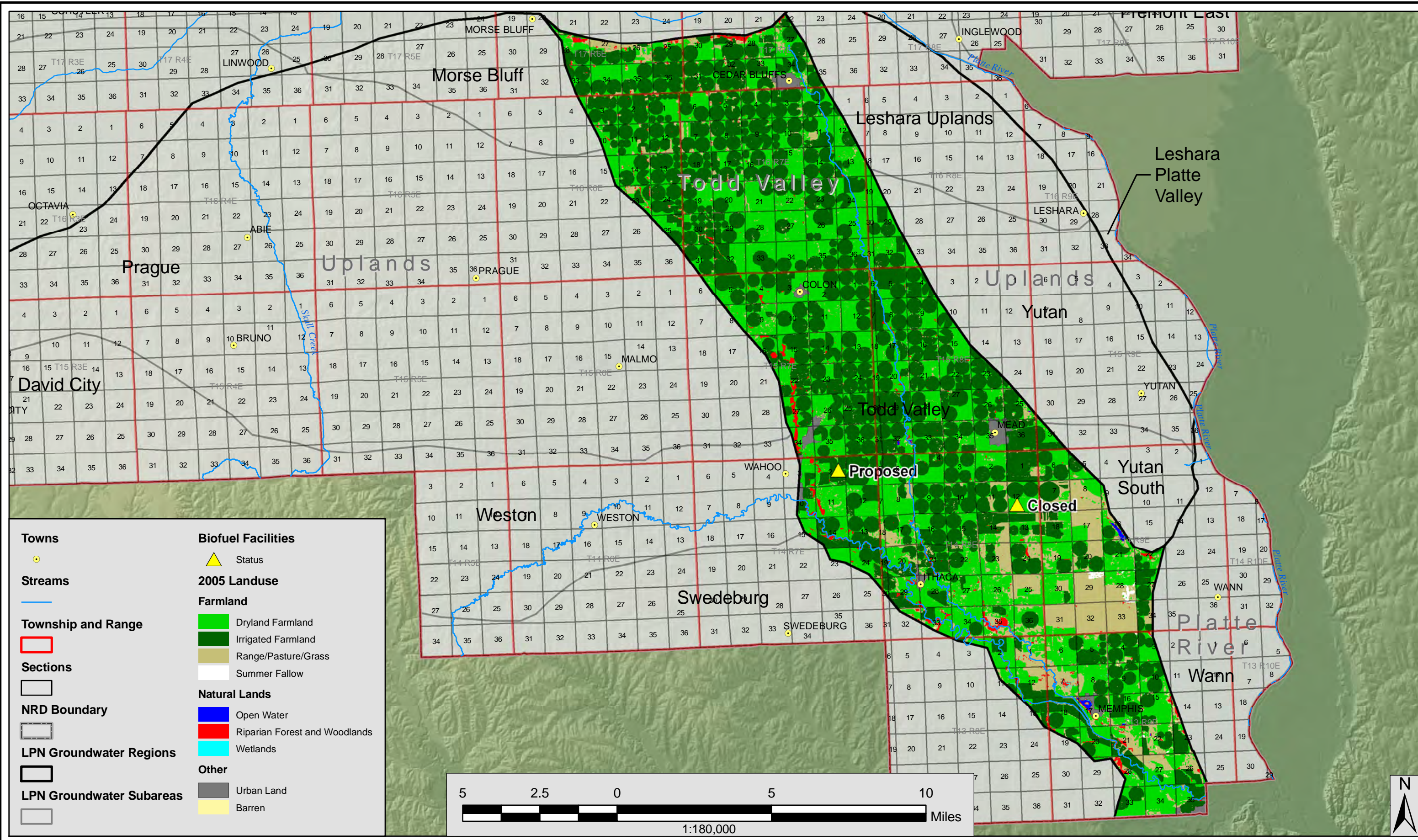
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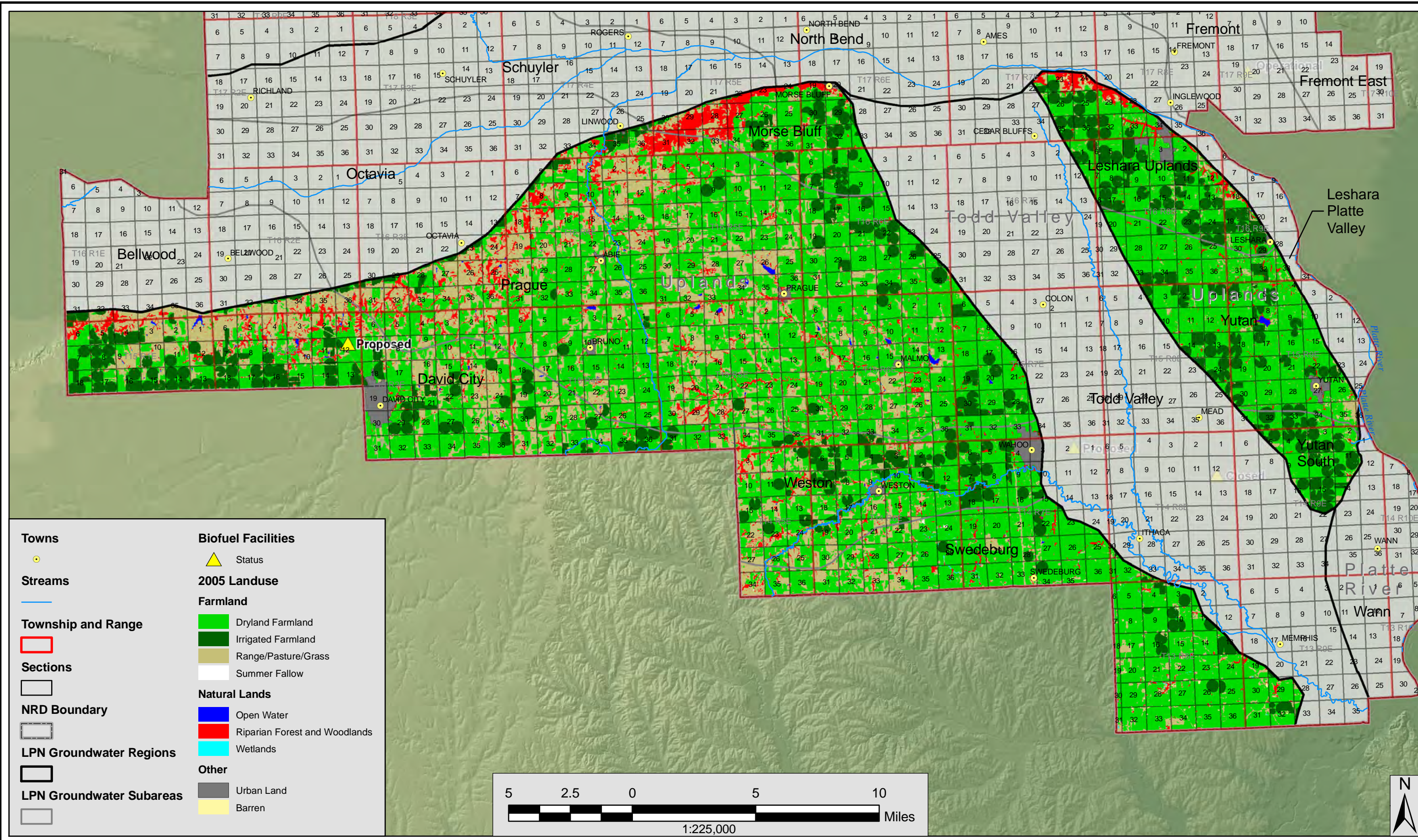
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FIGURE
21.4



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UPLANDS REGION 2005 LANDUSE
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FIGURE
 21.5

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