

# House Government Efficiency Committee

## Geographic Information Systems (GIS)

**Governor Jim Geringer**

former Wyoming Governor and Legislator

**Ivan Weichert**

Kansas GIS Director

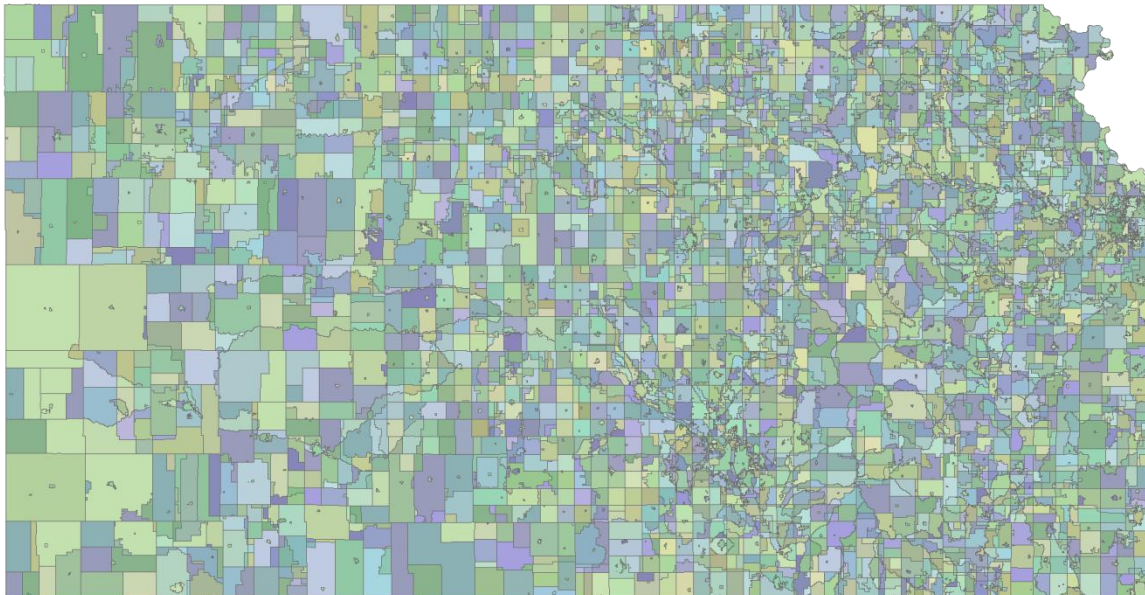
**Ken Nelson, Manager**

Kansas Data Access & Support Center

January 17, 2012

## Project Highlight – Kansas Statewide Tax Units Database

- A collaborative project between the Kansas Department of Revenue-Property Valuation Division, DASC, and Kansas County Clerks
- Goals:
  1. Create a seamless, statewide GIS database of tax unit boundaries
  2. Streamline the process for reporting tax unit boundary changes to the state
  3. Make the GIS data publically-available
  4. Create other derivative products from the base tax units data...tax units are the building blocks of several administrative boundary layers at the local government level



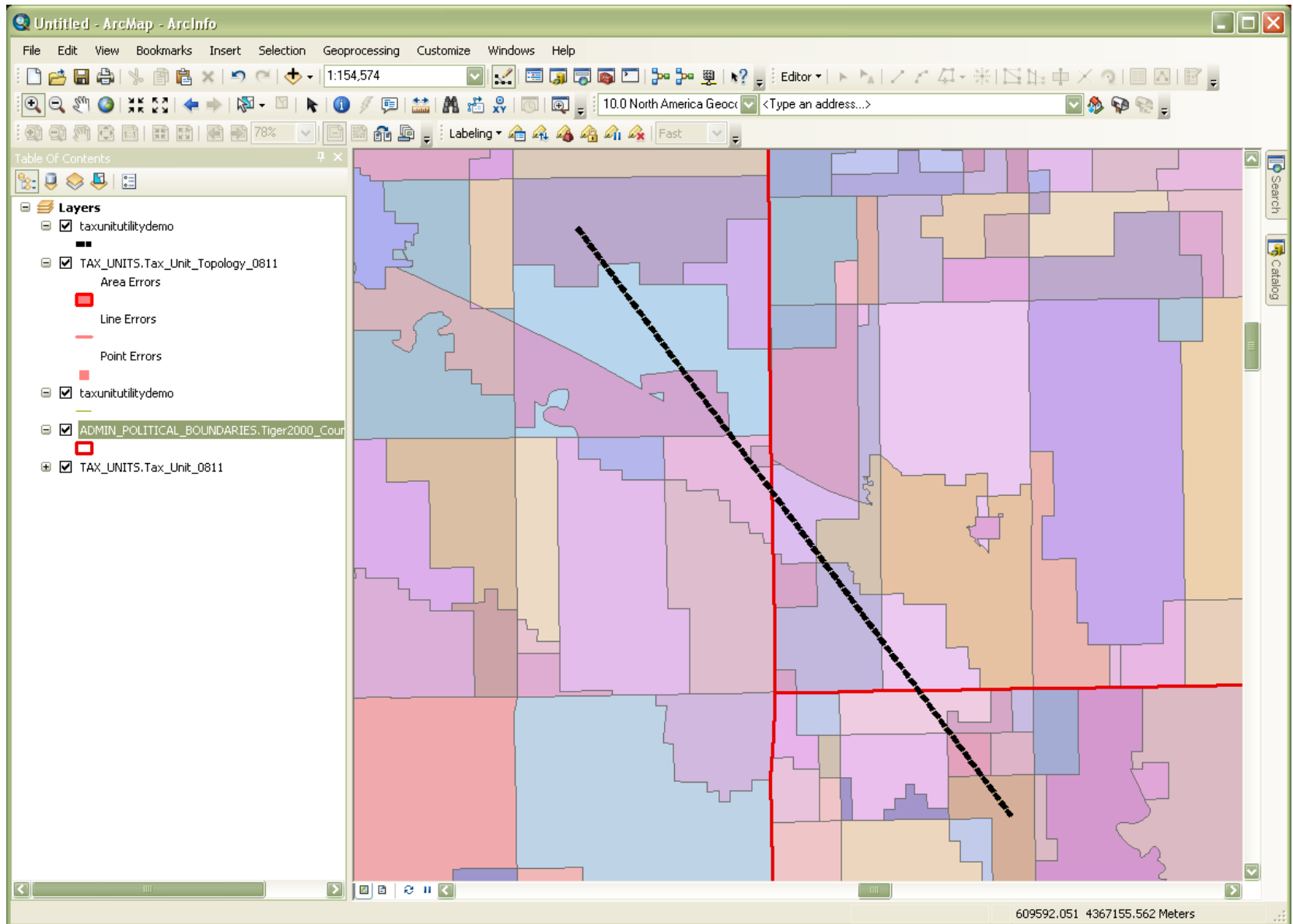
## Project Highlight – Kansas Statewide Tax Units Database

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- In 2009 we developed a three year implementation plan for the tax units project:
  - 2009 – acquire available digital data, develop editing and maintenance workflows, provide training for PVD staff, attend PVD training provided to County Clerks, edit test counties & verify maintenance workflows
  - 2010 – develop the baseline dataset (the first statewide digital file), acquire updates from county clerks (both in digital and paper forms), **not** integrated into the Clerks annual tax unit certification process
    - Results: Participation from all 105 counties, the first statewide digital GIS file was completed November 2010 and was used to support the annual certification process
  - 2011 - Process integrated into the Clerks annual tax unit certification process, eliminated the need to submit paper maps to KDOR/PVD
    - Results: Participation from all 105 counties, the 2<sup>nd</sup> statewide digital GIS files was released on the DASC web site in the Spring, of 2011, revisions were released as necessary to reflect annexations and changes in school district boundaries
  - 2012 – Certifications in process

# Project Highlight – Kansas Statewide Tax Units Database

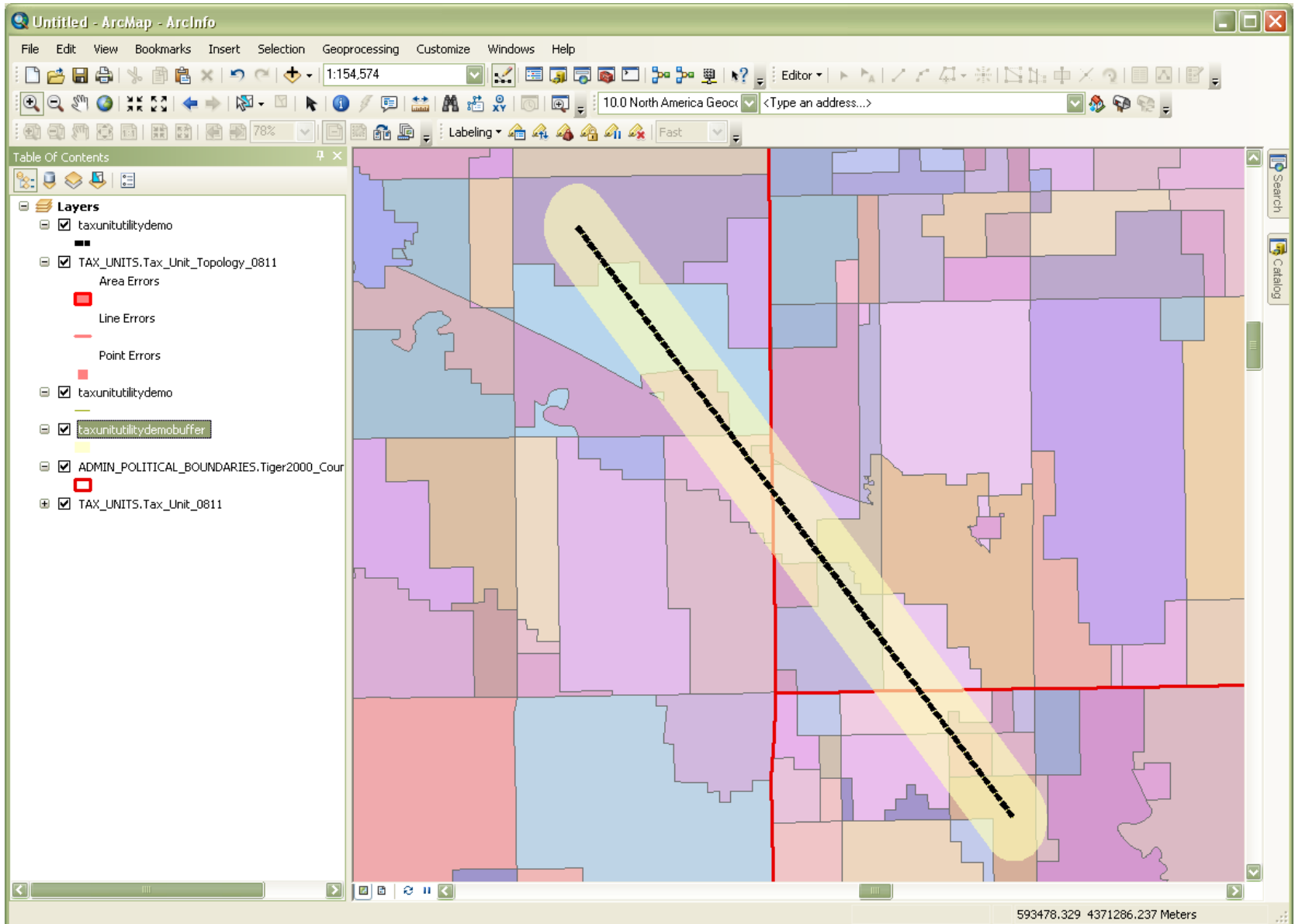
## GIS Analysis - Tax Units & Utility Pipeline Overlay Example





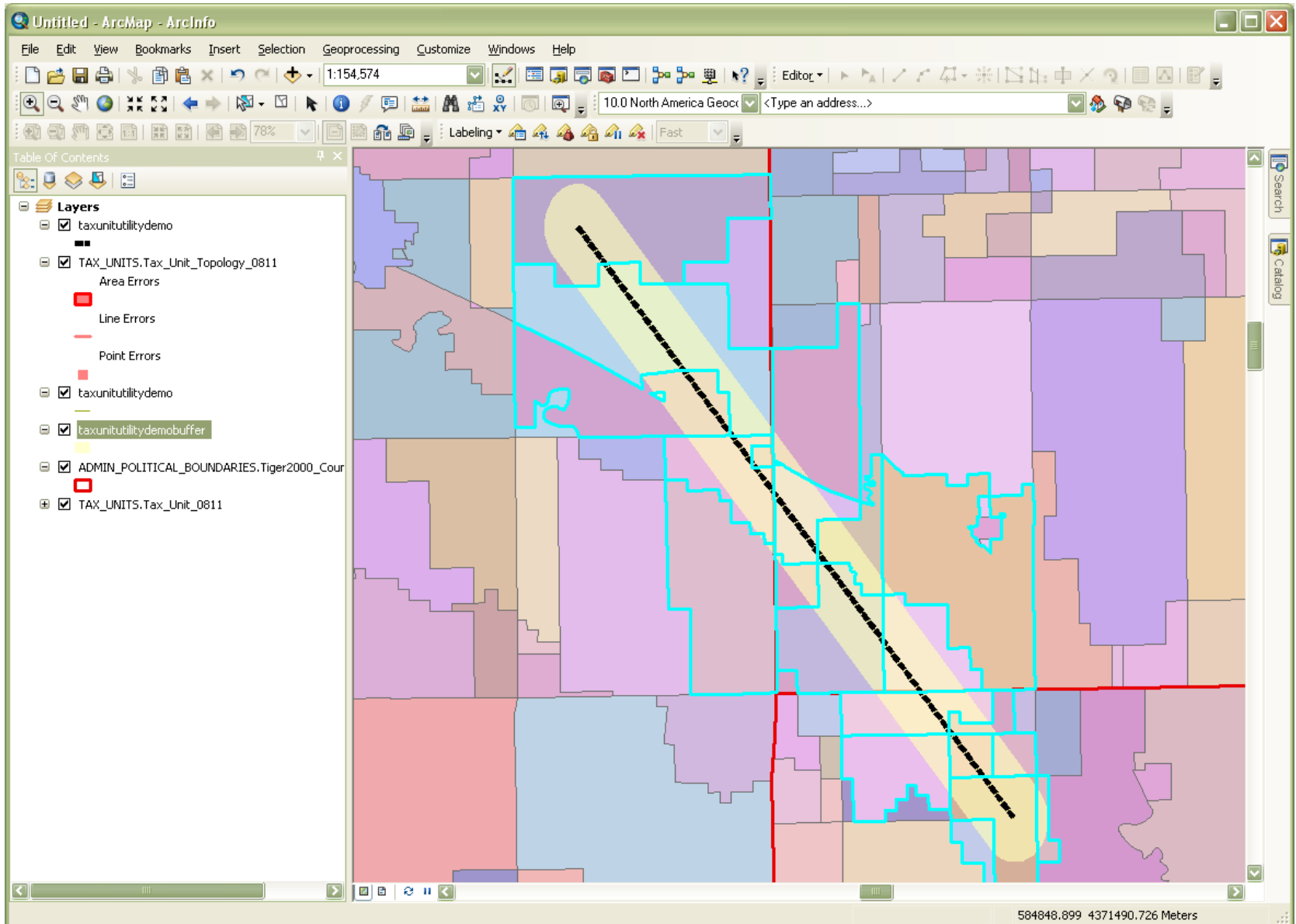
# Project Highlight – Kansas Statewide Tax Units Database

## GIS Analysis - Tax Units & Utility Pipeline Overlay (1-mile buffer around pipeline)



# Project Highlight – Kansas Statewide Tax Units Database

## GIS Analysis - Tax Units & Utility Pipeline Overlay (selected tax units w/in 1-mile buffer)



# Project Highlight – Kansas Statewide Tax Units Database

GIS Analysis - Tax Units & Utility Pipeline Overlay Example (table of selected tax units w/in 1-mile buffer)

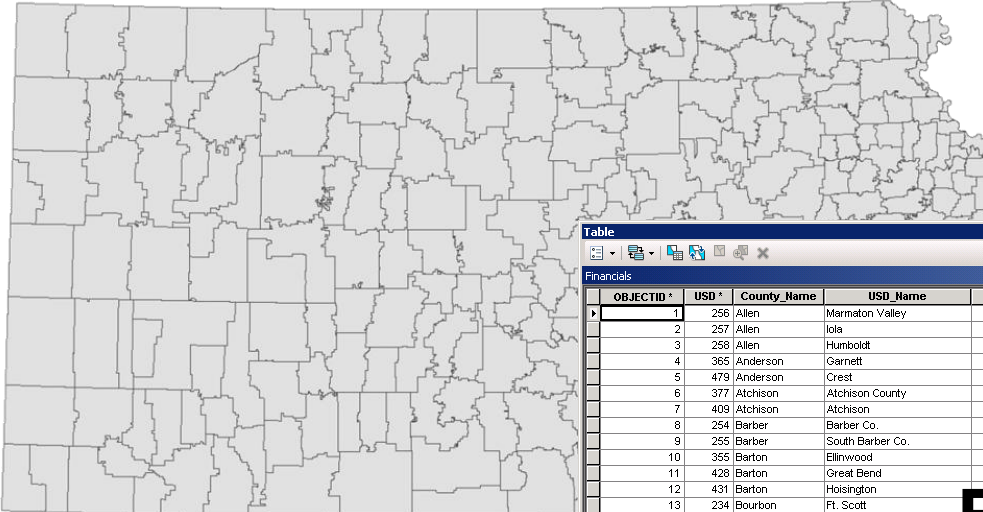
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5196	236	20029	Cloud County	01/06/2011	No Changes	<Null>	<Null>	Polygon	6431405.353404	17160.228346
7446	235	20029	Cloud County	01/06/2011	No Changes	<Null>	<Null>	Polygon	6953749.713422	13131.192297
7543	231	20029	Cloud County	01/06/2011	No Changes	<Null>	<Null>	Polygon	17714307.171445	20064.810946
4783	233	20029	Cloud County	01/06/2011	No Changes	<Null>	<Null>	Polygon	14886201.640554	17633.022054
6826	007	20029	Cloud County	01/06/2011	No Changes	<Null>	<Null>	Polygon	29631.525124	880.261407
3790	231	20029	Cloud County	01/06/2011	No Changes	<Null>	<Null>	Polygon	2646598.472002	7162.503637
4785	237	20029	Cloud County	01/06/2011	No Changes	<Null>	<Null>	Polygon	33312597.272656	37228.659485
4784	234	20029	Cloud County	01/06/2011	No Changes	<Null>	<Null>	Polygon	9777088.090905	14541.695338
5210	100	20123	Mitchell County	01/26/2011	No Changes	<Null>	<Null>	Polygon	30985366.468384	33133.45226
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3777	102	20123	Mitchell County	01/26/2011	No Changes	<Null>	<Null>	Polygon	31289264.10194	28977.710706
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693	557	20143	Ottawa County	01/07/2011	No Changes	<Null>	<Null>	Polygon	2600874.749045	6450.911954

(23 out of \*2000 Selected)

TAX\_UNITS.Tax\_Unit\_0811

# Project Highlight – School District Finance

- Kansas Legislative Research maintains a GIS data layer of school district boundaries and provides this information to DASC as updates are made
- The geographic data can be joined to tabular data and used to analyze the impact of budgetary or policy decisions



Table

Financials

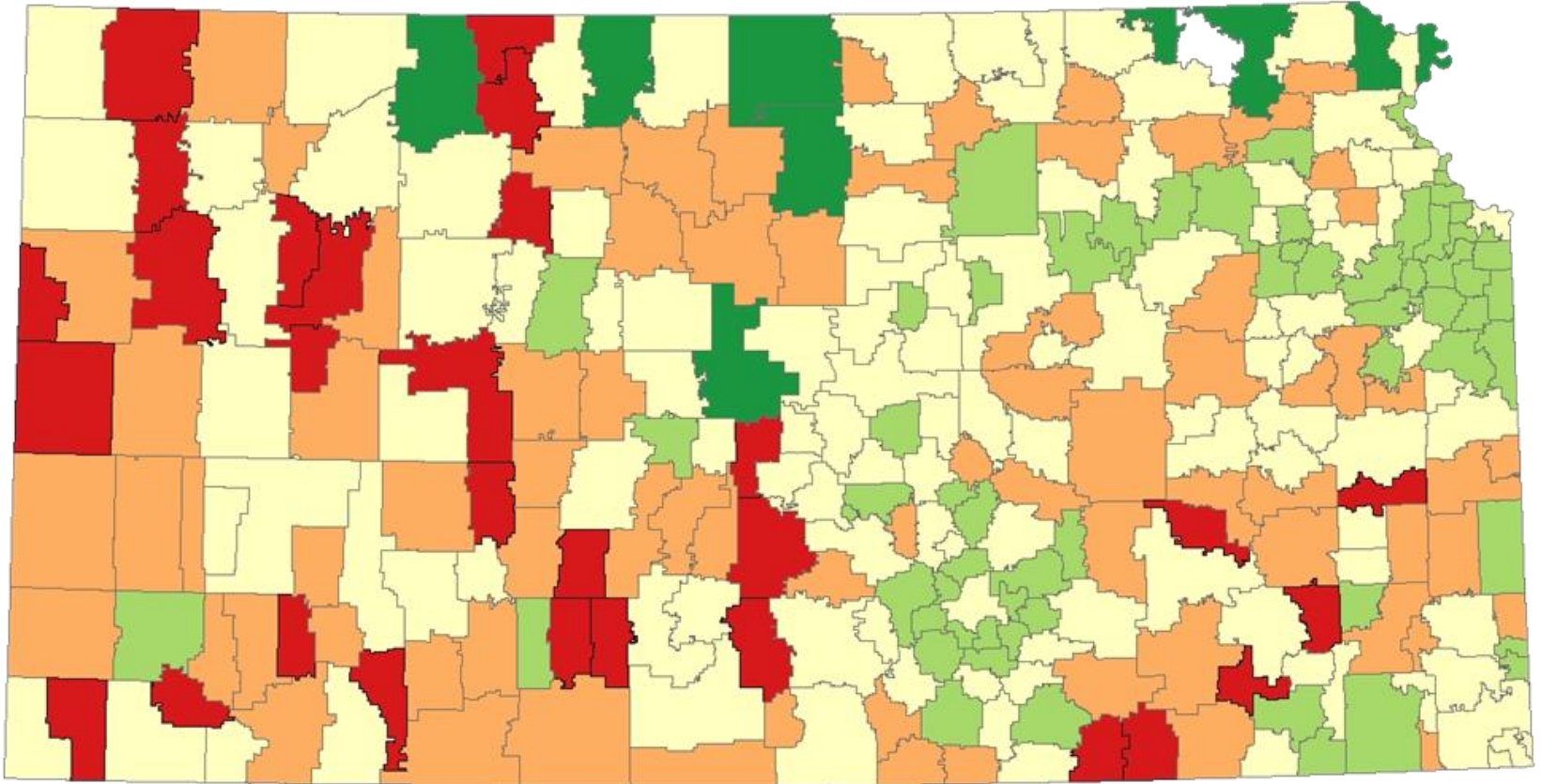
OBJECTID*	USD*	County_Name	USD_Name	FTE_Enroll	Subtotal	Computed_GF	Governor_GF	Potential_Reduction	Governor_GP_12	Potential_Reduction_12
1	256	Allen	Marmaton Valley	336.5	644.4	2585333	2537002.8			
2	257	Allen	Iola	1271.8	1936.7	7770040	7624787.9	-145252.1	2435832	-101170.8
3	258	Allen	Humboldt	541.5	894	3586728	3519678	-67050	7320726	-304061.9
4	365	Anderson	Garnett	1082.2	1695.3	6801544	6674396.1	-127147.9	3379320	-140358
5	479	Anderson	Crest	211.5	468.3	1878820	1843697.1	-35122.9	6408234	-266162.1
6	377	Atchison	Atchison County	630.6	1121.8	4500662	4416526.6	-84135.4	1770174	-73523.1
7	409	Atchison	Atchison	1639	2393	9600716	9421241	-179475	9045540	-375701
8	254	Barber	Barber Co.	438.5	768.4	3082621	3025190.8	-57630.2	2904552	-120638.8
9	255	Barber	South Barber Co.	217.7	446.5	1791358	1757870.5	-33487.5	1687770	-70100.5
10	355	Barton	Ellinwood	391.8	692.3	2777508	2725585.1	-51922.9	2616894	-106891.1
11	428	Barton	Great Bend	3032.5	4352	17460224	17133824	-326400	16450560	-683264
12	431	Barton	Hoisington	651.5	1058	4244656	4165346	-79350	3999240	-166106
13	234	Bourbon	Fl. Scott	1179.4	2093.0	8631474	8393302	-238172	10207512	-423962.8
14	235	Bourbon	Uniontown	86.5	177.2	3437516	3375161	-62555	3240594	-134596.1
15	415	Brown	Hiawatha	83.5	144	2917224	2817224	-100000	5080698	-211023.7
16	430	Brown	Brown County	582.4	1132.7	4544382	4459438.9	-84952.1	4281606	-177833.9
17	205	Butler	Bluestem	526	947.6	3801771	3730701.2	-71069.8	3581928	-148773.2
18	206	Butler	Remington	429	913.8	3663456	3597630	-65825.4	3454164	-143466.6
19	375	Butler	Circle	165	237.7	937009	917009	-20000	8401806	-348963.9
20	385	Butler	Andover	155	259.5	703114	681451	-21663	21392910	-88854.1
21	394	Butler	Rose Hill	132.5	206	920732	912842	-7890	7609480	-324362
22	396	Butler	Douglass	719.4	1146.9	4601363	4515345.3	-86017.7	4355282	-180063.3
23	402	Butler	Augusta	2153.8	2684.9	10771819	10570451.3	-201367.7	10148822	-421529.3
24	490	Butler	El Dorado	1919.1	2619.3	10508632	10312184.1	-196447.9	9900954	-411230.1
25	492	Butler	Finliths	259.4	531.1	2130773	2090940.7	-39832.3	2007558	-83382.7
26	284	Chase	Chase County	388.5	709.2	2845310	2782120.4	-63189.6	2680776	-111344.4
27	285	Chautauqua	Cedar Vale	134.7	316.2	1268594	1244879.4	-23714.6	1195236	-49843.4
28	286	Chautauqua	Chautauqua	348.5	669	2684028	2633853	-50175	2528820	-105033
29	404	Cherokee	Riverton	766	1301.3	5220816	5123218.1	-97597.9	4918914	-204304.1
30	493	Cherokee	Columbus	1020.5	1703.3	6833640	6705892.1	-127747.9	6438474	-267418.1
31	499	Cherokee	Galena	798.5	1341.1	5380493	5279910.7	-100582.3	5069358	-210552.7
32	508	Cherokee	Baxter Springs	977.5	1563.2	6271558	6154318.4	-117239.6	5908896	-245422.4
33	103	Cheverne	Cheverne	137.5	332.6	1334391	1309446.2	-24944.8	1257228	-57218.2

(0 out of 289 Selected)

Example data  
Not for official use

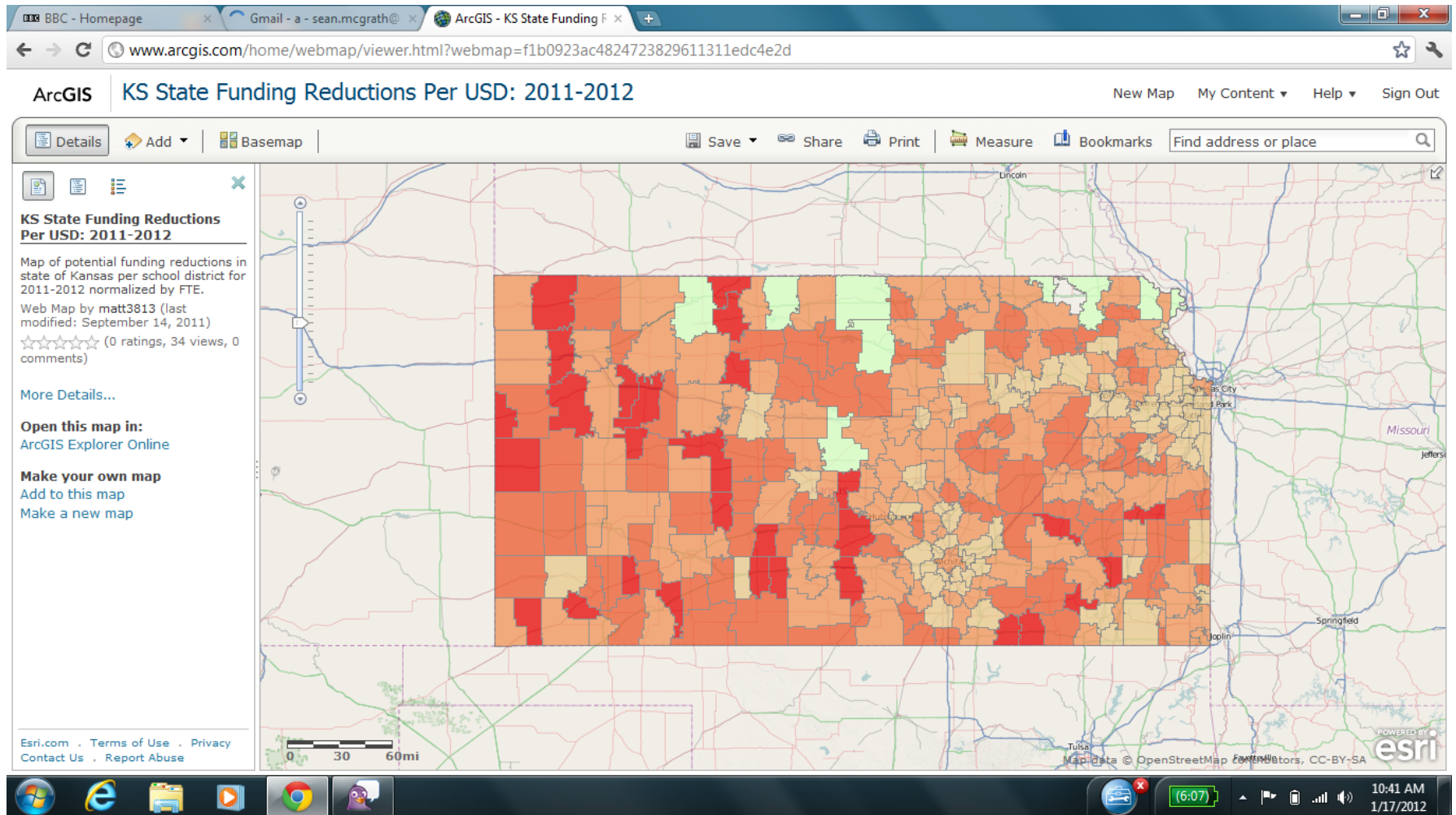
## Project Highlight – School District Finance

- Map showing Potential Reduction per FTE Enrolled Student



# Project Highlight – ArcGIS.com – GeoNotes –

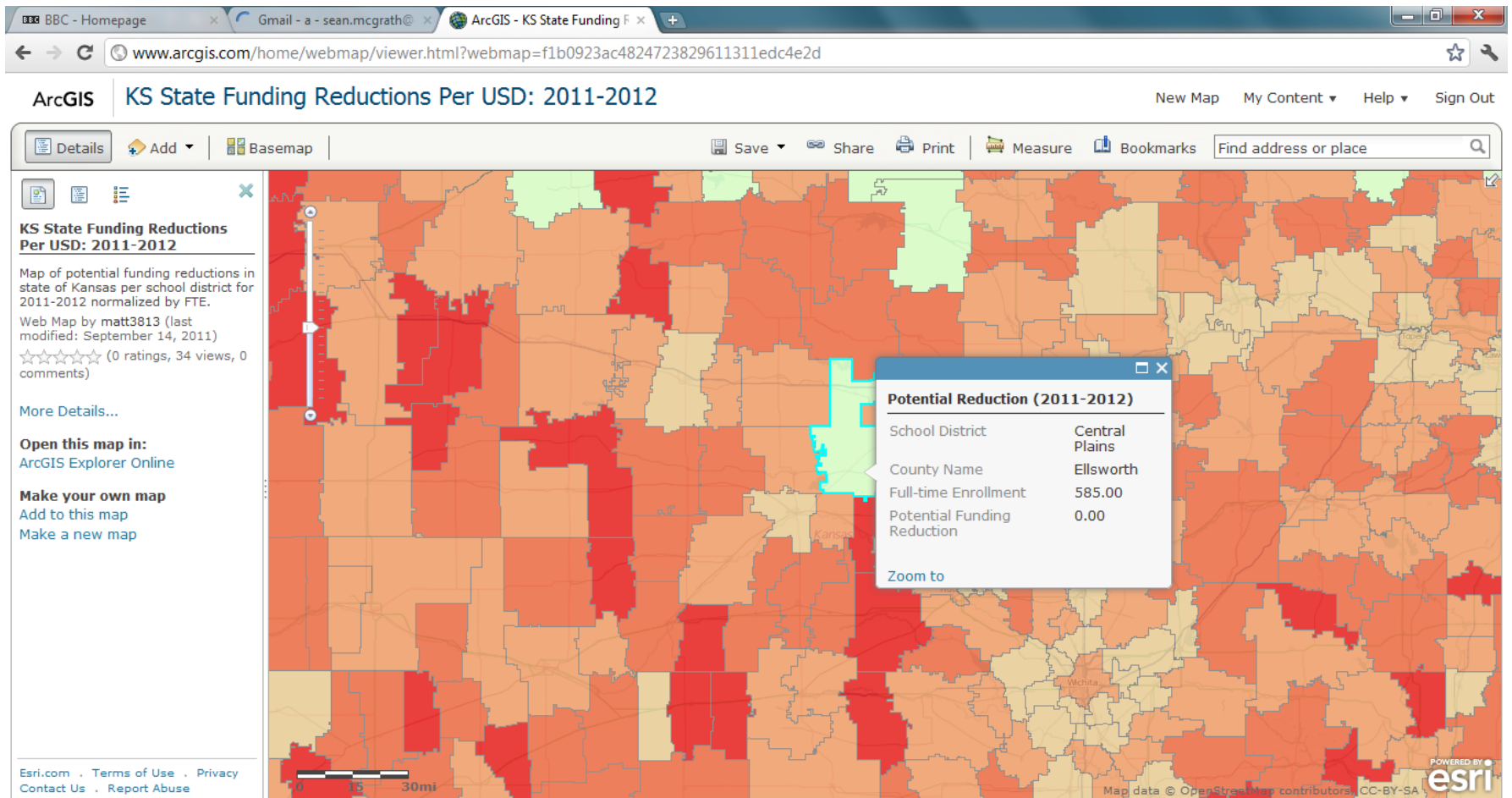
- Sharing through ArcGIS.com makes data and maps easily accessible online





# Project Highlight – ArcGIS.com – GeoNotes

- Sharing through ArcGIS.com makes data and maps easily accessible online



## Geographic Context – Integrating multiple data layers

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# Geographic Context – Integrating multiple data layers

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## **316 Park Street, Oskaloosa, KS**

Data layers: Address Points

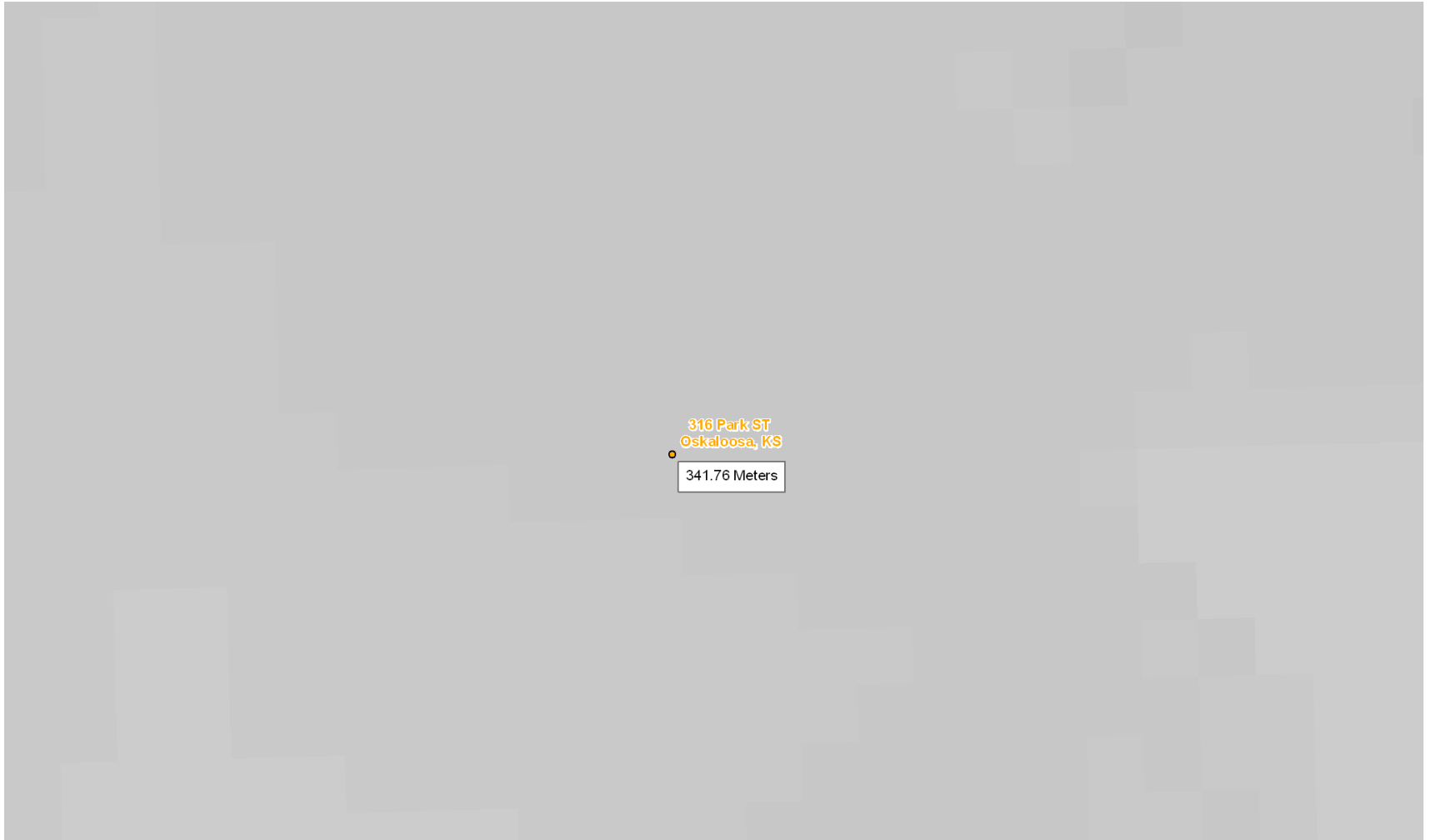


316 Park ST  
Oskaloosa, KS

# Geographic Context – Integrating multiple data layers

**316 Park Street, Oskaloosa, KS, Spot elevation = 341.76 meters**

Data layers: Address Points, 2006 LiDAR DEM

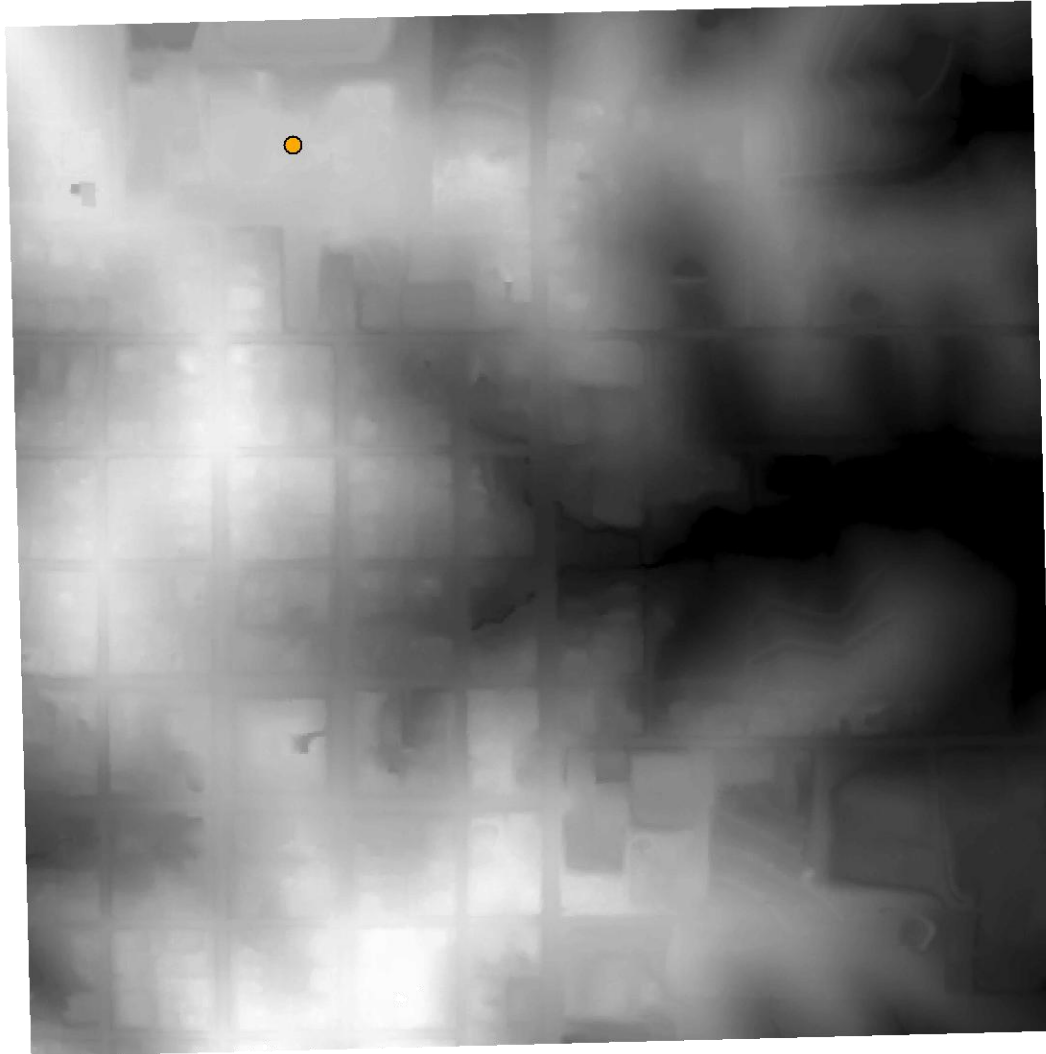


# Geographic Context – Integrating multiple data layers

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**316 Park Street, Oskaloosa, KS, Spot elevation = 341.76 meters**

Data layers: Address Points, 2006 LiDAR 2m DEM



# Geographic Context – Integrating multiple data layers

**316 Park Street, Spot elevation = 341.76 meters**

Data layers: Address Points, 2006 LiDAR 2m Hillshade

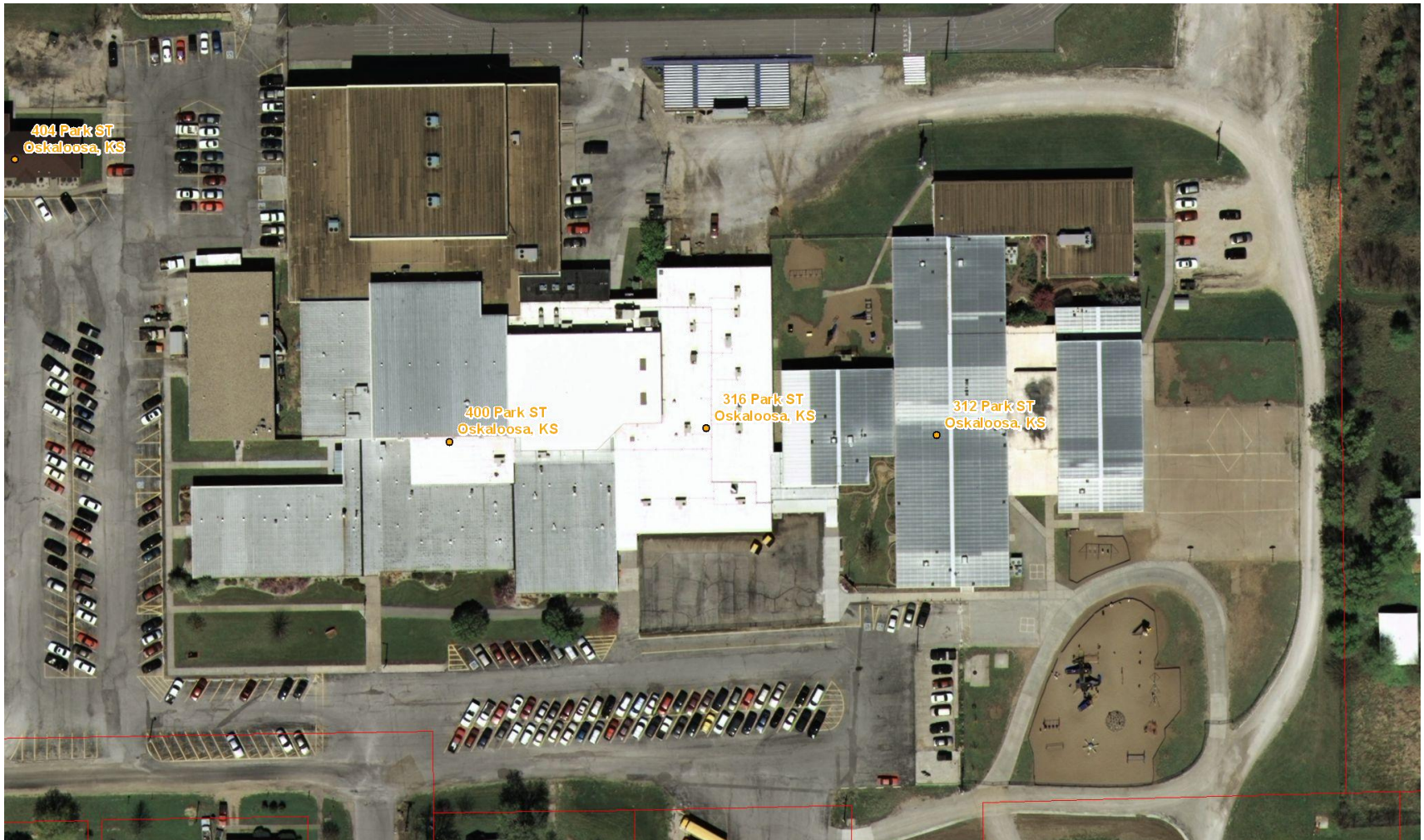




# Geographic Context – Integrating multiple Data layers

## 316 Park Street, Oskaloosa, KS – Oskaloosa Middle School

Data layers: Address Points, 2009 Jefferson County imagery (6" pixel resolution)

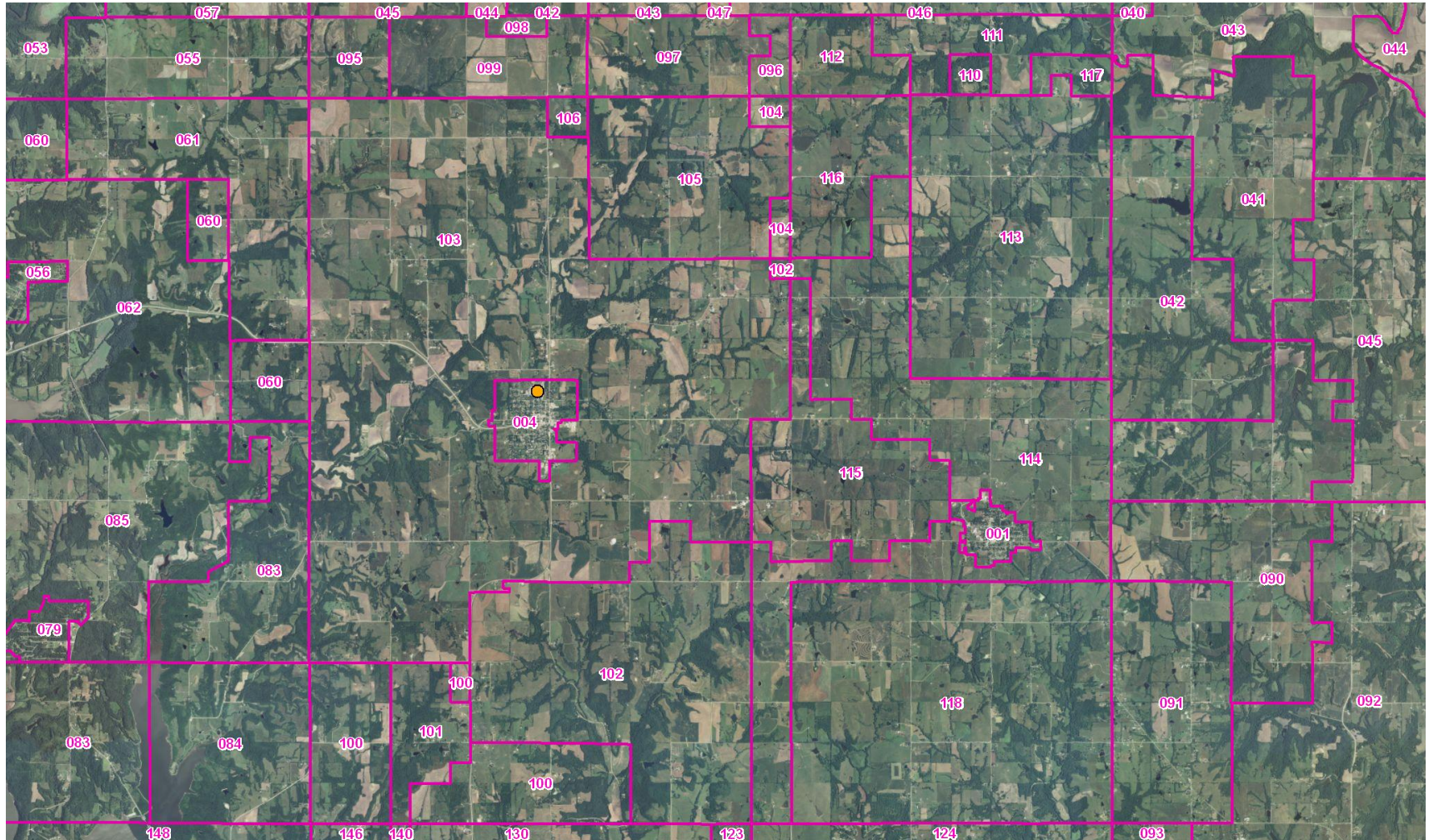




# Geographic Context – Integrating multiple Data layers

## 316 Park Street, Oskaloosa, KS – Oskaloosa Middle School, Tax Unit ID# 087004

Data layers: Address Points, 2010 FSA NAIP Imagery, 2010 Tax Units

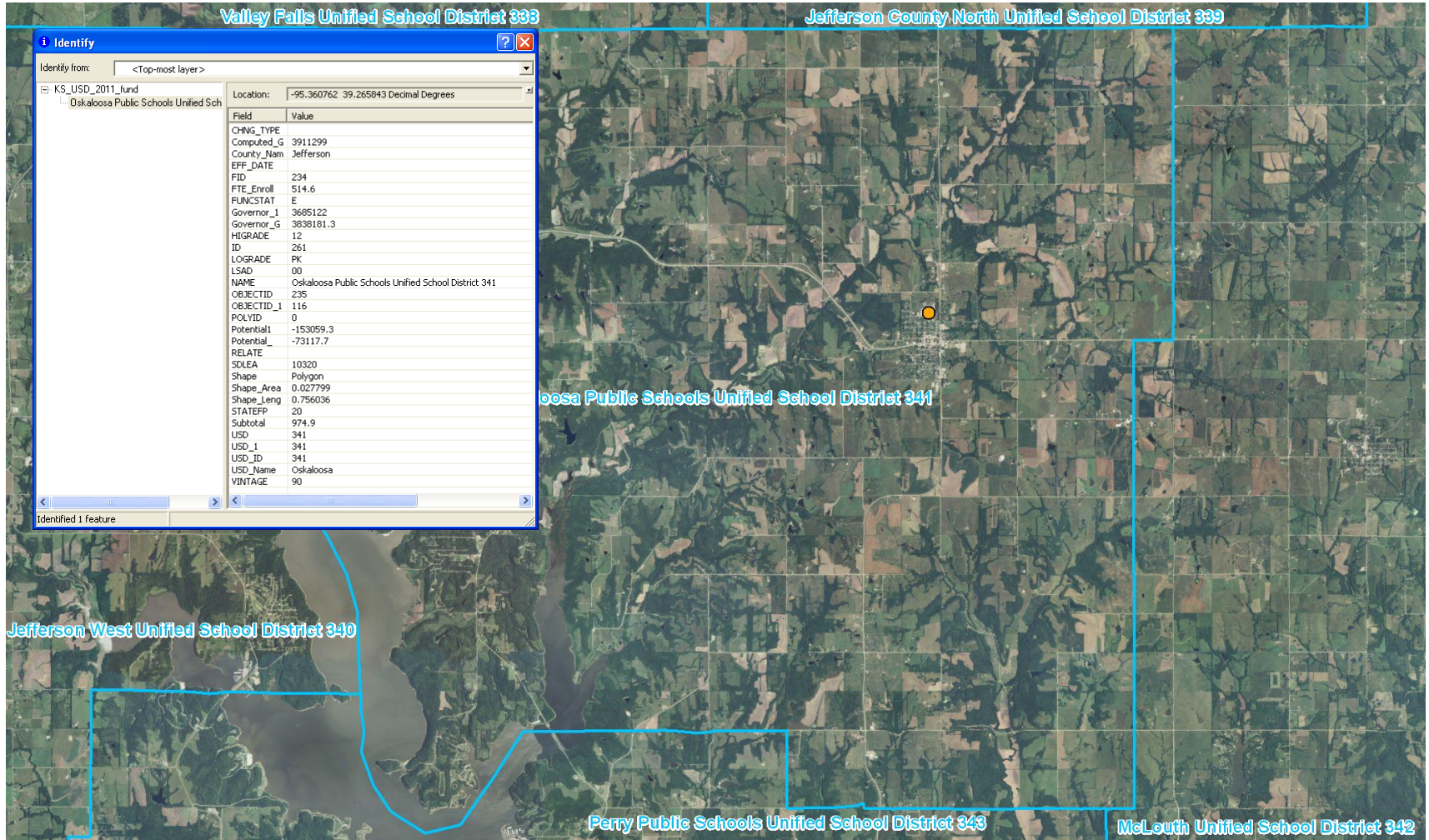




# Geographic Context – Integrating multiple data layers

## 316 Park Street, Oskaloosa, KS – Oskaloosa Middle School, Oskaloosa Public Schools – USD 341

Data layers: Address Points, 2010 FSA NAIP Imagery, 2011 KS USD Boundaries

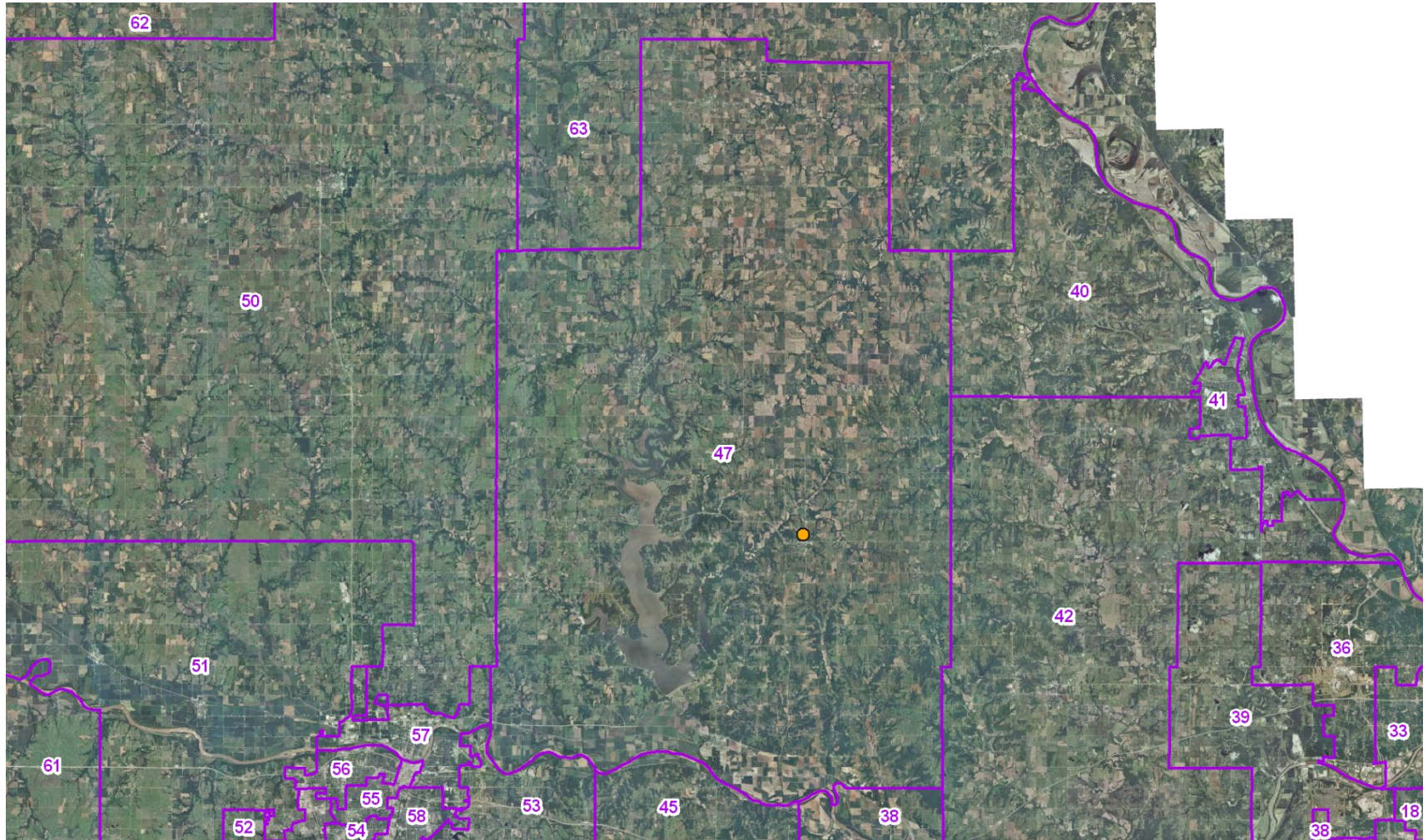




# Geographic Context – Integrating multiple data layers

## 316 Park Street, Oskaloosa, KS – Oskaloosa Middle School, Kansas House District 47

Data layers: Address Points, 2010 FSA NAIP Imagery, Kansas House Districts

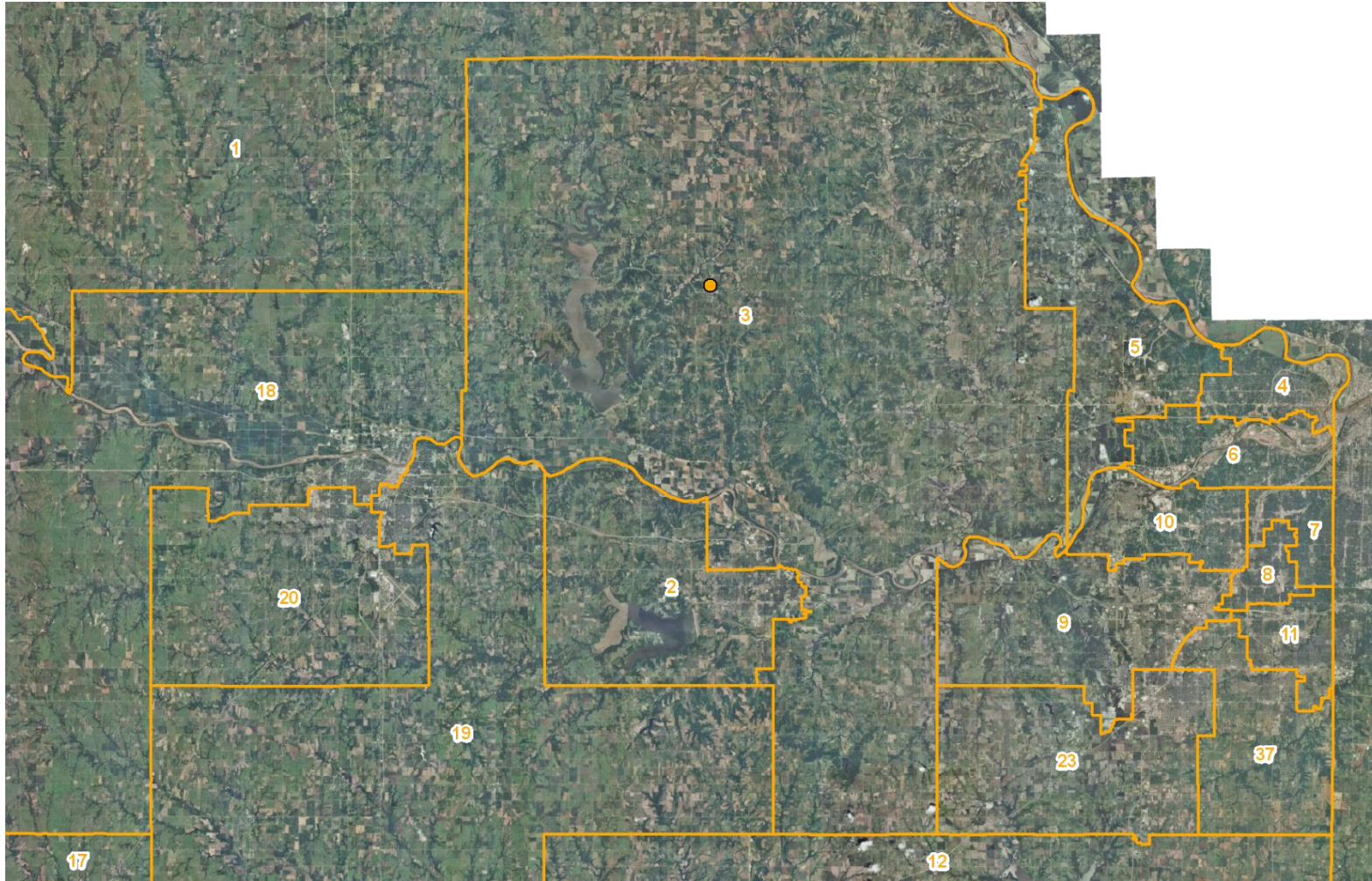




# Geographic Context – Integrating multiple data layers

## 316 Park Street, Oskaloosa, KS – Oskaloosa Middle School, Kansas Senate District 3

Data layers: Address Points, 2010 FSA NAIP Imagery, Kansas Senate Districts





# KBS Flood Inundation Mapping Project

For more information contact Jude Kastens – jkastens@ku.edu

North Lawrence – 2008 NAIP Aerial Image (1-m resolution)

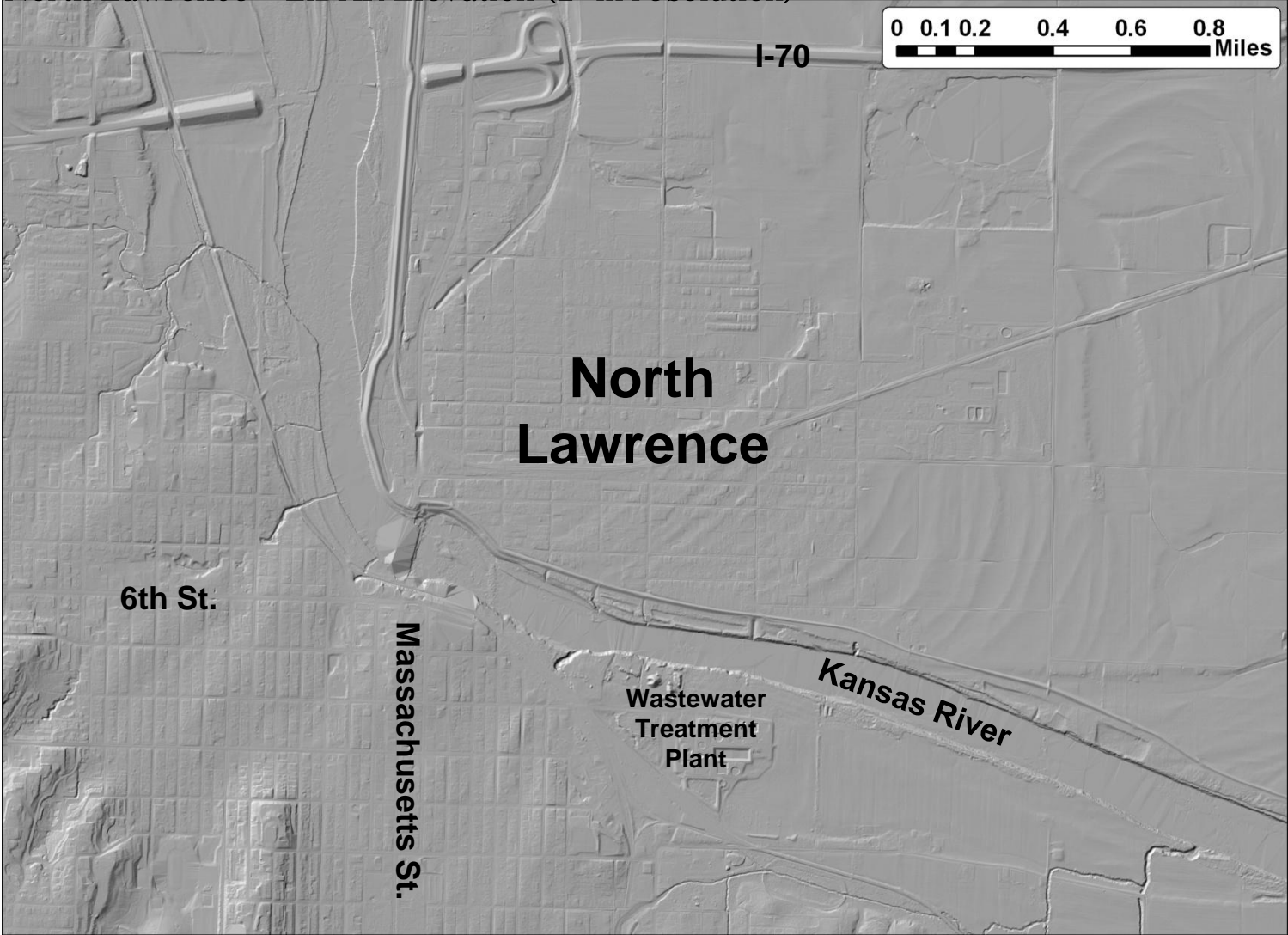




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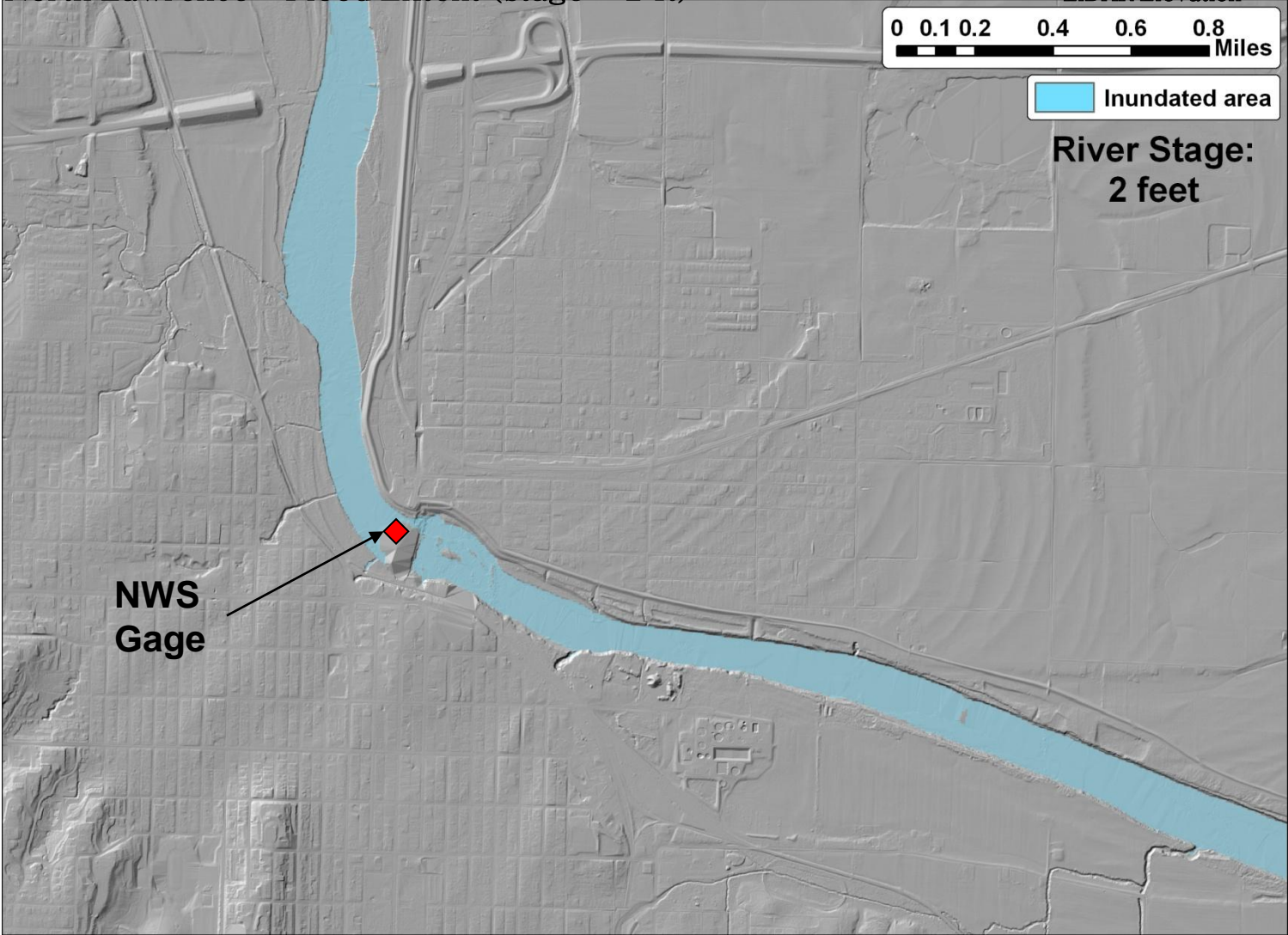
North Lawrence – LiDAR Elevation (2-m resolution)



# KBS Flood Inundation Mapping Project

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North Lawrence – Flood Extent (stage = 2 ft)

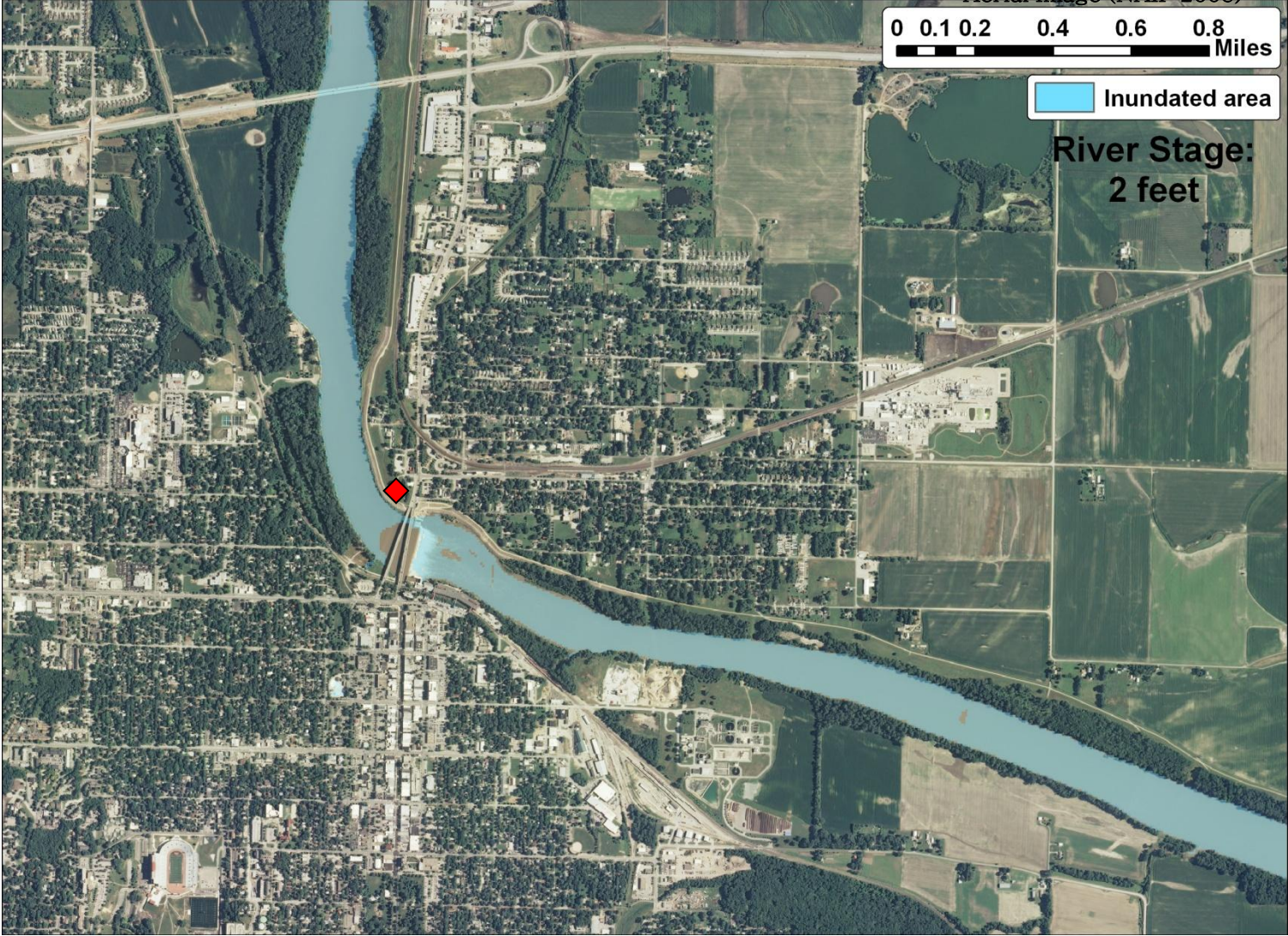




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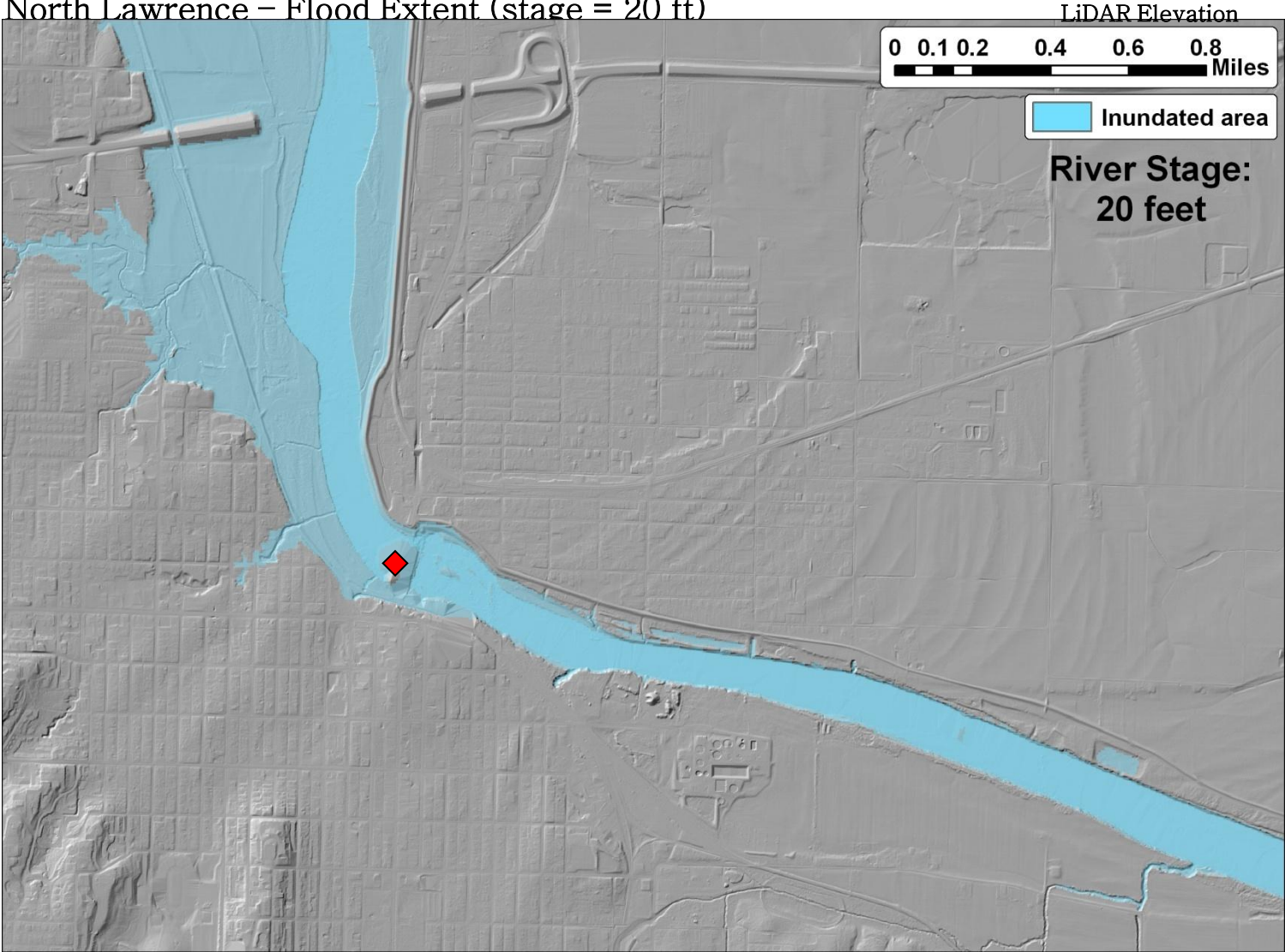




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North Lawrence – Flood Extent (stage = 20 ft)

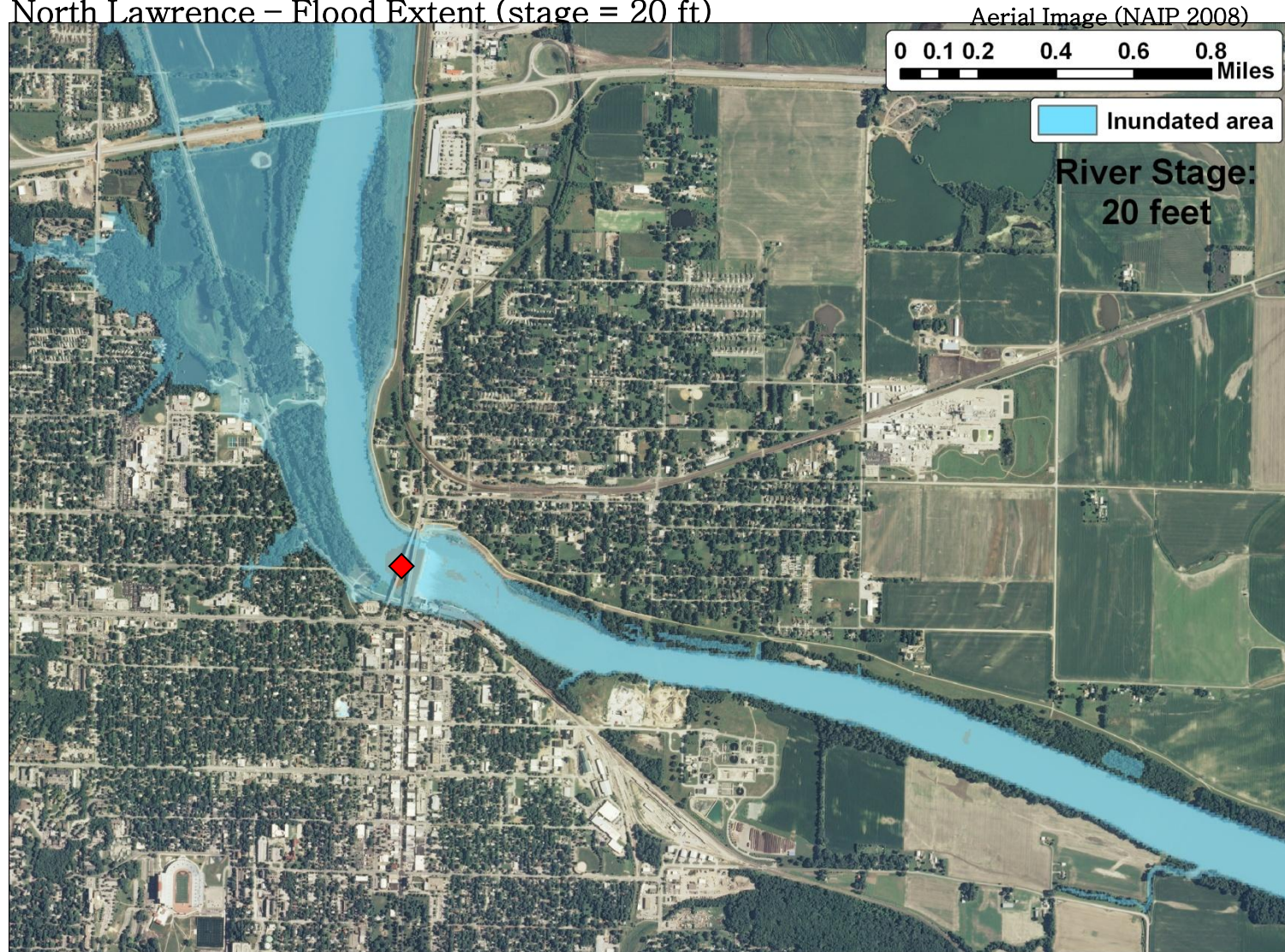




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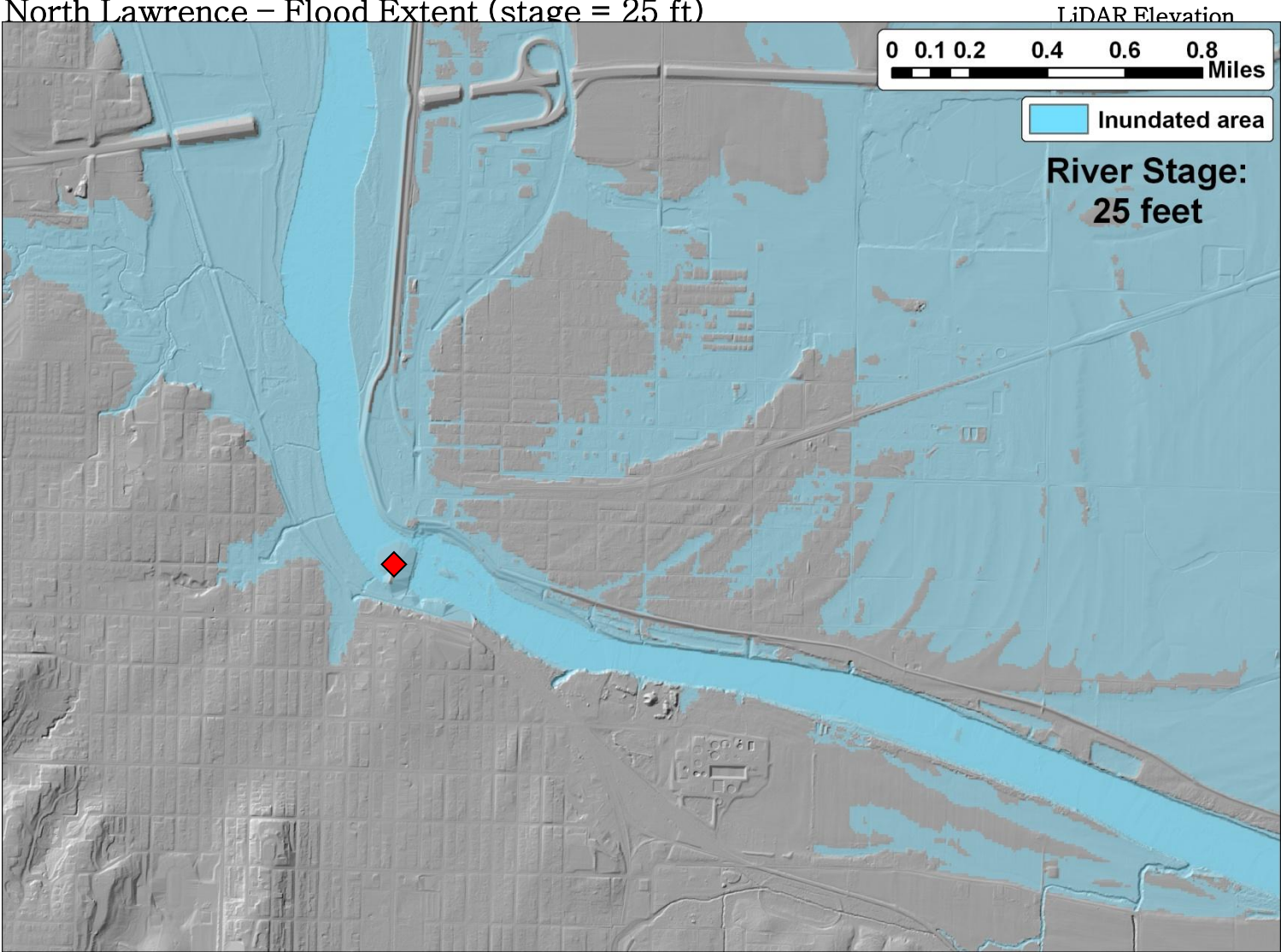




# KBS Flood Inundation Mapping Project

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North Lawrence – Flood Extent (stage = 25 ft)

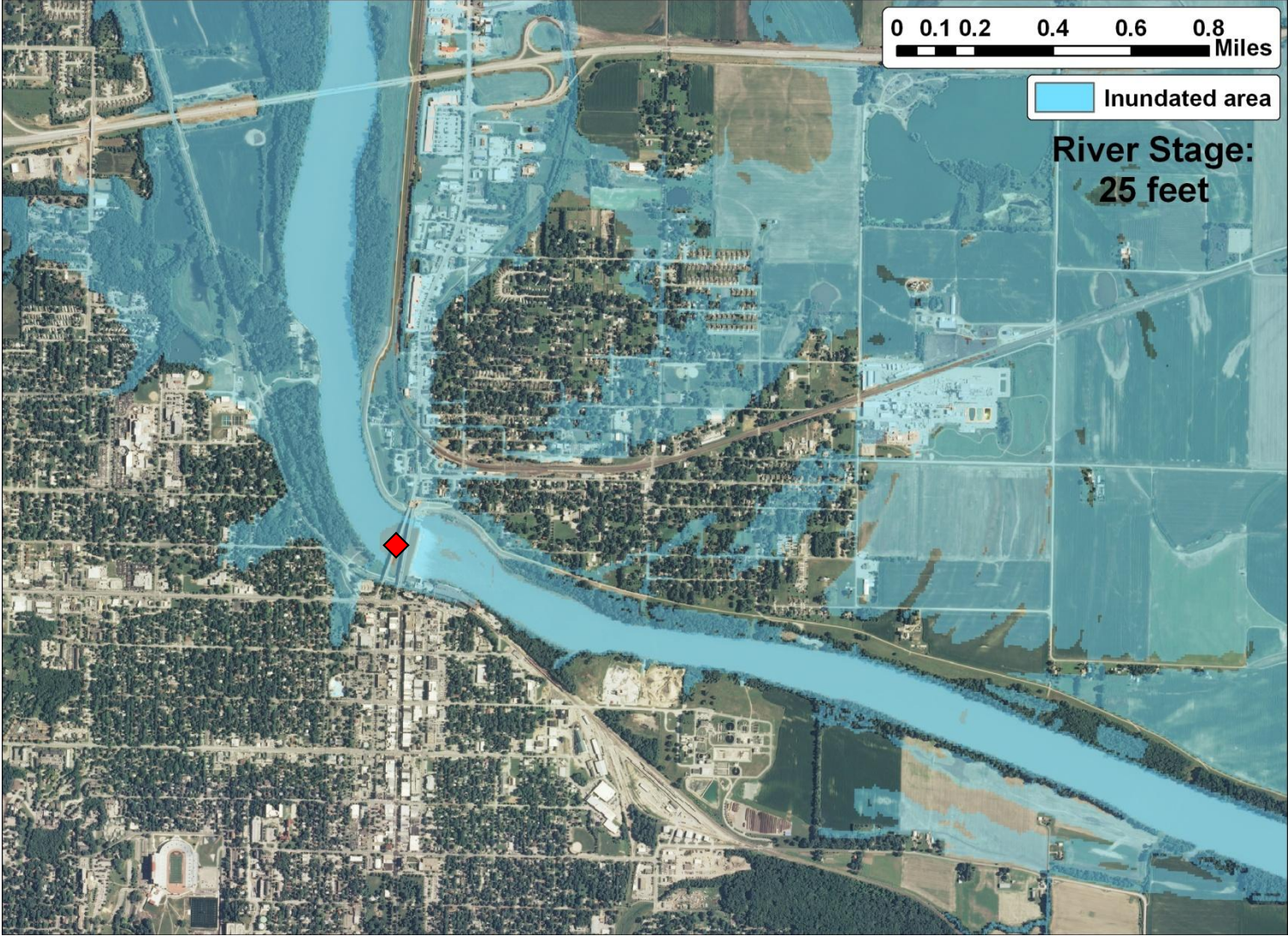




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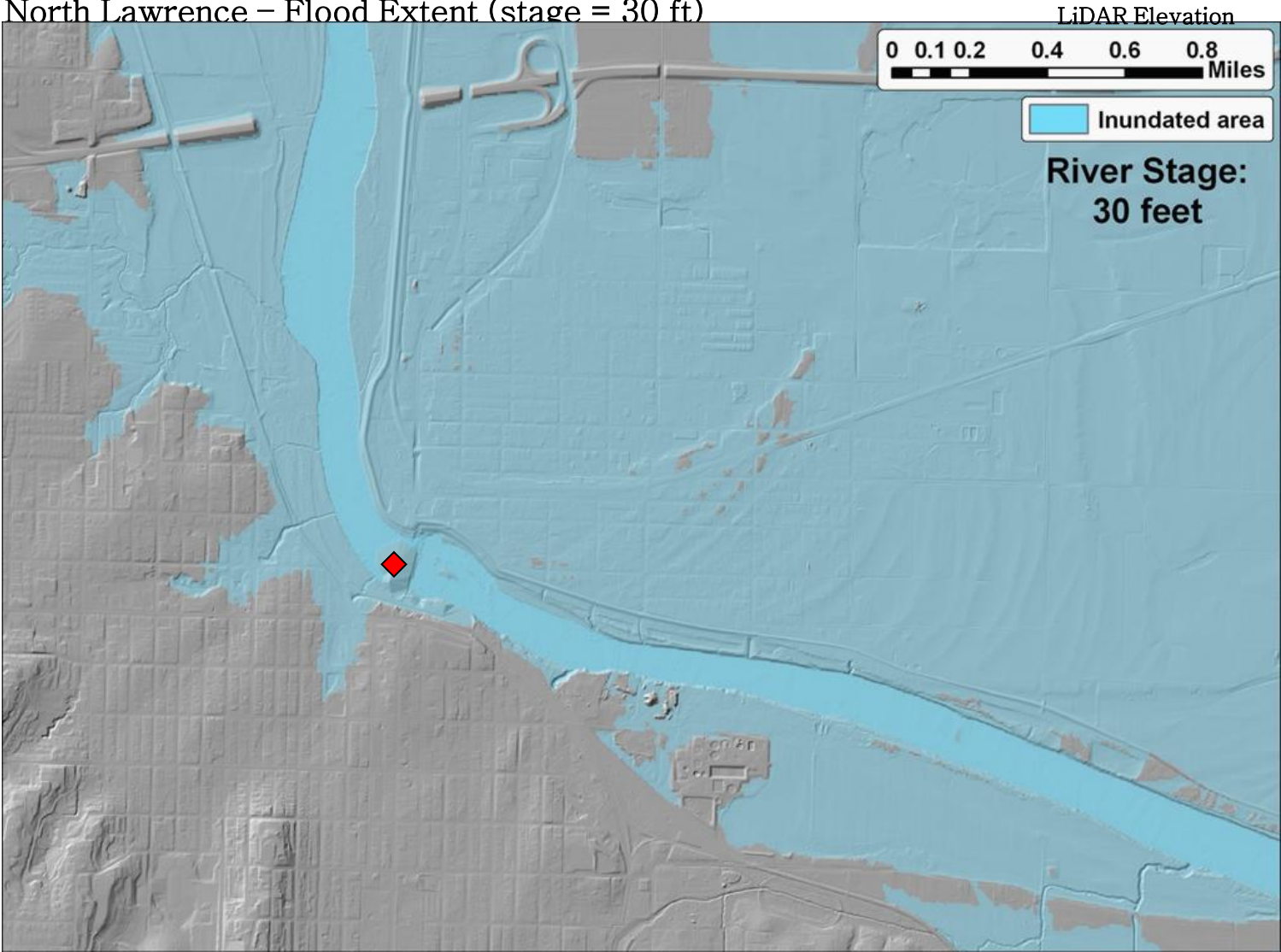
North Lawrence – Flood Extent (stage = 25 ft)



# KBS Flood Inundation Mapping Project

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North Lawrence – Flood Extent (stage = 30 ft)

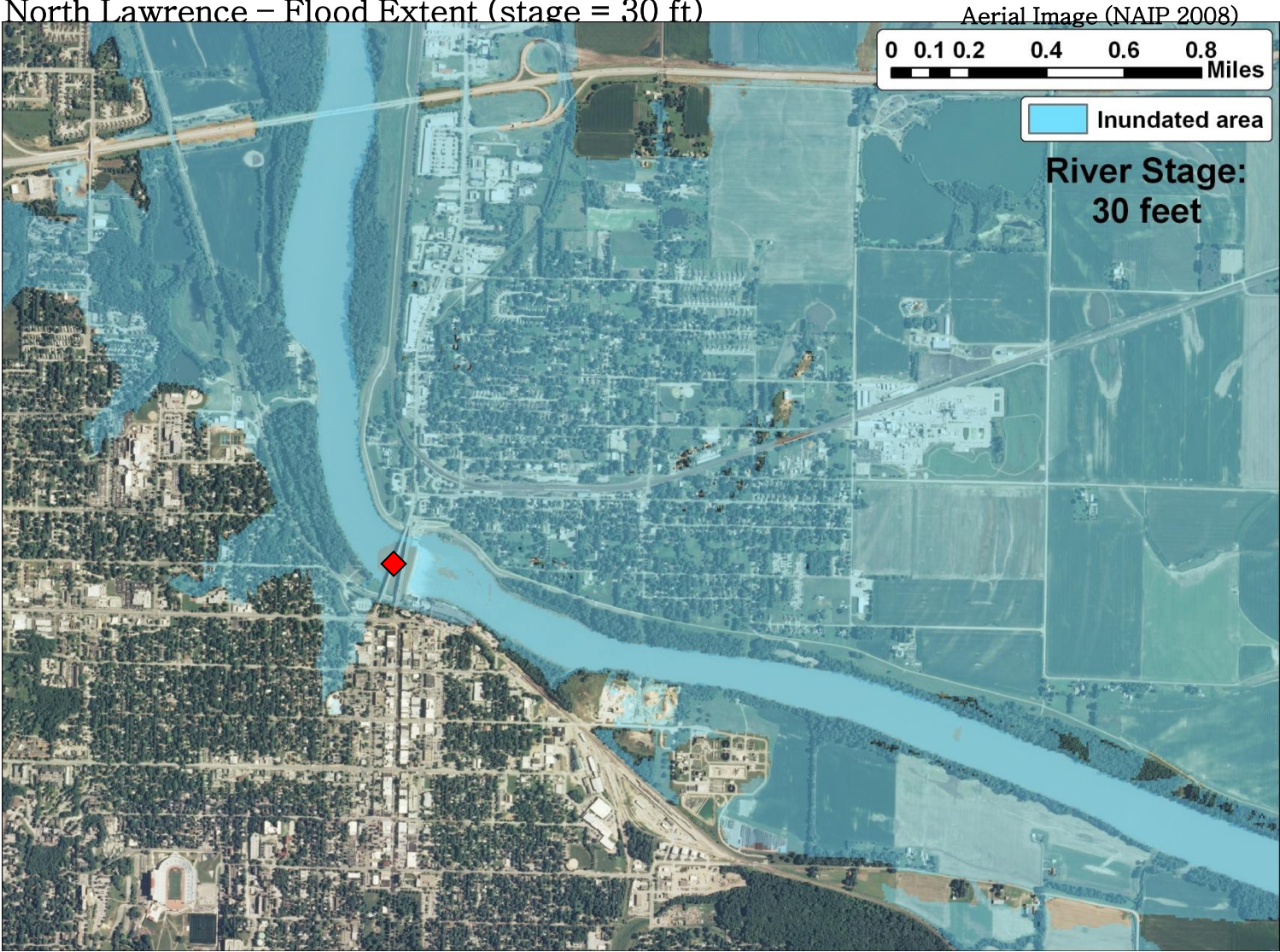




# KBS Flood Inundation Mapping Project

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North Lawrence – Flood Extent (stage = 30 ft)

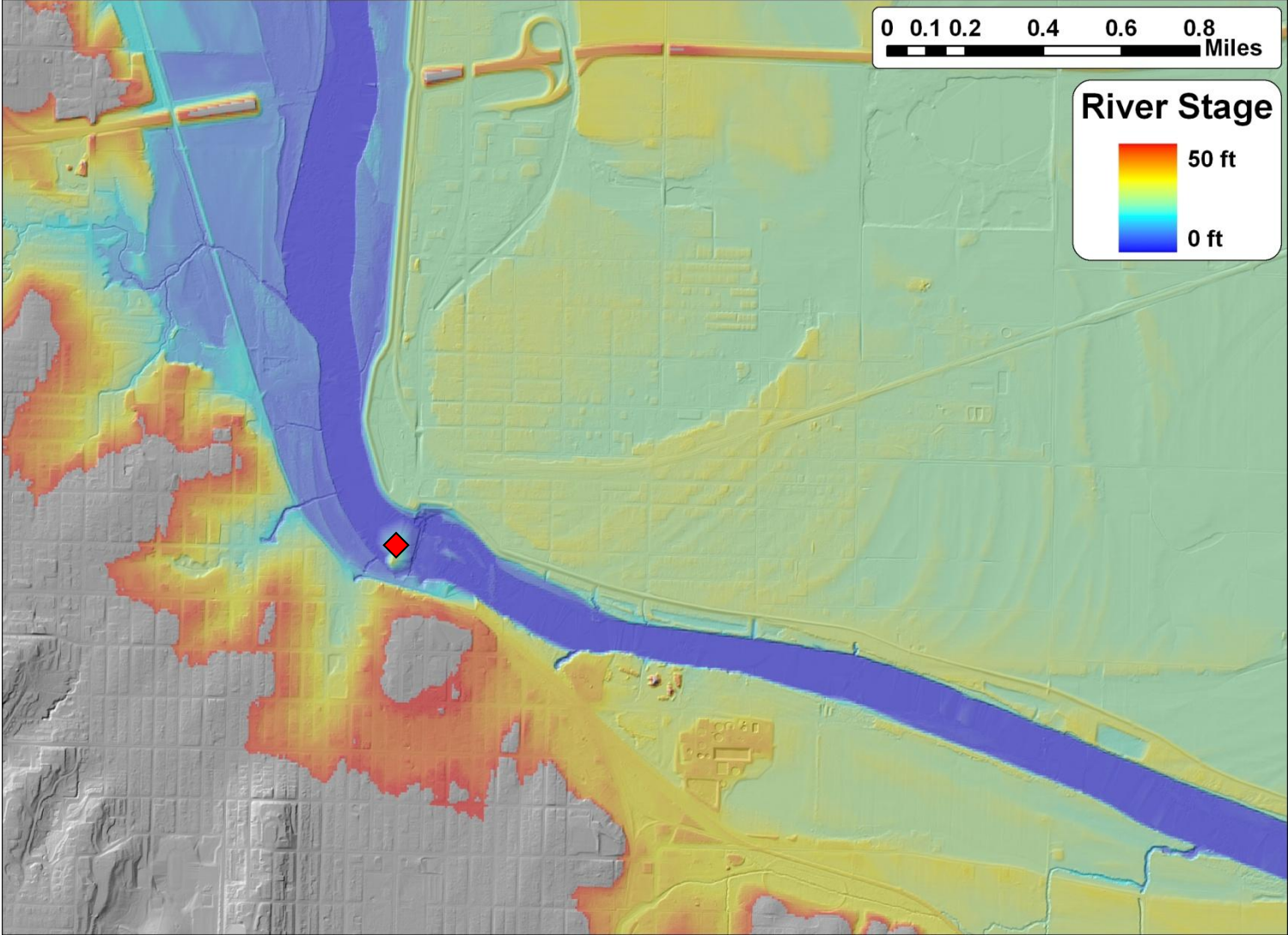




# KBS Flood Inundation Mapping Project

For more information contact Jude Kastens – jkastens@ku.edu

North Lawrence – Flood Extent Library (stage = 0 – 50 ft)

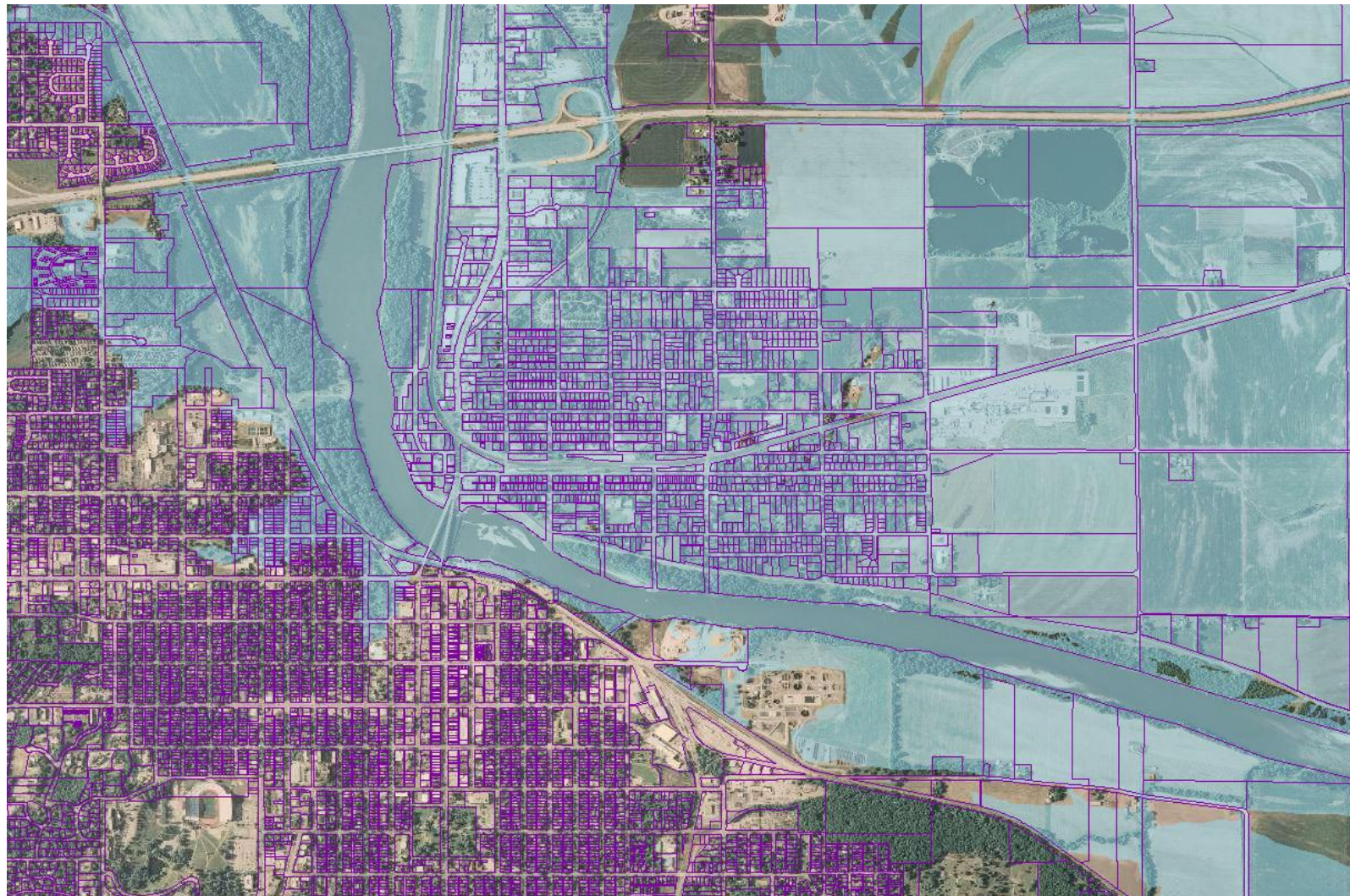




# KBS Flood Inundation Mapping Project

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## North Lawrence – Flood Extent (stage = 30 ft) w/Parcel Boundaries

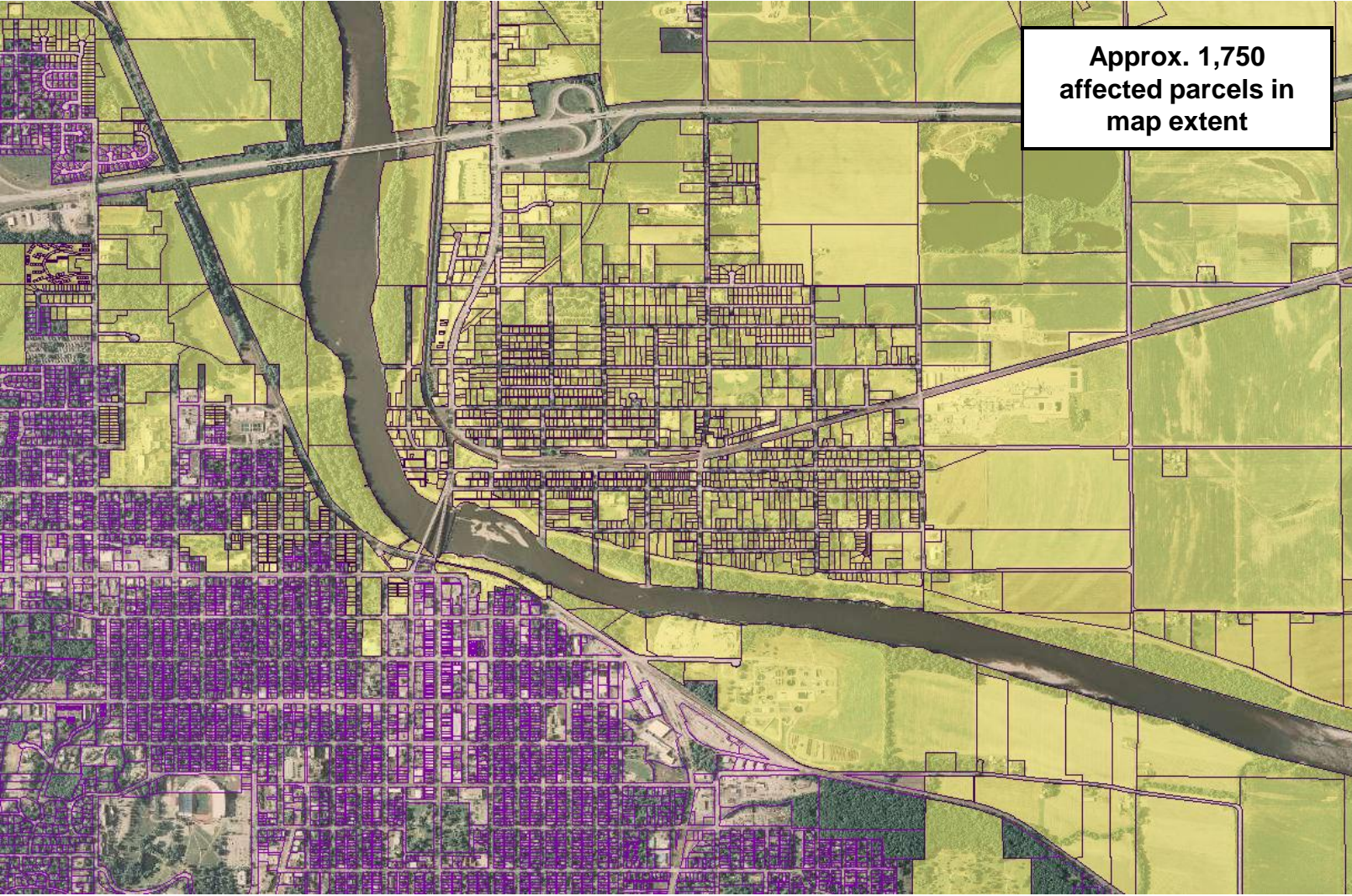




# KBS Flood Inundation Mapping Project

For more information contact Jude Kastens – jkastens@ku.edu

## North Lawrence – Flood Extent (stage = 30 ft) Parcels with Flooding



# Contact Information

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