

HAZARDOUS MATERIAL RELEASE

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Hazard Description

Hazardous materials are substances which if released or misused can cause death, serious injury, long-lasting health effects, and damage to structure and other properties as well as to the environment. Many products containing hazardous chemicals are used and stored in homes routinely. These products are also shipped daily on the nation’s highways, railroads, waterways, and pipelines.

Varying quantities of hazardous materials from industrial chemicals and toxic waste to household detergent and air fresheners, hazardous materials are part of our everyday lives. Hazardous material incidents can range from a chemical spill on a highway to contamination of groundwater by naturally occurring methane gas.

Communities and residences located near industries or other property that use hazardous materials have a higher risk of a hazardous materials incident. However, many hazardous materials are transported regularly over our highways and by rail, and if released during transport these materials can spread quickly to any nearby community. Human error is the probable cause of most transportation incidents involving the release of hazardous materials.

Location

The Toxics Release Inventory (TRI) is a publicly available database from the federal Environmental Protection Agency (EPA) that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industry groups as well as federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990. Each year, facilities that meet certain activity thresholds must report their releases and other waste management activities for listed

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toxic chemicals to EPA and to their state or tribal entity. A facility must report if it meets the following three criteria:

- The facility falls within one of the following industrial categories: manufacturing; metal mining; coal mining; electric generating facilities that combust coal and/or oil; chemical wholesale distributors; petroleum terminals and bulk storage facilities; RCRA Subtitle C treatment, storage, and disposal (TSD) facilities; and solvent recovery services;
- Has 10 or more full-time employee equivalents; and
- Manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the calendar year. Persistent, bioaccumulative and toxic (PBT) chemicals are subject to different thresholds of 10 pounds, 100 pounds or 0.1 grams depending on the chemical.

Tier 2 data is a publicly available database from the Texas Department of State Health Services Tier 2 Chemical Reporting Program. Under the Community Right-to-Know program laws upheld at the state and federal level, all facilities which store significant quantities of hazardous chemicals must share this information with state and local emergency responders and planners. Facilities in Texas share this information by filing annual hazardous chemical inventories with the state, with Local Emergency Planning Committees (LEPCs), and with local fire departments. The Texas Tier 2 Reports contain facility identification information and detailed chemical data about hazardous chemicals stored at the facility.

A facility must report if it meets the following criteria:

- Any company using chemicals that could present a physical or health hazard must report them, according to Tier 2 requirements.
- If an industry has an OSHA deemed hazardous chemical that exceeds the appropriate threshold at a certain point in time, then the chemical must be reported. These chemicals may be on the list of 356 Extremely Hazardous Substances (EHS) or could be one of the 650,000 reportable hazardous substances (not on the EHS list). This reporting format is for a "snapshot in time." EHS chemicals have to be reported if the quantity is either greater than 500 pounds, or if the Threshold Planning Quantity (TPQ) amount is less than 500 pounds.

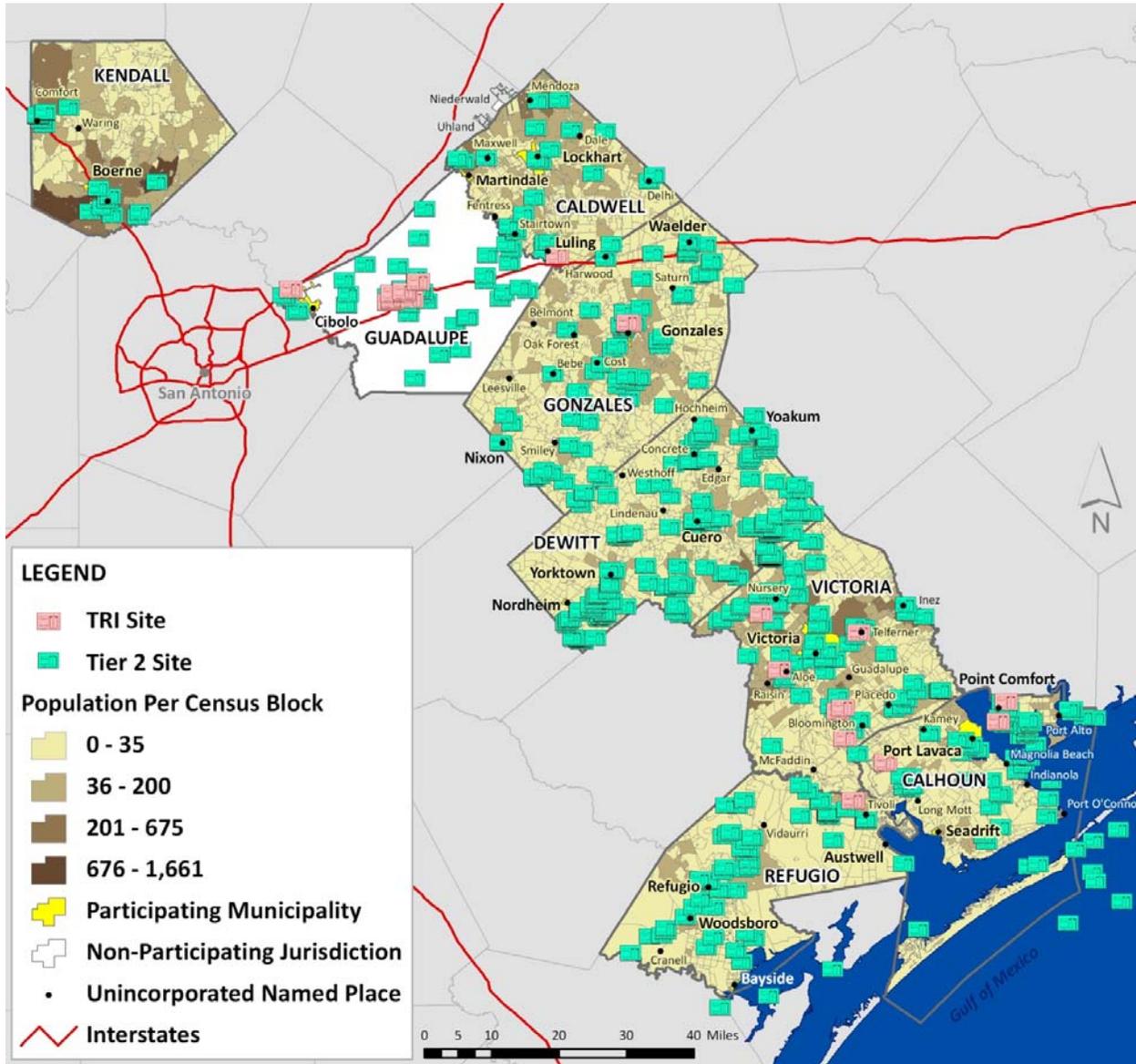
Figure 16-1 shows the locations of TRI sites as well as Tier 2-listed toxic sites in the GBRA study area. Figure 16-2 through Figure 16-9 show the location of TRI and Tier 2-listed toxic sites at the county level.

For mobile site analysis, the major roads (including Interstate highways, U.S. highways and State highways) and railroads are considered to be the transportation corridors where hazardous materials are primarily transported and where adverse impact to people and buildings could be expected. The buffer extents used with the transportation corridors are the same as those selected for the fixed site

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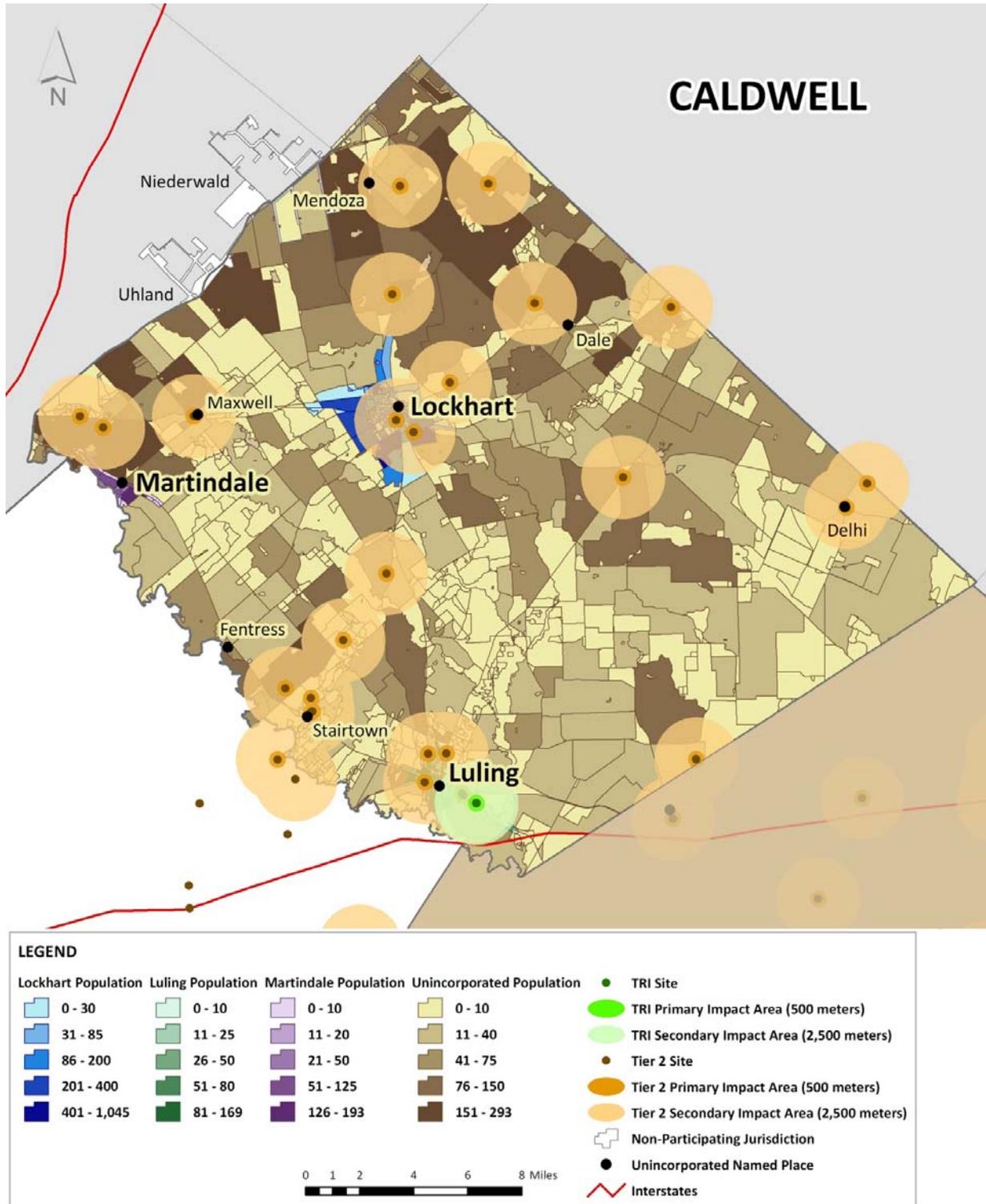
analysis. Figure 16-10 illustrates the estimated mobile HAZMAT corridors in the GBRA study area. Figure 16-11 through Figure 16-18 show the estimated mobile HAZMAT corridors at the county level.

Figure 16-1. Estimated Locations of Toxic Sites in GBRA



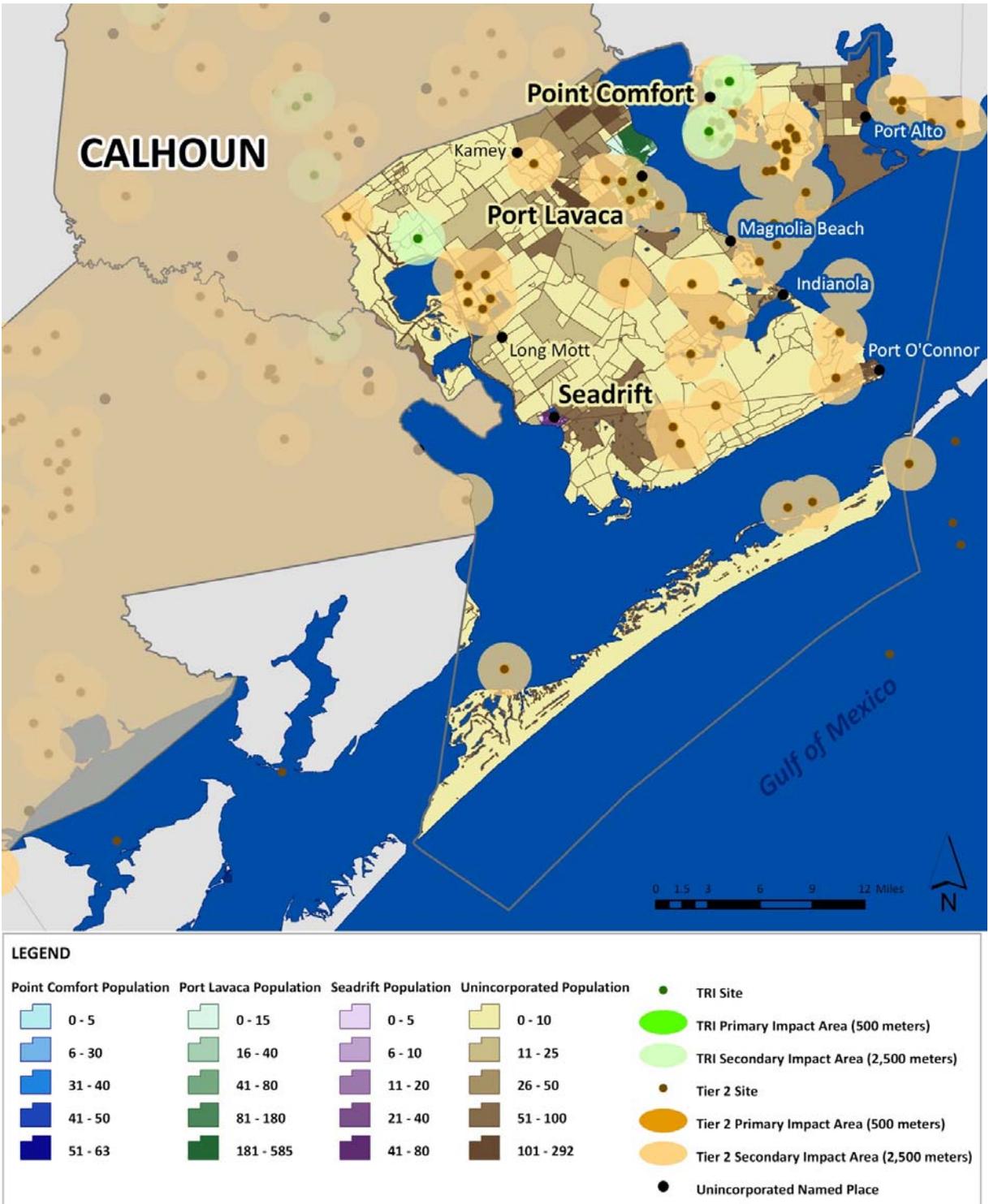
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Figure 16-2. Estimated Locations of Toxic Sites in Caldwell County



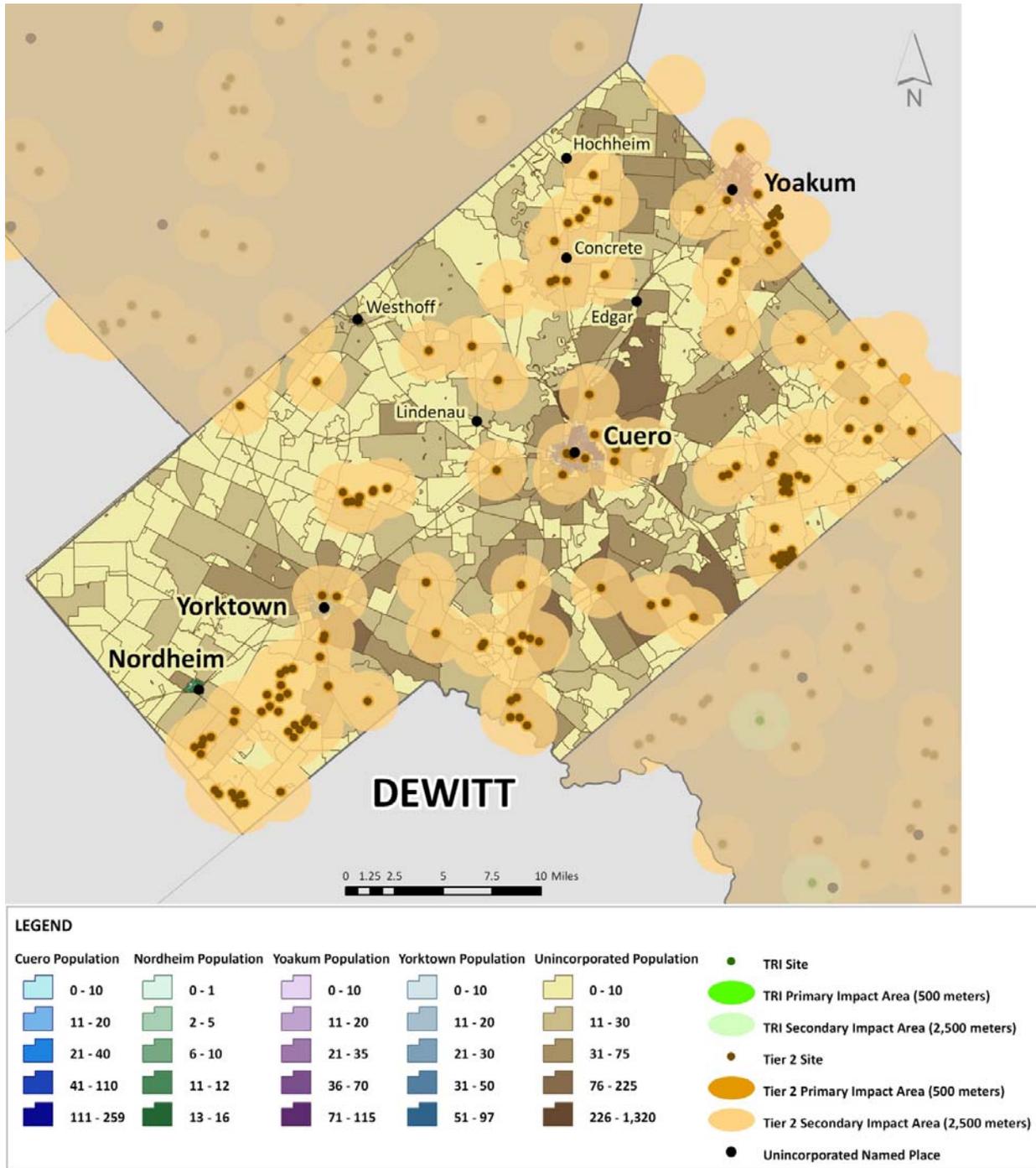
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Figure 16-3. Estimated Locations of Toxic Sites in Calhoun County



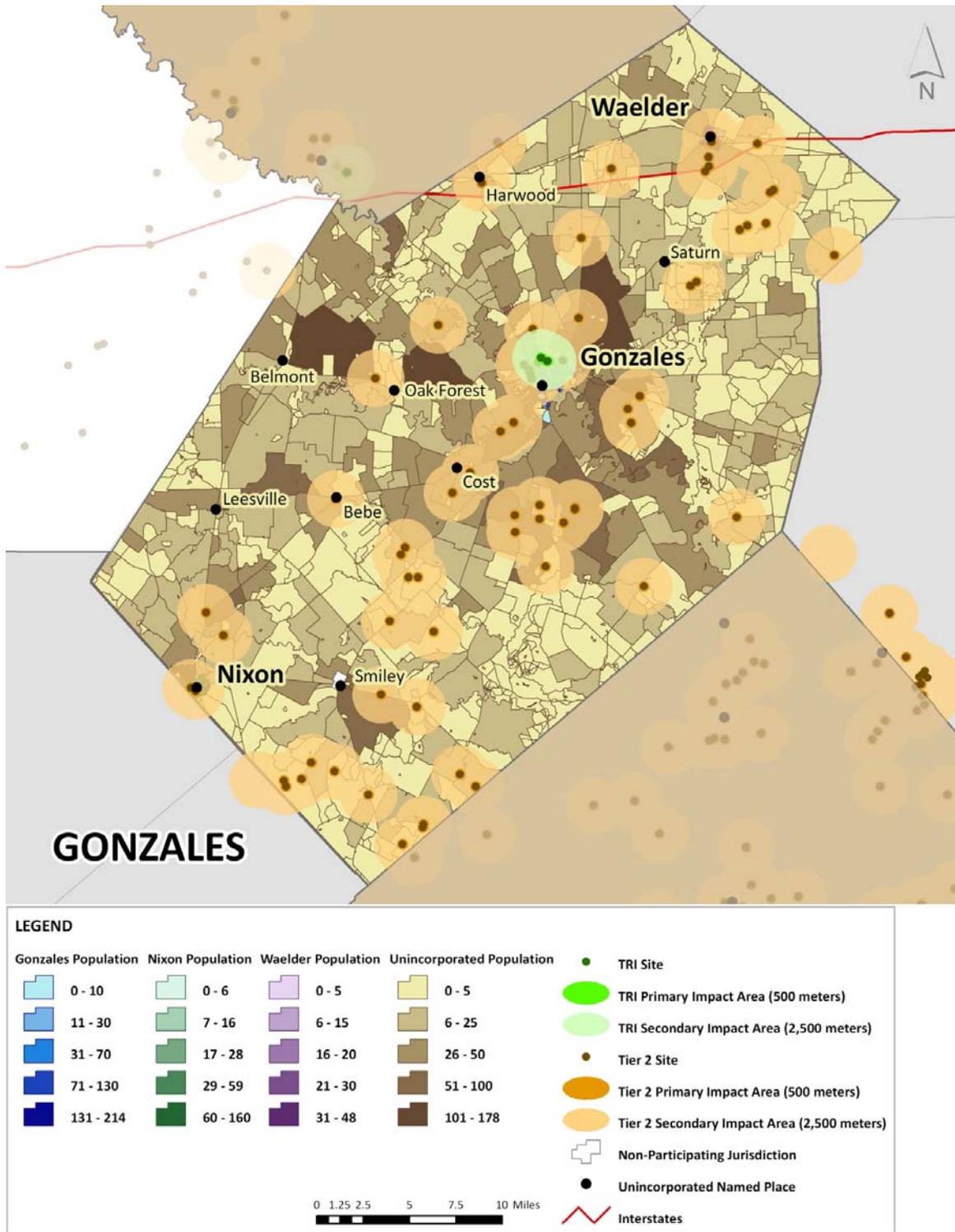
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Figure 16-4. Estimated Locations of Toxic Sites in DeWitt County



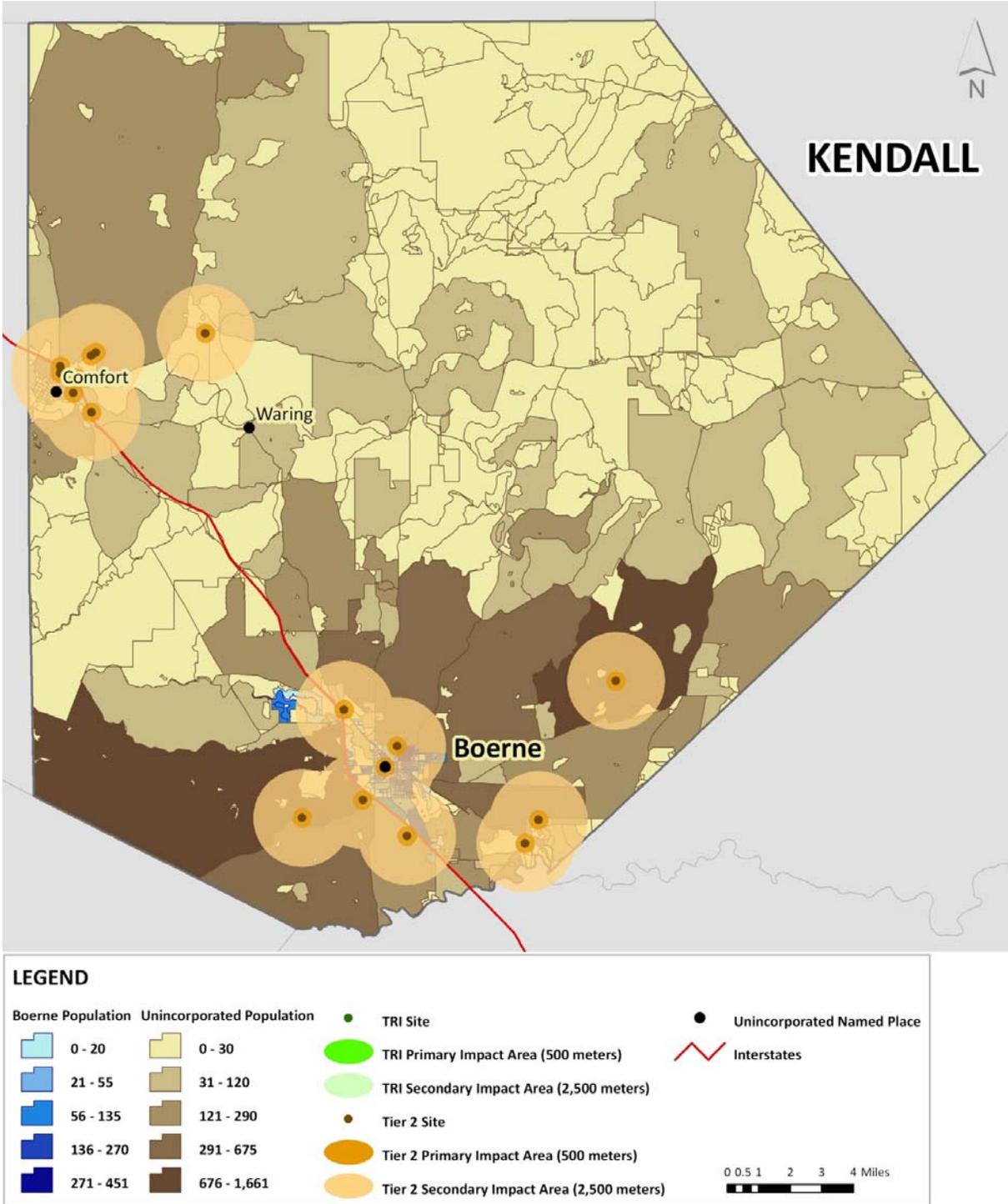
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Figure 16-5. Estimated Locations of Toxic Sites in Gonzales County



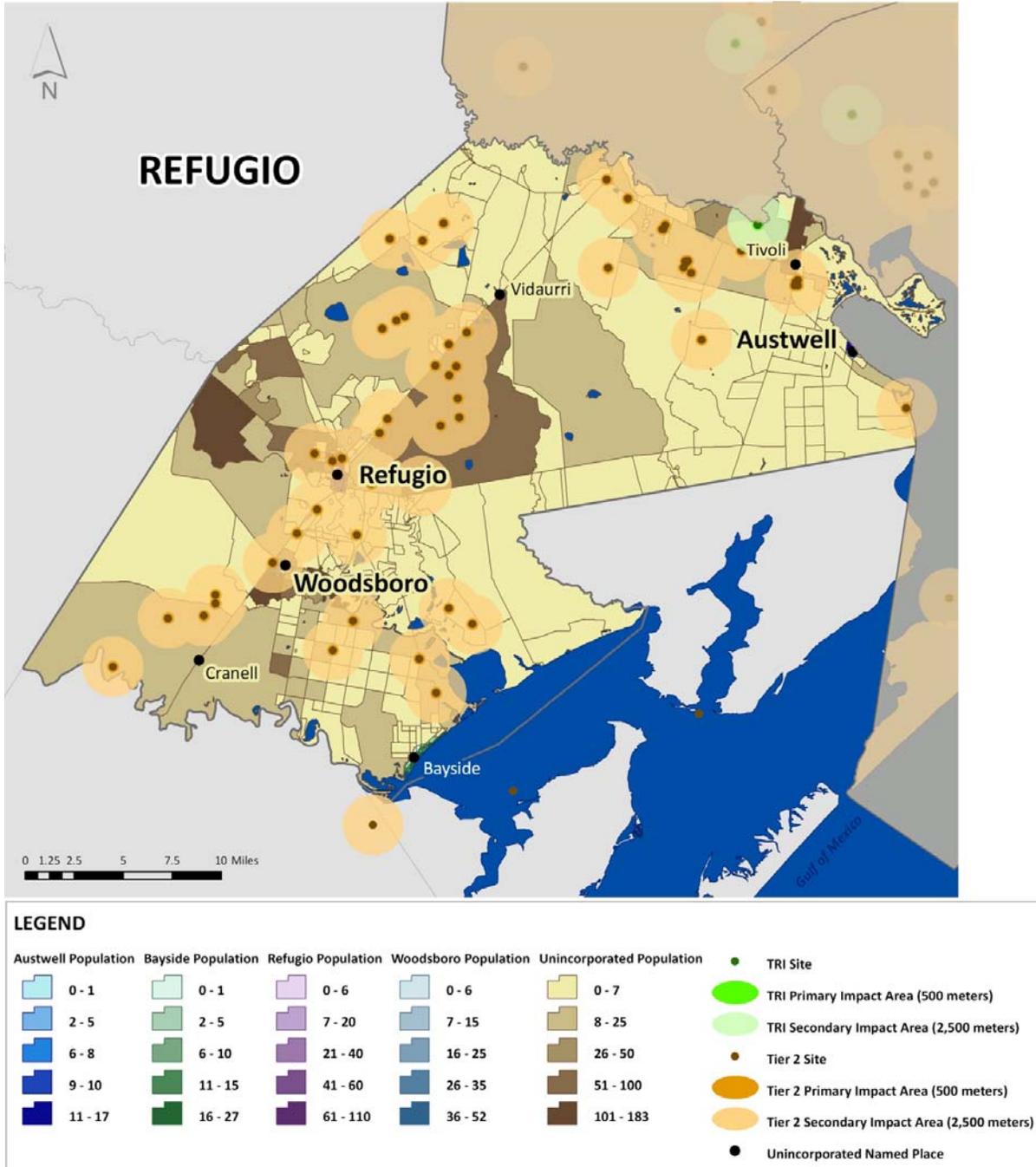
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Figure 16-6. Estimated Locations of Toxic Sites in Kendall County



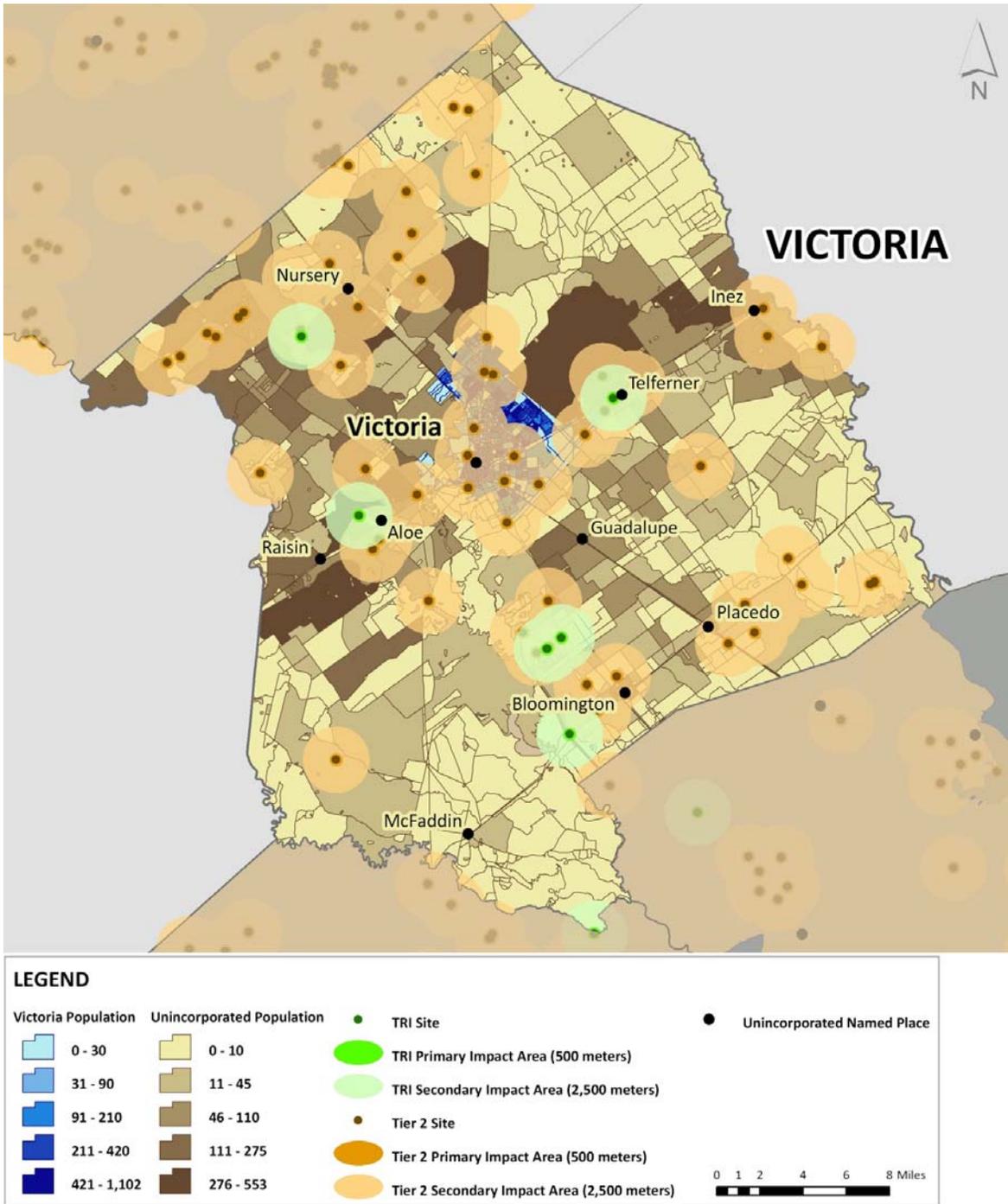
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Figure 16-7. Estimated Locations of Toxic Sites in Refugio County



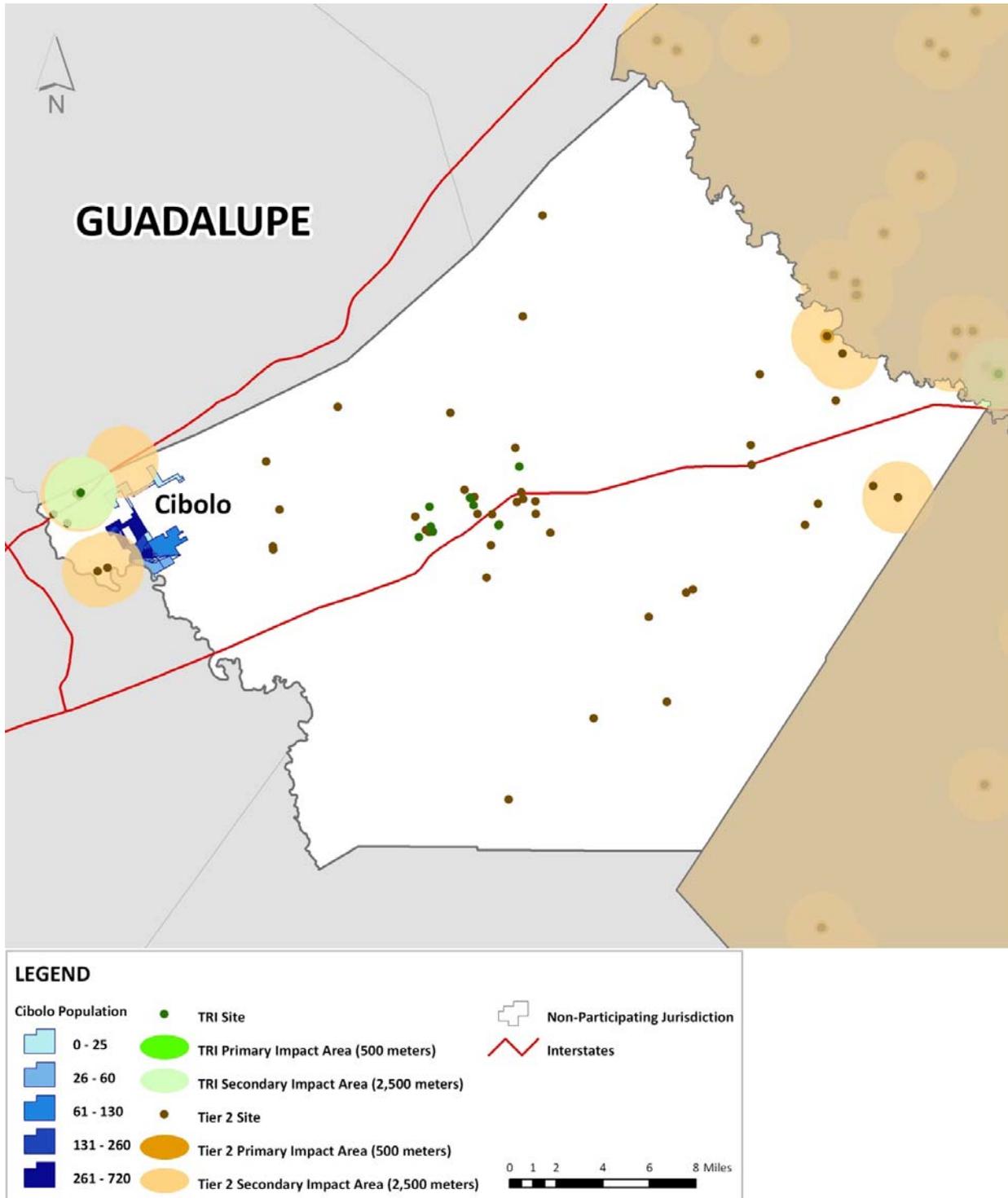
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Figure 16-8. Estimated Locations of Toxic Sites in Victoria County



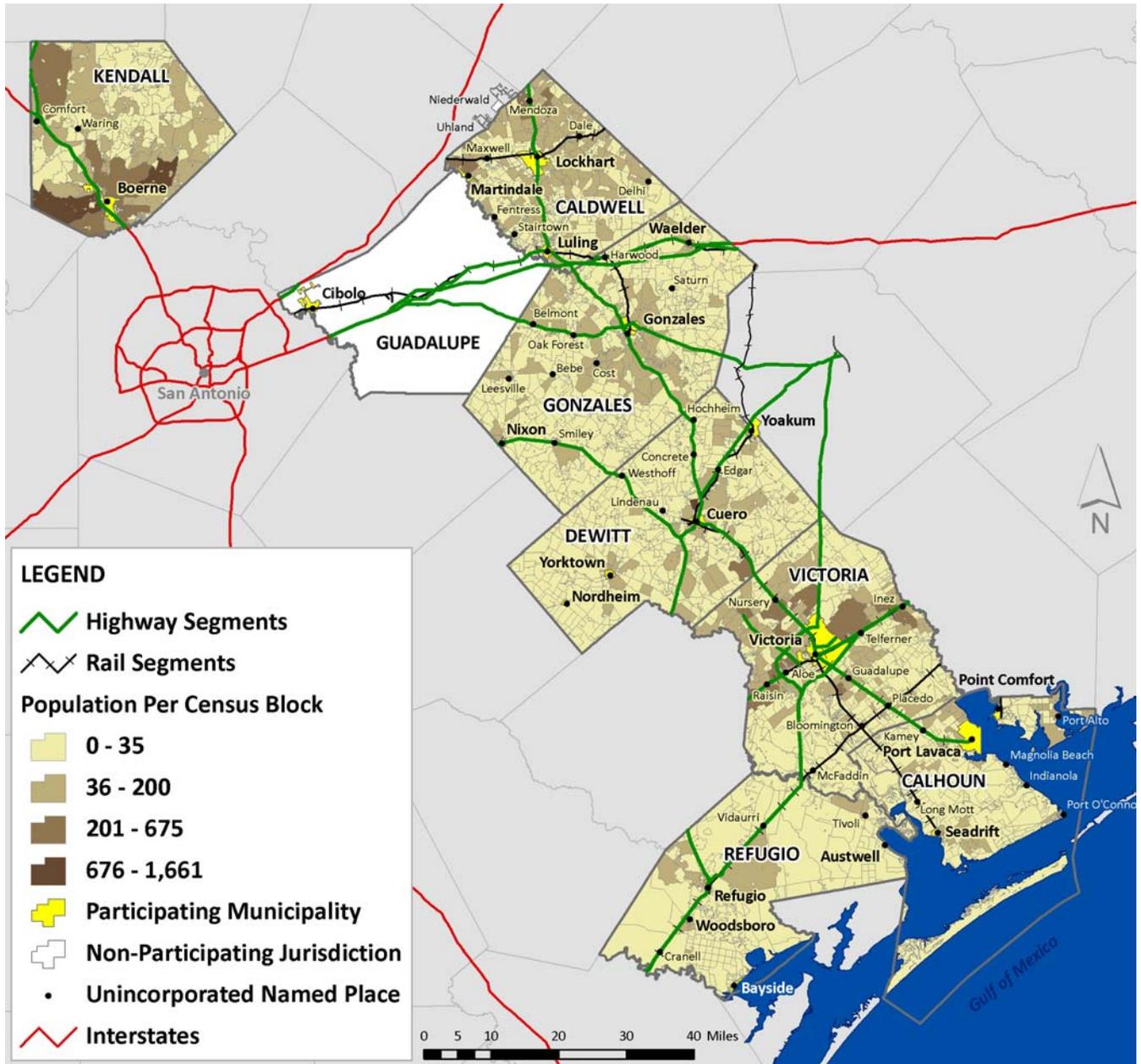
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Figure 16-9. Estimated Locations of Toxic Sites in Cibolo (in Guadalupe County)



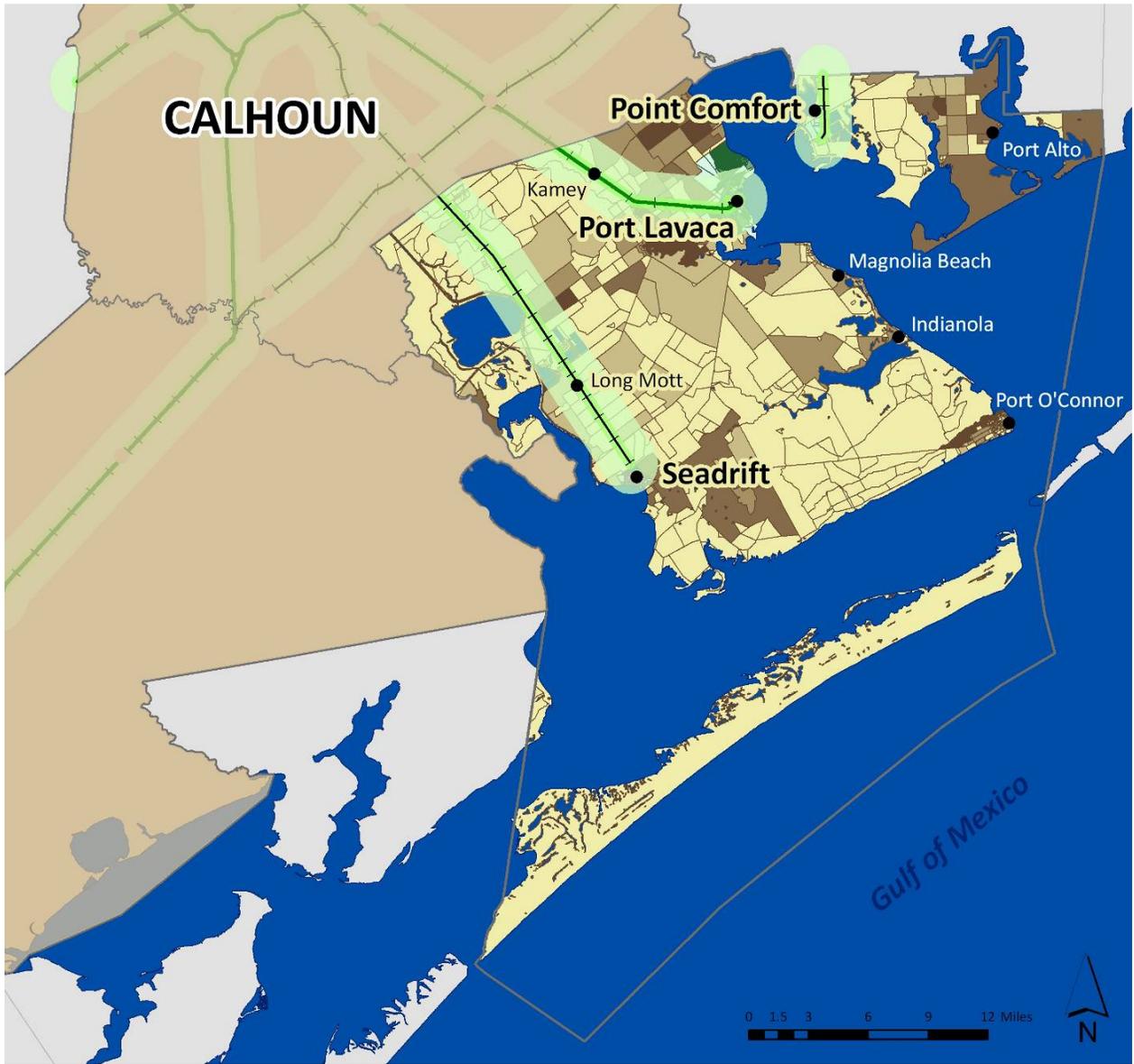
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Figure 16-10. Estimated Mobile HAZMAT Corridors in GBRA



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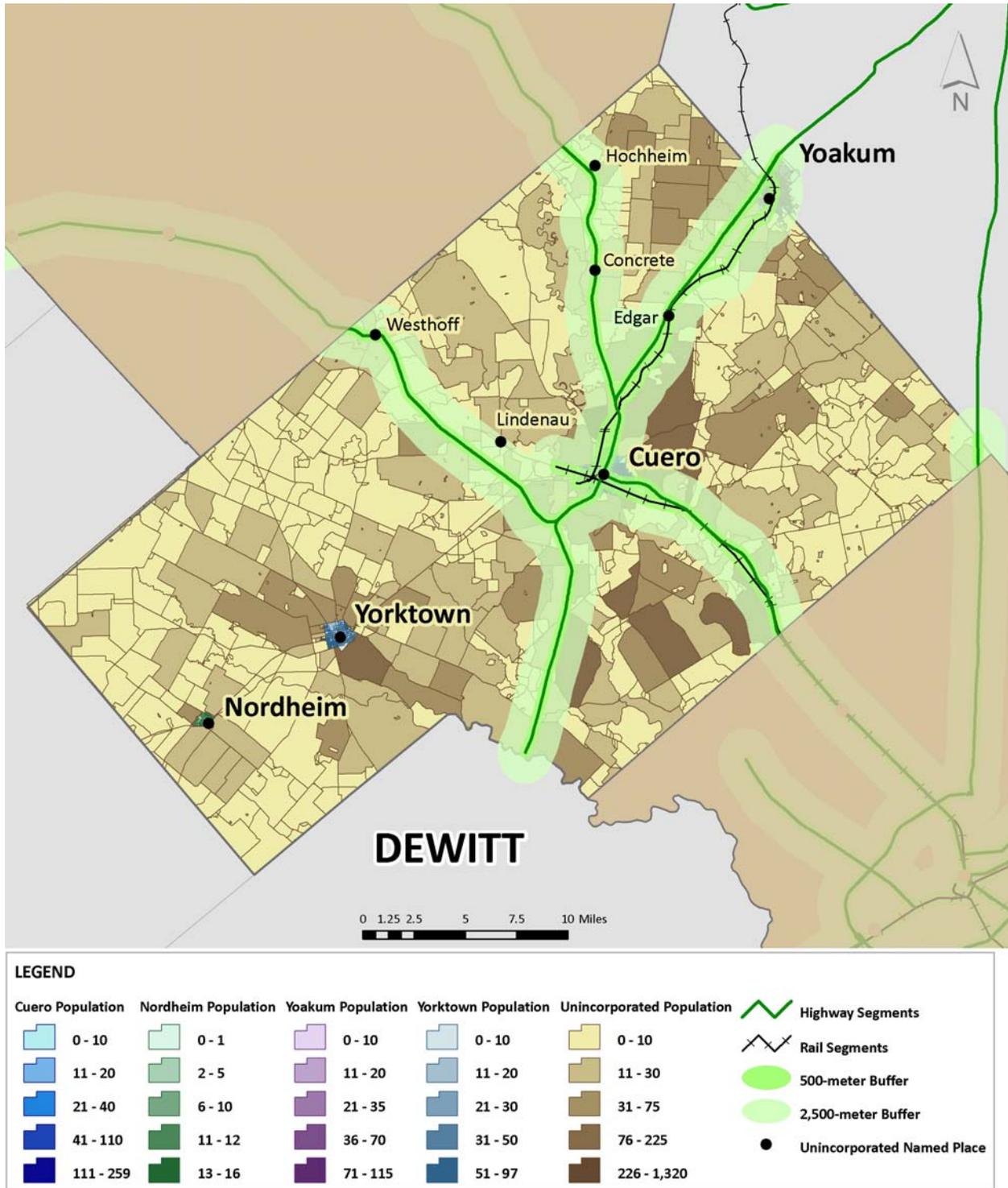
Figure 16-12. Estimated Mobile HAZMAT Corridors in Calhoun County



LEGEND				
Point Comfort Population	Port Lavaca Population	Seadrift Population	Unincorporated Population	
0 - 5	0 - 15	0 - 5	0 - 10	Highway Segments
6 - 30	16 - 40	6 - 10	11 - 25	Rail Segments
31 - 40	41 - 80	11 - 20	26 - 50	500-meter Buffer
41 - 50	81 - 180	21 - 40	51 - 100	2,500-meter Buffer
51 - 63	181 - 585	41 - 80	101 - 292	Unincorporated Named Place

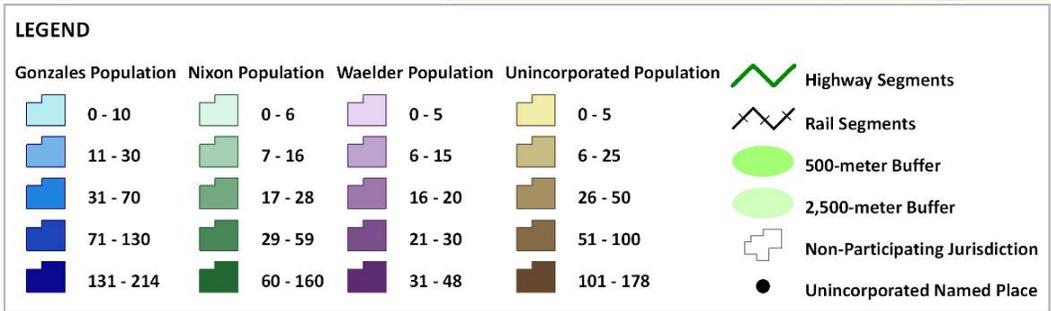
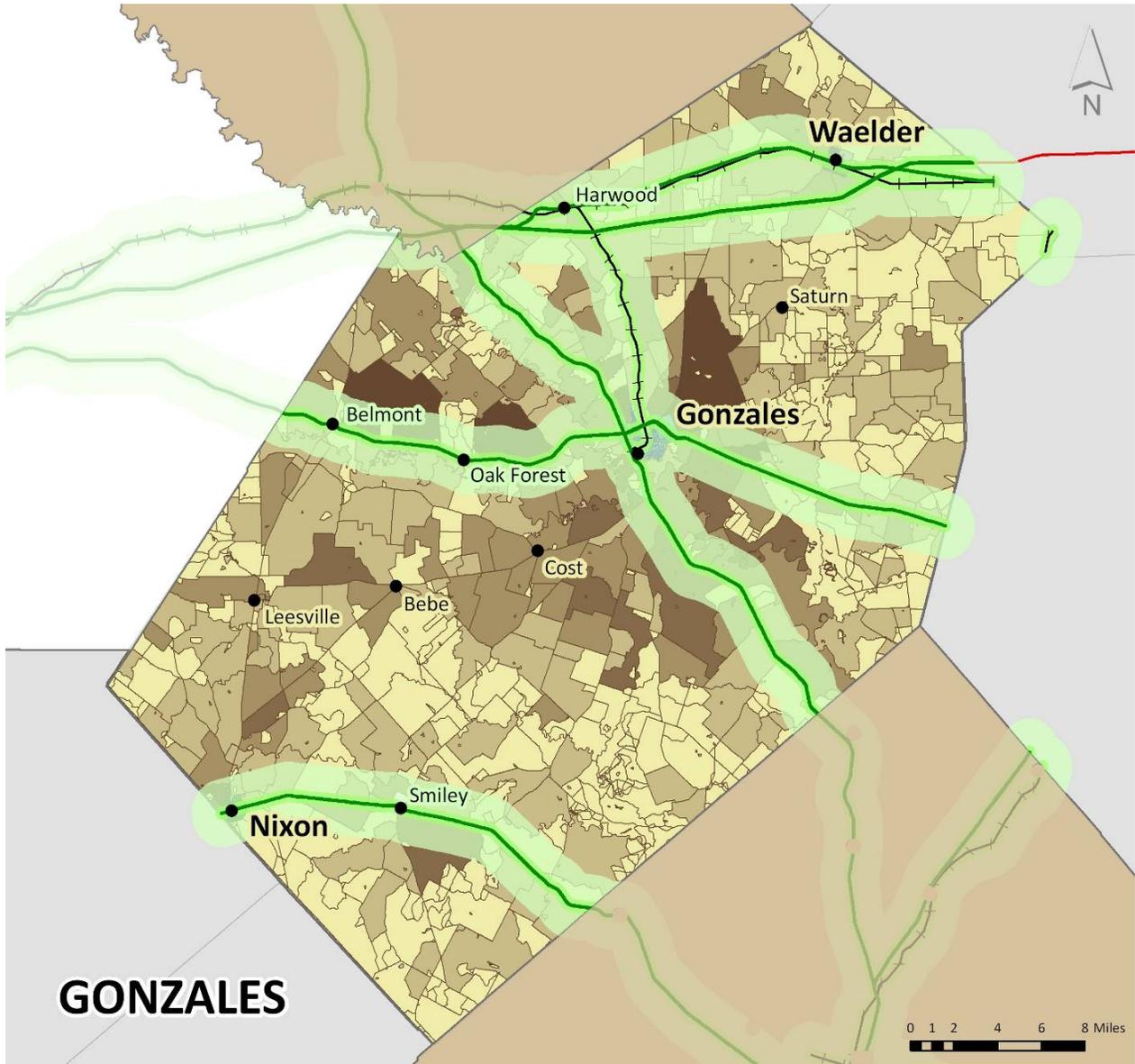
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Figure 16-13. Estimated Mobile HAZMAT Corridors in DeWitt County



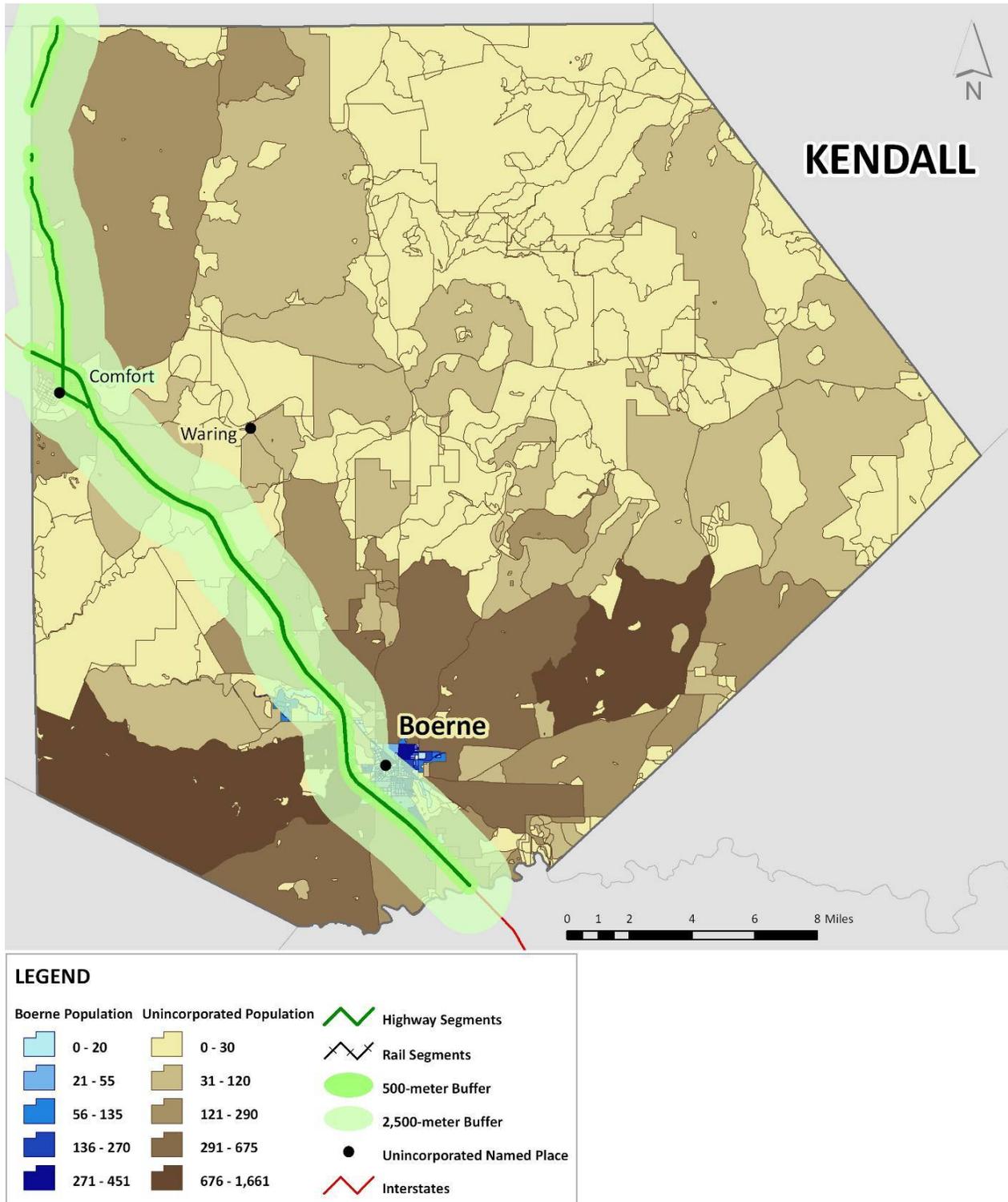
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Figure 16-14. Estimated Mobile HAZMAT Corridors in Gonzales County



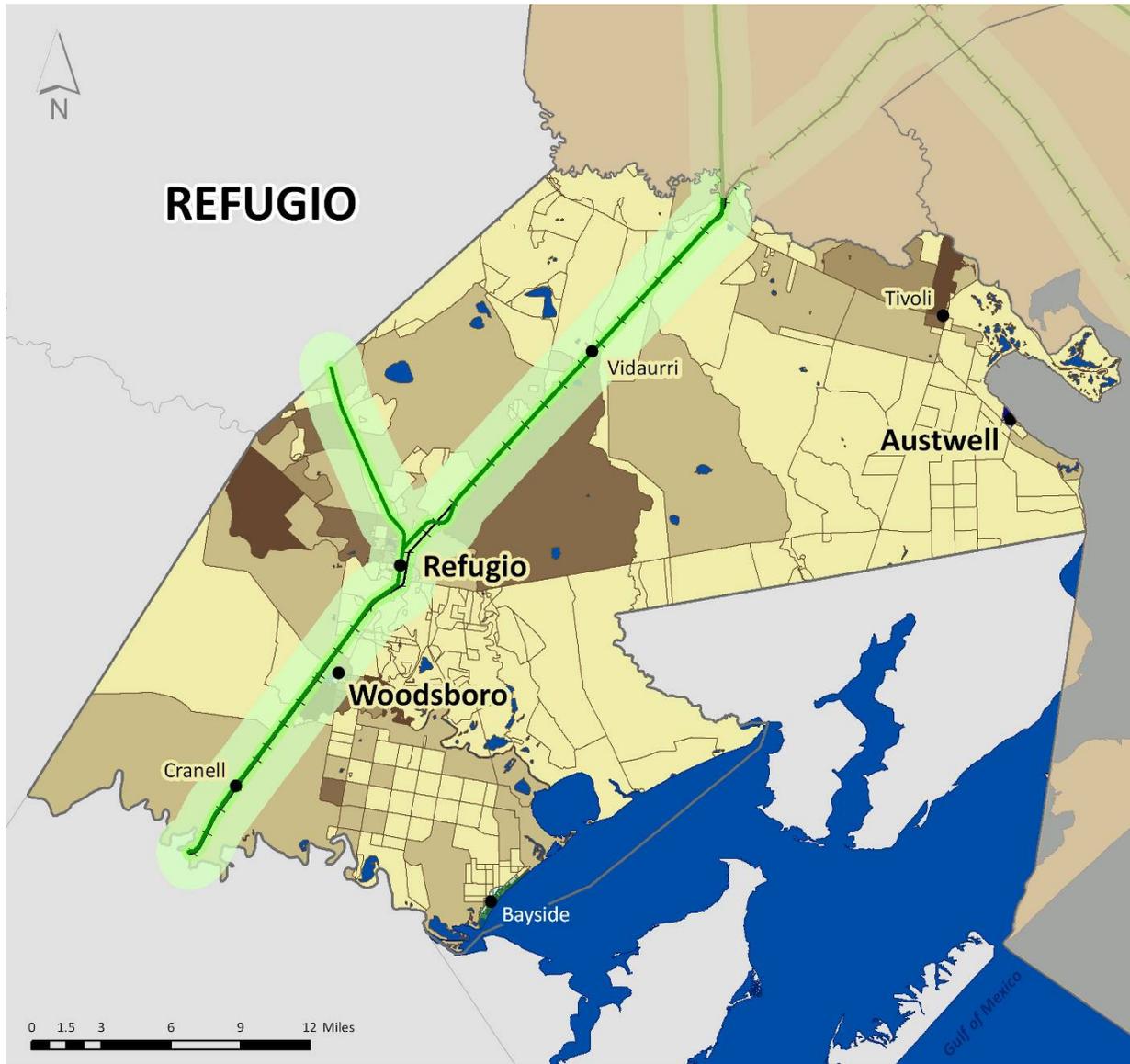
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Figure 16-15. Estimated Mobile HAZMAT Corridors in Kendall County



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Figure 16-16. Estimated Mobile HAZMAT Corridors in Refugio County

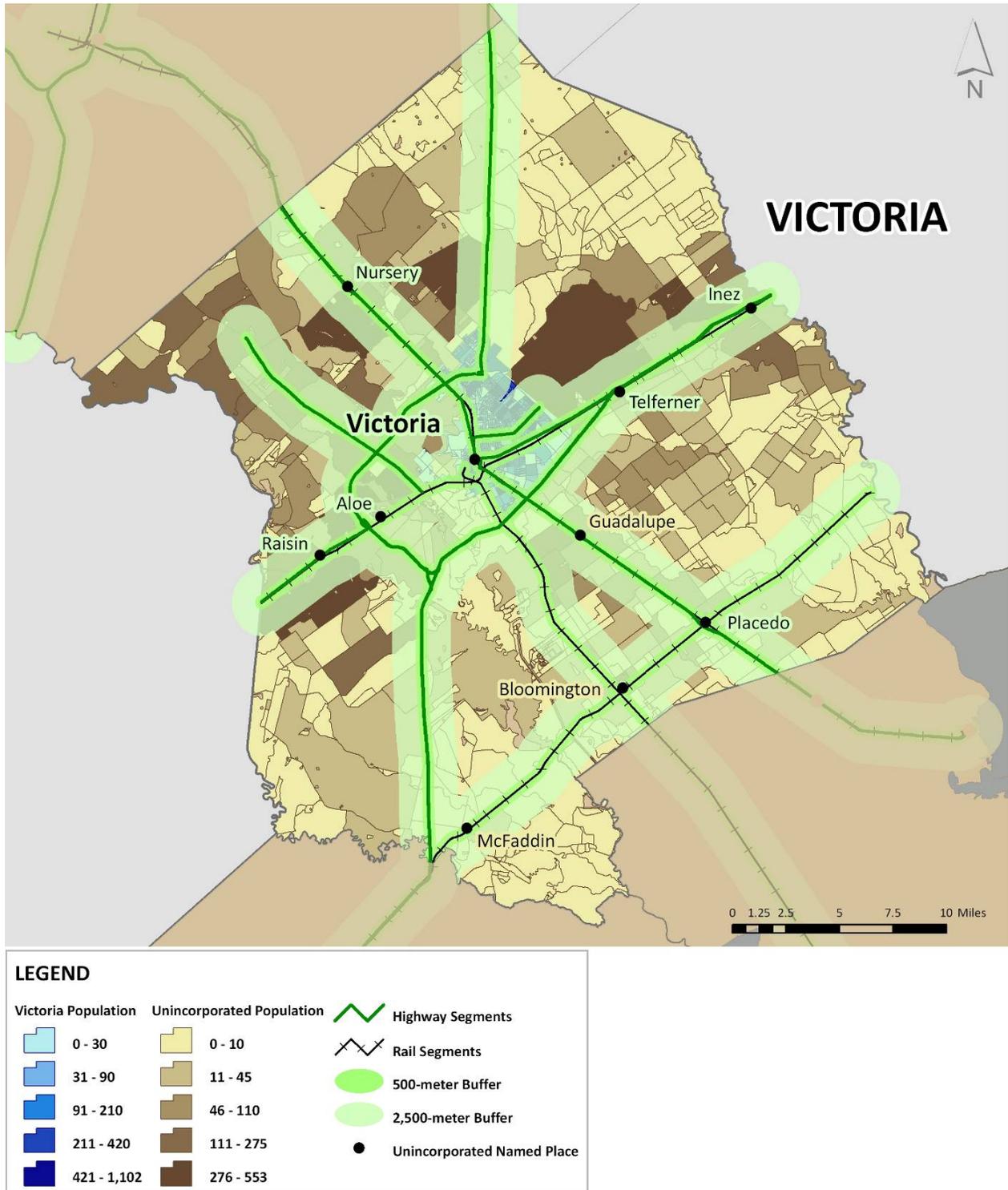


LEGEND

Austwell Population	Bayside Population	Refugio Population	Woodsboro Population	Unincorporated Population	Highway Segments
0 - 1	0 - 1	0 - 6	0 - 6	0 - 7	
2 - 5	2 - 5	7 - 20	7 - 15	8 - 25	
6 - 8	6 - 10	21 - 40	16 - 25	26 - 50	
9 - 10	11 - 15	41 - 60	26 - 35	51 - 100	
11 - 17	16 - 27	61 - 110	36 - 52	101 - 183	

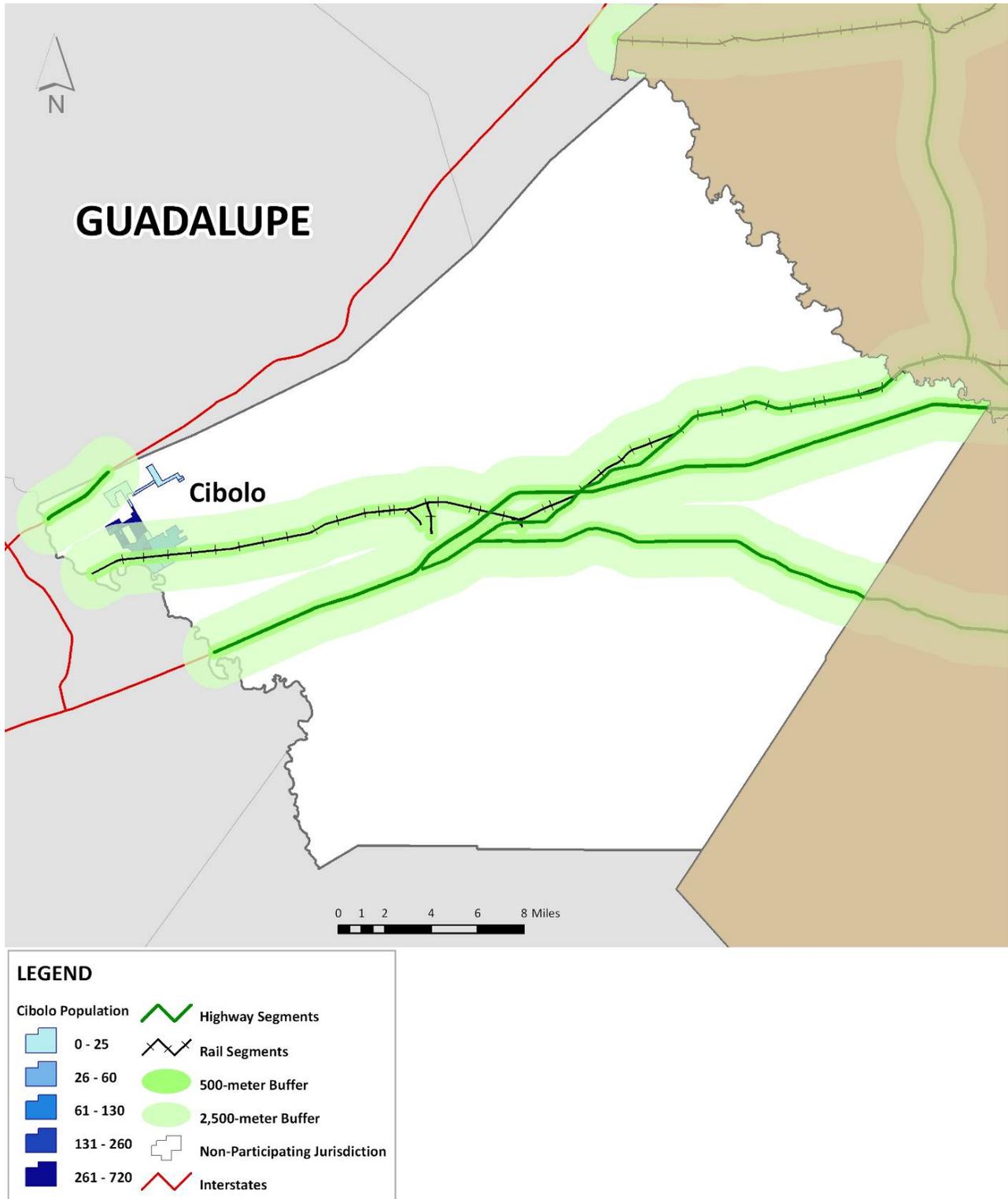
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Figure 16-17. Estimated Mobile HAZMAT Corridors in Victoria County



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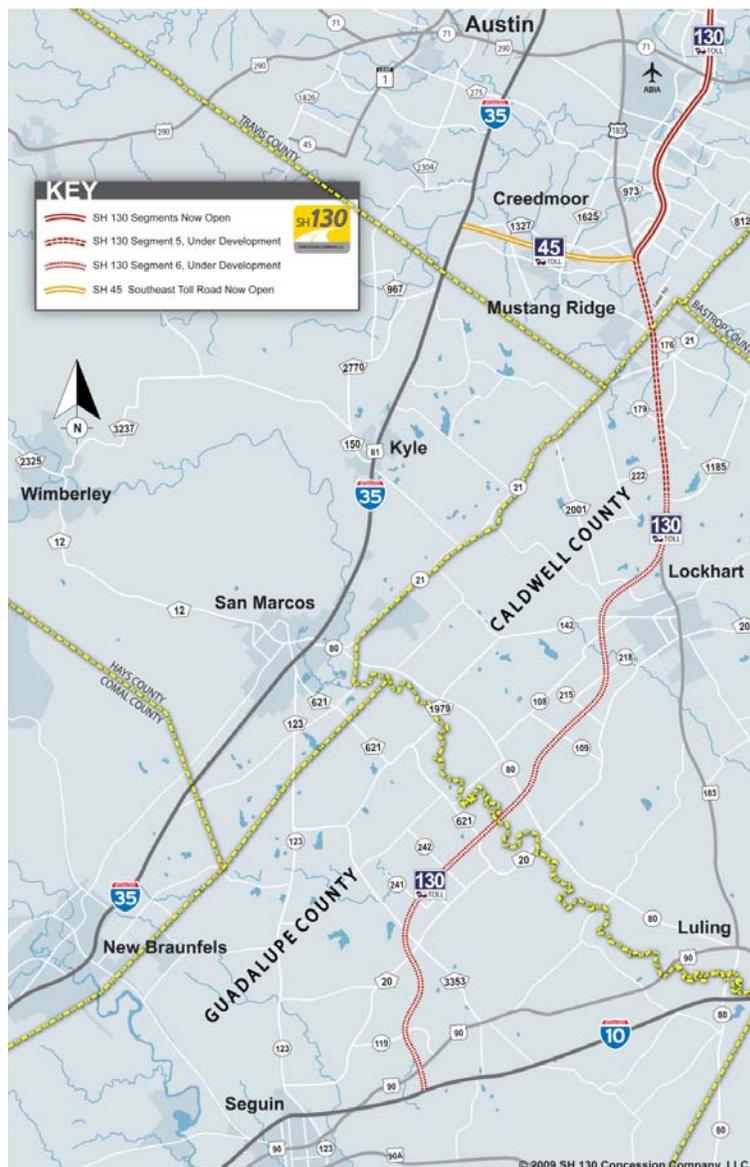
Figure 16-18. Estimated Mobile HAZMAT Corridors in Cibolo (in Guadalupe County)



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Although not included in the location profile figures for mobile hazardous material sites, State Highway 130 (SH 130) is being extended through Caldwell and Guadalupe counties to 1-10 near Seguin. Construction began in 2009 and completion is expected in 2012. Although this is part of the larger Central Texas Turnpike System and would not be the responsibility of the counties, this highway segment should be considered as a future mobile hazardous materials transportation corridor. Since this road is still under construction, GIS data is not readily available to include in the hazardous materials assessment. However, a static map that was obtained via the Central Texas Turnpike Authority Web site is included below (Figure 16-19) to assist with emergency management decision making.

Figure 16-19. Image of Future Location – SH 130



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Extent

The extent of a hazardous material release will depend on whether it is from a mobile or fixed site and the size of impact. The range of intensity will vary greatly depending on the circumstances. These factors and conditions include the material, toxicity, duration of the release and environmental conditions such as the wind and precipitation.

Historical Occurrences

Table 16-1 summarizes the historical on-site toxic disposal and other releases for TRI sites only that occurred from 1988 to 2007 as reported to the Environmental Protection Agency (EPA).

**Table 16-1. Historical Toxic Release Summary (TRI Only):
Reported Chemical Release and Waste Management Activities, in Pounds (1988-2007)**

JURISDICTION	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Caldwell County	No data	44,900	44,900	62,639	63,399	73,090	100,107	566,750	27,070	5,352
Calhoun County	92,432,602	68,964,727	35,556,571	31,914,075	29,236,660	23,313,663	14,165,388	15,888,694	14,223,002	17,090,631
DeWitt County	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Gonzales County	0	0	780	1,270	520	770	770	0	0	0
Kendall County	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Refugio County	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Victoria County	30,810,797	32,523,172	35,166,748	27,312,965	23,290,701	22,216,144	27,291,297	27,291,297	24,109,882	23,809,646
TOTALS	123,243,399	101,532,799	70,768,999	59,290,949	52,591,280	45,603,667	41,557,562	43,746,741	38,359,954	40,905,629
JURISDICTION	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Caldwell County	5,337	5,865	5,625	4,632	8,059	21,006	21,584	23,950	21,493	21,765
Calhoun County	15,304,347	17,391,245	19,831,591	17,150,915	22,270,010	17,406,820	16,072,009	17,672,735	19,059,998	19,980,720

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JURISDICTION	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
DeWitt County	No data									
Gonzales County	0	0	0	0	15	10	10	10	0	0
Kendall County	No data									
Refugio County	No data									
Victoria County	25,122,676	21,426,356	15,104,574	10,641,222	10,096,316	10,160,927	7,071,738	6,700,335	6,633,432	6,294,879
TOTALS	40,432,360	38,823,466	34,941,790	27,796,769	32,374,400	27,588,763	23,165,341	24,397,030	25,714,923	26,297,364

Probability of Future Occurrences

The transport of hazardous material and explosives through GBRA Basin communities is regulated by the State Department of Transportation. Hazardous materials are transported through all counties within the GBRA Basin using major highways and thoroughfares. The risk of hazardous spills during transport exists and may increase in areas with continued industrial development and major highways, such as Interstate 10. In addition, counties throughout the basin have multiple hazardous material sites as indicated in Table 16-2. Therefore the probability of future occurrences is occasional, with an event possible in the next five years.

Table 16-2. Hazardous Material Sites by Jurisdiction

JURISDICTION	HAZARDOUS MATERIALS FACILITIES
	Number of Sites
Caldwell County	20
Lockhart	2
Luling	6
Martindale	0
Calhoun County	61
Point Comfort	1
Port Lavaca	5
Seadrift	0
DeWitt County	139

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JURISDICTION	HAZARDOUS MATERIALS FACILITIES
	Number of Sites
Cuero	4
Nordheim	0
Yoakum	1
Yorktown	1
Gonzales County	61
Gonzales	10
Nixon	2
Waelder	2
Cibolo (Guadalupe County)	0
Kendall County	15
Boerne	3
Refugio County	53
Austwell	0
Bayside	0
Refugio	2
Woodsboro	1
Victoria County	55
Victoria	0
TOTALS FOR STUDY AREA	444

Impact & Vulnerability

Hazardous material or toxic releases can have a significant negative impact. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions will directly affect how the hazard develops. The micro-meteorological effects of the buildings and terrain can influence the travel of agents.¹ Shielding in the form of sheltering-in-place can protect people from harmful effects. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features can substantially increase the damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

¹ http://www.fema.gov/txt/plan/prevent/rms/428/FEMA428_ch1.txt

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Table 16-3 shows the estimated exposure of people and buildings to a toxic release by county for fixed site and Table 16-4 shows the results for a mobile site toxic release. For fixed site analysis, only toxic sites with georeferenced data available were analyzed. Two buffer extents—500 and 2,500 meters—are assumed in respect to the different levels of impact: immediate (primary) and secondary. Primary and secondary impact sites were selected based on guidance from FEMA 426, *Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings* and engineering judgment.

Table 16-3. Estimated Exposure of People and Buildings by County (Fixed Site Toxic Release)

JURISDICTION	TOTAL POPULATION IN JURISDICTION	TOTAL BUILDINGS IN JURISDICTION	IMMEDIATE IMPACT (500 METERS)			SECONDARY IMPACT (2,500 METERS)		
			Number People Exposed	Number Buildings Exposed	Value Of Buildings Exposed (\$)	Number People Exposed	Number Buildings Exposed	Value Of Buildings Exposed (\$)
Caldwell County	14,661	6,462	3,461	1,395	\$125,576,000	9,411	3,966	\$361,019,000
Lockhart	11,591	4,217	3,522	1,034	\$140,921,000	11,566	4,181	\$613,148,000
Luling	5,025	2,584	169	860	\$86,135,000	5,025	2,584	\$264,373,000
Martindale	917	424	0	0	0	194	100	\$7,349,000
Calhoun County	6,481	6,463	1,123	957	\$152,215,000	3,060	2,446	\$325,233,000
Point Comfort	781	477	0	0	\$0	781	477	\$80,897,000
Port Lavaca	12,035	5,489	3,245	1,302	\$137,977,000	10,018	4,525	\$523,911,000
Seadrift	1,350	1,069	0	0	\$0	0	0	\$0
DeWitt County	8,805	5,417	2,882	1,637	\$174,667,000	6,923	3,292	\$356,828,000
Cuero	6,544	3,824	2,443	1,404	\$165,112,000	6,544	3,824	\$412,893,000
Nordheim	323	266	0	0	\$0	0	0	\$0
Yoakum	5,729	3,306	369	220	\$27,088,000	5,729	3,306	\$370,136,000
Yorktown	2,204	1,568	569	343	\$33,615,000	2,204	1,299	\$127,049,000
Gonzales County	8,343	5,619	2,759	1,493	\$125,402,000	5,100	3,117	\$256,734,000
Gonzales	7,160	3,636	2,386	1,077	\$144,890,000	7,148	3,623	\$400,074,000
Nixon	2,178	1,326	945	541	\$44,522,000	2,178	1,326	\$94,690,000
Waelder	947	572	873	513	\$34,374,000	947	572	\$37,972,000
Cibolo (Guadalupe County)	3,035	1,338	0	0	\$0	2,214	883	\$163,485,000
Kendall County	17,618	8,189	6,724	2,875	\$422,285,000	12,192	5,447	\$814,611,000
Boerne	6,125	3,016	1,731	928	\$172,691,000	5,992	2,962	\$488,364,000
Refugio County	2,670	1,360	705	349	\$39,479,000	2,107	1,067	\$118,645,000
Austwell	192	176	0	0	\$0	0	0	\$0
Bayside	360	304	0	0	\$0	0	0	\$0
Refugio	2,920	1,805	1,180	639	\$74,349,000	2,920	1,805	\$186,843,000
Woodsboro	1,683	837	531	281	\$27,889,000	1,686	837	\$78,606,000
Victoria County	23,482	9,699	6,418	2,690	\$347,124,000	18,591	7,675	\$899,890,000
Victoria	60,606	24,412	8,549	3,754	\$702,490,000	55,138	22,398	\$3,505,204,000

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JURISDICTION	TOTAL POPULATION IN JURISDICTION	TOTAL BUILDINGS IN JURISDICTION	IMMEDIATE IMPACT (500 METERS)			SECONDARY IMPACT (2,500 METERS)		
			Number People Exposed	Number Buildings Exposed	Value Of Buildings Exposed (\$)	Number People Exposed	Number Buildings Exposed	Value Of Buildings Exposed (\$)
TOTALS²	213,765	103,855	50,584	24,292	\$3,178,801,000	177,668	81,712	\$10,487,954,000

Source: EPA and Texas Department of State Health Services Tier 2 Chemical Reporting Program

Table 16-4. Estimated Exposure of People and Buildings by County (Mobile Site Toxic Release)

JURISDICTION	TOTAL POPULATION IN JURISDICTION	TOTAL BUILDINGS IN JURISDICTION	IMMEDIATE IMPACT (500 METERS)			SECONDARY IMPACT (2,500 METERS)		
			Number People Exposed	Number Buildings Exposed	Value of Buildings Exposed (\$)	Number People Exposed	Number Buildings Exposed	Value of Buildings Exposed (\$)
Caldwell County	14,661	6,462	5,600	2,272	\$203,082,000	8,610	3,685	\$330,458,000
Lockhart	11,591	4,217	7,549	2,595	\$379,813,000	11,591	4,217	\$618,183,000
Luling	5,025	2,584	3,605	1,807	\$189,706,000	5,025	2,584	\$264,373,000
Martindale	917	424	Negligible	0	Negligible	189	96	\$7,259,000
Calhoun County	6,481	6,463	1,117	865	\$152,675,000	2,211	2,116	\$315,984,000
Point Comfort	781	477	401	267	\$94,225,000	781	477	\$121,298,000
Port Lavaca	12,035	5,489	5,323	2,383	\$251,897,000	11,733	5,229	\$634,089,000
Seadrift	1,350	1,069	132	68	\$5,449,000	1,552	1,069	\$72,052,000
DeWitt County	8,805	5,417	5,804	2,383	\$322,442,000	6,710	2,913	\$379,031,000
Cuero	6,544	3,824	7,997	3,602	\$436,477,000	8,440	3,824	\$454,999,000
Nordheim	323	266	Negligible	0	Negligible	Negligible	0	Negligible
Yoakum	5,729	3,306	3,235	1,855	\$243,472,000	5,729	3,306	\$370,136,000
Yorktown	2,204	1,568	Negligible	0	Negligible	Negligible	0	Negligible
Gonzales County	8,343	5,619	4,373	2,657	\$242,860,000	5,279	3,389	\$291,177,000
Gonzales	7,160	3,636	1,815	2,550	\$311,991,000	7,160	3,636	\$401,785,000
Nixon	2,178	1,326	1,815	1,073	\$84,049,000	2,178	1,326	\$94,690,000
Waelder	947	572	922	558	\$36,988,000	947	572	\$37,972,000
Cibolo (Guadalupe County)	3,035	1,338	935	521	\$82,015,000	3,031	1,337	\$221,140,000
Kendall County	17,618	8,189	7,639	3,559	\$544,155,000	10,768	4,983	\$737,886,000
Boerne	6,125	3,016	859	530	\$108,924,000	5,104	2,591	\$427,600,000

² Totals for the study area may include values less than \$5,000 for dollar amounts and less than 50 for populations (where applicable) that are classified as “negligible” in the table.

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JURISDICTION	TOTAL POPULATION IN JURISDICTION	TOTAL BUILDINGS IN JURISDICTION	IMMEDIATE IMPACT (500 METERS)			SECONDARY IMPACT (2,500 METERS)		
			Number People Exposed	Number Buildings Exposed	Value of Buildings Exposed (\$)	Number People Exposed	Number Buildings Exposed	Value of Buildings Exposed (\$)
Refugio County	2,670	1,360	734	381	\$45,535,000	1,201	579	\$71,348,000
Austwell	192	176	Negligible	0	Negligible	Negligible	0	Negligible
Bayside	360	304	Negligible	0	Negligible	Negligible	0	Negligible
Refugio	2,920	1,805	2,590	1,629	\$165,680,000	2,920	2,920	\$86,843,000
Woodsboro	1,683	837	723	366	\$34,176,000	1,686	837	\$78,606,000
Victoria County	23,482	9,699	15,947	6,491	\$784,852,000	20,859	20,859	\$1,031,662,000
Victoria	60,606	24,412	36,574	15,800	\$2,651,078,000	60,606	24,411	\$3,942,297,000
TOTALS³	213,765	103,855	115,689	54,212	\$7,371,541,000	184,310	96,956	\$10,990,868,000

Source: Texas Railroad Commission and U.S. Department of Transportation

³ Totals for the study area may include values less than \$5,000 for dollar amounts and less than 50 for populations that are classified as “negligible” in the table.