

THE BAKKEN

Eastern Montana & Western North Dakota



Williston, North Dakota. 2017.



McKenzie County, North Dakota. 2016.

From a geologic perspective, the Bakken Formation consists of bands of sediment deposits, from the Devonian and Mississippian periods, located two miles below the surface of Saskatchewan, Manitoba, Montana, and North Dakota (Hamlin et al. 2017). The formation has low permeability, and its natural vertical fractures lend themselves to hydraulic fracturing and horizontal drilling (Pitman, Price, and LeFever 2001). Above ground, the region's geology prompted a geographically extensive and rapid boom in unconventional oil and gas development (UOG) beginning in the early 2000s.

The Bakken is an isolated, remote geography. When UOG development began there, the impacts were substantial and often overwhelming. For instance, the population of Watford City, North Dakota increased from 1,746 in 2010 to an estimated 6,197 in 2018, a 250% increase in less than a decade (U.S. Census Bureau 2018). In the eyes of many, the communities in the Bakken were classic examples of boomtowns.

Boomtowns are steeped in American lore. They are places where anyone can supposedly "strike it rich," as long as they make it before the bust. In movies, novels, and television shows, boomtowns are gritty places with crime and drugs and lawlessness. These tropes were readily applied to the Bakken, as illustrated by the headlines below.

The Bakken made news because it was a spectacle, something to be gawked at, a "NEW WILD WEST." However, this framing oversimplifies the region, silences voices, and ignores the everyday experiences of living with UOG development. For instance, Fort Berthold Reservation rarely is mentioned in new articles or research about the Bakken, though by some estimates the reservation accounts for over 25% of the state's potential oil production.

The Bakken is more than a boomtown. It is at once a deeply globalized, regional territory of industrial production *and* a rural geography with a strong agricultural identity. It is home for approximately 60,000 people: there are sports teams, schools, hospitals. The Bakken has a complicated history of conquest and displacement, as demonstrated by the experiences of the Mandan, Hidatsa, and Arikara peoples (known as the MHA Nation or the Three Affiliated Tribes). And, the Bakken has wilderness, tourism, and outdoor recreation, including the Little Missouri National Grasslands and Theodore Roosevelt National Park.

Over the course of my doctoral research I took hundreds of photographs of eastern Montana and western North Dakota. I offer a collection of my favorite ones here in an effort to provide a more comprehensive view of the Bakken and to add texture to the boomtown narrative.

Cities Welcome to Williston, North Dakota: America's new gold rush city The most expensive place to rent new housing in the US isn't Miami, LA or even New York. Thanks to the fracking boom, it's Williston, North Dakota, where Walmart pays \$20/hour and new arrivals sleep in shipping containers. How does a city cope with a modern-day gold rush?	National IBT SPECIAL REPORT Hard Times In 'Boomtown, USA': The Rise And Fall Of Oil In Williston, North Dakota By Tim Marcin @TimMarcin 12/23/15 AT 8:57 AM Williston, North Dakota — Uriah Wilson slouched in a cheap plastic chair, his tired body folding into the	
BLACK GOLD, FRACKING, AND LIFE IN A NORTH DAKOTA BOOMTOWN THE NEW WILD WEST BLAIRE BRIDDY	I Worked in a Strip Club in a North Dakota Fracking Boomtown <i>I went to report on life in the oil fields and ended up working as a cocktail waitress. Here are some of the crazy people I met and the stories they told me.</i> You've Never Seen Anything Like This North Dakota Oil Boomtown Bakken oil booms—and so does crime on the Plains Why North Dakota is running on empty By Michelle Fleury North America Business correspondent © 15 April 2016	A rough patch: Study shows how violent Bakken became as oil drilling surged APRIL BAUMGARTEN Forum News Service Feb 18, 2019 GET ACCESS FOR 99¢ 



Four Bears Bridge, Fort Berthold Reservation. 2020.

The Four Bears Bridge carries North Dakota Highway 23 over Lake Sakakawea, connecting McKenzie County with Fort Berthold Reservation. The reservation is the land base for the MHA Nation. Lake Sakakawea is a reservoir that was created by the construction of the Garrison Dam on the Missouri River. When it was completed in 1956, the dam's construction flooded the communities of Van Hook and Sanish, disproportionately affecting tribal members of the MHA nation, while protecting other (predominantly white) communities.



Oil rig, McKenzie County, North Dakota. 2018.

The boom in UOG began in the mid-2000s, first in eastern Montana and then migrating to the “Big Four” oil-producing counties in North Dakota: Dunn County, McKenzie County, Mountrail County, and Williams County. At the height of the boom in 2012, there were over 200 active rigs that were drilling wells in North Dakota. Oil production peaked in 2019 with an average of 1,436,771 barrels per day, but levels decreased by 40 - 50% in 2020 due to the crash in global oil price and impacts from COVID-19 (North Dakota Oil and Gas Division 2020).



Main Street, Crosby, North Dakota. 2018.

Prior to the boom, many communities in the Bakken struggled with budget shortfalls and declining or stagnant population growth. Crosby, North Dakota, pictured above, is located on the northern fringe of the Bakken. During a lean month before the boom, the City Council had to take out a loan to pay for its monthly payroll (Gilmour 2015). Other community leaders told me similar stories with one saying that the boom “was a godsend to [the] community, a shot to the arm of growth.”



McKenzie County, North Dakota. 2016.

During the initial years of the boom, industrial sprawl was common throughout the landscape. In response, many of the counties implemented county-wide zoning. Land use regulations are often politically polarizing in rural regions. However, community leaders repeatedly said that implementing zoning regulations would be their top advice for other communities expecting UOG development. Increased adoption of zoning policies is a far cry from the “lawlessness” that is generally associated with boomtown stereotypes.



New neighborhood in the Township of Williston, North Dakota. 2020.

The Bakken is home to an estimated 60,000 people. Demographically, the region has changed significantly due to the UOG development. In Williams County, the 2010 population was estimated at 19,518 with a median age of 40.4 years and only 7.9% of residents identifying as non-white (U.S. Census Bureau 2010). In 2018, the population had grown to 28,315 with more diversity (16.9% of residents identified as non-white) and a lower median age of 31.5 years (U.S. Census Bureau 2018). The 2018 population statistic likely underestimates the actual population as data have struggled to keep up with the region's rapid growth.



Quiet residential neighborhood, Williston, North Dakota. 2019.

Between 2009 and 2012 most of the employment growth in the oil and gas sector in the Bakken was from temporary workers. As the industry matures, the need for temporary workers is expected to decrease, stabilize, and transition into more permanent operations and maintenance positions (Kim and Johnson 2020). However, impacts from COVID-19 have significantly disrupted the industry. Since January 2020, over 11,100 unemployment claims have been filed in the oil and gas sector (Helms 2020).





North Dakota State Highway 1804, still under construction. 2020.

Due to the rural and remote nature of the Bakken, transportation infrastructure is a critical component of UOG development. UOG traffic is heavy and operates 24 hours a day, 7 days a week, 52 weeks a year. The impacts to the roads are relentless, and consequently road construction is a constant. Local and state governments work hard to keep roads maintained while also building and upgrading roads to better serve the public and industry.

⏪ *Top*

UOG traffic damaged this paved road near New Town, Fort Berthold Reservation. 2018.

Middle

Road construction near Sidney, Montana. 2016.

Bottom

A train carries oil “downstream” to be processed. Williams County, North Dakota. 2019.



Williston, North Dakota. 2020.

The region's road network has been completely transformed due to UOG development. There are more roads, wider roads, and stronger roads. This upgraded intersection between Highway 85, Highway 2, and a new truck reliever route in Williston helps move UOG traffic more efficiently within the region.



McKenzie County, North Dakota. 2020.

Trucks fuel up during a -20° F morning. Winter weather can create significant challenges for the UOG industry due to its reliance on truck transport. In response, state and local transportation departments have increased their capacity and upgraded snow removal equipment, often now providing 24/7 plowing.





Oil-themed playground, Williston, North Dakota. 2017.

Local governments throughout the Bakken have invested heavily in public infrastructure to meet increased demands on government services and infrastructure prompted by the UOG development. These investments range from wastewater facilities to landfills, a regional water supply project, new and upgraded roads, transmission lines, recreation facilities, an airport, and countless city and county buildings.

Top

◀◀ The Williston Area Recreation Center was completed in 2014 and was an important quality of life investment designed to help retain workers. Williston, North Dakota. 2017.

Middle

The McKenzie County Law Enforcement Center opened in 2017. The building was a collaborative project between the McKenzie County Sheriff's Office, the Watford City Police Department, and the North Dakota Bureau of Criminal Investigation (BCI). Watford City, North Dakota. 2020.

Bottom

The Williston Basin International Airport (XWA) opened in 2019 with service from United Airlines and Delta Air Lines. The boom overwhelmed the old airport's capacity. During the height of the boom 120,000 annual passengers used the old airport, though it was designed for only 10,000 passengers. The new airport is designed for 350,000 passengers. Due to impacts from COVID-19, Delta halted its XWA operations in 2020. Williston, North Dakota. 2019.



Buffalo Trails Day, Epping, North Dakota. 2017.

Community events, like the Buffalo Trails Day in Epping, North Dakota, and sports games are important social gatherings for many residents. The Bakken also has a strong tradition of community service. For example, Communities in Action is a community building process in Richland County, Montana that works to increase the quality of life for residents. When the boom began, community leaders leveraged this process to address impacts from UOG development, from providing emergency meals to building recreational trails. The Bakken has experienced massive changes but still has a vibrant community spirit.

»» *Top*

Left: A community gathering and concert in Watford City, North Dakota. 2018.

Right: North Dakota's government is very accessible, as demonstrated by this meeting I observed at the Bank of North Dakota with Governor Burgum sitting on the far right. Bismarck, North Dakota. 2018.

Middle

Left: A Communities in Action town hall meeting. Sidney, Montana. 2016.

Right: Input from a Communities in Action meeting about how the community has changed due to the downturn in oil prices. Sidney, Montana. 2016.

Bottom

Left: A Minot State University event and walk to raise awareness about missing and murdered indigenous women. Minot, North Dakota. 2018.

Right: A Williston State Tetons men's hockey game at the Rough Rider Center. Watford City, North Dakota, 2018.



Community changes due to
oil & gas slow down:
↓ traffic on main street
faster service - stores/restaurants
Stable enrollment #'s = in/out
still displaced → transient ^{language} frequent moves - 6 lang in Watford
rv parks getting to know some of new people
emptying ↑ mental health needs
prices? housing
rent
food
gas
empty hotel
parking lots +
apt. complexes
more applicants for jobs!
Financial
stress/
layoffs





Near Epping, North Dakota. 2017.

A ranching family gathers cattle on horseback for their annual branding. Oil infrastructure in the background is a reminder of how the UOG industry intersects with agriculture. Most UOG development in the Bakken occurs on private property and much of the private property in western North Dakota is farmed or ranched. Agriculture operators are thus primary stakeholders in UOG governance.



Sidney, Montana. 2016.

A beet field near Sidney, Montana is indicative of the strong agricultural identity that long-time residents associate with the Bakken. Beets from this field are harvested in the fall and processed at the Sidney Sugars factory located in Sidney. The factory relies on a nearby coal-powered plant that is scheduled to close, creating rumors that the factory is at risk of closing as well. The complex and intersecting layers of energy production, agriculture, and other economic sectors in the Bakken are often left out of boomtown narratives.





North Unit of Theodore Roosevelt National Park, North Dakota. 2016.

While the majority of North Dakota is privately owned (approximately 89%), the Bakken has significant acreage of public land, including the Little Missouri National Grasslands (the largest national grasslands in the country) and Theodore Roosevelt National Park. UOG development is allowed on national grasslands but not within the boundaries of the national park. Other recreational opportunities that the region is known for (but are often left out of the boomtown story) include hunting, biking, boating, and fishing for paddlefish, walleye, and other species in Lake Sakakawea and the Missouri River.

<< *Top*

Left: Mountain biking on the Maah Daah Hey Trail, a 144-mile trail for non-motorized recreation that runs through the Little Missouri National Grasslands, North Dakota. 2019.

Right: The looming bust of Theodore Roosevelt at the Roosevelt Inn in Watford City, a major hub for the UOG industry *and* a gateway city for Theodore Roosevelt National Park. Watford City, North Dakota. 2020.

Middle

Left: A well on public land in the Little Missouri National Grasslands, North Dakota. 2018.

Right: Boating and fishing for walleye on Lake Sakakawea, North Dakota. 2019.

Bottom

Theodore Roosevelt National Park, North Dakota. 2016.



McKenzie County, North Dakota. 2018.

As the Bakken's industry matured, companies switched their focus from securing land leases to developing existing sites. Infill development occurs when additional wellbores are added to well pads. This prompted innovations in the industry, including larger well pads and walking drilling rigs, which use hydraulic lifts to move the entire rig to the next spud hole instead of having to take it apart. Multi-well pad drilling and walking drilling rigs have greatly increased industry's efficiency.



ONEOK Rockies Midstream, Stateline Complex, northwest of Williston, North Dakota. 2020.

The Bakken is a predominantly oil-producing formation. At the beginning of the boom, most natural gas was flared at the well site. However, as the industry developed, the amount of natural gas production significantly increased and flaring became increasingly controversial. In 2014 North Dakota implemented guidelines for decreasing flaring, with the initial goal of capturing 75% of natural gas in 2014 and 91% by 2020. The industry has struggled to meet these goals due to limited pipeline and processing capacity. New infrastructure, like the natural gas processing plant pictured above, is being built throughout the region to address the problem (Hanson and Geary 2020).



Watford City, North Dakota. 2020.

In the above picture, a company caters to the transitory nature of the workforce in the Bakken, offering both laundry facilities and a place to shower. During the height of the boom, workers came from across the United States to work in the oil fields. As one community member told me, “It’s fun looking at license plates during the boom. We saw every single state including Hawaii.”



Watford City, North Dakota. 2020.

This new luxury condo complex in Watford City illustrates the demand for housing in the heart of the Bakken. As communities and developers have caught up with the population growth, more housing is being developed to ease the housing shortage that characterized the initial years of the boom.



Road rutted by oil traffic, McKenzie County, North Dakota. 2018.

It is impossible to discuss the Bakken in isolation from the UOG industry. Even its name, “The Bakken,” illustrates the extent to which UOG permeates this region’s landscape, culture, and geographic imaginary. The name stems from the Bakken formation, one of the rock units being targeted by drilling companies. Prior to the boom, this region was typically referred to as the MonDak.

Yet, the Bakken is more than a boomtown. It is a region that accommodates and enables the UOG industry, a rural geography with an agricultural identity, and a place with strong community traditions. It has a complex history of settlement and displacement. And, it has withstood and adapted to tremendous changes over the last ten years.

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