Mining Heritage Tour, Kirkland Lake

A Century of Mining the "Mile of Gold"

The buildings of downtown Kirkland Lake reflect a gold mining boom that lasted from the 1920s to1940s.

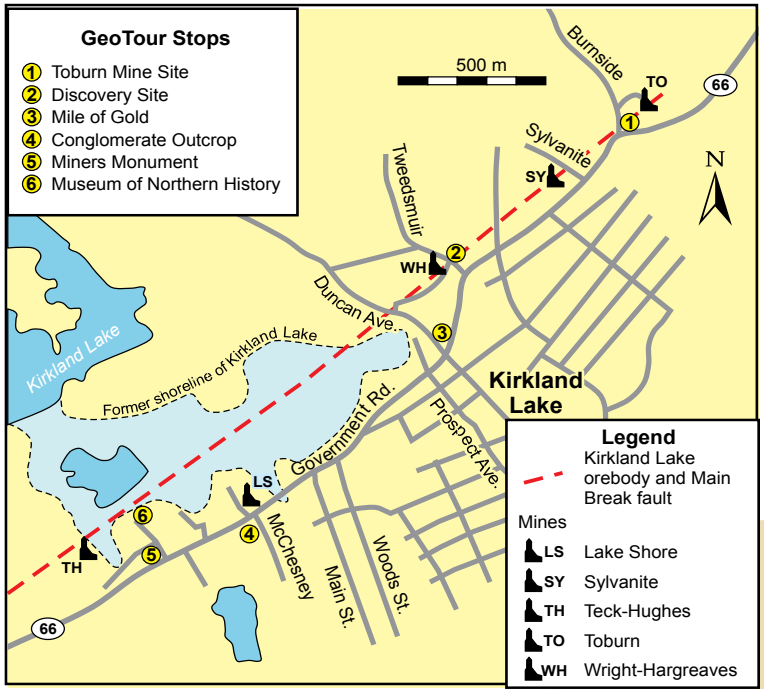
Kirkland Lake is an attractive town that reflects its mining heritage. The town is strung out along the "Mile of Gold", a line of 7 major mines that yielded extraordinary wealth for over 80 years from one of the world's largest deposits of gold. Today, high gold prices have fuelled an exploration boom that has led to major new discoveries of gold ore. Kirkland Lake has fascinating geology and mining history to explore. This tour guides you to 6 easily accessed stops in the downtown area including a historic mine, the outcrop where gold was first discovered, and a museum full of Kirkland Lake's history.

Creation of the "Mile of Gold"

A mural at the corner of Government Road and Duncan Avenue celebrates Kirkland Lake as the "Hub of the North on the Mile of Gold". Seven major mines formed the "Mile of Gold".

How to get to there

By highway, Kirkland Lake is 315 km northeast of the city of Greater Sudbury. Government Road, the main street of town, closely follows the "Mile of Gold".



This map shows Kirkland Lake and GeoTour stops described in this guide. Former mines and the trace of the orebody are shown; two other mines lie along the orebody further to the west. The town originally sat on the shores of Kirkland Lake; however, much of the southern end of the lake was filled with finely ground waste rock from the mines.

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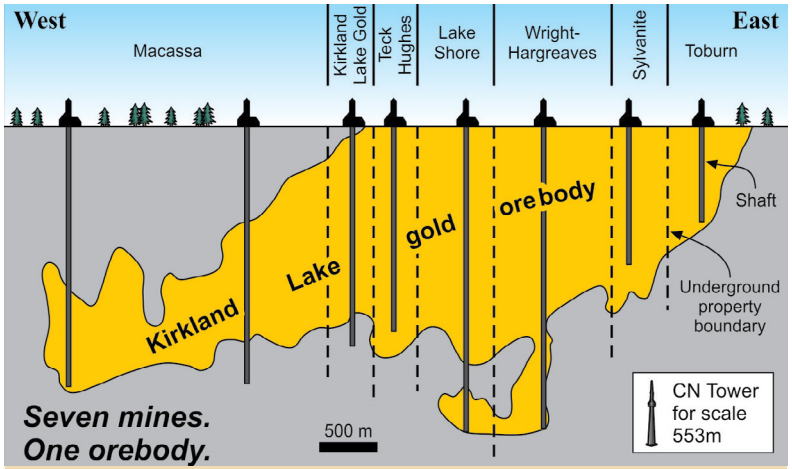
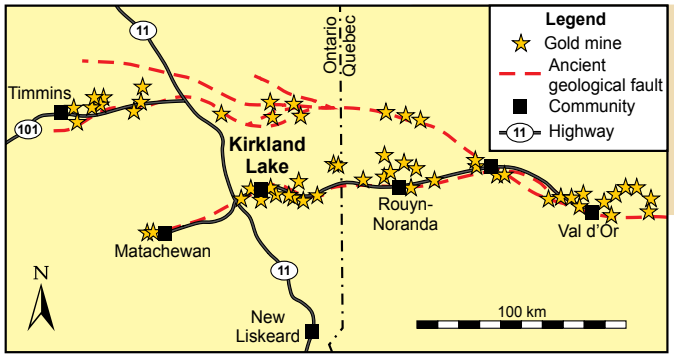
The "Mile of Gold" in Kirkland Lake was marked by the headframes of 7 major mines that dominated the town's skyline for generations. These 7 mines each mined a part of a single orebody. Together, these mines produced over 700 metric tonnes of gold. At today's prices, this gold would be worth about a third of a trillion dollars! Only the Hollinger–MacIntyre Mine in Timmins, and the Golden Mile in Kalgoorie, Australia, have produced more.

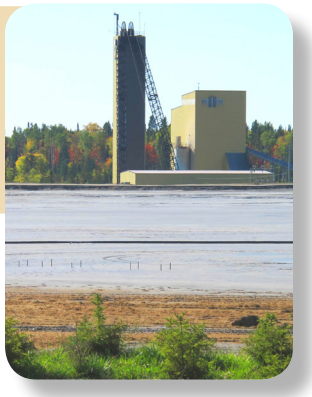


Seven mines each owned a portion of the wealth of the single giant Kirkland Lake gold orebody.

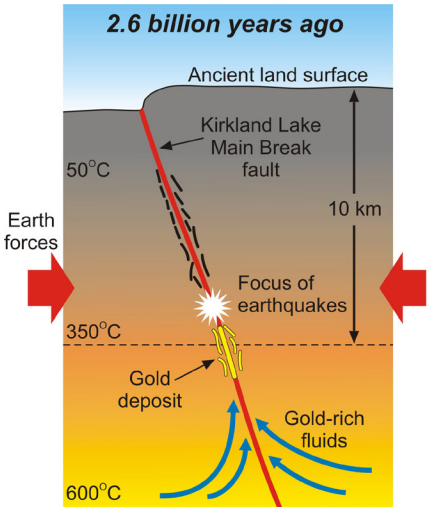


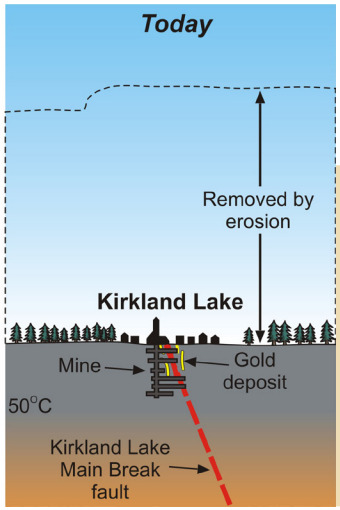
Ancient faults underlie the border region of Northern Ontario and Quebec and host gold mines, which make this region one of the richest gold producers on Earth.

The Macassa Mine headframe is visible from Highway 66 just west of Kirkland Lake. Major new reserves of gold have been discovered nearby in the past few years. In the foreground is a tailings pond where pulverized waste rock from the mining operation is stored.



The Kirkland Lake gold orebody is a narrow zone of gold-bearing quartz veins that lies along a geological fault that the miners called the "Main Break". This fault is part of a system of ancient faults that hosts the famous gold camps of Timmins, Matachewan, Kirkland Lake, Rouyn–Noranda and Val d'Or. These faults were active 2.6 billion years ago during a period of tectonic collision and rupture of the Earth's crust. The faults became conduits for gold-bearing fluids that rose from deep in the Earth to deposit gold and silica in fractured rock, forming gold-rich quartz veins.





Kirkland Lake's gold formed along an ancient fault, deep in the Earth. The fault was a conduit for hot, gold-bearing fluids that rose from deep in the crust and deposited gold in fractures along the fault when the fluids cooled. Erosion has since removed the overlying rock and exposed the ore at surface.

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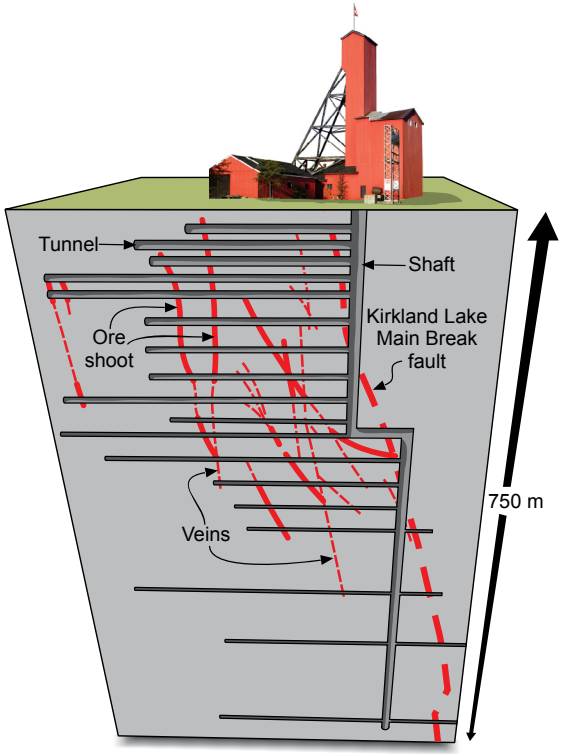
Stop1: Toburn Mine

GPS co-ordinates: N48° 9.424', W80° 1.295'

The Toburn Mine building, at the east end of Kirkland Lake on Government Road, is the town's iconic landmark. This restored mine site has a self-guided tour that describes the history and operations of the mine. Guided tours are available for visitors during the summer (www.toburn.ca). Also featured are historic mining equipment and a display of boulders that represent important rock types of Northern Ontario.

Stop 1: The Toburn Mine's tall headframe houses the pulley system that raised and lowered cages in the mine shaft below. A hydroelectric generating station, built nearby in 1917 to provide electricity to Kirkland Lake, powered the hoist and compressor. The latter created compressed air to power the underground machinery.

The Toburn Mine was the first producing mine in the Kirkland Lake mining area, and operated from 1913 to 1953. Over that period, 1.2 million tonnes of ore, averaging half an ounce of gold per tonne, was raised up the mine shaft to surface. The Toburn's mine workings, though 750 m deep, were the shallowest of the big 7 mines in the Kirkland Lake area. The ores went progressively deeper to the west. The Macassa, the mine farthest west in the "Mile of Gold", was 2500 m deep. As one of the deepest mines in the world, the Macassa held the record for the deepest single-lift shaft in the Western Hemisphere for over a decade. Because of its depth, the natural rock temperature at the bottom of the Macassa Mine averages 32°C, even when the air at surface is below freezing.



Stop 1: Historic photograph of the Toburn Mine during the 1940s. Waste rock from the mine was stockpiled in front of the mine. Those piles have been since quarried for construction of local roads.
Photo courtesy of Museum of Northern History.

Stop 1: Below the Toburn Mine headframe is a subterranean world of mine workings from which ore was extracted. Ore shoots were the richest parts of a series of gold-bearing quartz veins adjacent to the Main Break fault. Ore was transported in tunnels to the shaft and cages that lifted the ore to surface.

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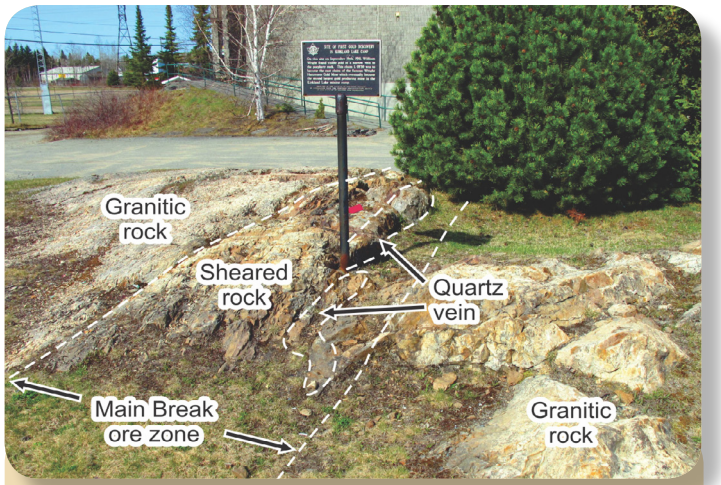

Stop 2: The discovery site is a low outcrop of granitic rock cut by sheared rocks and quartz veins of the Main Break ore zone. This ore is narrow and nondescript, and would be easy to overlook, in spite of its great extent, gold content, and its connection to large reserves of gold.

Stop 2: Discovery outcrop

GPS co-ordinates: N48° 9.252′, W80° 1.933′

It all started here. A historic plaque on Tweedsmuir Road, just north of Government Road, marks the spot where Bill Wright discovered gold in the fall of 1911. Unlike the coarse gold found by the discoverers of Timmins ores, Kirkland Lake gold was fine and easy to overlook. Bill Wright recognized visible gold in a narrow vein in this outcrop and his claim became part of the famous Wright–Hargreaves Mine, the second largest producer in the Kirkland Lake camp. This outcrop and shallow underlying ore were never mined to prevent collapse of the surface into the mine below.

Stop 2: A close-up view of a quartz vein in the discovery outcrop. Kirkland Lake gold is very fine grained and largely invisible to the eye. Although very profitable to mine, the average Kirkland Lake ore contained only one-third of an ounce of gold in every tonne of ore.

Stop 3: Rotary Park "Mile of Gold" statue

GPS co-ordinates: N48° 8.387′, W80° 3.850′

Stop 3: The "Mile of Gold" statue at the northeast corner of Government Road and Duncan Avenue displays broken fragments of rock in a large gold-bearing quartz vein. This ore looks different from the ore at the Discovery site, and comes from another gold-producing fault that hosts the gold mines of Larder Lake and Virginiatown along Highway 66 to the east of Kirkland Lake.

Stop 3: Quartz veins (white), broken rock, and rock altered to iron-bearing minerals (brown) all formed together with gold deep in the Earth on a fault produced by earthquakes.

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Stop 4: Rounded fragments of granite and volcanic rock occur within the conglomerate.

Stop 4: Conglomerate bedrock

GPS co-ordinates: N48° 8.839', W80° 2.624'

Stop 4: Large glacier-smoothed outcrops at the corner of Government and McChesney roads near the west end of town are a type of rock called conglomerate. The rock was just gravel 2.7 billion years ago and has since been turned to stone. The town of Kirkland Lake stretches along a ridge composed of this resistant rock.

Stop 5: Miners Monument

GPS co-ordinates: N48° 8.831', W80° 2.928'

The Kirkland Lake mining area boomed through the 1920s and 1930s, but started to decline in 1953 with the closure of the Toburn Mine. By 1969 only the Macassa Mine remained in production. Operations at the mine continued until 1999, and then began anew in 2002. A nearby iron mine was an important employer from 1965 to 1990, but after it closed, the town went through hard times. However, the rising price of gold led to renewed exploration, and since 2005 important new discoveries of gold have fuelled the current gold mining boom.

Stop 5: At the western entrance to town on Highway 66 is the Miners Monument, a tribute to a century of workers in Kirkland Lake's many mines. Gold mines have been the backbone of the town's economy.

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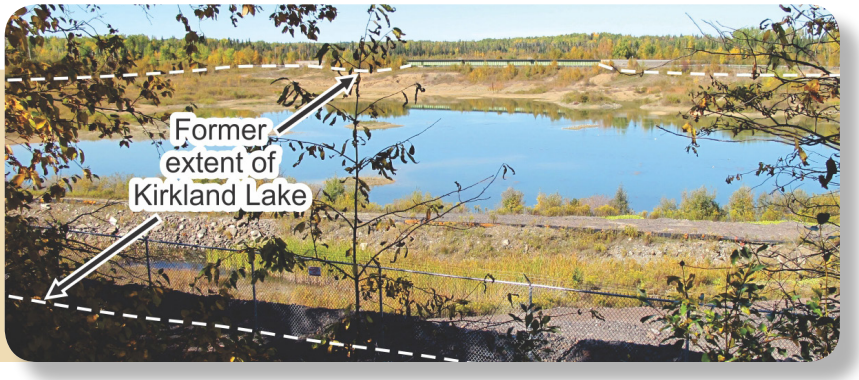
Stop 6: Museum of Northern History

GPS co-ordinates: N48° 8.918′, W80° 2.919′

Stop 6: The Museum of Northern History (museum@tkl.ca) is at the west end of Kirkland Lake behind the Miners Memorial on Chateau Drive. The museum is housed in the Sir Harry Oakes chateau. Oakes was founder of the nearby Lake Shore Mine, the largest of Kirkland Lake's mines and at one time the largest gold producer in the western world. His death in 1943 in the Bahamas is a major unsolved murder!

Stop 6: The museum provides a look at early life in Kirkland Lake and northeastern Ontario. The exhibits tell stories of pioneer life, colourful men and women, and wildlife. Several rooms are dedicated to the geology and mining history of Kirkland Lake.

Stop 6: Immediately behind the museum is an area that was originally part of Kirkland Lake. Harry Oakes built his chateau on the shores of the lake, but the southern part of the lake was later filled with mine tailings, or "slimes", the finely ground waste rock from his Lake Shore Mine. These tailings were dredged in the 1990s and reprocessed for their gold content, partially recreating the former lake basin.



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Please refer to this publication as:

Natural Resources Canada and Ontario Geological Survey 2015. Mining heritage tour, Kirkland Lake: A century of mining the "Mile of Gold"; GeoTours Northern Ontario series.

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