In 1824 the Morris Canal & Banking Company (MC&BC) was chartered to build a canal that would carry coal, mined in Pennsylvania, to developing markets along the eastern seaboard. The canal would pass through the heart of New Jersey’s iron district and provide the long-needed transportation system that would create new commercial activity and enable rustic settlements like Dover and Rockaway to grow into thriving industrial towns. The canal opened for business in 1831 and then, in 1836, was extended from Newark to New York Harbor at Jersey City.

When completed, the canal extended 102 miles across the rugged highlands of New Jersey, from Phillipsburg on the Delaware River, uphill to its summit level near Lake Hopatcong, and then down to Jersey City. To accomplish this, a system of 23 lift locks and 23 inclined planes were built to overcome the impressive elevation change of 1,674 feet. The canal’s famous water-powered inclined planes were an engineering marvel that enabled canal boats to be raised or lowered up to 100 feet at a time.

Mule-drawn canal boats transported up to 70 tons of cargo and took five days to cross the state. In the heyday of the canal, hundreds of boats carried everything from coal and iron ore to agricultural products. As New Jersey’s first industrial transportation system, the canal promoted commerce and shaped the economic development of the northern part of the state.
By the early 1900s the canal had become obsolete. However, it took until 1924 to adopt a plan to close and dismantle the canal. The ownership of the canal’s vast water resources, including Lake Hopatcong, Lake Musconetcong, and Greenwood Lake, passed to the state of New Jersey. Today, the Morris Canal Greenway, a partnership between local communities and the Canal Society of New Jersey, seeks to preserve the surviving historic remains of the canal, interpret canal sites, and offer recreational opportunities to the public.

**General Information**

**Length of main canal:**
- Phillipsburg to Jersey City: 102.15 miles

**Length of Pompton Feeder:**
- Feeder Lock to Mt. View (Mead’s Basin): 4.05 miles
- River Towpath, Feeder Lock to Pompton: 1.75 miles

**Elevation changes:**
- Mean tide at Jersey City to summit near Lake Hopatcong: 914 feet
- Summit to low water at Phillipsburg: 760 feet
- Total change in elevation: 1,674 feet

**Costs:**
- Original: $2,104,413
- Enlargement: $1,700,000

**Number of inclined planes:** 23

**Number of locks:** 23 lift locks & 11 guard locks

**Canal dimensions:**
- Original canal: Surface, 32 feet wide; bottom, 20 feet wide; depth, 4 feet
- Enlarged canal: Surface, 40 feet wide; bottom, 25 feet wide; depth, 5 feet

**One-way trip:** 5 days

**Motive Power:** 2-Mule team

**Map and Cross Section**

The locks and inclined planes formed a staircase that enabled the canal to climb up and over the New Jersey Highlands. The diagram below shows the canal ascending one step at a time from Phillipsburg to the summit level near Lake Hopatcong, then descending to Jersey City on New York Harbor. The small steps are locks and the large steps are inclined planes.
Inclined Planes
Inclined planes used water power to raise or lower canal boats as much as 100 feet at a time. Water from the upper canal level was used to create the motive power to raise and lower the boats. The water then flowed back into the next lower level and was used over and over farther down the canal. The original inclined planes, built in the 1820s, used a counter balance system powered by an overshot water wheel. Although these planes worked, they were not powerful enough to be economically successful. When canal engineer William Talcott redesigned the planes in the 1850s, he used more powerful cast-iron reaction turbines. The new planes could raise and lower boats carrying 70 tons of cargo.

- Prior to the use of wire cables, iron chains were used.
- The grade of the inclined planes varied from a ratio of 1:11 to one of 1:20.
- Plane 9 West, Port Warren near Phillipsburg:
  - Largest plane on the canal; formerly owned by author James Lee
  - Vertical lift: 100 feet
  - Length: 1,510 feet to the summit; 1,788 feet end to end
  - Approximate time for transit: 12 minutes

Locks
Lock dimensions:
- Original locks, 9 feet wide x 75 feet long in the chamber
- Most enlarged in 1840-41, 11 feet wide x 95 feet long in the chamber
- Most enlarged again after 1860 to a clear length 100 feet in the chamber

Inclined Plane

Lift Lock
Boats

Capacities:  
- Early boats: 18 tons of cargo
- 1845 Section boats: 44 tons of cargo
- 1860 Section boats: 70 tons of cargo

Section boats were built in two sections and hinged together so that they could be disconnected when traversing the canal’s inclined planes.

Dimensions of 1860 boats:
- Length: 91 feet
- Width: 10.5 feet
- Depth: 6.5 feet draft when loaded

Total weight of boat, cargo and cradle: 110 to 125 tons

Water

Canal Reservoirs:

Lake Hopatcong: A dam, built by the MC&BC, raising the level of Great Pond a total 12 feet to create the primary water source that would fill both the east and west divisions of the Morris Canal.

Greenwood Lake and the Pompton Feeder: In 1836 the MC&BC acquired the right to dam Long Pond to create a canal reservoir now called Greenwood Lake. Water passed down the Wanaque River to a 4.05-mile-long feeder that joined the main line of the canal at Mead’s Basin, now Mt. View.

Lake Musconetcong: In 1845 the canal company increased its water supply once again by damming the Musconetcong River at Stanhope to create a new reservoir that we now know as Lake Musconetcong.

Lake Hopatcong Feeder
Aqueducts:

Little Falls Aqueduct across the Passaic River: Supported by a stone arch spanning 80 feet
Pompton Aqueduct between Mountain View and Lincoln Park:
  1830 aqueduct: 236-foot span on 9 stone piers
  c1850 aqueduct: 275-foot span on 7 stone piers

Long levels:

Bloomfield to Lincoln Park: 17.5 miles
Saxton Falls to Port Murray: 11 miles
Washington to Lock 7 West: 7 miles

Coal and Iron

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The peak year for tonnage and profits was 1866.
Iron Mine Railroads
Numerous tramways and railroads were built to bring ore from mines to the docks on the canal. Most eventually became through railroads.

- Dell Mine Tramway
- Hibernia Mine Railroad
- Mt. Hope Mineral Railroad
- Mt. Hope Tramway
- Ogden Mine Railroad brought iron ore from the mine to Nolan’s Point on Lake Hopatcong; here it was loaded into canal boats. In 1880, 108,000 tons of ore were moved in 1,500 boatloads.
- Sussex Branch Tramway and Railroad

Important Dates

Nov 15, 1822  Act to investigate the feasibility of the canal passed
Dec 31, 1824  Morris Canal & Banking Company chartered by the State of New Jersey
Jul 12, 1825  Construction starts near the present town of Ledgewood
Nov 4, 1831  First trip from Newark to Phillipsburg
1832        First full boating season
1836        Jersey City extension completed -- 11.75 miles
1844        Company is reorganized without banking privileges
1841 & 1845  Canal enlargements
1847-1860   Inclined planes rebuilt to accommodate boats with 70-ton cargos
1856-1870   DL&W Railroad transports coal from northern fields to the canal docks at Washington
1871        Canal leased by the Lehigh Valley Railroad for 99 years
Nov 29, 1922  State of New Jersey takes over the canal
Spring, 1924  Canal drained
Dec 31, 1974  MC&BC charter was due to expire in 1974. However, the company still exists as part of the State of New Jersey DEP.