The Liberty Tunnels — A Look Back in Time

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Why the Tunnels Were Created

The early 1900's was a booming period for the city of Pittsburgh. With the city expanding in nearly all directions, Mount Washington acted as a barrier between the city and the South Hills. The only way the city was accessible from the South Hills was by way of a series of inclines, or through the West End. This slowed the development of the South Hills area leaving it to be mostly rural farmland. Many people thought that if the ease of accessibility to the South Hills was improved, this would lead to an increase in land value and development of the South Hills.

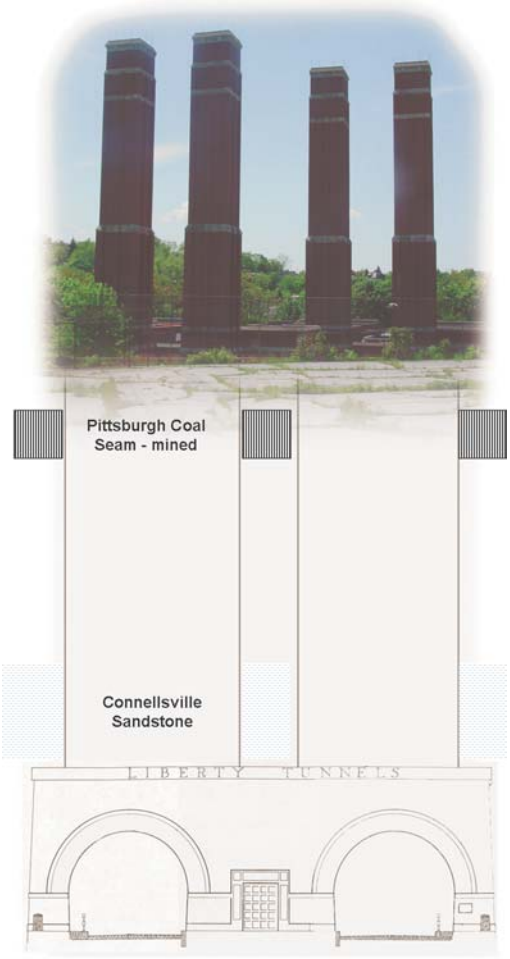
The first passage through Mt. Washington was a coal railroad run by the Pittsburgh & Castle Shannon Railroad which began to carry passengers through the mined Pittsburgh Coal Seam in 1871. This tunnel entered Mt. Washington above South Hills Junction and exited Mt. Washington next to an incline station at Nimick St. (now known as Neff St.).

The first tunnel that traveled through the base of Mt. Washington was a streetcar tunnel built in 1904 by William Flinn, a politician and contractor. This was the first direct route from the South Hills, but still with limited accessibility.

It was the advent of the automobile which pushed residents of the South Hills to persuade the County Commissioners to construct an automobile tunnel through the base of Mount Washington. The County Commissioners agreed that a tunnel was necessary for the growth of the South HIlls, but did not act upon this idea immediately. There were many proposals for this tunnel through the early 1900's, but it wasn't until 1919 that the County Planning Commission awarded the contract to Booth and Flinn, Ltd. starting the construction of the Liberty Tunnels.

Location of the Tunnels

Both politics and geology played a major role in the location of the tunnels. Neighborhoods on both the North and South portals of the tunnel proposed locations that would be most favorable for themselves.



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One proposal called the Shingiss-Haberman plan was known as the high tunnel. In this proposal the northern portal was to be placed on Mt. Washington above East Carson St. and Arlington Ave. which was then known as Brownsville Ave. The southern portal was to be near South Hills Junction at Haberman Ave. and Warrington Ave. then known as Washington Road. The tunnel would then be connected to a double-decker bridge crossing the Monongahela River and connecting to Shingiss St. near Duquesne University.

The setback of this plan was that the location of this tunnel was directly underneath the mined coal seam. This would most likely have led to the collapse of the mined coal seam during construction which in turn would have resulted in an unstable tunnel roof.

The proposal which followed a low line was known as the Bell Tavern plan. This plan placed the southern portal at Saw Mill Run and the northern portal at the P.J. McArdle Roadway. This proposal was selected and became what is now known as the Liberty Tunnels.

Construction of the Tunnels

Construction of the tunnels began in 1919 with the boring of the

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tunnels being completed in July of 1922. It wasn't until January 1924 that the tunnels were completed and opened to traffic. Steam driven machinery was used to make this massive bore through the mountain.

The tunnels have a length of 5,889 ft, a vertical clearance of 14 ft. 6 in., and a width of 28.6 ft. The tunnel has a slightly upward slope towards the Saw Mill Run portal, placing it 20 feet higher than the northern portal.

The tunnels were bored through the base of what is known as the Connellsville Sandstone. This sandstone layer is extremely resistant, and therefore is practical for the location of the tunnels. It provides support for the tunnel roof, making the tunnel extremely strong and stable.

Although the tunnels were completed in 1924, it wasn't until 1928 that the Liberty Bridge was opened. With the opening of the bridge, a direct route from the South Hills to the City of Pittsburgh emerged helping to speed the growth of the South Hills.

Unusual Features of the Tunnels

At the time of its construction, the tunnels were looked upon as an engineering marvel. This two-mile cut through a 400 foot mountain was one of the longest tunnels of its time.

The most unusual feature of the tunnels is the ventilation shafts. The tunnels were first constructed with no ventilation shafts due to the limited amount of traffic traveling through the tunnels. It wasn't until a mass-transit strike temporarily shut down the trolley service that the residents of the South Hills began to rely heavily on their automobiles. With an increased number of automobiles entering the tunnels, the amount of carbon dioxide gas became dangerously high, and the amount of cars entering the tunnels had to be regulated.

The solution to this problem was the creation of two pairs of 200-foot vertical ventilation shafts which continuously pumped clean air into the tunnels. The ventilation shafts are controlled by a mechanical plant located on the top of Mount Washington. The tunnel engineers worked alongside the U.S. Bureau of Mines to design these ventilation shafts with their construction completed in 1925.

Passageway to the City:

The Liberty tunnels were truly the key to the rapid expansion of the South Hills. The varied topography of the city of Pittsburgh and its engineering features are what give the city its character. The tunnels have withstood the test of time, and still to this day transport a large volume of people to and from the city on a daily basis.

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