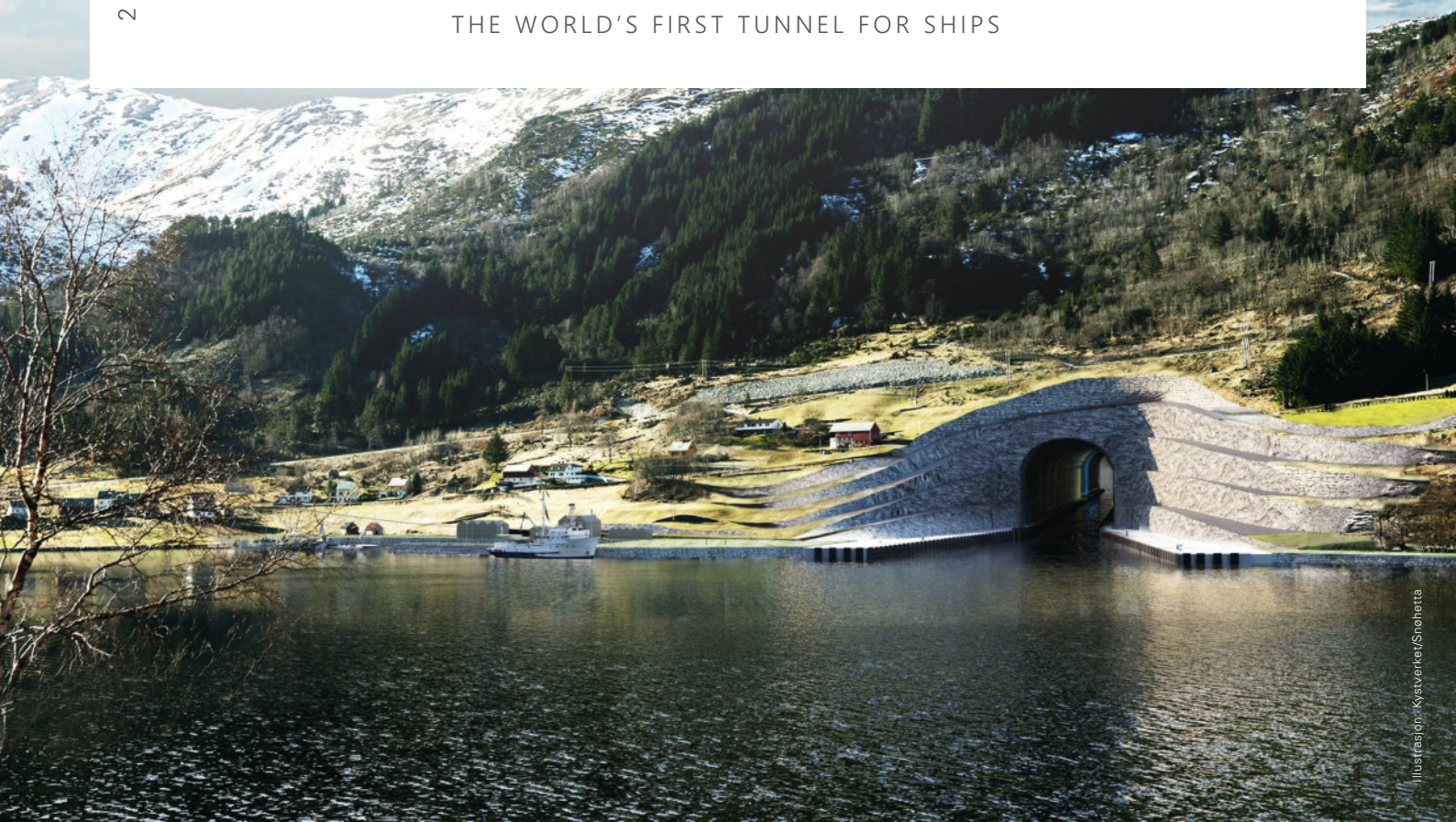


2019

STAD SHIPS TUNNEL

THE WORLD'S FIRST TUNNEL FOR SHIPS



The Stad Ship Tunnel is an investment in Norway's future livelihood, which is heavily dependent on the Norwegian coastline and the surrounding ocean. Business forecasts show that the Norwegian seafood industry has the potential for rapid growth in the next few years.

The Norwegian marine sector is a world leader in sustainable transport by sea, our future highway. The Stad Ship Tunnel will help ensure that this highway is safer, more cost-efficient and environmentally friendly. The political goal is to shift transport from our roads to the sea—in order to reach this political goal and accommodate the potential growth in the seafood industry, it is necessary for the Stad Ship Tunnel to become a reality.

The Stad Ship Tunnel will create a closer connection between Western Norway and the coast. It will also facilitate the development of an entirely new region with new residential projects and improved job markets extending from Ålesund through seafood-based communities in South Sunnmøre, to the prosperous cities of Måløy and Florø.

The plans to build the world's first ship tunnel have received considerable international attention. Since it will be the first tunnel of its kind, it has the potential to become a tourist attraction for visitors from across the globe.

Project Manager

Randi P. Humborstad



Chairman of the Board

Rolf Domstein



Project Manager

Selje, Vanylven og
Vågsøy kommune

Contact

Randi P. Humborstad
randi@maloyvekst.no
www.skipstunnel.no

Stad Ship Tunnel

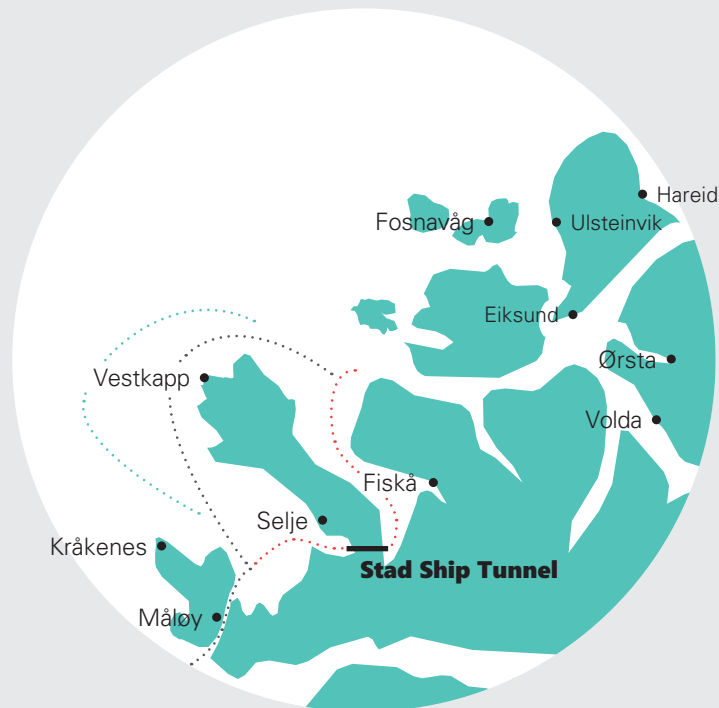
Måløy Vekst
Gate 1, nr. 80
6700 Måløy

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THE STAD SHIP TUNNEL ON THE MAP

- Main route for marine traffic
- New route when Stad Ship Tunnel becomes a reality
- Route when seas are rough



Norwegian Sea

The North Sea







Safety along Norway's West Coast

The Stad Ship Tunnel will also allow for a safer and more efficient voyage when passing through the Stad Sea. With its notoriously rough seas and gale-force winds, the Stad Sea is considered the most treacherous and challenging area on the Norwegian coastline to navigate.

Kråkenes Lighthouse, which is located due south of Stad, is the meteorological weather station which records the most 24-hour storms per year. During some years, it has recorded more than 100 24-hour storms.

In conjunction with the seabed topography, strong currents create particularly complex and unpredictable sea conditions. Waves reaching up to 30 metres in height can also hit simultaneously from various directions, creating particularly hazardous situations for vessels sailing on the Stad Sea. Even after the storms subside, heavy waves can linger for days, creating problematic conditions even on otherwise calm days.

Since World War II, the Stad Sea has claimed the lives of 34 people due to shipwrecks and other near accidents. Building the Stad Ship Tunnel will create peace of mind for seafarers and their loved ones. The projected increase in extreme weather conditions and the Norwegian population's increasing unwillingness to accept risk-taking, further supports the importance of building the Stad Ship Tunnel.

Environmental benefits

A report developed by Rolls Royce Marine (now Kongsberg Maritime*) states that the Stad Ship Tunnel will result in shorter travel times, lower fuel consumption, and a 60% decrease in CO2 emissions. The report compares the current Stad Sea route to the route of the Stad Ship Tunnel. The comparative analysis is based on typical wave and weather conditions for the winter period and shows a significant difference between the alternative routes. Simply, the new route created by the building of the Stad Ship Tunnel would be significantly safer.

The analysis was conducted in typical autumn weather with waves reaching three to four metres in height. Rolls Royce Marine examined the conditions for both a chemical tanker and a tugboat. The smaller vessel (approximately 40 metres) was estimated to have a 50-minute decrease in the duration of its voyage, decreased fuel consumption, and a 60% reduction in CO2 emissions. The larger vessel's voyage duration was the same, but experienced a 30% emission reduction. Reducing fuel consumption and CO2 simultaneously benefits both companies and the environment. The report found that the Stad Ship Tunnel will make voyages safer, cheaper, and more environmentally sound than current voyages around the Stad Sea.

*Report: "Drivstoff- og tidsforbruk ved passering av Stad og gjennom tunnel"
Rolls Royce Marine, 15th november 2018





Adding value to local businesses

For short sea shipping, the Stad Ship Tunnel will ensure regular deliveries, fewer delays, and shorter travel times. This means that produce will be as fresh as possible upon. The Stad Sea is a critical crossing point for smaller container ships and fishing vessels (including live hauling and supply boats), and highspeed crafts would also be able to make daily use of the tunnel. Smaller fishing vessels currently avoid crossing the Stad Sea during bad weather due to potential delays that could result in the deterioration of the quality of their catch. The result of these delays is that fewer places are able to receive their catch, which would then result in the loss of revenue.

Fish farming companies have also suffered lost revenue, since delays affect their whole chain of production. The world's largest fish farming company (Mowi) owns one of world's largest salmon processing plants, which is located in Eggesbønes, north of Stad. However, most of Mowi's fish farms are situated south of Stad. Recognizing the benefits to their company, Mowi has firmly supported the building of the Stad Ship Tunnel.

The live-haul company Rostein has vessels filled with live fish that cross the Stad three times a day. According to Rostein, approximately 20% of their live hauling boats are delayed due to adverse weather conditions. The Stad Ship Tunnel would clearly benefit Rostein as well.

The Stad Sea also poses a challenge for supply vessels in relation to transporting cleaner fish, fish feed, and equipment that needs to cross the Stad for delivery to various local businesses.

"Norway has the ambition of becoming the World's leading country in the production of seafood. The Norwegian seafood industry has the potential for exponential growth in the future. In order to accommodate this potential growth, we need good and safe transport solutions. This is why we support Stad Ship Tunnel" Asgeir Hasund, regional director for Mowi.

More goods from road to sea

Safer, more effective travel across the Stad will enable more goods to be transported by sea. This will result in fewer trailers fully loaded with fish travelling through central and eastern Norway.

We are exporting an increasing quantity of fresh fish from the Norwegian coast to the continent. Most of the fresh fish is currently transported by trailer, which has resulted in rapidly declining road conditions and heavy traffic. This is primarily due to the difficulty of transporting the fish across the Stad Sea. The Stad Ship Tunnel will result in better accessibility and more regular deliveries throughout the Stad area. This will also lessen operating costs and help the environment. The Norwegian seafood industry has the potential for exponential growth, and the capacity and condition of our roads have already reached their breaking point.

The construction of the Stad Ship Tunnel will ensure regular and controlled seafood exports and will provide new transport solutions for delivering fresh fish to the continent in high speed crafts.

"If we are to export salmon from Trøndelag to the continent, we cannot risk that the salmon gets stuck in Stad due to bad weather conditions. If it does, it will need to be served as salted fish rather than sushi, when it arrives"

Tore O. Sandvik, County Mayor of Trøndelag





Regional development

The Stad Ship Tunnel will provide positive, long-lasting effects with significant potential for business development, as well as meet a need for better transport options. At present road infrastructure limits commute along the coast creating disperse markets for work and living.

A ship tunnel through Stad will establish a new and connected express route between Bergen and Ålesund. By creating ease with daily commuting, this route will connect regions, such as the municipalities north and south of Stad. Cowi, the advising engineering company, concluded that an option for an express route would strengthen business development in general, but also increase tourism in the area. The Stad Ship Tunnel opens the door for expanded living and a vast job market region from Ålesund, via the maritime cluster in southern Sunnmøre, to the well-developed business cities of Måløy and Florø.

Tourist attraction

Plans for the world's first ship tunnel have received great international attention and will attract tourists from across the globe. The tunnel has already led to a greater emphasis on the travel market, which will in turn lead to increased economic growth and employment. Though the region already has many "beacons," the tunnel will attract even more tourists by making travel destinations and tourist attractions more accessible than ever before.

Havila Kystruten, who will sail four ships on Coastal Route Bergen, Kirkenes from 2021, will sail through Stad Ship Tunnel regularly and will use the tunnel actively in marketing the region to the international travel market.

The Stad Ship Tunnel will mean tremendous economic growth, safer travel, and connectedness for all of Norway.

* Report: «Utgreiing av hurtigbåtrute Bergen-Ålesund», Cowi, March 4th 2019

Facts about the Stad Ship Tunnel

The Stad Ship Tunnel will be the world's first ship tunnel. Ideal for ships designed like the MS Midnatsol, the tunnel can accommodate ships in excess of 16,000 gross tons. According to the Norwegian Coastal Administration, about 81% of today's coastal traffic can use the tunnel, with traffic being directed from the central station at Fedje. The boats using the tunnel will receive designated times in which they can pass through the tunnel from the central traffic station, much like slot times for airplanes. Service traffic will be prioritized, especially express route ships, but yachts and other vessels may also use the tunnel. The speed limit through the tunnel will most likely be eight knots for catamarans and/or express route ships, taking approximately ten minutes to pass through the tunnel. The Stad Ship Tunnel will be based on known technology, and the large quantities of excess mass may be used to establish new business areas and strengthen existing businesses in the region.

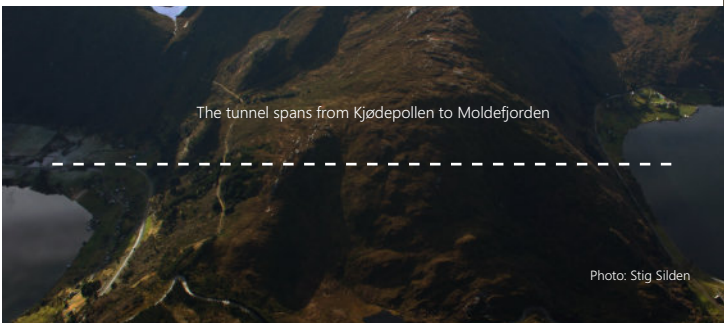
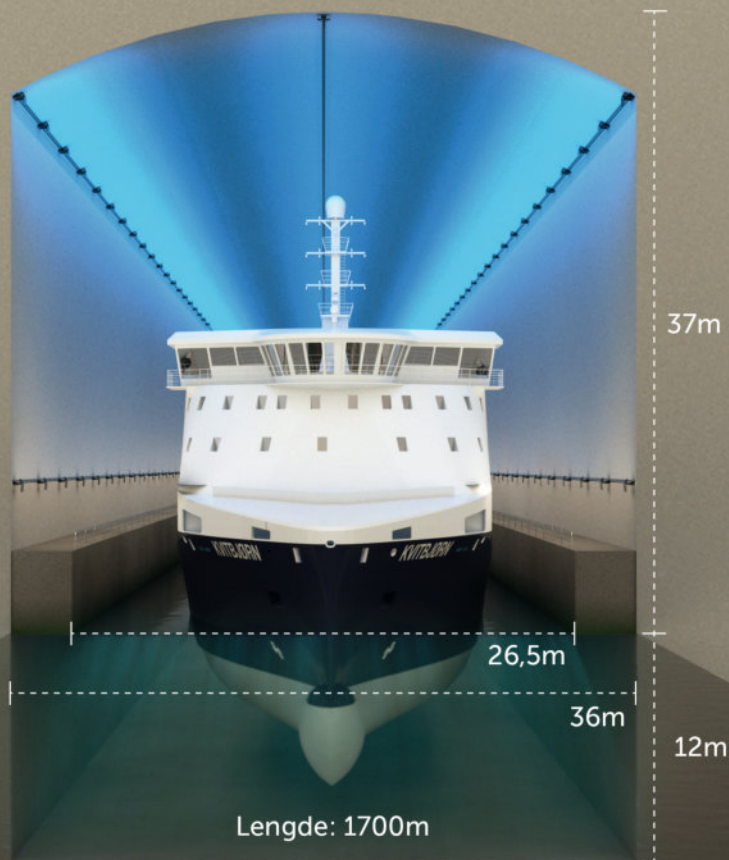


Photo: Stig Silden



Illustrasjon: NW3D

Project status

In Norway's national transport plan (Nasjonal transportplan – NTP 2018/2019), Stad is listed at an expected cost of 2,7 billion NKR (2016 currency rate). The Stad Ship Tunnel project passed the external quality assurance phase 2 (KS2) in May 2018. At that point, the project cost had seemingly grown by one (1) billion NKR (for a total of 3,7 billion NKR) than the Coastal Administration's pilot project, which was the basis for NTP. The Ministry of Transport and Communication ordered a new review of the project in December 2018, with the purpose of reducing the cost to the level set in NTP and ensure that the Stad Ship Tunnel can be built for 2,7 billion NKR (2016 currency rate).

The Coastal Administration handed over its report on June 15th 2019* as a response to the department's inquiry. The Coastal Administration has conducted a cost-optimization analysis that includes a few cuts and savings in the project, as well as research on how to reduce project uncertainty. The framework is calculated to 2,677 million NKR; by comparison, the price-adjusted NTP-frame (2018 currency rate) is calculated to 2,953 million NKR. The report also shows public utility use is increased by about one (1) billion NKR, compared to KS2.

The Coastal Administration maintains that the Stad Ship Tunnel can be built within the NTP-frameworks. The project is "ready to go," and the Coastal Administration proposes a progress plan with construction starting in 2021 and opening the world's first ship tunnel in 2025.

The Stad Ship Tunnel has broad support from a united Western Norway and strong business markets in the coastal areas. It is expected that the government will follow up on the national transport plan by proposing a final investment decision for Parliament, and grant startup funding in the Government Funding for 2020 to achieve the goal in NTP of construction beginning in 2021.

* Report: «Stad skipstunnel. Videreutvikling og prosjektoptimalisering», Concreto, 15th June 2019



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