

ANNUAL REPORT 2011

EXPERTISE IS THE MOST POWERFUL TOOL



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LANDSVERK'S ORGANIZATION



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SHORTSIGHTED SOLUTIONS ARE NOT LONG-LIVED

An eventful year has passed with a change of director, restructuring and the delivery of several projects, large and small, commissioned by Landsverk (Faroese Office of Public Works). In 2011 a lot of energy also went into updating and expanding the Faroese Transport Strategy, which will be finalized in spring 2012



Ewald Kjolbro
Executive Director, Landsverk

Landsverk is entrusted with a broad range of tasks and the institution's area of responsibility has changed greatly. Previously it was mainly in charge of operating, administrating and expanding the transport network as well as producing asphalt and roadstone. At the time Landsverk was the contractor, whereas the institution today is a strategic body with more of a planning and advisory role.

In addition to the role as public builder for all works carried out under Faroese ministries, several important tasks have been added in recent years, such as emergency preparedness, oil spill response at sea, expanding helipads and aviation. Landsverk manages all renovation and maintenance of public buildings.

More metres with less money

There are great demands on day-to-day project management. Over a number of years, we have faced consecutive cuts in our annual appropriations while being assigned new areas and works. The constant rise in demands has been and remains a great challenge for the institution. In recent years more metres of road, as well as more harbours and tunnels have been built in the Faroes. There are now 18 tunnels, around 500 kilometres of main roads, three main harbours and 230,000 square metres of public buildings to maintain, in addition to helipads and lighthouses. It is, of course, impossible to do all this with the same or reduced funding without completely changing track, innovating and reorganizing.

We have therefore had to adapt the institution as much as possible, develop new technology and deploy strategic thinking and methodology in order to make the most of the funding allocated to Landsverk. This has led us to streamline procedures, enhance internal efficiency and restructure reducing the number of departments from eight to four. These structural changes should not just be viewed as adaptation or cost cutting, but as a new way of thinking and working in order to excel at all our tasks.

Shorter path to specialized knowledge

Landsverk's new structure is made up of the following departments: Management, Production, Construction and Infrastructure.

We now have larger units, with more responsibility and broader remits, within a streamlined management structure. The reduction in units has made the institutional structure more flexible and horizontal, facilitating multi-disciplinary collaboration and enhancing workflow efficiency. In other words, we have improved the conditions for synergy in our daily operations. A more horizontal structure frees us from cumbersome, protracted and rigid procedures. It brings professional subject knowledge to the forefront and ensures that we truly harness it, shortening the path to specialized knowledge.

Collaboration with several different stakeholders

New and diverse areas of activity also translate into more and very different stakeholders and collaborations. Landsverk now carries out assignments for all the ministries. We strive to build close cooperation with the external stakeholders we have frequent contact with, so that we are always abreast of relevant goals, wishes and future plans. As the largest public builder in the Faroes, it is paramount that this cooperation runs smoothly, that we exchange information efficiently and that the parties understand each other. New and diverse areas of activity also translate into more and very different stakeholders and collaborations. Landsverk now carries out assignments for all the ministries. We strive to build close cooperation with the external stakeholders we have frequent contact with, so that we are always abreast of relevant goals, wishes and future plans. As the largest public builder in the Faroes, it is paramount that this cooperation runs smoothly, that we exchange information efficiently and that the parties understand each other.

Long-term planning vital

Landsverk has, as mentioned, changed significantly over the last decade. We have drawn up a mission, vision and strategies for the goals we as an institution want to achieve over the coming years. As management and staff, we organize our work and draw up our plans in accordance with a strategy that

reflects our ethos and practice. This enables Landsverk to plan far into the future.

It is vital for society that the political authorities receive independent, sound and substantiated professional recommendations in order to guarantee solid foundations for finding the best solutions.

The Faroese Transport Strategy 2012–2020, which is made up of two parts, a strategy and an investment schedule, is an excellent example of long-term planning for the Faroese transport network. This strategy is forward-looking, based on substantiated subject knowledge and constitutes a useful tool for the political authorities when making decisions about the development of our transport network. A well-functioning transport network is a prerequisite for growth, development and quality of life. The strategy describes the preconditions for the investment schedule, i.e. which traffic studies, projections and figures it bases its results on, whereas concrete project recommendations are discussed in the General Strategy. For further information on the Transport Strategy refer to pages 6 and 7.

Annual Report 2011

This Annual Report contains several interesting articles, which describe specific projects and experiences from the past year in addition to articles offering a peek at future plans and works in the more forward-looking and high tech areas, with which Landsverk is also entrusted.



DIVERSE STAFF

Although there has been a sharp reduction in the number of people working at Landsverk in recent years, with its 140 employees it is not just one of the largest employers in the Faroes, but also a hub of wide-ranging expertise in many different fields

Landsverk's staff is diverse and entrusted with a host of different tasks. The institution's slogan 'Landsverk – builds the land' (Landsverk – byggir land) is perfectly suited to what our employees do. They build roads, bridges, harbours, tunnels, buildings, measure the weather and carry out inspections and all kinds of research.

Not only do we oversee construction projects from concept to move-in, but also when the structures require maintenance. This means that Landsverk follows projects from theory to practice. From the very first sketch to a member of parliament cutting the ribbon of the completed project. Landsverk is also responsible for the maintenance of all public buildings. This requires staff with a solid set of broad professional skills.

Our main office in Tórshavn employs 50 people. Half of them have undergraduate or graduate degrees in building technology. In addition, there are several with other technical degrees, office clerks, and employees with degrees in other fields. Staff at the main office are in charge of planning and administering infrastructure, production tasks, public builder tasks, as well as new construction projects and maintenance of public buildings. The main office also administers all financial management, human resources IT and information services.

Around the country we have eight road stations, three workshops, an asphalt plant, four stone and roadstone plants, one bitumen store and a salt store.

Work outside the main office includes everything from asphaltting, road and tunnel maintenance, machine maintenance, procuring and storing to the production of asphalt, stone and roadstone.

New task

In 2011 a new executive director of Landsverk was appointed, Ewald Kjølbro, who already took up office as acting director in November 2010 until April 2011 when he was permanently appointed. With this change the institution was also restructured over summer that same year, which meant that the number of departments was reduced from eight to four.

Departments that had previously cooperated closely were merged. These structural changes streamlined management and workflows and cooperation between different areas of expertise is now more flexible.

In 2011 Landsverk took over responsibility for oil spill response at sea. A new area of work requires both a crew and

training, therefore a group was appointed to draft a plan for how this new task is to be solved.

Last year an exercise was organized in Sund. In addition staff participated in a large-scale drill in the UK and also went on an oil spill response course in Norway.

Preparations for this work are carried out in close cooperation with the Norwegian Coastal Administration, which has long-standing experience and in-depth knowledge about oil spill response and preparedness.

Together with the Norwegian Coastal Administration, Landsverk will be organizing a basic oil spill response course in May 2012. The purpose of the course is training foremen and our partners in basic oil spill response and team management, as well as building our capacity to organize such courses ourselves in future.

Oil spill response work is carried out in close cooperation with the Faroese Environment Agency, rescue teams, fire fighters and other authorities and organizations.

One reason why Landsverk was entrusted with this area of work is that the institution is capable of quickly deploying a substantial number of operative staff. However, an oil spill could easily become so extensive that Landsverk would be unable to tackle it alone. Landsverk has therefore entered an agreement with The Faroese Employment Office, which informs jobseekers about the possibility to register for oil spill preparedness. Furthermore, Landsverk entered an agreement with Vinnuháskúlin (Centre for Maritime Studies and Engineering) about teaching first-year students basic oil spill response, so that they can subsequently be called upon to help with the response effort, if and when a major spill occurs.

Competency development

In recent years, the institution has focused on competency development at management level. The institution's management has participated in external leadership courses, while middle managers and foremen have participated in a series of in-house courses.

In 2011 courses were also organized for foremen and middle managers. Landsverk intends to continuously run in-house courses for foremen. In 2012 we will start to focus on project management training, which is the first step in a targeted plan to develop and review the institution's capacities in project management and procedures.



Staff statistics

Landsverk is an institution made up of many different groups of staff and specialists. To date, 147 people work at the institution, equivalent to 125 full-time jobs. 22 percent have been working for more than 25 years, while 41 percent have been employed for five years or under. The average age of employees is 49, while the average years of employment are 13. The largest group of staff is the machine operators, numbering 37. Close behind are the skilled tradespeople, counting 29, while there are around 20 graduate engineers and 12 technicians and engineers. Other groups of staff include architects, design engineers, economists, supervisors, office clerks, communications officers, machine engineers and cleaners. The gender distribution is 82 percent men and 18 percent women.

“We should welcome this general strategy, because it is an excellent tool for anyone working with planning in transport or society as a whole. This is a technical paper, but the transport strategy is extremely useful for both practitioners and us politicians, who ultimately decide where and how public money is spent.”

Kári P. Højgaard, Minister of the Interior

TRANSPORT IN THE BIGGER PICTURE

In 2007 the first general strategy for Faroese transport was launched as the Faroese Transport Strategy 2008–2020. In recent months Landsverk, along with its partners, has been working on updating and expanding this strategy, which will be published as the ‘Faroese Transport Strategy 2012–2024’

Planning is absolutely vital when it comes to transport. In 2006 Landsverk took the initiative to prepare a general strategy for Faroese transport known as the ‘Faroese Transport Strategy 2008 – 2020’.

We are now working on the second version, the Faroese Transport Strategy 2012 – 2024, which will be an updated and expanded version of the first strategy.

The Strategy is divided into two parts intended to underscore the need to show how dependent all activities, throughout the country, are on mobility and why the Faroes should have a developed transport network. It contains targets for recommended future developments and lists the investments needed to ensure that the islands reach a level of interconnectedness that makes the whole country feel as a single unit. This means ‘The Faroes as one city’, which is the title of the Strategy.

The first part, ‘Strategy and Targets’, includes overarching targets for future investments in the transport network, as well as the basis for their order of priority. The purpose is to provide an overview of which considerations to take into account and how to prioritize them. This enables us to assess whether an investment benefits society or not.

The second part is the ‘Investment Schedule’, which includes the investments recommended in order to achieve the targets set out in the first part.

Many aspects to take into account

Changes in transport are to a large extent a consequence of decisions made in areas other than transport.

For example, when a school, institution or company with many jobs are established somewhere, traffic in the area naturally increases. In most cases, this means that changes or adjustments have to be made to traffic. Housing opportunities, industrial and public service developments must therefore

be linked to the traffic they cause.

The countries we usually compare ourselves to deploy similar transport planning in order to ensure that their transport network is as efficient as possible.

The Transport Strategy was developed in close cooperation with Strandferðslan (a public transport company) and others who operate in, or have a stake in, the area of transport.

We plan to update the Strategy every four years or so, because the circumstances and preconditions change constantly.

Facts

Expanding the transport network is more often than not a matter of sizeable investments; it is therefore important that these investments yield the greatest possible social benefit as compared to cost. Investments and maintenance are, in general, prioritized according to their social benefit.

There is a general trend towards major centralization in and immediately around the capital. Improved transport possibilities could contribute to developing other areas of the Faroes, striking a better balance.

Accessibility and mobility are the purpose of a well-functioning transport network, but it must be ensured that safety and the environment are not compromised.

The Transport Strategy spans twelve years and will be revised and put to political debate approximately every fourth year.

New knowledge and trends can make it necessary to change the Strategy. Measures and projects may be added and existing projects may change. Additions can be made to the Strategy as the need arises.

The Faroes as one city



FACTS

Owner: Faroese Ministry of Education, Research and Culture

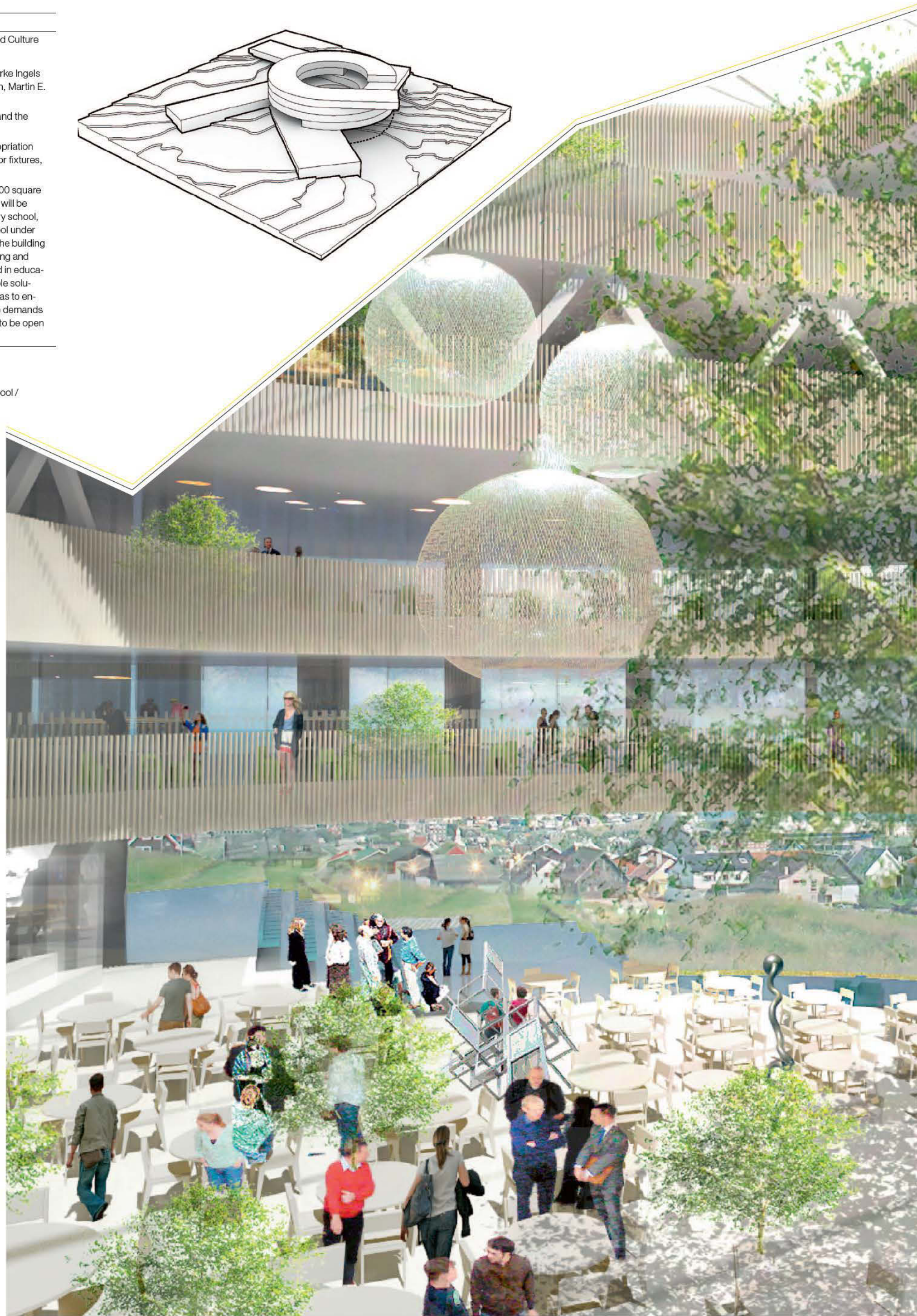
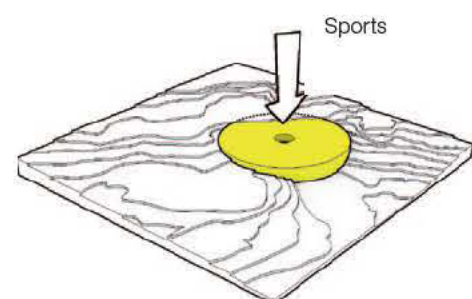
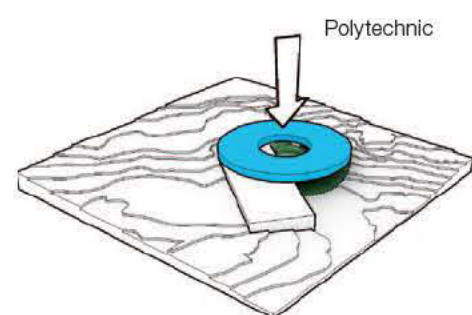
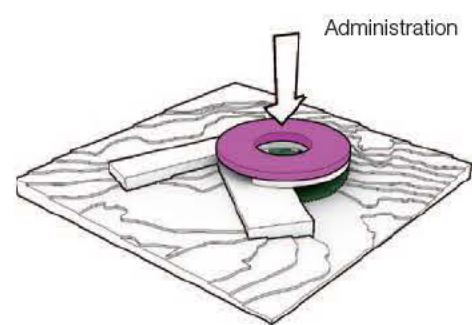
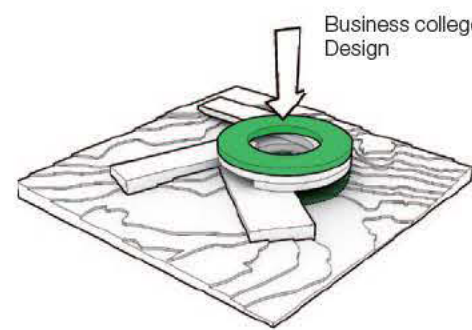
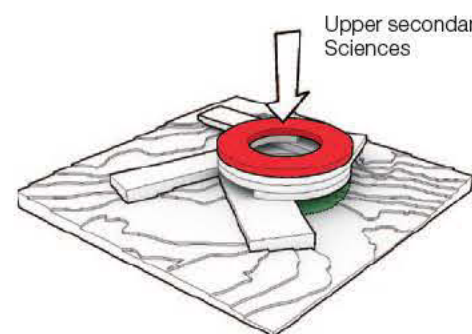
Builder: Landsverk

Technical consultant: Team Fuglark: Fuglark, Bjarke Ingels Group ApS, Lemming & Eriksson, Sámal Johannessen, Martin E. Leo Sp/f and KJ Elráð

Schedule: Construction will be completed in 2015 and the school will open for the 2016–17 academic year

Budget: Pursuant to the public works act, the appropriation totals DKK 391 million, in addition to DKK 60 million for fixtures, fittings and furniture

Education Hub: The completed Hub will offer 19,000 square metres to a student body of 1,300. Although the Hub will be made up of three independent units (upper secondary school, business college and polytechnic), it will be one school under joint administration and with many shared facilities. The building is designed to facilitate innovative and creative teaching and learning, breaking new ground across disciplines and in educational practice. The Hub must be designed with flexible solutions; it must be versatile, spacious and inclusive, so as to ensure that it will satisfy the unknown variables of future demands in education. Some areas of the school are intended to be open to students 24 hours a day.



THE LARGEST BUILDING PROJECT IN THE FAROES LAUNCHED

Never before has a Faroese builder faced an assignment on the scale of the new Marknagil Education Center (Skúladepilin við Marknagil). Landsverk recently appointed a senior project manager to lead this large-scale construction

The exciting Marknagil Education Center project is progressing and in late spring 2012 excavation, blasting and preparations for construction will begin.

The process leading up to construction in such a large-scale project is lengthy, because a number of major and complex issues have to be settled.

After the Faroese Parliament in spring 2008 approved the construction of a new education hub, preparations began. Originally only Handilsskúlin (business college) and Tekniski Skúlin (polytechnic) were included in the plan, but later it was also extended to Studentaskúlin (upper secondary school).

A building committee made up of representatives of the schools and college, the Faroese Ministry of Education, Research and Culture and Landsverk was appointed to draft project specifications.

The result of this work was that five architectural firms were invited to submit proposals. Two of these were selected to present final proposals.

Exciting architecture

An adjudicating committee was appointed to choose the final architectural proposal and they selected the proposal submitted by Team Fuglark – a collaboration between Faroese Fuglark, renowned Danish architectural firm Bjarke Ingels Group (BIG) and others.

As the images illustrate, this is thrilling architecture with a round main building and five rectangular arms each pointing in a different direction.

Once the team of consultants had prepared detailed designs for the entire project, Landsverk, as the builder, invited companies wanting to submit a tender for one or several of the eight main building contracts, which

The Education Hub in figures

Size: 19,400 square metres

Cost: DKK 319 million, in addition to fixtures and fittings etc. around DKK 60 million

Capacity: Around 1,300 students

Will be home to the three upper secondary schools in Tórshavn, Handilsskúlin, Tekniski Skúlin and Studentaskúlin, which will come under joint administration.

Under the Faroese Parliament's current financial framework, the Education Hub should be ready for use in 2016.

Eight main building contracts

The construction of the Marknagil Education Center is divided into eight main building contracts:

1. Earthworks, sewerage, concrete and steelwork
2. Roofing
3. Fixtures, fittings etc.
4. Electrical installations etc.
5. HVAC engineering etc.
6. Bricklaying etc.
7. Paintwork
8. Groundwork etc.

the project was divided into, for preliminary approval.

The method of dividing the project into main building contracts was chosen because there was a strong wish, from politicians and the industry, that Faroese companies should have the same opportunities as foreign companies, which in general are significantly larger than Faroese companies. This was therefore the best method, as it improves conditions for smaller companies, such as Faroese companies, to participate.

The intended aim was largely achieved as most of the 21 companies approved are Faroese.

Senior project manager appointed

The Marknagil Education Center project is a major and exciting challenge for Landsverk. Several members of our staff have worked on, and will continue to work on, the sizeable project the Marknagil Education Center is. These include architects, engineers, designers, bookkeepers, controllers and information officers.

Just like other projects, this assignment requires tight builder management. To lead the team of employees, who will continue to work on the Marknagil Education Center project, management has hired a project director. He is 53-year-old Heini Trónd Hansen, who has long-standing experience with large-scale projects in Denmark.

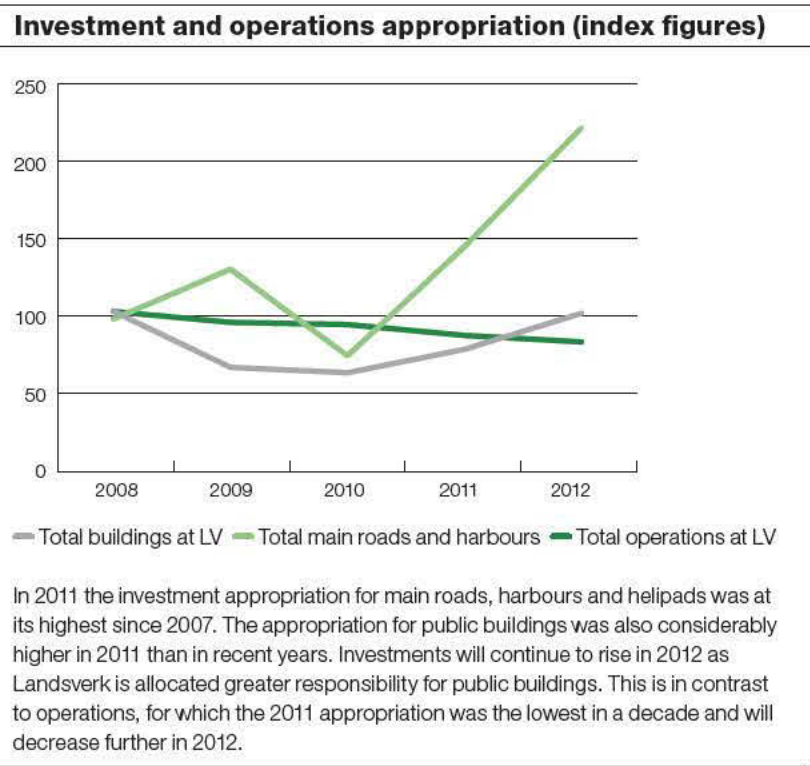
Heini Trónd Hansen graduated in 1985 with a degree in engineering from Horsens Teknikum in Denmark. Furthermore, he has studied management, project management, business and political economics, as well as commercial law.

Over the last years, Heini has acquired a wealth of experience as project director, project and marketing director, chief estimator and builder consultant for companies such as NCC, Pihl & Son and since 2010 Cowi in Aarhus.

For a two-year period he also worked as an independent consultant. Heini Trónd Hansen, who is originally from Tórshavn, accepted the project director position on April 1 this year.

WIDE-RANGING AREAS OF WORK

In spite of the current economic situation, Landsverk had many irons in the fire in 2011 and delivered several major projects, which the institution oversaw as builder. Last year Landsverk participated in a total of almost 300 extremely diverse projects large and small. Here is a closer look at three of them



RADIOLOGY DEPARTMENT AT THE FAROESE CENTRAL HOSPITAL RENOVATED

The renovation of the radiology department and postmortem unit is part of the total expansion of the Faroese Central Hospital



Dr. Marius Rasmussen, chief consultant at the Centre for Diagnostics, presenting the new scanner.

In 2011 the Central Hospital received a new MR scanner from Tryggingarfelagið Føroyar. In order to make room for two scanners relocation and reconstruction were required on the ground floor and the first floor.

The new advanced scanners and the new autopsy room were inaugurated on January 18, 2012 with a large reception at the Central Hospital. Representatives of the project parties presented the work carried out, the possibilities offered by the renovated premises and the cutting-edge equipment.

The renovation of the Central Hospital has been underway for many years and will continue in 2012 when work will begin on the laundry facilities as well as the H building, which will become the new psychiatric ward.

The renovation of the radiology department and the autopsy room, which is part of the total roughly DKK 422 million appropriation allocated to the Central Hospital, amounted to around DKK 40 million, the scanners accounted for DKK 20 million.

FACTS	
Owner:	Faroese Ministry of Health
Builder:	Landsverk
Technical consultant:	Árni Winther Arkitektar, LBF, construction and electrical installations, SMJ, HVAC
Contractor:	TG-Verk
Schedule:	Completed in December 2011
Cost:	DKK 17 million. The renovation is part of the total DKK 421.8 million appropriation allocated to the Central Hospital. The 2011 appropriation was DKK 28 million.

THE RITUVÍK ROAD

Back in the 80's, work began on a road leading to the area above the village of Rituvík. At the time, the plan was to build a new road connecting to Rituvík. However, construction of the road above the village stopped and the road was thereafter mainly used for access to a soil store owned by the Municipality of Runavík. The road remained unfinished marring the area for years

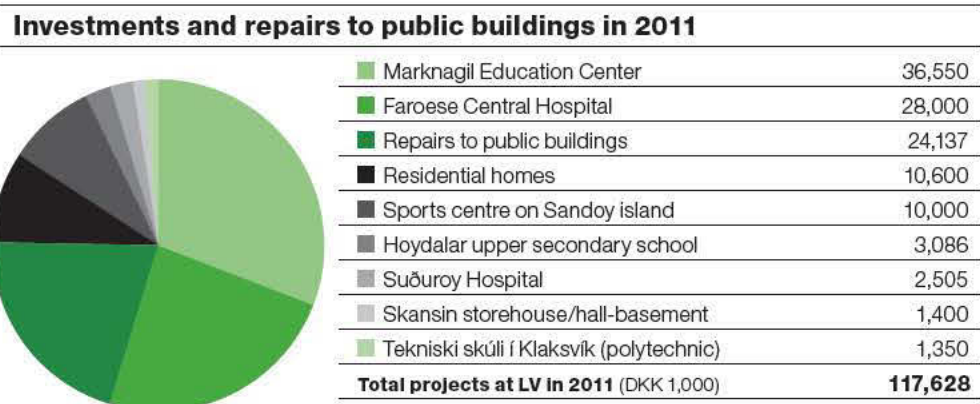


Work on a new road recommenced in 2009 and in April this year the project was completed. A new two-lane road has been constructed from the Rituvík Road / Æðuvík Road crossroads and into the village of Rituvík – a total of 1.2 km. The remains of the old road to the soil store will be covered when a new soil store starts operating later this year.

To secure access to the old Rituvík Road, the crossroad was altered and a 250 m road extension added. There are lights at all the new crossroads.

Furthermore, an agreement was reached between the Municipality of Runavík, the owners of the outfield and Landsverk about keeping sheep off the road and not installing cattle grids. Sheep passages were made and the road was fenced on both sides from Rituvík to Runavík.

Facts	
Owner:	The Faroese Ministry of the Interior
Builder:	Landsverk
Technical consultant:	Detailed designs: LBF, trade inspection and construction management: Teknistovan í Gotu
Contractor:	Phase 1: Samtakið JHR/RTS Phase 2: Kretón
Schedule:	Completed in April 2012
Cost:	DKK 14 million



THE ÓSÁ SCHOOL –A MODERN SCHOOL

All construction work at the new The Ósá School is complete. The school has been renovated, extended and modernized



In April 2010 2,200 square metres of the new Ósá School were inaugurated and the remaining construction phases, which have now been completed, span another 900 metres or so – a total of 3,100 square metres with 18 classrooms and 5 specialized classrooms.

The school is now among the most advanced in the Faroes. Its layout is that of an atrium school in four sections, which all open onto common areas. The four sections are: early years, middle school, lower secondary school and a specialized subject unit with a laboratory and workshops.

According to the builder consultant, Fuglø Arkitektar, the large roof over the school's balconies was designed to make the whole building appear as a single floor building. The glass fronts offer a peek into the daily activities inside the school, making it an 'active' part of the cityscape that leaves its mark on the city in the morning, during the day and in the evening.

Moreover, each school front is in a different colour scheme, a palette reflecting harmony and disharmony. This means that on every front a single colour is mismatched, but still remains a natural part of the play of hues. This illustrates how people are different, yet part of a whole.

During the construction process it was decided to change the school's ventilation and heating system to a heat pump with air for the water system. At the same time, floor heating

Facts	
Owner:	Municipality of Klaksvík
Builder:	Landsverk
Builder consultant:	Fuglø Arkitektar
Technical consultant:	General consultant: Fuglø Arkitektar, Architectural work: Fuglø Arkitektar, Construction engineering: LBF, Plumbing and HVAC engineering: Martin E. Leo, Electrical engineering: KJ Elráð
Contractor:	Earthworks and sewerage: Articon, Main contractor: Kanjon, Plumbing: Victor á Lakjuni, Electrical installations: El-In, Brickwork: Jan E. Andersen, Flooring: Húsaváðatænastan, Paintwork: Anskar Hansen
Schedule:	Phase 3 has been completed, students and teachers moved in at the start of the school year in August 2011
Cost:	DKK 57 million

was installed throughout the school, so the green energy could be fully harnessed.

The project is within its DKK 57 million budget, which includes: consultancy, construction, fixtures, fittings and furniture and equipment.

On Saturday, November 5, 2011 there was a public reception at the new school.

ROAD SAFETY MEASURES AND REPAIRS IN 2011

Every year funding from the national budget is allocated to road safety measures, minor modernizations and repairs to the existing road network. Landsverk sets priorities for this appropriation to ensure that improvements are made where they will be of greatest benefit. In 2011 DKK 5 million were granted and used for road safety measures and repairs to the main road network, which are described in more detail here



The bridge across Streymin is now also a footbridge

On October 30, 1973 the bridge across Streymin was opened to public use; this was the first bridge carrying traffic across the Atlantic. Back in 1973 the bridge cost DKK 15 million. The bridge was given a complete overhaul, insulated against humidity and asphalted. It is now as good as new.

In connection with the complete renovation of the bridge, it was decided to build a 1.5-metre-wide footbridge across Streymin. The steel bridge is attached to the side of the existing road bridge and its purpose is to guarantee the safe crossing of pedestrians and runners between the two biggest islands, in spite of the heavy traffic across the bridge.

By broadening the existing road slopes, a pedestrian path was also built to the footbridge, making it possible to walk from the Norðskáli road connection to the Vík road connection. The pedestrian route was opened to the public on March

10, 2011. Hundreds of children and teachers from the schools and daycares in the Municipality of Sund participated in the ceremony and walked across the footbridge waving Faroese flags. Lights were subsequently put up, lighting the road and footpath.

In addition to making it safer for pedestrians, this traffic improvement has the added advantage that the travelled way on the bridge has been widened from approximately six metres to eight metres. This means that each lane is now a meter wider, including the shoulder on each side.

The concept of separating vulnerable road users from other traffic is in line with Vision Zero, and is one of the recommendations in the 2007 Road Safety Strategy.

Rumble strips in Vágur

Over the last four years, Landsverk has put in rumble strips on nearly 40 kilometres of main roads and tunnels – including

both subsea tunnels. In 2011 rumble strips were put in from the Vágur tunnel to Sandavágur and from Miðvágur to Sorvágur; this is a 12 kilometre stretch.

The Road Safety Strategy from 2008 recommends putting in rumble strips along the edges and centreline. The purpose is to warn drivers if they cross the edges or centre of the road. Rumble strips cause audible noise in the car when you drive on them.

Rumble strips along the edges and centrelines of heavily trafficked stretches of main road were well received and are proving very efficient.

Road safety strategy Sandavágur–Miðvágur

Wanting to improve road safety in Sandavágur and Miðvágur, the municipalities drafted an extensive road safety strategy for the area in collaboration with Landsverk and the police in 2007. It includes a series of minor and major road safety measures aimed at making traffic on the Sandavágur – Miðvágur stretch safer. The strategy also includes pedestrian traffic between the villages, particularly to and from the Giljanes School, making it safer for children to travel in the area.

As part of these efforts, 1,500 metres of crash barriers were installed in 2011. Of these, 500 metres are new and were installed at Giljanes and 1,000 metres of barriers were replaced at Sandavágur and Miðvágur.

Some measures that are part of the complete project have yet to be finished and work will continue in 2012.

New crash barriers installed around the country

In 2011 roughly 4,800 metres of crash barriers were installed around the country. This includes replacement of existing crash barriers and new installations. A pole installation vehicle was brought over from Norway to erect the poles and it stayed in the Faroes from May 23 to June 20, 2011. Landsverk employees subsequently mounted the barriers on the poles.

Árnafrjørður and Hvannasund tunnels

For the first time a preparedness plan has been drawn up for one of the old Faroese tunnels. It was tested at the Árnafrjørður and Hvannasund tunnels in April 2011.

Furthermore, a GSM solution was developed for these old tunnels, enabling people to call 112 for help in case of an emergency in the tunnel.

Tunnel signs were updated, they now indicated your position in the tunnel. In case of an accident, it is now possible to call 112 and say where in the tunnel the accident happened.

Landsverk organized a drill in the Árnafrjørður tunnel, together with the police, Klaksvík Hospital's ambulance services, as well as the Klaksvík and Eystan Múla fire fighters. According to the participants, overall the drill ran smoothly and quickly.

Húsum crossroads

At the northernmost crossroads in Húsum, visibility was extremely poor, the road lay-out itself may therefore have been hazardous. In 2011 the connection was altered so that larger vehicles leaving the village could drive with good visibility in both directions. This was achieved by changing the existing connection from entering the main road at a sharp angle, to a perpendicular entry.

Poor weather conditions have prevented Landsverk from asphaltting the road, but this work will be completed before May 1, 2012.



New direction signs on the way

An update of the direction signs on the main road network is overdue. A signage plan for this network is now in place.

The direction signs were purchased in 2011 and will be put up over the first semester of 2012. We will start by replacing the signs on the island of Sandoy. Then we will proceed with the main road network, i.e. from Tórshavn to Sorvágur and Klaksvík.

The bridge to Mykineshólmur repaired

The route from Mykines island to the islet Mykineshólmur was repaired in 2011, specifically the railing along the path and the bridge deck. The boards, weighing a total of 2.6 tons, were flown out by an Atlantic Airways' helicopter on four trips to the island.

The bridge, which was rebuilt in 1989, is 42 metres long and two metres wide. The new boards are Azobe-Lophira timber from a particularly hard and wear-resistant tree growing in tropical Africa.

Landsverk and the Danish Farvandsvæsenet (Maritime Safety Administration) had the bridge built together and both maintain it. Path maintenances on both sides of the bridge is also a shared task. Farvandsvæsenet owns and operates the lighthouse on the islet.

Trollanes tunnel

Work was carried out on the Trollanes tunnel in 2010 and it continued in 2011 from station 1,800 on the side of Mikladalur to the tunnel entrance at Trollanes. The whole area was washed, loose rock cleared from the ceiling and secured with bolts. In addition to the 1,035 existing bolts, 1,080 more were placed in the ceiling and walls in this area. Work on cleaning, drilling and grouting extra bolts will continue in 2012 and is expected to be finished in April 2012.

pected to be finished in April 2012.

Hvalba tunnel

In 2009–10 work was done on the southern portal area of the Hvalba tunnel. In 2011 Landsverk's tunnel crew examined and repaired sections stretching from the northern end to about 250 metres inside the tunnel, where most leaks have occurred and rocks have fallen from the ceiling.

In order to prevent small stones from falling from the ceiling, the same area in the northern end of the Hvalba tunnel was also sprayed with at least six centimetres thick steel-fibre reinforced concrete.

The work carried out in the Hvalba tunnel is a continuation of the work done in recent years to increase road safety in the tunnel.

Gásadalur tunnel

Loose rock was removed from the Gásadalur tunnel, which was also secured with concrete. The tunnel was examined and the area near the east entrance sprayed with concrete. As an additional safety measure, 328 bolts were placed in the ceiling and walls.

Leirvík tunnel

Shortly before Christmas last year, we started washing and clearing the Leirvík tunnel. Loose rock was cleared from roughly 700 metres of ceiling and wall in the tunnel. For safety reasons, extra bolts were inserted where needed. Work in the Leirvík tunnel will continue in 2012.

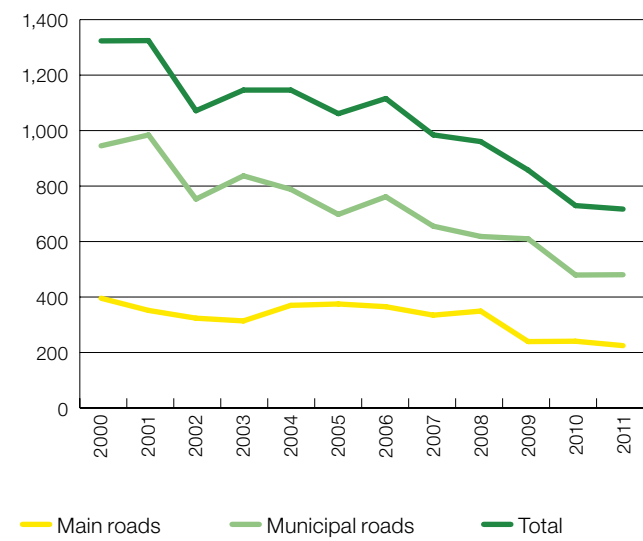


TRAFFIC ACCIDENT REGISTRATION

The police register traffic accidents – minor accidents are only registered in the daily log, whereas police reports are written on major traffic accidents and personal injury traffic accidents. Police reports record further information about accidents, such as causes.

As indicated in Figure 1, the number of traffic accidents registered by the police is constantly falling. Approximately a third of all accidents occur on the main roads, which Landsverk is in charge of.

Figure 1:
Registered traffic accidents 2000–2011



Registering traffic accidents is used as an indicator of how safe traffic is in the Faroes. The goal is an on-going reduction in the number of traffic accidents and the general objective is Vision Zero: ‘Nobody should die or sustain serious injury in traffic’. All our road safety efforts are aimed at achieving this vision.

If we look at personal injury traffic accidents, findings show that the numbers have also been falling over several consecutive years. Figure 2 indicates the number of personal injury accidents separated into main roads and municipal roads. The 2007 Road Safety Strategy fixed specific targets for a 30% reduction in personal injury traffic accidents by 2015 as compared with 2006 figures. This target was met long ago. The number of personal injury traffic accidents in 2011 was a full 67% lower than in 2006. As Figure 2 also indicates, there are

Figure 2:
Personal injury traffic accidents 2000–2011

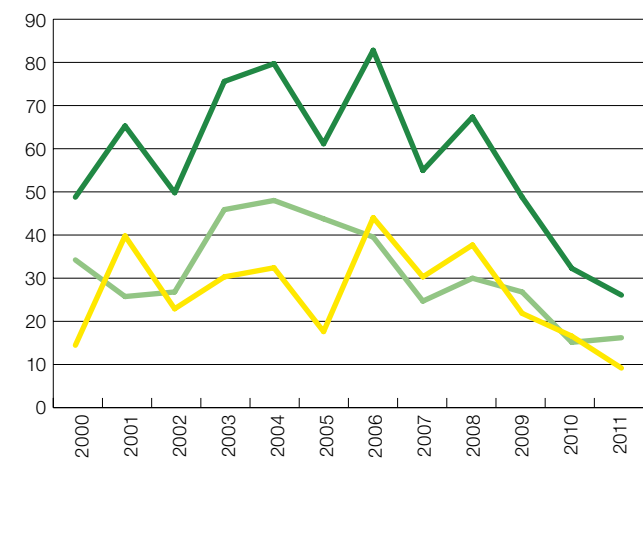
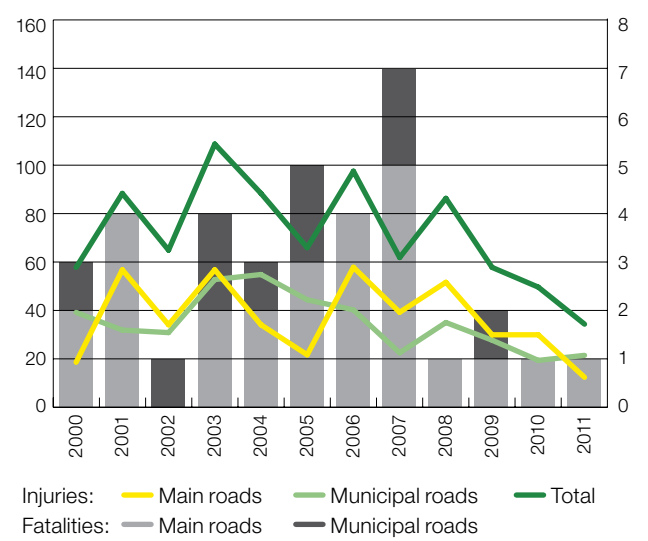


Figure 3:
Traffic injuries and fatalities 2000–2011



DIGITAL NAUTICAL CHARTS OF FAROESE WATERS

In February three of the most important nautical charts of Faroese waters were reedited. These charts, the last ones to ever appear in print, form the basis for the new digital charts, the nautical charts of the future. All vessels above a certain size are now required by law to carry digital charts on board with the technical equipment needed to read them

Landsverk employees have been working on ocean surveys, which are the basis for the new updated nautical charts. They are based on both older and more recent ocean and land surveys. The old charts, which were printed on copperplates, have been digitalized and updated with new depth surveys, where available.

The nautical charts, which have always been in Danish or English, were also translated into Faroese. All villages, cities and other place names are now in Faroese.

On February 13, 2012, nautical charts 84, 85 and 86 were reedited in hard-copy. These are charts of harbours and landing places for the northwestern, northeastern and southern areas. They are the last of the eight reedited nautical charts of Faroese waters.

Many of the nautical chart have been so extensively updated that they could be considered new. Chart 81, for example, was based on data from as long ago as 1898 and it has been redrawn with new data.

As of January 1, 2012, it is mandatory for all vessels over a certain size to carry digital charts on board and, of course, also the technical equipment required to read them.

In order to digitalize the charts, we first had to draw up new paper charts, which we subsequently based the digital charts on.

Continuous updating

Nautical charts are a Danish competence. The digitalization of the Faroese nautical charts is the result of constant coopera-

tion between Landsverk and Danish authorities, such as the National Survey and Cadastre and the Danish Maritime Authority.

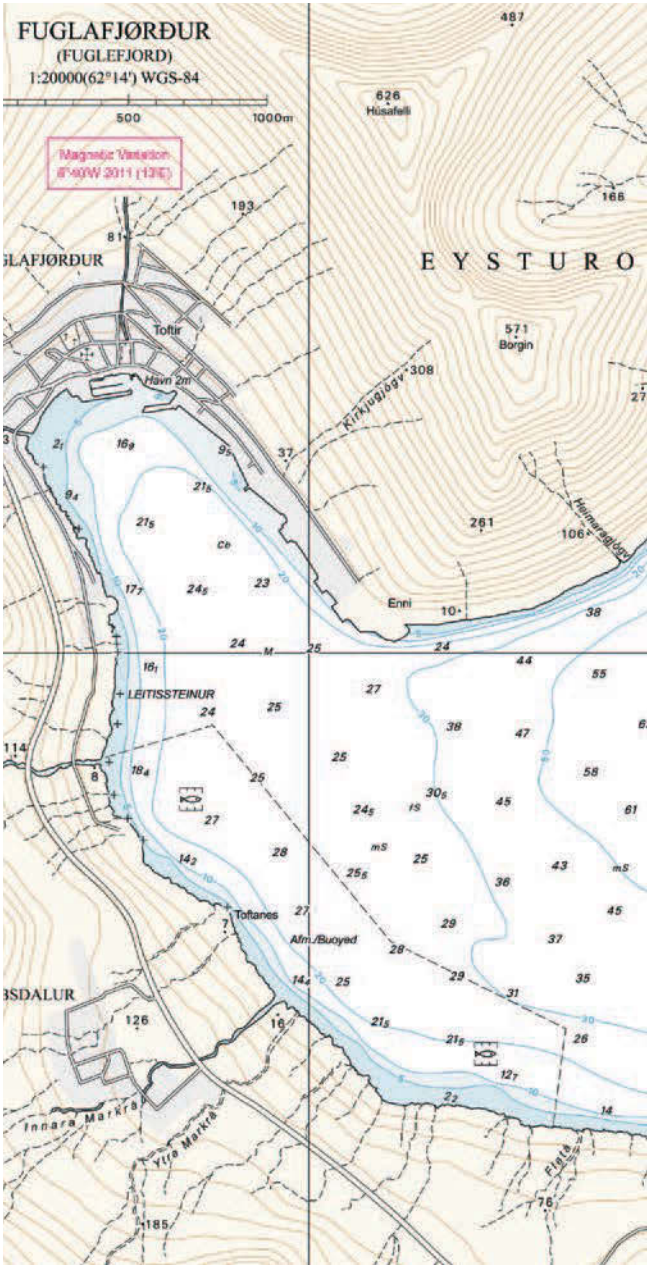
On behalf of Landsverk, Anne Marie Norby and Klæmint Østerø carried out the ocean surveys, which serve as a basis for the updates. They also worked on the new edition of nautical charts.

Among other updates, all Faroese coastlines and contour lines were remapped. This was done in cooperation with the Faroese Environment Agency.

Large-scale harbour developments have been made since the first Faroese nautical charts were published. All expansions and changes, in and around the large and most important harbours, have been included in the new nautical charts. These are on-going efforts, though, and will require regular updates.

Continuously updating the nautical charts is a precondition for safe ocean traffic. Now that Faroese charts are digital, like Danish charts, it is possible to maintain and update them as changes occur, for example around harbours.

Several specialists participated in digitalizing the Faroese nautical charts, and a series of relevant sources in both the Faroes and Denmark were consulted.



ROAD SAFETY VIDEOCLIPS

Tunnel safety

The first two videoclips were about tunnel safety. Tunnel accident studies indicate that how travellers act in a crisis situation has a decisive impact on the consequences of accidents in tunnels. The purpose of these first two videoclips is to inform travellers about the right conduct:

- when driving in tunnels in normal conditions, in order to reduce the risk of accidents and limit the subsequent consequences.

Driving in winter

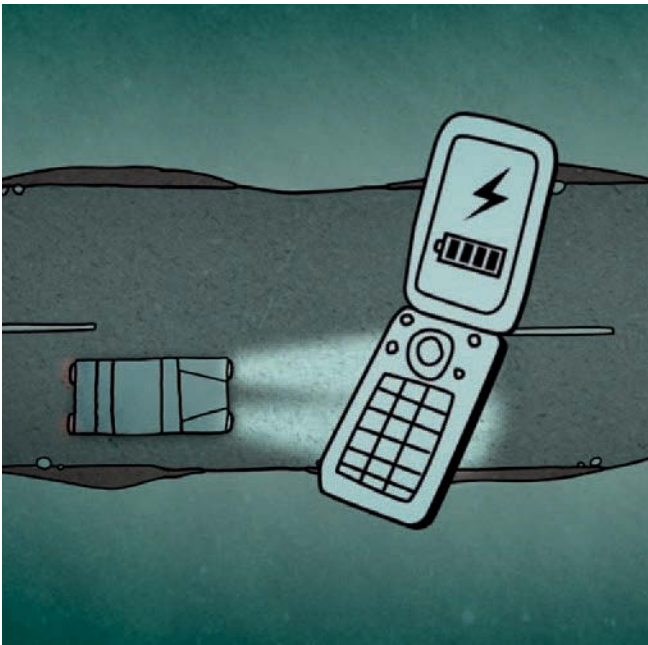
The second pair of videoclips is about safe driving in winter. One shows how to best prepare for the trip, to make sure you

In 2010 Landsverk started producing short informative videoclips about road safety. The clips were aired on Faroese television and are also available on YouTube. They were met with a very positive response

are aware of the circumstances and driving conditions and can take any necessary precautions. The other videoclip shows potential hazards in winter traffic, how to prevent them and how to behave if you are brought to a halt.

We plan to continue making similar videoclips with information about traffic and safe behaviour. The coming two clips will be about:

- driving in the Faroes – a briefing in English, intended for foreign tourists, about special conditions on the Faroese road network.
- safe behaviour when there are roadworks and the importance of looking out for those working on the roads, so that both travellers and road workers are safe.



LANDSVERK GUARANTEES ASPHALT COMPETITION

Competition is not always a given in a market as small as the Faroese one. It is therefore important that there be as many players as possible. If Landsverk did not compete with the two private asphalt suppliers in the Faroes, the price of asphalt would be considerably higher

In a small market with only two private suppliers, the conditions needed for free asphalt competition do not truly exist. In order to secure free competition and thereby a lower price, more suppliers are needed.

With only two private suppliers, there is a risk of a duopolistic market situation, in which companies seek to optimize their profit, leading to a very high probability of hiked prices.

It is quite common in markets with little or no competition that public authorities also offer goods and services. This ensures adequate prices and quality thereby maximizing social benefit.

In the case of asphalt, Landsverk competes with the other market suppliers on a completely level playing field. As indicated by facts such as the legal requirement binding the institution to always include depreciation in pricing. Pricing must also take into account all financial costs, which means that Landsverk's production activity must yield an adequate profit, in line with what companies usually seek to make.

Users benefit

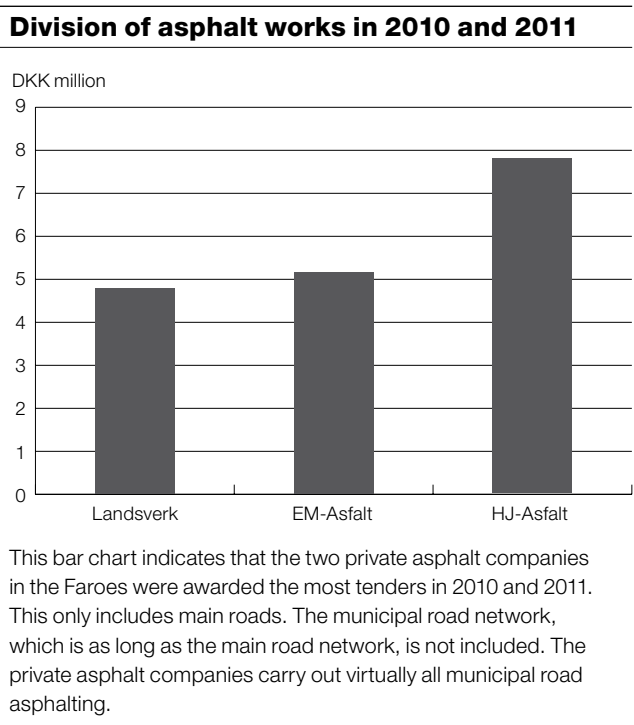
In 2009 the Faroese Government adopted a proposal from then Minister of the Interior, Annika Olsen, about free competition in asphalt, in which Landsverk will be able to tender for asphalt when investments are made, subject to the same procedures and guidelines as private companies. The aim of the amendment was to generate more effective competition between the market players, which could lead to a reduction in the cost of road construction for the benefit of users.

The public authorities have stipulated a pricing method, provided for in the Public Fiscal System. It prevents public pricing from distorting competition. These conditions directly stipulate that "prices shall be determined in such a manner that they do not distort competition with private and other public competitors, that the long-term average cost shall be financed, which means included in the pricing." Landsverk takes all this into account. Our pricing includes direct and indirect costs as well as average long-term cost, such as depreciation and return on investment. It is therefore not true that Landsverk is better equipped to offer lower prices than private companies.

Operated commercially

Moreover, in order to avoid any conflict of interest, Landsverk ensures a clear separation between calling for tenders on works, when the institution also submits a tender, and processing the tenders received. Having two different departments at the institution managing these tasks separately ensures this. The Infrastructure Department prepares calls for tenders and receives tenders, whereas the Production Department prepares and submits tenders and executes any assignments awarded to Landsverk in a tendering process.

The Production Department operates as a commercial company competing with other commercial companies and is financially independent of the rest of the institution.



ASPHALT IS NOW RECYCLED

Other Nordic countries have been reusing asphalt for several years. Landsverk has now made an investment, which enables us to recycle all asphalt milled off the main road network

Green production and recycling are at the top of the agenda, especially in the Nordic countries, which are quite advanced in these areas.

The Faroes were a bit slower off the mark when it comes to recycling, but Landsverk has now invested in a crusher, which will enable us to recycle asphalt milled off the roads before new asphalt is placed.

There are different ways of recycling this asphalt, but the most common one is milling it off the road, putting it in a crusher and then adding it to new asphalt mixes in a specific percentage.

In the first layer, the base course, up to 40 percent of reclaimed asphalt can be used, however, in the top layer, the wearing course, the quantity of reclaimed material used is slightly lower.

Recycling asphalt leads to savings, both on raw material and energy. Tests carried out at Landsverk's laboratory in Hundsarabotnur indicate that almost all the bitumen, the binding agent in asphalt mixes, is still present when asphalt is milled off. Recycling means that 30 percent less bitumen is required for production. And at the current price of bitumen, this constitutes a saving of around DKK 100 per ton of asphalt.

Good trial results

In Finland asphalt is milled off and placed in a mobile mixer, which carries out the entire production process on the spot. This means that it mills off, mixes and places asphalt in the same workflow.

"The equipment used for this is expensive and the quantities in the Faroes are far too limited for this solution to be con-

sidered. Therefore, the aforementioned use of a crusher is the only right solution for us", says Torkil Olsen, Head of Landsverk's Production Department.

Asphalt has never been recycled in the Faroes, but the process is now underway. The first trials of mixing in reclaimed asphalt were carried out in 2011 with good results.

Landsverk's solution means that the reclaimed material is placed in a lift, which lifts it into a mixer after it has been heated.

"The equipment for this is not so expensive, and considering the quantity of material in the Faroes, this is the best possible solution for us", says Torkil Olsen.

Quarries environmentally certified

Landsverk has launched a process of obtaining environmental certification for all quarries in the Faroes, starting with the plant in Hundsarabotnur, which produces stone, roadstone and asphalt.

The first initiative is processing all water effluents from the area to filter out fine sand particles from production. In order to achieve this, two desilting installations are under construction, which will catch all water from the area and filter fine particles out through sedimentation.

The area has also been conditioned to enable covered storage of all foreign material, which was previously kept out in the open until it was used in production. This will prevent any dust on the stones from washing into the quarry river during production.



SUBSEA TUNNELS LARGE IMPACT ON FUTURE TRANSPORT NETWORK

No matter which solution is chosen when subsea tunnels are constructed, they have a large impact on future expansions of the transport network. All studies indicate that the greatest social benefit is obtained by constructing future subsea tunnels as public projects

In relation to a possible Eysturoy subsea tunnel between Tórshavn and Toftir we re-examined the issue of the best financial solution for the Faroese society. We also factored in coupling this investment with a possible Sandoy subsea tunnel.

Regardless of which solution is chosen, new subsea tunnels have a substantial impact on future possibilities for expanding the transport network.

"When we discuss further subsea tunnels in the Faroes, we are talking about very large investments, which undoubtedly will have a large impact on how infrastructure can be funded and operated in future", says Ewald Kjolbro, Landsverk's Executive Director.

He is convinced that the best solution for new subsea tunnels is creating them as public projects.

"Our studies show that it is possible to obtain considerably cheaper funding if a potential Eysturoy subsea tunnel is publicly owned and operated. Though there are several possible ownership and funding arrangements, the difference between exclusively public or private ownership is very large", indicates the Executive Director of Landsverk.

A difference of hundreds of millions

If a private company is to own and operate a potential Eysturoy subsea tunnel, without any public participation whatsoever, the additional cost without any public guarantee for the funding could amount to between DKK 400 and 800 million. The actual cost difference will, of course, depend on the difference in interest rates at that time. A private tunnel solution

will thus be at least 40 percent more expensive than a public solution.

If the tunnel is to be funded with tunnel toll payment, the difference will also be felt in travel cost. The travel price for a public Eysturoy subsea tunnel balances out at around DKK 38, whereas the travel price for a private solution will be DKK 53. This means there will be a difference of about DKK 15 for each vehicle.

Could fund a Sandoy subsea tunnel

If the Eysturoy subsea tunnel is constructed as a public solution, there are good possibilities for it to fund a potential Sandoy subsea tunnel. This can be done by fixing the travel price at DKK 67, as the return toll for the Sandoy subsea tunnel and single trip toll for the Eysturoy subsea tunnel.

Tunnel toll payments are not the only solution to secure income for the repayment of new subsea tunnels. Another option is a fuel surcharge and a third option is increasing road charges for all vehicles.

The main reason why an exclusively private project will be much more expensive is because the lending rate will be considerably higher, since financial institutions consider the risk to be significantly greater than when there is full or partial public guarantees for the funding.

Landsverk carried out the price study upon request from the Minister of the Interior. Both the Government and Parliament were briefed on the results of the study in February.



Main conclusions in the tunnel study

Interest rates, which are a consequence of credit ratings, are decisive for project profitability. A public tunnel is at least 40 percent cheaper than a private one.

The lowest average ticket price for the Eysturoy subsea tunnel under a private business association is DKK 53, while it borders DKK 38 if it is publicly owned. This is a difference of at least 40 percent, or an extra cost of DKK 32 million per year.

If the Eysturoy subsea tunnel alone is to fund the Sandoy subsea tunnel, the ticket price will be roughly DKK 67 for a return trip in the Sandoy tunnel and the same for a single trip in the Eysturoy tunnel.

If the existing subsea tunnels, together with the Eysturoy subsea tunnel, are to fund the Sandoy subsea tunnel, the ticket price as a public project will be reduced to DKK 59 for a return trip in all the tunnels, except the Eysturoy tunnel, where it would be the single ticket price, because there is already an alternative route. For the private project this price is DKK 79.

Assumptions on which the calculations are based:

- Repayment period 20 years.
- Annual maintenance DKK 775 per metre.
- Credit ratings for private loans are lower, therefore the rent is higher. At the current interest rate level, private interest rates are estimated at 6.7 percent, while they are estimated at 3.7 percent for public loans. The difference may well be even higher, but this cannot be said for certain before potential funding is secured.

The concrete figures in the text are, of course, tentative, because everything hinges on price movement and the timetable of potential new subsea tunnel projects.



SOMETIMES WE LIGHT THE WAY

In early December last year, 31-year-old machine operator, Jákup Pauli Jacobsen, rolled the trench excavator out on the Oyndarfjørður road at five in the morning in a terrible snowstorm. Little did he know that this was to be the most difficult day of work he had experienced in his two winters at Landsverk

In early December last year, there was a lot of snow and it was stormy too. Jákup Pauli, who is a member of a four-man team in Landsverk’s northern district winter maintenance crew, was on call and had to take the trench excavator out on the Oyndarfjørður road at five am. Road conditions that morning were extremely poor and on the radio, Árni Jacobsen, Lands-



verk’s area leader for the northern district, called on people to hold off driving on the roads until around nine am when it would be light. All three excavators were operating simultaneously on the Oyndarfjørður road until seven pm, when they stopped digging. By then many cars had been stranded throughout the country and there was a lot of work.

Had to show the way

For Jákup Pauli on the Oyndarfjørður road, the road was so snowed under in the blizzard that only one lane was visible to drive on.

“The road conditions were so bad that I had to get out of the machine to show cars the way. I simply walked ahead of the cars and showed them the way, because you couldn’t see anything. Several drivers were afraid to drive to the edge, because it wasn’t visible and it was steep etc. We walked ahead, so the drivers would see where the edge was – I guess we were sort of lighting the way in this case”, says Jákup Pauli. You can clearly sense that this event is deeply etched in his mind. An experience Jákup Pauli will no doubt be telling his grandchildren about some day.

Jákup Pauli also tells us that there was a traffic jam that day in the snowstorm. Cars approaching from opposite directions were afraid to pass each other, due to the poor visibility. Once again it was necessary to get out of the machine and onto the road to help, so that cars could pass each other.

“This was the worst snowstorm I have experienced at work, but it was exciting. It requires extraordinary concentration, because you can’t see a thing often for several consecutive hours and days. You have to know the area and know where

you are; otherwise you can quickly drive off the road. We do our job as well as we can, so cars can drive as safely as possible”, says Jákup Pauli.

Enjoys the variety of tasks

There is close communication between the snow-clearing team when they are on duty. They call and discuss what the situation is like and if assistance is needed. According to Jákup Pauli, this is a good safety net and also makes you feel less alone in the snow.

The day after the snowstorm on December 8, excavations recommenced on the Oyndarfjørður road at five in the morning. The machines did not reach Oyndarfjørður until late in the afternoon, due to how high the snow was piled. It was up to three metres.

As soon as the snow melts, Jákup Pauli has a lot of other work to do with his machine in Landsverk’s maintenance team when the snow in the bucket is replaced by soil.

Working days are much shorter and completely different. Most of the work to be done then is entrepreneurial work, such as digging ditches, clearing out cross gutters and cattle grids, washing tunnels and putting up signs and crash barriers amongst other things.

Facts

Landsverk has 26 weather stations around the country. They provide information on temperature, wind speed, direction and gusts every 10 minutes day and night. We also have a total of 27 webcams, which enable us to see the road conditions. When the weather stations report slippery conditions, the main roads with heaviest traffic are salted first.

Facts

The main road network is divided into three areas, the southern district, central district and northern district. Detailed salting plans are in place for each area. Work is carried out during peak traffic periods between five am and nine pm and on Sundays and holidays from six am. Around fifty people at Landsverk are tied to winter maintenance.

Table 1:					
Winter	06–07	07–08	08–09	09–10	10–11
Period	18/10–15/5	29/9–15/4	3/10–31/3	22/9–12/5	18/10–29/03
Days	210	200	180	225	163
Days with slippery roads	93	111	99	141	104
Use of salt (tons)	1,314	1,601	1,013	1,691	1,248
Brine cubic metres					400
In one year an average of 2/3 kg of salt are used per square metre of main road. As a trial 400 cubic metres of brine were used on the roads last winter. This saved Landsverk around 320 tons of salt, around 20 percent of the total salt use.					

Table 2:					
Winter	06–07	07–08	08–09	09–10	10–11
Notification	2,698	4,138	1,400	789	50
Snow clearing	2,828	2,000	3,363	4,868	3,992
Salting	2,966	3,003	2,813	3,681	3,871
Other	652	699	213	1,253	437
Total	9,144	9,840	7,789	10,591	8,350
Cost (DKK 1,000)					
Last winter cost DKK 8.4 million as compared to the winter 2009 –10, which cost DKK 10.6 million. Roads are salted 110 days a year on average.					