



Institute of Transport Economics  
Norwegian Centre for Transport Research



## Universal design in transport

Editors: Nils Fearnley and Kjersti Visnes Øksenholt

# Preface

The current literature on universal design has so far failed to fully address the challenges faced by transport agencies, and when the planners lack holistic knowledge, the solutions that are developed will not meet the required standard.

The aim of this collection of articles is to contribute to increased overall knowledge about what universal design and accessibility for all entails, and also the principles of how accessibility for all can be achieved in a transport context in terms of the planning process and physical solutions. In this way, the articles will contribute to the realisation of universal design, and thus promote a better quality of life and equality for people with disabilities.

The collection of articles is a topical reference work on universal design for various study programmes, fields of study and postgraduate courses in the higher education sector, and for transport agencies and planning authorities.

We would like to extend a big thank you to Liv Øvstedal and Stein Brembu at the Norwegian Public Roads Administration, who initiated and partly funded the articles, and to the Norwegian Directorate for Children, Youth and Family Affairs (Bufdir) who partly funded the collection through their grant scheme 'Universal design – knowledge development, skills development and information'. A big thank you also to Tanu Priya Uteng from the Institute of Transport Economics (TØI) who took on the role of substitute editor for the first article in the collection, which was written by the editors. And thank you very much to Hanne Sparre-Enger from the TØI's Department of Communication, who edited the texts and led the work on layout and design.

Finally, we would like to thank the anonymous reviewers who have peer reviewed all the contributions. The authors and editors agree that their close reading and thorough feedback have greatly improved the articles.

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## **A collection of articles: Universal design in the transport sector**

The aim of this collection of articles is to contribute to increased knowledge about what universal design and accessibility for all entails, as well as principles of how accessibility for all can be achieved in a transport context in terms of both the planning process and physical solutions. We want the collection to strengthen universal design, and in turn contribute to a better quality of life and equality for people with disabilities.

The collection is comprised of seven articles, where this introductory article is Article 1. All shed light on various aspects of universal design in the transport sector.

Article 2, '**Functional requirements for inclusive transport**', discusses the functional requirements that transport solutions must satisfy in order to facilitate social inclusion of people with disabilities (Bjerkan, 2022).

Article 3, '**Universal design and barriers to using public transport**, aims to deepen the understanding of how the transport system is perceived by different groups of people, and to understand and foresee challenges, weigh up the various issues, and facilitate good solutions that benefit as many people as possible (Nielsen and Øksenholt, 2022).

Article 4, '**Universal design and public participation in planning processes**', discusses how universal design can be better safeguarded in the planning process. The article aims to deepen the understanding of the complexity of the planning system, and how this can act as a hindrance for good and holistic solutions (Sjøstrøm et al., 2022).

Article 5, '**How can we ensure universal design of trip chains in a system with complex laws, regulations and responsibilities?**', gives the reader an introduction to the statutory and organisational framework for universal design in the transport sector, with a particular focus on trip chains. The article discusses how to safeguard universal design of the transport system in a context where legislation and accountability are complex, and reforms alter the distribution of responsibility (Øksenholt and Krogstad, 2022).

Article 6, '**Effects of universal design: quality of life, demand and socioeconomic benefit**', shows how the utility of universal design for passengers can be measured, and thus also used in cost-benefit analysis, which surprisingly often show that universal design measures in public transport are highly efficient, i.e. they improve social welfare because benefits exceed costs (Fearnley, Veisten and Nielsen, 2022).

Article 7, '**Transport solutions of the future: technology, design and innovation**, describes a selection of new and future transport solutions that are of particular relevance in Norway, and discusses these in the context of what we know about the needs of various user groups. The article demonstrates how new transport solutions are multifaceted and affect the various user groups in different ways (Aarhaug, 2022).

## Universal design and public participation in planning processes

RANJA B. SJØSTRØM, TORUNN ÅSHEIM, RAGNI L. HELWEG,  
HÉCTOR PIÑA-BARRIOS AND CHRISTINE R. NILSEN

This chapter focuses on the physical transport structures required for walking, cycling and driving. The aim is to provide input for critical reflection on planning processes, universal design and public participation, viewed from a planner's perspective and based on the authors' experiences as land use planners, architects, landscape architects and roads engineers. The article aims to deepen the understanding of the complexity inherent in this system and how this may be a barrier to achieving effective and comprehensive solutions.

*'Travel is about making journeys'*

### Héctor Piña Barrios, architect

Graduated from Bergen School of Architecture with a Master of Architecture in 2009. He works at the intersection of building architecture, landscape architecture, urban design and planning, with a strong focus on sustainability and interdisciplinary collaboration. He has experience in feasibility studies, place-based analyses, land use strategies, process management and project management. He was affiliated with the section for land use planning and analysis in Multiconsult ASA, where he served as the regional contact for the land use planning network. He has worked as an architect and planner at 3RW Arkitekter AS, and since 2020, he has also been responsible for planning at En til En Arkitekter AS. He has experience as a teacher, examiner, diploma supervisor and acting pro-rector at Bergen School of Architecture.



### Christine Ravndal Nilsen, geographer and physical planner

Bachelor in social geography from the University of Bergen (2007), Master in physical planning from NTNU (2010) and SAMPLAN (2013). She started her career in land use planning as an executive officer for private planning applications in Askøy local authority prior to studying for her master's degree. She wrote her master's thesis for the Norwegian Public Roads Administration, where she continued to work for 5 years as a land use planner and was responsible for local community and outdoor pursuits in concept selection processes and municipal sub-plans. Since 2015, she has worked at Multiconsult Norge AS. With a strong foundation in planning theory, she has a passion for urban development projects, where her focus also lies in place-based development, mobility and sustainability.





### **First author Ranja Blomvågnes Sjøstrøm, roads planner and master's student in inclusive architecture**

Bachelor with specialisation in technical community planning, from the Bergen University College in 2012.



Fourteen years of experience from the Norwegian Public Roads Administration's engineering section in Bergen. She has been with Multiconsult Norge AS since 2016 and universal design is one of the fields she has a real passion for. Since 2008, this has enabled her to develop expertise in universal design in road projects. She works to ensure that inclusive, functional, and sustainable infrastructure solutions are planned in collaboration with other professional fields, with a focus on quality and buildability. Since 2016, she has been a guest lecturer every year, delivering lectures on universal design and aesthetics for master's students in land use and land ownership, and for civil engineering students at the Western Norway University of Applied Sciences.

### **Torunn Åsheim, civil architect and land use planner**

Graduated from Bergen School of Architecture in 1993 and the University of Bergen. She has experience as an executive officer and project manager in land use planning at Askøy, Flora and Bergen local authorities. For 7 years, she engaged in planning large residential and city centre areas as a project manager and planning manager in the local authority-owned company Bergen tomteselskap, where she was a driving force for ensuring that quality was a selection criterion in land sales processes. For 10 years, she has been employed as a land use planner at the consulting firm Multiconsult ASA, primarily working on master plans and feasibility studies with a focus on place-based development, mobility and sustainability.



### **Ragni Lucie Helweg, landscape architect**

Graduated as a landscape architect from Bergen School of Architecture in 2005, with a master's in architecture, specialising in landscape. She has several years of experience with a wide range of practical skills and various academic disciplines. She is creative and solution-oriented, and is interested in a diverse range of concepts. These include historical background and sense of place, age diversity and children's presence and participation in public spaces, individual belonging in our communal outdoor spaces and appealing design. She has a strong commitment to universal accessibility and an inclusive landscape for diverse participation.



# 1. Introduction



One of the key principles of the UN Sustainable Development Goals (SDGs) is 'Leave no one behind'. The most vulnerable people in society must therefore be prioritised (FN-sambandet, 2019). The SDGs thus provide a good starting point for social planning. Participatory involvement within the field of transport can result in good universal design solutions in transport and infrastructure projects and foster forward-thinking development.



Figure 1 – UN Sustainable Development Goals (FN-sambandet, 2019)

The 17 SDGs. Goals 9, 10, 11 and 17 are particularly important for public participation and universal design.

- 1 No poverty
- 2 Zero hunger
- 3 Good health and well-being
- 4 Quality education
- 5 Gender equality
- 6 Clean water and sanitation
- 7 Affordable and clean energy
- 8 Decent work and economic growth
- 9 Industry, innovation and infrastructure
- 10 Reduced inequalities
- 11 Sustainable cities and communities
- 12 Responsible consumption and production
- 13 Climate action
- 14 Life below water
- 15 Life on land
- 16 Peace, justice and strong institutions
- 17 Partnerships for the goals



In this article, the concept of 'travel' includes all journeys that take place when walking, strolling, running, cycling, scootering, rolling, or using modes of transport such as a bicycle, bus, car, train, boat or aeroplane. The article focuses on the physical transport structures that are needed to walk, cycle or drive. Central, local and regional government, as well as private entities all develop transport infrastructure in Norway. In the local authorities, private planning proposals constitute the majority of zoning applications, and there is a dedicated guide for the planning process and private zoning plans (Norsk Kommunalteknisk Forening, 2013).

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Photo: Ruter As / Nucleus AS/Daniel Jacobsen

The article first briefly describes the planning process for transport projects, as well as the requirements that apply to universal design. The article does not provide an exhaustive description of the implementation of planning processes under the Planning and Building Act, as this is available elsewhere. Furthermore, the article sheds light on the topic of public participation in planning processes, different levels of participation and the

challenges associated with this, with a particular focus on transport projects. The authors then give their recommendations on how a planning process for such projects should be conducted in order to ensure optimum public participation and implementation of universal design. In conclusion, the article highlights challenges related to achieving effective universal design solutions and suggests ways to address these.



## 2. Zoning plan process for transport projects under the Planning and Building Act

The investigation and planning of road and transport projects takes place at different levels. Figure 2 below describes the relationship between the different phases of a road project and the policy documents associated with them – from concept selection processes via overarching municipal sub-plans with impact assessments, to more detailed zoning plans. Clear overarching plans are an important prerequisite for, and form the basis for, further development of area or detailed zoning plans, which in turn provide opportunities for development.

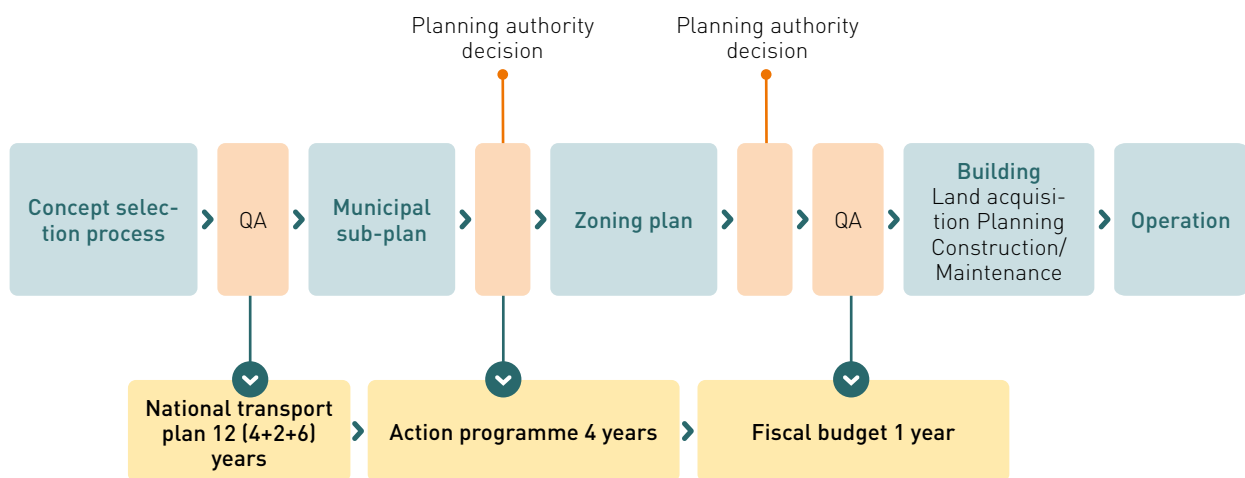


Figure 2 – The relationship between the phases of a road project and the policy documents (Statens vegvesen, 2019a)

Various types of data are collected, and analyses are performed at all planning levels, but in this context, emphasis is placed on impact assessments in municipal sub-planning processes as a basis for further planning work. The impact analysis shows, inter alia, how different road alignment alternatives could affect the surrounding environment. Under the topic of outdoor pursuits/urban and rural life, an assessment is made of the implications for the general public's ability to engage in outdoor activities that promote good health and well-being in the local community and in nature in general. Accessibility and potential barriers within the scope of the planning need to be mapped. As with other development projects, transport projects must comply with the Planning and Building Act, which regulates the possibilities and provides a framework for all developments, including public participation processes and universal design.



In planning processes under the Planning and Building Act, emphasis is placed on transparency and equal opportunities for all affected parties to participate in the process in order to produce the best possible plans. Public participation as a general principle and the principle of universal design are both anchored in Section 1-1 of the Act, the objects clause:

- The Act shall promote sustainable development in the best interests of individuals, society and future generations.
- Planning and administrative decisions shall ensure transparency, predictability and public participation for all affected interests and authorities. There shall be emphasis on long-term solutions, and environmental and social impacts shall be described.
- The principle of design for universal accessibility shall be considered in planning and in requirements relating to individual building projects. The same applies to due regard for the environment in which children and youth grow up and the aesthetic design of project surroundings.

[Planing and Building Act, 2008]

Dialogue and public participation with affected parties are anchored in the legislation and crucial for the successful implementation of good planning processes. Public participation is elaborated on in Section 3 of this chapter, where Section 5-1 of the Planning and Building Act is also discussed in more detail. This clause emphasises that local authorities have a special responsibility to ensure active participation by groups that require special adaptations. Active participation goes beyond the minimum requirement for *notice of commencement* and *announcement of the planning process*, and *presentation for public scrutiny*. The authors believe that active participation entails inviting the parties concerned to participate and to take part in a dialogue. Efforts should be made to facilitate participation by children and young people, as well as groups and stakeholders who are unable to engage directly.

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*'Local authorities have a special responsibility to ensure active participation by groups that require special adaptations.'*

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A large road development project goes through many planning phases, as illustrated in Figure 2 below. The plans become more detailed and closer to finalisation the further you progress in the planning process. A zoning plan may be the third phase and it is always the final phase in the planning of a major road development. This chapter does not cover the last two phases of a road project: the construction and operation of the site. The road owner draws up a proposal for a zoning plan either internally or through the use of a consultancy firm. Finally, the politicians in the municipality concerned consider whether to adopt the plan.

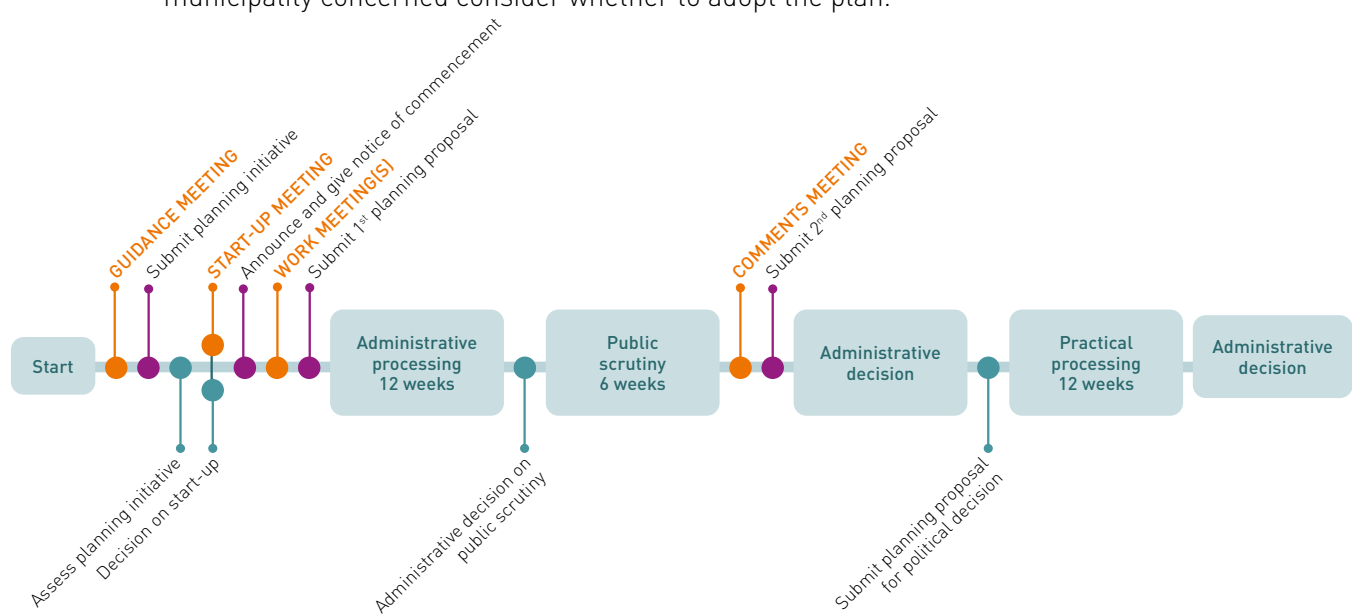


Figure 3 – Detailed presentation of a planning process (Bergen kommune, 2019)

Before permission can be granted for major building and civil engineering works, an approved zoning plan must be in place. The zoning plan consists of a plan map with associated planning provisions and a plan description.

There are two types of zoning plans: area zoning and detailed zoning

There are two types of zoning plans: area zoning and detailed zoning. A zoning plan for a road development project is usually a detailed zoning plan that focuses on the siting of the road in relation to the surrounding area. How much land does the future road require, and how do we envisage using the land adjacent to the road? The plan should include the design of the road, including junctions, pavements and pedestrianised streets, footpaths and cycle paths, crossings for soft road users, bridges (overpasses/underpasses), public transport stops and/or public transport hubs, and access to individual properties, buildings and facilities. It should also include parking, green spaces, noise reduction measures, environmental measures, wildlife measures, and any other measures on or along local roads, areas for construction waste and equipment, as well as principles for water run-off. A detailed diagram of the steps in the planning process can be found on, for example, Bergen local authority's website. This describes the various meetings that take place between the party making the proposal and the planning and building authority (guidance meeting, start-up meeting, work meeting(s) and comments meeting). It also outlines the responsibilities of the party making the proposal (submitting the planning initiative, announcing and giving notice of commencement, submitting the first planning proposal and submitting the second planning proposal). Lastly, it details the responsibilities of the planning and building authority (assessment of the planning initiative, decision on start-up, decision on public scrutiny and submission of proposal for political decision).

## 2.1 REQUIREMENT for universal design in transport projects

As discussed, the Planning and Building Act sets out the overarching requirement for universal design in transport projects. In the Regulations on technical requirements for construction works (TEK 17), Chapter 8 *Developed outside areas* and Chapter 12 *Layouts of and building elements in construction works* also set requirements for universal design of outside amenity areas, pedestrian access and walking lines, parking spaces, other standing spaces and vehicular access ways, stairs, siting of construction works, lifts in construction works, entrances, safety, toilets, waste systems, balustrades and ramps etc. (Byggteknisk forskrift, 2017).



In the authors' experience, the degree of compliance with the TEK 17 regulations differs across transport projects, and there may be a need to increase competence in this area. Below are some examples of requirements stipulated in TEK 17:

- Differences in level in outside developed areas shall be marked with visual and tactile means (Section 8-3 b)
- Columns, balustrades and similar shall visually contrast with their surroundings (Section 8-3 c)
- There shall be room for a wheelchair where seating is constructed (Section 8-3 d)
- Key walking lines that cross open areas in larger squares and squares subject to universal design requirements must have clearly demarcated walking zones or guidelines. Surface patterns shall not convey misleading directional information (Section 8-4 (2)).

Universal design is also one of the objectives in the [National Transport Plan \(NTP\)](#). The current plan is an overarching and long-term prioritisation plan for government investment in transport infrastructure projects in Norway. Each NTP covers a 12-year period and is revised every four years. In the period 2018–2029, one of the goals was to contribute to continuous, universally designed journey chains. A journey chain includes all stages of the journey, from when travel planning begins until the passenger has arrived at their destination.



To achieve this, universal design must be incorporated into all plans for upgrading and building new road infrastructure. The public road network is planned and constructed in accordance with the road standards. Some local authorities have their own road standards, but the Norwegian Public Roads Administration's standards are also often applied to municipal and private roads. Quality and design requirements are established through the agency's manuals and guides (the most relevant ones being Manual N100 Road and street design, Manual V122 Bicycles, Manual V123 Public transport, Manual V127 Crossings for pedestrians, Manual V129 Universal design of roads and streets, Manual R610 Standard for the operation and maintenance of national roads, and Manual V720 Traffic safety audits and inspections (Statens vegvesen, 2019, 15 October)).

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*'Infrastructure built by the Norwegian Public Roads Administration must be universally designed in order to ensure that everyone can travel.'*

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[The Norwegian Public Roads Administration's web pages](#) about universal design state that 'Infrastructure built by the Norwegian Public Roads Administration must be universally designed in order to ensure that everyone can travel. This means that the transport system must have good-quality solutions that enable all individuals, regardless of functional ability, to travel. Step-free access, guidance path surfaces, clear information and obstacle-free footways are key elements of a universally accessible transport system.' (Statens vegvesen, 2019, 13 November).

There are also government guidelines for universal design in action plans. [The government's action plan for universal design 2015-2019](#) provides guidance on how to implement universal design in new areas such as ICT and welfare technology, as well as how efforts should continue in key areas such as transport, buildings and outdoor spaces.

A standard is a common framework for how something should be designed or executed, and standardisation is the process from identifying a need/idea to producing the finalised standard (Standard Online AS, 2019).



Another type of guideline used in Norway is standards. A standard is not a government directive and is not legally binding. A standard is a common framework for how something should be designed or executed, and standardisation is the process from identifying a need/idea to producing the finalised standard (Standard Online AS, 2019). Standards are developed in a collaboration between experts in the relevant field, government authorities and stakeholder organisations, and is thus the result of interdisciplinary cooperation and participation. It is important to note that 'the Regulations on technical requirements for construction works include minimum design requirements. Standards set requirements that are more detailed and include recommendations from a committee consisting of user organisations and all segments of the construction, civil engineering and property sectors' (Standard Online AS, 2018).



It can be useful for planners to be familiar with the following standards:

- **NS 11005:2011** *Universal design of developed outdoor areas – Requirements and recommendations*
- **NS 11001-1:2018** *Universal design of construction works – Part 1: For the general public and work buildings*
- **NS 11031:2017** *Universal design – Requirements for the design of buses*
- *Universal design of construction works – Wayfinding, P-750.*

Universal design is strongly rooted in laws, regulations, action plans and standards. The requirements set are intended to ensure predictable and universally inclusive solutions. The diffusion of these requirements makes it challenging for planners to have full control over which requirements apply where. For instance, the requirements in TEK 17 are not implemented in all the Norwegian Public Roads Administration's manuals. Universell Utforming AS has developed a guide that makes it easier to identify the right requirements (Universell Utforming AS, 2019).

## 2.2 How can universal design be better incorporated into the planning process?

### Understanding who you are planning for

Knowledge is a prerequisite for competence. If universal design and accessibility in the built environment is to be improved, knowledge of user needs is crucial to deepening the understanding of the challenges users face in their daily life. This means that it is not only necessary to be familiar with the Planning and Building Act, TEK 17, manuals and other technical standards, but much more nuanced knowledge is needed of disabilities/abilities.

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*‘Professionals must also have an understanding of the background to user needs in terms of disabilities.’*

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Professionals must also have an understanding of the background to user needs in terms of disabilities. In order to ensure a nuanced, qualitative and innovative interpretation and application of the regulations, it is crucial to grasp the underlying intention of the requirements. Where there is little understanding of the background for a target requirement, it will be difficult to apply it correctly and to form a sufficiently broad perspective to find a good solution. This is particularly important in the case of conflicting requirements where compromises or priorities need to be made. User needs form the basis of the target requirements.



As a planner, being able to understand and empathise with users is essential for identifying the diverse range of users, which in turn is necessary for finding clever design solutions for public facilities. Impaired sensory perception and cognitive abilities can hinder orientation and mobility, making the user feel less safe. This underlines the importance of incorporating such considerations into the design of outdoor spaces. Impairments in functional ability can be either chronic or temporary, and people can experience them for different lengths of time.

A normal life involves countless phases and situations where functional ability is reduced, as seen in Figure 4, which illustrates the wide diversity of people in society. Childhood and adolescence, pregnancy, menopause, old age, chronic, short-term or long-term illnesses, challenging life circumstances and other difficulties can impair various senses and abilities, limiting a person's capacity to understand, find their bearings in and navigate our shared outdoor spaces. We can all relate to the problems associated with being a stranger in a new place and the challenges entailed in finding our way around. The clarity, coherence and predictability of the design of roads, streets, squares, pavements, footways, signage etc. will all impact on this.

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*'We can all relate to the problems associated with being a stranger in a new place and the challenges entailed in finding our way around.'*

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Disability can restrict people's opportunities for social participation and can manifest itself in their interaction with the world around them. Many people face discrimination and are denied the opportunity to use public outdoor spaces and public services. This can, for example, apply to public transport as a result of the absence of accessible bus stops, railway stations or vehicles.



Figure 4 – Illustration 'We are all different' by Trond Bredesen

Different needs require different solutions. What works well for some may not be helpful to others. One example is the need for physical cues for people with visual impairments. A height difference of at least 2 cm serves as an important tactile indication of the end and beginning of pedestrian crossings. However, wheelchair users and people with poor balance and mobility need as few obstacles as possible in their path and prefer completely level transitions. A solution based on one group's needs may represent an obstacle to another group. Physical planning and adaptation are typically conducted by architects, landscape architects, engineers, geographers, land use planners etc. Despite good intentions, and even though planners are often knowledgeable about people living with various disabilities, addressing all variations of these can be a challenge.

In order to develop best practice for addressing these challenges, it is essential for planners to learn about the different user needs. A balance needs to be struck between individual and general adaptations. This involves treating people as similarly as possible while also accommodating unique needs where this is required, with the aim of upholding the principles of equality and inclusivity. (Lid, 2013). The best way to do this is to adopt an interdisciplinary approach. In addition to planning experts such as architects, landscape architects, engineers, social geographers, social anthropologists etc., professionals from the health and social care sector, such as occupational therapists, physiotherapists, social educators, nurses, public health workers and rehabilitation personnel can also contribute specialist knowledge to improve accessibility in society.





Last but not least, it is crucial to listen to the real experts on this topic: the users themselves. They are familiar with the specific situation and possess precise knowledge about the challenges that planners need to find solutions for. Relevant representatives from user organisations and councils for people with disabilities should be invited to take part in the dialogue. Discussions should be held verbally and linked to visual elements that foster good communication. They should also be as specific and solution-oriented as possible. Section 3 of this chapter delves further into the topic of public participation.

## Universal design as a process

As described in Section 2.1, the rules and framework for safeguarding universal design are extensive. Nevertheless, many transport projects have an insufficient focus on the goal of universal design, which is to create an inclusive society with room for everyone.

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*‘Many transport projects have an insufficient focus on the goal of universal design, which is to create an inclusive society with room for everyone.’*

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The authors wonder whether some planners’ tendency to only conform to the minimum requirements might stem from the fact that universal design is guided by legislation, regulations, guidelines, action plans and manuals from government ministries and directorates. What this means in practice is that the regulations are often used as ‘recipes’ that must be followed to the letter, without any critical assessment of whether the goal of including as many people as possible is being achieved. Unfortunately, in such cases, the regulations are not used as the valuable tool they are for achieving a high level of inclusivity and quality.

We must ensure that universal design does not merely become a minimum standard or is reduced to being solely about the technical solutions.

We must ensure that universal design does not merely become a minimum standard or is reduced to being solely about the technical solutions. It is the different places and their local qualities that, along with specific user needs, must determine how guidelines and manuals are used. When a planner initiates a new project, new and unique situations typically arise, and these need to be addressed in harmony with the surroundings. Sometimes, only a small adjustment may be needed to accommodate as many people as possible, while other times, more significant modifications are required.



For example, the Norwegian Public Roads Administration's road standard N100 Road and street design provides guidelines for overarching principles that encompass traffic safety, the environment, the climate, universal design, accessibility, coordinated land use and transport planning, and architecture. The section on traffic safety states the following:

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*'Norway has a vision (vision zero) of a transport system with zero accidents resulting in fatalities or serious injuries.'* (Statens vegvesen, 2019b)

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The zero vision is a fundamental and obligatory principle in the design of streets and roads. It is a crucial and well-founded vision. In practice, however, it is sometimes thought to constitute a rigid enforcement of normative standards, with the argument that any non-conformance will compromise traffic safety. In some cases, this is a barrier to producing innovative, customised solutions that are well-adapted to the relevant site. The authors of the article believe that the ambition should be to both adhere to the manuals and the regulations and to have solutions that are sufficiently tailored and specific to their location.

At an overarching level, much of the legal and political framework in Norway is already in place. Going forward, the focus must therefore be on the implications of this for our work. Planners must learn from existing solutions and conduct evaluations of planning interventions, the siting of services and amenities and how these interconnect, the design of streets, urban spaces, transport hubs (including

ferry terminals), public transport stops, pedestrian and cycling routes, as well as regulations, guidelines, manuals and guides. What works and what doesn't? And not least from an ethical perspective – for whom does it work/not work? Dilemmas are inevitable (Lid, 2014).

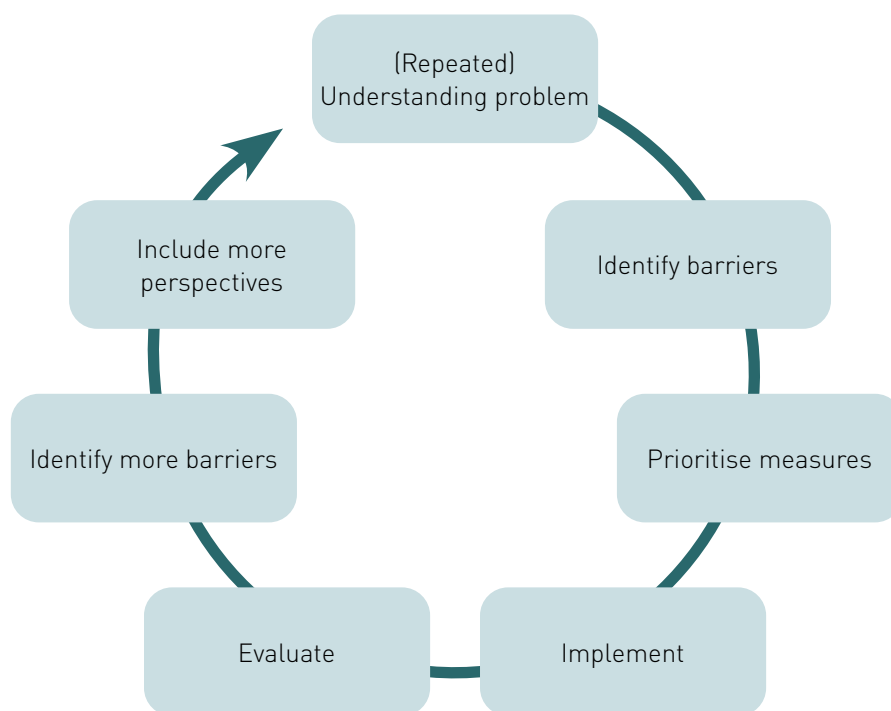


Figure 5 – The universal design process (Lid, 2013 p. 21)

A good method for ensuring that universal design is an integral part of zoning plans is to adopt a clearer approach to the design process (see Figure 5). According to Inger Marie Lid, this process can be described in eight cyclical steps. It starts with problem understanding, followed by identifying barriers and ways to eliminate them.

Measures may need to be prioritised before being selected and implemented. It is important to evaluate how specific solutions work for different groups. This can be done through systematic testing of the chosen solutions. What works and what doesn't? During the evaluation, new barriers may be identified, and it may be necessary to include additional or new perspectives, thus developing an enhanced understanding of the problem as the process progresses.

Evaluation is a keyword. It may well be that the checklist has been completed, but there will always be dilemmas that make it difficult to get everything right. Prioritising between different user groups is a recurring challenge. In such cases, it is important to have a strong knowledge base and to ask questions about the usability of the measure. The solution should always be to select measures that address the most needs. A relevant tool that can be used to evaluate zoning plans in terms of universal design is two reports that provide guidance on how to safeguard and develop universal design in transport facilities (Vista Utredning AS/Universell Utforming AS, 2019a; 2019b). Through active use of this tool, the universal design aspect of the planning work will continually evolve.

### 3. Public participation

The provisions for public participation in planning are set out in Section 5-1 of the Norwegian Planning and Building Act:



*'Anyone who presents a planning proposal shall facilitate public participation. The municipality shall make sure that this requirement is met in planning processes carried out by other public bodies or private bodies.'*

*'The municipality has a special responsibility for ensuring the active participation of groups who require special facilitation, including children and youth. Groups and interests who are not capable of participating directly shall be ensured good opportunities of participating in another way.'*

Under the Planning and Building Act, public participation rules give individuals and organisations a right to take part in and to influence public investigation and decision-making processes. This means that the population of a society contributes to the planning of their own future (Kommunal- og moderniseringsdepartementet, 2014, p. 8).

Public participation is important because it is a basic premise of local democracy and gives the population an opportunity to play an active part in planning and decision-making processes. This serves to safeguard our shared values and basic living conditions in a sustainable society. Facilitating public participation is therefore vital to securing a well-working and effective planning process (Kommunal- og moderniseringsdepartementet, 2014)..

Public participation has two main functions: everyone who will be affected by the plan (directly or indirectly), must be given an opportunity to provide input to improve the plan. Additionally, important knowledge must be obtained from residents and others who are familiar with the area.



Public participation has two main functions. First, everyone who will be affected by the plan (directly or indirectly) must be given an opportunity to provide input to improve the plan. Second, important knowledge must be obtained from residents and others who are familiar with the area. Affected parties may include: registered land owners, tenants and lease holders, neighbours and other stakeholders (local community associations and third-sector organisations like the Norwegian Federation of Organisations of Disabled People, the Norwegian Association of Disabled, the Norwegian Association of the Blind, the Norwegian Association for the Hard of Hearing, the Norwegian Society for the Conservation of Nature, the Norwegian Cyclists' Association, the Norwegian Trekking Association, the Norwegian Sports Council, the various local councils for persons with disabilities, senior citizens, and young people).

Public participation is also about a transfer of empirical knowledge. Developers and planners will never be in possession of all the facts about local circumstances. It is therefore important that those who will be affected by a transport project provide their input. Few planners know how it feels to be affected by an impairment, or to live life with a disability. In our experience, plans are often improved if the affected parties take an active part in the planning process. This input may refer to anything of importance to the design of transport developments, such as road alignments and the location of picnic sites, bus stops, local access routes and parking facilities, urban squares, meeting places, footways and cycle paths, noise reduction measures, crossing points, and access to public offices.





## 3.1 Different levels of public participation

Different kinds of public participation are needed depending on the project's overall objective. The government's guide on public participation in planning processes refers to *circles of influence* to describe the range of participation initiatives that gives influence in planning:

**The smallest circle (1)** shows facilitation of information, which can be made available without other subsequent facilitation measures than the announcement of the planning process, for instance through a notification that a planning process will commence and by making the documents available for public viewing. These two measures will satisfy the minimum requirement for public participation under the Planning and Building Act.

**Circle (2)** illustrates collection of information. It includes an open process and greater opportunity to participate by contributing to the collection of knowledge and providing a broader basis for decision-making. This could include the framework set by overarching plans for the project, place analysis, and whether there are previous public participation processes – that can inform the current project.

**The next circle (3)** shows a variety of communicative and engaging dialogue-based public participation methods that increase the opportunity to influence. For example, this could involve information meetings, workshops, open office days, Kids' Tracks, or the use of visualisation tools. In the authors' opinion, this is where active participation happens.

**Circle (4)** shows situations where the level of influence is at its strongest – achieved through cooperation and close interaction with other affected parties, for example through various local councils. In accordance with the need to balance the principles explained in Chapter 3 of the Guide, a broad planning process will normally move between the circles.

A more detailed description of methods and good examples of participation are provided in the appendix to the government's guide 'Public Participation in Planning': '*Overview of methods*' ([Kommunal- og moderniseringsdepartementet](#))

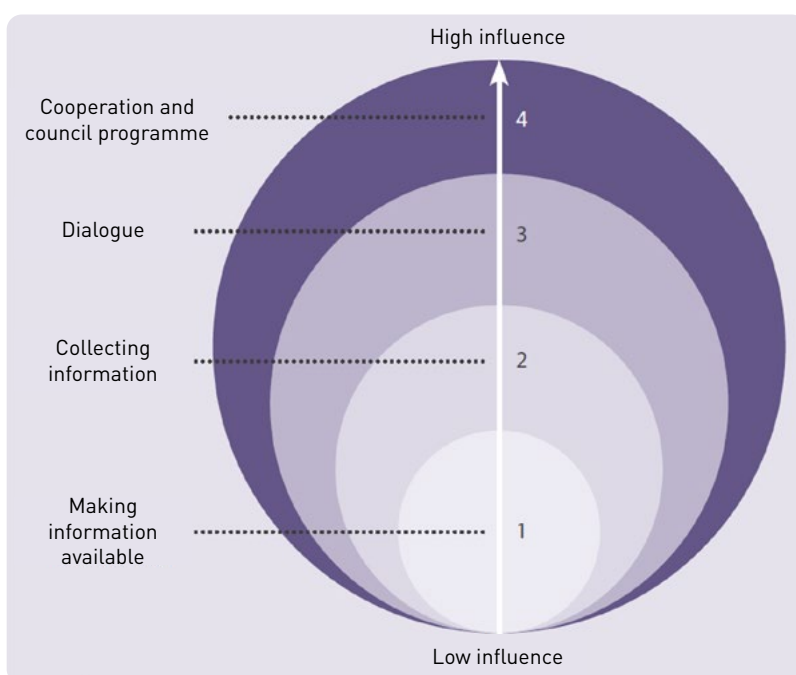


Figure 6 – The circles of influence (Kommunal- og moderniseringsdepartementet, 2014, p. 23).

The illustration shows that different planning methods provide different opportunities for involvement and influence in the planning process.

## 3.2 Challenges to effective public participation in transport planning

If the legislation calls for public participation and good guidance is available, then why is it so difficult to achieve? And why is it so rarely appreciated that public participation has a genuine impact on the end product? There may be several reasons, and some of them are discussed in this chapter.

### Time

There is often a great deal of enthusiasm at the beginning of a project. Over time, the progress plan catches up with the process and it becomes difficult to follow up on public participation initiatives. Figure 7 below illustrates how opportunities to influence, and costs, relate to the various planning phases, from the municipal sub-plan to the zoning plan and through to construction and operation. The figure shows us that the opportunity to influence projects is greatest early in the process. The earlier the input from affected stakeholders, the greater their prospect of influence. Closer to the construction phase, the prospect of exerting influence is much smaller. At that point, solutions have already been chosen, and any changes may give rise to significant cost increases. At the early stage of the planning process, costs are lower and the details have yet to be determined. According to the graphs, there are no major cost increases involved with changes proposed in the earliest planning phases.

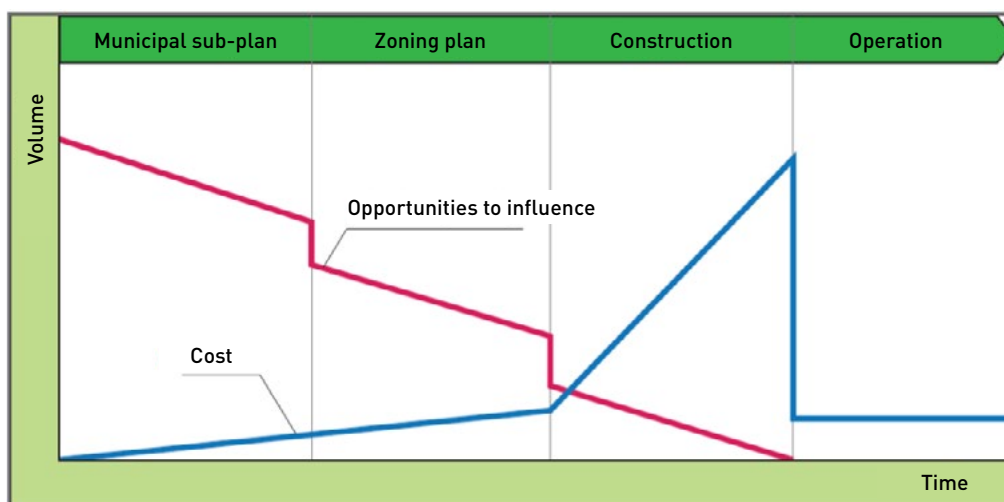


Figure 7 – Opportunities to influence, and costs, set against time (Multiconsult Norge AS).

Public participation takes time. Conducting public participation, and implementing such input in the end result, is a time-consuming process. Short deadlines are not uncommon in transport projects; submissions must be made in time to be scheduled for political debate, or to secure funding. Meetings and conversations that are conducted in writing, particularly with non-professional contributors, are perceived as hurdles that delay the process. However, in terms of total time spent and the overall finances of the project, it will normally be beneficial to spend a little extra time on public participation at an early stage in the process.

The councils that represent people with disabilities possess important expertise, and there should be more of an onus on planners to be tapping into this, where appropriate. It is however important to keep in mind that familiarity with current legislation and requirements is a responsibility that rests with the planners. As





representatives of their respective organisations, individual councillors will draw on their own experience and that of others, but their levels of expertise and experience will differ.

Another challenge is that inadequate and poorly coordinated public participation can lead to unexpected objections and protests based on misunderstandings. It can be challenging to incorporate important input at a later stage in the process, when the solutions have started to take shape. This can prolong the planning process, and the final outcomes may be less than satisfactory for the various stakeholders. Ultimately, this can undermine the public's trust in the planning tools, the process and the stakeholders involved.

## Budgetary constraints

Budgetary constraints are often cited as the reason why public participation processes are kept to a minimum, even though it pays in the long run to invest more time at the beginning, as shown in Figure 7. In the authors' experience, the available budget is sadly a frequent constraint when developers chose which public participation process to implement. Compliance with the minimum requirement under the Planning and Building Act often ends up as the favoured option. The measures that are chosen may well save money in the short term, but it would have been possible to arrive at much better solutions that would have saved more money in the longer term. For this to happen, funds must be set aside in the planning process to prepare for and hold public meetings, organise open office days or conduct meetings with special interest groups. Time and human resources must also be assigned to the important task of summarising and discussing public participation input.



In many transport projects, public participation gives rise to expectations that measures will be implemented beyond the immediate scope of the carriageway or route alignment project, such as footways and cycle paths, squares, or shortcuts to bus and tram stops. Also, stakeholders often tend to hope for a higher quality in the development than what the developer had originally planned for, e.g. natural stone paving slabs rather than tarmac, better lighting or landscaping. Because the money assigned to the development is primarily earmarked for road purposes, qualities beyond the purely technical are often discarded. Users may therefore end up not using developments that are both safe and technically sound if they are felt to be unwelcoming and uninviting. On other occasions the intentions are good. The plans incorporate qualities that welcome people and make users feel safe, such as meeting places with benches and landscaping, good lighting, opportunities to rest along footways and cycle paths and the use of aesthetically pleasing materials.

Closer to the construction phase, the project may have overrun its budget, and as a result, costs must be cut. More often than not, it will be the qualitative measures that are sacrificed. Public participation outcomes may be discarded, and people may feel cheated.

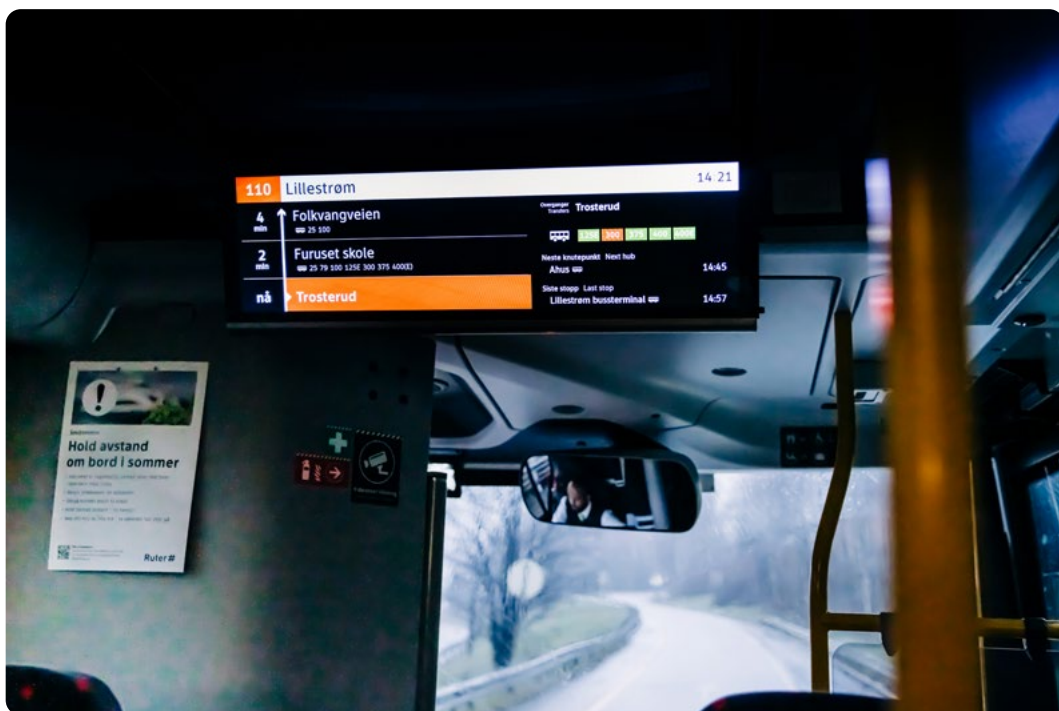
## Opportunities to influence

Transport projects involve many people, some of them developers, some professionals, others 'just' regular citizens. Different stakeholders exert different types of power and influence. This can affect their ability to express their views, both in terms of making their opinions understood and not least in terms of substantiating them with authority.

Figure 7 shows that the opportunity to influence is greatest in the early stages of a transport project. Such projects often focus solely on planning for roads, and the initial emphasis is on engineering issues. The road engineers' plans may well be quite advanced by the time public participation starts, perhaps not until the consultation phase of the zoning plan. Most people tend not to have the competence required to challenge the technical specifications that road engineers base their arguments on. When public participation is introduced at the very end of the process, it can be difficult to take account of important considerations and rectify any non-conformances identified. By that point, the project has advanced too far to go back and make changes without incurring major costs or suffering other consequential impacts.

## Conflicting interests

Local engagement in planning is welcomed, but it can be challenging to deal with many different opinions about content and design. For example, there may be a conflict between the development and soil protection objectives, or between the universal design needs of different interest groups. Measures that are intended to ease access for wheelchair users, like gentle gradients on access routes to bus stops, can be challenging for people with balance problems. For them, access is simpler if there are steps with handrails on both sides. Audio announcements of upcoming bus stops is perceived as unnecessary noise by some passengers. However, for the visually impaired who travel by bus on their own, it is an essential measure that gives them equal access to public transport services. There will always be conflicting interests between different user groups. It is therefore important to listen to everybody's views, and to prioritise the weightiest points made. It is also important to give reasons for decisions, so that the parties properly understand the choices made.



## 4. Recommendations for zoning plan processes that focus on universal design and engaged public participation



This article sheds light on the complexities and challenges associated with implementing effective public participation processes in transport projects, with the aim of improving access and user-friendliness. According to the government's guide '[Public Participation in Planning](#)' (Kommunal- og moderniseringsdepartementet, 2014), 'there is not one separate method which is "the best one" in all planning contexts'. This is because it depends on the context of the process. The type of plan and its purpose, the planning phase, and the stakeholders and interest groups involved will all be important factors. Changes that arise during the planning process may also trigger a need to adapt the chosen methodology.

Nevertheless, the authors wish to provide some recommendations for how to implement a zoning plan process:

### ***The leader of the planning process must establish a shared understanding of the objectives and facilitate effective collaboration***

The objective for the planning process must be defined as early as possible. The project will have a firm foundation if procedures are put in place to secure effective collaboration with the relevant public bodies (local and regional authorities, the Norwegian Public Roads Administration, the county governor, the port authorities, the Norwegian Water Resources and Energy Directorate etc.) and sufficient involvement of politicians and decision-makers along the way. If all parties have a shared understanding of the overall objectives, they will take ownership of the planning goal. This will engender effective interaction between the parties and avoid a battle to gain acceptance for their views. This can be achieved by giving an early presentation to the regional planning forum (meeting of all central and regional government agencies to discuss planning proposals and give a steer to local authorities or the developer), but the planning process must have progressed to the point of having specific measures that the different agencies can consider and respond to.

### ***Early dialogue with stakeholders and affected parties***

The complexity of the plan to be developed will determine which affected parties and stakeholders must be identified. Who is the end user? A stakeholder analysis will highlight who will be directly impacted and who will only be affected indirectly (there is a special responsibility to ensure the active participation of children, young people, the elderly, people with disabilities and ethnic minorities, see Section 5-1 of the Planning and Building Act). Notification that the planning process is about to commence should be directed at the widest possible target group and announcements of the process should be adapted to the intended target group. The earlier public participation activities beyond the minimum requirements are started, the more effective this involvement will be.



***Leader of the planning process must create a positive framework for the project***

Under our discussion of opportunities to influence, we pointed to vast differences as regards power and influence. There are also significant differences between the various actors' competence, capacity and resources. It is the responsibility of the leader of the planning process to look after the interests of all actors and to make sure that the power balance never tips in any one direction. This means that the choice of arenas for involvement and public participation is important for the various actors' opportunity to influence. The goal, purpose and premise of the planning process must be established in advance, and everyone involved must be familiar with it. What planning themes are up for discussion must be clear (see next paragraph), the roles of the different actors must be unambiguous, and each planning phase must be given a scheduled time slot. If these matters are clarified at an early stage, the participants will have realistic expectations of the process.

Because many people lack the technical expertise required to read planning maps and zoning regulations, it is important that high-quality information material is created that properly reflects the level of detail that the project team has been working on. This material must be designed in a way that makes it understandable to non-specialists and shows stakeholders and interest groups what physical results they can expect. For the visually impaired, it is important that the planning documents are universally designed because this means they can be read aloud by a screen reader program. According to the Agency for Public Management and eGovernment, 'a universally designed electronic document is therefore a document that can be read by all, irrespective of the reader's functionality, assistive tools and software. In this context, "all" refers to the computer programs that will be processing the documents as well as the people who will be reading them' (Difi, 2010). For the hard of hearing, it is important that the arenas for dialogue and interaction are fitted with a teleloop system, or that a sign language or speech-to-text interpreter is provided. People with cognitive challenges need a simple description of the planning measures, for example through a physical or computer animated model. Good and understandable sketches, drawings, models, pictures and graphics are required to give all affected parties a better basis for considering the proposals.



### ***The right knowledge at the right time in the planning process***

Several planning themes affect people's everyday lives, and it is therefore important that input is provided through a public participation process. Affected areas may include outdoor leisure activities, ancient monuments and heritage sites, soil resources, transport needs, public health, accessibility, provisions for children and young people. Once the project has a defined framework, public participation activities can commence, using methods that are suitable for the particular target groups.

- **Making information available**, for instance by public announcement, letter, posts on the local authority's website or by using mass media and digital social platforms.
- **Collecting information**, for instance by analysing local interest groups and actors. This can include place analysis, surveys, interviews, consultation responses and social media.
- **Dialogue**, for instance by organising public meetings, open office days, Kid's Tracks, Youth Tracks, walks with e.g. senior citizens or ramblers' associations, using social media like Facebook or Instagram, brainstorming sessions or future workshops.
- **Cooperation**, for instance by conducting meetings with local councils for young people, senior citizens, and people with disabilities, and with community interest groups, parent teacher associations or local businesses.

Depending on the level of impact the plan will have on the various themes, a suitable public participation plan must be drawn up to ensure that the planner will receive input at the right point in the process.

For example, better coordination of transport modes can be achieved in relation to parking for town bikes and e-scooters near bus and tram stops, railway stations and express boat jetties after receiving input from users of these services. If the input is given at an early stage, the associated costs can be kept at a lower level than if it comes towards the end of the process, when the impact will be more extensive. A plan should also be drawn up for evaluating and discussing alternative proposals that may be put forward during the process, as well as a visual or written summary of all the proposals.

A new national tool has been introduced to assist with the transfer of experience from user groups to planners. Citizens' Tracks is a digital guide designed to help local authorities, developers, planners and designers to conduct better public participation programmes as required under the Planning and Building Act, and to add value to local community development (DOGA, 2019).

### ***Councils for people with disabilities are important partners***

Planners carry professional responsibility for ensuring that all groups are heard. Users who sit on councils for people with disabilities can be invited to give their input to the planning process. Their task is to point out challenges, wishes, needs and functional requirements based on their experience. They are important actors in terms of collecting information. The user is the amateur, and the planner is the professional who will ultimately have to decide how to prioritise any conflicting user needs.

An important concluding reflection: Users who contribute to the process are expected to get involved 'everywhere' and to voluntarily give their time and knowledge for free. Other actors who work on the project (architects, engineers, landscape architects, etc.) are paid. Should this be changed?

## 5. Challenges on the way to good solutions



### 5.1 Administrative challenges and bureaucracy

Universal design is implemented through the *principle of sector responsibility*. This means that each sector (ministry and directorate) is responsible for universal design within its designated domain. Therefore, the Ministry of Transport, the Directorate of Public Roads and the various transport agencies ([Norwegian Public Roads Administration](#), [Bane NOR](#), [Norwegian Coastal Administration](#)) share responsibility for universal design in the transport and public transport sectors. Each of the three transport agencies has a set of universal design requirements that must be met through measures implemented within their specific area of responsibility. These requirements are additional to the ones specified in the TEK17 building regulations. It can be something of a challenge that concepts and terminology vary across the ministries and directorates involved, and that there is no uniform interpretation of the legislation. The Norwegian Public Roads Administration specify their requirements in their own handbooks, while Bane NOR has published a handbook specifically for railway stations: [Håndbok for stasjoner](#) (Jernbaneverket, 2014).

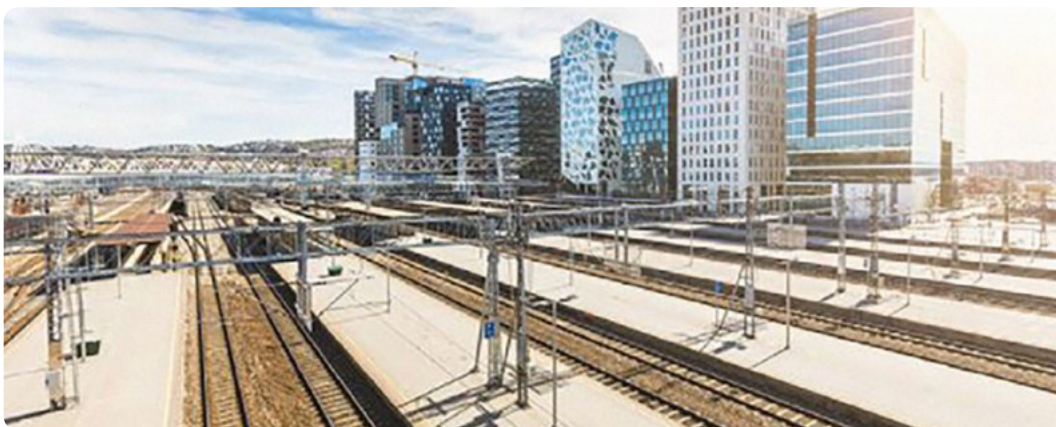


Photo: Håndbok for stasjoner, Bane NOR

Major transport projects often have clear and specific tasks they are supposed to solve, and this is what defines the scope of the project. In order to restrict this scope, the corridors for development are often narrow. It is easy to understand the desire to get as much road as possible for the money, but as planners we often feel that the transition between the new road and its surroundings ends up being less than satisfactory. Linking up new and existing infrastructure is often challenging and sometimes we may even find that there is no link between a new main artery and an existing street in the city centre.

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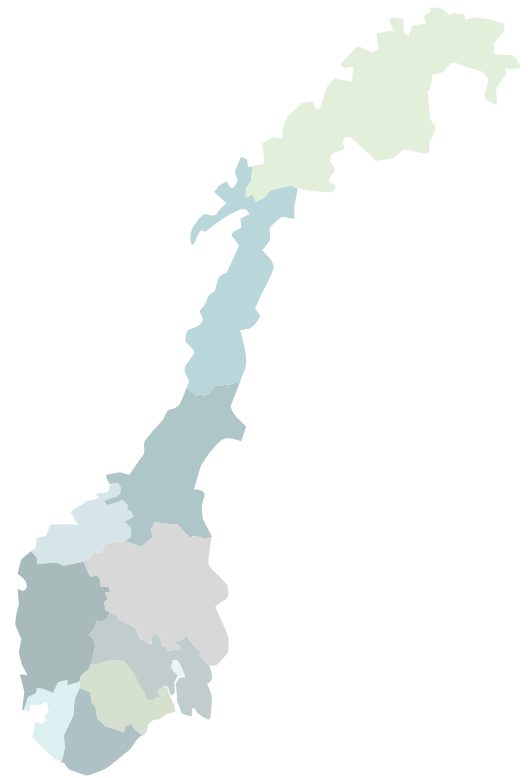
*'It is a familiar problem that footways and cycle paths are built alongside new roads, but that they come to a sudden end where the new road links up with the existing road.'*

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It is a familiar problem that footways and cycle paths are built alongside new roads, but that they come to a sudden end where the new road links up with the existing road. This may be because the areas and feeder roads between new and existing transport developments are owned by local authorities or private entities. This may give rise to extra planning work and higher costs for which there is no budget available under the project. If there is no link between new and existing systems for soft road users, this will have a particularly severe impact on people with impaired orientation or mobility.

Local, regional, and central government should develop a more effective system of interactive working, so that they can work in closer partnership than what is currently the case on plans for areas where all parties are served with high-quality, unifying solutions. This will ensure that no areas are left with poor or non-existent access to transport infrastructure (such as bus stops, footways and cycle paths) because they are located outside the boundaries of the planning area that falls within the remit of the relevant developer/planning authority. In the interest of totality, it is important to develop a system at government level that clarifies who has the coordinating role for universal design. This is particularly important with a view to the National Transport Plan's objective of making complete journey chains universally designed.



To meet challenges associated with administrative and bureaucratic processes, it is important that leaders of planning processes are competent facilitators of effective communication and interaction between all the parties involved. Planners need to be able to speak the technical jargon of the experts but must also be able to talk in a language that is understood by 'the man in the street'. Good results depend on good dialogue.

## 5.2 Topography and climate

In Norway, land use plans deal with dramatic topography, extreme and changeable weather and local variations. For example, steep gradients and winter maintenance are recurring challenges for which there are no one-size fit all solutions. Solutions that work well on the west coast will not necessarily work well in the eastern parts of the country, or in the far north. For solutions to continue to work well around the clock and throughout the year, it is important that they are simple to service and maintain. Such solutions must be identified at an early stage of the project. Footways that zigzag to



accommodate height differences in the terrain, can also be a challenge because they may involve unattractive landscape interventions. If such interventions are planned for at an early stage, their negative aesthetic impact can be lessened. It may even be possible to construct a flight of steps as a shortcut for those who face challenges in taking a long detour to get from one level to another.

Building transport systems that are suitable for *all people* is a major challenge, but this is nevertheless what planners must aim for as we move towards the goal of creating developments that are **usable for most people**. Unfortunately, it is not always feasible to fully address the challenges presented by Norway's rugged topography and variable weather conditions through planning. If it is the goal of all planning and design efforts to create a product that is useful to the end user, and if the end user is understood to be '*all persons as far as possible*' as per the UN Convention (FN, 2013), then it may perhaps be possible to encompass 'all people' after all? Universal refers to what "generally applies", and universal is not about all people being the same, but about designs that can serve as large a diversity of users as possible (Lid, 2013).

The picture below shows a square in Oslo: Schandorffs plass (Figure 8). A meandering walkway with incorporated meeting places in a modern parkland setting, providing a pleasant link between the streets of Fredensborgveien and Akersgata.



Figure 8 – Schandorffs plass, Oslo. Photo: Maritrm (Wikipedia, 2010)

The square is in frequent use by members of the local community for lunch breaks and informal meet-ups, or for taking a bike ride or a stroll with a pram, walker or wheelchair. There is a 7-metre height difference between the two streets, which demonstrates that it is possible to achieve good solutions for challenging urban spaces. The footway gradients are 1:15 and 1:20 (which meets the requirements), and there is a level rest area for every one metre the slope rises. This gives users of manual wheelchairs a break on the way up or down. The square also includes an example of how steps (to the left) and a ramped footway can work as equal solutions for those who move through the area. The visually impaired are guided through the space by natural guide lines. In this instance, guidance fencing has been used, along with a clear contrast between the paving and the kerbs on the adjacent spaces.

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*‘As we move towards the goal of building transport systems that are suitable for everybody, we seek to create developments that are usable to most people.’*

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Although the picture conveys the appearance of an idyllic space, there are challenges with heavy snowfall in winter, poor snow clearance and slippery surfaces underfoot. This could have been solved, for instance, by installing underground heating to melt the snow and ice. It is normally much easier to identify what is missing, and what does not work well, after a development is completed. However, this clearly illustrates that project evaluation is an important part of the process of making transport infrastructure more universally accessible. The lessons learnt from these experiences can help to inform and improve other projects.

**To achieve universal design in zoning plans, planners have various tools available to them, such as:**

In respect of physical factors, there are three groups of instruments:

- Physical size and space for movement
- Information (through the senses; vision, hearing, touch, balance, smell, taste, and in respect of cognitive capabilities; sensory perception, awareness, concentration, memory, logical thinking skills, problem-solving and language)
- Avoiding materials that may cause problems

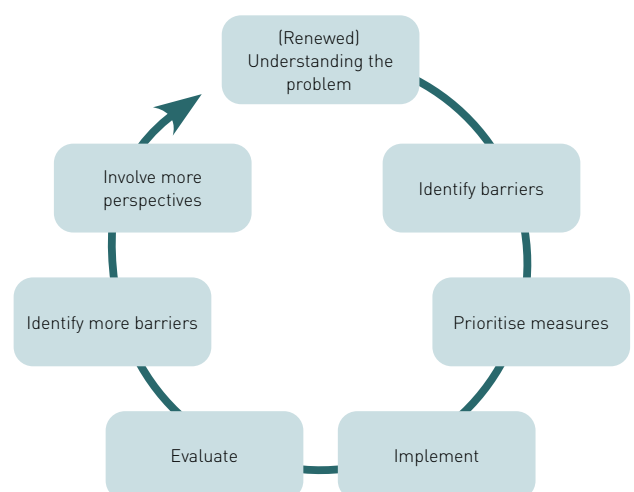
Use the seven principles of universal design, with guidelines, as a checklist:

- Equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, and size and space for approach and use (Lid, 2013, p.65)

Manual V744 about objections in land use planning (Statens vegvesen, 2018)

## 5.3 Technology is advancing too fast for planning to keep up

New technologies, transport modes and mobility solutions are continually being developed, bringing ever new benefits and challenges. It can be hard for both planners and planning to keep up to date with these developments. To address these challenges, it is useful to ‘identify more barriers’, which is one of the steps referred to in Figure 5. What would be the implications if more autonomous (driverless) vehicles were introduced in our cities? What infrastructure adjustments and road services would be needed to exploit the opportunities that this new technology represents? If autonomous vehicles can replace private cars in towns and cities, large



areas that are currently set aside for parking could be repurposed. This will help enable planners to design towns and cities where transport systems, public services, residential and commercial areas are better coordinated. Parking areas can, for example, be used to provide better facilities for pedestrians and cyclists. The use of autonomous vehicles may, however, increase road traffic and thereby add to the congestion.

## 5.4 Temporary obstacles

Apart from all the things that we can plan for and regulate, temporary obstacles can also give rise to challenges. These are often things that planners have no control over, like the seasonal street furniture of outdoor restaurants, benches and advertising boards. Randomly parked e-scooters that frequently fall over are the latest problem. The main challenge created by e-scooters is that they are left in pedestrian zones. They are therefore considered a hazard by the visually impaired and represent an obstacle for anyone pushing a pram or using a walker or wheelchair. It is important that pedestrian zones are kept free of obstacles.



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*‘Challenges represented by temporary obstacles, like the many e-scooters, can be addressed either through dialogue with the various stakeholders or through public regulation.’*

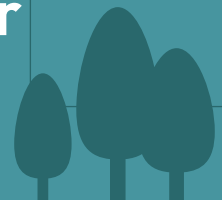
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Challenges represented by temporary obstacles, like the many e-scooters, can be addressed either through dialogue with the various stakeholders or through public regulation. There are already regulations in place pertaining to wall zones and furniture zones, but despite this, the challenges have not disappeared: outdoor dining facilities pop up every spring, and some advertising boards will inevitably be put in an unfortunate position. It is the authors’ opinion that the primary aim should be to ensure that all stakeholders receive correct information: that pedestrian zones must be kept free of traffic. The subsidiary aim is to initiate a dialogue in order to arrive at good, innovative solutions.





## 6. Conclusion: Universal design – for diversity and equal opportunities for participation in society



Several new guides have been introduced for zoning plan processes, such as a step by step guide for drawing up good zoning plans, [Steg for steg – veien til gode reguleringsplaner](#) (Bygg21, 2019). As mentioned in Chapter 4, Design og arkitektur Norge (DOGA, 2019) has launched a national participation platform (Citizens' Tracks), and Oslo local authority has created its own guide on public participation in submitted zoning plans, [Medvirkning i innsendte reguleringsplaner](#) (Oslo kommune, 2019). This confirms the authors' own experiences of the complexity and challenges of achieving successful planning processes and public participation. However, it is possible to develop good practices, as indicated in Section 4.

In zoning plan processes, it is crucial to take the time to explore the possibilities for various different alternatives to a solution. If user participation is integrated from the very start of the process, it gives scope to investigate whether changes can be implemented that best address the input received. At the very least, an attempt should be made to address the intention behind the input. The key to success lies in a shared understanding of the goal, which is for designs to be aimed at the broadest diversity of users as possible. In doing so, participation becomes a tool for safeguarding inclusion and a means to achieving a society characterised by equality and equal opportunities (Lid, 2013).



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*'When considering universal design in a long-term perspective, sustainability is the key to viability. Effective, robust solutions that are both used and maintained are sustainable.'*

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Choosing effective, adapted solutions and durable, recyclable materials can help ensure ecological and economic sustainability in projects.

For instance, well-designed access roads to bus stops will help to increase usage while simplifying servicing and maintenance. Universally designed bus stops can enable more people, regardless of their disability, to meet and take the bus to work or participate in leisure activities with others.



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*'Meeting places, such as squares, urban spaces or benches that welcome people, contribute to social sustainability.'*

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In combination, this can contribute to greater freedom, a better quality of life and increased participation in social environments.

The authors recognise the need for a change in attitudes if we are to achieve the UN's principle of 'Leave no one behind'. Unfortunately, people with disabilities are still being discriminated against every day. To combat this, it is essential that everyone involved in planning and designing transport facilities is able to **identify with the users**, thereby creating space for the diverse population. We must adhere to laws, regulations, guides and manuals, but it is crucial to see the requirements in a broader context. Instead of sticking to minimum requirements and being satisfied that all the points on the checklist have been ticked off, we should, where possible, strive for even better solutions than those described in the applicable laws and regulations. Universal design is more than a minimum standard for technical solutions.

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*'Universal design is more than a minimum standard for technical solutions.'*

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In order to create a more inclusive, equitable and sustainable transport system, both public participation and universal design are essential tools for ensuring that everyone can participate in society, and that no one is left behind. Not forgetting SDG 17: Partnerships for the goals.

## 7. Suggestions for further reading

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Hansen, G.S. (2013). Medvirkning – med virkning? *PLAN*, 2013 (3), 18-23, <http://www.allgronn.org/stedskraft/medvirkning-med-virkning.pdf>

Knudtzon, L. C. (2018). *Kan vi snakke om medvirkning? : sivilsamfunnets innflytelse og bidrag i reguleringsprosesser* (Philosophiae doctor (ph.d.) avhandling, Norges miljø- og biovitenskapelige universitet, <https://nmbu.brage.unit.no/nmbu-xmlui/handle/11250/2588673>

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Tennøy, A., Øksenholt, K.V., Fearnley, N. & Matthews, B. (2013). *Evaluering av standarder og praksis for tilrettelegging for synshemmede i transportsystemet*. (1260/2013). <https://www.toi.no/publikasjoner/evaluering-av-standarder-og-prak-sis-for-tilrettelegging-for-synshemmede-i-transportsystemet-article31781-8.html>



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